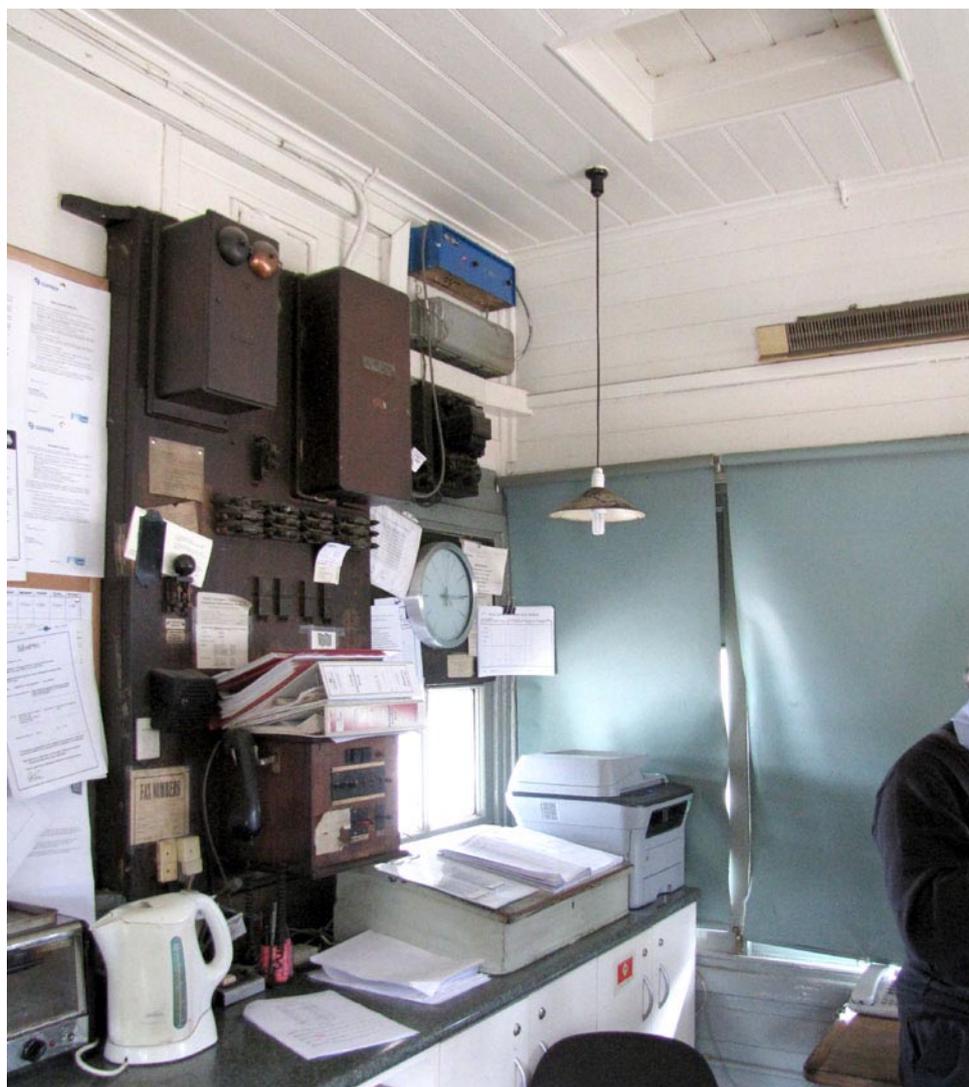


SOMERSAULT

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The 2010 SRS Signalbox tour, held on 18 September, visited Diamond Creek, Eltham, Greensborough, Kooyong, Gardiner, Darling, and Glen Waverley. This photo shows the train register desk and communications switchboard at Gardiner signalbox. The train register is sitting on a small portable train register desk on the bench. Above the desk is the electric clock to enable the signaller to accurately time the entries in the register. On the wall next to the train register desk is the communications switchboard. The signal post telephone concentrator is immediately above and to the left of the train register desk. If a driver rings the signalbox a little shutter drops and the signaller can use the keys to connect the handset to talk to the driver. The box at the top of the switchboard with the two bells is the original train control selector. Completing the scene is the ancient hanging electric light with metal lightshade, albeit updated with a modern compact fluorescent lightbulb.

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SIGNALLING ALTERATIONS

The following alterations were published in WN 29/10 to WN 41/10 and ETRB A circulars. The alterations have been edited to conserve space. Dates in parenthesis are the dates of publication, which may not be the date of the alteration.

- 23.07.2010 **Chiltern - Wodonga Loop - Wodonga - Wodonga Coal Sidings - Albury**
 On Friday, 23.7., after the passage of 4BM7 about 0211 the existing line through Wodonga was replaced by a new line from 297.741 km (on the Up side of Wodonga Loop) to 302.660 km (on the Up side of the Murray River bridge).
 Wodonga Loop, Wodonga, and Wodonga Coal Sidings were abolished. The level crossing equipment at Melrose Drive, Kelly Street, Wodonga station entrance, High St, Hovell St, and Osburn St were decommissioned and will be removed.
 Wodonga Junction was provided. The single line block section Chiltern Loop - Wodonga Loop became Chiltern Loop - Wodonga Junction. Trains between Wodonga Junction and the Murray River will be worked via the West Line under Train Authority Working. At Wodonga Junction, Homes WOD2 and WOD14 will be commissioned and fixed at stop. Homes WOD6, WOD18, WOD24, WOD26, WOD36, WOD38 and AY58 will be extinguished and crossed. Old Barnawatha Road (Cochranes Road) will be closed until the final signalling is commissioned.
 On the days following the opening of the new line, the old line will be physically disconnected from the new East Line which will be made good. Either the East or West Lines may be used for traffic, but when one line is in use the other line will be under Absolute Occupation.
- 30.07.2010 **North Geelong - Geelong Grain Loop** (SW 92/10, WN 29)
 On Friday, 30.7., the flashing lights and electronic bells at Corio Quay Road (68.641 km) on the Grain Loop were restored to service. Operation of the flashing lights will be in conjunction with Home CGL44.
- 30.07.2010 **North Geelong - Yelta** (TON 532/10, WN 32)
 The Train Control rooms for this line have been altered. North Geelong - Maryborough is now controlled from Room 5, and Maryborough (exc) - Yelta and Ouyen - Panitya are controlled from Rooms 5 or 7.
- 30.07.2010 **South Kensington - Tottenham** (SW 176/10, WN 29)
 On Friday, 30.7., the trainstops at M205, M235, M303, and M321 were converted to the JAH type.
- 31.07.2010 **Dandenong** (SW 175/10, WN 29)
 Between Monday, 26.7., and Saturday, 31.7., TPWS will be installed (but not commissioned) at DNG704.
- (02.08.2010) **Kaniva**
 Work has been completed (on 6.7.2010) to correct the clearances between No 1 Siding and the main line. No 2 Siding has been permanently booked out of service.
- 02.08.2010 **Thomastown - Lalor** (SW 174/10, WN 29)
 On Monday, 2.8., Automatics T596 and T614 were relocated to the opposite side of the line. Home LAL107 was replaced by a new post with TC2 tri-colour LEDs located on the opposite side of the line. Diagram 79/10 (Ruthven to Epping) replaced 65/10.
- 03.08.2010 **Wodonga Junction - Albury South**
 On Tuesday, 3.8., new signalling will be commissioned between Wodonga Junction and Albury South. At Wodonga Junction Crossovers 5 and 9 have been provided. Points 13 is at the end of the double line near the Murray River bridge. The speed limit for diverging moves over all points is 80 km/h and all are fitted with Vosloh-Cogifer dual control point machines. New signals ES2909, EES2909, WOD2, WOD4, WOD6, WOD12, WOD14, WOD16, WOD18, WOD24, WOD26, WOD34, WOD36, WOD38, The routes applying from WOD16 and WOD4 towards Melbourne on the West Line will not be commis-

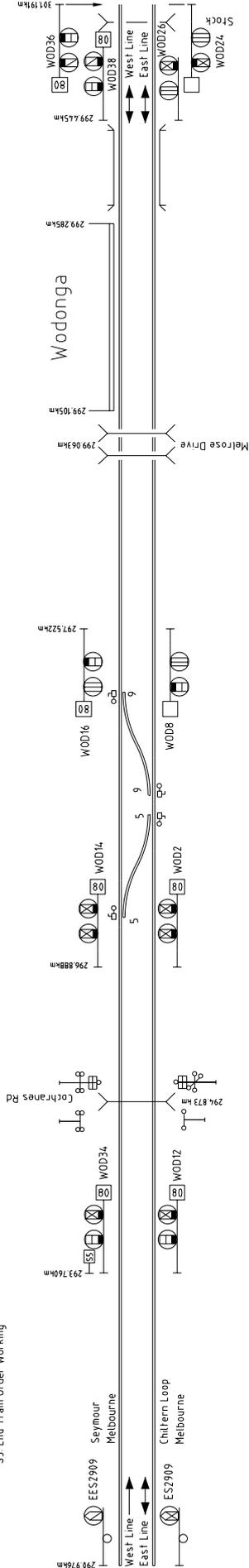
sioned. The 'a' light of WOD16 and the 'b' light of WOD4 will be fixed at red. The '80' indicators on WOD4 and WOD24 will not be commissioned. Down Automatic ES9721 will be abolished.

At Albury South the dock road and associated engine release road will be recommissioned as a standard gauge line. Crossover 27A/B and Points 29B and Catch 29A were provided. These points are equipped with Westinghouse 84M dual control point machines. Signals AY50 and AY71 will be provided, and AY18 will be abolished. NSW style signals AY15, AY51, AY52, AY58, AY61, AY62 and AY63 were replaced by Victorian style three position signals. A noticeboard will be provided adjacent to the northern end of the main platform for southbound trains reading "End single colour light signalling Start three position signalling" and a corresponding noticeboard lettered "End three position signalling Start single colour light signalling" at the south end of the platform adjacent to Post AY58. A noticeboard lettered "End VIC CTC" was provided adjacent to signals WOD6 and WOD18. A noticeboard lettered "Start VIC CTC" was provided adjacent to signal AY58.

