Division / Business Unit: Engineering & Systems
Function: Operations
Document Type: Guideline

Network Information Book

North ABS Line

Crystal Brook (exc) to Broken Hill (exc)

OGW-30-03

Applicability

Interstate Network

Publication Requirement

Internal / External

Primary Source

Route Access Standard - Defined Interstate Rail Network Section Pages D15

Document Status

Version #	Date Reviewed	Prepared by	Reviewed by	Endorsed	Approved
1.7	29 Sep 2023	Configuration Management Administrator	Corridor Assets & Operational Representative	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	05 Apr 2018	Various	Olary goods siding information & drawing legend updated. Jamestown yard rationalisation changes updated. Duplicate information removed from intermediate diagrams and Crystal Brook diagram updated.

1.2	5 Dec 2018	1.7, 1.8, 1.14, 2.1, 2.11, 2.13 2.14.1 & 2.15	Private crossing at 66.928km removed from level crossings table as detailed in TN1958-2017. Location Boards table added at section 1.8. Cockburn wayside equipment updated. Corrections made to Network Controller references at Broken Hill. Pinnacles, Bemax and Perilya sidings text updated to clarify requirements for departing movements. Crystal Brook diagram updated.
1.3	6 Aug 2021	1.4, 1.7, 1.18, 2.2, 2.3, 2.4 & 2.5	Adjacent Train Control Boards / Centres and Level Crossings table updated. Gladstone location updated. Caltowie, Jamestown & Yongala goods loops status updated. Yongala diagram updated. GWA references updated to One Rail. Drawing Legend updated. Usage note added to all diagrams.
1.4	3 Dec 2021	1.1, 1.4, 1.7, 1.15.1, 1.15.9	Board Extent, Adjacent Train Control details, Level Crossings table and Operation of Crossing Locations updated. Corrections to various diagrams.
1.5	9 May 2022	1.1, 2.5, 2.14.1	Board Extent, Yongala & Kanandah Siding locations updated.
1.6	18 Jan 2023	Various	Gladstone location and other sections updated for CTC upgrade & loop extension. Crystal Brook diagram updated. One Rail references updated to Aurizon.
1.7	29 Sep 2023	1.1, 1.7, 2.8, 2.14	Board Extent & Level Crossings table updated. Yunta & Kanandah diagrams updated.

Table of Contents

1 General Information

1.1 Board Extent

Crystal Brook 6 & 6E signals 23.560km (exclusive) to Broken Hill BH5 signal 391.658km (exclusive) for eastbound services and 56 signal 391.990km (inclusive) for westbound services.

This area is controlled by North ABS Network Controller, Network Control Centre West (NCCW).

Contact Numbers:

Phone:	(08) 8152 8008
Emergency:	(08) 8152 8068
Train Transit Manager:	(08) 8152 8020
TTM Emergency:	(08) 8152 8080

1.2 Safeworking System

The North (ABS) Network Controller must provide permission to the TOCO Network Controller at Junee or the West CTC Network Controller in Adelaide to clear the entering block signals onto the Broken Hill to Crystal Brook corridor. There is a Phoenix release between the West CTC and North (ABS) control boards.

All rail traffic movements entering the corridor must be issued with a Train Working Advice form prior to departure from Crystal Brook or Broken Hill or any originating location on the corridor.

CTC working applies between Crystal Brook and Gladstone (inclusive).

At Gladstone, HLM Point Releases are installed for all hand operated points, with the release being available when the correct conditions exist.

Local Control Panel for Gladstone is located at 42X Location Hut near Horrocks Highway for Local Operation by qualified staff when required after obtaining approval from NCCW Network Controller.

Automatic Block Signalling (ABS)

Rail traffic movements which are to commence their journey at locations between Broken Hill and Crystal Brook, must have permission to enter the main line from the network controller.

The movement of rail traffic on Automatic Block Signalling territory is under the direction of the network controller and governed by signal indications.

When rail traffic movements are to cross or pass at an unattended location, train authorities must be issued by the network controller authorising such movements. The train authorities must specify the line the respective rail traffic movements must occupy.

The Automatic Block Signalling system will automatically clear signals into the next section, between Gladstone (excluded) and Kanandah Siding once the rail traffic movement activates the approach circuit to a crossing location and the section in advance is clear.

The Network Controller must ensure that Track Force Working, track closures, Local Possessions, work trains etc are protected by train authorities denying access to the affected section prior to issuing the work on track authority. The train authority denying access may be a cross with an opposing rail traffic movement prior to the affected section or a ‘Do Not Enter’ train

authority issued to the train and should, where possible be issued prior to departure from Crystal Brook or Broken Hill.

All crossing locations within ABS territory, apart from Yongala and Kanandah Siding, are equipped with self-restoring points.

For rail traffic movements heading west, the main line signals at Kanandah Siding will clear when Signal 56 at Broken Hill is cleared.

If a rail traffic movement arrives at a location where they are to cross another train, the main line signals may be displaying a clear indication through the location.

In this instance, the opposing rail traffic movement has not yet reached the approach track circuit of the location in advance and when it does so it will find the entering block signal at stop.

The first rail traffic movement to arrive at the location is to cancel this block selection (signal) as described below.

The selection of the block made automatically by the first train may be cancelled by:

1. Reversing the facing points to take the crossing loop.

2. At a location without Self Restoring Points, after pulling through the main line, reversing the points at the far end.

3. At a location with Self Restoring Points, after pulling through the main line, press the cancel button on the panel.

All crossing loops on the system excluding Gladstone are not track circuited.

All trains are admitted to the crossing loop by hand signal, which authorises passing the permissive signal at stop. The only exception is Kanandah Siding, which is equipped with Absolute signals at the entrances to the yard and has the facility for train crews to operate a push button to clear a low speed signal to enter the loop.

The running lines, i.e. main line and crossing loop, are protected by use of derailers or points leading to goods loop dead ends, both of which are electrically interlocked with the main line signals. The main line signals will not clear if a derailer is off or a set of dead end points is not in the normal position.

At most locations, signals are blacked out unless the approach tracks are activated.

Most Goods sidings from Caltowie to Kanandah Siding are accessed by a switchstand locked with an “S” Lock.

Pinnacles siding, between Thackaringa and Kanandah Siding is accessed by an outlying switch lock.

Bemax Siding between Thackaringa and Kanandah Siding is accessed by an electric point lock (HLM) with the release being available when the correct conditions exist.

Perilya Siding between Kanandah Siding and Broken Hill is accessed by an electric point lock (HLM) with the release being available when the correct conditions exist.

Aurizon have leased the sidings associated with Grain Traffic at Gladstone, Caltowie, Jamestown and Yongala.

1.3 Applicable Rules

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

1.3.1 Index to CoP and ARTC Addendum

Index to CoP and ARTC Addendum	CoP	Addendum
A		
ABS working - train working advice	3.10.	24.5
Assisting a disabled train in section	3.17	
Authority limit overrun	3.15	28
Automatic train brake	12	
Axle loads	9	
Axle loads - Rollingstock	Table 5	
B		
Brake - automatic train	12	
Brake examination standards	Table 8-10	
Brake holding tests for rearmost vehicles	13	
Braking performance of trains	15	
C		
Cancelling a train authority	3.9.13	
Clearance point marker (fouling point)	3.1.4E	33.3
Communications	Nil	17
Communications protocols	3.7	
Communications requirements - locomotive	Table 6	
Condition Affecting the Network (CAN)		40, 41
Crew changeover	3.9.15	
Crew changeover - Train authority working	3.9.15	24.4
Crossing locations - typical layout	Nil	7
D		
Derail and catchpoint indicators	Nil	13
Detonating signals	3.5	
Documentation - Train	5.9	
Driver Only Operation	Nil	27
E		
Electronic authority systems	3.6	
Emergency Responses	Nil	29
Emergency Responses - incident management plan	Nil	29.1

F		
Fire on train	5.10	
Fixed signals	3.3	
Fixed signals - passing at stop	3.4	
Flag commands	3.8	
G		
Gang whistle sign	Nil	33.1
Grade control valves	15.8	
H		
Hand commands		
Headlight - locomotive		
I		
Identification of trains, rollingstock, track vehicles etc	16	
Incident management plan - Emergency Responses	Nil	29.1
Infrastructure Booking Advice (IBA)		43, 44, 45
Issue of train authority to moving train	3.9.7	
J		
K		
L		
Level Crossing keepers	Nil	21
Level crossing predictor warning sign	Nil	33.2
Level crossing procedures	Nil	20
Light commands	3.8	
Light indicator and associated point failures	Nil	15
Light indicators	Nil	14
Limit of Authority overrun	3.15	28
Load compensating equipment	15.9	
Local Possession	3.11.6	
Locomotive communication requirements	Table 6	
Locomotive equipment	5.2	
Locomotive headlight	5.6	
Locomotive speedometer	5.3	
Locomotive vigilance control	5.2	
Locomotive warning device	5.5	
Locomotive warning device - failure	5.5.2	
Locomotive warning device - normal use	5.5.1	
Locomotives - general	11	

M		
Maximum train speeds for particular locations and circumstances	Nil	19
N		
NAR	3.11.24	
No Authority Required (NAR)	3.11.24	
O		
Operations of locations as an attended station	Nil	22
P		
Parallel Lines	Nil	25
Parallel Lines - Locations on ARTC territory	Nil	25.3
Parallel Lines - TOA limits	Nil	25.4
Parallel lines - TOA occupancy rules	3.11	25.5
Parallel Lines - Track work	Nil	25.1
Parallel Lines - Train failure and other incidents	Nil	25.2
Permanent speed signs	3.1.4k	32
Phonetic alphabet	3.7.7	
Phonetic numerals	3.7.8	
Points	Nil	16
Points indicators	Nil	12
Pushing train back on the main line	3.19	
Q		
R		
Radio - standard terms	3.7.6	
Radio protocols	3.7	
Radio, hand, light and flag commands	3.8	
Reporting to train control before network entry	3.12	
Reporting train clear at block posts	3.9.12	11
Reporting train clear of section at attended location	3.9.12	8
Reporting train clear of section in TOW	3.9.12	
Reporting train departure from attended and unattended locations	3.13	9
Reporting train progress, delay reasons and consist changes	3.13	10
Resumption of normal speed	Nil	34
Roll-by inspections	14	
Roll-by when trains cross or pass on single lines	5.11	
Rollingstock	10	
Rollingstock axle loads	Table 5	
Rollingstock incl. track vehicles or machines stabling at an unattended location	Nil	18

Rollingstock outline	7	
S		
Self-restoring points	Nil	6.9
Shunting unattended locations	3.22	26
Sign - Gang whistle	Nil	33.1
Sign - level crossing predictor warning	Nil	33.2
Signals - fixed	3.3	
Signals - fixed - passing at stop	3.4	
Signs - permanent speed	3.1.4k	32
Signs - warning	Nil	33
Signs- TSR and their meanings	3.2	31
Signs-Track side signs and their meanings	3.1	30
Single line working over double or multiple lines	3.23	
Speed signs - permanent	3.1.4k	32
Speed Restrictions During Hot Weather		42
Speedometer - locomotive	5.3	
Speeds for particular locations and circumstances	Nil	19
T		
Temporary Speed Restriction (TSR)	3.14.1	
Time	18	
TOA	3.11.12	
TOA limits - Parallel lines	Nil	25.4
TOA occupancy rules - Parallel lines	Nil	25.5
Tonnage maximums for trains	8	
Track force working	Nil	23
Track force working - defining locations and train identifications	Nil	23.1
Track force working - movement of track machines as trains	Nil	23.3
Track force working - requirements for NAR working	Nil	23.2
Track force working - track machines working in section as a train	Nil	23.3.4
Track Occupancy Authority (TOA)	3.11.12	
Track or infrastructure unsafe	3.14	
Track or infrastructure work on or near running lines	3.11.2	
Track out of service	3.14.2	
Track side signs and their meanings	3.1	30
Track suspected to be unsafe	3.14.3	
Track vehicles and machines	6.4	
Track vehicles and machines - maximum speeds	6.4.6	

Track vehicles and machines - movement over level crossings	6.4.3	
Track vehicles and machines - movement over points	3.11.5	
Track vehicles and machines - travelling in convoy	6.4.5	
Track vehicles or machines stabling at an unattended location	Nil	18
Track work - local possession	3.11.6	
Track work - movement over points	3.11.5	
Track work - Parallel Lines	Nil	25.1
Track work at attended block locations	3.11.4	
Track Work Authority (TWA)	3.11.16	
Track work communications	3.11.1	
Track work movements by rail to or from attended block location	3.11.3	
Track work protocols	3.11	
Track work within yard limits	6.3	
Track worker competency	6.1	
Track worker in charge of safety	6.5	
Track workers - protection from approaching movements	6.2	
Train assisting a disabled train in section	3.17	
Train authority - changing supporting information	3.9.14	
Train authority - crew changeover	3.9.15	
Train authority cancellation	3.9.13	
Train authority examples for TOW	3.9.4	
Train authority format	3.9.10	
Train authority issue to moving train	3.9.7	
Train authority preparation	3.9.6	
Train authority protocols	3.9	
Train authority working	3.9	24
Train authority working - crew changeover	3.9.15	24.4
Train authority working - issue of T/As from a location prior to Train Order territory	Nil	24.2
Train authority working - issue of T/As from terminal locations	Nil	24.1
Train authority working - line to be taken	3.9.4B	24.3
Train authority working - train working advice	3.10	24.5
Train crew and locomotive equipment	5.2	
Train crew fatigue	5.8	
Train crew verifying authorities and other in formation	5.7	
Train crew vigilance	5.4	
Train Crossing or Passing	Nil	6

Train Crossing or Passing - on ABS territory	Nil	6.2
Train Crossing or Passing - on ABS territory locations equipped with self-restoring points	Nil	6.6
Train Crossing or Passing - on ABS territory locations not equipped with self-restoring points	Nil	6.7
Train Crossing or Passing - on CTC territory	Nil	6.1
Train Crossing or Passing - on Train Order territory	Nil	6.3
Train Crossing or Passing - on Train Order territory equipped with manual points	Nil	6.10
Train Crossing or Passing - on Train Order territory equipped with self-restoring points	Nil	6.9
Train Crossing or Passing - on Train Order territory equipped with signals and self-restoring points	Nil	6.8
Train disabled in section	3.16	
Train dividing in the section	3.18	
Train documentation	17	
Train documentation and other instructions	5.9	
Train driving rules	5	
Train failure and other incidents - Parallel Lines	Nil	25.2
Train on fire	5.10	
Train passing permissive signals at stop at entrance to crossing location	Nil	6.5
Train progress, reporting delay reasons and consist changes	3.13	10
Train pushing back on the main line	3.19	
Train reporting clear at block posts	3.9.12	11
Train reporting clear of section in TOW	3.9.12	
Train Running Information (TRI)	3.11.20	
Train speeds for particular locations and circumstances	Nil	19
Train working advice - Train Authority and ABS working	3.10	24.5
Trains working or stabling at intermediate sidings in TOW section	3.21	
TRI	3.11.20	
TSR	3.14.1	
TSR signs and their meanings	3.2	31
TWA	3.11.16	
U		
Unattended location - Stabling of track vehicles or machines	Nil	18
Unattended locations - Shunting	3.22	26
Unsafe track or infrastructure	3.14	

V		
Vigilance - train crew	5.4	
Vigilance control - locomotive	5.2(e & f)	
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		

1.4 Adjacent Train Control Boards / Centres

ARTC NCCS Train Transit Manager: (02) 6930 5311

ARTC TOCO	(02) 6924 9801	Emergency	(02) 6924 9861
ARTC West CTC	(08) 8152 8007	Emergency	(08) 8152 8067

Aurizon:

(08) 8343 7732

(08) 8343 7730

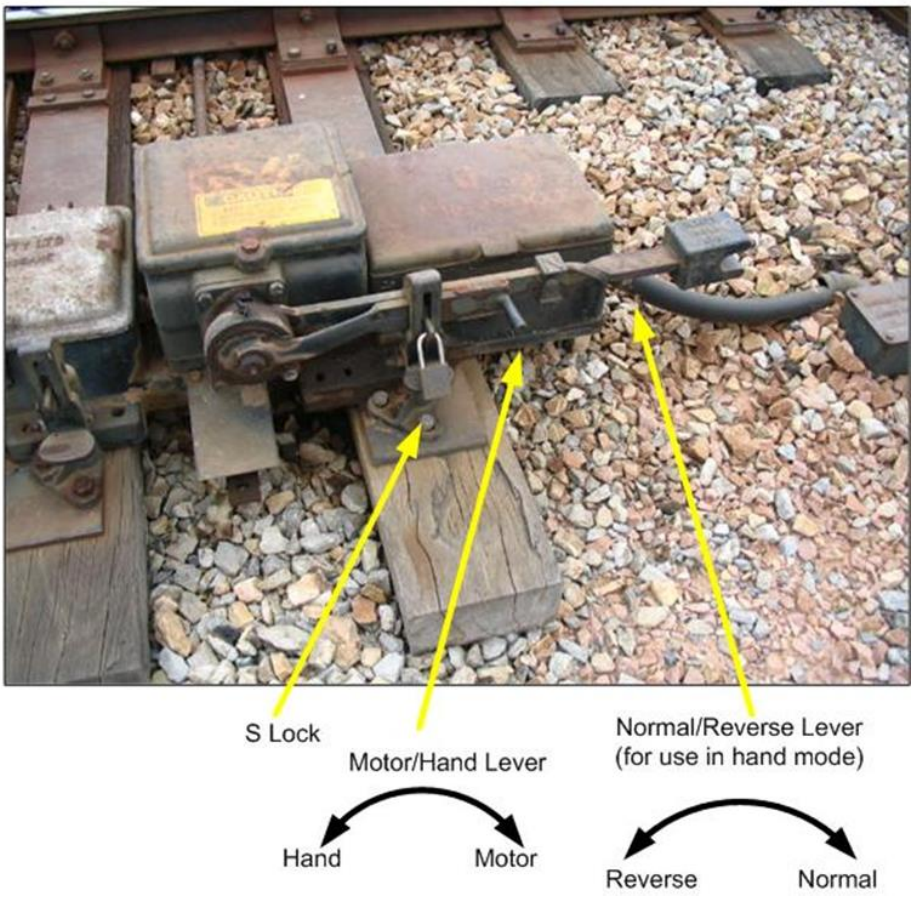
(08) 8262 5424

1.5 Section Operating Equipment

1.5.1 Motorised Point Machines

Motorised points have a special key located in the local control panel to access the point machine cover.

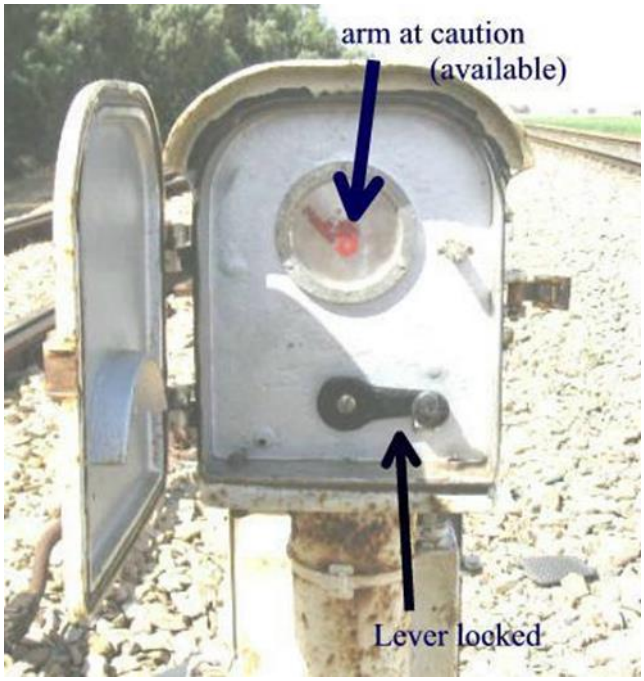
McKenzie & Holland Dual Control Points Machine



1.5.2 Outlying Switch Locks and HLM Point Locks

Electric Points Lock

At Bemax Siding between Thackaringa and Kanandah Siding and Perilya Siding between Kanandah Siding and Broken Hill



Typical OSL as used at Pinnacles Siding on the Broken Hill line with indicator at caution and lever locked.

- No through route set and OSL available on release.

OSL with indicator arm at stop and lever locked.

- Route set through yard or train on point circuit. OSL not available for release.

Indicator arm at caution, lever unlocked.

- OSL released and points may now be turned.

1.6 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 x 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 remarshalled 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.

1.7 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).

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
820	Binney Road Crystal Brook	Adelaide - Crystal Brook	196.012	Road	Public	Stop Signs
821	Clare Road Crystal Brook	Adelaide - Crystal Brook	196.909	Road	Public	Primary Flashing Lights
831	Cunningham Street Crystal Brook	Coonamia - Crystal Brook	22.860	Road	Public	Primary Flashing Lights
832	Weston Road Crystal Brook	Coonamia - Crystal Brook	23.582	Road	Public	Primary Flashing Lights
834	Private Crossing	Crystal Brook - Cockburn	26.453	Road	Private	
835	Head Road	Crystal Brook - Cockburn	29.881	Road	Public	Stop Signs
836	Private Crossing	Crystal Brook - Cockburn	31.725	Road	Private	
837	Georgetown - Huddleston Rd	Crystal Brook - Cockburn	33.466	Road	Public	Stop Signs
838	Gladstone-Huddleston Road	Crystal Brook - Cockburn	34.125	Road	Public	Half Boom Flashing Lights
839	Private Crossing	Crystal Brook - Cockburn	35.534	Road	Private	
840	Gumdale Road	Crystal Brook - Cockburn	37.634	Road	Public	Stop Signs
841	Private Crossing	Crystal Brook - Cockburn	38.233	Road	Private	
842	Private Crossing	Crystal Brook - Cockburn	39.888	Road	Private	
843	Viterra Bunker Access Rd	Crystal Brook - Cockburn	42.552	Road	Public	Give Way Signs
844	Main North Road / Horrocks Hwy Gladstone	Crystal Brook - Cockburn	43.173	Road	Public	Half Boom Flashing Lights
845	Bondowie St / Cross St Gladstone	Crystal Brook - Cockburn	44.192	Road	Public	Primary Flashing Lights
846	Private Crossing	Crystal Brook - Cockburn	45.684	Road	Private	
847	Private Crossing	Crystal Brook - Cockburn	48.328	Road	Private	

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
848	Powerline Rd	Crystal Brook - Cockburn	50.878	Road	Public	Stop Signs
849	Adams Road	Crystal Brook - Cockburn	54.312	Road	Public	Primary Flashing Lights
850	Private Crossing	Crystal Brook - Cockburn	57.398	Road	Private	
851	Hartwig Rd Caltowie	Crystal Brook - Cockburn	58.240	Road	Public	Stop Signs
852	Private Crossing	Crystal Brook - Cockburn	59.032	Road	Private	
853	Caltowie-Georgetown Road	Crystal Brook - Cockburn	59.402	Road	Public	Stop Signs
854	Wilkins Highway Caltowie	Crystal Brook - Cockburn	60.789	Road	Public	Primary Flashing Lights
855	Kildea Road	Crystal Brook - Cockburn	61.561	Road	Public	Stop Signs
856	Caltowie - Hornsdale Rd	Crystal Brook - Cockburn	63.607	Road	Public	Give Way Signs
857	Private Crossing	Crystal Brook - Cockburn	65.546	Road	Private	
859	Springbank Road	Crystal Brook - Cockburn	67.762	Road	Public	Stop Signs
860	Private Crossing	Crystal Brook - Cockburn	68.538	Road	Private	
861	Sawmill Entrance	Crystal Brook - Cockburn	69.318	Road	Public	Stop Signs
862	Eldena Road	Crystal Brook - Cockburn	70.126	Road	Public	Stop Signs
863	Appila Road (Clyde Street) Jamestown	Crystal Brook - Cockburn	71.704	Road	Public	Primary Flashing Lights
864	RM Williams Way (Vohr St) Jamestown	Crystal Brook - Cockburn	72.255	Road	Public	Primary Flashing Lights
2271	Jamestown Pedestrian Crossing	Crystal Brook - Cockburn	72.394	Pedestrian	Public	Maze
865	Collins Street Jamestown	Crystal Brook - Cockburn	73.481	Road	Public	Half Boom Flashing Lights
866	Murchland Road Jamestown	Crystal Brook - Cockburn	74.691	Road	Public	Stop Signs
867	Private Crossing	Crystal Brook - Cockburn	76.304	Road	Private	
868	Loudonbrae Rd Jamestown	Crystal Brook - Cockburn	76.886	Road	Public	Stop Signs

