

Network Information Book

Adelaide Metro

Mile End (inc) to Bolivar (inc) and Dry Creek to Outer Harbour

OGW-30-08

Applicability

Interstate Network

Publication Requirement

Internal / External

Primary Source

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5.0	19 Mar 2024	Configuration Management Administrator	Corridor Assets & Operational Representatives	Configuration Manager	Head of Operations Standards

Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
1.0	16 Oct 2015		Initial issue
1.1	30 Aug 2017	Various	General information sections Index to CoP and diagram legend updated. Additional text added to Dry Creek location for dewatering pump and safety interface agreements information included. Mile End and Torrens Junction text updated and various diagram corrections.

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2.0	25 Jun 2018	1.7, 1.11, 2.1, 2.2, 2.4.1, 2.7 & 2.10	Level crossings and structure clearance tables updated. Mile End text updated with count down boards & crank handle details. Torrens Junction text updated with gauge separation project changes. Dry Creek South text updated to remove broad gauge references. Port Flat text updated to include over height detector details. Mobil Siding shunt movement details updated. Corrections to various diagrams.
3.0	9 Apr 2020	Various	Adjacent Train Control Centres section 1.4 updated. Mile End to Dry Creek level crossings table section 1.7.1 updated. Mile End location section 2.1 updated. Wye Cabin Access road level crossing details added in section 2.1.1. Islington location section 2.3 updated. Outer Harbor Line Section 3 heading added. Port Flat location section 3.3 updated. Port River Bridge section 3.4.6 updated. Mobil Siding location section 3.6 updated. Osborne location deleted. Mile End to Dry Creek North and Gillman Junction to Pelican Point diagrams updated including merger of Largs North Crossover and Osborne diagrams.
4.0	4 Jan 2021	1.7, 1.13, 2.4, 3.2, 3.3.1, 3.4 & 3.5	GWA references updated to One Rail Australia. Dry Creek North access road added to section 1.7 & diagram. Over Height Detectors added to Wayside Equipment section 1.13. Gillman Junction & Port Flat Yard details updated in sections 3.2 & 3.3.1. Port River bridge details updated in section 3.4. Birkenhead signalling information added to section 3.5. Dry Creek, Dry Creek North, Gillman Junction, Port Flat & Largs North diagrams updated.
4.1	11 Jun 2021	1.5, 1.14, 3.9	Adjacent Train Control and Wayside Equipment sections updated. Islington, Gillman Junction & Pelican Point Loop diagrams updated. Usage note added to all diagrams.
4.2	19 Jan 2022	1.1, 1.5, 1.8, 1.18, 2.1, 2.2, 2.3, 2.4, 3.1, 3.4, 3.5, 3.9	Board Extent, Adjacent Train Control Boards, Level Crossing table and drawing legend updated. Islington & Dry Creek locations updated. Port Flat & Birkenhead dual gauge references removed. Pelican Point standing room updated. GSR & PTS references updated. Various diagrams updated.
4.3	24 Nov 2022	1.2, 1.5, 1.8.1, 1.12, 2.2, 2.4	Board Extent, Level Crossings table, Structure Clearances and Mile End to Islington diagram updated. One Rail Australia references updated to Aurizon.
5.0	19 Mar 2024	1.1, 1.8, 2.2, 2.3, 2.4, 2.5, 2.6, 3.7	Board Extent, Level Crossings table and Islington text updated. Dry Creek North Junction and Bolivar locations moved from West CTC NIB. Mile End, Islington and Dry Creek diagrams updated. Willochra Street level crossing requirements added to Largs North text.

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1 General Information

1.1 Km Points and Standing Room Lengths

NOTE: The km point listed for assets on the network are measured between the nearest, lower km post and the asset.

If there is a km post located between the assets, the next asset is measured from that next km post.

Standing room distances for crossing locations and sidings have been measured separately.

1.2 Board Extent

Mile End to Bolivar and Dry Creek to Outer Harbour / Pelican Point.

Operational Boundary

Signal 1 Mile End 4.055km to Signal 24 Bolivar 32.601km to Port Flat inclusive 56 Signal (East Leg) 6.740km and 55 Signal (West Leg) 6.955km to Signal 94E Pelican Point (Flinders Ports) 15.010km and Signal 94 Pelican Point (QUBE) 15.009km.

This area is controlled by Adelaide Metro Network Controller, Network Control Centre West (NCCW).

Contact Numbers:

Phone: (08) 8152 8011

Emergency: (08) 8152 8071

Train Transit Manager: (08) 8152 8020

TTM Emergency: (08) 8152 8080

1.3 Safe Working System

Centralised Train Control (CTC)

Interface procedures are documented for the various locations that ARTC network control interfaces with Keolis Downer control or the entrances to yards owned by the train operators.

1.4 Applicable Rules

The CoP and ARTC Addendum apply to the sections covered by this Information Book

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G		
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H		
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W		
Warning device - locomotive	5.5	
Warning device - locomotive - failure	5.5.2	
Warning device - locomotive - normal use	5.5.1	

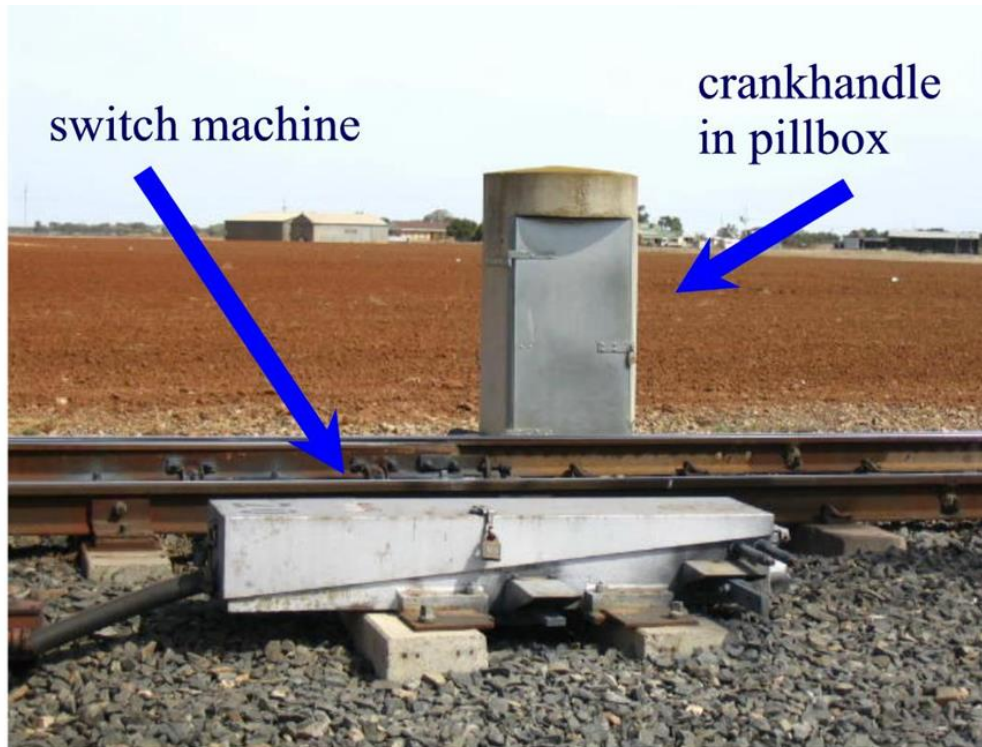
Warning signs	Nil	33
Whistle sign - gang	Nil	33.1
Work train working in section	3.20.	
X		
Y		
Z		

1.5 Adjacent Train Control Boards / Centres

ARTC South CTC	(08) 8152 8009	Emergency	(08) 8152 8069
ARTC West CTC	(08) 8152 8007	Emergency	(08) 8152 8067
Aurizon	(08) 8343 7732		
	(08) 8343 7730		
	(08) 8262 5424		
DIT – Keolis Downer			
Belair	(08) 7201 5009		
Seaford	(08) 7201 5011		
Outer Harbour	(08) 7201 5008		
Gawler	(08) 7201 5010		
Area Control	(08) 7201 5018		
Shift Manager	(08) 7201 5016		

1.6 Section Operating Equipment

1.5.1 Motorised Point Machines



M70 points machine as used in Metro Area.



McKenzie & Holland Dual Control Points Machine



S Lock

Motor/Hand Lever

Normal/Reverse Lever
(for use in hand mode)

Hand

Motor

Reverse

Normal

1.7 Train Braking Requirements

Train braking and holding test are covered in the CoP and can be found by using the CoP and addendum index, however these are included here for quick reference.

BRAKE HOLDING TESTS FOR THE REARMOST VEHICLES (RETENTION TESTS)

The following apply:

1. The operator **shall** put into place systems for conducting brake holding tests.
2. The number of vehicles (or for articulated or permanently coupled vehicles the number of triple valve control units) required to conform to the requirements of this sub-section shall be:
 - a. Three (3) for freight trains operated in New South Wales;
 - b. Two (2) for freight trains not entering New South Wales; and
 - c. One (1) for all passenger trains where a guard is provided or three (3) for passenger trains without guards.
3. The vehicle operator shall ensure that air and hand brakes operate correctly.
4. The air brakes on the vehicles **shall** remain effectively applied for a period of time, based on train length, considered sufficient for a member of the train (locomotive) crew to reach the vehicles and secure handbrakes in the event of a breakaway en route.
5. This time **shall** be ten (10) minutes plus three (3) minutes for each 100 metres or part thereof of train length. For example, a train 1240 metres long will require a holding (retention) time of $13 \times 3 + 10 = 49$ minutes.
6. If any of the required number of vehicles (as specified in item (2) above) fail the above test (as specified in item (5) above), generally known as a holding or retention test, the faulty vehicle(s) **shall** be repaired or the train remmarshalled to ensure compliance with the requirements of items (3) and (4) above.
7. Brake holding tests successfully completed will remain valid for the departure within a period of 24 hours from completion of the test. After that period, the vehicles **shall** be re-tested.

FREIGHT TRAINS

On freight trains, the maximum number of inoperative or isolated brakes permitted on a train **shall** be either of the following:

1. One conventional two-bogie vehicle for every ten (10) vehicles in the train where the vehicle is isolated as a unit.
2. One bogie for every ten (10) bogies in the train where individual bogies can be isolated or the isolation of triple valve control units affects more than two (2) bogies. This applies, only on the proviso that the total un-braked mass of the train **shall not** exceed 10% of the total train mass (excluding the mass of the hauling locomotives).

Item (1) above applies where the only vehicles isolated are conventional two-bogie vehicles. In all other cases, the requirements of item (2) **shall** be followed.

For the purposes of this clause, a four-wheel (two-axle) vehicle **shall** be counted as one bogie, and locomotives under power **shall not** be counted as train vehicles.

1.8 Level Crossings

ALCAM ID is the number allocated from the Australian Level Crossing Assessment Model used by rail and road managers across Australia. It's a national database for assessing risk which is overseen by a National Committee and supported by the Rail Industry Safety Standards Board (RISSB).

1.8.1 Mile End to Dry Creek

NOTE: Pedestrian crossings activated by axle counters between Mile End and Islington will be ignored by Hi-Rails and vehicles with 3 or less wheels.

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
2331	Mile End Service LX	Adelaide - Crystal Brook	0.950	Road	Private	
2295	James Congdon Drive - Mile End Station	Adelaide - Crystal Brook	1.535	Pedestrian	Public	Maze
965	WYE cabin access	Adelaide - Crystal Brook	2.371	Road	Private	Locked Gates
P17	West Parklands Pedestrian Xing	Adelaide - Crystal Brook	3.367	Pedestrian	Public	Automated Gate
P27	North Adelaide Station Adelaide end	Adelaide - Crystal Brook	3.852	Pedestrian	Public	Automated Gate
5	Hawker Street	Adelaide - Crystal Brook	4.409	Road	Public	Half Boom Flashing Lights
P47	Ovingham Station Adelaide end	Adelaide - Crystal Brook	4.973	Pedestrian	Public	Automated Gate
P48	Ovingham Station Gawler end	Adelaide - Crystal Brook	5.117	Pedestrian	Public	Automated Gate
36	Belford Avenue	Adelaide - Crystal Brook	5.921	Road	Public	Half Boom Flashing Lights
1993	Dudley Park Station Adelaide end	Adelaide - Crystal Brook	6.209	Pedestrian	Public	Maze
1994	Dudley Park Station Gawler end	Adelaide - Crystal Brook	6.353	Pedestrian	Public	Maze
35	Pym Street	Adelaide - Crystal Brook	6.637	Road	Public	Half Boom Flashing Lights
1995	Pym Street	Adelaide - Crystal Brook	6.651	Pedestrian	Public	Maze
P67	Islington Station Gawler end	Adelaide - Crystal Brook	7.425	Pedestrian	Public	Automated Gate
13	Cormack Road	Adelaide - Crystal Brook	11.367	Road	Public	Half Boom Flashing Lights
0716	Dry Creek Yard Access Road	Adelaide - Crystal Brook	13.710	Road	Private	Half Boom Flashing Lights
	Dry Creek North Access Road	Adelaide - Crystal Brook	14.440	Road	Private	Locked Gates
	Greenfields Station Adelaide End	Adelaide - Crystal Brook	16.914	Pedestrian	Public	Maze

	Greenfields Station Gawler End	Adelaide - Crystal Brook	17.100	Pedestrian	Public	Maze
P167	Parafield Gardens Station Adelaide End	Adelaide – Crystal Brook	17.977	Pedestrian	Public	Automated Gate
	Parafield Station Gawler End	Adelaide – Crystal Brook	19.296	Pedestrian	Public	Maze
17	Kings Rd	Gawler Central Line	19.322	Road	Public	Half Boom Flashing Lights
	Kings Road Parafield	Adelaide – Crystal Brook	19.350	Pedestrian	Public	Maze
P188	Chidda Station Adelaide End	Adelaide – Crystal Brook	20.240	Pedestrian	Public	Automated Gate
P197	Chidda Station Gawler End	Adelaide – Crystal Brook	20.440	Pedestrian	Public	Automated Gate
P198	Brown Terrace / Banks Street	Adelaide – Crystal Brook	21.070	Pedestrian	Public	Automated Gate
	Park Terrace Salisbury	Adelaide – Crystal Brook	21.642	Pedestrian	Public	Lights & Gate
26	Park Terrace Salisbury	Adelaide – Crystal Brook	21.655	Road	Public	Half Boom Flashing Lights
	Park Terrace Salisbury	Adelaide – Crystal Brook	21.669	Pedestrian	Public	Lights & Gate
	Bagster Road Salisbury North	Adelaide - Crystal Brook	23.485	Pedestrian	Public	Maze
74	Bagster & Diment Road Salisbury North	Adelaide - Crystal Brook	23.496	Road	Public	Half Boom Flashing Lights
	Bagster Road Salisbury North	Adelaide - Crystal Brook	23.505	Pedestrian	Public	Maze
2215	Edinburgh Road Direk	Adelaide - Crystal Brook	26.597	Road	Public	Half Boom Flashing Lights
718	Helps Road RAAF Access	Adelaide - Crystal Brook	27.358	Road	Private	Stop Signs
21	Heaslip Road Direk	Adelaide - Crystal Brook	28.651	Road	Public	Half Boom Flashing Lights
721	King Road Virginia	Adelaide - Crystal Brook	32.493	Road	Public	Half Boom Flashing Lights

