Hornsby – Gosford

Network Control

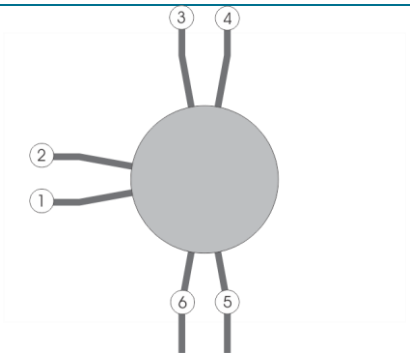
Signallers at Rail Operations Centre (ROC), and Gosford.

Systems of Safeworking

The Main North line between Hornsby and Gosford is Rail Vehicle Detection (RVD) territory. It includes the sections:

Section	*System*	*Details*
Hornsby–Berowra	RVD double-line	
Berowra–Cowan	RVD double-line	
Cowan–Boronia	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Boronia–Hawkesbury River	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Hawkesbury River–Gosford	RVD double-line	

Diagram



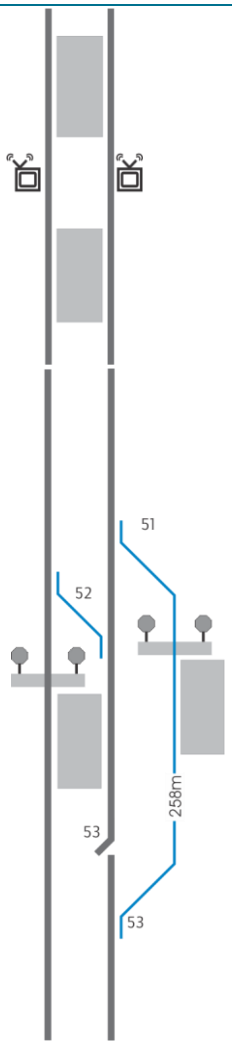
Location details

Hornsby 33.704km (NLA 302)

① Up Shore line (Central–Hornsby)
② Down Shore line (Central–Hornsby)
③ Up Main North line (Strathfield–Hornsby)
④ Down Main North line (Strathfield–Hornsby)
⑤ Down Main North line
⑥ Up Main North line

Hornsby-Gosford

Diagram



Location details

- 37.573km Mount Colah. Platform 1 and 2
- 39.658km Bearing and Brake Temperature System (BBT), Up and Down Main North line
- 40.601km Mount Kuring-gai. Platform 1 and 2

Berowra 44.503km

- Controlled from ROC
- 43.302km Down signal B1
- 43.622km Up signal 27.20
- 51 Down Main North line to Down Passing Loop line
- 52 Down Main North line to Up Main North line
- 44.485km Network access
- 44.503km Berowra. Platforms 1 and 2, 3
- 44.527km Network access
- 44.661km Traffic hut: local control panel
- 53 Down Passing Loop line to Down Main North line
- 45.270km Up signal B12
- 45.955km Down signal 28.5