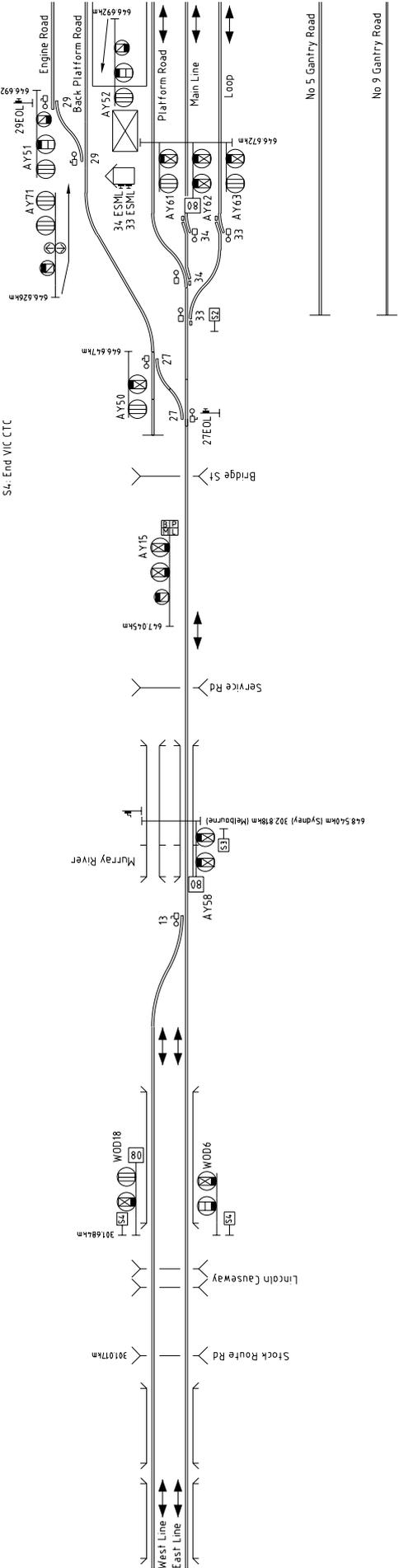
Diagrams 10/10 (Sprinhurst to Wodonga Junction), 8/10 (Wodonga) and 12/10 (Albury South) replaced 102/09, 110/07, and 100/09 respectively.

- 06.08.2010 **Echuca - Deniliquin** (TON 526/10, WN 30)
On Friday, 6.8., the Echuca - Deniliquin line was booked out of service. Baulks were provided at 234 km on the Down side of Post 8 at Echuca.
- 08.08.2010 **Maryborough** (SW 93/10 & 94/10, WN 30)
On Sunday, 8.8., Dwarfs 22 (Fuel Point Siding) and U22 (Train Stabling Siding) were provided and the stop boards were abolished. These Dwarfs will not be operated from the panel but will, instead, be operated from a three position keyswitch located near the points leading to the Train Stabling Siding. Operating the keyswitch to the left will clear Dwarf 22, and to the right will clear Dwarf U22. A second three position keyswitch at that location will control signals 12, 14 and 18 for moves to the Train Stabling Siding and Fuel Point Siding. The point motors operating the derails at the exits of the Train Stabling Siding and the Fuel Point Siding were commissioned and are operated by lever 21. Lever 22 was restored to use as a pilot lever and must be operated for movements from the Train Stabling Siding and Fuel Point Sidings. Operating Procedure 81 (Maryborough Locomotive Depot) was reissued. SW89/10 is cancelled. Amend Diagram 142/07 (Maryborough).
- 09.08.2010 **Ouyen** (TON 530/10, WN 31)
On Monday, 9.8., No 4 Track was booked out of service due to rail and sleeper condition.
- (10.08.2010) **Craigieburn** (SW 195/10, WN 31)
Commencing forthwith, Down trains shunting from No 2 Platform must not be signalled into the Holding Road. Trains to the siding must be routed via the main line and Home CGB519.
- (10.08.2010) **Lalor** (SW 198/10, WN 31)
Due to an aspect irregularity between Homes LAL102 and LAL 104, Home LAL104 has been booked out of service.
- (10.08.2010) **Mordialloc** (SWP 3/10, WN 31)
Operating Procedure 42B (Mordialloc, Failure of Home MOR700 when the signalbox is switched out) was issued.
- 10.08.2010 **Maryborough - Moolort** (SW 98/10, WN 32)
On Tuesday, 10.8., the Train Staff for the Maryborough - Moolort section was withdrawn from use account booking out of the line (see TON 521/10)
- 13.08.2010 **Lalor** (SW 202/10, WN 32)
On Friday, 13.8., circuits were altered to fix the aspect irregularity between LAL102 and LAL104. Home LAL104 was returned to service. SW 198/10 is cancelled.
- 15.08.2010 **North Melbourne** (SW 190/10, WN 31)
On Sunday, 15.8., Posts NME564 and NME566 were converted to tri-colour TC2 LEDs.
- 15.08.2010 **Woodend** (SW 96/10, WN 31)
On Sunday, 15.8., road traffic active advance warning signs were provided at Tylden Road (79.658 km) on the Down side of Woodend. Trains travelling at more than 50 km/h at the predictor indicator board may increase speed prior to entering the level crossings. Amend Diagram 34/05 (Clarkefield - Woodend)
- (17.08.2010) **Passing a Dwarf at Stop** (SW 99/10, WN 32)
Commencing forthwith, the following additional instructions are in force when it is necessary to pass a Dwarf signal at Stop. The Signaller must enter the details in the TRB, including the name of the Driver. Where voice communication is recorded the Driver and Signaller must exchange names.
- 18.08.2010 **Frankston - Stony Point** (TON 541/10, WN 33)
On Wednesday, 18.8., the non-urban radio channel for Frankston - Stony Point changed from Channel 7 to Channel 1.
- 19.08.2010 **Kinnabulla** (TON 558/10, WN 34)
On Thursday, 19.8., the siding was booked out of use due to sleeper condition and track geometry.
- 21.08.2010 **Aircraft - Hoppers Crossing** (SW 201/10, WN 32)
On Saturday, 21.8., Automatics G901 and GG901 were converted to tri-colour TC2 LEDs.

S5: End Train Order Working

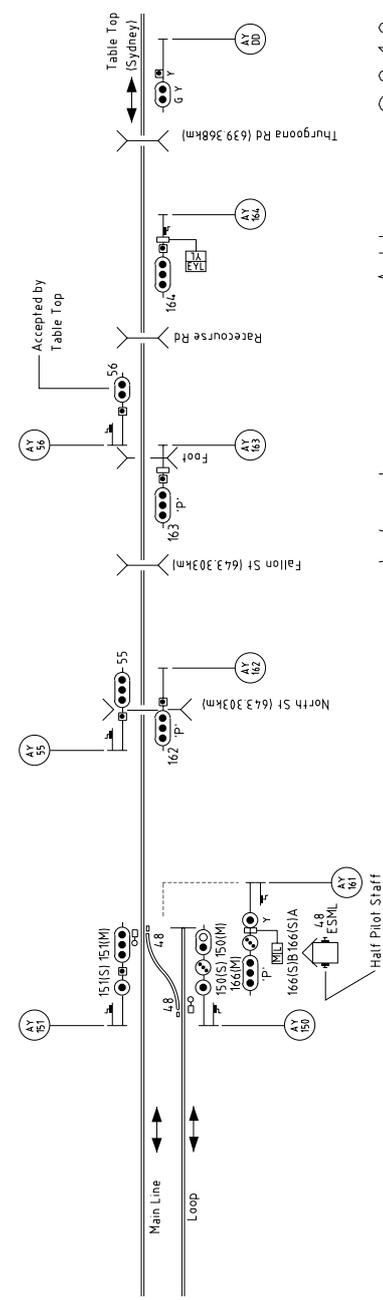
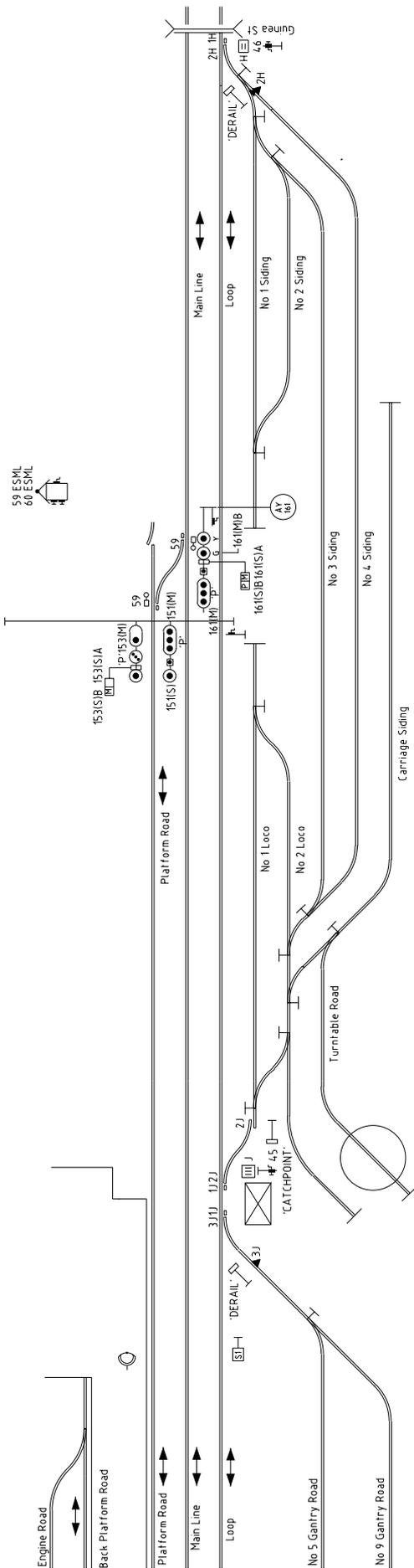


- S1: End Single Colour Light Signalling Start Three Position Signalling
- S2: End Three Position Signalling Start Single Colour Light Signalling (Main Line)
- S3: Commence VIC CTC
- S4: End VIC CTC