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
869	Private Crossing	Crystal Brook - Cockburn	78.252	Road	Private	
870	Smart Road	Crystal Brook - Cockburn	79.431	Road	Public	Stop Signs
871	Private Crossing	Crystal Brook - Cockburn	81.144	Road	Private	
872	Private Crossing	Crystal Brook - Cockburn	81.980	Road	Private	
873	Cudmore Gap Rd	Crystal Brook - Cockburn	83.467	Road	Public	Stop Signs
874	Woolshed Corner Rd	Crystal Brook - Cockburn	85.996	Road	Public	Stop Signs
875	Private Crossing	Crystal Brook - Cockburn	86.501	Road	Private	
876	Frost Road	Crystal Brook - Cockburn	88.504	Road	Public	Give Way Signs
877	Carls Road	Crystal Brook - Cockburn	90.086	Road	Public	Give Way Signs
878	Private Crossing	Crystal Brook - Cockburn	90.768	Road	Private	
879	Private Crossing	Crystal Brook - Cockburn	92.547	Road	Private	
880	Bradtke Road	Crystal Brook - Cockburn	93.369	Road	Public	Give Way Signs
881	Private Crossing	Crystal Brook - Cockburn	94.221	Road	Private	
882	Private Crossing	Crystal Brook - Cockburn	95.017	Road	Private	
883	Private Crossing	Crystal Brook - Cockburn	96.757	Road	Private	
884	Bradtke Road Yongala	Crystal Brook - Cockburn	97.266	Road	Public	Give Way Signs
885	Belalie Road Yongala	Crystal Brook - Cockburn	98.501	Road	Public	Stop Signs
886	Chomel St Yongala	Crystal Brook - Cockburn	99.124	Road	Public	Primary Flashing Lights
887	Private Crossing	Crystal Brook - Cockburn	100.098	Road	Private	
888	O'Dea Rd Yongala	Crystal Brook - Cockburn	100.784	Road	Public	Stop Signs
889	Private Crossing	Crystal Brook - Cockburn	102.120	Road	Private	

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
890	Malycha Road	Crystal Brook - Cockburn	103.260	Road	Public	Stop Signs
891	Private Crossing	Crystal Brook - Cockburn	104.344	Road	Private	
892	Yongala Vale Road Peterborough	Crystal Brook - Cockburn	107.245	Road	Public	Stop Signs
893	Hurlstone Street Peterborough	Crystal Brook - Cockburn	109.205	Road	Public	Primary Flashing Lights
894	Silver Street Peterborough	Crystal Brook - Cockburn	109.973	Road	Public	Primary Flashing Lights
2300	William Street Ped Xing Peterborough	Crystal Brook - Cockburn	110.270	Pedestrian	Public	Maze
895	Cemetery Road Peterborough	Crystal Brook - Cockburn	111.725	Road	Public	Stop Signs
896	Private Crossing	Crystal Brook - Cockburn	114.766	Road	Private	
897	Whittle Road	Crystal Brook - Cockburn	115.212	Road	Public	Stop Signs
908	Private Crossing	Crystal Brook - Cockburn	117.467	Road	Private	
898	Ucolta Road	Crystal Brook - Cockburn	120.925	Road	Public	Stop Signs
899	Private Crossing	Crystal Brook - Cockburn	122.292	Road	Private	
900	Private Crossing	Crystal Brook - Cockburn	123.230	Road	Private	
901	Barrier Highway	Crystal Brook - Cockburn	124.643	Road	Public	Primary Flashing Lights
902	Private Crossing	Crystal Brook - Cockburn	126.335	Road	Private	
903	Walkhungry Road	Crystal Brook - Cockburn	128.396	Road	Public	Stop Signs
2095	Private Crossing	Crystal Brook - Cockburn	128.656	Road	Private	
904	Appleby Rd	Crystal Brook - Cockburn	135.166	Road	Private	
905	Private Crossing	Crystal Brook - Cockburn	136.695	Road	Private	
906	Private Crossing	Crystal Brook - Cockburn	138.252	Road	Private	
907	Pine Creek Rd	Crystal Brook - Cockburn	138.651	Road	Public	Stop Signs

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
909	Private Crossing	Crystal Brook - Cockburn	139.610	Road	Private	
910	Private Crossing	Crystal Brook - Cockburn	141.628	Road	Private	
912	Private Crossing	Crystal Brook - Cockburn	145.994	Road	Private	
914	Private Crossing	Crystal Brook - Cockburn	147.289	Road	Private	
915	Private Crossing	Crystal Brook - Cockburn	149.399	Road	Private	
916	Rucioch Road	Crystal Brook - Cockburn	152.908	Road	Public	Stop Signs
917	Smith Road	Crystal Brook - Cockburn	155.077	Road	Public	Stop Signs
918	Private Crossing	Crystal Brook - Cockburn	156.004	Road	Private	
919	Private Crossing	Crystal Brook - Cockburn	161.300	Road	Private	
920	Mercer Road	Crystal Brook - Cockburn	162.629	Road	Public	Stop Signs
921	Private Crossing	Crystal Brook - Cockburn	168.403	Road	Private	
922	McKenzie Road	Crystal Brook - Cockburn	170.08	Road	Public	Stop Signs
923	Paratoo Access	Crystal Brook - Cockburn	174.318	Road	Public	Stop Signs
924	Sturt Vale Road Yunta	Crystal Brook - Cockburn	195.287	Road	Public	Stop Signs
925	Private Crossing	Crystal Brook - Cockburn	210.722	Road	Private	
926	Private Crossing	Crystal Brook - Cockburn	215.762	Road	Private	
927	Private Crossing	Crystal Brook - Cockburn	216.909	Road	Private	
928	Private Crossing	Crystal Brook - Cockburn	225.027	Road	Private	
929	Oulnina Park Access	Crystal Brook - Cockburn	238.898	Road	Public	Stop Signs
930	Benda HS Rd Mannahill	Crystal Brook - Cockburn	240.086	Road	Public	Stop Signs
931	Private Crossing	Crystal Brook - Cockburn	249.882	Road	Private	

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
932	Private Crossing	Crystal Brook - Cockburn	256.823	Road	Private	
933	Private Crossing	Crystal Brook - Cockburn	266.048	Road	Private	
934	Devonborough Downs Rd Olary	Crystal Brook - Cockburn	277.414	Road	Public	Stop Signs
935	Private Crossing	Crystal Brook – Cockburn	283.513	Road	Private	
936	Private Crossing	Crystal Brook - Cockburn	289.802	Road	Private	
937	Tilkalina Access Rd	Crystal Brook - Cockburn	302.736	Road	Public	Stop Signs
938	Barrier Highway	Crystal Brook - Cockburn	309.701	Road	Public	Primary Flashing Lights
939	Bindarrah Access	Crystal Brook - Cockburn	313.637	Road	Public	Give Way Signs
940	Private Crossing	Crystal Brook - Cockburn	317.380	Road	Private	
941	Mooleulooloo Rd Mingary	Crystal Brook - Cockburn	320.119	Road	Public	Stop Signs
942	Wompinie Access	Crystal Brook - Cockburn	322.583	Road	Public	Give Way Signs
943	Private Crossing	Crystal Brook - Cockburn	329.971	Road	Private	
944	Mulyungarie Access	Crystal Brook - Cockburn	338.599	Road	Public	Give Way Signs (duplicated)
2293	Border Terrace	Crystal Brook - Cockburn	346.013	Road	Public	Stop Signs
4276	Private Crossing	Cockburn - Broken Hill	349.253	Road	Private	
4277	Private Crossing	Cockburn - Broken Hill	354.157	Road	Private	
4278	Private Crossing	Cockburn - Broken Hill	355.614	Road	Private	
4279	Triple Chance Mine Rd	Cockburn - Broken Hill	362.100	Road	Public	Stop Signs
4280	Private Crossing	Cockburn - Broken Hill	367.317	Road	Private	
4281	Private Crossing	Cockburn - Broken Hill	369.100	Road	Private	
4282	Private Crossing	Cockburn - Broken Hill	374.235	Road	Private	

ALCAM ID	Road Name	Line Segment	KM	Traffic Type	Access	Control Type
4283	Private Crossing	Cockburn - Broken Hill	377.372	Road	Private	
4284	Private Crossing	Cockburn - Broken Hill	378.751	Road	Private	
4285	Private Crossing	Cockburn - Broken Hill	380.920	Road	Private	
4286	Private Crossing	Cockburn - Broken Hill	381.927	Road	Private	
4287	Private Crossing	Cockburn - Broken Hill	383.140	Road	Private	
4289	Private Crossing	Cockburn - Broken Hill	386 677	Road	Private	
4349	Take Off	Cockburn - Broken Hill	389.605	Road	Private	

1.8 Location Ahead Signs

The signs are erected on the drivers left hand side on approach at a distance detailed in the table below, from the end of points.

Location	Position Details
Crystal Brook	2500m Coonamia end
Crystal Brook	2700m Broken Hill end
Gladstone	2750m Crystal Brook end
Gladstone	2750m Broken Hill end
Caltowie	3600m Crystal Brook end
Caltowie	2500m Broken Hill end
Jamestown	2500m Crystal Brook end
Jamestown	2500m Broken Hill end
Yongala	3000m Crystal Brook end
Yongala	2500m Broken Hill end
Peterborough	2500m Crystal Brook end
Peterborough	2500m Broken Hill end
Hillgrange	2600m Crystal Brook end
Hillgrange	2500m Broken Hill end
Yunta	2500m Crystal Brook end
Yunta	2500m Broken Hill end
Mannahill	2500m Crystal Brook end
Mannahill	2500m Broken Hill end
Olary	2500m Crystal Brook end
Olary	2500m Broken Hill end
Thackaringa	2700m Crystal Brook end
Thackaringa	2500m Broken Hill end
Kanandah Siding	3000m Crystal Brook end

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 D15 for all speed information.

1.11 Maximum Train Length

Maximum train length is 1800 metres.

1.12 Structure Clearances

Refer Route Access Standards for Rolling Stock Outlines.

KM	LOCATION	TYPE
116.392	Dowds Hill Tunnel	Armco Arch
343.450	Cockburn Overpass	Concrete Abutment
391.920	Gypsum St Broken Hill	Concrete Column
392.170	South Road Broken Hill	Concrete Column

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

- Telstra NextG™ transceiver
- Iridium satellite transceiver
- UHF Radio
- 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.

The towers are located as follows:

1. Mt Brown - south of Yongala
2. Nantabibbie – north east of Hillgrange
3. Mt Edwards – between Yunta and Mannahill
4. McDonalds Hill – east of Olary
5. Thackaringa – north of Thackaringa (this tower only points towards Broken Hill)

1.14 Wayside Monitoring Systems

The wayside monitoring systems in place in this section are at Cockburn. There is a Wheel Condition Monitor (WCM) and a Rail Bearing Acoustic Monitor (RailBAM) at 345.600km.

1.15 Operation of Crossing Locations on Broken Hill Line

The following details the method of operation of points and signals on the ABS crossing loops between Caltowie and Thackaringa:

1.15.1 Operating Equipment

At each end of the crossing location is a location hut. The operating panel that allows the operation of the points and signals is contained within a locked cabinet mounted on the wall of the location hut and shall only be illuminated when the door of the operating panel inside the cabinet is open.

The diagram has the following:

1. A mimic of the track configuration at that end of the loop
1. Lock Lights advising the status of the locking.

‘DO NOT SET ROUTE WHEN ILLUMINATED’: indicates that a route has been set and cannot be altered until after the passage of a movement or the expiry of an applicable timer.

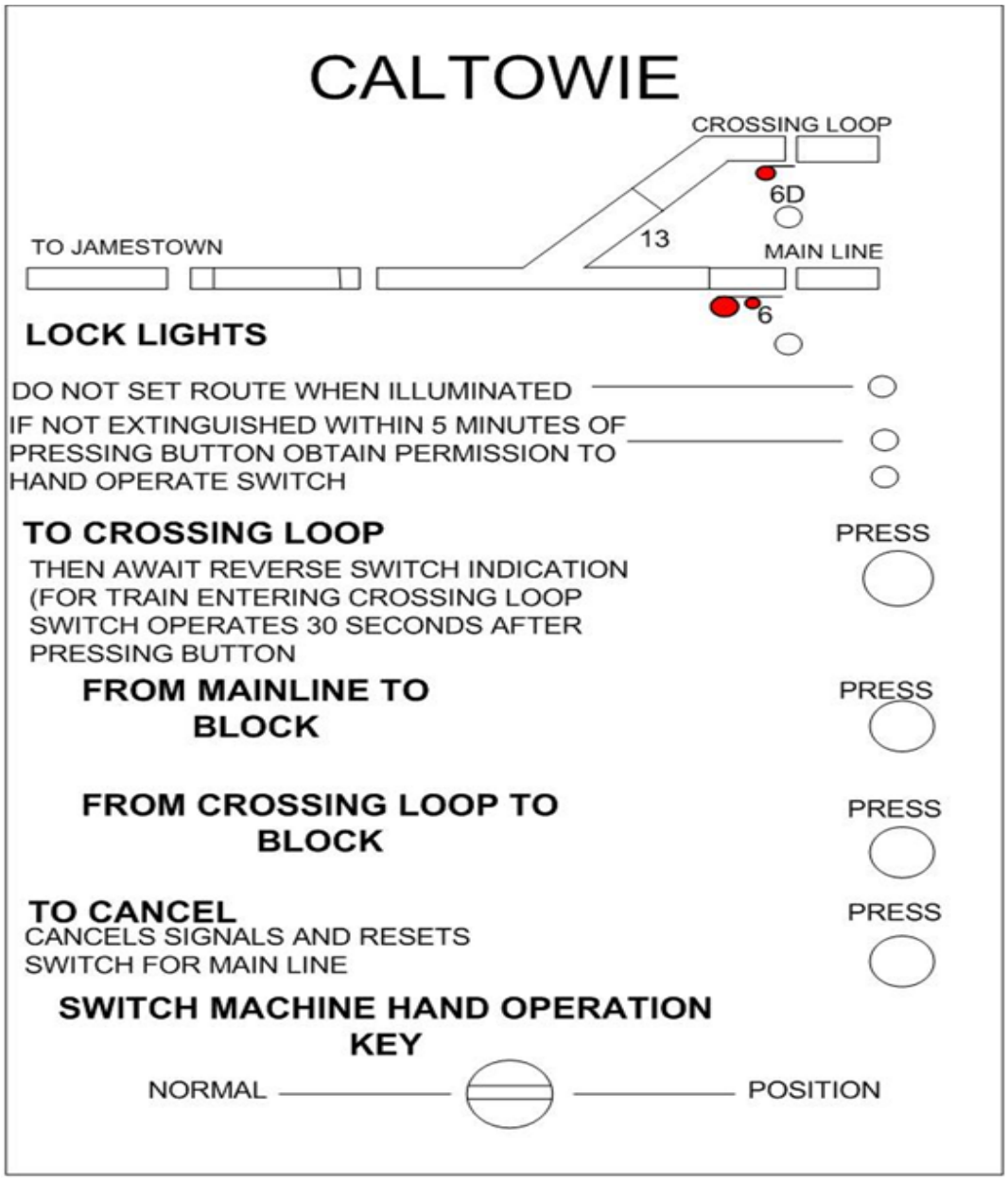
‘IF NOT EXTINGUISHED WITHIN 5 MINUTES OF PRESSING BUTTON OBTAIN PERMISSION TO HAND OPERATE POINTS’ indicates that a command and or timer rundown command is being processed.

3. Four push buttons for operation of the points and signals as detailed in this procedure.

- ‘TO CROSSING LOOP’-allows a route to be set from the main line to the crossing loop.
- ‘FROM MAIN LINE TO BLOCK’ allows a route to be set from the main line into the block.
- ‘FROM CROSSING LOOP TO BLOCK’ allows a route to be set from the crossing loop to the block.
- ‘TO CANCEL’ allows a route to be cancelled and resets the points for the main line.

2. A key switch containing a key for the operation of the points, removal of the key from the switch disables the controls on the illuminated diagram.

NOTE: Gladstone and Peterborough do not have key switches for manual operation of points . The locks are on the Motor-Hand lever on the points.



Note: *A four minute run down applies after pressing cancel button. Any attempt to manipulate the system during this time will only extend the run down time.*

1.15.2 Movement Proceeding Through

When a movement is to proceed through a crossing location and provided there is no opposing movement approaching or signalled from the location in advance, the signalling will automatically set up for the movement immediately the movement has passed the approach “strike in” point.

In sections without an Intermediate Signal, this usually occurs when the movement passes the outer signal location of the crossing location that the movement has already traversed.

In sections with Intermediate Signals, this usually occurs when the movement passes the location of the opposing Intermediate Signal.

If there is an opposing movement approaching or signalled from the location in advance, the outer permissive signal will display a ‘proceed’ aspect, the inner permissive signal will display a ‘caution’ aspect and the entering block signal will display ‘stop’.

1.15.3 Movement Proceeding to Main Line Only

When a movement is required to proceed onto the main line only for crossing purposes, the movement will be signalled as indicated above. If the entering block signal is displaying a 'proceed' aspect, the driver or qualified worker shall cancel the signal as follows:

1. Access the cabinet containing the illuminated diagram.
2. Observe that the entering block signal is at proceed on the diagram.
3. Press the **'TO CANCEL'** button on the diagram.

The entering block signal will cancel which will allow the opposing entering block signal to assume a 'proceed' aspect and a 5 minute timer will commence that secures the route.

The system will not accept any further commands until expiration of the 5 minute timer which shall be indicated by the 'LOCK LIGHTS" becoming extinguished upon the timer expiring. The driver or qualified worker shall not attempt further commands until the timer has expired.

After the 5 minute timer has expired, the driver or qualified worker may then press the **'TO CROSSING LOOP'** button, which shall then set the points for the crossing loop for the opposing movement.

1.15.4 Movement Proceeding to Crossing Loop

When a movement is required to proceed onto the crossing loop for crossing purposes the movement shall come to a stand at the inner permissive signal. The driver or qualified worker shall:

1. Access the cabinet containing the illuminated diagram.
2. Press the 'TO CROSSING LOOP' button on the diagram.

Following a 30 second timer the button will light and the points will set and lock for the crossing loop and the applicable lock light will be displayed.

The movement may then proceed onto the crossing loop in accordance with the procedures detailed in the ARTC Addendum to the Code of Practice.

Immediately the movement has entered the crossing loop the points to the rear of the movement will self-restore for the main line, and where applicable, the signals for an opposing movement shall then set.

It should be noted that when a route is set as detailed, the route cannot be cancelled or a new route set until a 1 minute timer has expired after the initial command.

1.15.5 Cancelling Loop Command

If, after the driver or qualified worker has set the route for a movement to proceed onto the crossing loop, but the movement will not proceed, the driver or qualified worker cannot cancel the route until the expiry of a 1 minute timer. Provided the 'TO CROSSING LOOP' button is no longer illuminated, indicating the timer has expired, the driver or qualified worker shall press the cancel button, which shall then restore the points for the main line.

1.15.6 Movement Departing Main Line

Following a cross, the points will normally self-restore for the main line and the entering block signal will assume a 'proceed' aspect after two minutes provided the correct conditions exist.

If, in the event the signal does not assume a ‘proceed’ aspect, the driver or qualified worker shall proceed to the operating panel and:

If the points are still set in the reverse position:

1. Observe that the block is indicating as clear on the illuminated diagram.
2. Observe that the lock lights are not illuminated.
3. Press the **‘CANCEL’** button.

The points will restore for the main line, a 5 minute timer will occur during which period another command will not be accepted. The cancel button being illuminated indicates operation of the timer.

Immediately the timer has expired, or if the points are set in the normal position, the driver or qualified worker shall then:

1. Press the ‘FROM MAIN LINE TO BLOCK’ button.
2. Observe that the entering block signal is displaying a ‘proceed’ aspect.

If the signal still does not assume a ‘proceed’ aspect, the driver or qualified worker shall contact the train controller.

1.15.7 Movement Departing Crossing Loop

When a movement is required to depart the crossing loop, the driver or qualified worker shall:

1. Observe that the block is indicating as clear on the illuminated diagram.
2. Observe that the lock lights are not illuminated.
3. Press the ‘FROM CROSSING LOOP TO BLOCK’ button.

The points will set for the crossing loop and the applicable signal will assume a ‘proceed’ aspect after two minutes.

1.15.8 Cancelling From Loop Command

If, after the driver or qualified worker has set the route for a movement to depart the crossing loop and the movement will not proceed, the driver or qualified worker shall press the **‘CANCEL’** button to cancel the route. This will place the signal to ‘Stop’ and commence a 1 minute timer that secures the route after which the points shall then restore for the main line.

The system will not accept any further commands until expiration of the 1 minute timer which shall be indicated by the ‘LOCK LIGHTS” becoming extinguished upon the timer expiring. Driver or qualified workers shall not attempt further commands until the timer has expired.

If the Main Line entering block signal needs to be cleared for a Main Line Train Movement, then the **‘FROM MAIN LINE TO BLOCK’** button shall be pressed after the timer has expired.

1.15.9 Operation of Points by Hand

In the event that the points require to be operated by hand, the driver or qualified worker shall contact and request permission from the train controller.

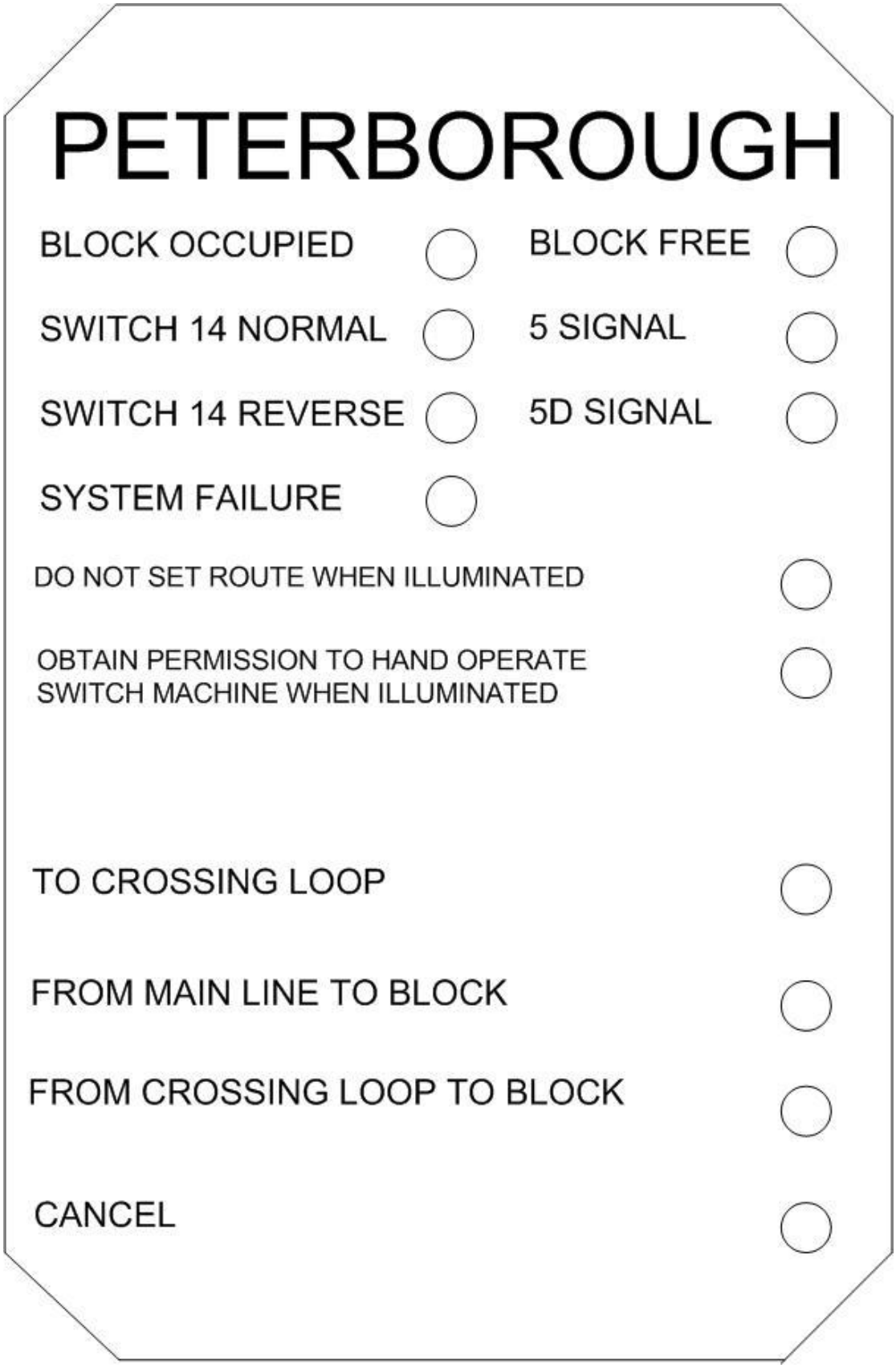
Upon receiving permission, the driver or qualified worker shall turn and withdraw the key from the key switch. This action will disable the control system at that end of the crossing loop and the key shall be used to unlock the points on the point machine.

NOTE: Gladstone and Peterborough do not have key switches for manual operation of points . The locks are on the Motor-Hand lever on the points.

Photo of Location Hut at Thackaringa with Local Control Panel cabinet on side of hut.

Photo of Local Control Panel inside cabinet with door of operating panel open.