1.8.2 Dry Creek to Outer Harbour

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
16	Magazine Road North	Dry Creek - Outer Harbor	0.545	Road	Public	Primary Flashing Lights
62	Magazine Road South	Dry Creek - Outer Harbor	0.274	Road	Public	Primary Flashing Lights
949	Access Road Bishop Loop	Dry Creek - Outer Harbor	1.069	Road	Private	Stop Signs and locked gates

14	South Road	Dry Creek - Outer Harbor	1.924	Road	Public	Half Boom Flashing Lights - (duplicated)
1698	Hanson Road North	Dry Creek - Outer Harbor	3.582	Road	Public	Half Boom Flashing Lights - (duplicated)
946	North Arm Road	Dry Creek - Outer Harbor	4.243	Road	Public	Primary Flashing Lights
183	Eastern Parade	Dry Creek - Outer Harbor	4.967	Road	Public	Half Boom Flashing Lights
184	Bedford Street	Dry Creek - Outer Harbor	5.515	Road	Public	Half Boom Flashing Lights
15	Francis St	Dry Creek - Outer Harbor	6.126	Road	Public	Half Boom Flashing Lights
1888	Perkins Drive	Dry Creek - Outer Harbor	6.718	Road	Public	Half Boom Flashing Lights
2363	Pivot Access Road	Dry Creek - Outer Harbor	6.728	Road	Private	Flashing Lights
1887	Eastern Parade - Grand Trunkway	Dry Creek - Port Flat	6.732	Road	Public	Half Boom Flashing Lights - (duplicated)
177	Stirling Street	Dry Creek - Outer Harbor	8.087	Road	Public	Half Boom Flashing Lights
954	M Berth	Dry Creek - Outer Harbor	8.772	Road	Public	Half Boom Flashing Lights - (duplicated)
959	Caltex Main Entrance	Dry Creek - Outer Harbor	9.321	Road	Public	Half Boom Flashing Lights
178	Willochra Street	Dry Creek - Outer Harbor	9.881	Road	Public	Half Boom Flashing Lights
962	Penrice Soda Main Entrance	Dry Creek - Outer Harbor	11.767	Road	Public	Half Boom Flashing Lights
963	Hamilton Avenue	Dry Creek - Outer Harbor	12.040	Road	Public	Half Boom Flashing Lights
180	Veitch Road	Dry Creek - Outer Harbor	12.997	Road	Public	Half Boom Flashing Lights
181	Pelican Point Road	Dry Creek - Outer Harbor	14.896	Road	Public	Half Boom Flashing Lights

1.8.3 Private Siding Level Crossings Wingfield

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
12	Railway Terrace	Dry Creek - Outer Harbor	3.299	Road	Public	Stop Signs
106	Cormack Road	Dry Creek - Outer Harbor	3.548	Road	Public	Primary Flashing Lights

1.8.4 Private Siding Level Crossing Mobil Siding

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
957	Elder Road / Jetty Road	Dry Creek - Outer Harbor	9.091	Road	Public	Stop Signs

1.9 Emergency Local Releases

Nil

1.10 Maximum Permitted Speeds and Permanent Speed Restrictions

Refer the Route Access Standard - Defined Interstate Rail Network Section Pages D4 for all speed information.

1.11 Maximum Train Length

The maximum train length is 1800m.

1.12 Structure Clearances

Refer Route Access Standards for Rolling Stock Outlines.

KM	Structures Mile End to Dry Creek	Height
0.830	Sir Donald Bradman Drive Overbridge	7.000
2.050	Port Road Overbridge	5.220
4.090	Park Terrace Overbridge	5.750
4.987	Torrens Road Overbridge	7.100
7.450	Regency Road Overbridge	6.320
10.270	Grand Junction Road Overbridge	6.900
14.130	Port Wakefield Road Overbridge	7.000
14.130	(Over inlet to North Yard)	6.400
16.382	Mawson Lakes Overbridge (Elder Road)	7.100
KM	Structures Dry Creek to Outer Harbor	Height
1.924	South Road Superway Overbridge	7.100
6.099	Port River Expressway Overbridge	7.100
8.016	Adelaide Brighton Over Track Structure	7.100
8.064	Adelaide Brighton Conveyor Belt	7.029
8.266	Adelaide Brighton Conveyor Belt	7.029
8.489	Viva Energy Over Track Fuel Pipes	8.100

1.13 Communications

The National Train Communications System (NTCS) is the Primary communications system for the ARTC controlled rail network and is mandatory for all operators to operate their locomotives using a NTCS ICE (In-Cabin Equipment) Unit as the primary communications device.

A standard ICE unit is installed with the following components

1. Telstra NextG™ transceiver
2. Iridium satellite transceiver
3. UHF Radio
4. GPS

The ICE unit primary communications is via the Telstra NextG™ and backup communications is provided via the Iridium Satellite network. The ICE unit will automatically call the Mile End network control centre when the routine and emergency buttons are pressed.

The UHF radio is used for the Local train Radio - Train to Train and train to track Side communications.

UHF Local Train Radio (LTR) frequency details

Frequency: 418.425 MHz (UHF),

Bandwidth: 12.5 KHz,

EIRP: 41W (remote/low density areas), 8.3W (medium & high density areas)

Tx CTCSS: 162.2 Hz

Rx CTCSS: 162.2 Hz

Selcall: disabled

Alternate Communication for this section is by mobile or satellite phones.

1.14 Wayside Monitoring Systems

Over Height Detectors

- Islington South 7.438km
- Islington North 10.128km
- Gillman Junction - Port Flat 6.133km

1.15 Outlying Switch Locks & HLM Point Locks



Electric Points Lock



1.16 Ruling Gradients

Dry Creek to Outer Harbour	1 in 90
Outer Harbour to Dry Creek	1 in 70

1.17 Curve and Gradient Data

For all Curve and Gradient data, refer to the ARTC Internet.

https://extranet.artc.com.au/eng_network-config_cd.html

1.18 Drawing Legend

	Standard gauge track		Dual gauge track
	Broad gauge track		Crossover
	Advisory Sign or Location Sign		Tunnel
	Pedestrian Crossing		Passive Protection Level Crossing
	Active Protection Level Crossing – Flashing Lights		Active Protection Level Crossing – Lights and Boom
	Bridge or Overpass		Underpass
	River/Creek or Significant river bridge or Viaduct		Station or Platform
	Derail		Dual Control Motorised Points
	Point Indicator		Mechanical Frame
	Absolute Signals (Absolute signals in Victoria containing a 'P' on the name plate are co-acting signals)		
	Permissive Signals		Signal number reference
	Dwarf Signals		Banner Indicator
	Overheight Detectors		Wayside Equipment

2 Mile End to Dry Creek Locations and Sections Information

2.1 Mile End (MED)

Loop Standing Room:

- 1818m

Goods Siding:

- Yes. Single ended. Belair end access only
- Engineers Siding, 540 metres (ARTC owned)
- Perway Siding, 242 metres (DPTI owned) Department of Planning Transport and Infrastructure. (Leased by Rail Grinder)
- Siding 1, 470 metres (DPTI owned)
- Siding 2, 480 metres (DPTI owned)

NOTE: *Siding is not equipped with an Outlying Switch Lock. It has a switchstand only. The points may be reversed at any time but will “shunt” track circuit and put mainline signals to stop. There is a rodded derail attached to the switchstand. When shunting the siding train crews must ensure that the movement is clear of the derail before returning the points to normal.*

If the crossing loop track is dropped by other than a signalled move, for example a track machine, Signal 1 and 44 will not clear for the main line and 1L/S or 44L/S will have to be used for the next movement unless the track picks up first.

To allow freight trains to judge the distance to Signal 4 at Mile End count down boards are installed to assist Train Crews.

*Count down distance marker boards are installed on the Left hand side of the Standard gauge Main Line track at 400, 300, 200 and 100 metre points on the approach to Signal 4.

*Marker boards indicating the approach to Signal 4 at Mile End are installed between the Standard gauge main line and crossing loop tracks mounted on the same post as the distance markers located at 1000 metres and 500 metres from the signal.

Local Control Panel:

- Yes. In Mile End North relay room, no access to Train Crews.

Dual Control Point Machines:

- Yes

Crank Handles:

- South End – in grey/silver telephone cabinet on outside of white equipment huts adjacent 6 points under the APT access road overpass for 5 points access to Journey Yard only.

Generator:

- Yes. 100 litre tank and will last for approximately two days.

Mile End to Dry Creek Locations and Sections Information

Other Information:

Mile End is normally controlled by the Central (Metro) Network Controller, although responsibility for the issue of Train Authorities to pass absolute entering block signals 2, 4 and 4E lies with the South Network Controller as they control the entrance to the territory.

Signals 43 and 2 ex the Passenger Terminal will not clear until correct gauge discrimination is received.

Signals 1 and 44 will not clear into the passenger terminal until the Journey signalman provides the release.

Take off point for Hi-Rails on the main and loop lines are north of Hilton Bridge.

If signals 44 and 4 are cleared for the main line, then this will pole back and briefly drop signals 30 and 66 at Islington South even if the route is not set through Torrens Junction.

In the event of a “dead heat cross” admit the train from Belair first as there is approximately 560 metres to Leader Street, whilst there is approximately 2700m back to Hawker Street.

Mile End yard interfaces with the Journey passenger complex at Keswick.

See Interface Agreement IA 36 – note that under this procedure a passenger train destined for Keswick should not be advanced beyond Belair if the train cannot be admitted to the yard on arrival.

2.1.1 Wye Cabin Access Road

The Wye Cabin Access road is a bituminised level crossing across the ARTC mainline freight track (2.371km in the Mile End to Islington Section) and the Adelaide broad gauge passenger network Gaol Loop track (1.250 -1.310 km, currently decommissioned and disconnected). The crossing is an access point providing access between Gaol Road on the west side and the Gaol loop triangle on the East side. Both properties form part of the rail corridor and the crossing is not available for public use.

The crossing is occasionally used by ARTC maintenance personnel as a take-off point for Hi-Rail vehicles and by Keolis Downer personnel to access the Gaol Loop triangle area. This document details the configuration and required protection procedure for using the crossing, along with the maintenance responsibilities.

NOTE: Due to poor lines of sight of the track due to geometry and embankment issues the following applies:

Any movement that is required to cross both ARTC and Keolis Downer tracks must contact and obtain permission from both operators prior to opening either gate.

The use of the level crossing by pedestrian or vehicular traffic requires a TOA to be issued by the ARTC Network Controller.

Any Hi-Rail movement that is required to use the level crossing to either on or off track for the ARTC Standard Gauge track must contact and obtain permission from ARTC prior to opening the western side gate. The Hi-Rail operator must also be in possession of the appropriate Hi-Rail permission.

Configuration:

1. The crossing is blocked by Corridor Access gates on each side of the corridor.
2. Both Corridor Access gates are configured so inward swinging is not possible.

Mile End to Dry Creek Locations and Sections Information

3. The west access gate is secured with an ARTC 'S' Boyd lock.
4. The east access gate is secured with a Keolis Downer 'M' lock.
5. Warning signs are installed on the outside of each access gate containing the following text:

LIVE RAIL CORRIDOR - AUTHORISED ACCESS REQUIRED

BOTH ARTC NETWORK CONTROL & KEOLIS DOWNER TRAIN CONTROL MUST BE CONTACTED FOR ACCESS APPROVAL

ARTC NETWORK CONTROL - (08) 8152 8011

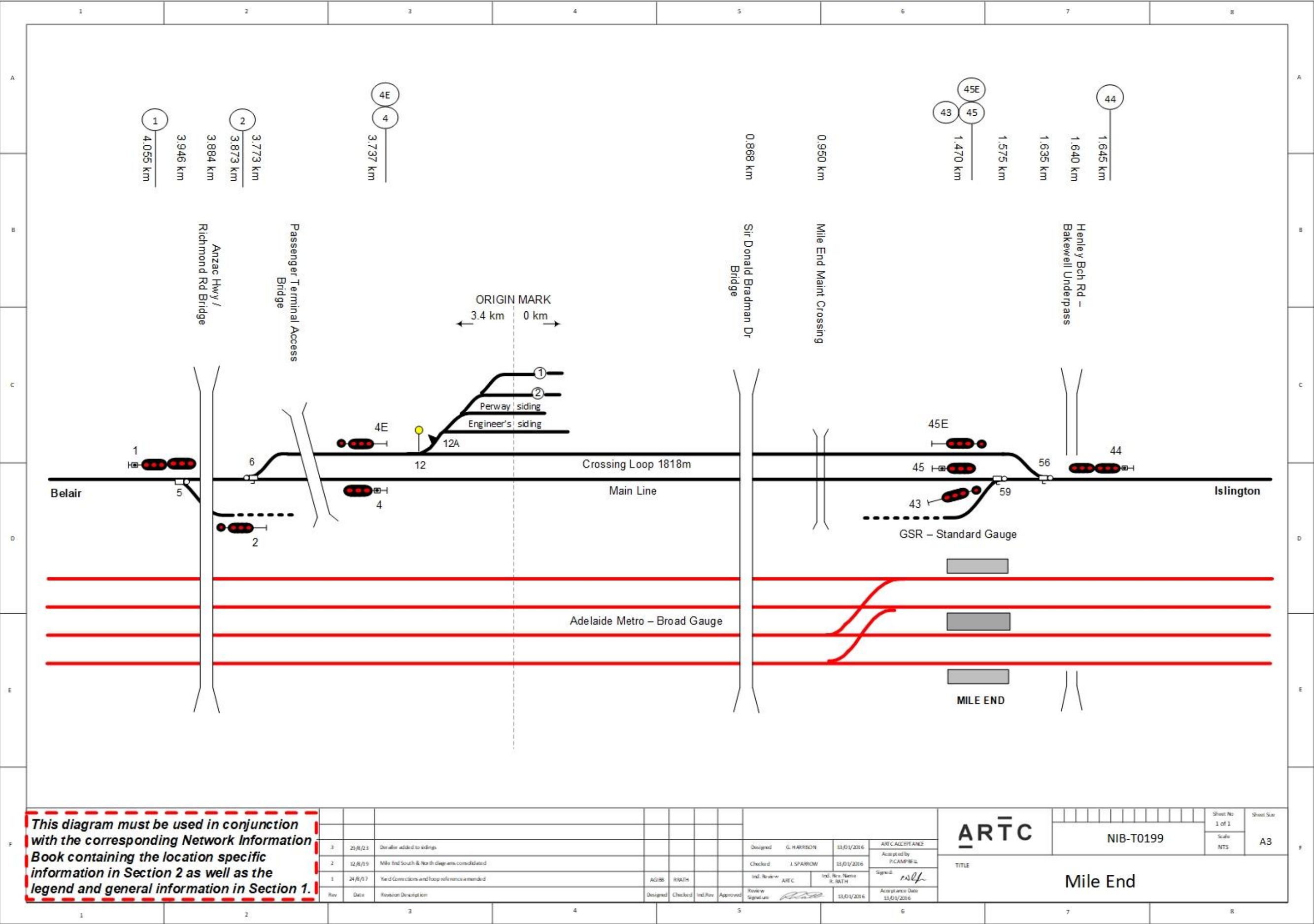
KEOLIS DOWNER TRAIN CONTROL – (08) 7201 5018

Procedure for Use:

1. Access is only permitted for ARTC and Keolis Downer personnel working under the protection of suitably qualified ARTC protection officer and where applicable, a suitably qualified Keolis Downer protection officer.
2. Both the ARTC Network Controller and Keolis Downer Train Controller shall be contacted prior to any opening of the access gates.
3. The protection officer shall obtain the appropriate level of protection as required by each of the networks.
4. The protection officer shall unlock the gates and regulate the movement of all vehicles and personnel.
5. The protection officer shall remain at the crossing until all movements are complete and both gates are secured and locked.
6. The protection officer shall contact both ARTC and Keolis Downer controllers and advise them that both access gates are secured and locked.
7. The use of the crossing by 3rd parties is only permitted subject to prior consent by both ARTC and Keolis Downer Infrastructure Managers.