No 5 Gantry Road

No 9 Gantry Road



Wodonga - Albury 2010

- 22.08.2010 **Sandown Park - Noble Park** (SW 181/10 & 200/10, WN 30 & 31)
On Sunday, 22.8. traffic light co-ordination was provided at Heatherton Road.
- (24.08.2010) **Moonee Ponds Creek** (SW 101/10, WN 33)
Diagram 85/10 (Moonee Ponds Creek) replaced 1/10 as in service.
- (24.08.2010) **Maryborough** (SW 105/10, WN 33)
Diagram 18/10 (Maryborough) replaced 142/07 as in service.
- (24.08.2010) **Clarkefield - Woodend** (SW 100/10, WN 33)
Diagram 36/10 (Clarkefield - Woodend) replaced 34/05 as in service.
- 26.08.2010 **Creswick** (SW 104/10, WN 33)
On Thursday, 26.8., boom barriers were provided at the passive crossing at Gillies Rd (180.669 km) on the Down side of Creswick. The boom barriers are operated by predictors. Trains travelling at more than 50 km/h at the predictor boards can accelerate before entering the level crossing. Remote monitoring equipment is provided.
- 26.08.2010 **Clunes** (SW 103/10, WN 33)
On Thursday, 26.8., boom barriers were provided at the passive crossing at Beckworth Court Rd (197.329 km). The boom barriers are operated by predictors. Trains travelling at more than 50 km/h at the predictor boards can accelerate before entering the level crossing. Remote monitoring equipment is provided.
- 27.08.2010 **Lalbert** (TON 554/10, WN 34)
On Friday, 27.8., the siding was booked out of use due to grain out-loaders unauthorised access to the siding.
- 27.08.2010 **Waitchie** (TON 555/10, WN 34)
On Friday, 27.8., the siding was booked out of use due to grain out-loaders unauthorised access to the siding.
- 27.08.2010 **Dandenong** (SW 217/10, WN 33)
On Friday, 27.8., the TPWS equipment at Home DNG704 will be commissioned for trial.
If the TPWS equipment fails, Home DNG704 will be held at stop and the icon on the Signallers VDU will show invalid (white) and track circuit 704T will be displayed as down.
- (28.08.2010) **Moonee Ponds Creek** (SW 101/10, WN 33)
Diagram 85/10 (Moonee Ponds Creek) replaced 1/10 as in service
- (28.08.2010) **Maryborough** (SW 105/10, WN 33)
Diagram 38/10 (Maryborough) replaced 142/07 as in service.
- (28.08.2010) **Clarkefield - Woodend** (SW 100/10, WN 33)
Diagram 36/10 (Clarkefield - Woodend) replaced 34/05 as in service.
- 29.08.2010 **Bayswater** (SW 221/10, WN 34)
On Sunday, 29.8., Down Home BAY306 was converted to TC2 tri-colour LED.
- 30.08.2010 **Newport** (SW 210/10 & 211/10, WN 34)
On Monday, 30.8., the Westlock computer based interlocking was commissioned.
The WSA points on the Up side of the stabling siding access gates were reconfigured and the track slued. Five new turnouts equipped with M23A point machines were provided in No 2 Lead and secured normal. Diagram 87/10 (Newport Workshops North Yard) replaced 73/10.
- 04.09.2010 **Flinders St** (SW 228/10, WN 35)
On Sunday, 4.9., the low speed light on Home 131 was replaced by a 36 dot LED unit.
- (07.09.2010) **Craigieburn** (SW 226/10, WN 35)
Commencing forthwith the restriction preventing Down trains being routed via the Holding Road (SW 195/10) has been cancelled.
- 07.09.2010 **Mildura** (SW 106/10, WN 35)
On Tuesday, 7.9., No 2 Road was abolished. The WSA levers, point indicators, hand locking bars, and derails were abolished. Amend Diagram 104/09 (Mildura - Yelta).
- 09.09.2010 **Ringwood East** (SW 227/10, WN 36)
On Thursday, 9.9., traffic light co-ordination was provided at Dublin Road.
- 10.09.2010 **Echuca - Deniliquin** (TON 615/10, WN 36)
On Friday, 10.9., the line beyond 233.829 km was booked out of service due to infrequent use. Baulks were provided at Post 7 Echuca. The electrical power to the level crossing equipment at Sturt St (233.939 km), Shaw St (235.110 km), and Francis St (235.471 km) was disconnected.
- 11.09.2010 **Belgrave** (SW 234/10, WN 36)
On Saturday, 11.9., an M23A point machine was provided for Points 51. (Points 51 remain on wooden bearers.)
- 12.09.2010 **Upper Ferntree Gully** (SW 235/10, WN 36)
On Sunday, 12.9., Points 19 were renewed as a concrete bearer tangential point layout and an M23A dual control point machine was provided. The rodded connection to the derail was removed and an M23A

point machine was provided to operated Derail 19.

(14.09.2010) **ARTC Standing Notices**

The following standing notices have been cancelled:

- * 3715/99 (Operation of Pyrenees Loop)
- * 1194/03 (Laverton, CRT & SCT Sidings)
- * 179/06 (Elders Grade Crossing)

(14.09.2010) **Manor Loop**

To prevent unnecessary operation of Browns Road or Tip Road crossings, trains should not be held at Homes 38/6 or 38/26.

(14.09.2010) **Talbot**

(TON 613/10, WN 36)

The level crossing at Halls Road (207.329 km) has been closed.

(14.09.2010) **Daisy Hill**

(TON 612/10, WN 36)

The level crossing at Sing Track/Bush Park Road (219.026 km) has been closed.

14.09.2010 **Sulky**

(SW 111/10, WN 36)

On Tuesday, 14.9., boom barriers were provided at the passive crossing at Pistol Club Road (163.862 km). Operation of the boom barriers will be by level crossing predictor and remote monitoring equipment will be provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate prior to entering the level crossing.

14.09.2010 **Creswick**

(SW 110/10, WN 36)

On Tuesday, 14.9., boom barriers were provided at the passive crossing at Armstrong Street (173.781 km) on the Up side of Creswick. Operation of the boom barriers will be by level crossing predictor and remote monitoring equipment will be provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate prior to entering the level crossing.

15.09.2010 **Bacchus Marsh**

(TON 617/10, WN 37)

On Wednesday, 15.9., the turntable was booked back into service and the baulks in the lead were removed.

17.09.2010 **Altona Junction**

(SW 250/10, WN 37)

On Friday, 17.9., the former PRA Siding was restored to service as the Metro Infrastructure Works Siding. Points 217 were returned to service. Amend Diagrams 69/06 (Newport - Altona Junction) and 45/10 (Altona Junction - Laverton).

18.09.2010 **Newport**

(SW 242/10, WN 37)

On Saturday, 18.9., Dwarf NPT732 was renewed as a U2L LED on a 1.5 metre post. The Dwarf will display purple and yellow lights.

19.09.2010 **Brighton Beach**

(SW 237/10, WN 37)

On Sunday, 19.9., Dwarf BBH905 and Catch 7D were re-instated. No 1 Road and Sidings A and B remain booked out of service.

20.09.2010 **Merbein**

(SW 112/10, WN 37)

On Monday, 20.9., the line beyond 620.719 km (50 m on the Up side of Calder Highway) was booked out of service to allow for the reconstruction of the Calder Highway level crossing. Baulks were provided. Merbein Block Point was established at 620.719 km with the section Lakeside BP - Merbein BP - Yelta. A Down Location Board was provided 2000m from the block point, but an Up Location Board was not provided.

20.09.2010 **Seymour - Wodonga**

On Monday, 20.9., the West Line between Seymour and Wodonga was brought into use. The former standard gauge line was renamed the East Line. The West Line is only available for Down trains only, except that at the discretion of the ARTC Operations Manager North/South Up grain trains from the Oaklands line can operate between Benalla and Seymour.

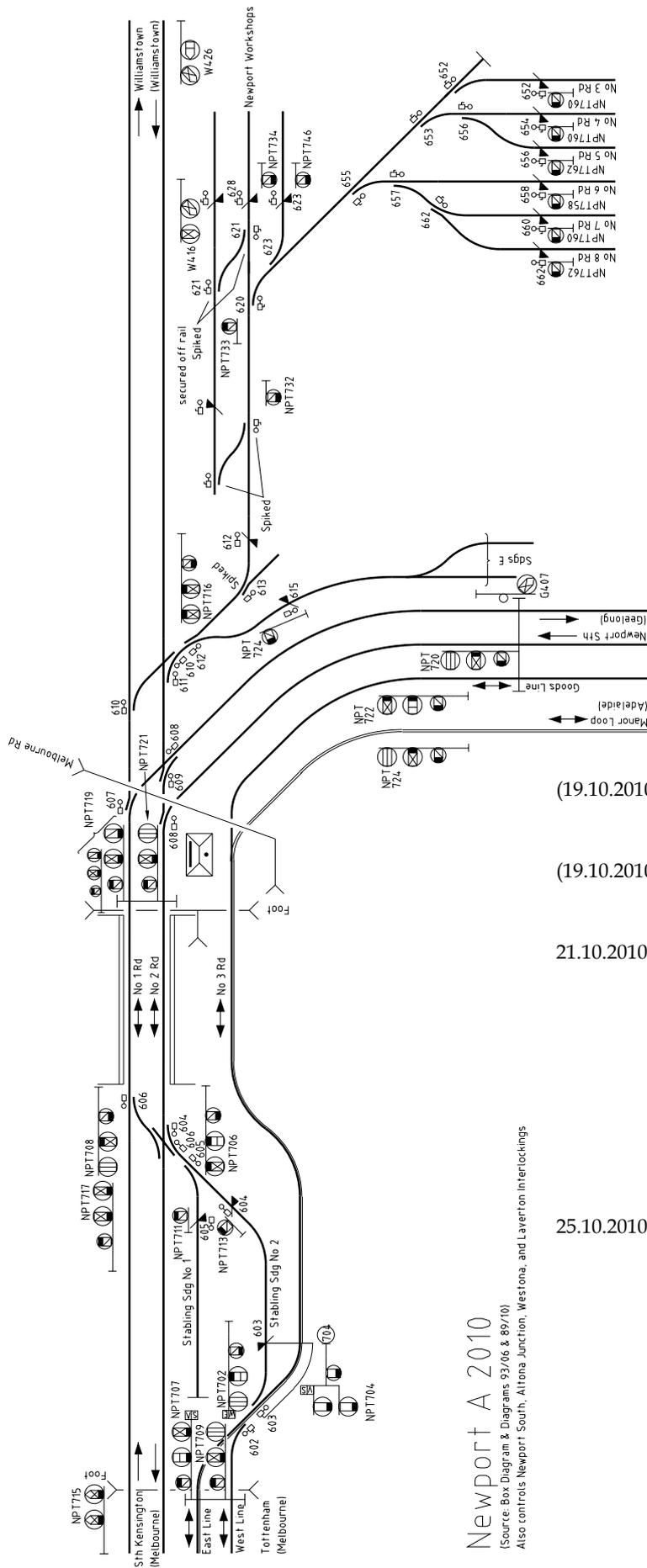
The West Line will be worked as a single section between Home SEY134 at Seymour and Home WOD14 at Wodonga under the Train Authority System of Signalling (Section 25, ARTC Rules and Operating Procedures). Commence and End Train Authority boards will be provided at Homes SEY134 and WOD14, and the derail and crowder in Oaklands line at Benalla.