Panel in use at Peterborough only



1.15.10 Automatic Signalling Strike in Points

UP DIRECTION (TO CRYSTAL BROOK)			
SECTION	**KM (APPROXIMATE) OR SIGNAL**	**Actual Timing out on approach to 2 Signal from Kanandah Siding to Hillgrange or 1 Signal from Peterborough to Gladstone**	**AFFECTS**
BROKEN HILL	56 SIGNAL CLEAR		5/5D SIGNAL THACKARINGA
KANANDAH SIDING - THACKARINGA	~368KM	237 seconds after 2 Signal Thackaringa Siding approach occupied	5/5D SIGNAL MINGARY
THACKARINGA - MINGARY	~326KM	466 seconds after 2 Signal Mingary approach occupied	5/5D SIGNAL OLARY
MINGARY - OLARY	~281KM	392 seconds after 2 Signal Olary approach occupied	5/5D SIGNAL MANNAHILL
OLARY - MANNAHILL	~246KM	161 seconds after 2 Signal Mannahill approach occupied	5/5D SIGNAL YUNTA
MANNAHILL - YUNTA	~201KM	75 seconds after 2 Signal Yunta approach occupied	5/5D SIGNAL HILLGRANGE
YUNTA - HILLGRANGE	~149KM	75 seconds after 2 Signal Hillgrange approach occupied	6/6D SIGNAL PETERBOROUGH
HILLGRANGE - PETERBOROUGH	~116KM	251 seconds after 1 Signal Peterborough approach occupied	6/6D SIGNAL YONGALA
PETERBOROUGH - YONGALA	106KM 644M		6/6D SIGNAL JAMESTOWN
YONGALA - JAMESTOWN	~79KM	284 seconds after 1 Signal Jamestown approach occupied	6/6D SIGNAL CALTOWIE
JAMESTOWN - CALTOWIE	~65KM	52 seconds after 1 Signal Caltowie approach occupied	23/23E SIGNAL GLADSTONE
DOWN DIRECTION (TO BROKEN HILL)			
SECTION	**KM (Approximate) or Signal**	**Actual Timing out on approach to 1 Signal from Gladstone to Peterborough or 2 Signal from Hillgrange to Kanandah Siding**	**AFFECTS**
GLADSTONE	23/23E SIGNAL CLEAR		5/5D SIGNAL CALTOWIE
GLADSTONE - CALTOWIE	~54KM	237 seconds after 2 Signal Caltowie approach occupied	5/5D SIGNAL JAMESTOWN
CALTOWIE - JAMESTOWN	~67KM	21 seconds after 2 Signal Jamestown approach occupied	5/5D SIGNAL YONGALA
JAMESTOWN - YONGALA	~94KM	111 seconds after 2 Signal Yongala approach occupied	5/5D SIGNAL PETERBOROUGH
YONGALA - PETERBOROUGH	102KM 075M		6/6D SIGNAL HILLGRANGE

PETERBOROUGH - HILLGRANGE	~140KM	211 seconds after 1 Signal Hillgrange approach occupied	6/6D SIGNAL YUNTA
HILLGRANGE - YUNTA	~189KM	65 seconds after 1 Signal Yunta approach occupied	6/6D SIGNAL MANNAHILL
YUNTA - MANNAHILL	~233KM	318 seconds after 1 Signal Mannahill approach occupied	6/6D SIGNAL OLARY
MANNAHILL - OLARY	~271KM	65 seconds after 1 Signal Olary approach occupied	6/6D SIGNAL MINGARY
OLARY - MINGARY	~314KM	284 seconds after 1 Signal Mingary approach occupied	6/6D SIGNAL THACKARINGA
MINGARY - THACKARINGA	~358KM	207 seconds after 1 Signal Thackaringa Siding approach occupied	6/6D SIGNAL KANANDAH SIDING
THACKARINGA - KANANDAH SIDING	~384KM	52 seconds after 1 Signal Kanandah Siding approach occupied	56 SIGNAL BROKEN HILL

1.16 Ruling Gradients

Crystal Brook to Broken Hill	1 in 80
Broken Hill to Crystal Brook	1 in 120

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

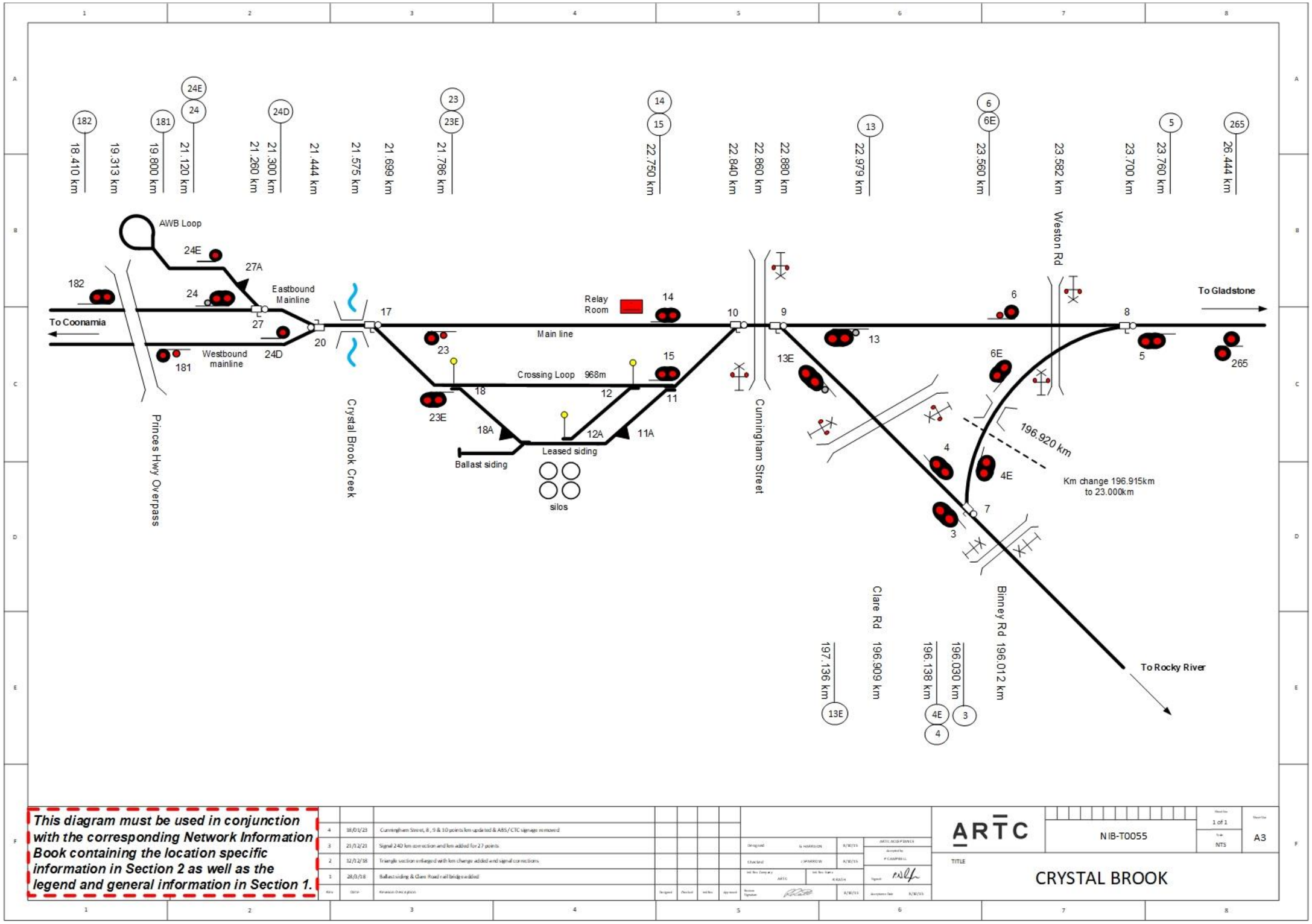
1.18 Drawing Legend

	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 Passenger Platform	Station or Platform
	Derail		Dual Control Motorised Points
	Turnout		Catchpoint
	Point Indicator		Mechanical Frame
		Absolute Signals (Absolute signals in Victoria containing a 'P' on the name plate are co-acting signals)	
	Permissive Signals	6 6D 74.592 km 4 109.128 km	Signal number reference
	Dwarf Signals		Banner Indicator
	Overheight Detectors	>> <<	Wayside Equipment

2 Locations and Sections Information

2.1 Crystal Brook (CRB)

Refer Network Information Book OGW-30-09 West CTC - Dry Creek North Junction (exclusive) to Spencer Junction (inclusive) for information pertaining to Crystal Brook.



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.

Rev	Date	Revision Description
4	18/01/23	Cunningham Street, 8 , 9 & 10 points km updated & ABS/CTC signage removed
3	21/12/21	Signal 240 km correction and km added for 27 points
2	12/12/18	Triangle section enlarged with km change added and signal corrections
1	28/9/18	Ballast siding & Clare Road rail bridge added

ARTC

NIB-T0055

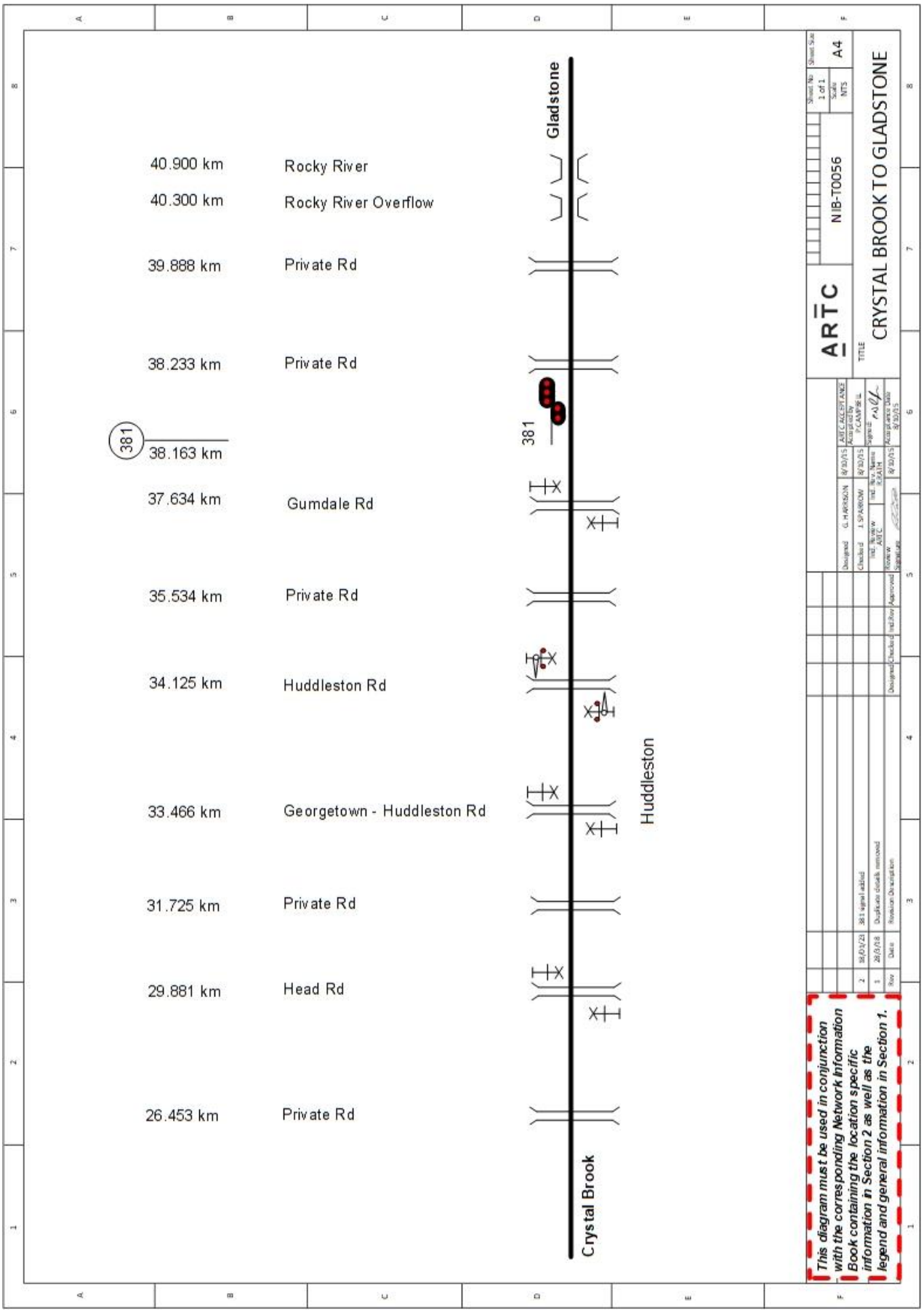
1 of 1

NTS

A3

TITLE

CRYSTAL BROOK


Gladstone
40.900 km
Rocky River
40.300 km
Rocky River Overflow
39.888 km
Private Rd
38.233 km
Private Rd
381
38.163 km
381
37.634 km
Gumdale Rd
35.534 km
Private Rd
34.125 km
Huddleston Rd
Huddleston
33.466 km
Georgetown - Huddleston Rd
31.725 km
Private Rd
29.881 km
Head Rd
26.453 km
Private Rd
Crystal Brook
CRYSTAL BROOK TO GLADSTONE
NIB-T0056
A4
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.

2.2 Gladstone (GLD)

Loop Standing Room:

- 2739 Metres
    - Crystal Brook end signal to Horrocks Highway signal 1,649 metres
    - Caltowie end signal to Horrocks Highway signal 683 metres

Goods Siding:

- Yes. (Major Grain Terminal yard, leased to Aurizon. See IA 31 for details).
- Goods Loop (17A derail to 18A derail) 564 metres
- Block 1 to 18A derail 460 metres
- Block 2 to 18A derail 320 metres
- Block 1 to 16A derail 104 metres
- 17A derail to 16A derail 610 metres
- 16 derail to 18A derail 432 metres
- No 18 points to bunker dead end 850 metres
- Bunker dead end spur (clear) 350 metres
- Block 3 to dead end 450 metres

Crank Handles:

- No. Dual control point machines

Grain:

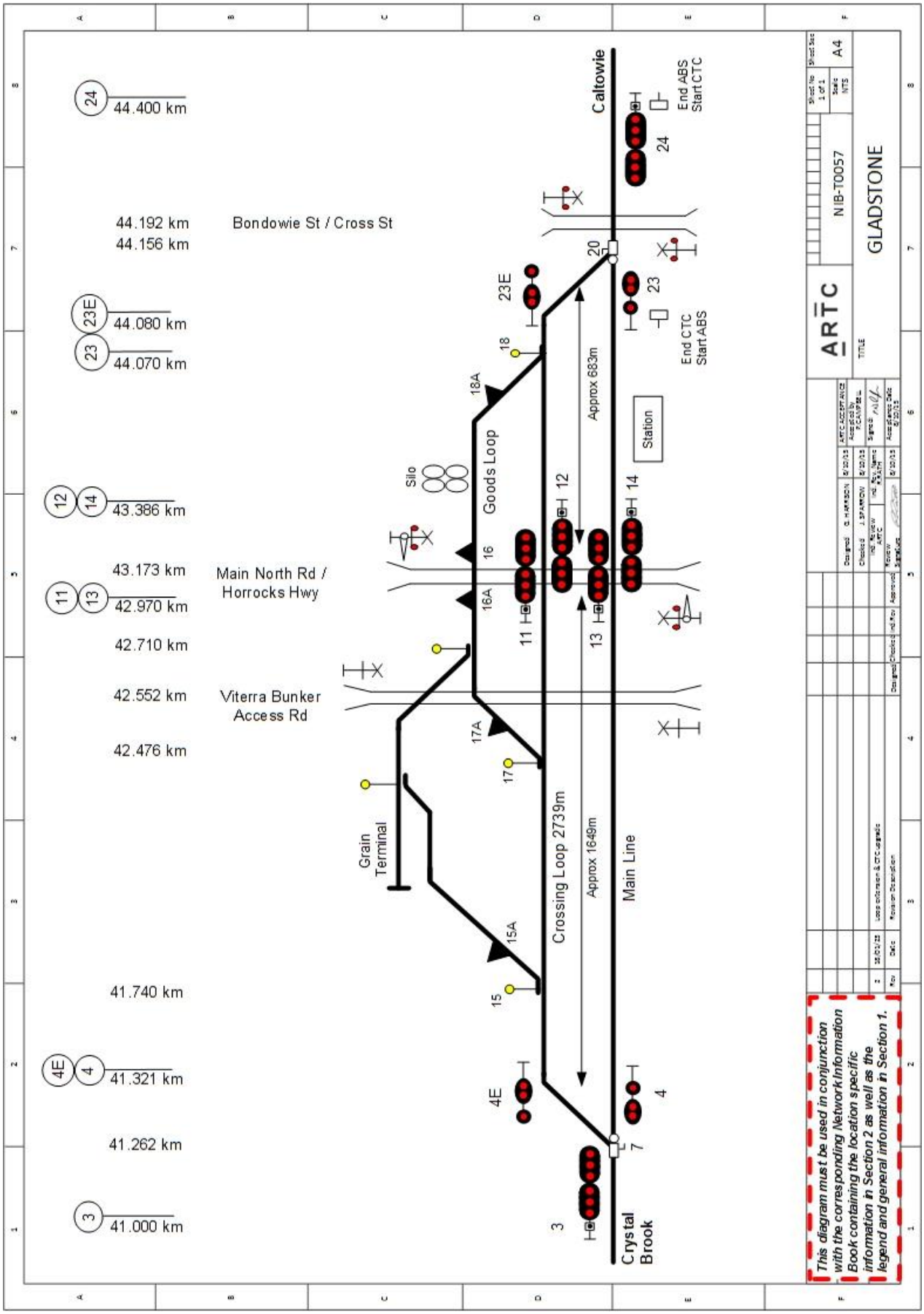
Set up grain hoppers Caltowie side of loading chutes or as per instructions from Grain Agent. Wagons load towards Crystal Brook.

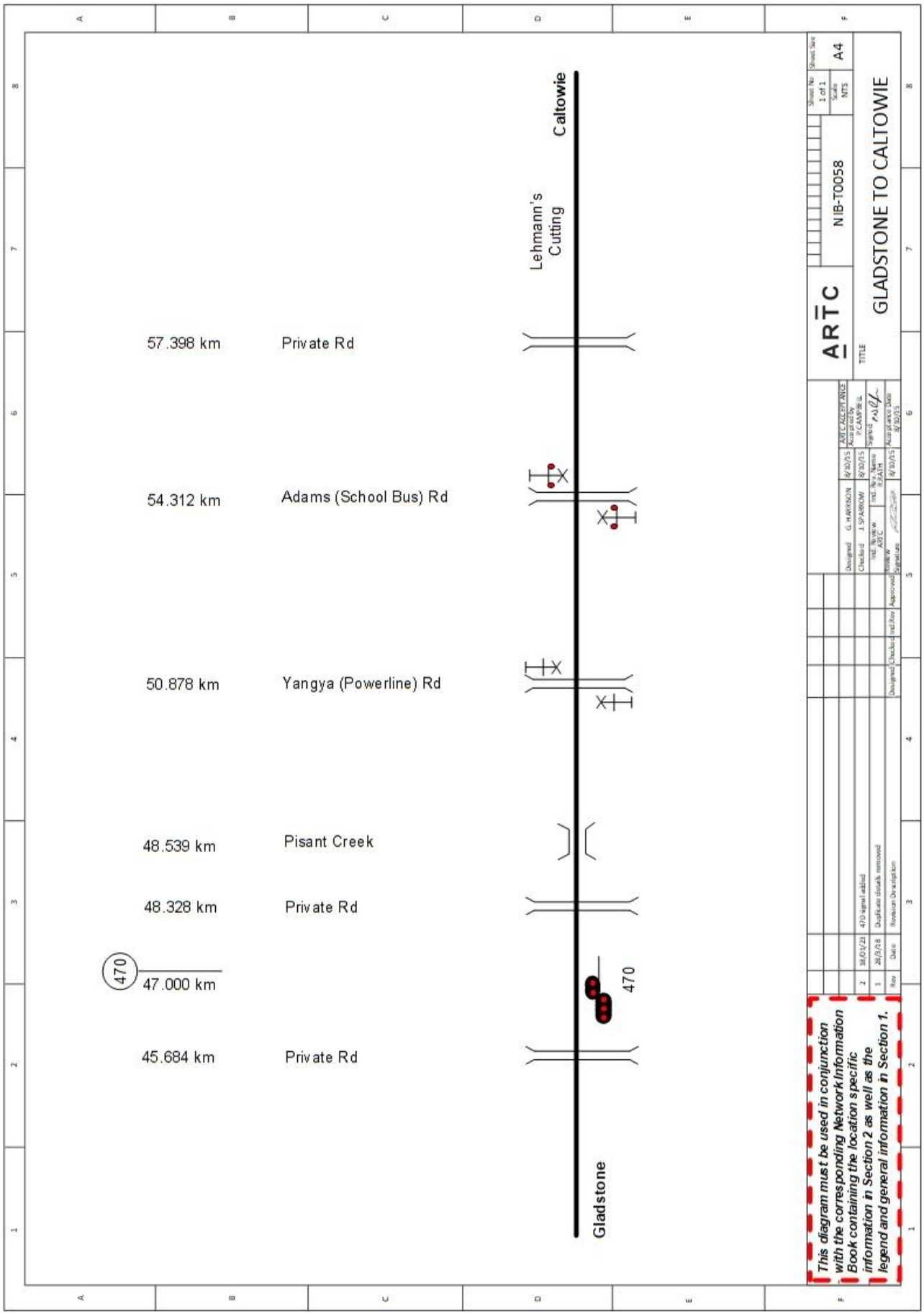
Local Panel:

- Contained within the 42X location hut at Horrocks Highway Level Crossing. No access for train crews.

Main North Road Level Crossing:

- The operation of both No.16 and 16A derails on the goods siding will activate the crossing. Both derails will need to be back on to cancel the crossing. Associated “STOP Attend to Derail” boards are located prior to each derail.
- A push button to operate the level crossing, is located in a box secured with an ‘S’ key, on the side of 42X location hut at the level crossing.


24
44.400 km
44.192 km
Bondowie St / Cross St
44.156 km
23E
44.080 km
23
44.070 km
12
14
43.386 km
43.173 km
11
13
42.970 km
Main North Rd /
Horrocks Hwy
42.710 km
42.552 km
Viterra Bunker
Access Rd
42.476 km
41.740 km
4E
4
41.321 km
41.262 km
3
41.000 km
Caltowie
End ABS
Start CTC
End CTC
Start ABS
Station
Silo
Goods Loop
Approx 683m
Grain
Terminal
Crossing Loop 2739m
Approx 1649m
Main Line
Crystal
Brook
18A
18
16
16A
17A
17
15A
15
20
23
23E
12
14
11
13
4E
4
7
3
NIB-T0057
GLADSTONE
A4
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.


Caltowie
Lehmann's Cutting
57.398 km
Private Rd
54.312 km
Adams (School Bus) Rd
50.878 km
Yangya (Powerline) Rd
48.539 km
Pisant Creek
48.328 km
Private Rd
470
47.000 km
470
45.684 km
Private Rd
Gladstone
ARTC
NIB-T0058
GLADSTONE TO CALTOWIE
A4
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.