Maintenance Responsibility:

1. ARTC will be responsible for maintaining the west side of the crossing from the halfway point between the ARTC and Keolis Downer track centrelines.
2. Keolis Downer will be responsible for maintaining the east side of the crossing from the halfway point between the ARTC and Keolis Downer track centrelines.



2.2 Torrens Junction (TJN)

Loop Standing Room:

- N/A

Goods Siding:

- N/A

Local Control Panel:

- N/A

Crank Handles:

- N/A

Other Information:

Torrens Junction is the point at which the ARTC Main Line from Mile End to Islington passes over the lowered Keolis Downer broad gauge double track to Outer Harbour.

Interface is governed by Safety Interface Agreement AG-SR-IC-018.

2.2.1 Operation of OOG Detection at Islington South

Operation of Over Height Detection at Islington and Signal AN22 Torrens Junction

2.2.1.1 Overview

Signal AN22 controls standard gauge movements at Torrens Junction from Islington towards Mile End.

The 'Over Height' detector set at 4.3 metres is located adjacent to Signal 33 at Islington South and is designed to detect the height of movements travelling between Islington toward Mile End and beyond.

The 'Over Height' detector is linked with the operation of signal AN22. If a movement is found to be over the allowable height, the detector will trip and signal AN22 will revert to Stop.

The location of the movement is displayed on the ARTC train control system along with any alarms generated by the 'Over Height' detector.

In addition, the ARTC network controller has the ability to bypass the 'Over Height' detector for main line passenger movements which in turn allows operation of signal AN22 and the provision to allow signal AN22 to display a 'proceed' aspect.

2.2.1.2 Normal Operation

When a movement is ready to depart Islington South either from the yard or along the main line the ARTC network controller shall operate the applicable signals in the normal manner.

Provided the movement meets the set height requirements the approach track circuit leading up to Signal AN22 will show 'occupied' when the movement reaches the approach track circuit in the normal manner.

The Over Height detector bypass function is setup for mainline movements only and is only to be used for passenger movements. In the event of two passenger trains crossing at Islington (utilising the Islington Terminal for this purpose) the northbound movement must travel via the Freight Terminal.

2.2.1.3 Over height Movement

When a movement is ready to depart Islington South either from the yard or along the main line the ARTC network controller shall operate the applicable signals in the normal manner.

In the event the 'Over Height' detector alarm on the ARTC network controllers signal control system indicates that a wagon is over the allocated height the ARTC network controller shall:

- Immediately contact the driver of the movement and advise of the circumstances and request the movement to stop.
- Request details of location of train and if any level crossings blocked.
- Immediately contact the Keolis Downer controller and advise of the circumstances also providing the location of the movement and if any level crossings are obstructed.
- Advise the Train Transit Manager of the circumstances.
- Advise the operator and request that the movement be inspected.

The Keolis Downer controller shall arrange for the drivers of all broad gauge movements passing the stationary movement of the circumstances and to proceed past the movement cautiously looking out for any qualified workers inspecting the stationary movement.

a. Movement Inspected, Not Over Height

If after inspection the movement is found not to be over height the ARTC network controller shall:

- Advise the Keolis Downer controller that the movement has been found not to be over height and that it may proceed in the normal manner.
- Select the "bypass reset" control on the Network Controllers signal control system.

This in turn will allow signal AN22 to assume a 'proceed' aspect.

b. Movement Inspected, Over Height

If after inspection the movement is found to be over height the ARTC network controller shall:

- Advise the Keolis Downer controller that the movement has been found to be over height and will not proceed.
- Arrange for the movement to either be hauled or pushed back to Islington South.

2.2.1.4 Clearing Section and Obstruction of Level Crossings

If the stationary movement is obstructing level crossings and it is likely that the inspection will result in major delays to road traffic, arrangements shall be made to provide a level crossing keeper to manage the road traffic, arrange for a locomotive to enter from the rear of the movement to haul it or to set the movement back toward Islington to clear the affected level crossings.

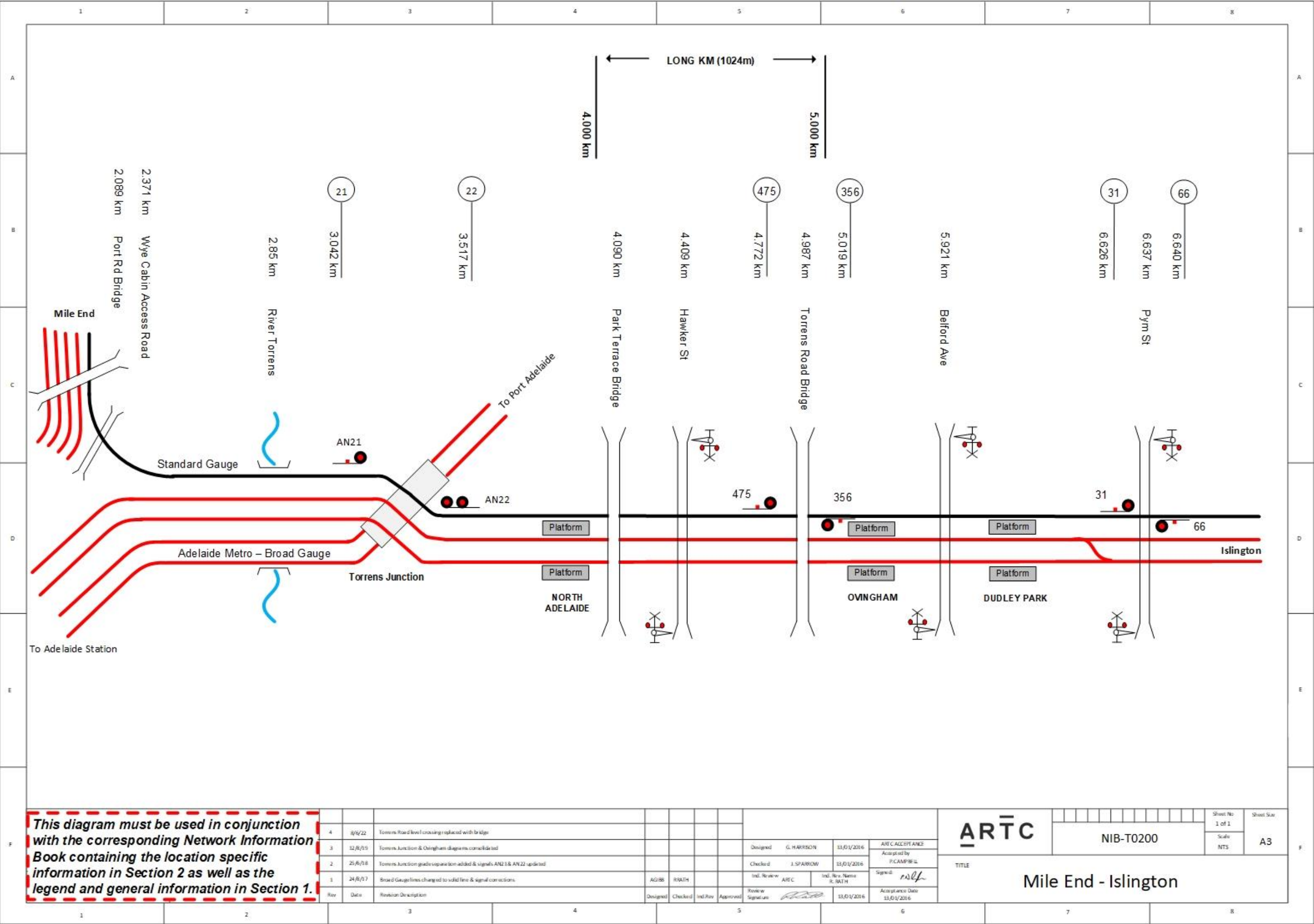
It is not desirable to divide a stationary movement over a level crossing due to parallel running of Keolis Downer Broad Gauge services.

Irrespectively Keolis Downer control shall be advised of delays and obstruction of level crossings who shall in turn advise drivers of broad gauge movements of the circumstances.

Movements to clear the crossing shall be in accordance with the procedures contained in the CoP.

2.2.1.5 Failure of Signal AN22

In the event that signal AN22 fails to display a 'proceed' aspect the ARTC controller shall provide the appropriate authority for the movement to proceed.



2.3 Islington (IFT)

Loop Standing Room:

- N/A

Goods Siding:

- N/A Pacific National Freight Terminal

Local Control Panel:

- In the relay room adjacent Signal 34. Not available for rail traffic crews.

Crank Handles:

- Yes
- The crank handles for emergency hand winding of points are at the relay room at the south end and in a pill box adjacent to #45 signal at the North end.

NOTE: A 20km/hr permanent speed sign is located adjacent to signal 32 to enable sufficient time to activate the pedestrian crossing at the station.

Other Information:

The Islington area covers the North and South access to the Pacific National Adelaide Freight Terminal (AFT) and the crossover from the mainline over the Trans Adelaide broad gauge main line and into the Islington Workshops. Where ARTC interfaces with Pacific National Adelaide and Keolis Downer, the requirements are detailed in the interface agreement IA10.

There are height detectors at both the north and south end of the terminal which are interlocked with signals at Torrens Junction and Dry Creek, depending on the direction of travel. The instructions for the South End OOG detector are contained in a train notice reproduced in the Torrens Junction section.

The double throw crossover points (6 and 6A) leading to the Islington Works are governed by a 'slot' arrangement. The ARTC controller requests the slot from the Keolis Downer controller when a movement is required to move between the ARTC Main Line and the Islington Workshops in either direction across the Keolis Downer main lines. Once the Keolis Downer controller has accepted the request from the ARTC controller for a movement to proceed to or from the works, points 6 and 6A will travel to the reverse position and the applicable signal (35 or 36) will show a proceed indication. Acceptance of the slot request by the Keolis Downer controller reverses the points. If a signal has been selected (stored), it will clear for the movement once the points are detected in reverse. Signals (35 and 36) are operated by ARTC control. In the event of the failure of these signals to clear for a movement over the crossover the authority to pass the signals at STOP is issued by ARTC control to the crew of the movement once the Keolis Downer controller has confirmed that the points are set and blocked in the reverse position.

Refer to ARTC / Keolis Downer Interface Procedure

The instructions for the North end detector are contained in the train notice reproduced below.

2.3.1 Operation of Over Height Detector Islington North

TN 814 / 2005 issued 11/5/2005 is effective Monday 23/5/2005

Operation of Over-Height Detector at Islington North

Effective Monday 23 May 2005 the following revised operation will apply for the Islington North over-height detector.

The Islington North height detector is connected to signals 25 or 27 at Dry Creek loop and will restore these signals to 'stop' should a movement not be at the designated height required for the movement.

The height detectors operation is coordinated with the route of the movement and the aspect displayed on signal 3 as follows:

2.3.1.1 Through West Bound Movement Via Main Line

If a through movement has been signalled from Islington North through Dry Creek and all signals are set to 'proceed' for the movement to proceed along the main line, and an over-height wagon is detected, an alarm will be indicated on the train control system. Additionally signal 25 will restore to 'stop' and signal 23 will restore to 'caution'.

Upon confirmation that the movement is not over-height the network controller may reset the alarm which in turn will allow operation of signal 25.

2.3.1.2 Through West Bound Movement Via Crossing Loop

If a through movement has been signalled from Islington North through Dry Creek and all signals are set to 'proceed' for the movement to proceed along the crossing loop, and an over-height wagon is detected, an alarm will be indicated on the train control system. Additionally signal 27 will restore to 'stop' and signal 21 will restore to 'caution'.

Upon confirmation that the movement is not over-height the network controller may reset the alarm which in turn will allow operation of signal 27.

2.3.1.3 West Bound Movement Entering Dry Creek Main or Loop

If a movement is entering Dry Creek and is not signalled beyond signals 25 or 27, and an over-height wagon is detected an alarm will be indicated on the train control system and the applicable signal along the route the movement is entering (25 for main and 27 for loop) will be secured at 'stop' and can only be operated provided the over-height alarm has been re-set.

2.3.1.4 West Bound Movement Approaching Signal 3 at 'Stop'

If a movement is approaching signal 3 at 'stop' and an over-height wagon is detected, an alarm will be indicated on the train control system however signals 25 or 27 will not revert to 'stop' nor will they be secured at the 'stop' position. The network controller shall not operate signals 25 or 27 until it has been first established that there are no over-height wagons on the movement.

2.3.1.5 West Bound Movement Entering Dry Creek Main or Loop On Low Speed Displayed On Signal 3

If signal 3 has been operated to 'proceed' by means of 'low speed' aspect and an over-height wagon is detected, an alarm will be indicated on the train control system however signals 25 or 27 will not revert to 'stop' nor will they be secured at the 'stop' position.