The baulk at SEY134 was removed. The absolute occupation limit markers at 170.500 km and 232.500 km were removed. The intermediate crossovers at Benalla and Wangaratta were secured normal, as was the points to the Oaklands line. All intermediate signals between Up Repeating EES1102 at Seymour and Down Repeating EES2909 at Wodonga have been extinguished, obscured, and fitted with a black cross over the number plate. Level crossing protection equipment was recommissioned to operate normally for the West Line.

When it is necessary for a Down train to proceed to Wodonga on the West Line the train must be brought to a stand at SEY132 and the Train Authority dictated to the driver. Once the driver has correctly repeated the Train Authority, the Train Controller may set the route for the train to enter the West Line. A signaller will be provided at WOD14 to check that a Down train on the West Line is complete. The Train Authority will be cancelled by the driver once the train has been confirmed complete.

Diagrams 36/10 (Seymour) and 52/10 (Springhurst - Wodonga Junction) replaced 18/10 and 10/10 respectively.

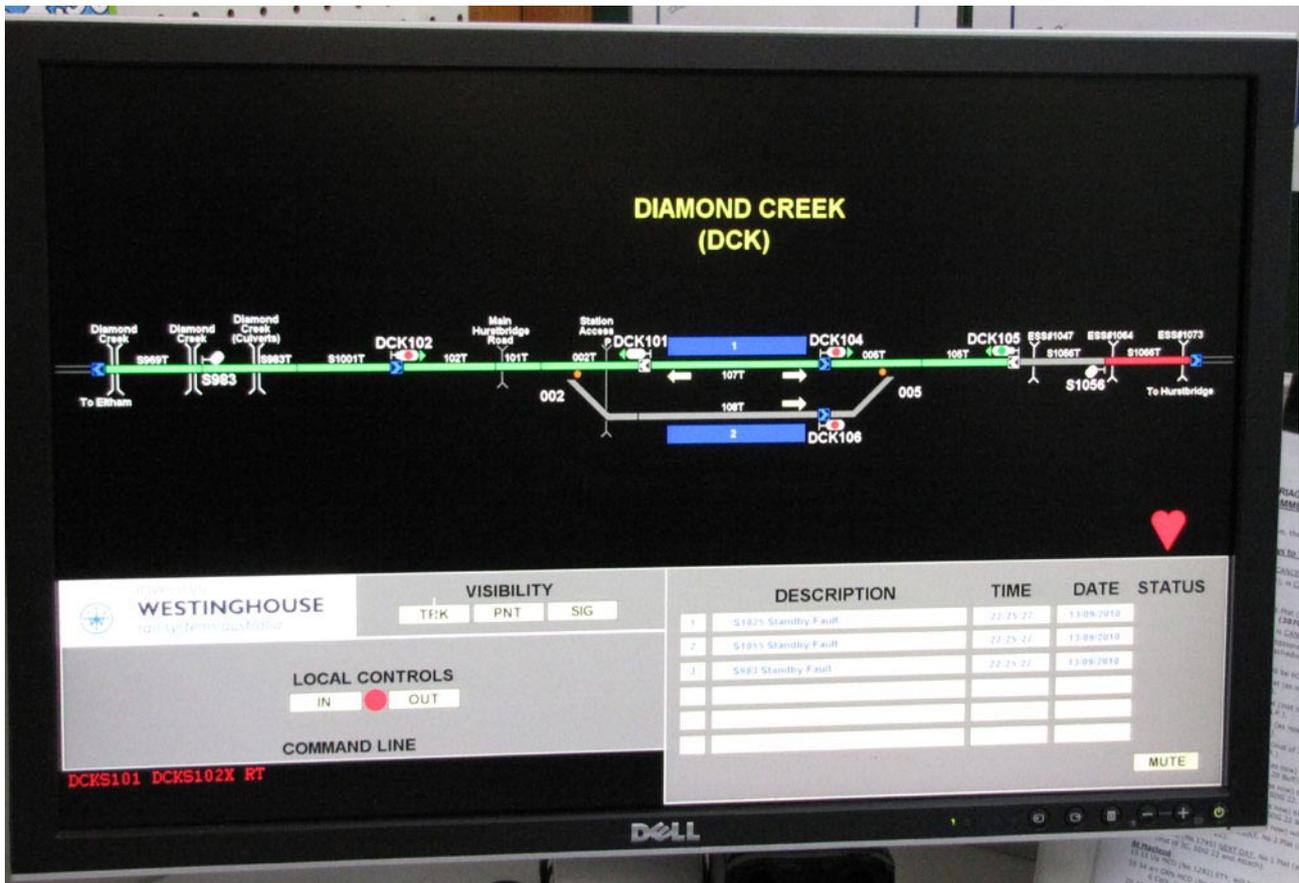
- 21.09.2010 **Maryborough** (SW 113/10, WN 37)
On Tuesday, 21.9., the three position V5PSW keyswitches near Points 13 for the operation of Dwarfs 22 and U22 were relocated to a locked box. The operating instructions were re-issued.
- 27.09.2010 **Newport** (SW 244/10, 252/10, & 255/10, WN 37, 38, 39)
On Monday, 27.9., six stabling sidings were commissioned in the former tarpaulin shop area. The sidings are numbered 3 to 8 and are each around 185m long. Dwarfs NPT733, NPT734, NPT746, NPT752, NPT754, NPT756, NPT758, NPT760, and NPT62 were commissioned. Points 620, 652, 653, 655, 656, 657, and 662 were commissioned. Derail and Crowder 623, 628, 652, 654, 656, 658, 660, and 662 were commissioned. Crossover 621 was provided but were secured normal. Points 623 were provided but secured normal. All points and derails are operated by dual control point machines.
The lead to Newport Workshops will be available for use. Newport Sidings 3 - 8 will not be available for use. Points 620 will be secured normal, and Derail 628 will be secured off the rail. Dwarfs NPT733 and 734 will be covered.
Dwarfs NPT734, NPT746, NPT752, NPT754, NPT756, NPT758, NPT760 and NPT762 must not be cleared for a follow on movement until the first train has completely passed NPT732. The route storage facility will not be enabled for these dwarfs.
Diagram 89/10 (Newport Workshops North Yard) replaced 87/10.
- 29.09.2010 **Kinnabulla** (TON 623/10, WN 39)
On Wednesday, 29.9., the siding was booked back into service. TON 558/10 is cancelled.
- 01.10.2010 **Merbein Block Point** (SW 117/10, WN 39)
On Friday, 1.10., Merbein Block Point was abolished due to the completion of roadworks at Calder Hwy. The section was restored to Lakeside BP - Yelta, and the location board, block point signage, and baulks were removed. SW112/10 was cancelled.
- 03.10.2010 **Elders Siding**
Between Saturday, 2.10., and Sunday 3.10., the mixed gauge diamond for Elders Siding was removed.
- 03.10.2010 **Frankston - Stony Point** (SW 258/10 & 35/10, SWP 4/10, WN 39)
On Sunday, 3.10., boom barriers were provided at Park Lane (56.573 km) and Bungower Road (57.365 km). Operation is via level crossing predictors and trains travelling at more than 50 km/h may accelerate between the predictor boards and the level crossings. Diagram 103/10 (Leawarra - Stony Point) replaced 35/10.
Operating Procedure 8A (Stony Point Line - Level Crossing Predictor Boards) was issued for the introduction of level crossing predictors adjusted for 50 km/h.
- 07.10.2010 **Talbot** (SW 118/10, WN 39)
On Wednesday, 13.10., boom barriers were provided at the passive crossing at Champions Rd (212.023 km). Operation of the boom barriers will be by level crossing predictor and remote monitoring equipment will be provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate prior to entering the level crossing.
- 08.10.2010 **Newport** (SW 266/10, WN 40)
On Friday, 8.9., Stabling Sidings 3 to 8 were brought into service and will be available for stabling suburban trains. The arrangements in SW 244/10 and shown on Diagram 89/10 were brought into service.
- 09.10.2010 **Oakleigh** (SW 267/10, WN 40)
On Saturday, 9.10., Home 16 was replaced by a new mast situated at the end of the Up platform. The new Home is fitted with TC2 LEDs in an L4 case. The original Home became a co-acting signal for Home 16 and was fitted with tricolour TC2 LEDs.
- (12.10.2010) **Swan Hill** (TON 630/10, WN 40)
The Caltex Siding, BP Siding, and Livestock Sidings are to be deleted from the Network Service Plan.
- 13.10.2010 **Tottenham Yard** (SW 123/10 & 126/10, WN 41)
On Wednesday, 13.10., the intermediate trailing Annett locked connections between the Up and Down Independent Roads and Tottenham Yard were abolished. The main line points were secured normal. The control panel for Homes 2G and 3G and the associated Annett Locks were abolished. Homes 2G and 3G were converted to three position signals and brought into use. They will normally display Low Speed Caution. Operating Procedure 21 was reissued.
- 13.10.2010 **Talbot** (SW 119/10 & 121/10, WN 39 & 40)
On Wednesday, 13.10., boom barriers were provided at the passive crossing at Carisbrook - Talbot Rd (215.222 km). Operation of the boom barriers will be by level crossing predictor and remote monitoring equipment will be provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate prior to entering the level crossing.
- 15.10.2010 **North Dynon & South Dynon** (SW 120/10, WN 40)
From Friday 15.10., the signalling in the North and South Dynon areas will be booked out of use to commission the next stage in the Southern Area Improvement project.
- (19.10.2010) **South Kensington** (SW 285/10, WN 41)
Diagram 91/10 (South Kensington) replaced 65/09 as in service.



Newport A 2010

(Source: Box Diagram & Diagrams 93/06 & 89/10)
 Also controls Newport South, Altona Junction, Westona, and Laverion Interlockings

- (19.10.2010) **Dennis - Macleod** (SW 284/10, WN 41)
 Diagram 99/10 (Dennis - Macleod) replaced 41/08 as in service.
- (19.10.2010) **Westall** (SW 277/10, WN 41)
 The pedestrian crossing at the Up end of the platforms (22.552 km) has been closed.
- 21.10.2010 **Tourello** (SW 124/10 & 125/10, WN 41)
 On Thursday, 21.10., boom barriers were provided at the passive crossings at Andersons Rd (184.020 km) and Tourello Rd (185.110 km). Operation of the boom barriers will be by level crossing predictor and remote monitoring equipment will be provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate prior to entering the level crossing. Amend Diagram 32/10 (Sulky - Talbot).
- 25.10.2010 **Spencer Street** (SW 281/10, WN 41)
 Between Friday, 22.10., and Monday, 25.10., the Goods Lines will be slewed westerly between 0.261 km and 0.469 km. Automatic 724 will not be relocated and will be 6.7 metres from the track centre.