2.3 Caltowie (CAL)

Loop Standing Room:

- 1054m

Goods Siding: (currently closed)

- Yes. (Leased to Aurizon. See IA 31 for details).
- Goods Loop 1 (total) 524 metres
- Block 1 to east end derail 204 metres
- Goods Loop 2 (in clear) 176 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

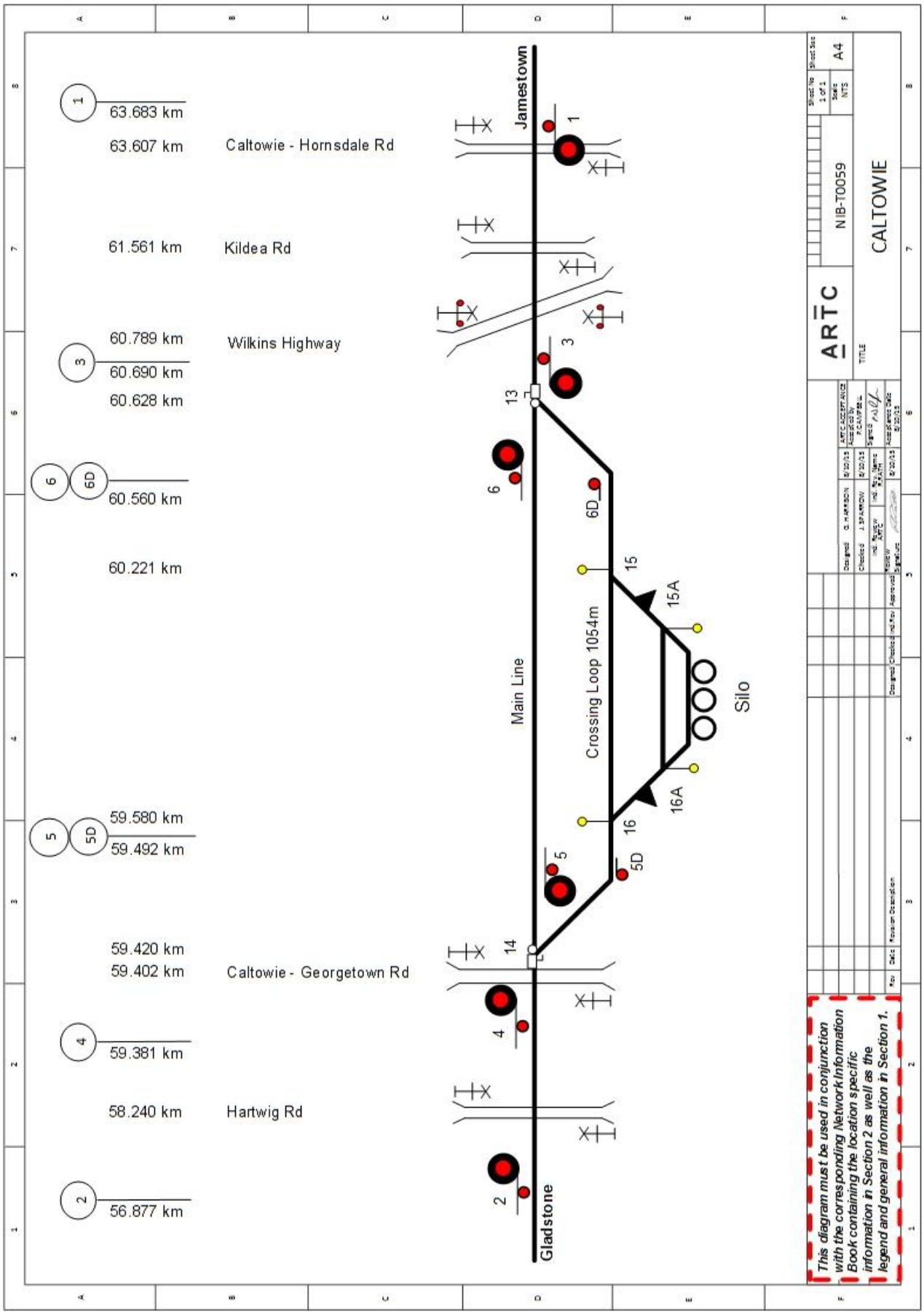
Grain:

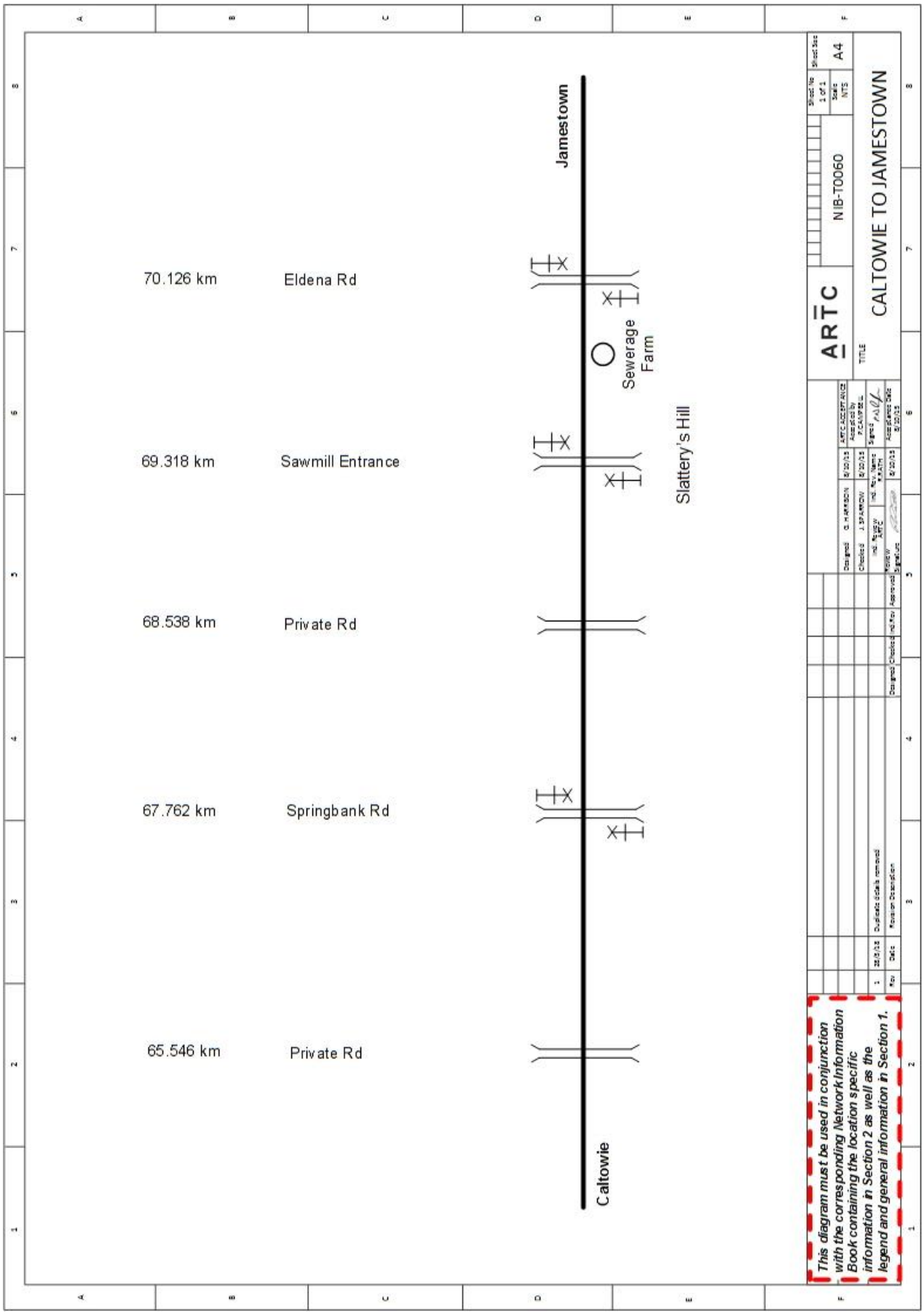
- Set up grain hoppers Jamestown side of loading chutes or as per instructions from Grain Agent. Wagons load towards Gladstone.

Road access is good as yard is on the edge of a small township

Automatic Signalling

- Will start to set up Caltowie when the Broken Hill bound train clears Gladstone signal 23, 23E.
- Will start to set up Caltowie when the Crystal Brook bound train passes the location of Signal 2 at Jamestown


1
63.683 km
63.607 km
Caltowie - Hornsdale Rd
61.561 km
Kildea Rd
3
60.789 km
60.690 km
Wilkins Highway
60.628 km
6
6D
60.560 km
60.221 km
5
5D
59.580 km
59.492 km
59.420 km
59.402 km
Caltowie - Georgetown Rd
4
59.381 km
58.240 km
Hartwig Rd
2
56.877 km
Jamestown
Gladstone
Main Line
Crossing Loop 1054m
Silo
13
14
15
15A
16
16A
NIB-T0059
CALTOWIE
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.


Jamestown
70.126 km
Eldena Rd
Sewerage Farm
69.318 km
Sawmill Entrance
Slattery's Hill
68.538 km
Private Rd
67.762 km
Springbank Rd
65.546 km
Private Rd
Caltowie
CALTOWIE TO JAMESTOWN
NIB-T0060
A4
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.

2.4 Jamestown (JAM)

Loop Standing Room:

- 1007m

Goods Siding: (clipped & locked)

- Yes.
- Stock Siding 330m (clipped & locked)
- Silo Loop 1 (not in use) 215 metres (in clear)
- Silo Loop 2 (not in use) 215 metres (in clear)
- Dead End 160 metres
- Former crossing loop 998m (currently not in use)

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Grain:

- Set up grain hoppers Yongala side of loading chutes or as per instructions from Grain Agent. Wagons load towards Jamestown.

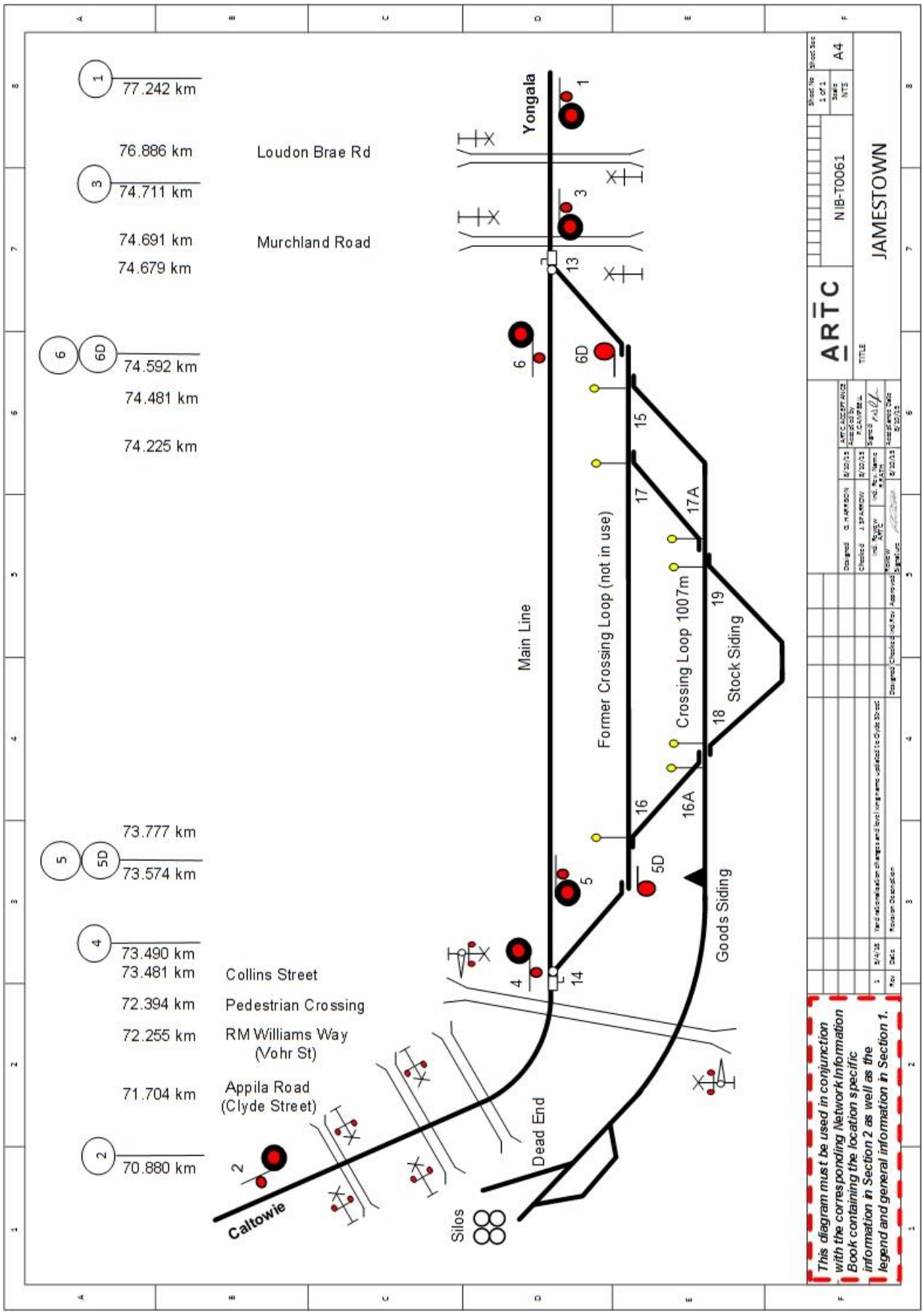
The Goods Siding which is currently not in use, has a long extension on the western end which serves the silos. Trains shunting the silos can be adjacent to the main line in the section and sighted by main line trains coming around a curve. Track from Crossing Loop to Silos is downgrade.

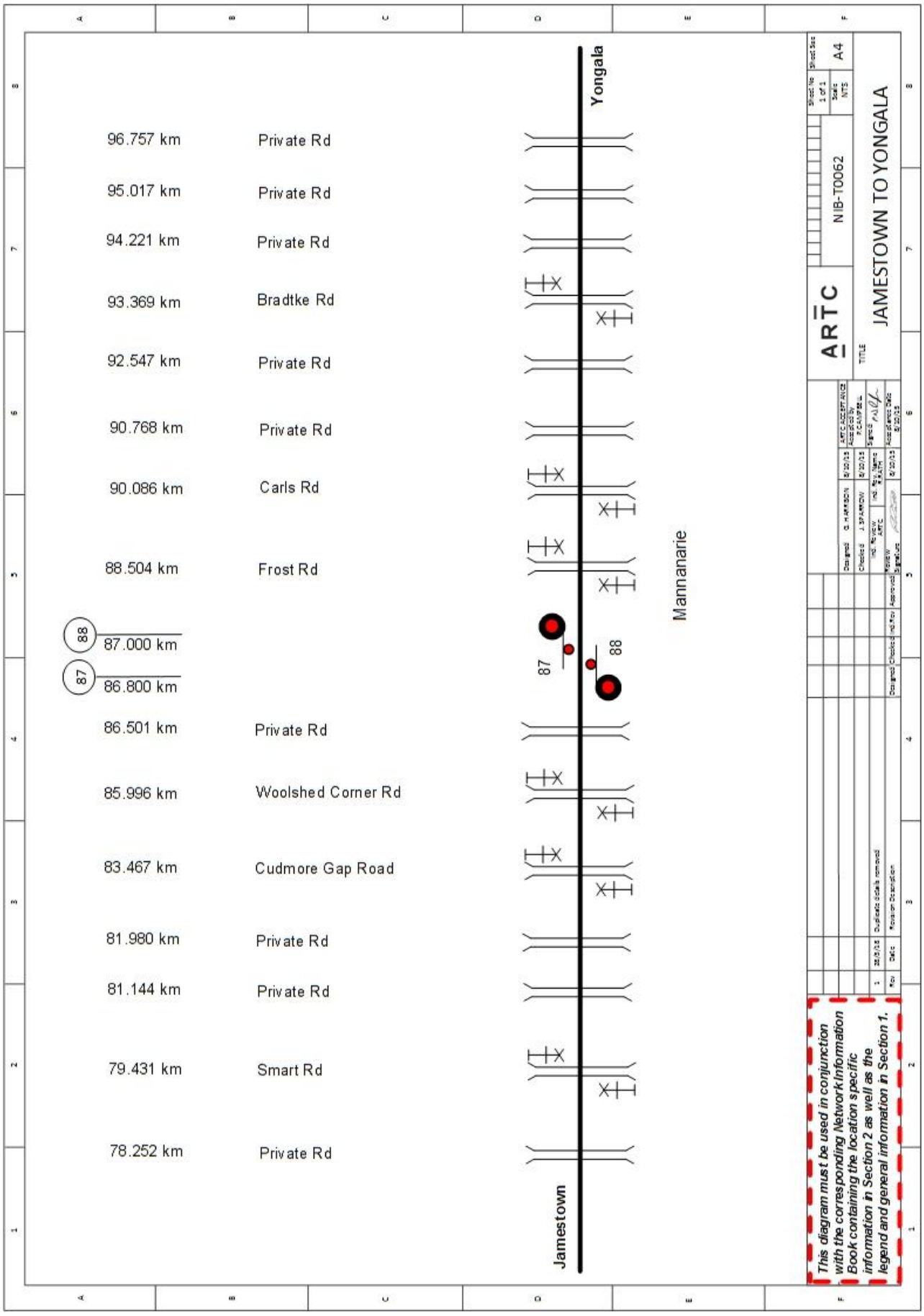
Through trains should be warned when this may happen as the shunting train is often clear of running lines and a Train Authority to cross may not be needed.

Road access is good as the yard is on the edge of a regional centre.

Automatic Signalling:

- Will start to set up Jamestown when the Broken Hill bound train passes the location of Signal 1 at Caltowie.
- Will start to set up Jamestown when the Crystal Brook bound train passes the location of Signal 87 at Mannanarie.


77.242 km
76.886 km
Loudon Brae Rd
74.711 km
74.691 km
Murchland Road
74.679 km
74.592 km
74.481 km
74.225 km
73.777 km
73.574 km
73.490 km
73.481 km
Collins Street
72.394 km
Pedestrian Crossing
72.255 km
RM Williams Way
(Vohr St)
71.704 km
Appila Road
(Clyde Street)
70.880 km
Caltowie
Silos
Dead End
Main Line
Former Crossing Loop (not in use)
Crossing Loop 1007m
Stock Siding
Goods Siding
Yongala
JAMESTOWN
NIB-T0061
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.


Yongala
96.757 km
Private Rd
95.017 km
Private Rd
94.221 km
Private Rd
93.369 km
Bradtke Rd
92.547 km
Private Rd
90.768 km
Private Rd
90.086 km
Carls Rd
88.504 km
Frost Rd
88
87.000 km
87
86.800 km
86.501 km
Private Rd
85.996 km
Woolshed Corner Rd
83.467 km
Cudmore Gap Road
81.980 km
Private Rd
81.144 km
Private Rd
79.431 km
Smart Rd
78.252 km
Private Rd
Jamestown
Mannanarie
87
88
ARTC
NIB-T0062
A4
TITLE
JAMESTOWN TO YONGALA
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.

2.5 Yongala (YOL)

Loop Standing Room:

- 1009m
- Crossing location NOT equipped with self-restoring points

Goods Siding: (currently closed)

- Yes. (Leased to Aurizon. See IA 31 for details).
- Goods Loop (clear) 432 metres
- Block 1 to east end derail 91 metres

Crank Handles:

- No. Dual control point machines used in HAND only.

Local Panel:

- No panel supplied.
- Push Buttons are supplied at the fibreglass box opposite Signal 6 to clear or cancel Signals 6 and 6D.
- Push Buttons are supplied at Signals 4. 5 and 5D to activate the crossing and clear the signals.

Grain:

- Set up grain hoppers Peterborough side of loading chutes or as per instructions from Grain Agent. Wagons load towards Jamestown.

Goods Loop has hand operated derails separate from hand operated points. Ensure that both are operated prior to movement.

Road access is good with yard on edge of small town

Automatic Signalling:

- Will start to set up Yongala when the Broken Hill bound train passes the location of Signal 88 at Mannanarie.
- Will start to set up Yongala when the Crystal Brook bound train passes the location of Signal 2 at Peterborough.

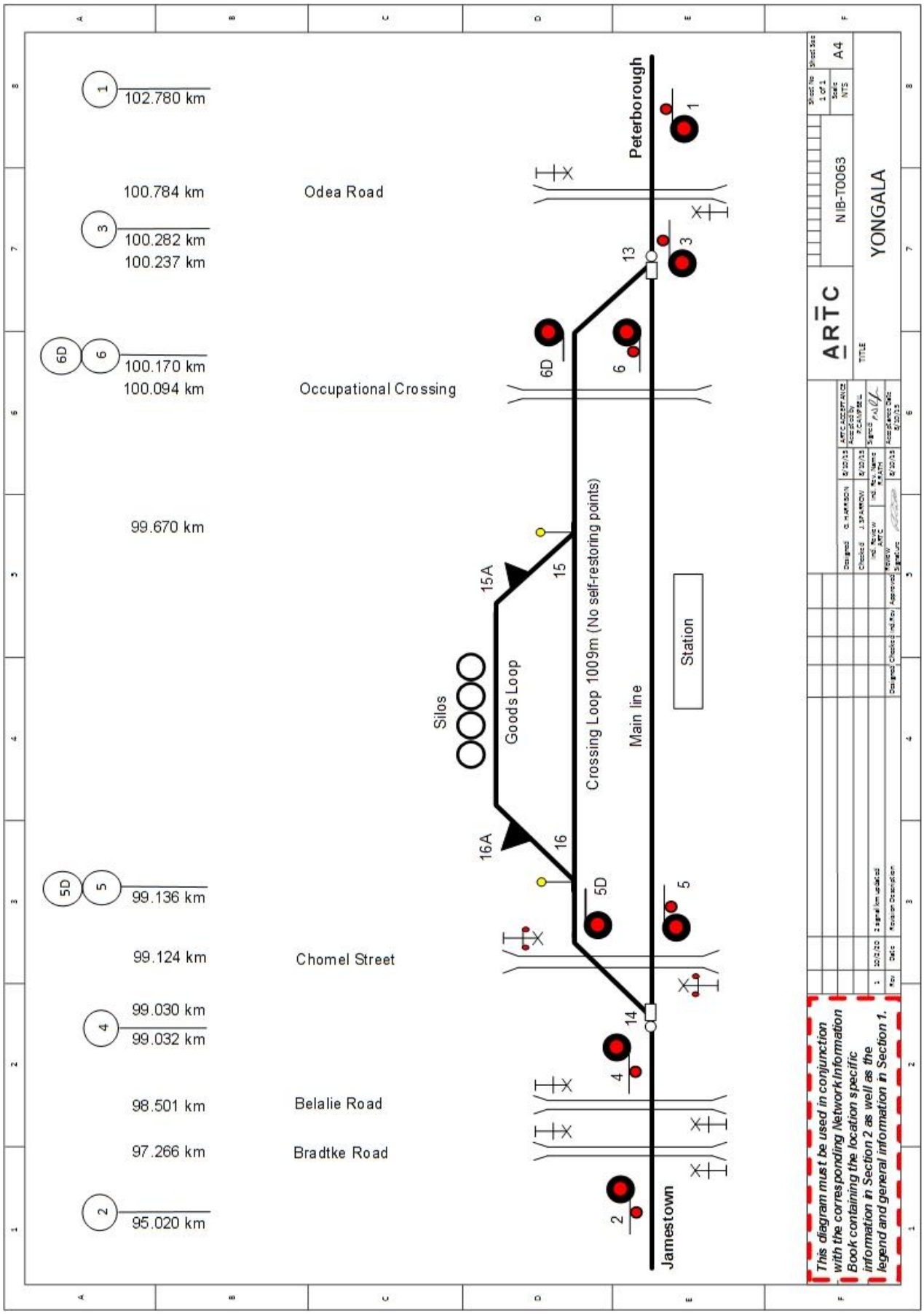
2.5.1 Crossing Loop Requirements

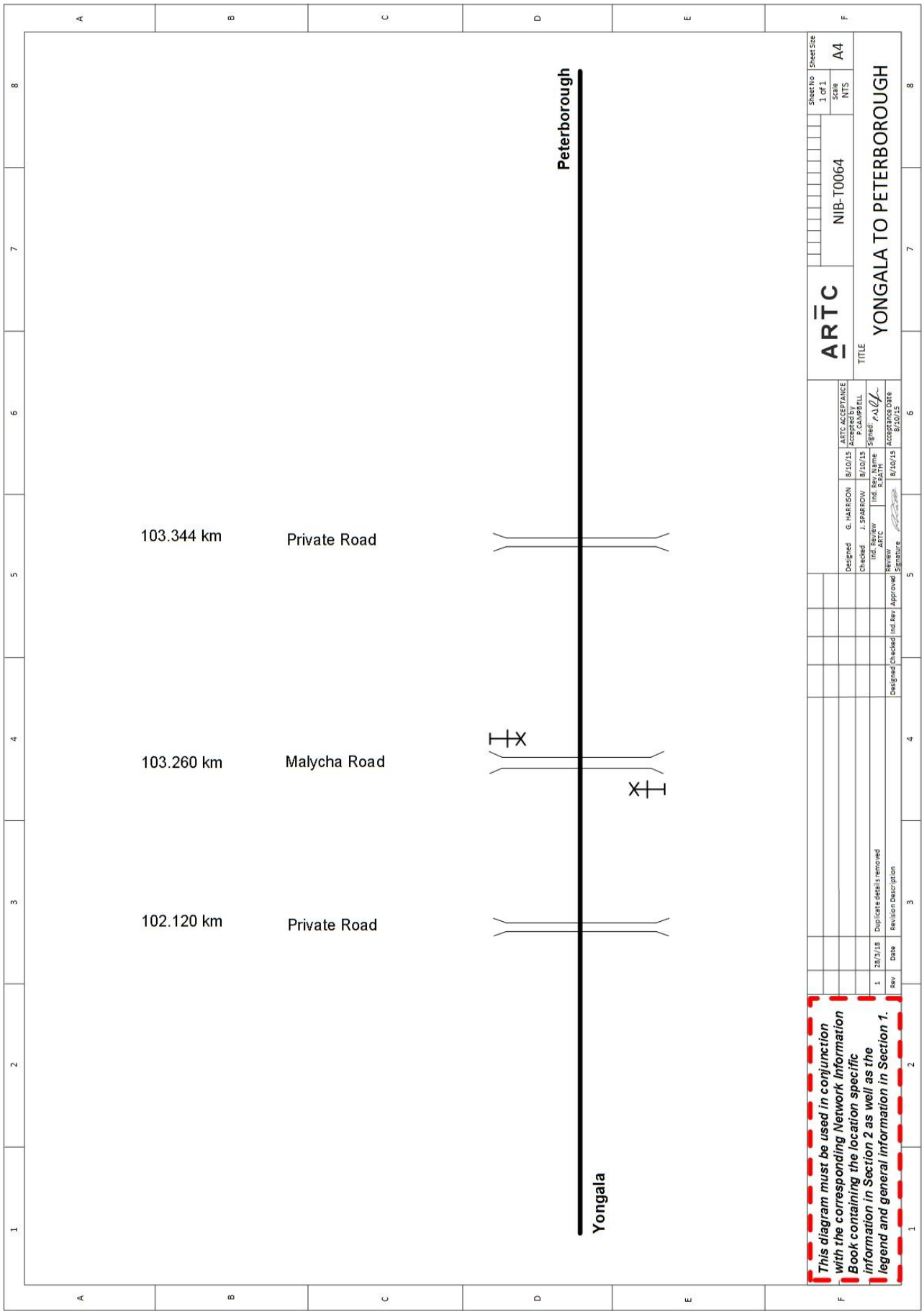
All movements entering or exiting the crossing loop at Yongala via No 14 Points on the Jamestown end of the loop, must operate the test switch to activate the Chomel Street (Gumbowie - Yongala Road) level crossing equipment due to contamination of the rail head.