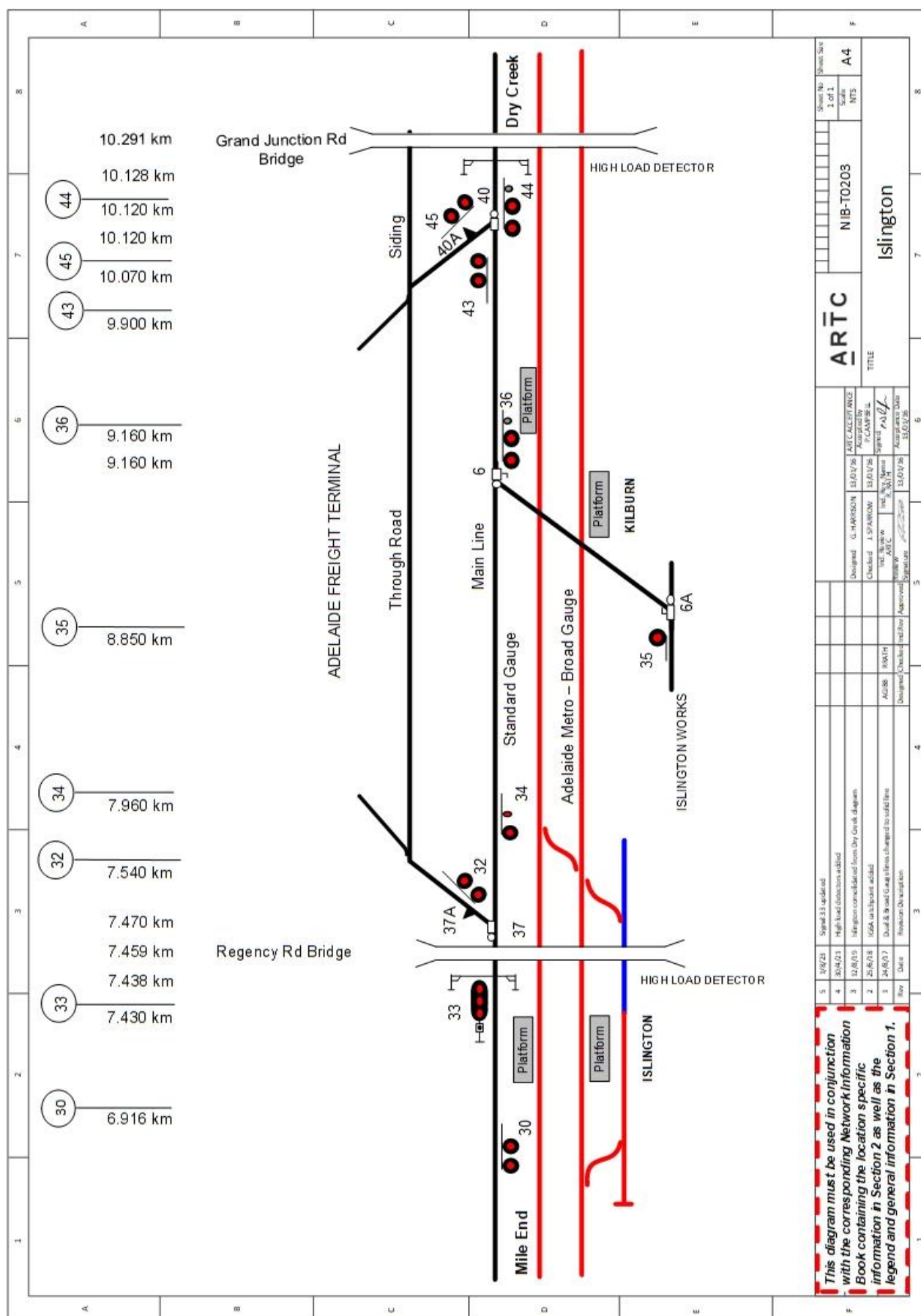
Whenever it becomes necessary to operate the low speed for a movement to enter the main or loop at Dry Creek, the network controller shall not operate signals 25 or 27 to proceed until the whole of the movement has cleared the over-height detector.

2.3.1.6 Other Routes

The over-height detector shall only be applicable to the routes indicated and will not be initiated for any other route other than to the main line or crossing loop at Dry Creek.

In all instances, should the network controller receive an alarm indicating an over-height movement, the network controller shall advise the relevant train operator who shall make immediate arrangements to either inspect the movement or to return the movement to the relative terminal.

Mile End to Dry Creek Locations and Sections Information



2.4 Dry Creek (DCR)

Loop Standing Room:

- 1844m

Goods Siding:

- Aurizon Marshalling Yards

Local Control Panel:

- In Dry Creek Cabin and Dry Creek North Junction Relay Room. A laptop can be plugged in in an emergency.

Crank Handles:

- Yes
- A crank handle is required to turn all points except 20 points which is dual controlled
- The crank handle is located in the Dry Creek signal cabin and can only be accessed by the Signal Maintenance Technician

Other Information:

An automatic dewatering pump is located at Port Wakefield bridge for use during significant rainfall events.

Where ARTC interfaces with Aurizon, the requirements are detailed in the Interface Agreement IA31

2.4.1 Dry Creek South (DJS, DJX, DJN & DCS)

The triangle at Dry Creek South is used to turn locos, mainly from the AFT. These moves must be made in a clockwise manner (from 3 signal round to 1 signal and thence to 16 or 16 E signal) or otherwise if a movement goes from 16 signal round to 1 signal on the Dry Creek loop signal 1 will not be able to be cleared as the movement will not have gauge discrimination.

2.4.2 Dry Creek Crossing Loop/ Motive Power Centre (DCX & MPR)

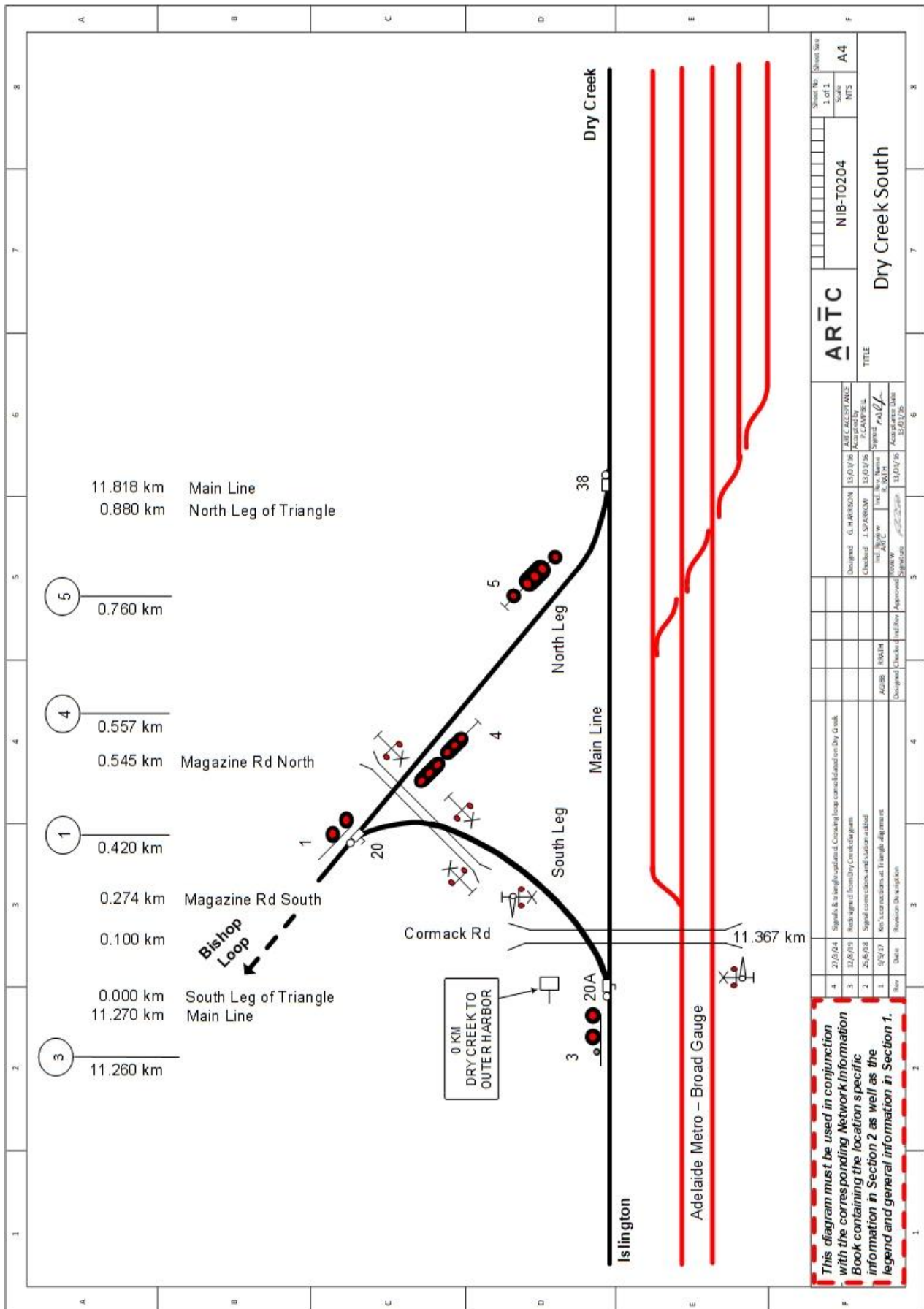
Crossing Loop length is 1844 metres. It is not advisable to hold trains on either the main line or crossing loop for long periods because of the risk of blocking access to the Motive Power Centre or the Dry Creek North yard. Care should be taken that over height vehicles are not routed into the Dry Creek North yard from the south end because the clearance under the Port Wakefield Rd Bridge is less than the main line clearance.

There are no crank handles for the points in this area.

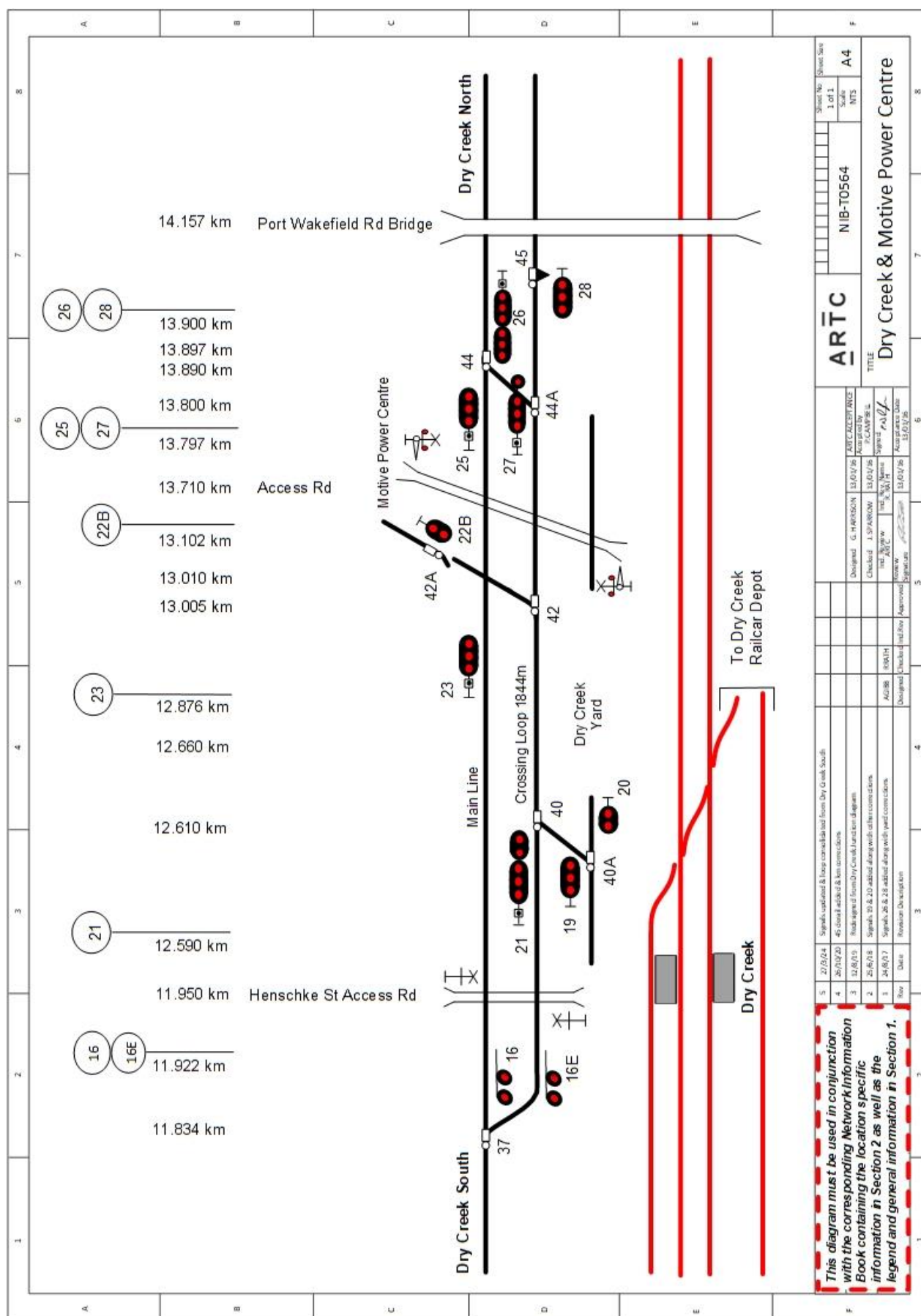
2.4.3 Dry Creek North Junction (DCR)

Local control panel with crank handle is provided in the relay room just north of 9 points at the Junction.

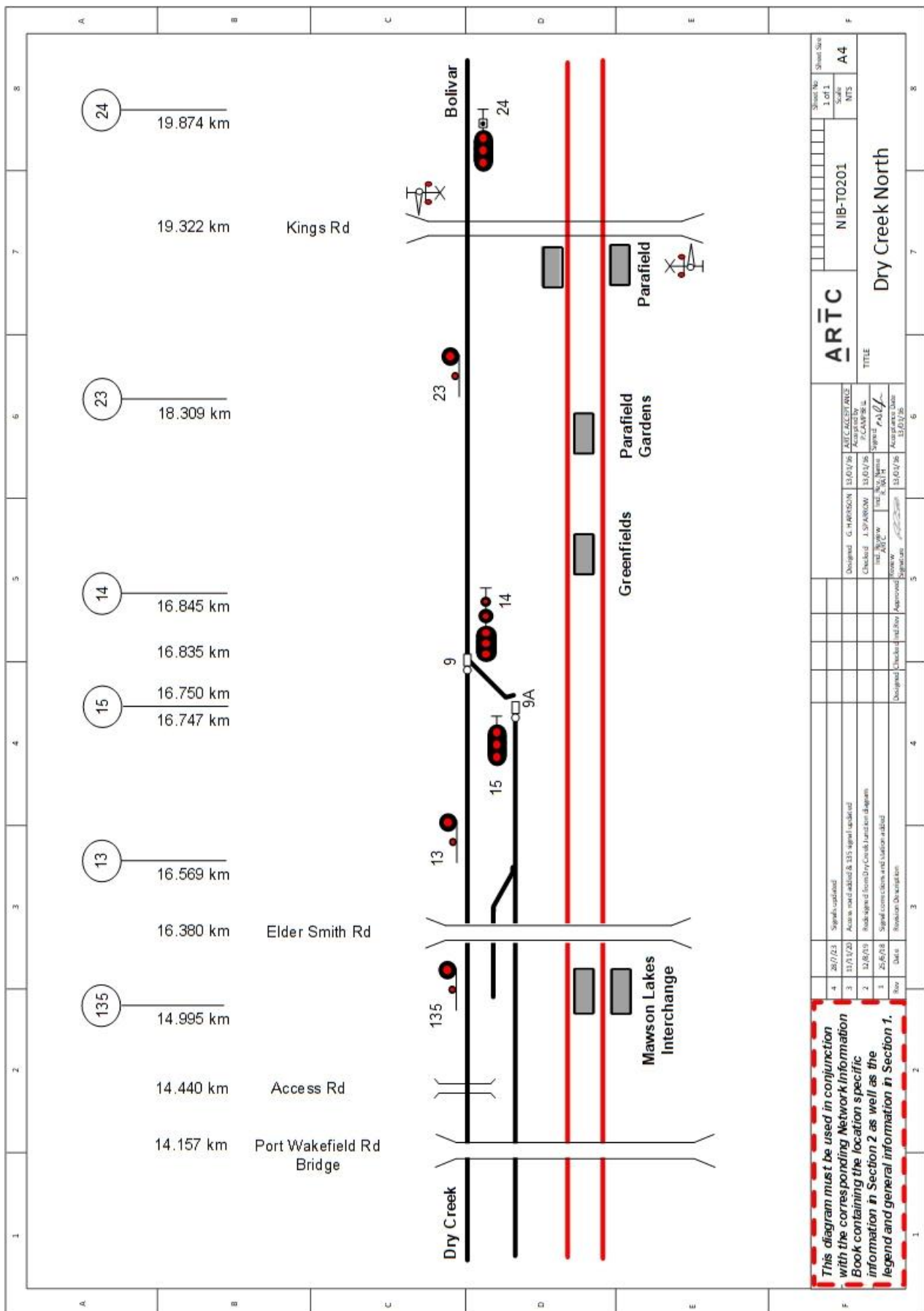
Mile End to Dry Creek Locations and Sections Information