More photographs from the SRS Signalbox Tour on 18 September 2010. Above is the 2008 VDU interface at Diamond Creek. An Up train is approaching Diamond Creek from the right and the system has automatically set the route up through the platform. Below left is the 1964 unilever panel at Glen Waverley - such panels are becoming as rare as mechanical frames. On the right is the interior of the 1917 signalbox at Gardiner that controls the tramway level crossing at Burke Road. An Up train is on the approach (the lit approach

bell can be seen to the left of the diagram), the lever controlling the home signal is reversed, the power switching lever (the former gatestop lever) is normal, and the indicator shows 'RAIL' confirming that 1500V DC is being supplied to the tramway square.



DISTANT SIGNALS

Imagine you are a Victorian Railways driver. You are approaching a distant signal that is on. What should you understand by the aspect, and how should you drive your train? The meaning of the distant signal has changed quite dramatically over the years.

When distant signals were introduced on the Victorian Railways they were known as 'advanced semaphores' as they were placed further out from the station than the station semaphores (this is the reverse of the current signalling concept of advance which means further in the direction of travel).

Advanced semaphores were not mentioned in the 1858 rulebook. In February 1864 authority was sought to provide advanced semaphores at Moorabool (Up), Malmesbury (Up), Taradale (Up and Down), Elphinstone (Up and Down), Harcourt (Up and Down), Ravenswood (Up and Down) and possibly Castlemaine (Down). It is probable that there were other, earlier, installations. In August 1864 it is known that Essendon Junction had an advanced semaphore.

By the issue of the 1864 rulebook they were defined in rules 83 and 368:

83: If there should be an advanced Semaphore at one or each side of a Station, the advanced Semaphore covering the road on which a Train or Engine is approaching the Station must be put at Danger as soon as the Engine passes it; when the Engine passes the Station Semaphore and proceeds from the Station on its journey, the advanced Semaphore is to be lowered to "All Right," if there be no obstruction between it and the Station Semaphore or at or within sight of the Station, but the Station Semaphore must be kept at Danger as provided by the preceding Rules.

368: When a Train or Engine approaches an advanced Signal set at Danger or any other Danger Signal, the Engineman must come steadily so as to stop at the Danger Signal, and having first ascertained that there is no obstruction, he is immediately to move his Train cautiously within the protection of the advanced Semaphore or Signal, so that no following Train may run into his.

While modern writers note the danger of time interval working if a train broke down between stations, in fact delays at the entrance to stations were probably more dangerous. Under time interval working a train was very vulnerable when standing at the home signal waiting to enter the station, or standing on the main line while shunting or doing station work (remember the home signal was typically on the platform in the middle of the station). This was by far the most likely time a train would stand for a lengthy period on the main line, and it was quite possible that the driver of a following train would overlook the stationary train. (Even today, under the permissive rules governing passing automatic signals at stop, this is still a risk, as the recent accident at Craigieburn demonstrated.) The advanced semaphore was clearly a means of controlling this risk. The advanced semaphore protected a train standing outside the home signal. Requiring a train to come to a stand at the advanced semaphore at danger meant that any movement inside the semaphore would be at low speed making a rear end collision less likely. Finally, that the driver could pass an advanced semaphore at danger without authority from the signalman (and indeed, was required to do so immediately the train came to a stand) meant that a following train was brought under the protection of the advanced semaphore as soon as possible. How-

ever, the advanced semaphore was not a distant as we would understand it today. It was not intended to give a warning to drivers when the home signal was at danger (note there was no requirement in the rules to keep it at danger if the home was at danger - indeed the working required it to be cleared after the obstructing train had left the station, even though the home would still be at danger). The working of the advanced semaphore is related to obstructions of the line at the station, and particularly between the advanced semaphore and the home.

It appears that the term 'distance' signal came into casual use by 1866, but the formal name of the signal remained 'advanced semaphore'. Throughout the 1870s the Engineer in Chief's correspondence register records the provision of advanced semaphores, and requests for distance and (later) distant semaphores.

By the issue of the May 1885 rulebook interlocking had been introduced into Victoria, and advanced semaphores had evolved into true distant signals. Interestingly enough, the rules relating to distant signals in the 1885 were inconsistent. Rule 63 defined the distant signal and the observance was similar to the previous rule for advanced semaphores:

63. Distant signals are fixed at a considerable distance back from the Home to act as an auxiliary to warn trains of danger, and also to protect engines or trains standing at the Home Signal. Engine-drivers seeing Distant Signals at "Danger" should come to a standstill thereat, and then draw cautiously as near to the Home Signal as they can, and there await the "All Right" Signal.

However, the section detailing the duties of engine-men also contained a rule for the observance of a distant signal. While similar to Rule 63, this rule did not require trains to come to a stand at the distant signal when it was at danger:

366. When an Engine-driver finds a Distant Signal at Danger, he must immediately reduce the speed of his train so as to be able, in case of need, to stop at such signal; but if he see that the way in front of him is clear, he must proceed slowly and cautiously within the Distant Signal, having such control of his train as to be able to stop it short of any obstruction that may exist between such Signal and the Home Signal, and must bring his train to a stand as near the Home signal as the circumstances of the case will allow.

It would appear that Rule 366 was the intended observance, as the requirement remained in this form for eighty years. The rulebook now tied the working of the distant signal to the home signal:

65. The Home Signal lever in an interlocking apparatus precedes the Distant, so that a Distant arm cannot be lowered until after the Home. Distant Signals must be placed at "Danger" immediately they are passed by a train or engine, and must not, where the Block Working is in operation, be again taken off, except as prescribed by the Block Telegraph Regulation. They must also be placed at "Danger" whenever any obstruction or danger exists upon the Line they are intended to protect, and the "Danger" signal must remain exhibited until the obstruction or danger is removed.

114. Whenever the Distant Signal is at Danger, the Danger Signal must also be exhibited at the Home

Signal, except when a train has passed the Distant Signal at Danger, or in the case of an approaching train for which both the Signals have to be taken off. In the latter case, the Home Signal must be taken off first and the Distant Signal placed at Danger as soon as the train has passed it; and, in the former case, the Home Signal only must be lowered to allow the train to pass.

Rule 114, of course, covers the then common case where the signals were not worked from an interlocking frame.

The text in the September 1891 and 1898 rulebooks was virtually identical, except that the rules allowed for 'Inner Distant' as well as normal distant. In February 1898 a special instruction was issued at Maryborough that all Down trains had to stop at the Ballarat or Avoca line distant when they were at danger.

A new rulebook was issued in 1907. The new rulebook was based on the contemporary UK Railway Clearing House rulebook. In adapting the RCH rulebook, however, it appears that alterations were made to suit the rules to Victorian ideas. For example, Rule 55 relating to distant signals was virtually identical to the equivalent 1885 rule:

55. When an Engine-driver finds a Distant Signal at Danger, he must immediately reduce the speed of his train so as to be able to stop at such Signal; but if he see that the way in front of him is clear, he must proceed slowly and cautiously within the Distant Signal, having such control of his train as to be able to stop short of any obstruction that may exist between such Signal and the Home Signal, and must bring his train to a stand as near the Home Signal as the circumstances of the case will allow.

I do not have an RCH rulebook of that era, but the equivalent rule in the 1897 GNR rulebook was "When an Engine-driver finds a Distant-signal at Danger he must reduce speed and proceed cautiously towards the Home-signal, being prepared to stop if necessary." The 1900 LBSCR and 1912 GCR rulebooks were identical except for some minor typographical alterations.

The 1908 Sunshine accident provides a glimpse of how enginemen actually observed the rule. The inquiry was assisted by William Bagley who gave evidence on the drivers' duties and the operation of brakes. Bagley had formerly been an engine driver on the VR. A senior member of the union, he had left the department after the 1903 strike, and had founded a private school that prepared firemen for the engine drivers examination. Bagley gave evidence that he had been taught to reduce speed to 15 to 20 mph when approaching a distant signal at danger, and then roll down to the home signal. This was how the drivers he had fired for had observed the distant signal, how he observed distant signals when he was a driver, and what he taught his students. This interpretation was supported by the Superintendent of Locomotive Running who stated he "would say [the drivers] reduce at the distant signal to about 25 mph in the majority of cases". However this observance was directly contradicted by the retired engine driver John Harcombe who stated:

I have heard drivers and others say at what speed they would pass the distant signal at danger. I have regularly run from 35 to 40 miles an hour, sometimes 45, according to the signal I received from the last station. If I get 1-5 it tells me the line may be blocked, will be blocked, or is [not?] clear. I can go as hard as I like, but pull up at the home signal. If I get 3-1 it tells me the road is clear 400 yards past the station, and I can go to 60 miles an hour providing I

stop at the home signal if it is at danger. [...] During the 4 years and 9 months [of driving the Up Bendigo train involved in the accident] I have been running I have constantly run past the distant signals at 40 miles. [...] During that time I have carried the chief officers of the railway with me on the foot-plate; I have run past the signal with the Commissioners, and no one has spoken to me about it. I know it is done daily; if you have been at Flinders Street you can see drivers passing the distant signal to come into Flinders Street at 30 or 40 miles an hour with suburban trains; everybody sees it.

Harcombe was a friend of Milburn, the driver of the leading locomotive that passed the home at Sunshine, and he had a grudge against the department. However, his interpretation was supported by Bagley who, after giving his evidence, interviewed drivers at North Melbourne Loco and found that a number were willing to admit to passing distant signals at 40 mph - indeed Bagley stated that it was common for drivers to disagree with his evidence. Bagley stated that the drivers claimed that the schedules brought into use in the previous two or three years required this observance. Harcombe's evidence was not otherwise questioned at the inquiry, and it would appear that VR management winked at the non-observance of Regulation 55, even though the new rulebook was only a year old.

I do not know whether observance of Regulation 55 was tightened after the Sunshine accident, but around 1912 Regulation 55 was altered to remove the word 'slowly' from the clause "he must proceed slowly and cautiously within the Distant Signal." Regulation 55 became Regulation 49 in the 1919 Rulebook, and the big change was the renaming of the "danger" position to "Stop" (the home signal aspect was also changed, presumably to fit in with the three position signals). However in 1930 (C13/30), the name of the on aspect of the distant reverted to 'Danger'. The aspect name of the home remained 'stop', and this was probably an attempt to distinguish the aspect of a home and a distant.