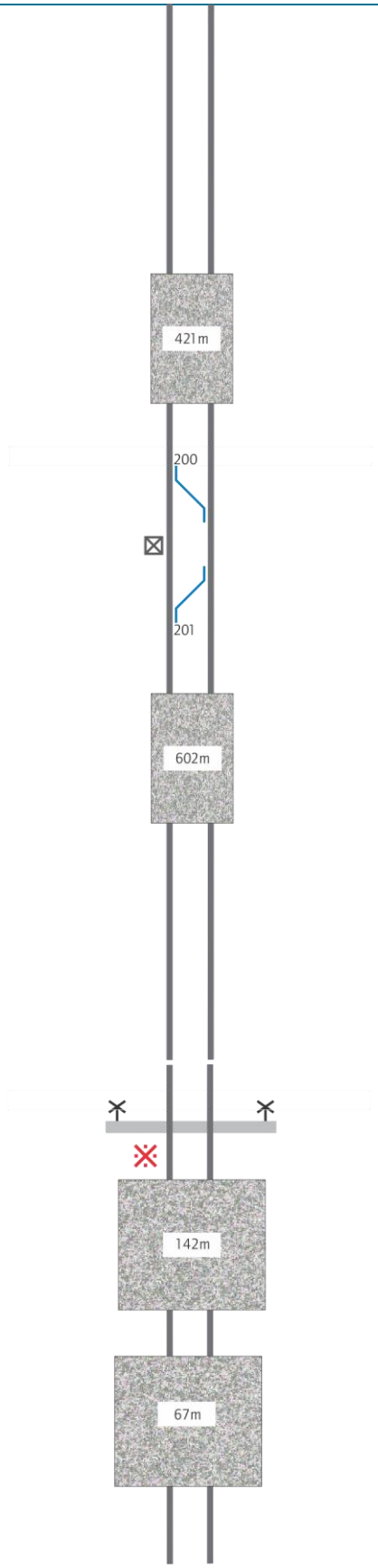
Diagram

Location details

Cowan 48.755km

- ⚠ WARNING: This location has narrow track clearances
- Controlled from ROC
- 47.581km Down signal C7
- 45.966km Up signal 28.6
- Extended Up Refuge Loop line to Up Main North line
- Down Main North line to Up Main North line
- 48.522km Network access
- Up Main North line to Up Refuge Loop line
- Up Refuge Loop line is UNWIRED
- See Secial instructions
- Up Refuge Loop line to No 2 Perway siding
- Down Main North line to Up Main North line
- No 1 Perway siding to No 2 Perway siding: non-interlocked points
- 48.743km Cowan: automatic, with Manual Operation and Master Emergency switch. Keys at Hornsby
- See Special instructions
- 48.755km Cowan. Platforms 1, 2
- 48.796km Cowan: The Great North Walk
- No 2 Perway siding to No 1 Perway siding
- 48.909km X, Y and Z keys for Cowan–Boronia section
- The half pilot staffs for the Cowan–Boronia section are inscribed “Cowan C19DM – Down Main to Boronia” and “Cowan C21UM – Up Main to Boronia”
- 48.960km Down wide electric train STOP sign on Up Main North line
- 48.990km Down wide electric train STOP sign on Down Main North line
- 49.722km EYL/YL: Up signal C22DM
- 49.722km YL/EYL: Up signal C24UM