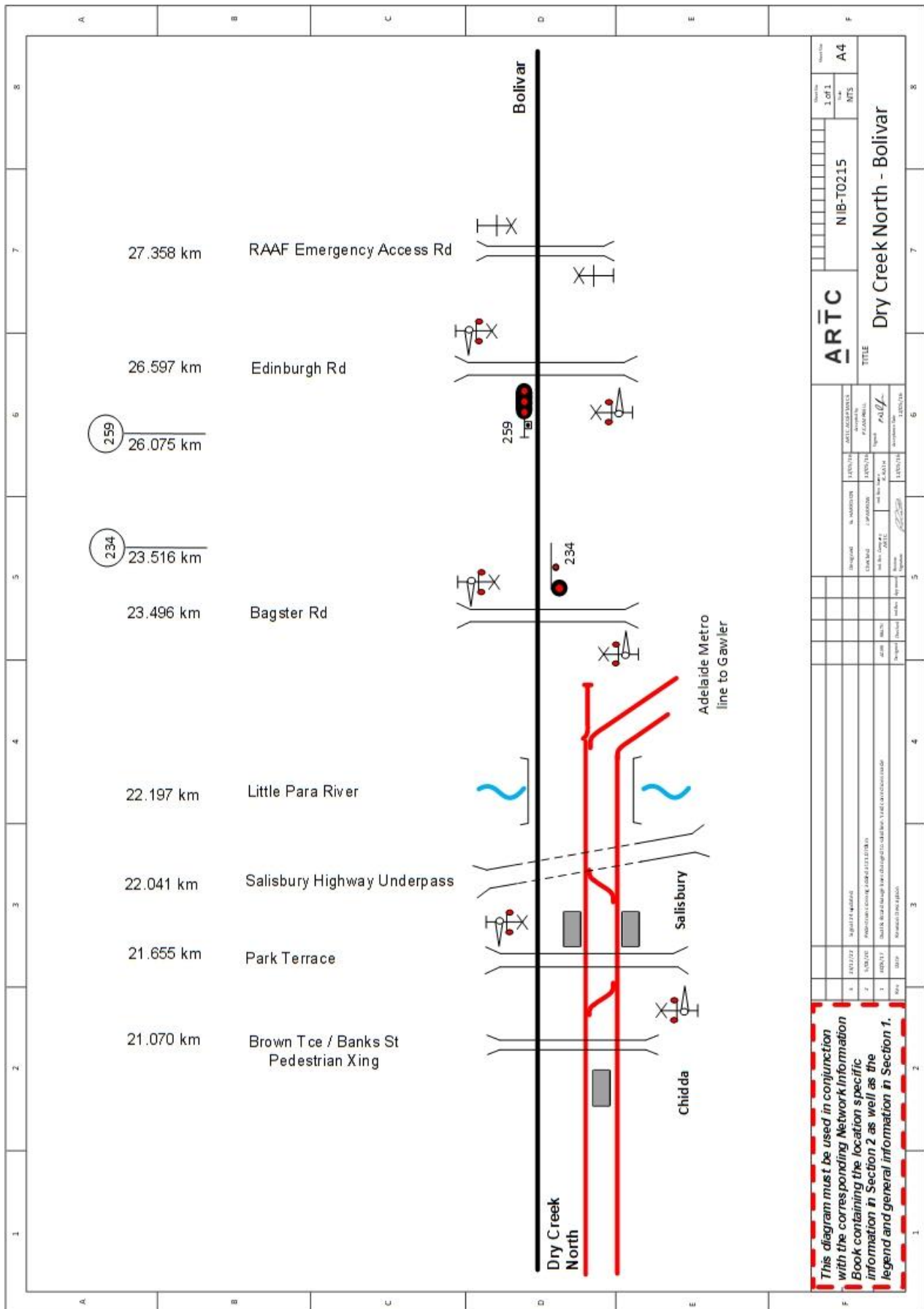
Mile End to Dry Creek Locations and Sections Information



Mile End to Dry Creek Locations and Sections Information



Mile End to Dry Creek Locations and Sections Information



2.5 Bolivar (BOL)

Standing Room:

- 1880m

Goods Siding:

- Yes - 550m (only 250m at the Northern end is suitable for use via 17 pts)
- Has a private siding leading from the goods siding controlled by a spring lever. ARTC property ends at the fence line on this siding.

Crank Handles:

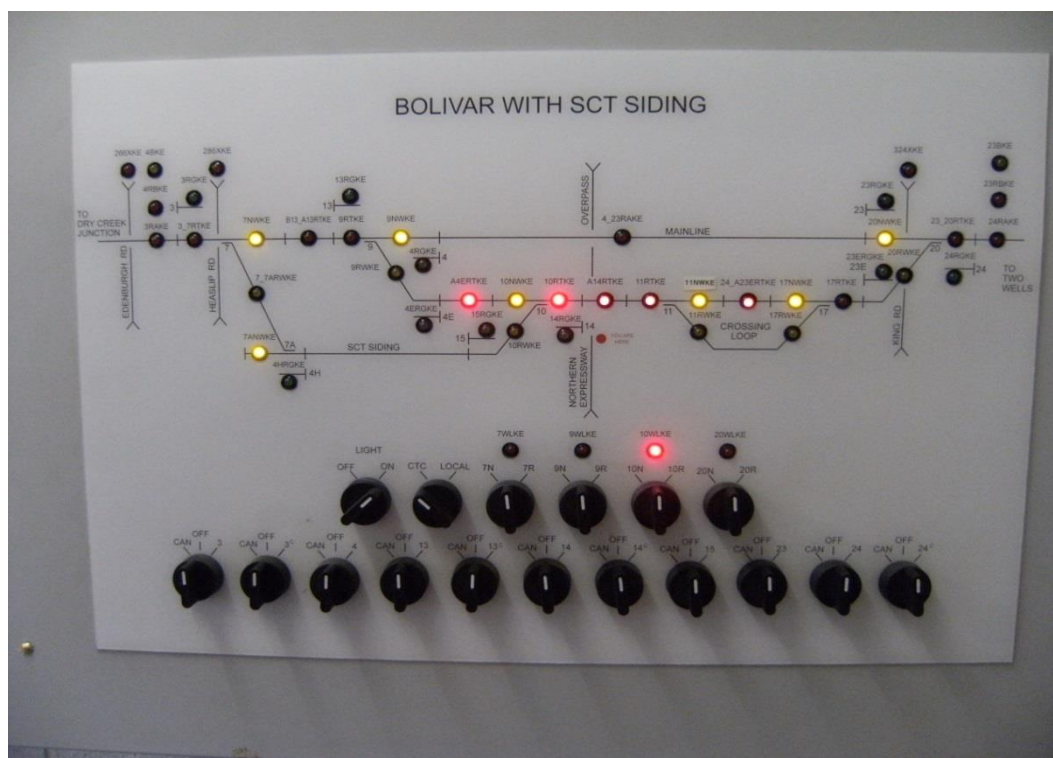
- In former telephone pill box at northern end of yard for 20 points only.
- All other point machines are dual control. (7, 7A, 9, 10 & 10A)

Local Panel:

- In relay room with OSL release.

Other:

- Yard has a protected level crossing at the northern end. If a north bound train is performing a shunt off the crossing loop into the goods siding through 17 OSL the loco must pull through past 23E signal to clear the OSL circuit. This will put it on the roadway.
- The SCT Siding has access points off the main line at the southern end and off the crossing loop on the northern end. Refer to interface agreement IA06 for further details.



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3 Dry Creek to Outer Harbor Line Locations and Sections Information

3.1 Bishop Loop (BSP)

Loop Standing Room:

- 1515m

Goods Siding:

- Yes. (Private Siding owned by BlueScope Steel Wingfield).
- Access is obtained by electric release of the HLM point lock from Network Control.

Local Control Panel:

- No panel supplied

Crank Handles:

- No. Dual control point machines

Other Information:

- Railway Terrace and Cormack Road level crossings are owned by BlueScope Steel and they are responsible for maintenance of these crossings.
- The Bishop Loop signalling is interfaced with the South Road level crossing flashing light and booms at the Dry Creek end and Hanson Road level crossing at the Gillman Junction end and is so interlocked that the signalling leading over the specific level crossing will not assume a proceed aspect for a train to proceed unless a time period of 5 minutes has expired following the previous train. This ensures proper road traffic flows are achieved.
- In addition, the ARTC network controller shall not signal a train to proceed from Dry Creek to Bishop Loop unless the train can be signalled directly onto the main line or crossing loop from signal 13 without stopping.
- If the train cannot be signalled immediately beyond signal 13, the train is to be held at Dry Creek.
- The exception to this is if there is a signal failure at Bishop Loop.
- Signal 14E is wrong sided and is located on the right hand side of the crossing loop track.

3.1.1 Hand Operated Points and Derail

Points 11 and 11A are located at 3.168 Km on the crossing loop.

The table of locking requirements is as follows:

A = Allowable

D = Disallowable

Condition	Points 11 Releases
Signal 13 or 24 called for route to main line or crossing loop	D
Signal 14E or 23E called for route	A
Points released - movement required to be signalled along main line (low speed only)	A
No occupancy on Crossing loop	A
Occupancy on crossing loop - release track not occupied, or points occupied	D
Occupancy on crossing loop release track occupied	A

3.1.2 BlueScope Steel (LYSAGHT SIDING)

3.1.2.1 Overview

Access to the siding is from the crossing loop, the points (No 11) are provided with an electric point lock, which is released by the network controller. Operators requiring access to the siding shall first obtain authority from the siding owner prior to seeking passage from the ARTC network controller. Where ARTC interfaces with BSS, the requirements are detailed in the interface agreement IA39.

The points leading to the siding are provided with point stand and point indicators as described in the ARTC Addendum to the Code of Practice for the Defined Interstate Network.

The points may only be operated provided the correct conditions exist as detailed in this procedure and that the network controller has initiated a 'Release' command on the CTC control system.

A cabinet (control box) secured with an 'S' lock, is located adjacent to the points and contains push buttons as follows:

- Release Button: Releases the points provided the correct conditions exists.
- Cancel Button: Cancels the release and locks the points

In addition the following indicating lights are provided:

- Points Released (Green Light): Indicates that the points have been released and are available to be operated.
- Release Available (Yellow Light): Indicates that the ARTC network controller has provided a release and the release can be accepted.
- Points Locked (Red Light): Indicates that the points are locked and are not available for operation.

The network controllers CTC Control System is provided with indications detailing the status of the points and the status of the point release.

Dry Creek to Outer Harbor Line Locations and Sections Information

The control system is provided with two controls:

- Release: Sends the release command to the field for the points to be released by the qualified safeworker.
- Cancel: Cancels the release command after the points have been restored and the Cancel button has been pressed on the field equipment or the release has not been taken by the operator.

In addition, the CTC system displays:

- The position of the points and if they are locked or not locked.
- An indicator displaying if the release has been accepted by the qualified safeworker.

3.1.2.2 Releasing points at the Siding:

The network controller can only provide a release on the points for a movement to enter or shunt provided the movement has come to a stand on the crossing loop and is a portion of the movement is standing at the facing points and the approach track circuit has been activated.

Upon the movement coming to a stand at the facing points, the qualified worker or driver shall contact the network controller and request that the release be provided. Provided the correct indications are displayed on the control system the network controller shall press the 'release' button on the control system and advise the driver or qualified worker that the release has been provided.

The qualified worker or driver shall:

- Open the cabinet door and observe that the "Point Locked" light displays steady Red and "Release Available" light displays either steady or flashing light.
- Press the 'Release' button and hold the button until the 'Points Released' light displays a steady green light.
- When the point release light displays a steady Green light unlocks and operate the points for the movement to enter the siding.

Immediately the movement has entered the siding or at completion of shunting the qualified worker or driver shall:

- Restore the points for the main line and lock the point lever.
- Press the 'Cancel' button on the control box and observe that the 'Points Released' and 'Release Available' light are extinguished and the 'Points Locked' light is displayed.
- Advise the network controller that the points have been restored and the release has been cancelled.

The network controller shall confirm that the CTC system indicates that the points are locked and the release is cancelled.

3.1.2.3 Release of point locking during failure

In the event that a release cannot be obtained in the normal manner or a failure of the track circuitry is preventing a release being provided, the network controller shall arrange for a signal maintenance fitter to attend and release the points for a movement to enter or depart the siding. Prior to releasing the point locking the Fitter shall confirm with Train Control.