The 1938 General Appendix included an amplification of Regulation 49(d) to the effect that at specified places, trains had to stop at the distant signal when it was at danger, and then proceed as for Regulation 49(d). The two specified locations were at Maryborough from the Avoca line, and down trains at Baxter. At both locations the home signal was approached by a steep falling gradient, but it is not known why other locations were not similarly treated. As already mentioned, the requirement to stop at the Ballarat and Avoca line distant at Maryborough when on had been in force since 1898. It is probable that the requirement to stop at the Ballarat distant was revoked around 1927 when the existing distant was converted to an outer home and a new distant provided further out (although the instruction was still shown in the 1928 General Appendix). It would appear that the requirement to stop at the Baxter Down distant first appeared in the 1938 GA, and probably was the reason that the amplification of Regulation 49(d) was issued - it allowed other locations to be similarly treated. In the event, it appears that no further locations were brought under this amplification. The requirement to stop at the Distant signal when at danger was revoked in March 1960 at both Maryborough and Baxter. In June 1924 instructions were issued that Down light engines and rail motors were required to stop at the distant when at danger, but it is not clear when this instruction was extended to cover all trains.

By the issue of the 1966 Rulebook the meaning of the distant signal when 'on' was finally changed to reflect a more modern idea of the function of a distant. The on posi-

tion was renamed 'Caution' and this was defined as:

49(d) [...] When a Driver finds a Distant Signal at the Caution position, he must be prepared to bring his train to a stand at the next Signal in advance should the latter be at Stop.

There is some suggestion that this change was the result of a suburban drivers' work to rule campaign that obeyed the old rule literally and caused serious disruption to the suburban services. However, the VR could not quite let go of the past and added Regulations 49(e) and 49(f) to protect sections with permissive (track) block, and when working trains by time interval working: Permissive track block was in force on four sections: Viaduct Junction - Dudley St, Dudley St - North Melbourne on the Cobury Goods Lines, Weighbridge Junction - South Kensington, and Weighbridge Junction - Kensington. Time interval working was in force on a small number of electric staff sections, none of which had distant signals, and could be used on double line block sections if the block instruments failed. Such a small scope for operation would not have seemed to make it worthwhile to have a specific rule, but the VR did:

49(e) On Double Lines where Permissive Block Working is in operation or on Double or Single Lines where traffic is being conducted under the Time Interval System, when a Driver finds a Distant Signal at the Caution position, he must immediately reduce the speed of his train, being prepared, if necessary, to stop at such Signal but, if he sees that the line in advance is clear, he must proceed cautiously within the Distant Signal having such control of this train as will enable him to stop short of any obstruction that may exist between such Signal and the Home Signal and must bring his train to a stand as near the Home Signal as the circumstances will permit should the latter be at Stop.

49(f) If, having passed a Distant Signal at the Caution position in accordance with clause (e), the

Signal next in advance is observed to be at the Proceed position, the speed of the train must not be increased unless the driver can see that the Line is clear, as this Signal may have been cleared for the preceding train.

One useful thing about these rules are that they clearly indicate why the VR persisted in the form of 49(d) for so long.

Rule 49 remained unaltered in the 1966 rulebook (even though the last permissive track block section had been abolished in June 1965). In the 1987 Rulebook, the reference to permissive working from Regulation 49(e) was removed, but the rule remained otherwise unaltered. One major change in the 1987 Rulebook was that the meaning of the distant signal when off was defined:

49(d)(ii) Except where otherwise provided, a Distant Signal at the proceed position indicates that: all other Fixed Signals applicable to the same Line as the Distant Signal are also at Proceed.

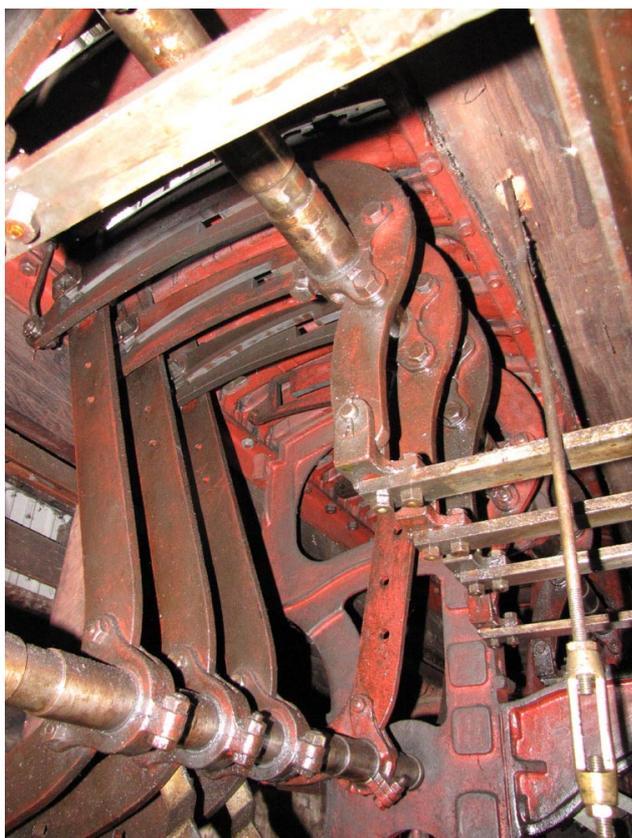
The text of the rulebook had been largely unaltered since 1919, and the 1994 Rulebook was a long overdue rewrite. For Rule 49 the clauses applicable to permissive block and time interval working were finally removed - over a century after they were no longer considered necessary in the UK. The remaining clauses were rewritten slightly:

5(d) Driver Response to the Distant Signal

(1) When the Driver observes a distant signal at the Caution position, the train must be slowed to a precautionary speed to allow the train to be safely stopped at the next signal if this signal displays "Stop".

(2) A distant signal at the "Proceed" position indicates all other signals applicable to the same line as the distant signal are also at "Proceed".

This remains the situation today. A subsequent article will consider what an 'off' distant signal means.

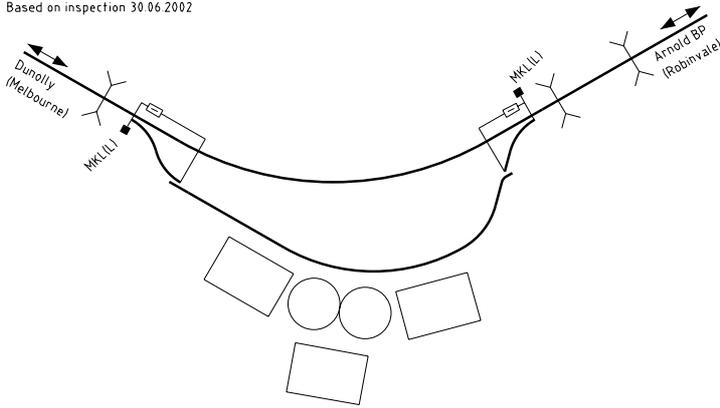


A view of the underneath of the A Pattern (cam and tappet) frame at Darling. This view is looking up towards the underside of the floorplates. Four levers can be seen on the left. The first three levers are normal and the last, just in front of the frame, is reverse. The cams are the curved pieces of steel at the top centre, one for each lever. The tappets are attached to the vertical portion of the cam and disappear off to the right of the picture. The interlocking drive on an A Pattern frame is classified as indirect lever locking, that is the tappets are operated by the movement of the levers, but are not directly attached to the levers. In this case, the tappets are driven through the cams. The cams are operated by a stud attached to the lever which works in a cam race - the cam races can be seen in this view between the cam shaft and the levers. There are two nearly vertical portions of the cam race, one at the normal position (which can be seen in cam on the furthest lever), and the second at the first reverse notch (which can be seen in the other three cams). As the cam stud moves through these nearly vertical portions, the cam (and hence the tappet) moves. This operating mechanism was copied from the McKenzie and Holland 'Rocker' locking, and in fact the same parts were used by the VR for both types of frames.

DUNOLLY - ROBINVALE 2001-2

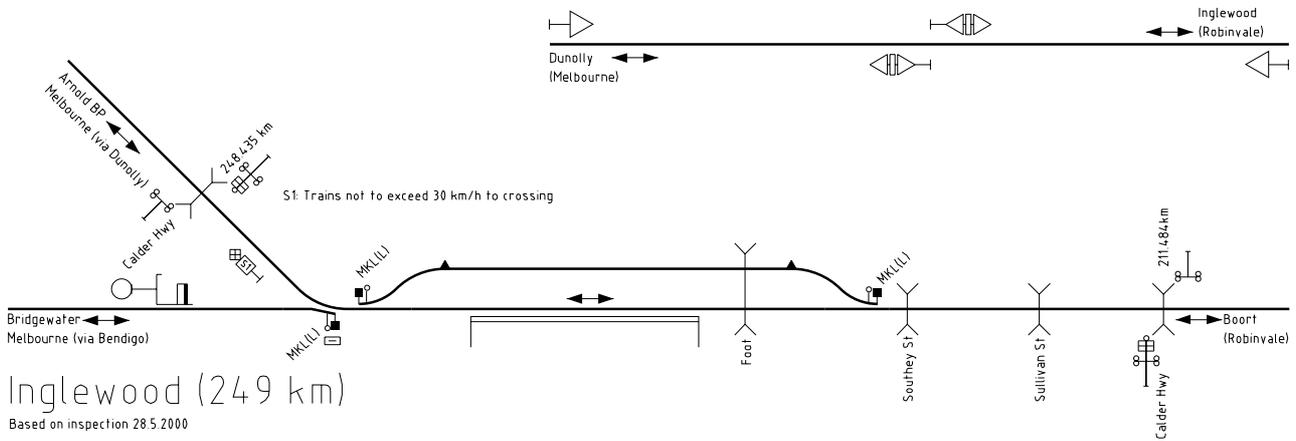
Llanelly (230 km)

Based on inspection 30.06.2002



Arnold Block Point (236 km)

Based on inspection 30.06.2002

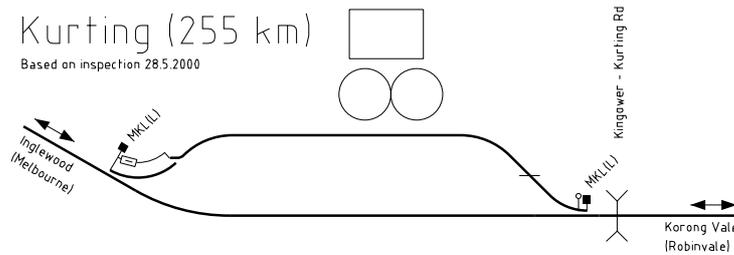


Ingleswood (249 km)

Based on inspection 28.5.2000

Kurting (255 km)