Arriving movements are not to proceed across the crossing until the warning equipment has been operating for a minimum of 20 seconds and approaching road traffic has been observed to stop.

Departing movements must activate the test switch for the level crossing prior to pushing the button to clear signal 5D to depart. The movement is not to proceed across the crossing until the signal has cleared, the warning equipment has been operating for a minimum of 20 seconds and approaching road traffic has been observed to stop.

Train Crews and Track Machine Operators are to ensure that the test switch is turned off after the movement has traversed the crossing


102.780 km
100.784 km
Odea Road
100.282 km
100.237 km
100.170 km
100.094 km
Occupational Crossing
99.670 km
99.136 km
99.124 km
Chomel Street
99.030 km
99.032 km
98.501 km
Belalie Road
97.266 km
Bradtke Road
95.020 km
Peterborough
Jamestown
Silos
Goods Loop
Crossing Loop 1009m (No self-restoring points)
Main line
Station
15A
15
16A
16
13
14
YONGALA
NIB-T0063
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.


Peterborough
103.344 km
Private Road
103.260 km
Malycha Road
102.120 km
Private Road
Yongala
ARTC
NIB-T0064
YONGALA TO PETERBOROUGH
TITLE
Sheet No 1 of 1
Scale NTS
Sheet Size A4
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.

2.6 Peterborough (PBH)

Loop Standing Room:

- 2200m

Goods Siding:

- Yes.
- Goods Loop (total) 650 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Road access is good as Peterborough is an important regional centre.

LEVEL CROSSINGS:

Silver / Mill Street:

Crossing length is 2200 metres with this level crossing bisecting the loop. The standing room dimensions are shown on diagram. This level crossing is one of only two connecting the two halves of the town.

A ‘Standing Point’ Notice Board is installed adjacent to the crossing loop approximately 75 metres from the Hillgrange side of the Silver Street level crossing and reads for train movements traversing the crossing loop towards Yongala.

The notice board reads ‘Standing Point for L/X. On Departure Until Reaching L/X 10kph’.

The notice board indicates the point at which a train movement should come to a stand if required so as to prevent unnecessary operation of the Silver Street level crossing warning devices.

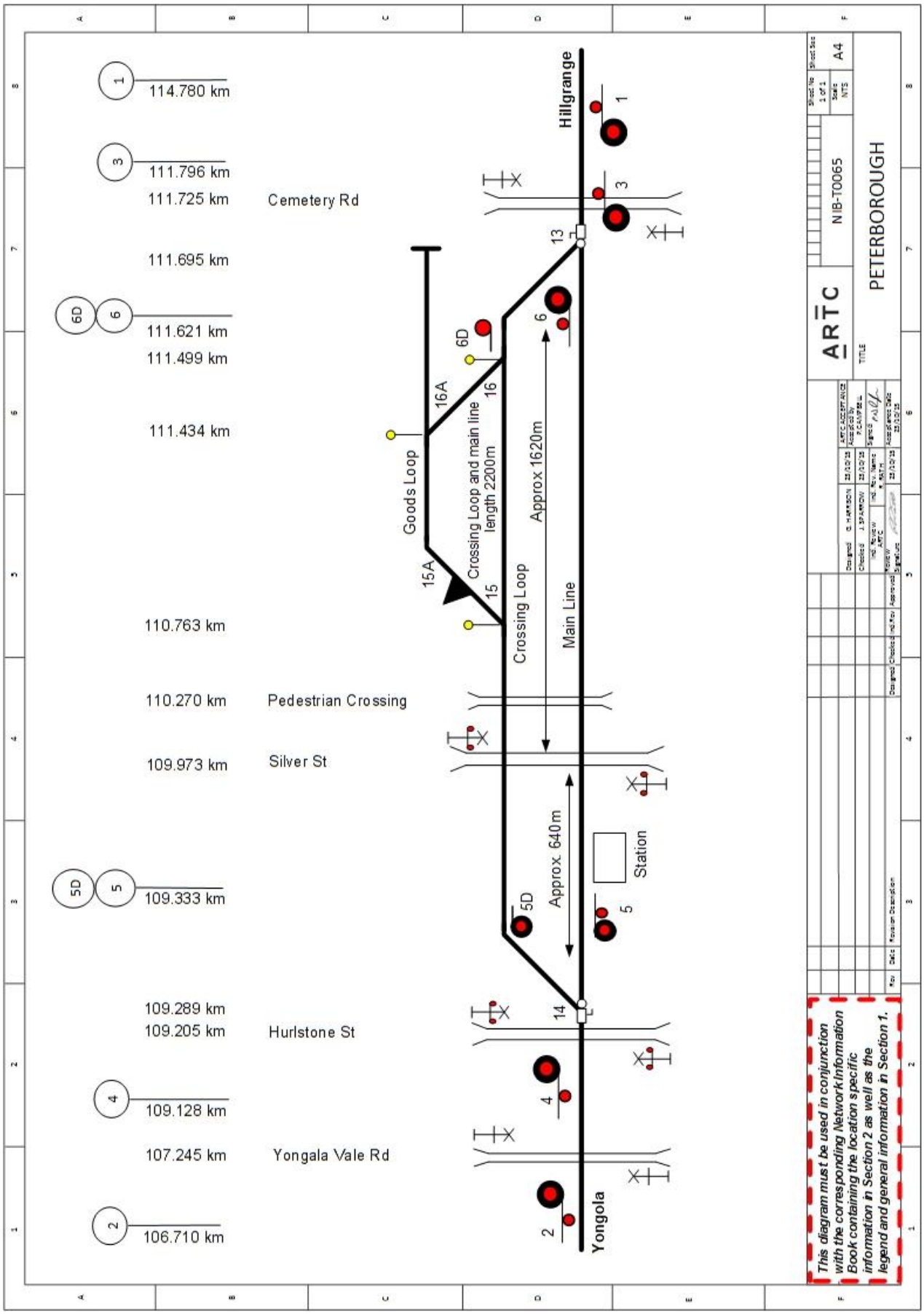
Note: This board does not apply to main line train movements.

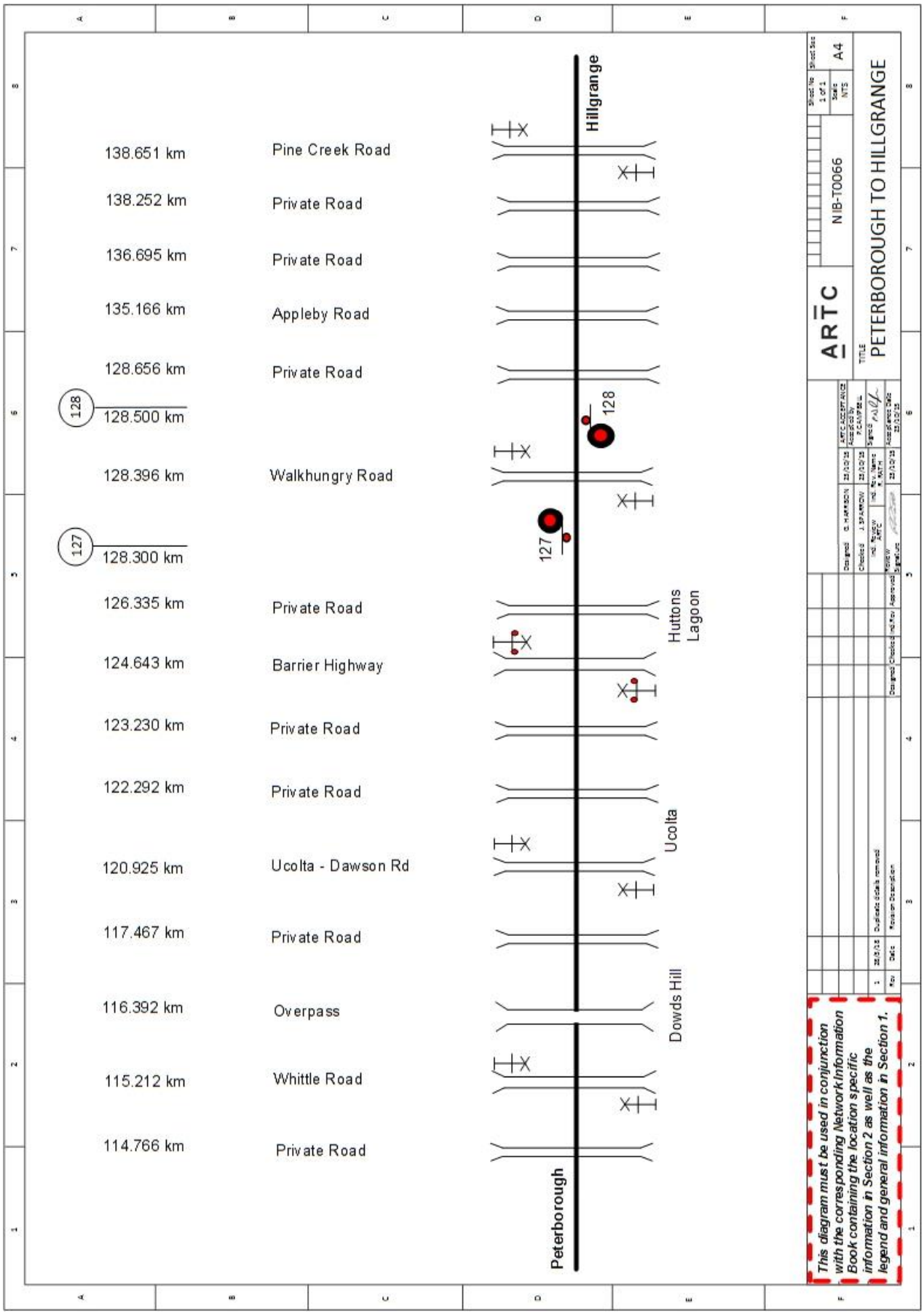
When the train again commences to move, it should do so as described at a speed of 10kph so as to ensure that the level crossing warning devices operate for a minimum period of 25 seconds before the movement passes over the level crossing.

Hurlstone Street:

Automatic Signalling:

- Will start to set up Peterborough when the Broken Hill bound train passes the location of Signal 1 at Yongala.
- Will start to set up Peterborough when the Crystal Brook bound train passes the location of Signal 127 at Huttons.


Hillgrange
Yongala
114.780 km
111.796 km
111.725 km
Cemetery Rd
111.695 km
111.621 km
111.499 km
111.434 km
110.763 km
110.270 km
Pedestrian Crossing
109.973 km
Silver St
109.333 km
109.289 km
109.205 km
Hurlstone St
109.128 km
107.245 km
Yongala Vale Rd
106.710 km
Goods Loop
Crossing Loop and main line length 2200m
Crossing Loop
Main Line
Approx 1620m
Approx. 640m
Station
NIB-T0065
PETERBOROUGH
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.


Hillgrange
138.651 km
Pine Creek Road
138.252 km
Private Road
136.695 km
Private Road
135.166 km
Appleby Road
128.656 km
Private Road
128
128.500 km
128.396 km
Walkhungry Road
127
128.300 km
126.335 km
Private Road
124.643 km
Barrier Highway
123.230 km
Private Road
122.292 km
Private Road
120.925 km
Ucolta - Dawson Rd
117.467 km
Private Road
116.392 km
Overpass
115.212 km
Whittle Road
114.766 km
Private Road
Peterborough
128
127
Huttons Lagoon
Ucolta
Dowds Hill
NIB-T0066
PETERBOROUGH TO HILLGRANGE
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.

2.7 Hillgrange (HGG)

Loop Standing Room:

- 1877m

Goods Siding:

- Yes.
- Goods Loop to dead end 130 metres

Crank Handles:

- No. Dual control point machines

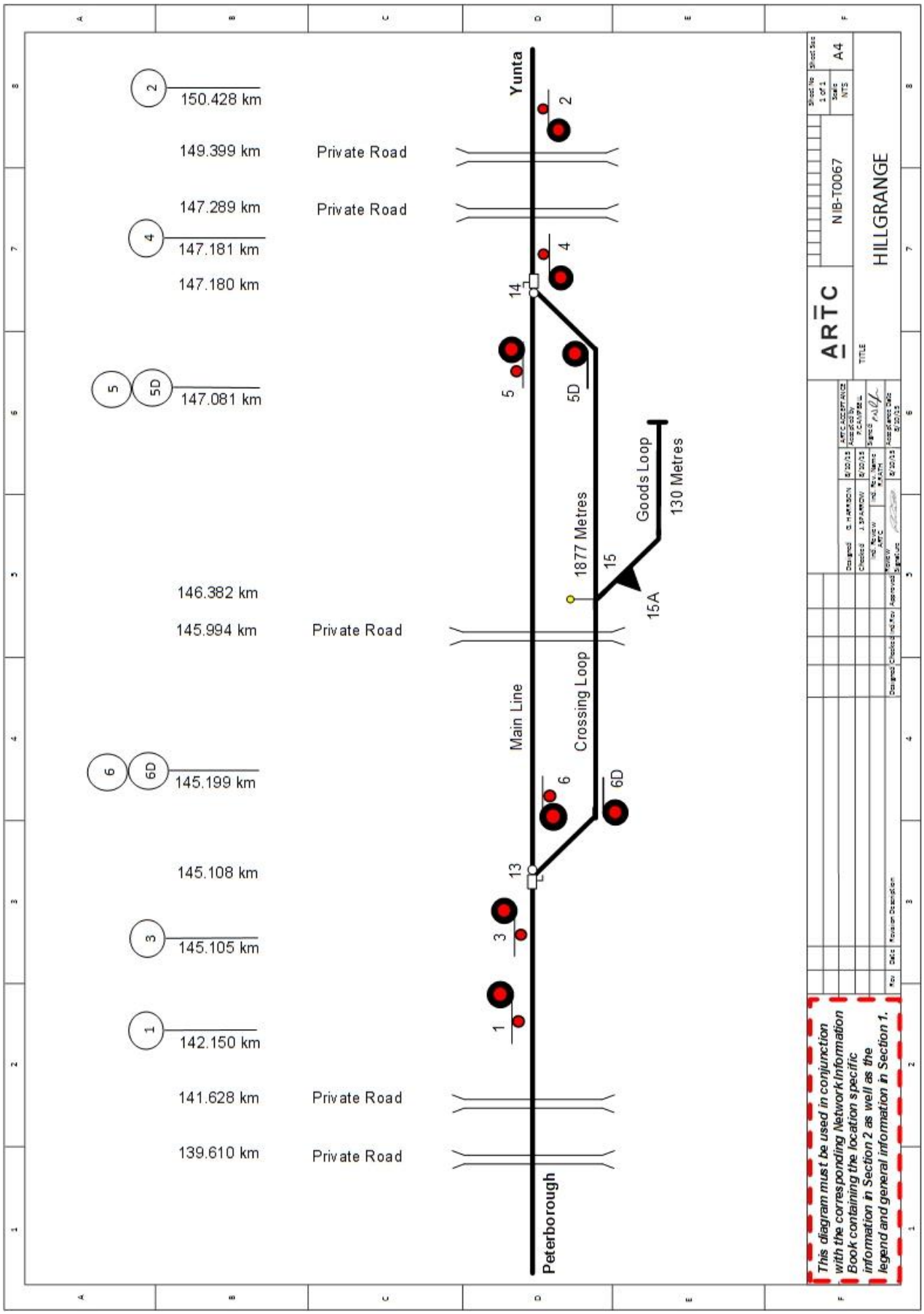
Local Panel:

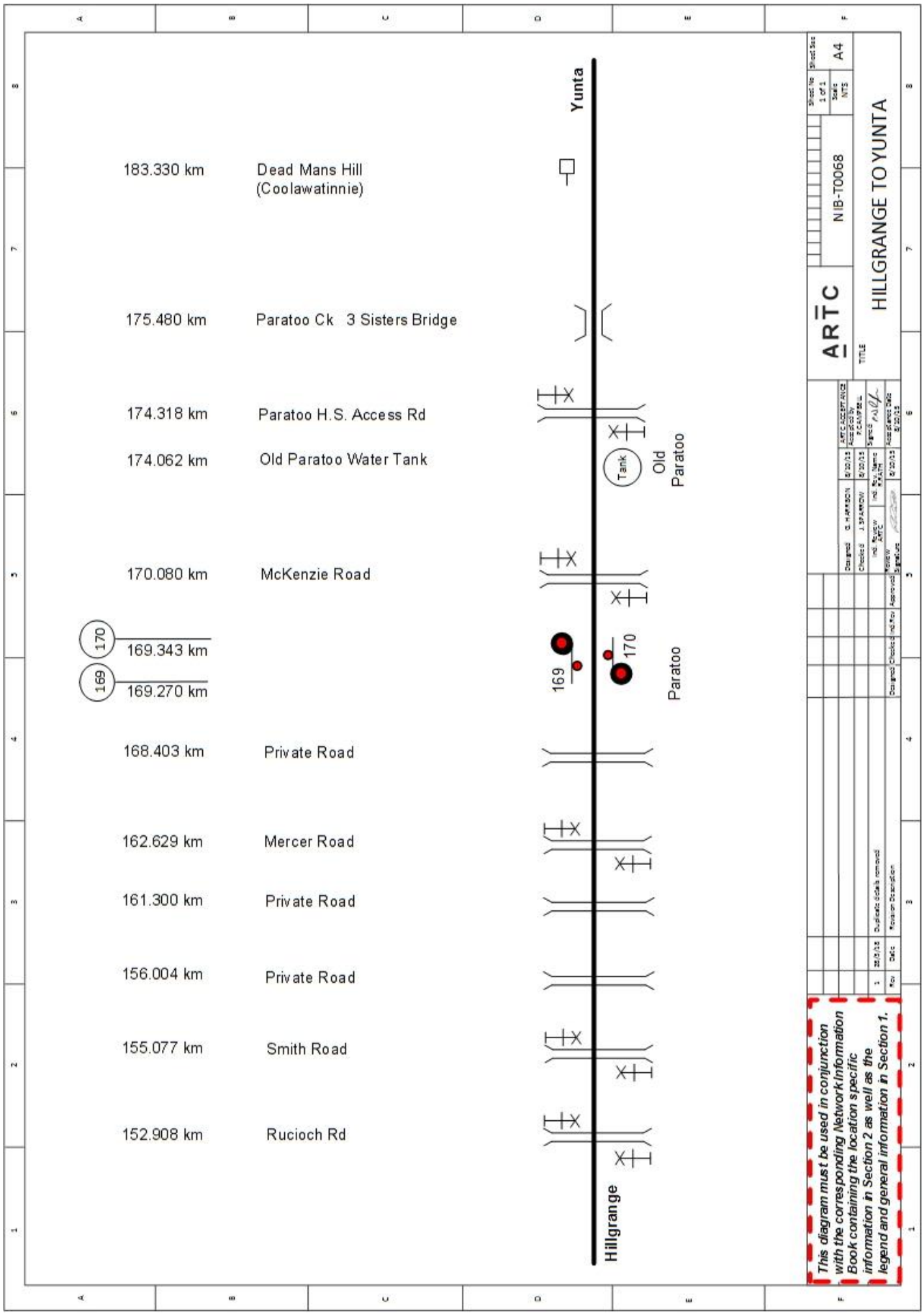
- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Road access is from the Barrier Hwy near Oodla Wirra along the Parnaroo Road then by railway access road. Approximately 5 km.

Automatic Signalling:

- Will start to set up Hillgrange when the Broken Hill bound train passes the location of Signal 128 at Huttons.
- Will start to set up Hillgrange when the Crystal Brook bound train passes the location of Signal 169 at Paratoo.


Yunta
Peterborough
150.428 km
149.399 km
Private Road
147.289 km
Private Road
147.181 km
147.180 km
147.081 km
146.382 km
145.994 km
Private Road
145.199 km
145.108 km
145.105 km
142.150 km
141.628 km
Private Road
139.610 km
Private Road
Main Line
Crossing Loop
1877 Metres
Goods Loop
130 Metres
15A
HILLGRANGE
NIB-T0067
A4
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.


183.330 km
Dead Mans Hill
(Coolawatinnie)
175.480 km
Paratoo Ck 3 Sisters Bridge
174.318 km
Paratoo H.S. Access Rd
174.062 km
Old Paratoo Water Tank
170.080 km
McKenzie Road
170
169.343 km
169
169.270 km
168.403 km
Private Road
162.629 km
Mercer Road
161.300 km
Private Road
156.004 km
Private Road
155.077 km
Smith Road
152.908 km
Rucioch Rd
Yunta
Tank
Old
Paratoo
169
170
Paratoo
Hillgrange
ARTC
NIB-T0068
HILLGRANGE TO YUNTA
A4
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.

2.8 Yunta (YUN)

Loop Standing Room:

- 1984m

Goods Siding:

- Yes
- Goods loop 634 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Yunta is on the highway and is bisected by road crossing which serves many pastoral properties and is on a through road to Burra and Morgan.

Yunta, Panaramitee Road Level Crossing

Reprinted below is Train Notice 311/2003

Panaramitee Road level crossing is located within the Yunta yard.

When movements are required to cross at Yunta, the first movement to arrive shall, where practical, be issued a Train Authority to take the Crossing Loop. The movement taking the Crossing Loop shall come to a stand at signal 3 or 4 and the Train Crew shall operate the points to the ‘Reverse’ position however the movement shall not proceed onto the Crossing Loop until advised by the opposing movement of the impending arrival at Yunta, or instructed to proceed by the Train Controller.

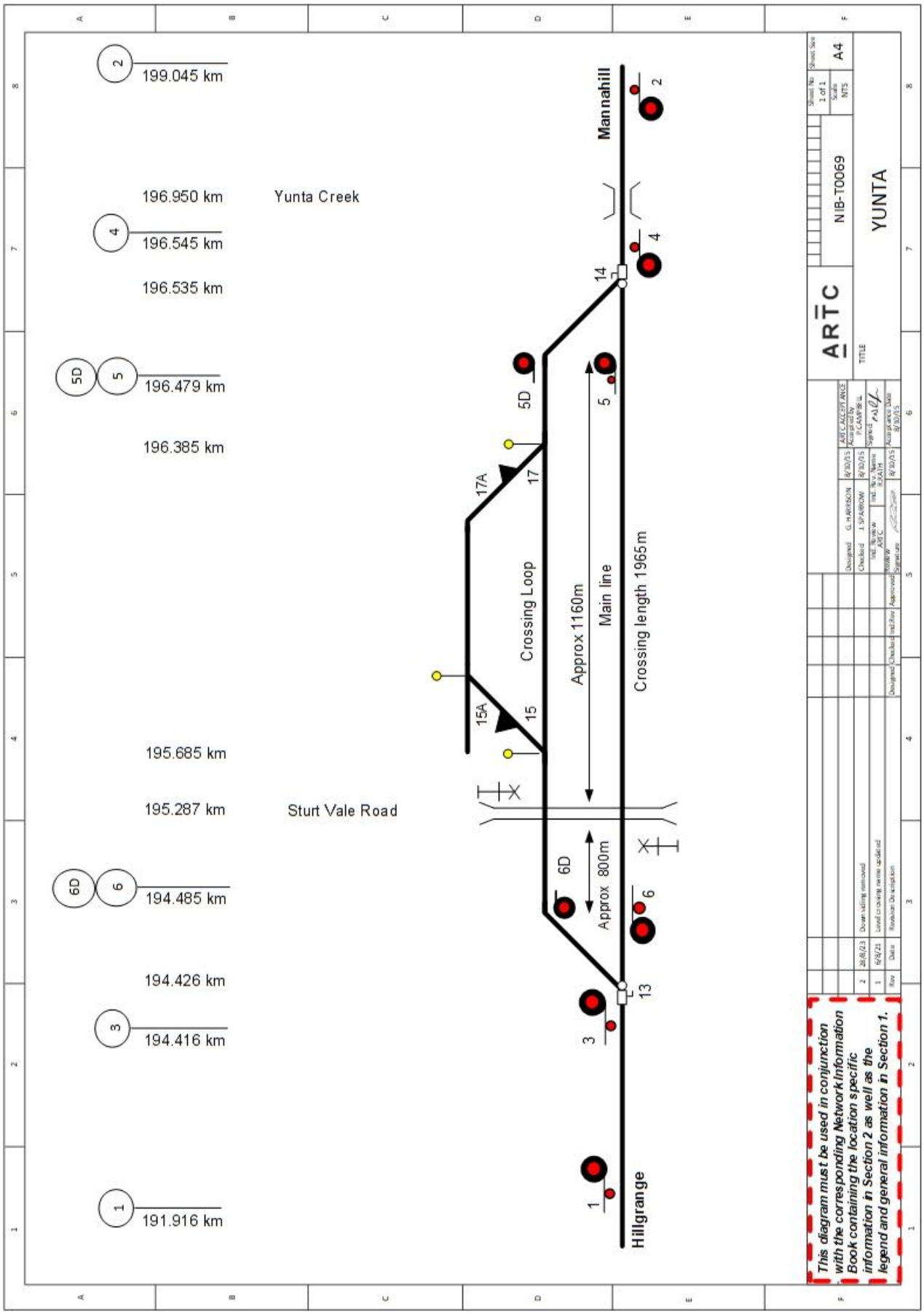
If the first movement to arrive is taking the Main Line and the Entering Block signal is displaying a ‘Proceed’ aspect, the movement shall be brought to a stand at signal 3 or 4 and the Train Crew shall operate the points to the ‘Reverse’ position. Upon being advised by the opposing movement of the impending arrival (or instructed by the Train Controller) the points shall be operated to ‘Normal’ position and the movement may proceed up to the Entering Block Signal.