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3.2 Gillman Junction (GMN)

Loop Standing Room:

- Nil

Goods Siding:

- Nil

Local Control Panel:

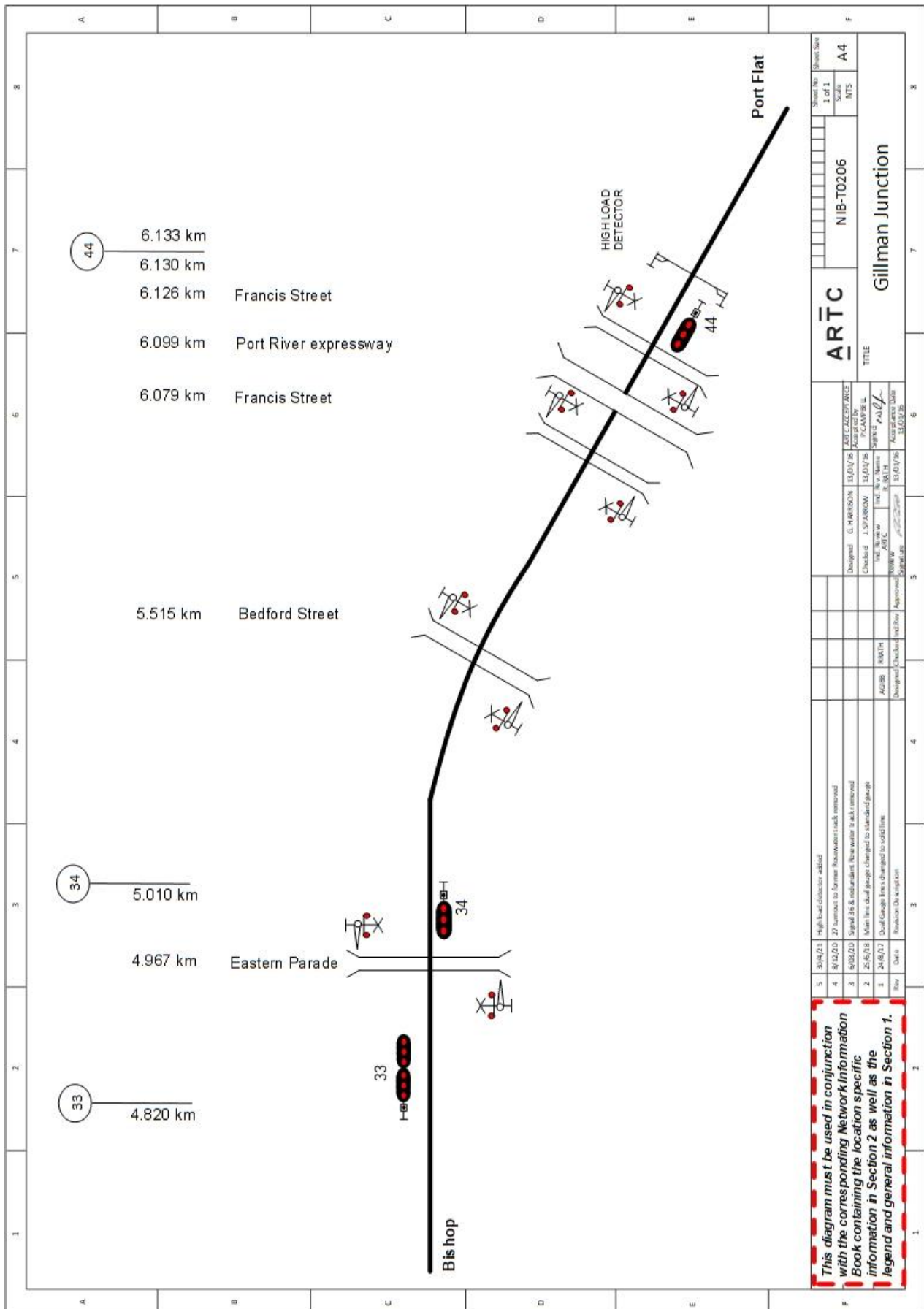
- Contained within a locked room in the relay room at the Eastern Parade level crossing.

Crank Handles:

- Nil

Other Information:

Dry Creek to Outer Harbor Line Locations and Sections Information



3.3 Port Flat (PFL)

Loop Standing Room:

- As per GWA documentation.

Local Control Panel:

- Nil

Crank Handles:

- No. Dual control point machines

Other Information:

Operation of Over Height Detector

The Port Flat height detector is connected to signal 1 at Dry Creek and will restore this signal to 'stop' should a movement not be at the designated height required for the movement.

Only the 6.3m and 6.6m height detectors are currently in use at this location.

The height detector operation is coordinated with the route of the movement and the aspect displayed on signal 44 as follows:

DRY CREEK BOUND MOVEMENT:

If a movement has been signalled from the Port Flat area past signals 54 or 56 through to Dry Creek and all signals are set to 'proceed' for the movement to proceed along the main line, and an over-height wagon is detected, an alarm will be indicated on the train control system.

Additionally signal 1 at Dry Creek will restore to 'stop' and signals 14 or 14E at Bishop Loop will restore to 'caution'.

Upon confirmation that the movement is not over-height the network controller may reset the alarm which in turn will allow operation of signal 1.

In all instances, should the network controller receive an alarm indicating an over-height movement, the network controller shall note the Train Number and advise the relevant train operator who shall make immediate arrangements to either inspect the movement or to return the movement to the relative terminal.

NOTE: *When there are other Trains in the Section between 44 Signal and Dry Creek when the height detector is Triggered the following applies: -*

1. *For Train Movements already on the approach to No 1 Signal at Dry Creek, which starts from A14T / A14ET, approximately 740 metres from Signals 14 and 14E at Bishop Loop, No 1 Signal will operate normally and will not restore to Stop if cleared.*
 2. *For other Train movements, No 1 Signal will be held at Stop until the alarm has been reset by the Network Controller*
-

3.3.1 Port Flat Yard

Access to the Port Flat Yard will be via two legs forming a triangle connected to the ARTC main line. The Eastern leg is provided for movements proceeding between Dry Creek and the Port Flat Yard whilst the Western Leg provides access between Outer Harbour and the Port Flat Yard.

Eastern Leg

Information Sign:

- A sign is placed at the entry point into the Port Flat Yard:

NOTE: Obtain Yard Authority from Aurizon Transport Control Prior to Proceeding into Yard.

Motorised points 37 are immediately located behind signal 53, from the junction to either the Outer Harbour line or into the Port Flat Yard via the eastern leg of the triangle. The points are equipped with a dual control point machine and lay normal toward Port Flat Yard and reverse toward the Outer Harbour line.

Derail 51 is located immediately on the Port Flat Yard side of the Eastern Parade/Grand Trunkway intersection level crossing. The derail is so configured that it has the capacity to derail any unauthorized movements into or out of the yard.

The derail is provided with a Dual Control Point Machine.

Western Leg

Motorised points 60 and catch points 60A are immediately located behind signal 54, forming the junction to either the Dry Creek line or into the Port Flat Yard via the Western Leg of the triangle. The points are equipped with a dual control point machines and lay normal toward Dry Creek with the Derail on track within the Western Leg of the triangle.

Both sets of points are provided with dual control point machines.

Signal 54 signals movements from Outer Harbour toward the Dry Creek line, or into the Port Flat Yard. Signal 54 is a wrong sided signal and is located on the right hand side of the main line.

Information Sign:

- A sign is placed at the entry point into the Port Flat Yard on the Western Leg.

NOTE: Obtain Yard Authority from Aurizon Transport Control Prior to Proceeding into Yard.

3.4 Port River Bridge

Loop Standing Room:

- N/A

Goods Siding:

- N/A

Local Control Panel:

- N/A

Crank Handles:

- N/A

Other Information:

OPERATING PROTOCOL FOR PORT RIVER EXPRESSWAY

Standing Train Notice 490 issued on the 27/03/2015 now applies.

Where ARTC interfaces with The Commissioner and LLE, the requirements are detailed in the interface agreement IA46.

3.4.1 Overview

The ARTC network controller operating the Adelaide Metro train control system operates the points and signals at Gillman Junction, Port Flat Triangle and Birkenhead. In addition, the network controller also operates a release to allow the Port River Bridge to be opened against rail traffic.

Operators requiring access to the Aurizon managed sidings at Port Flat shall first seek authority from Aurizon prior to requesting a path from the ARTC network controller.

3.4.2 Gillman Junction

Straight railed. No access to Port Adelaide 'A' Cabin.

3.4.3 Port Flat Triangle

The ARTC network controller operates all motor operated points and signals associated with the through running, and the entry and departure of movements within the Port Flat triangle.

The Aurizon Transport Controller, through the issuance of Yard Access Authorities, manages the movements beyond the ARTC management boundaries at Port Flat yard.

Signage is located at signal 53 advising train crews requiring entry into the Port Flat yard that an access authority is required from the Aurizon transport controller.

3.4.3.1 Eastern Leg

The eastern leg of the triangle allows movements to enter or depart the Port Flat yard to and from Dry Creek.

Number 37 points are located at the junction of the lead for movements proceeding from Dry Creek to either the Port Flat yard or toward the Port River Bridge.

Number 37 points are set normal when set for the Port Flat yard and reverse when set for the Port River Bridge. The points are provided with a self-normalisation function in so far that when

Dry Creek to Outer Harbor Line Locations and Sections Information

reversed for a movement to proceed over them along the main line, immediately the movement has cleared the points they will automatically restore to the normal position.

In the event that the ARTC network controller is required to prevent the self-normalisation feature from occurring, the ARTC network controller shall place a blocking command on the points in the reverse position, which in turn will disable the self-normalisation function.

Immediately on the Port Flat yard side of the Eastern Parade/Grand Trunkway level crossing is a motorised derail (number 51) that, when on rail, is capable of derailing movements either entering or departing the Port Flat yard. The derail is operated by the ARTC network controller from the CTC control system and is so interlocked that it cannot be operated unless points 37 are in the normal position. During the period that No 51 derail is in the reverse position number 37 points will be locked normal.

In addition, Absolute Signal 56 is located in advance of the derail and signals movements from the Port Flat yard toward the ARTC main line leading toward Dry Creek.

Absolute signal 53 is located at the junction of the ARTC main line leading from Dry Creek either toward the Port River Bridge or into the Port Flat yard.

3.4.3.2 Western Leg

The Western leg of the triangle allows movements to enter or depart the Port Flat yard to and or from Outer Harbor.

Number 60 points are located at the junction of the lead for movements proceeding from Outer Harbor to either the Port Flat yard or toward Dry Creek and are interlocked with number 60A catch points on the Western Leg.

Number 60 points are set normal when set for the main line and reverse when set for the Port Flat yard. The points are provided with a self-normalisation function in so far that when reversed for a movement to proceed over them to or from the Port Flat yard, immediately the movement has cleared the points they will automatically restore to the normal position.

Absolute signal 54 is located at the junction of the ARTC main line leading from Outer Harbor to either toward Port Flat yard or Dry Creek.

Absolute signal 55 is located at the entry point leading from the Western leg toward the ARTC main line.

Eastern Parade crosses the Aurizon managed Western Leg; the level crossing is provided with Flashing Lights and Boom Barriers, approach track circuits and push buttons are provided to allow manual operation or cancellation of the level crossing equipment.

When a rail movement is approaching the level crossing from the ARTC main line, the level crossing will operate automatically.

Should the rail movement approaching the level crossing come to a stand prior to the crossing, the crossing shall cease operating after a timer has expired after which the driver or qualified safeworker shall require to press the push button to reactivate the level crossing operation.

A short approach track circuit is provided on the Port Flat yard side of the crossing that allows the crossing to be activated by a rail movement shunting from or departing the Port Flat yard. Prior to entering the level crossing the train crew shall ensure that the booms are fully horizontal.

An information sign is provided advising train crews of approaching rail movements to confirm level crossing operation prior to proceeding.

Dry Creek to Outer Harbor Line Locations and Sections Information

Should the crossing be activated for a movement to cross the crossing, and the rail movement will then not proceed the qualified worker shall cancel the crossing operation manually.

3.4.3.3 Rail Movements to Port Flat yard via Eastern Leg

When a rail movement requires entry into the Port Flat yard from Dry Creek, the train crew shall ensure from the Aurizon Transport Controller that the movement can be accepted prior to requesting to be signalled by the ARTC network controller.

The train crew shall also ensure that they have been issued with a Yard Access authority by the Aurizon Transport Controller prior to arriving at signal 53.

Upon receiving confirmation that the movement has been issued a Yard Access authority the ARTC network controller shall operate points 37 normal and derail 51 reverse and set the appropriate signals for the rail movement to proceed.

Immediately the rail movement has cleared points No's 37 and derail 51 they will automatically restore back to the normal position.

3.4.3.4 Rail Movements from Port Flat yard via Eastern Leg

When a rail movement is ready to depart Port Flat yard and proceed toward Dry Creek the train crew shall contact the ARTC network controller and provide the appropriate train details.

Provided the ARTC network controller can accept the rail movement the network controller shall operate points 37 normal and derail 51 reverse and set the appropriate signals for the movement to proceed.

Immediately the rail movement has cleared points No's 37 and derail 51 they will automatically restore back to the normal position.

3.4.3.5 Rail Movements to Port Flat yard via Western Leg

When a rail movement requires entry into the Port Flat yard from Outer Harbor, the train crew shall ensure from the Aurizon transport controller that the movement can be accepted prior to requesting to be signalled by the ARTC network controller.

The train crew shall also ensure that they have been issued with a Yard Access authority by the Aurizon transport controller prior to arriving at signal 54.

Upon receiving confirmation that the rail movement has been issued a Yard Access authority the network controller shall operate points 60 to the reverse position and set the appropriate signals for the movement to proceed.

Immediately the rail movement clears points 60 they will automatically restore back to the normal position.

3.4.3.6 Rail Movements from Port Flat yard via Western Leg

When a rail movement is ready to depart Port Flat yard and proceed toward Outer Harbor the train crew shall contact the ARTC network controller and provide the appropriate train details.

Provided the ARTC network controller can accept the rail movement the network controller shall operate points 60 reverse and set the appropriate signals for the movement to proceed.

Immediately the rail movement clears points 60 they will automatically restore back to the normal position.

3.4.3.7 Through Rail Movements over the Port River Bridge

When a rail movement is to proceed between Dry Creek and Outer Harbor the ARTC network controller shall set 37 points reverse, 60 points normal and 61 points (Birkenhead) reverse. Upon the route being set the applicable signals can then be operated for the rail movement to proceed.

Should a signal not be operated to proceed within 25 seconds after setting the points, they will automatically restore to normal again unless a blocking command has been applied by the ARTC network controller.

Immediately the rail movement passes clear of points 37 they will automatically restore back to the normal position (set for the Eastern Leg).

Immediately the rail movement passes clear of points 61 they will automatically restore back to the normal position (set for the Shunt Neck).

3.4.4 Operation of Port River Bridge for Marine traffic

3.4.4.1 Operation of Port River Bridge

The bridge will be scheduled to open in accordance with an opening regime. Unscheduled openings will be as arranged with ARTC as rail traffic permits.

The Port River Bridge is operated from the Norwood Traffic Control Centre (TCC).

A release is provided by the ARTC network controller to allow operation of the bridge.

The ARTC network controller will not be able to provide the release unless:

- The main line between Signals 64/64E at Birkenhead and signal 53 at the Eastern Leg indicates clear of rail movements.
- Points 37, 60 and 61 are set in the normal position

When there is requirement to operate the bridge;

- the TCC operator will request the bridge release.
- the ARTC network controller must ensure the correct conditions exist and provide the release.
- the TCC operator may then accept the release.

During the period that the release is provided Points 37, 60 and 61 will be locked in the normal position.

Immediately the bridge operation has been completed TCC operator must relinquish the control of the bridge by cancelling the release.

The ARTC Network controller must accept the return of the release to resume rail operations.

3.4.4.2 Failure of Port River Bridge detection

In the event that a failure is indicated by the bridge locking detection system;

- The ability by the ARTC network controller to signal trains over the bridge will be prevented.
- Points 37, 60 and 61 will assume a 'locked' status in the normal position.
- The ARTC network controller and the TCC operator must liaise to establish what has caused the failure.

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- The TCC operator must electronically interrogate the locking devices of the bridge and if possible, operate the locking devices to establish if detection can be restored.

If the locking detection cannot be restored:

- The TCC operator is to make arrangements for the bridge locking devices to be inspected and visual confirmation made that they are in place and if so, arrange for the bridge operating mechanism to be disabled until rectification is undertaken.
- Prior to permitting rail movements over the bridge the ARTC network controller is to arrange for the track connections to be inspected to confirm the track integrity.

Upon completion of these steps rail movements may be worked by means of train authorities. Train authorities must include the requirement to 'stop and inspect points and common rail transfer'.

3.4.5 Operation of trains during train control system failure

If a train control system failure occurs the ARTC network controller will not be able to provide the bridge release.