Diagram



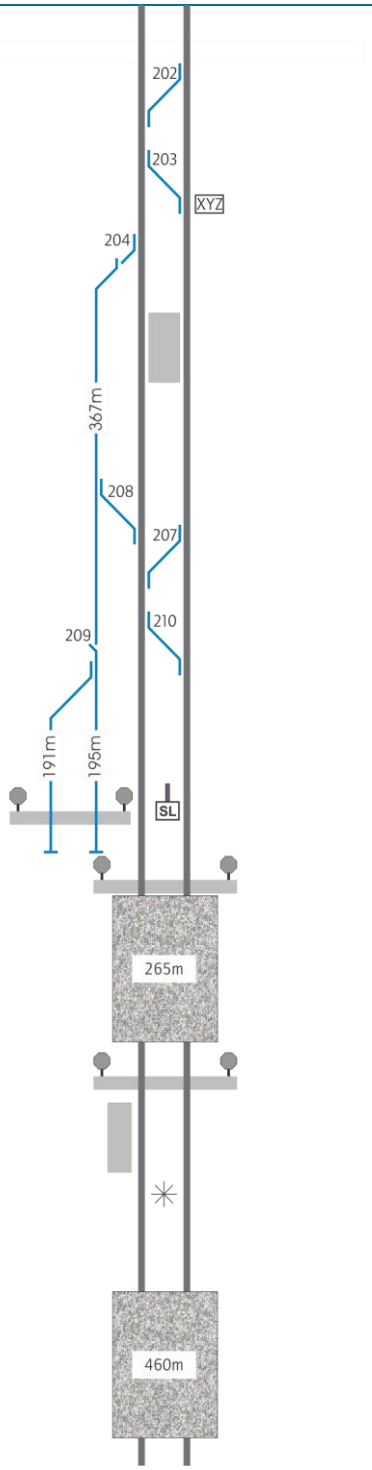
Location details

Boronia 51.353km

- Controlled from ROC
- 50.015km YL/EYL: Down signal HR101DM
- 50.015km EYL/YL: Down signal HR103UM
- 50.750km Boronia No 1
- The half pilot staffs for the Boronia–Hawkesbury River section are inscribed "Boronia HR107DM – Down Main to H/River" and "Boronia HR109UM – Up Main to H/River"
- The half pilot staffs for the Boronia–Hawkesbury River section are on the signal posts of the Sydney-end home/starting signals
- 200 Down Main North line to Up Main North line
- 51.353km Traffic hut
- 201 Down Main North line to Up Main North line
- The half pilot staffs for the Cowan–Boronia section are inscribed "Boronia HR110DM – Down Main to Cowan" and "Boronia HR112UM – Up Main to Cowan"
- The half pilot staffs for the Cowan–Boronia section are on the signal posts of the country-end home/starting signals
- 51.764km Boronia No 2
- 52.465km EYL/YL: Up signal HR116DM
- 52.489km YL/EYL: Up signal HR118UM

- 53.805km Boronia Fire Trail: automatic with Manual Operation and Master Emergency switch; manual gates across roadway. Keys at Hornsby
- See Special instructions
- 54.334km Boronia No 3
- 54.709km Boronia No 4

Diagram

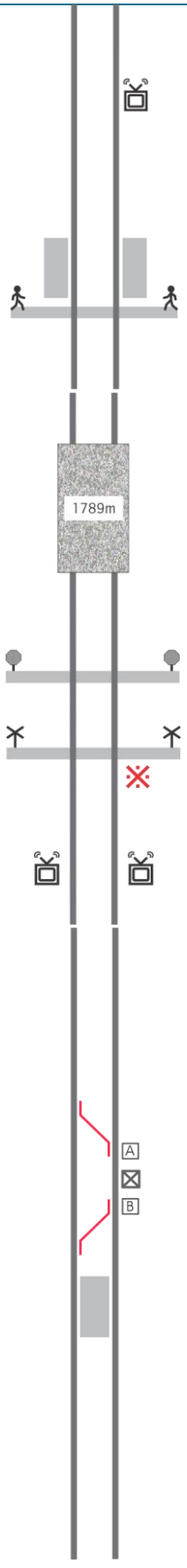


Location details

Hawkesbury River 57.303km

- Controlled from ROC
- 54.994km YL/EYL: Down signal HR127DM
- 54.994km EYL/YL: Down signal HR129UM
- The half pilot staffs for the Boronia–Hawkesbury River section are inscribed "H/River HR140DM – Down Main to Boronia" and "H/River HR142UM – Up Main to Boronia"
- 202 Down Main North line to Up Main North line
- 203 Down Main North line to Up Main North line
- XYZ 57.025km X, Y and Z keys for Boronia–Hawkesbury River section
- 204 Refuge siding to Up Main North line
- 57.303km Hawkesbury River. Platform 1 and 2
- 208 Up Main North line to Refuge siding
- 207 Down Main North line to Up Main North line
- 210 Down Main North line to Up Main North line
- 209 Catch points, Refuge siding to Up siding
- No 2 Up siding to No 1 Up siding
- SL 58.087km Down SHUNT LIMIT sign on Up Main North line
- 58.100km Network access
- 58.132km Network access
- 58.151km Long Island
- 58.405km Network access
- 58.425km Hawkesbury River Bridge. Platform
- 58.491km Hawkesbury River Bridge
- EYL 59.306km Down signal 36.9
- 59.352km Mullet Creek
- YL 60.290km Up signal HR170UM

Diagram



Location details

61.973km Rainfall monitor: reports to Infrastructure Operations Centre

See Special instructions

Wondabyne 65.147km

65.147km Wondabyne. Platforms 1, 2

65.181km Wondabyne: automatic. Keys at Gosford

67.064km Woy Woy

69.870km Network access

71.415km Rawson Road, Woy Woy: automatic, with Manual Operation and Master Emergency switch. Keys at Woy Woy and Gosford

See Special instructions

71.925km Bearing and Brake Temperature System (BBT), Up and Down Main North line

Woy Woy 72.475km

A 72.262km Down Main North line to Up Main North line: key from Annett lock AB, released from special hasp with XL key