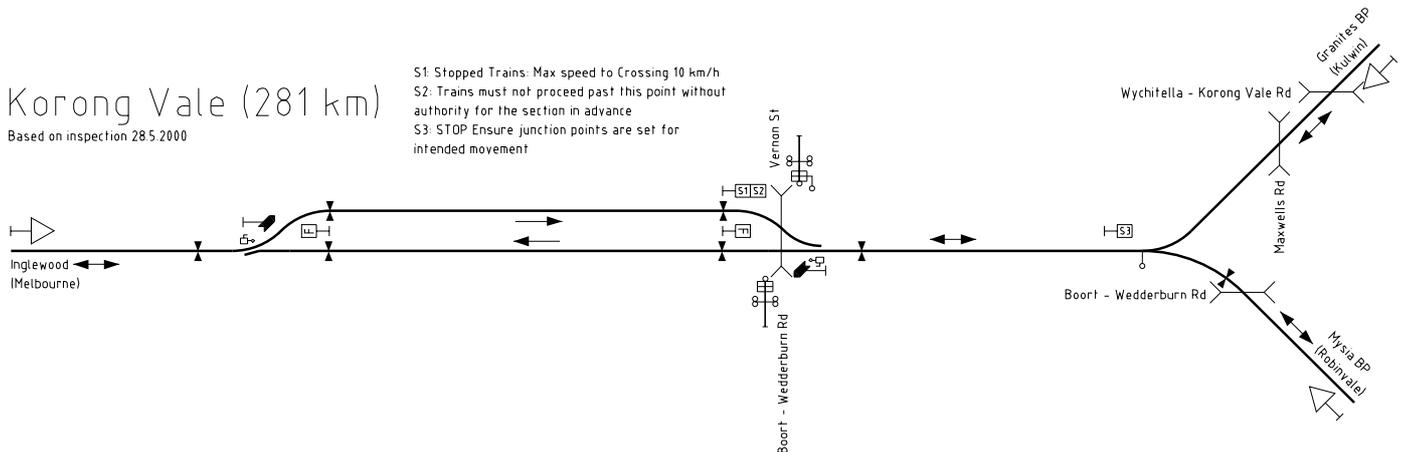
Based on inspection 28.5.2000

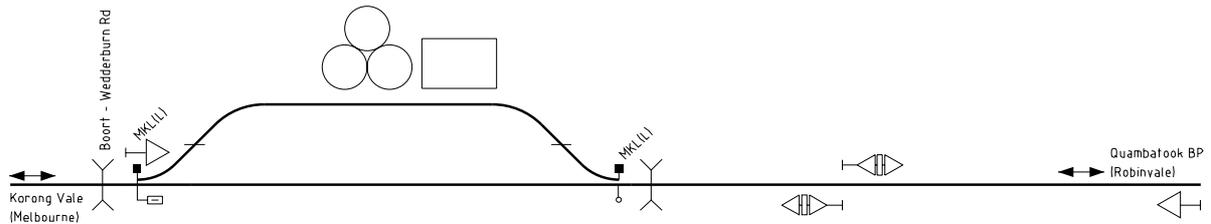


Korong Vale (281 km)

Based on inspection 28.5.2000

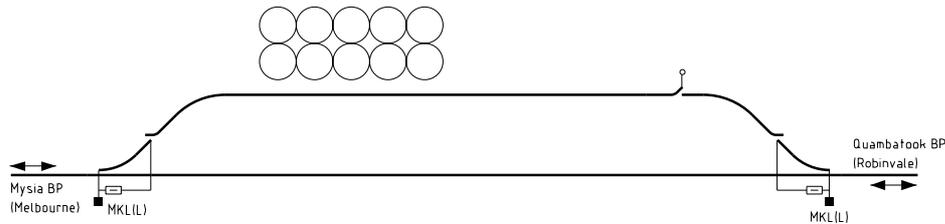
- S1: Stopped Trains: Max speed to Crossing 10 km/h
- S2: Trains must not proceed past this point without authority for the section in advance
- S3: STOP Ensure junction points are set for intended movement





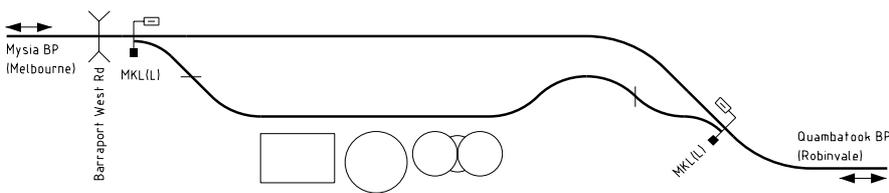
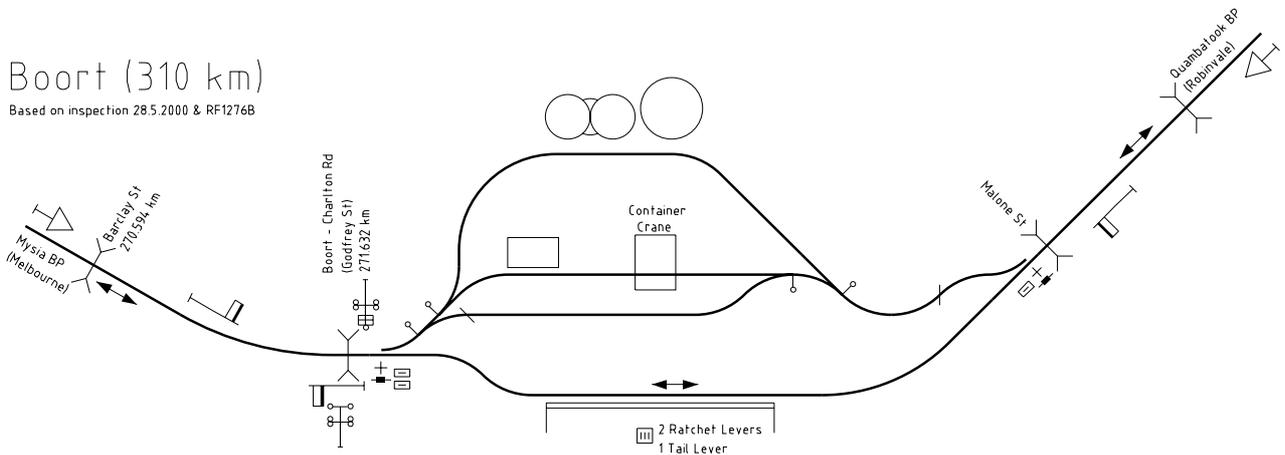
Borong (289 km)
Based on inspection 28.5.2000

Mysia Block Point (291 km)



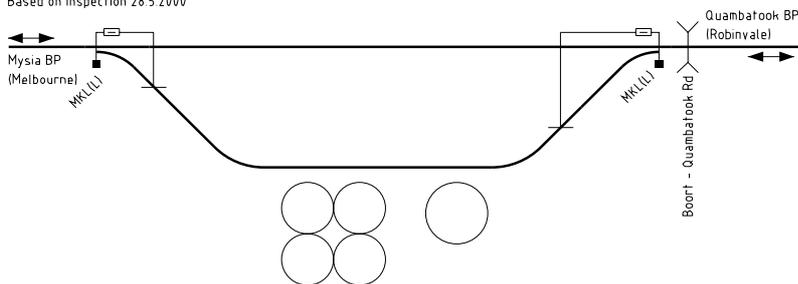
Boort GEB Siding (308 km)
Based on inspection 28.5.2000 & RF1276B

Boort (310 km)
Based on inspection 28.5.2000 & RF1276B



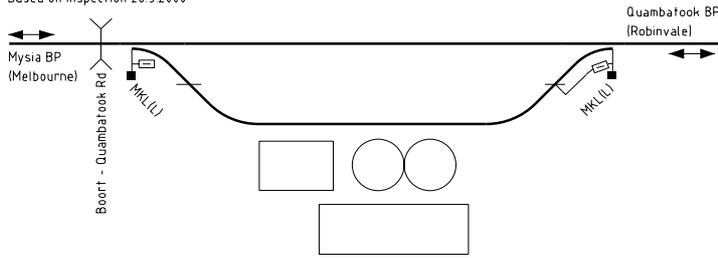
Barraport (323 km)
Based on inspection 28.5.2000

Gredgwin (329 km)
Based on inspection 28.5.2000



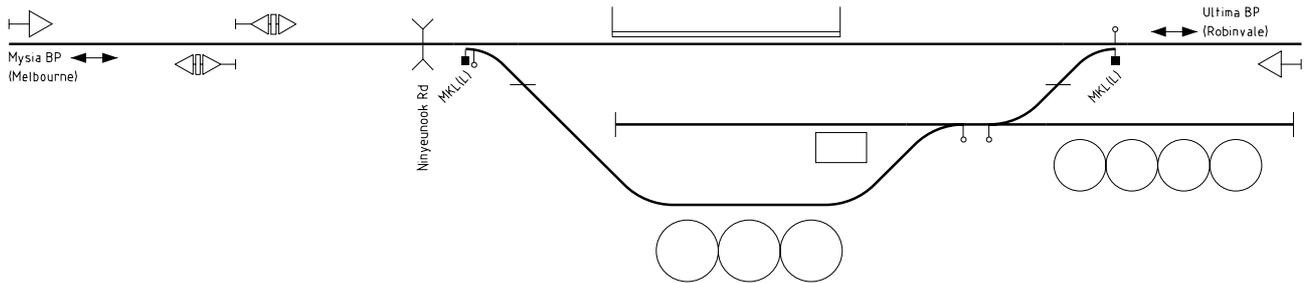
Oakvale (336 km)

Based on inspection 28.5.2000



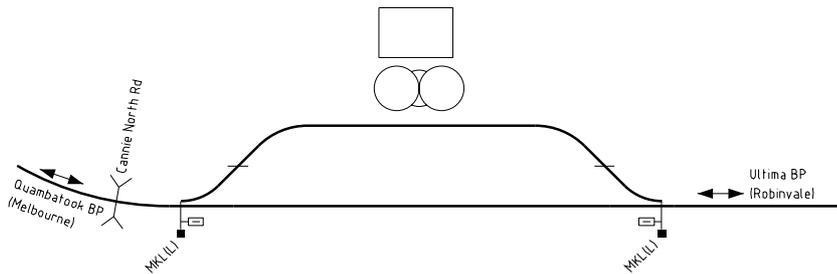
Quambatook BP (344 km)

Based on inspection 28.5.2000



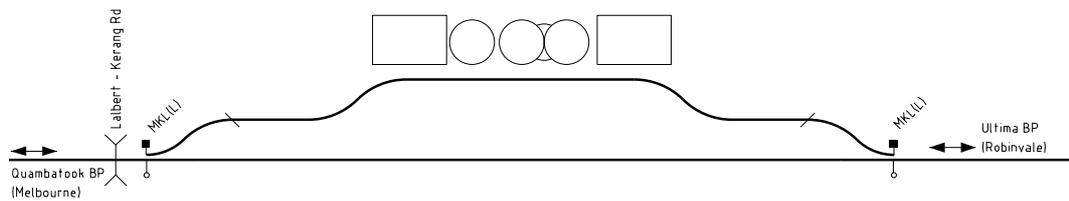
Quambatook (345 km)