If the TCC operator can confirm that the bridge is locked, the ARTC network controller may work trains by means of train authorities.

If the TCC operator is unable to confirm that the bridge is locked, the protocols in clause 3.4.4.2 are to be complied with.

3.4.6 Manual operation of the bridge

In the event that the bridge cannot be opened remotely or testing of the manual operation of the bridge is required by the bridge infrastructure owner, the TCC operator and the ARTC network controller shall arrange for the bridge to be operated locally.

Testing of the manual operation of the bridge by the bridge infrastructure owner will occur on a day and time agreed by both parties. Testing is to occur at or after 1800 hrs on the nominated day.

A key switch is located at the bridge that allows it to be operated manually under local control.

A remote release from the ARTC Network controller is not required; however, operation of the key switch will prevent the remote operation of the signalling.

The key is located in the ARTC Train Control Centre Mile End.

UNDER NO CIRCUMSTANCES IS THE BRIDGE TO BE OPERATED MANUALLY UNLESS A RAIL REPRESENTATIVE IS IN ATTENDANCE.

NOTE: NO SCHEDULED BOOKING FOR BRIDGE OPERATIONS WILL OCCUR ON THE AFTERNOON OF THE MANUAL EXERCISE.

The ARTC network controller must arrange for an ARTC nominated representative qualified in Track Occupancy Authorities to attend whilst the TCC operator must arrange for a bridge operator to attend.

The ARTC nominated representative is to obtain the manual operation key from the Train Transit Manager in the ARTC Train Control Centre Mile End.

The ARTC nominated representative must be in possession of a Track Occupancy Authority (TOA) to prevent rail movements over the bridge. The ARTC network controller is to block the

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bridge release on the Phoenix system prior to issuing the TOA as part of the process of applying blocking facilities to protect the worksite.

Upon receipt of the TOA the ARTC nominated representative must advise the bridge operator that manual operation of the bridge is protected against rail traffic movements and provide the key to the bridge operator.

During the period that the bridge is manually operated the ARTC nominated representative shall remain on site at all times.

Upon restoration of the bridge and provided it has been confirmed that the bridge locking is in place and secured the TOA may be cleared. The key must be returned to the ARTC Train Transit Manager in the Train Control Centre Mile End.

The over-ride key switch is located in a box secured with a LendLease Services padlock.

A second manual operation key is held in a secure location at ARTC.

If the manual operation key is lost, TOA working may be cleared when it has been confirmed that the box containing the castel key switch has been locked and secured by LendLease Services.

LendLease Services will arrange for the castel lock pattern to be changed and two new keys provided to ARTC.

3.4.7 Track Work Operations

Track work operations likely to affect the ARTC Network must be performed in accordance with ARTC Code of Practice for the Defined Interstate Rail Network by suitably qualified workers.

3.4.8 Opening Regime of Port River Rail Bridge

Effective Monday August 4th 2008

SECTION: Dry Creek to Outer Harbour

Please be advised that the opening regime for the Port River Rail Bridge will come into effect from Monday August 4th 2008 onwards. The opening regime is as follows:

Weekdays (Monday to Friday)

- From between 0600 hours and 0630 hours for a maximum 15 minute duration
- From between 1900 hours and 1930 hours for a maximum 15 minute duration

Weekends and Public Holidays

- From between 1000 hours and 1030 hours for a maximum 15 minute duration
- From between 1500 hours and 1530 hours for a maximum 15 minute duration
- From between 1800 hours and 1830 hours for a maximum 15 minute duration
- From between 2200 hours and 2230 hours for a maximum 15 minute duration (during Daylight Savings only)

The Bridge will only open if a request has been made by marine traffic for it to open within the scheduled opening times indicated above.

If no request has been made, the Bridge will remain closed and available to rail traffic.

This diagram must be used in conjunction with the corresponding Network Information Book containing the location specific information in Section 2 as well as the legend and general information in Section 1.

3.5 Birkenhead (BHD)

Loop Standing Room:

- N/A

Goods Siding:

- Yes
- Shunt Neck

Local Control Panel:

- N/A

Crank Handles:

- No. Dual control point machines

Other Information:

- The section of line between Birkenhead and Pelican Point is operated by the ARTC network controller by means of a CTC signal control system. There are 2 tracks known as the east and west line, both lines are available for bi-directional operation.
- Qube and Flinders Ports sidings are operated as private sidings .

3.5.1 Management of Movements between Birkenhead and Pelican Point

- When planning and signalling movements between Birkenhead and Pelican Point, the network controller shall plan and signal the movements ensuring that minimum delay occurs should movements have potential to obstruct level crossings.
- Where practical, all movements shall have clear 'non-stop' passage between Birkenhead and Pelican Point ensuring minimum disturbance within the residential area.

3.5.2 Signalling

Signal 63 governs movements on the main line from Port Adelaide towards Outer Harbour onto the east or west lines.

Signal 63 is fitted with a three aspect 'A' arm (G, Y, R), a three aspect 'B' arm (G, Y, R), and a low speed aspect.

Signal 63E is a three aspect Low Speed dwarf signal.

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3.6 Mobil Siding (MPS)

Loop Standing Room:

- N/A

Goods Siding:

- Yes (Private Siding owned by Mobil Oil Australia).
- Access is obtained by electric release of the HLM point lock from Network Control.

Local Control Panel:

- Nil

Crank Handles:

- No

Other Information:

Access to the Mobil siding is from the west line, the points (No 71) are provided with an electric point lock, which is released by the network controller. Operators requiring access to the Mobil siding shall first obtain authority from Mobil prior to seeking passage from the ARTC network controller.

The points leading to the siding are provided with point stand and point indicators as described in the ARTC Addendum to the Code of Practice for the Defined Interstate Network.

The points may only be operated provided the correct conditions exist as detailed in this procedure and that the network controller has initiated a 'Release' command on the CTC control system.

A cabinet (control box) secured with an 'S' lock, is located adjacent to the points and contains push buttons as follows:

- Release Button: Releases the points provided the correct conditions exist
- Cancel Button: Cancels the release and locks the points
- Shunter's Pushbutton: Commences operation of M Berth level crossing

In addition the following indicating lights are provided:

- Points Free (Green Light): Flashing: Indicates that the operator has accepted a release command and the 2 minute timer is in operation
- Steady: Indicates that the points have been released and are available to be operated
- Release Available (Yellow Light): Indicates that the ARTC network controller has provided a release and the release can be accepted
- Points Locked (Red Light): Indicates that the points are locked and are not available for operation

The network controllers CTC Control System is provided with indications detailing the status of the points and the status of the point release. The control system is provided with two controls:

- Release: Sends the release command to the field for the points to be released by the qualified safe worker

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- Cancel: Cancels the release command after the points have been restored and the 'Cancel' button has been pressed on the field equipment

In addition, the CTC system displays:

- The position of the points and if they are locked or not locked
- An indicator displaying if the release has been accepted by the qualified safe worker and the operation of any timers

3.6.1 Movement entering or shunting Mobil siding:

The network controller can only provide a release on the points for a movement to enter or shunt provided the movement has come to a stand at the facing points and the approach track circuit has been activated.

Upon the movement coming to a stand at the facing points, the qualified worker or driver shall contact the network controller and request that the release be provided. Provided the correct indications are displayed on the control system the network controller shall press the 'release' button on the control system and advise the driver or qualified worker that the release has been provided.

The qualified worker or driver shall:

- Open the cabinet door and observe that the 'Points Locked' and 'Release Available' lights are displayed on the control box
- Press the 'Release' button and hold the button until the 'Points Free' light commences to flash, this indicates that a two minute timer is in operation
- Observe that, upon expiry of 2 minutes that the 'Points Free' light is steady
- Unlock and operate the points for the movement to enter the siding

Immediately the movement has entered the siding or at completion of shunting the qualified worker or driver shall:

- Restore the points for the main line and lock the point lever
- Press the 'Cancel' button on the control box and observe that the 'Points Released' and 'Release Available' light are extinguished and the 'Points Locked' light is displayed
- Advise the network controller that the points have been restored and the release has been cancelled

The network controller shall confirm that the CTC system indicates that the points are locked and the release is cancelled.

NOTE: Any vehicles left standing between the Mobil siding points and M Berth level crossing will activate the level crossing protection device at M Berth.

Provision of Pushbutton for Shunt Movements

Mobil Siding has been equipped with a 'Shunter's Pushbutton' which is located adjacent to the HLM Point Release button at 71 Points.

The enclosure is secured with a Boyd 'S' type padlock.

The installation contains a button inscribed 'Shunter's Pushbutton'.

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A double sided sign is adjacent to the insulated joint at 71 points location. The content of the sign is copied below.

'Rail movements shunting at Mobil Siding must be standing complete on the Osborne side of this sign prior to activating the Shunter's Pushbutton for the return movement towards Birkenhead 64E Signal.'

Once advice is received that the rail movement is ready to depart, the Network Controller will issue a Train Authority to the driver of the movement authorising the movement to proceed to Signal 64E.

When the driver of the rail movement has repeated back the Train Authority and its correctness has been confirmed by the Network Controller, the 'Shunter's Pushbutton' must be pushed to activate M Berth level Crossing.

M berth level crossing will start to activate once the rail movement has passed the sign.

Rail movement is not to exceed 30 km/h to the level crossing.

If the crossing has been activated by another movement on the east line when the button is pressed, the crossing will continue to ring.

There is no 'Cancel' button associated with Level Crossing activation, once the button is pressed, the crossing will continue to ring until the train has traversed the crossing.

Rail movements shunting at Mobil Siding must not exceed 180 metres.

SHUNT PROCESS

Train arrives on West Track.

- Rear locomotive is detached and remains on B75T track circuit.
- Front portion of rail movement pulls forward clear of 71 points.
- Driver of movement requests HLM point release from ARTC Network Controller.
- Release provided and points reversed for movement.
- Shunt completed and points set for normal position, release returned to ARTC Network Controller.
- Rear locomotive moves from B75T track circuit onto front portion and stands clear of 71 points on the Osborne side of the sign.
- The 'Shunter's Pushbutton' must be pushed to activate M Berth level Crossing.
- Once advice is received that the rail movement is ready to depart, the Network Controller will issue a Train Authority to the driver of the movement authorising the movement to proceed to Signal 64E.
- When the driver of the rail movement has repeated back the Train Authority and its correctness has been confirmed by the Network Controller, the rail movement may proceed towards M Berth Level Crossing.
- M berth level crossing should start to activate once the rail movement passes the sign.
- Rail movement is not to exceed 30 km/h to the level crossing.

3.6.2 Release of point locking during failure:

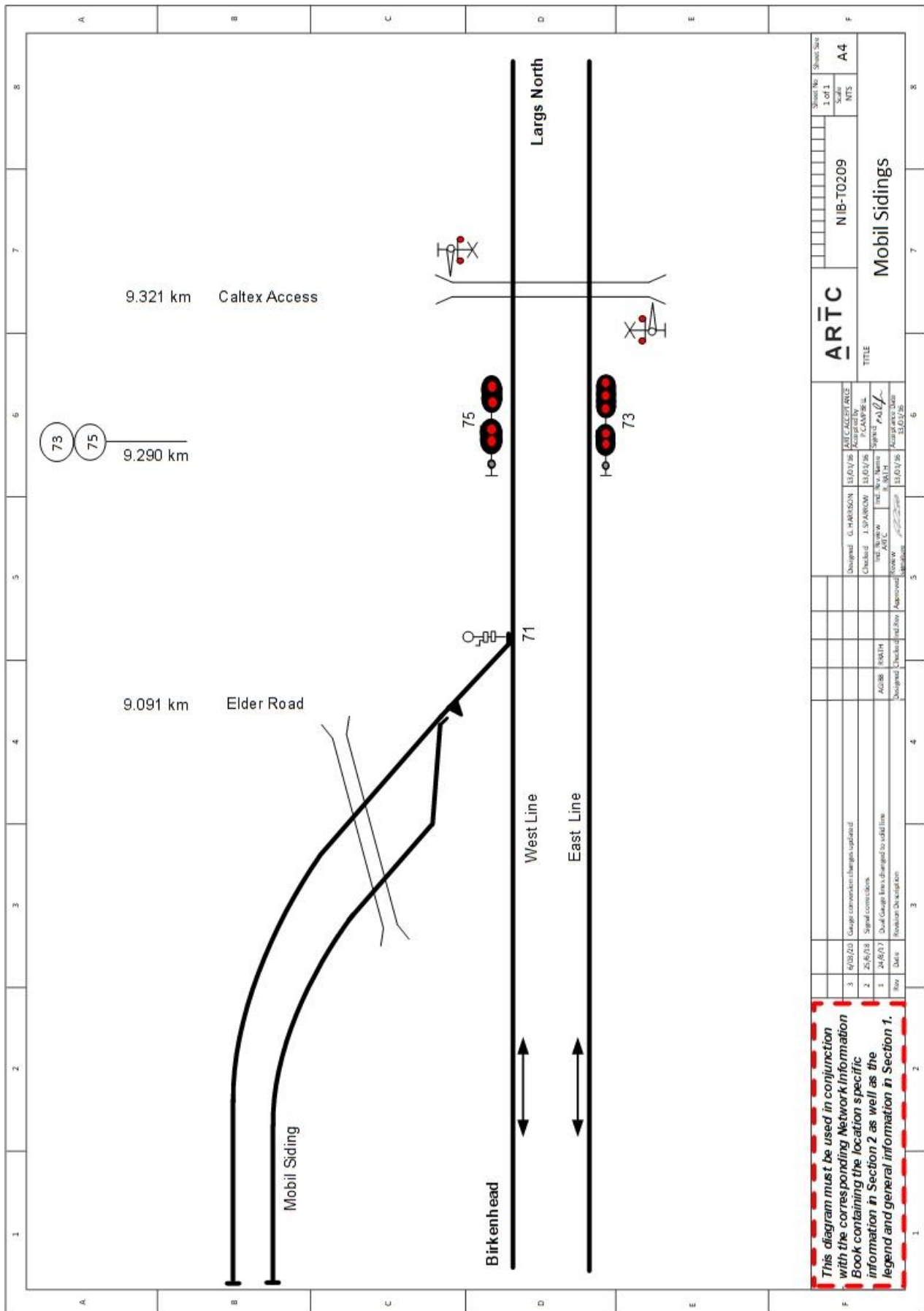
In the event that a release cannot be obtained in the normal manner or a failure of the track circuitry is preventing a release being provided, the network controller shall arrange for a signal maintenance fitter to attend and release the points for a movement to enter or depart the siding. Prior to releasing the point locking the Fitter shall confirm with Train Control.

3.6.2.1 Management of Movements between Birkenhead and Pelican Point

When planning and signalling movements between Birkenhead and Pelican Point, the network controller shall plan and signal the movements ensuring that minimum delay occurs should movements have potential to obstruct level crossings.

Where practical, all movements shall have clear 'non stop' passage between Birkenhead and Pelican Point ensuring minimum disturbance within the residential area.

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3.7 Largs North Crossover (LNX)

Loop Standing Room:

- N/A

Goods Siding:

- N/A

Local Control Panel:

- Signal Maintenance Fitter can access the CTC system via a laptop at this location.