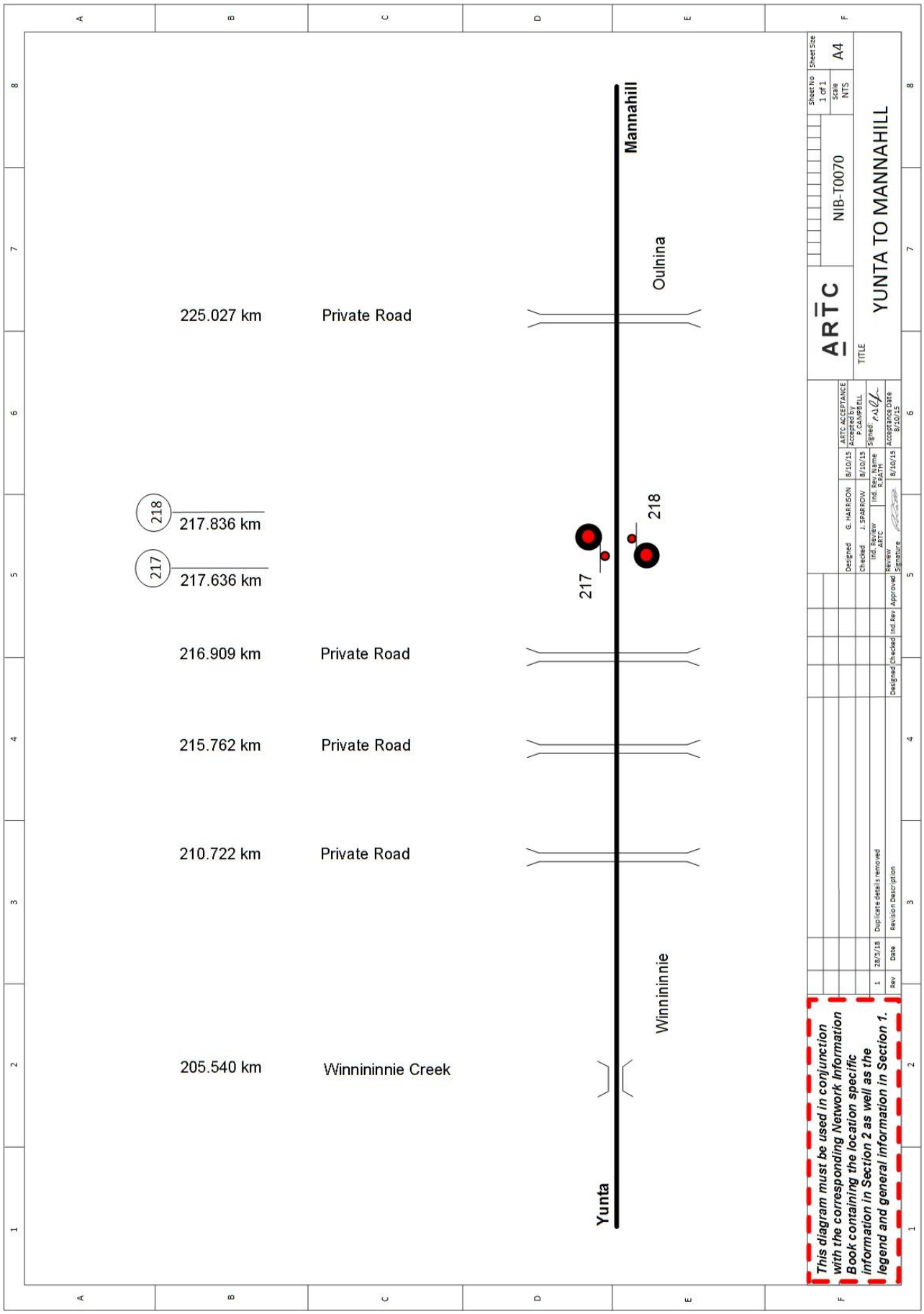
If the Entering Block Signal is not displaying a ‘Proceed’ aspect, the movement shall remain at signal 3 or 4 until advised by the opposing movement of the impending arrival (or instructed by the Train Controller) after which the movement may proceed up to the Entering Block Signal.

In the event that a movement will be held at Yunta for a prolonged period and it will obstruct the Panaramitee Road level crossing, consideration should be given to divide the movement to ensure that the crossing is kept clear.

Automatic Signalling:

- Will start to set up Yunta when the Broken Hill bound train passes the location of Signal 170 at Paratoo.
- Will start to set up Yunta when the Crystal Brook bound train passes the location of Signal 217 at Winnininnie.


199.045 km
196.950 km
Yunta Creek
196.545 km
196.535 km
196.479 km
196.385 km
195.685 km
195.287 km
Sturt Vale Road
194.485 km
194.426 km
194.416 km
191.916 km
Mannahill
Hillgrange
Crossing Loop
Approx 1160m
Main line
Crossing length 1965m
Approx 800m
NIB-T0069
YUNTA
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.


Mannahill
Oulnina
225.027 km
Private Road
218
217.836 km
217
217.636 km
218
217
216.909 km
Private Road
215.762 km
Private Road
210.722 km
Private Road
Winninninnie
205.540 km
Winninninnie Creek
Yunta
YUNTA TO MANNAHILL
NIB-T0070
A4
Scale NTS
Sheet No 1 of 1
Sheet Size
ARTC
TITLE
Designed G. HARRISON 8/10/15
Checked J. SPARROW 8/10/15
Ind. Review ARTC
Review Signature
Approved
ARTC ACCEPTANCE ACCEPTED BY P.CAMPBELL Signed
Ind. Rev. Name Rail Fit 8/10/15
Acceptance Date 8/10/15
Designed Checked Ind.Rev
Rev Date Revision Description
1 28/9/18 Duplicate details removed
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.

2.9 Mannahill (MHL)

Loop Standing Room:

- 2500m

Goods Siding:

- Yes. Closed as at October 2013.
- Goods siding (15A derail to 16A points) 475 metres
- Goods siding (16A points to dead end) 96 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

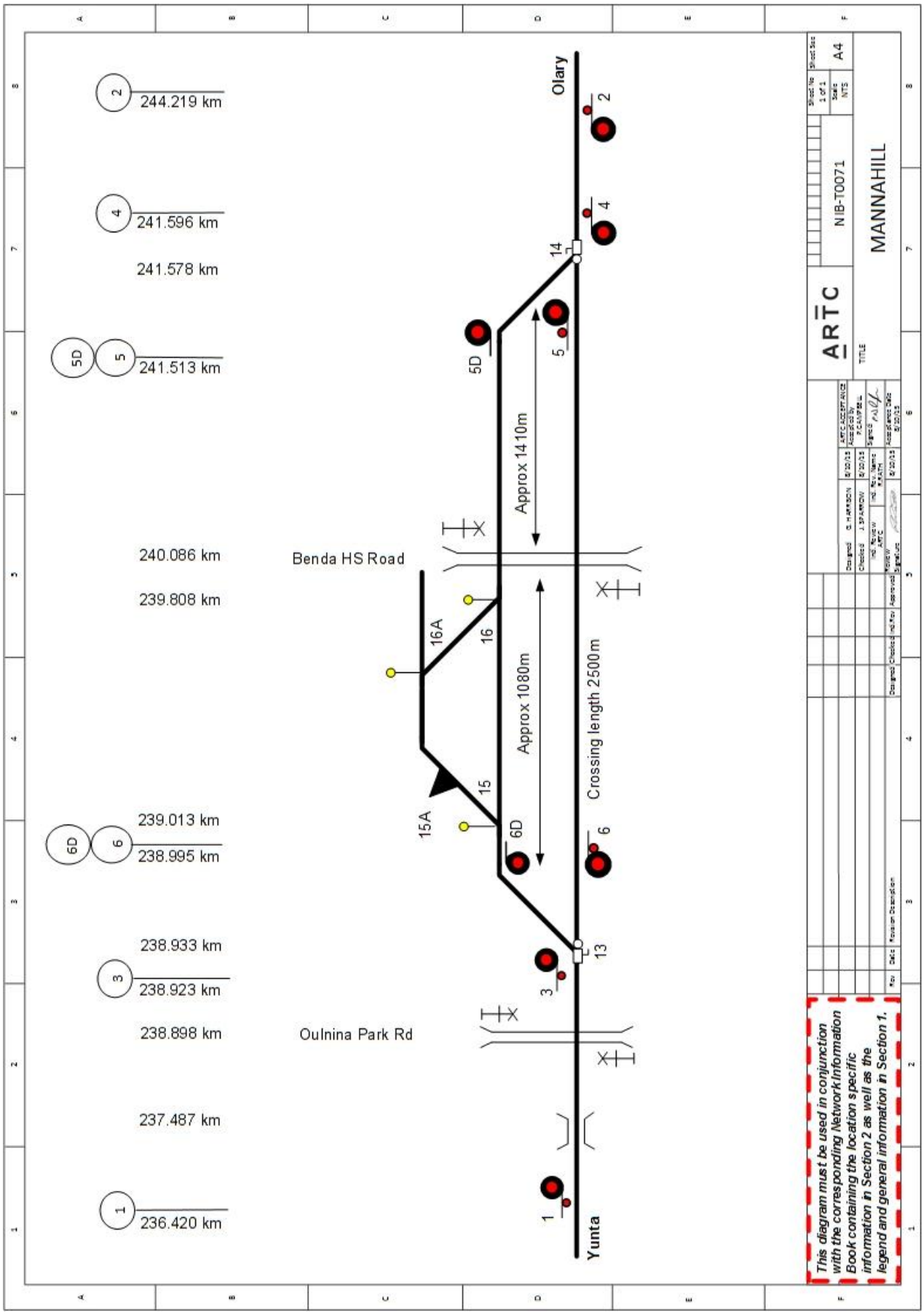
- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

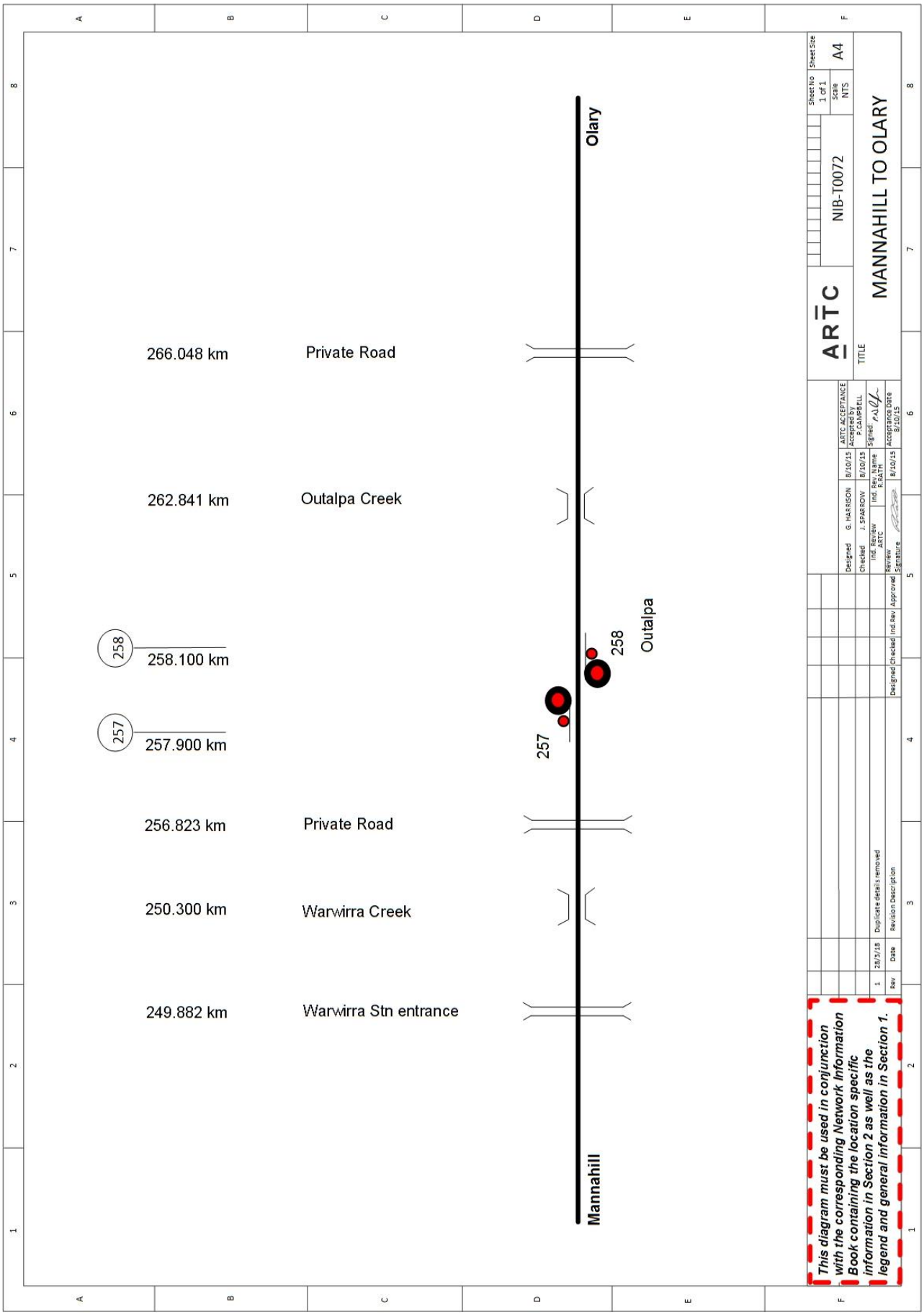
Note: *Level crossing across crossing loop serves a number of pastoral properties so it is best not to block it for extended periods. For dimensions see diagram.*

The yard is adjacent to the highway in the township of Mannahill.

Automatic Signalling:

- Will start to set up Mannahill when the Broken Hill bound train passes the location of Signal 218 at Winnininnie
- Will start to set up Mannahill when the Crystal Brook bound train passes the location of Signal 257 at Outalpa


Olary
Yunta
Benda HS Road
Oulnina Park Rd
Approx 1410m
Approx 1080m
Crossing length 2500m
244.219 km
241.596 km
241.578 km
241.513 km
240.086 km
239.808 km
239.013 km
238.995 km
238.933 km
238.923 km
238.898 km
237.487 km
236.420 km
MANNAHILL
NIB-T0071
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.


Olary
Outalpa
Mannahill
266.048 km
Private Road
262.841 km
Outalpa Creek
258
258.100 km
257
257.900 km
256.823 km
Private Road
250.300 km
Warwirra Creek
249.882 km
Warwirra Stn entrance
MANNAHILL TO OLARY
NIB-T0072
A4
Scale NTS
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.

2.10 Olary (OLY)

Loop Standing room:

- 998m

Goods sidings:

- Yes (From the 15A Derail to Dead end 653m)
- Goods siding (15A derail to 16A points) 478 metres
- Goods siding (16A points to dead end) 175 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

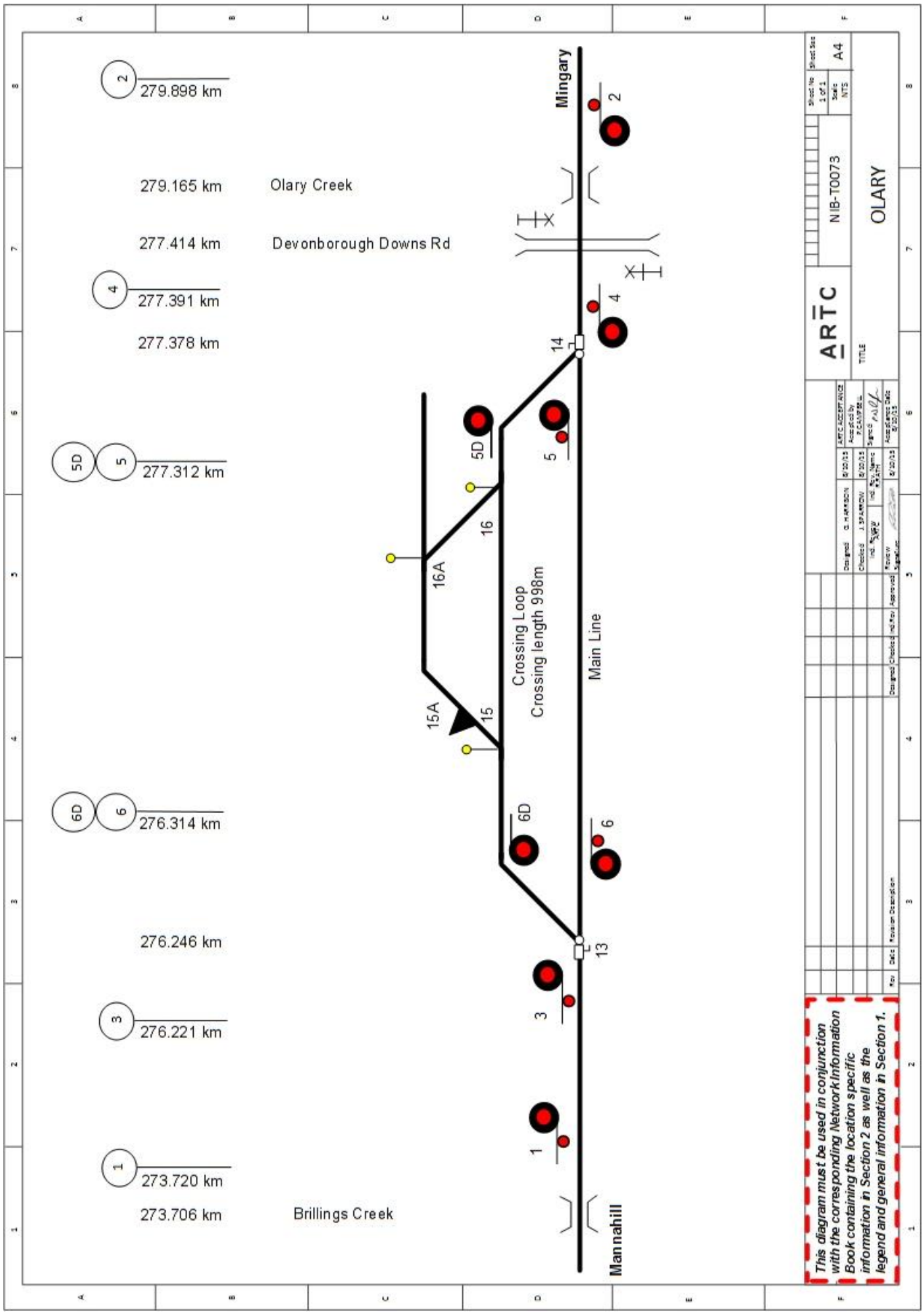
- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

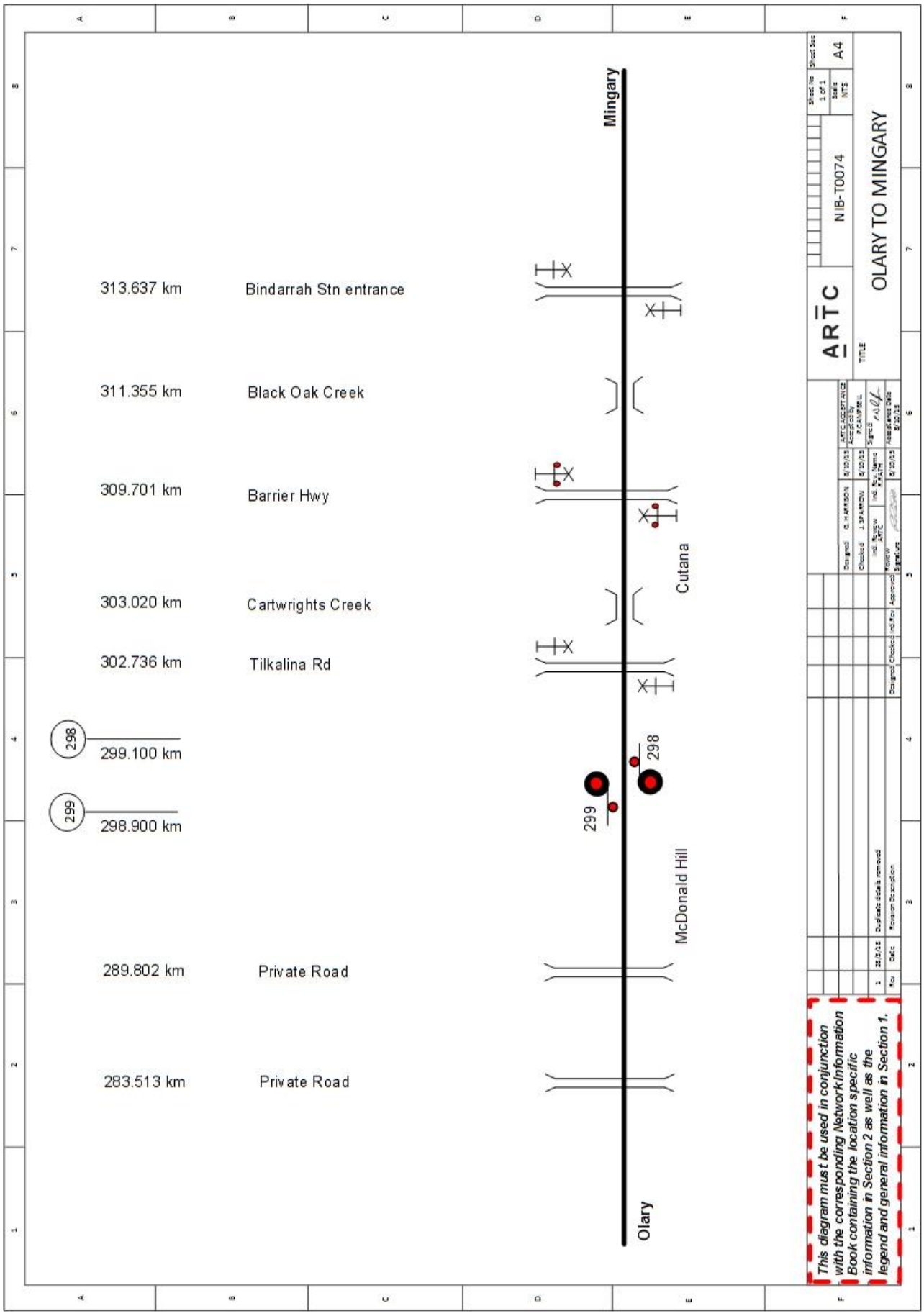
Goods Loop open having been re-sleepered with concrete sleepers

Railway yard is in Olary Township adjacent to highway.

Automatic Signalling:

- Will start to set up Olary when the Broken Hill bound train passes the location of a solar panel installation at 264.408 Km.
- Will start to set up Olary when the Crystal Brook bound train passes the location of a solar panel installation at 287.324 Km.


279.898 km
279.165 km
Olary Creek
277.414 km
Devonborough Downs Rd
277.391 km
277.378 km
277.312 km
276.314 km
276.246 km
276.221 km
273.720 km
273.706 km
Brillings Creek
Mingary
Mannahill
Crossing Loop
Crossing length 998m
Main Line
OLARY
NIB-T0073
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.


Mingary
313.637 km
Bindarrah Stn entrance
311.355 km
Black Oak Creek
309.701 km
Barrier Hwy
Cutana
303.020 km
Cartwrights Creek
302.736 km
Tilkalina Rd
298
299.100 km
299
298.900 km
298
299
McDonald Hill
289.802 km
Private Road
283.513 km
Private Road
Olary
ARTC
NIB-T0074
OLARY TO MINGARY
A4
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.

2.11 Mingary (MIN)

Loop Standing room:

- 1854m

Goods sidings:

- Yes
- Goods siding 304 metres

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Mingary is adjacent to the Barrier Highway

Automatic Signalling:

- will set up Mingary when the Broken Hill bound train crosses over the Barrier Highway level crossing at Cutana at 309.724 Km.
- will set up Mingary when the Crystal Brook bound train passes the location of a solar panel installation at 336.200 Km.