Based on inspection 28.5.2000



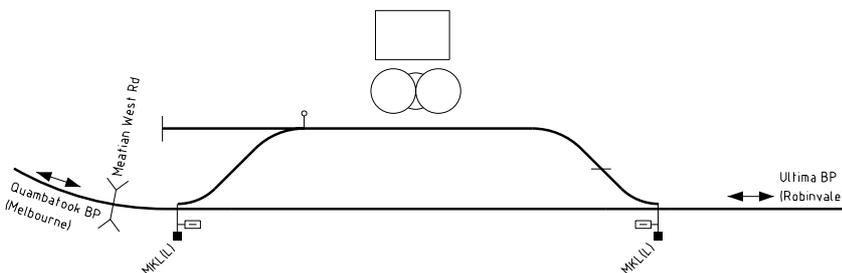
Cannie (358 km)

Based on inspection 28.5.2000



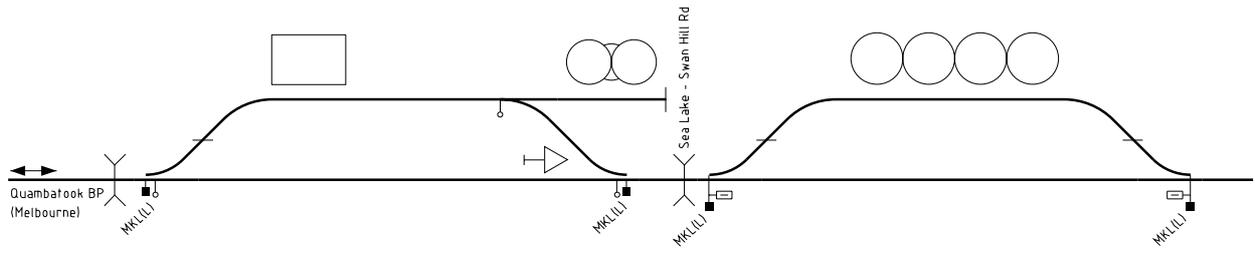
Lalbert (369 km)

Based on inspection 28.5.2000 & F371A



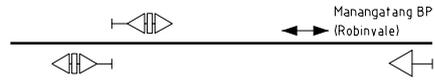
Meathah (380 km)

Based on inspection 28.5.2000



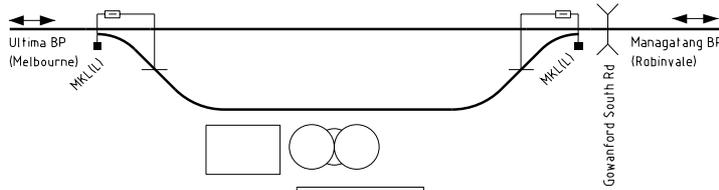
Ultima (394 km)

Based on inspection 28.5.2000



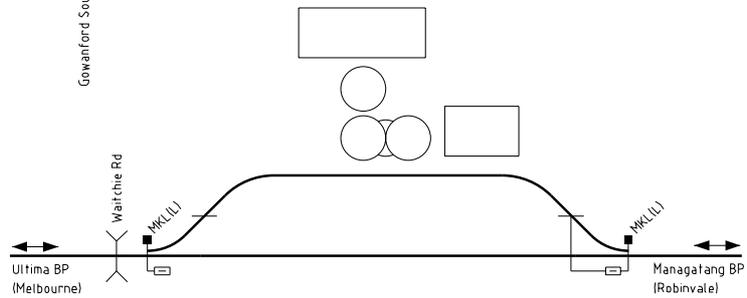
Gowanford (403 km)

Based on inspection 16.5.2001



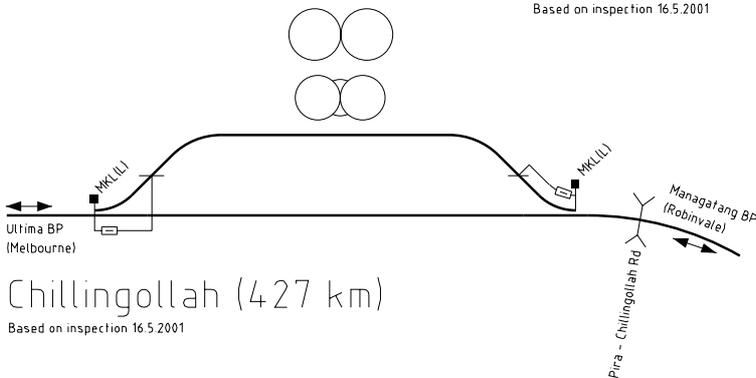
Ultima Block Point (396 km)

Based on inspection 28.5.2000



Waitchie (414 km)

Based on inspection 16.5.2001

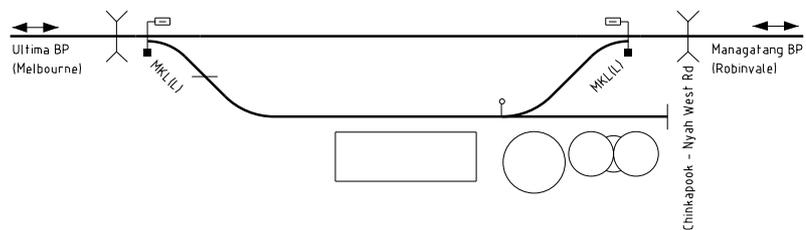


Chillingollah (427 km)

Based on inspection 16.5.2001

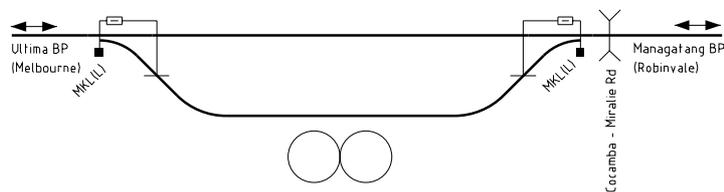
Chinkapook (440 km)

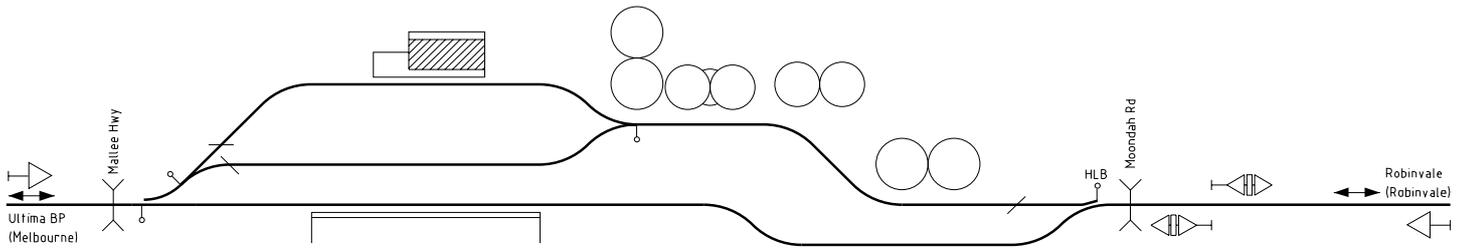
Based on inspection 14.5.2001



Cocamba (449 km)

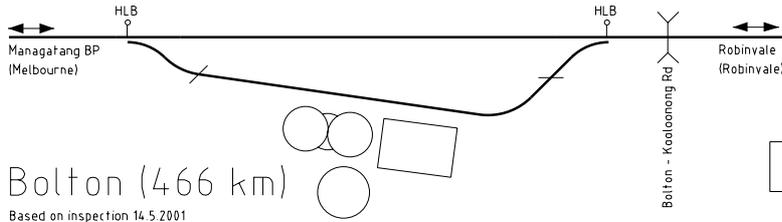
Based on inspection 14.5.2001





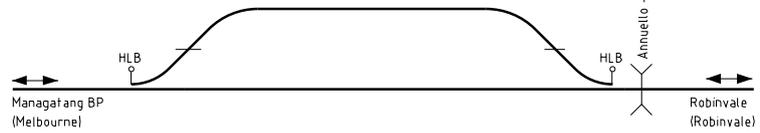
Managatang (456 km)

Based on inspection 14.5.2001



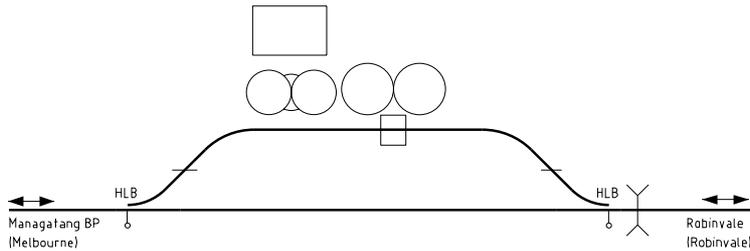
Bolton (466 km)

Based on inspection 14.5.2001



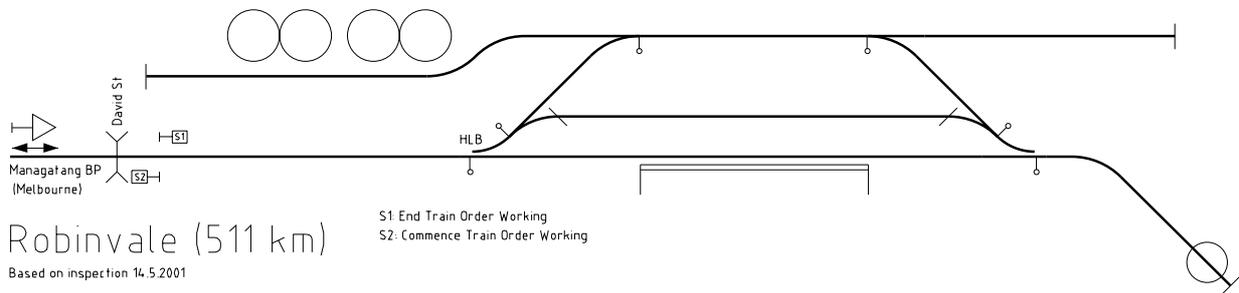
Annuello (479 km)

Based on inspection 16.5.2001



Bannerton (497 km)

Based on inspection 16.5.2001



Robinvale (511 km)

Based on inspection 14.5.2001

S1 End Train Order Working
S2: Commence Train Order Working