Signals set at STOP by taking the release: Down signals 43.9 and 44.7; Up signal 45.4

72.285km Traffic hut: Annett lock AB

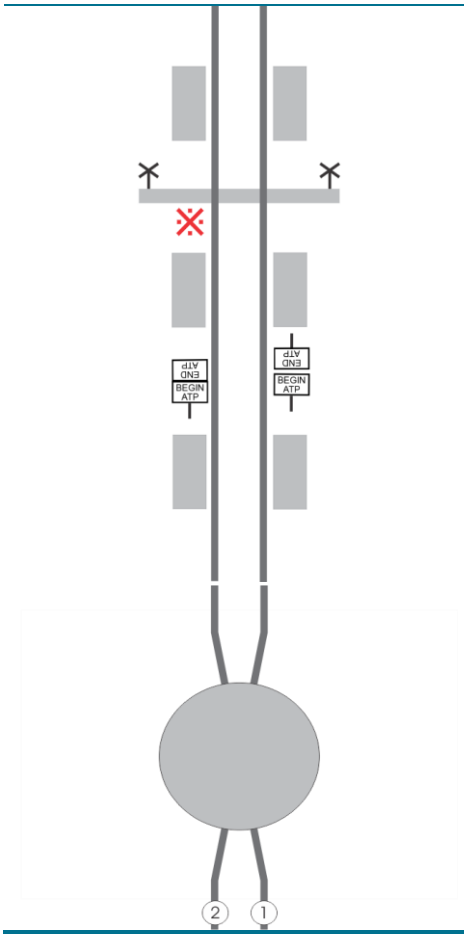
B 72.322km Down Main North line to Up Main North line: key from Annett lock AB, released from special hasp with XL key

Signals set at STOP by taking the release: Down signals 43.9 and 44.7; Up signal 45.4. If lever 2 is in the REVERSE position, or if lever 2 is in the NORMAL position and lever 3 is in the REVERSE position, also Up signal 44.8

72.475km Woy Woy. Platform 1 and 2

Hornsby-Gosford

Diagram



Location details

- 74.771km Koolewong. Platforms 1, 2
- 74.880km Koolewong: automatic, with Manual Operation and Master Emergency switch. Keys at Gosford
- See Special instructions
- 76.913km Tascott. Platforms 1, 2
- 77.228km END ATP Down Main line (Down direction)
- 77.234km BEGIN ATP Down Main line (Up direction)
- 77.484km BEGIN ATP Up Main line (Up direction)
- 78.002km Point Clare. Platforms 1, 2

Gosford 80.774km (NLA 312)

① Down Main North line (Gosford-Broadmeadow)

② Up Main North line (Gosford–Broadmeadow)

Special instructions

Signal Key Switches

Signal Key Switches are fitted to the automatic signals listed in the table below.

Signal Key Switch may be used for worksite protection in accordance with the following Network Rule & Procedures:

- NWT 306 Track Work Authority
- NWT 320 Signal Key Switch Blocking
- NPR 702 Using a Track Work Authority
- NPR 753 Using Signal Key Switch Blocking
- NPR 754 Using a Signal Key Switch

Routine network maintenance Signal Key Switch Blocking worksite limits

In exception to NPR 754 Using a Signal Key Switch, a worksite may be established with the prescribed worksite limits described in the table below.

Before establishing the worksite, the Protection Officer must use an approved Routine Network Maintenance Worksite Protection Plan (RNM WPP).

Line	*Worksite limit*	*First affected signal*	*Protecting signal fitted with a Key Switch*
Down Main North	Signal N25.21 to Signal B1	N23.61	N25.21
Up Main North	Signal 40.4 to HR170	41.2	40.4
Up Main North	Signal 49.2 to Signal 43.4 *Using an approved RNM WPP* Signal 49.2 to Signal 41.6	GF28 GF20 GF18	49.2
Up Main North	Signal 43.4 to Signal 40.4 *Using an approved RNM WPP* Signal 43.4 to Signal 39.8	44.0	43.4 ***The handsignaller operating the SKS must enter and leave by train to access the site***
Down Main North	Signal 40.3 to Signal 42.9 *Using an approved RNM WPP* Signal 40.3 to Signal 43.9	39.5	40.3
Down Main North	Signal 42.9 to Signal 45.3 *Using an approved RNM WPP* Signal 42.9 to Signal 46.1	41.5	42.9