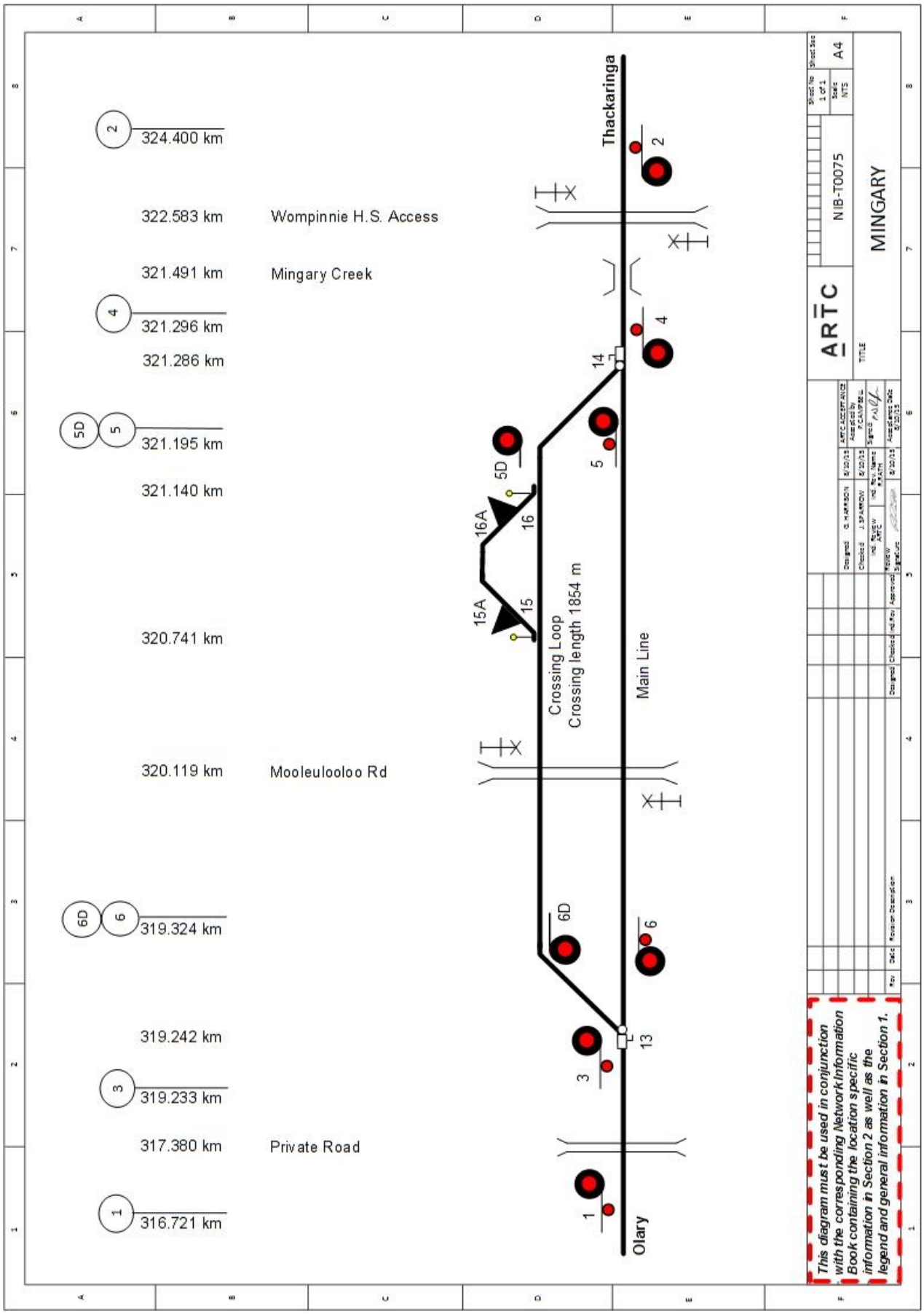
Wayside Systems

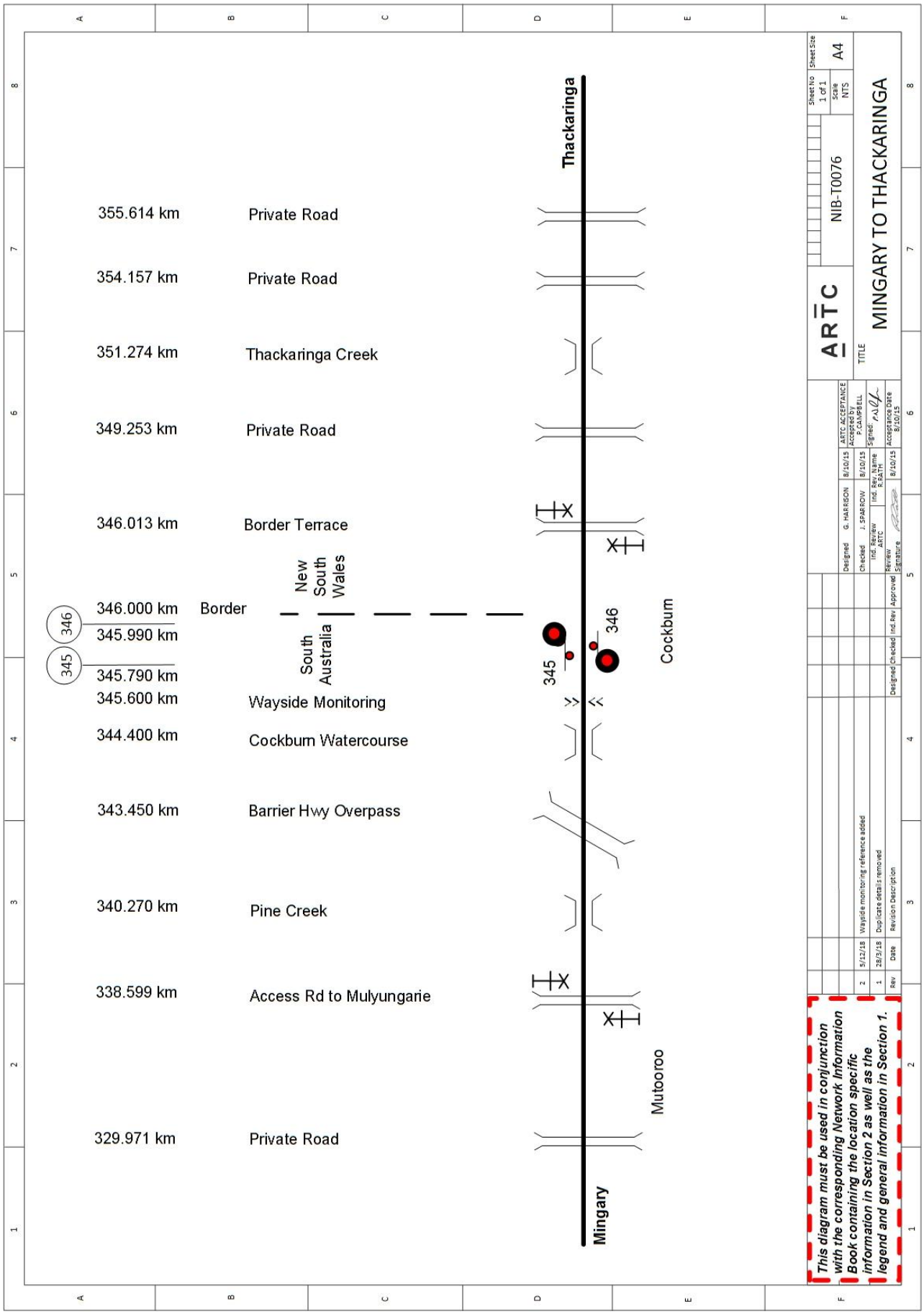
The following wayside monitoring systems are in place in the Mingary to Thackaringa section (345.600 km):

- Rail Bearing Acoustic Monitor (RailBAM)
- Wheel Condition Monitoring System (WCM)

RailBAM can detect bearing faults which are just beginning and may have many thousands of kilometres to go before they fail. Train crews can tell if the unit is working or not by the fact that the track side sensor cabinets raise the doors exposing the microphones to the passing train, as it approaches from 50 metres away. This detects faulty bearings on passing trains by analysing the sound of the bearing. On detection, the information obtained by this device is sent to the Network Controller to advise the train crew.

The WCM detects an exceedance of force between the rail wheels and the rail caused by wheel flats. If it detects a level of kilo-newton force of energy above a threshold, it sends this information to the Network Control Centre for action.


Thackaringa
2
324.400 km
322.583 km
Wompinnie H.S. Access
321.491 km
Mingary Creek
4
321.296 km
321.286 km
14
5D
5
321.195 km
321.140 km
5D
16A
16
15A
15
320.741 km
Crossing Loop
Crossing length 1854 m
Main Line
320.119 km
Mooleulooloo Rd
6D
6
319.324 km
319.242 km
3
13
319.233 km
317.380 km
Private Road
1
316.721 km
Olary
MINGARY
NIB-T0075
A4
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.


Thackaringa
355.614 km
Private Road
354.157 km
Private Road
351.274 km
Thackaringa Creek
349.253 km
Private Road
346.013 km
Border Terrace
New South Wales
346.000 km
Border
345.990 km
345.790 km
South Australia
345.600 km
Wayside Monitoring
344.400 km
Cockburn Watercourse
343.450 km
Barrier Hwy Overpass
340.270 km
Pine Creek
338.599 km
Access Rd to Mulyungarie
329.971 km
Private Road
Mingary
Mutooroo
Cockburn
345
346
ARTC
NIB-T0076
MINGARY TO THACKARINGA
Sheet No 1 of 1
Scale NTS
Sheet Size A4
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.

2.12 Thackaringa (THA)

Loop Standing Room:

- 996m

Goods Siding:

- No.

Crank Handles:

- No. Dual control point machines

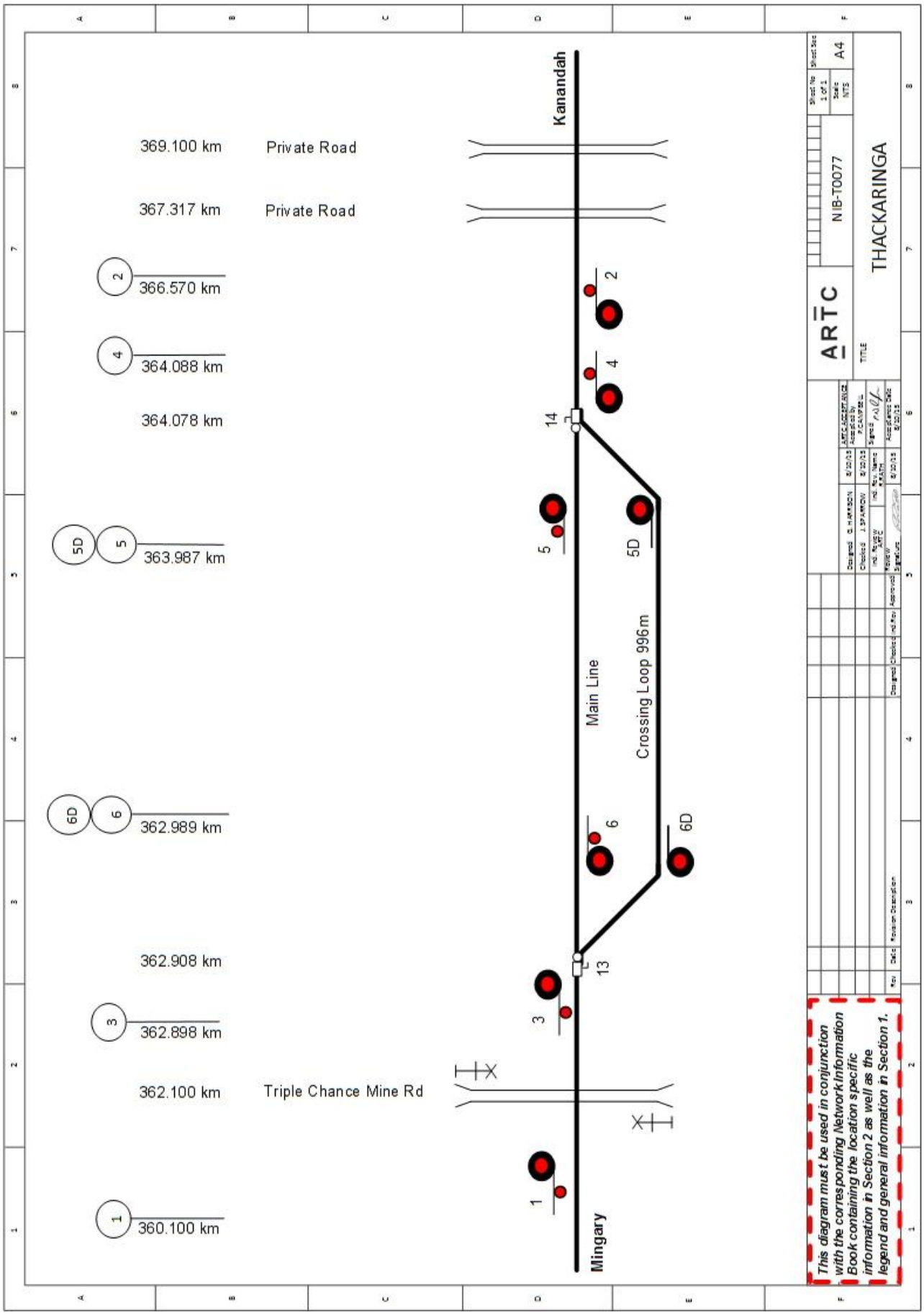
Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Road access is via the Barrier Hwy, then turn South onto the road to the Triple Chance Mine, then turn East along the railway access road.

Automatic Signalling:

- will set up Thackaringa when the Broken Hill bound train passes the location of Signal 346 at Cockburn.
- will set up Thackaringa when the Crystal Brook bound train passes the location of Signal 377 at Pinnacles.


Kanandah
369.100 km
Private Road
367.317 km
Private Road
2
366.570 km
4
364.088 km
364.078 km
5D
5
363.987 km
6D
6
362.989 km
362.908 km
3
362.898 km
362.100 km
Triple Chance Mine Rd
1
360.100 km
Mingary
14
13
Main Line
Crossing Loop 996m
NIB-T0077
THACKARINGA
A4
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.

2.13 Pinnacles (PNN) and Bemax Siding (BMX)

2.13.1 Pinnacles

The Pinnacles Siding is an intermediate siding, not a crossing location and is situated between Kanandah Siding and Thackaringa. Train Notice 1188/2003 is reproduced below

TN 1188 effective from Tuesday 23/9/03

Pinnacles Siding Operating Procedure

Overview

The Pinnacles Siding is connected to the ARTC main line at the 377.608km in the single line section between Thackaringa and Kanandah Siding.

Operators requiring access to this siding shall obtain authority from Pinnacles prior to requesting a path from the ARTC.

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 are secured by an outlying switch lock and are rodded to a derail at the clearance point of the siding. The points may only be operated provided the correct conditions exist which include:

1. The entering block signals at Kanandah Siding and Thackaringa are at ‘Stop’ and no movement is approaching that may place the signals to proceed.
2. No movement is proceeding over the single line section between Kanandah and Thackaringa.
3. If a movement is in the section between Kanandah Siding and Thackaringa, the movement is at a stand on the 100-metre approach track circuit at the facing points.
4. That the Train Controller has issued the appropriate authority for the movement to either exit or enter the main line at Pinnacles siding.

Signage

Location ahead signs are provided 2500 metres either side of the main line points leading to the siding for approaching movements.

In addition the following signage is provided at the Pinnacles Siding:

Located adjacent the outlying switch lock:

POINT LOCK NOT TO BE RESTORED WHILST VEHICLES ARE STANDING ON MAIN LINE WITHOUT LOCO ATTACHED

Located adjacent the derail for departing movements

REPORT TO ARTC

Located adjacent the derail for departing movements

ATTEND TO DERAIL

Movement Terminating Pinnacles Siding:

Prior to allowing the movement to depart Thackaringa or Kanandah Siding, the Train Controller shall establish from the Train Crew that the movement can be accepted into the Pinnacles Siding without delay.

The Train Controller, provided all the correct conditions exist, shall authorise the driver to operate the outlying switch lock at Pinnacles, and to report to Train Control when the movement is clear of the main line and the points have been restored for the main line and the outlying switch lock is secured.

On arrival at Pinnacles siding the qualified worker shall:

1. Ensure the movement is standing on the 100-metre approach track leading to the facing points.
2. Open the door to the outlying switch lock and confirm that the indicator needle indicates that the points are free to be operated.
3. Operate the release handle to unlock the points.
4. Unlock the point stand and operate the points for the movement to enter the siding.

Immediately the movement has entered the siding the qualified worker shall:

1. Restore the points for the main line.
2. Restore the outlying switch lock and close the door.
3. Advise the Driver that the points have been restored.

The Driver shall then advise the Train Controller accordingly.

Movement Departing Pinnacles Siding:

The train crew of a departing movement shall not request entry onto the ARTC Main Line unless the movement is standing at the entry point and is ready to depart.

The movement shall come to a stand at the notice board ‘REPORT TO ARTC’ and contact the ARTC Train Controller and provide the appropriate train details of the movement and request a ‘Train Working Advice’ (TWA) form and a ‘Train Authority’ to enter the main line.

The Train Controller shall ensure that other movements enroute between Crystal Brook and Thackaringa are issued Train Authorities to cross or pass the entering movement at a planned crossing location or a blocking authority has been issued to an approaching movement to prevent entry into the Kanandah Siding to Thackaringa section.

In the case of a movement departing Broken Hill, the movement at Pinnacles siding shall not be authorised to enter the main line until the other movement has arrived at Thackaringa or that the Train Controller has ensured that signal 56 at Broken Hill is at the ‘Stop’ position.

The Train Controller shall also ensure that Track Force operations do not conflict with the entry of the movement at Pinnacles siding.

The Train Controller, provided all the correct conditions exist, shall issue a ‘TWA’ form to the Driver and a Work Authority as authorisation to enter the main line as follows:

WORK BETWEEN KANANDAH AND THACKARINGA THEN TAKE MAIN LINE (OR CROSSING LOOP) AT THACKARINGA (OR KANANDAH)

The Train Controller shall also include any relevant cross or pass instruction as part of the text in the Train Authority.

The Driver shall, where applicable, advise the qualified worker that a Train Authority has been issued and that the points may be operated.

The qualified worker shall:

1. Open the door to the outlying switch lock and confirm that the indicator needle indicates that the points are free to be operated.
2. Operate the release handle to unlock the points.
3. Unlock the point stand and operate the points for the movement to enter the siding.

Immediately the movement has cleared the points and is on the main line the qualified worker shall:

1. Restore the points for the main line.
2. Restore the outlying switch lock and close the door.
3. Advise the Driver that the points have been restored.

The Driver shall then advise the Train Controller accordingly.

Through Movement Shunting Pinnacles Siding:

Only movements proceeding from Broken Hill to Crystal Brook can shunt ‘enroute’ at Pinnacles siding.

Provided a portion of the movement remains on the main line at all times there is no requirement for the ARTC Train Controller to issue a Train Authority to the driver to shunt at Pinnacles Siding.

The driver of the movement shall bring the movement to a stand clear of the trailing points, cut off the portion to be placed into the siding and draw forward coming to a stand on the 100 metre approach track circuit.

The outlying switch lock and points shall then be operated as detailed in these procedures.

The Driver shall ensure that whilst the locomotive is shunting within the siding, the points are not restored for the main line until the locomotive has exited the siding and is ready to attach to the consist on the main line.

Restoring the points and the electric switch lock whilst only the vehicles are standing on the main line will lock the points and the services of a Signal Fitter will be required to unlock them.

At completion of the shunting and prior to departing the Pinnacles siding, the Driver shall report the shunting times to the Train Controller and also confirm that the points have been restored for the main line and secured.

Release of Point Locking During Failure:

In the event that a release cannot be obtained in the normal manner, the Train 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 contact the train controller and obtain the train controllers permission to release the point locking.

Should a movement be approaching or be standing at Pinnacles Siding and a release cannot be obtained owing to failure, the movement shall be advanced to Kanandah Siding or Thackaringa as required.

The movement shall then only be permitted to proceed to Pinnacles Siding after arrangements have been made for the points to be released or the fault has been rectified.

Failure of Signals:

In the event that signals 377 or 378 fail to display a 'Proceed' aspect on approach of a movement, the Train Controller shall issue a Train Authority for the movement to pass the signal in accordance with CoP procedures.

The Train Authority text shall also include the requirement for the Driver to inspect the points at Pinnacles siding prior to passing over them.

When inspecting the points at Pinnacles Siding, the Driver shall also ensure that the door of the Outlying Switch Lock is closed and locked and report to the Train Controller accordingly.

2.13.2 Bemax Siding (BMX)

The Bemax siding is an intermediate siding, not a crossing location and is situated between Kanandah Siding and Thackaringa. Train Notice 317 / 2006 is reproduced below.

TN 1224 2015 is issued

Bemax Siding Operating Procedure

Upon commissioning of the new Bemax Siding at Kanandah Siding as detailed in a separate train notice, the following operating protocols will apply:

Overview

The Bemax Siding is connected to the ARTC main line at the 386.688 Km in the single line section between Thackaringa and Kanandah Siding.

Operators requiring access to this siding shall obtain authority from Bemax prior to requesting a path from the ARTC.

The points leading to the siding are secured with a T21 point machine provided with point indicators as described in the ARTC Addendum to the Code of Practice for the Defined Interstate Network.

The points are secured by an electric (HLM) point lock and are rodded to a derail at the clearance point of the siding.

A cabinet (control box), of which the door is 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 (as detailed) exists.
- Cancel Button: Cancels the release and locks the points

In addition the following indicating lights are provided:

Block Light (White Light):

- Indicates that the block is clear, or a movement is standing on the 'Release Track Circuit' and the release can be operated.

Points Released (Green Light):

- Indicates that the points have been released and are available to be operated.

Points Locked (Red Light):

- Indicates that the points are locked and are not available for operation.

The points and electric point locking is interlocked with the signalling at Kanandah Siding and Thackaringa and the block circuit between Kanandah Siding and Thackaringa which ensures that a release cannot be obtained unless:

1. The Entering Block signals at Kanandah Siding or Thackaringa are at ‘Stop’.
2. No movement is proceeding through the section between Thackaringa and Kanandah Siding, or
3. Should a movement be in the section, the movement is at a stand occupying the release track immediately ahead of the points
4. The points at Pinnacles are set and locked for the Main Line and the Outlying Point Lock door is closed.

In addition, the operation of the ‘release’ button at the points initiates a 2 minute timer after which the points shall release and become available for operation.

Signage

Location ahead signs (labelled ‘BEMAX SDG) are provided 2500 metres either side of the main line points leading to the Bemax siding.

In addition the following signage is provided at the Bemax Siding:

Located adjacent the control box:

POINT LOCK NOT TO BE RESTORED WHILST VEHICLES ARE STANDING ON MAIN LINE WITHOUT LOCO ATTACHED

Located adjacent the derail for departing movements

REPORT TO ARTC

Located adjacent the derail for departing movements

ATTEND TO DERAIL

Located prior to the trailing points for movements proceeding toward Thackaringa and indicates the limit of the points track circuit.

CP

Movement Terminating Bemax Siding:

Prior to allowing the movement to depart Thackaringa or Kanandah Siding, the Train Controller shall establish from the Train Crew that the movement can be accepted into the Bemax Siding without delay.

On arrival at Bemax the movement shall be brought to a stand on the 200-metre approach track circuit. The driver or qualified worker (where provided) shall:

1. Obtain permission from the ARTC Train Controller to operate the points.
2. Open the Control Box and observe that the points are locked.
3. Confirm that the 'Block Clear' light is illuminated.
4. Press the 'Release' button and observe that the release light is flashing indicating that the 2 minute timer has been initiated.
5. At the expiration of the 2 minute timer, observe that the 'Points Released' indicating light is steady.
6. Unlock the point lever and operate the points for the movement to enter the siding.

Immediately the movement has entered the siding the Driver or qualified worker shall:

1. Restore the points for the main line and lock them.
2. Press the 'Cancel' button and hold the button
3. Observe that the 'Points Locked' indicating light is displayed and release the button.
4. Close and lock the door on the Control Box and advise the Train Controller.

Under no circumstances is a qualified worker to operate the equipment at the siding without first conferring with the driver of the movement.

Movement Departing Bemax Siding:

The train crew of a departing movement shall not request entry onto the ARTC Main Line unless the movement is standing at the entry point and is ready to depart.

The movement shall come to a stand at the notice board 'REPORT TO ARTC' and contact the ARTC Train Controller and provide the appropriate train details of the movement and request a 'Train Working Advice' (TWA) form and a 'Train Authority' to enter the main line.

The Train Controller shall ensure that other movements enroute between Crystal Brook and Thackaringa are issued Train Authorities to cross or pass the entering movement at a planned crossing location or a blocking authority has been issued to an approaching movement to prevent entry into the Kanandah Siding to Thackaringa section.

In the case of a movement departing Broken Hill, the movement at Bemax siding shall not be authorised to enter the main line until the other movement has arrived at Thackaringa or that the Train Controller has ensured that signal 56 at Broken Hill is at the 'Stop' position.

The Train Controller shall also ensure that Track Force operations do not conflict with the entry of the movement at Bemax siding.

The Train Controller, provided all the correct conditions exist, shall issue a 'TWA' form to the Driver and a Work Authority as authorisation to enter the main line as follows:

WORK BETWEEN KANANDAH AND THACKARINGA TAKE MAIN LINE (OR CROSSING LOOP) AT THACKARINGA (OR KANANDAH)

The Train Controller shall also include any relevant cross or pass instruction as part of the text in the Train Authority.

The Driver shall, where applicable, advise the qualified worker that a Train Authority has been issued and that the points may be operated.