Crank Handles:

- No. Dual control point machines

Willochra Street Level Crossing

A sign immediately in front of Signal 76 at Largs North reads:

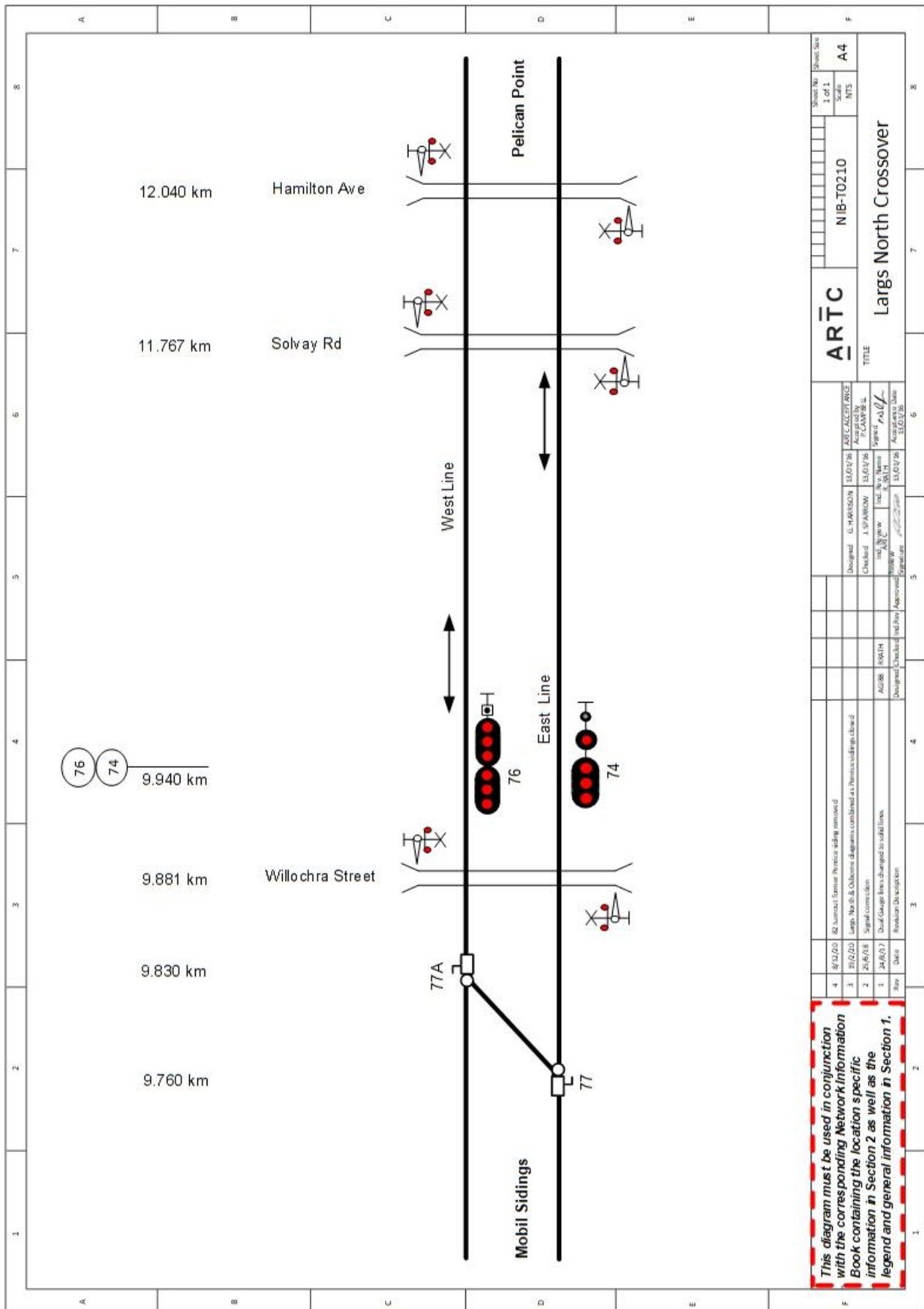
‘ENSURE BOOMS ARE HORIZONTAL PRIOR TO PROCEEDING’

The signage is to remind rail traffic crews to ensure level crossing booms are in the horizontal position, prior to proceeding over the level crossing after shunting at Mobil Siding.

The signage only applies to movements that have traversed the level crossing and are to proceed southbound back towards Birkenhead.

The level crossing will operate normally for the passage of through movements from Pelican Point.

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3.8 Viterra Grain Loop (ABB)

Loop Standing Room:

- N/A

Goods Siding:

- Yes (Private siding owned by Viterra).

Local Control Panel:

- N/A

Crank Handles:

- No. Dual control point machines

Other Information:

- The Viterra Central Control Room Operator is responsible for all movements within the Balloon Loop.
- A weighbridge is located on the arrival/departure road approximately 955m from the mainline connection point.
- Movements are restricted to 9kmh when traversing the weighbridge.
- Where ARTC interfaces with Viterra, the requirements are detailed in the interface agreement IA47.

3.8.1 Movements Entering Balloon Loop Pelican Point

- The ARTC Train Controller must obtain permission from the Viterra Central Control Room Operator prior to signalling any rail movement into the Viterra Balloon Loop.
- Rail Movements entering the siding must not stop (except in the case of an emergency) until the last vehicle is clear in behind 84D signal.

3.8.2 Movements Departing Balloon Loop Pelican Point

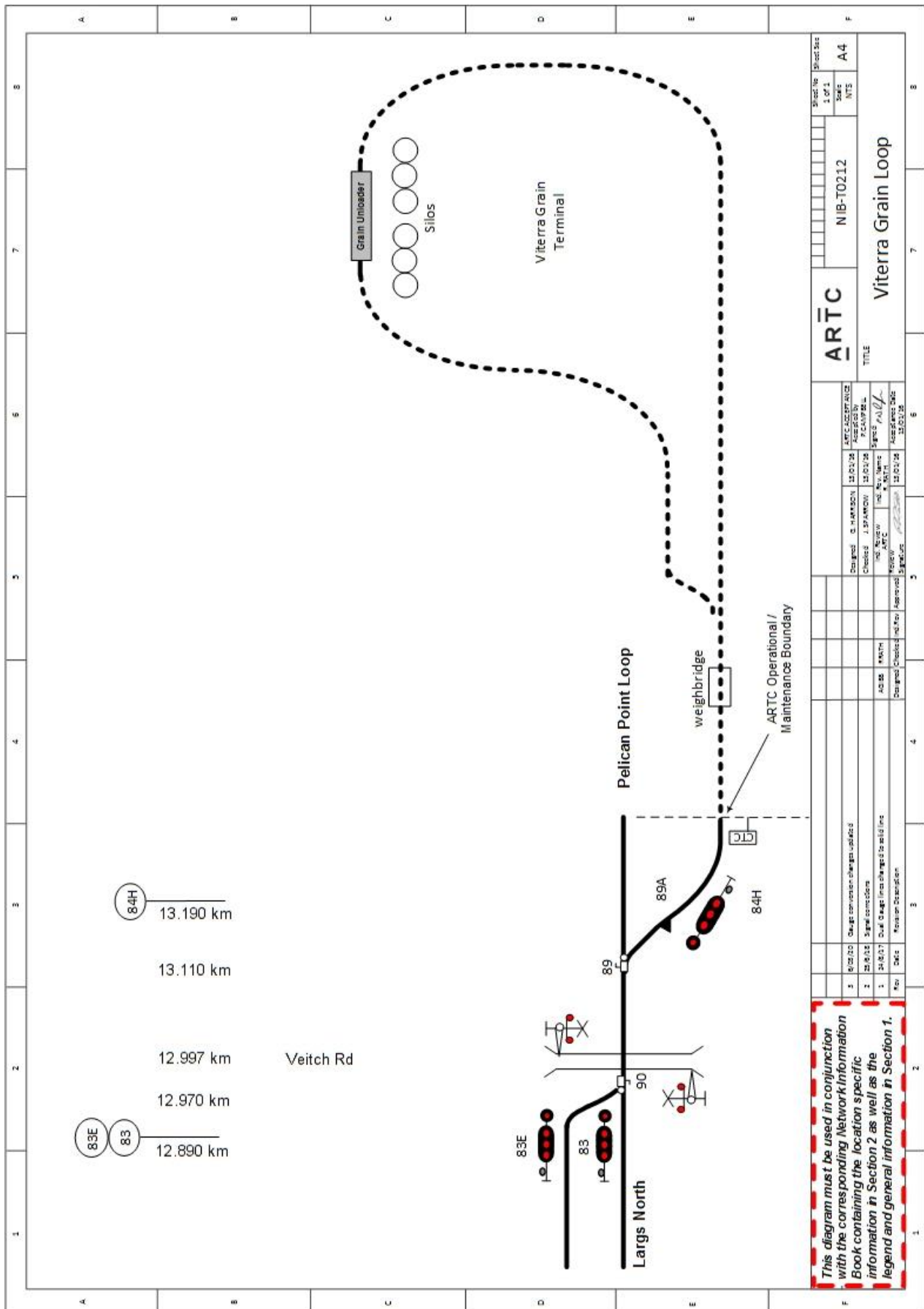
- The crew of a rail movement must provide information to the ARTC Train Controller as per the ARTC Network Principles before it will be permitted to enter the ARTC Network.
- The ARTC Train Controller will clear the 89D signal to enter the ARTC Network when a suitable path exists in accordance with ARTC Network Principles.

3.8.3 Track Work or Maintenance Operations

Track work operations likely to affect the ARTC Network must be performed in accordance with the Code of Practice for the Defined Interstate Rail Network by suitably qualified workers.

Viterra will invoke a siding lock out procedure to protect various track work and maintenance operations. During the lockout period, the ARTC Train Controller will be required to block 89 points in the normal position.

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3.9 Pelican Point Loop (PPL)

Loop Standing Room:

- 1520m

Goods Siding:

- N/A

Local Control Panel:

- N/A

Crank Handles:

- No. Dual control point machines

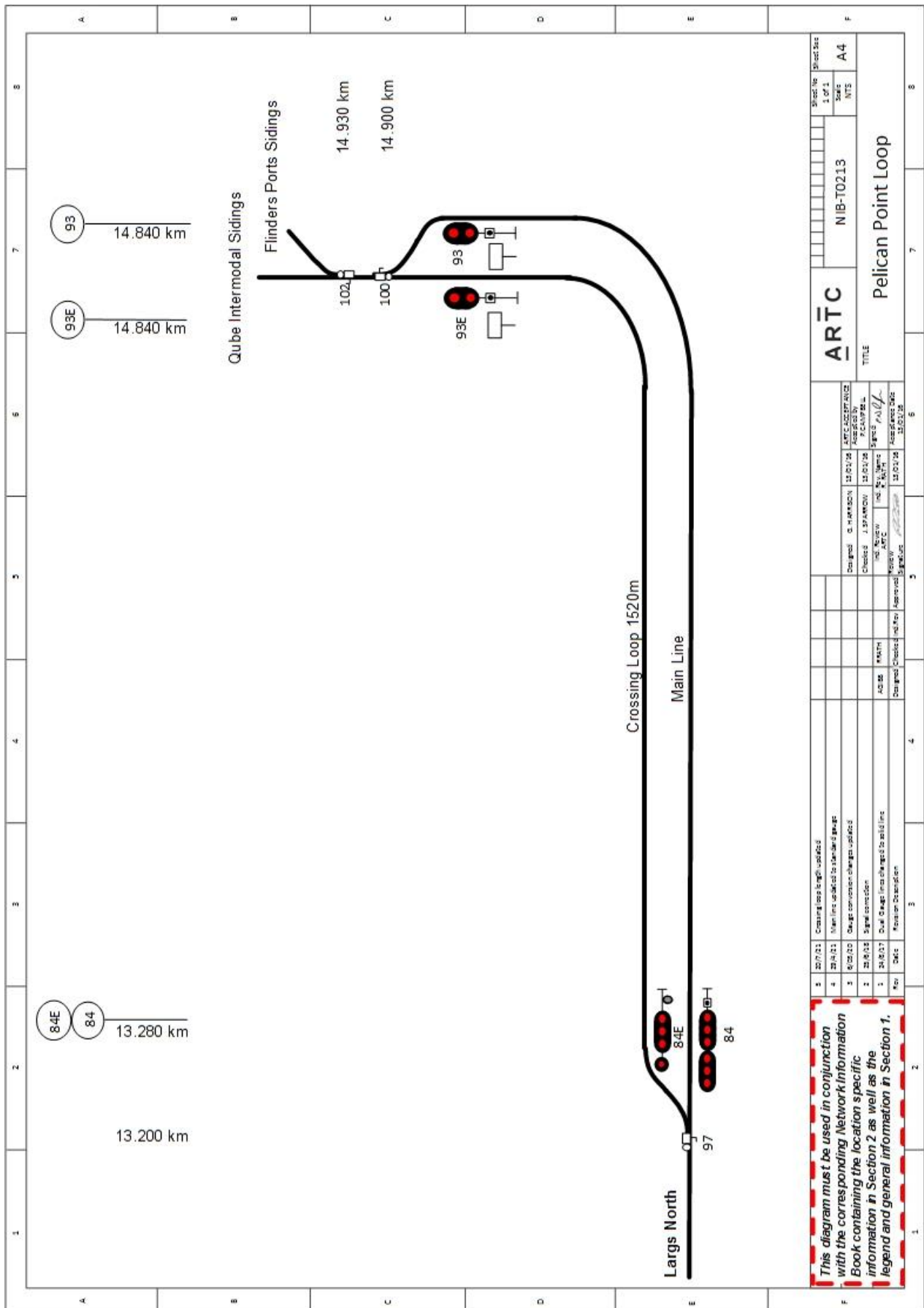
3.10 Flinders Ports (DPW)

Flinders Ports is a marine terminal operator with 42 terminals and 13 new developments across 27 countries.

Flinders Ports operates a container terminal at Outer Harbor consisting of two 600 metre long dead end sidings, served by a rail link to the ARTC Network near Pelican Point Road. Loading is propelled into these sidings from Pelican Point Loop.

Where ARTC interfaces with Flinders Ports, the requirements are detailed in the interface agreement IA40.

Dry Creek to Outer Harbor Line Locations and Sections Information



3.11 Qube Siding (OHB)

3.11.1 Movements Entering Qube Siding

The crew of movements required to enter Qube siding must not pass the:

MOVEMENTS SHALL NOT PROCEED
BEYOND THIS POINT WITHOUT
AUTHORITY OF YARD OPERATOR

sign located at the approach to the Qube boundary gate without the authority of the Yard Operator.

To avoid unnecessarily blocking Pelican Point Road level crossing, signal 93 or 93E must not be cleared unless the train crew has advised the ARTC Central Train Controller that the Qube boundary gate is open and the movement has authority to proceed, or the movement will fit between the gate and Signal 94.

3.11.2 Movements Departing Qube Siding

Movements departing Qube siding must stop and contact the ARTC Central Train Controller before passing the:

STOP
CONTACT ARTC
TRAIN CONTROL

sign beyond the exit from the QUBE Siding.

Where ARTC interfaces with Qube Logistics, the requirements are detailed in the interface agreement IA45.

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