Line	*Worksite limit*	*First affected signal*	*Protecting signal fitted with a Key Switch*
Down Main North	Signal 45.3 to Signal 47.3 *Using an approved RNM WPP* Signal 45.3 to Signal 48.1	44.7	45.3
Down Main North	Signal 47.3 to Signal GF1	46.1	47.3
Down Main North	Signal 66.9 to Signal V1	65.5	66.9

Note

When a TWA is to be protected using the Signal Key Switch fitted to N25.21 Signal at Mt Kuring-Gai, the following instructions apply:

- Railway track signal (RTS) protection must be placed beyond country end of Mt Kuring-Gai platform in accordance with NPR 709 Using railway track signals
- A Qualified Worker, with effective communication with the Handsignaller at N25.21 signal, must be provided, to place and remove the RTS as required.
- The TWA worksite must not be established within 500m of the RTS protection.

Rainfall monitoring

A Rainfall monitor is located at 61.973km in the Wondabyne area to warn when rainfall in the area from Boronia number 2 tunnel to Hawkesbury River and Hawkesbury River Bridge to Woy Woy tunnel is excessive.

All indications are monitored at the Infrastructure Operations Centre.

Responding to a rainfall monitor WARNING indication

When a rainfall monitor WARNING is displayed on the Cerberus control monitor, the Infrastructure Operations Centre representative must:

- tell the Network Controller that a warning condition exists at the rainfall monitor site
- arrange for appropriate on-call Civil Engineering staff to assess the area concerned.

When advised that a rainfall monitor WARNING is displayed on the Cerberus control monitor, the Network Controller must:

- tell the Signallers at ROC and Gosford that a warning condition exists at the rainfall monitor site
- treat the warning as a Condition Affecting the Network (CAN) in accordance with the Network Rules and Network Procedures
- warn rail traffic that will travel in either direction between 52.000km and 57.000km, and in either direction between 60.000km and 67.000km to travel at 40km/h

The CAN warning must tell Drivers to proceed, paying particular attention to water levels near the line or any adverse effects on the infrastructure, and report their observations to the Network Controller.

When told of the WARNING by the Infrastructure Operations Centre representative, the on-call Civil staff must assess the area concerned.

Following an assessment of the affected area, the on-call Civil staff must:

- tell the Infrastructure Operations Centre representative whether or not the line is safe for trains and any conditions that must be observed
- remain on duty while the rainfall WARNING condition exists or as otherwise advised by the Civil team Manager or Civil Maintenance Manager.

When advised by the on-call Civil staff, the Infrastructure Operations Centre representative must advise the Network Controller that the line is safe for trains and any conditions that apply.

When advised by the Infrastructure Operations Centre representative, the Network Controller must advise the relevant Signaller that the line is safe for trains and any conditions that apply.

Testing and adjusting rainfall monitors

Rainfall monitors must be tested monthly, or as otherwise specified by the Civil and Signals Engineering Managers.

Failure of remote control system

If there is a failure of the system controlling a remote location where a rainfall monitor is installed, the Infrastructure Operations Centre representative must tell the Civil Engineering Maintenance Manager, who must make appropriate alternative arrangements.

Rainfall monitor failure

If a rainfall monitor or the associated equipment is defective, the Civil and Signal representatives must book the rainfall monitor out of use on an Infrastructure Booking Authority.

If the rainfall monitor is to be booked out of use for an extended period, the matter must be reported to the Civil and Signal Maintenance Managers.

The Civil Engineering Manager must establish an appropriate manual inspection or monitoring program until the rainfall monitor or associated equipment has been brought back into use.

Cowan pedestrian crossing

Cowan pedestrian crossing is fitted with a single Master Emergency switch.