The Driver or qualified worker shall:

1. Obtain permission from the ARTC Train Controller to operate the points.
2. Open the Control Box and observe that the points are locked.
3. Confirm that the ‘Block Clear’ light is illuminated.
4. Press the ‘Release’ button and observe that the release light is flashing indicating that the 2 minute timer has been initiated.
5. At the expiration of the 2 minute timer, observe that the ‘Points Released’ indicating light is steady.
6. Unlock the point lever and operate the points for the movement to depart the siding.

Immediately the movement has entered the main line the Driver or qualified worker shall:

1. Restore the points for the main line and lock them.
2. Press the ‘Cancel’ button and hold the button
3. Observe that the ‘Points Locked’ indicating light is displayed and release the button.
4. Close and lock the door on the Control Box and advise the Train Controller.

Under no circumstances is a qualified worker to operate the equipment at the siding without first conferring with the driver of the movement.

Through Movement Shunting Bemax Siding:

Only movements proceeding from Broken Hill to Crystal Brook can shunt ‘enroute’ at Bemax siding.

A ‘CP’ (clearance point) sign is located approx 100 metres on the Kanandah Siding side of the main line points and is provided for movements proceeding toward Crystal Brook to indicate the location where a movement should come to a stand without occupying the points track circuit.

Provided a portion of the movement remains on the main line at all times there is no requirement for the ARTC Train Controller to issue a Train Authority to the driver to shunt at Bemax Siding.

The driver of the movement shall bring the movement to a stand ensuring that the vehicles being left to stand on the main line are clear of the ‘CP’ sign, detach the portion to be placed into the siding and draw forward coming to a stand on the 200 metre approach track circuit.

The control box and points shall then be operated as detailed in these procedures.

The Driver shall ensure that whilst the locomotive is shunting within the siding, the points are not restored for the main line until the locomotive has exited the siding and is ready to attach to the consist on the main line.

Restoring the points and the electric point lock whilst only the vehicles are standing on the main line will lock the points and the services of a Signal Fitter will be required to unlock them.

At completion of the shunting and prior to departing the Bemax siding the Driver shall report the shunting times to the Train Controller and also confirm that the points have been restored for the main line and secured.

Release of Point Locking During Failure

In the event that a release cannot be obtained in the normal manner the Train Controller shall arrange for the 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 contact the train controller and obtain the train controllers permission to release the point locking.

Should a movement be approaching or be standing at Bemax Siding and a release cannot be obtained owing to failure, the movement shall be advanced to Kanandah Siding or Thackaringa as required.

The movement shall then only be permitted to proceed to Bemax Siding after arrangements have been made for the points to be released or the fault has been rectified.

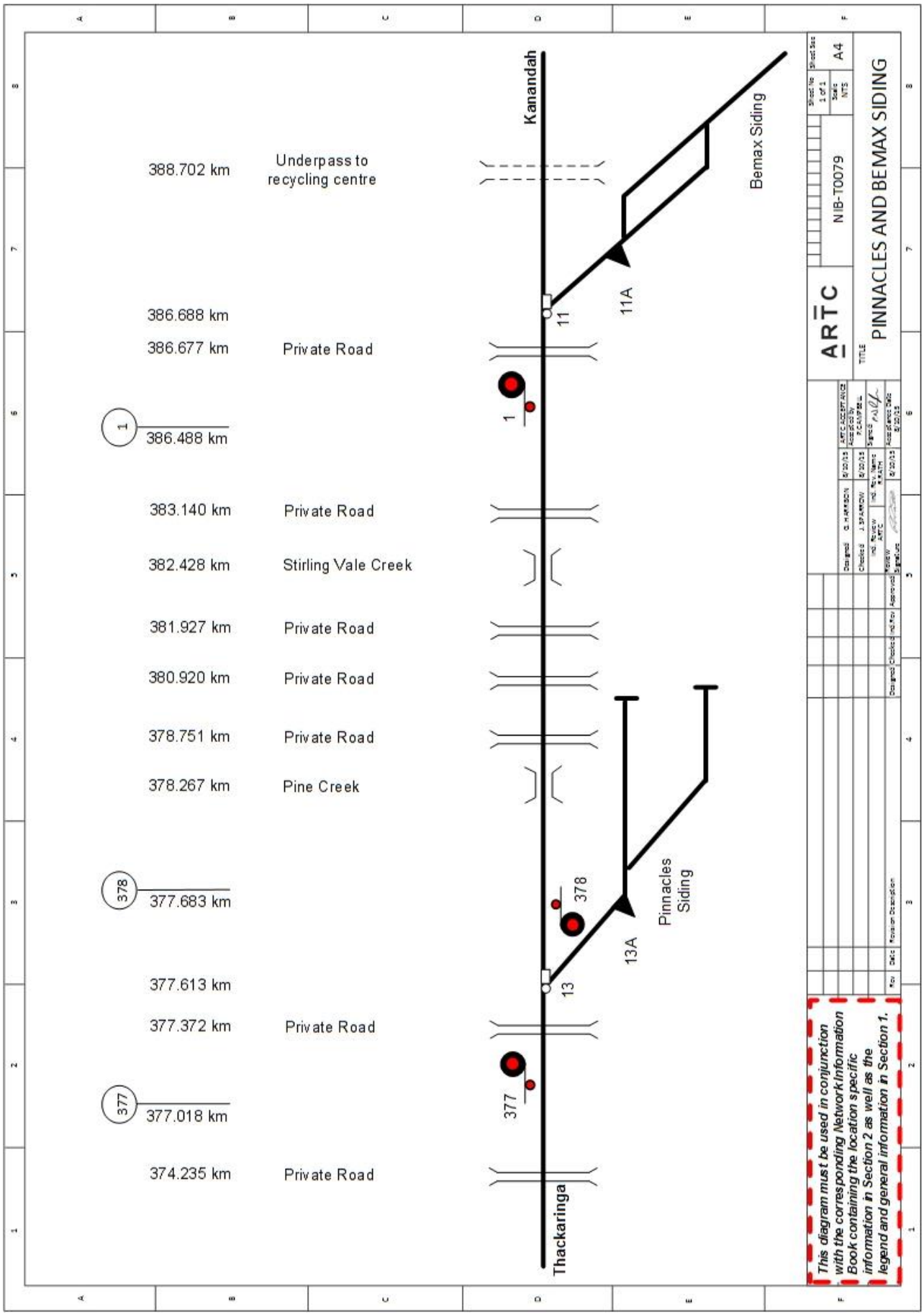
Failure of Signals

In the event that the entering block signals at Thackaringa or Kanandah Siding fail to display a ‘Proceed’ aspect on approach of a movement, the Train Controller shall issue a Train Authority for the movement to pass the signal in accordance with NoP procedures.

The Train Authority text shall also include the requirement for the Driver to inspect the points at Bemax and Pinnacles siding prior to passing over them.

In the event that signal 1 at Kanandah Siding fails to display a ‘Proceed’ aspect, the ARTC train controller shall issue a train authority authorising the movement to pass the signal at ‘stop’. The train authority shall also include the requirement for the Driver to inspect the points at Bemax siding.

BEMAX SIDING PHOTOS


388.702 km
Underpass to recycling centre
386.688 km
386.677 km
Private Road
1
386.488 km
383.140 km
Private Road
382.428 km
Stirling Vale Creek
381.927 km
Private Road
380.920 km
Private Road
378.751 km
Private Road
378.267 km
Pine Creek
378
377.683 km
377.613 km
377.372 km
Private Road
377
377.018 km
374.235 km
Private Road
Kanandah
Thackaringa
Bemax Siding
11
11A
13
13A
Pinnacles Siding
1
377
378
ARTC
NIB-T0079
TITLE
PINNACLES AND BEMAX SIDING
A4
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.

2.14 Kanandah Siding (KAS)

Loop Standing Room:

- 1014m
- Crossing location NOT equipped with self-restoring points

Goods Siding:

- Yes.

Crank Handles:

- No. Dual control point machines

Local Panel:

- Contained within a locked cabinet mounted on the wall of the location huts at each end of the loop.

Kanandah Siding is reached by road via Kanandah Road Railwaytown which is a suburb of Broken Hill

Automatic Signalling:

- will set up Kanandah Siding when Signal 56 at Broken Hill is cleared.
- will set up Kanandah Siding when the Broken Hill bound train passes the location of Signal 378 at Pinnacles.

Kanandah Siding is unique on this line in that it has absolute signals at the yard entrances. These are equipped with push buttons to clear a low speed signal onto the crossing loop.

Kanandah Siding is not equipped with self-restoring points.

The interface is as train notice 5633/2013 which is reproduced below.

2.14.1 Kanandah Siding to Broken Hill Operating Procedure

BROKEN HILL YARD:

The ARTC “TOCO” Network Controller at NCCS, is in charge of the Broken Hill yard and operates all signals and points at Broken Hill.

In the event that Signal BH5 (arriving into Broken Hill) fails to assume a ‘Proceed Aspect’ for the movement the signal shall be passed at ‘Stop’ as directed by the ARTC “TOCO” Network Controller at NCCS in accordance with the NSW Rules and Operating Procedures.

Should departure Signal 56 (towards Kanandah Siding) fail the driver must be issued an authority to pass the departure signal by the ARTC "ABS" Network Controller at NCCW in accordance with the ARTC Code of Practice for the Defined Interstate Network.

Broken Hill Yard: - Movement towards Parkes

The ARTC Network Controller in charge of the Train Control functions at Broken Hill yard must not clear a signal for any rail movement to depart towards Parkes without first ascertaining that the rail service has a valid Train Order to depart.

Should departure signals BH47 or BH49 fail the driver must be instructed to pass the departure signal in accordance with the NSW Rules and Operating Procedures.

Broken Hill Yard: - Movement towards Kanandah Siding

The ARTC Network Controller in charge of the Train Control functions at Broken Hill yard must not clear a signal for any rail movement to depart towards Kanandah Siding without first ascertaining that the rail service has permission and if required, a valid Train Authority to depart.

Should departure signal 56 fail the driver must be instructed to pass the departure signal by the ARTC "ABS" Network Controller in accordance with the ARTC Code of Practice for the Defined Interstate Network.

MOVEMENTS FROM KANANDAH SIDING TO BROKEN HILL

Rail traffic movements proceeding towards Broken Hill will observe and comply with signal indications in accordance with the ARTC Code of Practice.

Insulated track machines requiring entry to Broken Hill shall proceed from Signal 7 at Kanandah Siding to Signal BH5 at Broken Hill in accordance with the ARTC Code of Practice.

The movement shall proceed into Broken Hill passing the applicable signals as directed by the ARTC “TOCO” Network Controller at NCCS.

MOVEMENTS FROM BROKEN HILL TOWARDS KANANDAH SIDING

Signal 56 at Broken Hill controls the entrance of movements onto the ARTC Main Line towards Kanandah Siding.

Under no circumstances shall the ARTC “TOCO” Network Controller at NCCS operate Signal 56 without the authority of the ARTC "ABS" Network Controller at NCCW, without first ascertaining that the rail service has permission and if required, a valid Train Authority to depart.

SHUNTING KANANDAH SIDING

The Main Line points at Kanandah Siding are equipped with Hand Operated point machines. Under no circumstances are the points to be operated without the authority of the ARTC “ABS” Network Controller (either verbal authorisation or by the issue of a Train Authority).

Any movement proceeding from Broken Hill to Kanandah Siding for the purpose of shunting at Kanandah Siding, shall be issued a Train Authority to take the crossing loop at Kanandah Siding by the ARTC “ABS” Network Controller.

Upon the movement completing shunting at Kanandah Siding, the train crew or qualified worker shall obtain permission from the ARTC “ABS” Network Controller to enter the main line and also advise the ARTC “TOCO” Network Controller at NCCS that the movement is about to depart.

Authority to depart from the crossing loop shall be from Signal 7D.
TRACK MAINTENANCE ACTIVITIES

When Track Maintenance activities are required to be undertaken in the Broken Hill to Kanandah Siding Section, the ARTC "ABS" Network Controller at NCCW is to request a block be placed on Signal 56 at Broken Hill by the ARTC “TOCO” Network Controller at NCCS prior to issuing any authority to work in the section.

SAFEWORKING QUALIFICATIONS

Rail Safety Workers operating movements from Kanandah Siding into Broken Hill who are not qualified in full safe working within New South Wales Safe Working shall undertake and be assessed as competent in an abridged course in ‘Broken Hill’ working.

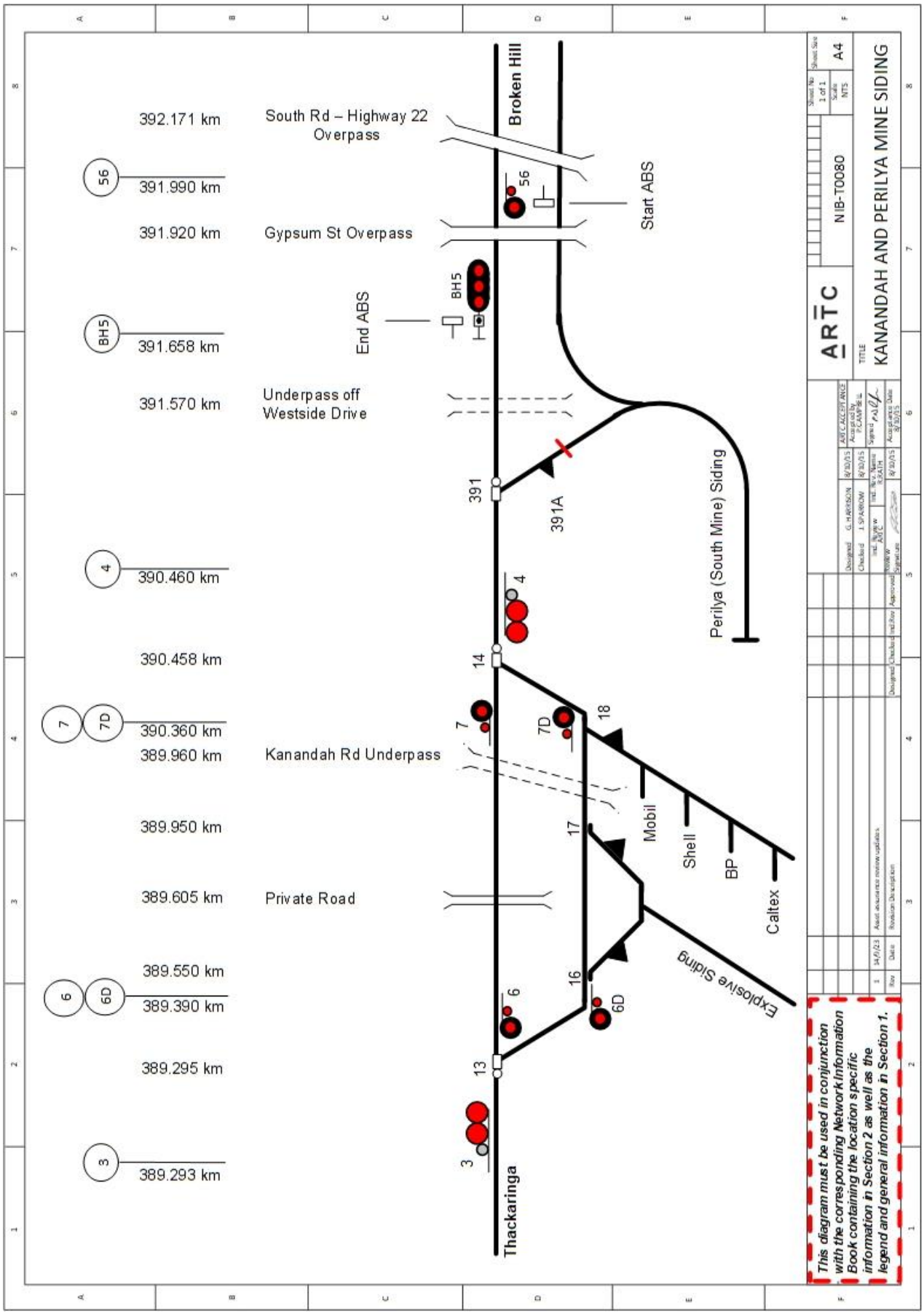
Rail Safety Workers holding this abridged qualification shall not work beyond the shunt limit board at the Sydney end of the Broken Hill yard.

Rail Safety Workers operating movements from Broken Hill to Kanandah Siding who do not hold full safe working in ARTC requirements for their classification shall undertake an abridged safe working course in Train Authorities and ABS Working which will enable them to operate into Kanandah Siding but not beyond signals 6 and 6D towards Thackaringa.

Contacts

NCCW ABS Network Controller (08) 8152 8008

NCCS TOCO Network Controller (02) 6924 9801


392.171 km
South Rd – Highway 22 Overpass
Broken Hill
56
391.990 km
Start ABS
391.920 km
Gypsum St Overpass
BH5
End ABS
391.658 km
391.570 km
Underpass off Westside Drive
391
391A
Perilya (South Mine) Siding
4
390.460 km
390.458 km
14
7
7D
18
390.360 km
389.960 km
Kanandah Rd Underpass
17
Mobil
Shell
BP
Caltex
389.950 km
389.605 km
Private Road
Explosive Siding
389.550 km
16
6
6D
389.390 km
389.295 km
13
3
389.293 km
Thackaringa
NIB-T0080
KANANDAH AND PERILYA MINE SIDING
A4
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.

2.15 Perilya Siding (PEY)

The Perilya Siding is an intermediate siding, not a crossing location and is situated between Broken Hill and Kanandah Siding. Train Notice 3914 / 2011 is reproduced below.

Perilya Siding Operating Procedure

Overview

The Perilya Siding is connected to the ARTC main line at the 391.154km in the single line section between Broken Hill and Kanandah Siding.

Operators requiring access to this siding shall obtain authority from Perilya prior to requesting a path from the ARTC network controller.

The points leading to the siding are secured with a T21 point machine provided with point indicators as described in the ARTC Addendum to the Code of Practice for the Defined Interstate Network.

The points are secured by an electric (HLM) point lock and are rodded to a derail at the clearance point of the siding.

A cabinet (control box), of which the door is 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 (as detailed) exists.

Cancel Button:

- Cancels the release and locks the points

In addition the following indicating lights are provided:

Block Light (Yellow Light):

- Indicates that the block is clear, or a movement is standing on the 'Release Track Circuit' and the release can be operated.

Points Released (Green Light):

- Indicates that the points have been released and are available to be operated.

Points Locked (Red Light):

- Indicates that the points are locked and not available for operation.

The points and electric point locking is interlocked with the signalling at Kanandah Siding and Broken Hill and the block circuit between Kanandah Siding and Broken Hill which ensures that a release cannot be obtained unless:

1. The Entering Block signals at Kanandah Siding or Broken Hill are at 'Stop'.
2. No movement is proceeding through the section between Broken Hill and Kanandah Siding, or
3. Should a movement be in the section, the movement is at a stand occupying the release track immediately ahead of the points
4. The points at Perilya are set and locked for the Main Line.

In addition, the operation of the 'release' button at the points initiates a 2 minute timer after which the points shall release and become available for operation.

Signage

Location ahead signs (labelled 'PERILYA SDG) are provided 2500 metres on the Kanandah Siding side of the main line points leading to the Perilya siding.

In addition the following signage is provided at the Perilya Siding:

Located adjacent the control box:

POINT LOCK NOT TO BE RESTORED WHILST VEHICLES ARE STANDING ON MAIN LINE WITHOUT LOCO ATTACHED

Located adjacent the derail for departing movements:

REPORT TO ARTC

Located adjacent the derail for departing movements:

ATTEND TO DERAIL

Located either side of the Perilya Siding points and indicates the limit of the points track circuit:

CP

Movement Terminating Perilya Siding

Prior to allowing the movement to depart Broken Hill or Kanandah Siding, the Network Controller shall establish from the Train Crew that the movement can be accepted into the Perilya Siding without delay.

On arrival at Perilya Siding the movement shall be brought to a stand on the 75-metre approach track circuit. The driver or qualified worker (where provided) shall:

1. Obtain permission from the ARTC Network Controller to operate the points.
2. Open the Control Box and observe that the points are locked.
3. Confirm that the 'Block Clear' light is illuminated.
4. Press the 'Release' button and observe that the release light is flashing indicating that the 2 minute timer has been initiated.
5. At the expiration of the 2 minute timer, observe that the 'Points Released' indicating light is steady.
6. Unlock the point lever and operate the points for the movement to enter the siding.

Immediately the movement has entered the siding the Driver or qualified worker shall:

1. Restore the points for the main line and lock them.
2. Press the 'Cancel' button and hold the button
3. Observe that the 'Points Locked' indicating light is displayed and release the button.
4. Close and lock the door on the Control Box and advise the Network Controller.

Under no circumstances is a qualified worker to operate the equipment at the siding without first conferring with the driver of the movement.

Movement Departing Perilya Siding

The train crew of a departing movement shall not request entry onto the ARTC Main Line unless the movement is standing at the entry point and is ready to depart.

The movement shall come to a stand at the notice board 'REPORT TO ARTC' and the driver shall contact the ARTC Network Controller and provide the appropriate train details of the movement and request a 'Train Working Advice' (TWA) form and a 'Train Authority' to enter the main line.

The Network Controller shall ensure that other rail movements enroute between Crystal Brook and Broken Hill are issued Train Authorities to cross or pass the entering movement at a planned crossing location or a blocking authority has been issued to an approaching movement to prevent entry into the Kanandah Siding to Broken Hill section.

In the case of a movement departing Broken Hill, the movement at Perilya siding shall not be authorised to enter the main line until the other movement has arrived at Broken Hill or that the Network Controller has ensured that signal 56 at Broken Hill is at the 'Stop' position.

The Network Controller shall also ensure that Track Force operations do not conflict with the entry of the movement at Perilya Siding.

The Network Controller, provided all the correct conditions exist, shall issue a 'TWA' form to the Driver and a Train Authority as authorisation to enter the main line as follows:

WORK BETWEEN KANANDAH AND BROKEN HILL THEN TAKE MAIN LINE (OR CROSSING LOOP) AT KANANDAH

Entry into Broken Hill will be made under signal indication.

The Network Controller shall also include any relevant cross or pass instruction as part of the text in the Train Authority.

The Driver shall, where applicable, advise the qualified worker that a Train Authority has been issued and that the points may be operated.

The Driver or qualified worker shall:

1. Obtain permission from the ARTC Network Controller to operate the points.
2. Open the Control Box and observe that the points are locked.
3. Confirm that the 'Block Clear' light is illuminated.
4. Press the 'Release' button and observe that the release light is flashing indicating that the 2 minute timer has been initiated.
5. At the expiration of the 2 minute timer, observe that the 'Points Released' indicating light is steady.
6. Unlock the point lever and operate the points for the movement to depart the siding.

Immediately the movement has entered the main line the Driver or qualified worker shall:

1. Restore the points for the main line and lock them.
2. Press the 'Cancel' button and hold the button
3. Observe that the 'Points Locked' indicating light is displayed and release the button.
4. Close and lock the door on the Control Box and advise the Network Controller.

Under no circumstances is a qualified worker to operate the equipment at the siding without first conferring with the driver of the movement.

Through Movement Shunting Perilya Siding

'CP' (clearance point) signs are located approximately 60 metres on the Broken Hill side and approximately 5 metres on the Kanandah Siding side of the main line points and are provided to indicate the location where a movement should come to a stand without occupying the points track circuit.

Provided a portion of the movement remains on the main line at all times there is no requirement for the ARTC Network Controller to issue a Train Authority to the driver to shunt at Perilya Siding.

For movements proceeding from Broken Hill to Crystal Brook, the driver of the movement shall bring the movement to a stand ensuring that the vehicles being left to stand on the main line are clear of the 'CP' sign, detach the portion to be placed into the siding and draw forward clear of the points track coming to a stand on the 75 metre approach track circuit.

For movements proceeding from Crystal Brook to Broken Hill, the driver of the movement shall bring the movement to a stand on the 75 metre approach track circuit.

The control box and points shall then be operated as directed by the Network Controller as detailed in these procedures.

The Driver shall ensure that whilst the locomotive is shunting within the siding, the points are not restored for the main line until the locomotive has exited the siding and is ready to attach to the consist on the main line.

Restoring the points and the electric point lock whilst only the vehicles are standing on the main line will lock the points and the services of a Signal Fitter will be required to unlock them.

At completion of the shunting and prior to departing the Perilya Siding the Driver shall report the shunting times to the Network Controller and also confirm that the points have been restored for the main line and secured.

Release of Point Locking During Failure

In the event that a release cannot be obtained in the normal manner, 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 contact the Network Controller and obtain the Network Controllers permission to release the point locking.

Should a movement be approaching or be standing at Perilya Siding and a release cannot be obtained owing to failure, the movement shall be advanced to Kanandah Siding or Broken Hill as required.

The movement shall then only be permitted to proceed to Perilya Siding after arrangements have been made for the points to be released or the fault has been rectified.

Failure of Signals

In the event that the entering block signals at Broken Hill or Kanandah Siding fail to display a 'Proceed' aspect on approach of a movement, the Network Controller shall issue a Train Authority for the movement to pass the signal in accordance with CoP procedures.

The Train Authority text shall also include the requirement for the Driver to inspect the points at Perilya Siding prior to passing over them.

FOR TRACK INFORMATION REFER TO KANANDAH SIDING TRACK DIAGRAM.