Operation of the Master Emergency switch will place Down signals C13, C15, C17 and Up signals C14, C18 at STOP. They will remain at STOP until the Manual Operation switch is operated and the level crossing equipment has operated and the booms are lowered or the Master Emergency switch is restored.

TOA Protection Arrangements-Cowan Perway Sidings

A Worksite may be established within 500 metres of the protecting signal, inside the boundary gate, on No.1 and No.2 Perway Sidings.

Before establishing a worksite and for the duration of the work:

- the boundary gate providing access to the Perway sidings must be locked, and;
- three railway track signals must be placed between the boundary gate and clear of 64 points, and;
- a worksite protection marker, including the contact details of the Protection Officer, must be placed next to the railway track signal closest to the boundary gate.

Warning

Electric trains are not permitted to traverse the Extended Up Refuge Loop or the Up Refuge Loop lines at Cowan

Network access crossing (Boronia Fire Trail) 53.805km

Boronia fire trail crossing is not a public crossing and its use is restricted to persons from:

1. Emergency services
2. Rural Fire service
3. National Parks and wildlife service
4. Sydney Trains employees and contractors.

Note

Emergency services, Rural Fire service and National Parks and wildlife service Personnel using this crossing must be authorised and trained in the procedures for its use.

Procedure for using the Network Access Crossing

The following instructions must be followed to allow a road vehicle crossing.

Authorised person

1. Obtain permission from the Signaller ROC Hornsby North panel to use crossing.
2. Unlock and open gates on both sides of the crossing
3. When crossing has been made, make sure that the gates on both sides of the crossing are closed and locked.
4. Tell the Signaller when vehicle is complete and the crossing is clear.

Signaller

Prior to giving permission for a vehicle to use the Network Access Crossing:

1. Place at STOP and apply blocking facilities to:

- HR 107 UM signal
- HR 109 DM signal
- HR 140 DM signal
- HR 142 UM signal

2. Ensure there no is approaching rail traffic between:

- HR 107 DM signal and HR 140 DM on the Down Main line, and
- HR 109 UM signal and HR 142 UM on the Up Main line

3. Tell the Authorised Worker that they may use the level crossing.

Note

If the Signaller has not received clearance from the authorised person using the crossing within 10 minutes of the agreed time, the Signaller must treat the event as a Condition Affecting the Network (CAN)

Boronia Fire Trail level crossing is fitted with a single Master Emergency switch.

Operation of the Master Emergency switch will place Down signals HR 121 DM and HR 123 UM and Up signals HR 126 UM and HR 124 DM at STOP. They will remain at STOP until the Manual Operation switch is operated and the level crossing equipment has operated or the Master Emergency switch is restored.

Hawkesbury River Bridge

In exception to NWT 308 Absolute Signal Blocking, to allow inspection and maintenance activities, ASB may be authorised for a worksite identified by the Protection Officer as being located on the UP Main line between 59.788KM (Mullet Creek tunnel country end portal) and HR168UM protected by using only HR170UM kept at STOP with blocking facilities applied.

In exception to NPR 711 it is permissible to use a Lookout and warning lights as an additional safety measure.

All other requirements of NWT 308 and NPR 703 Using Absolute Signal Blocking must be followed.

Note

Worksites must not be established between HR170UM and 59.788km (Mullet Creek tunnel country end portal), using this protection.

Rawson Road level crossing

Rawson Road level crossing is fitted with a single Master Emergency switch.

Operation of the Master Emergency switch will place Down signal 43.9 and Up signal 44.8 at STOP. They will remain at STOP until the Manual Operation switch is operated and the level crossing equipment has operated and the booms are lowered or the Master Emergency switch is restored.

Koolewong level crossing

Koolewong level crossing is fitted with a single Master Emergency switch.

Operation of the Master Emergency switch will place Down signal 46.1 and Up signal 47.2 at STOP. They will remain at STOP until the Manual Operation switch is operated and the level crossing equipment has operated and the booms are lowered or the Master Emergency switch is restored.

Related documents

NLA 300	*Strathfield–Hornsby*
NLA 302	*Hornsby*
NLA 304	*Central–Hornsby*
NLA 312	*Gosford*
NLA 314	*Gosford–Broadmeadow*

Effective date

20 November 2023

