

# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

<b>DOCUMENT NO.</b>	D2022/10968
<b>WORK DESCRIPTION</b>	Routine Maintenance activities - Condition monitoring equipment maintenance
<b>WPP Number</b>	CMO9BWS 10001
<b>SCOPE:</b>	<p>Routine maintenance activities performed by Condition Monitoring Operations team.</p> <ul style="list-style-type: none"> <li>on the <b>Up Main and Down Main North lines</b> between 39.601km to 39.716km</li> <li>that does not involve the use of tools or equipment, or</li> <li>using tools which can be easily and immediately removed from the track by one person and are light, non-powered hand tools, or light battery powered tools or devices</li> <li>this protected worksite is outside yard limits</li> </ul>
<b>AUTHORISATIONS:</b>	<p><b>Protection Officer, ATWS Operator (Operator) &amp; ATWS Installer (Installer):</b></p> <ul style="list-style-type: none"> <li>Protection Officer (PO) Level 1 – 4, and</li> <li>WATWS – Wireless Automatic Track Warning System</li> </ul>
<b>PERSONAL PROTECTIVE EQUIPMENT</b>	<ul style="list-style-type: none"> <li>High visibility vest, boots, high visibility lookout sleeve</li> <li>Hard hat &amp; safety eyewear as required</li> <li>Personal Protective Equipment (PPE) clothing</li> </ul>
<b>SAFETY CONTROLS – Lookout Working (ATWS) arrangements:</b>	<ul style="list-style-type: none"> <li>Automatic Track Warning System (ATWS) – provides visual and audible warning for workers</li> <li>Installed ATWS sensors on the <b>Down Main North line at 39.029 km</b></li> <li>Installed ATWS sensors on the on <b>Up Main North line at 40.426 km</b></li> </ul> <p><b>IMPORTANT!</b></p> <ul style="list-style-type: none"> <li>This document must not be used to install or adjust the ATWS sensors</li> <li>All sensors in the plan and shown on the diagram must be connected to transmit a warning</li> </ul>
<b>PRESTART REQUIREMENTS:</b>	<ul style="list-style-type: none"> <li>Refer to D2015-45354 Wireless ATWS (Automatic Track Warning System) to install or remove sensors</li> </ul>
<b>FURTHER INFORMATION:</b>	Refer to “D2015-45354 Wireless ATWS (Automatic Track Warning System)” for detailed instructions to set-up, connect, test and operate the ATWS system with pre-installed ATWS sensors

Required ATWS Equipment		
Item	Description	Quantity
Aerial	Telescopic Aerial	3
Assembly Kit	Orange Bag with Tools	1
Battery ZA24-2.9	Small battery for Junction Box & Transmitter	4
Device Frame	Protective Frame	2
F500-AB Junction Box	Receiver Device	2
F500-SEN Train Sensor	Sensor	2
Housing for Aerial	Housing for Telescopic Aerial	3
KF5-5 Extension Cable	Extension Cable (5m) for F500-SEN to F500-AB	0
Mobile Backpack	Harness for Device	0
Pouch	Pouch for small battery	4
Tripod	Tripod for Device	3
ZFS Radio Transmitter	Radio Transmitter Device	2
ZPW Warning Unit	Control & Warning Device	1

**ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance**



**Protection Officer/Operator assessment checklist**

<b>Protection Officer's name:</b>		<b>Yes</b> <i>(Tick if Yes)</i>
This document has not expired 12 months beyond the issue date.		
SWI details and protection arrangements have been reviewed and validated for the assessed worksite location, including: <ul style="list-style-type: none"> <li>On-site safety assessment has been completed for relevancy of works being undertaken</li> <li>The required protection details, environment and tasks are unchanged from the details of this SWI</li> <li>All boxes have been ticked if applicable and crossed if not applicable</li> <li>All fields have been completed</li> </ul>		
<b>Corridor Safety Number</b>	<b>Protection Officer Signature</b>	<b>Date</b>

**Warning**



*If an above item does not apply, the Protection Officer must not use this Safe Work Instruction. A new worksite protection plan must be completed in accordance with NRF 014 Worksite Protection Pre-work briefing and NRF 015 Worksite Protection Plan.*

# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

## Worksite Protection Pre-work Briefing

Briefing date: 

### Protection Officer details

<input type="text" value="name"/>	<input type="text" value="signature"/>	<input type="text" value="contact No."/>
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Work location: Scope of work: Worksite protection:  Refer to Worksite Protection Plan for details

Hazards (e.g. environment, plant, equipment, human error)	Controls (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Person responsible for Control
<b>Crossing live lines</b>	A qualified Protection Officer (PO) or Access Corridor Safety (ACS) must make a safety assessment to cross live lines in accordance with NGE200 and supervise workers who do not hold the PO or ACS qualification.	Qualified PO/ACS
<b>Accessing Danger Zone to conduct plate test</b>	Use appropriate safety measures as validated by a PO. Refer to diagram for minimum safety assessment.	Qualified PO
<b>Electricity</b>	ATWS antennae not to encroach safe approach distance to overhead wiring	Operator
<b>Slips, trips, falls carrying ATWS equipment</b>	Use correct manual handling techniques, secure safety boots, clear obstacles for work area and agree a safe path.	All
<b>Approaching rail traffic</b>	All points of entry have been validated and ATWS safety measures (sensors and point clips) have been installed. On bi-directional lines the XYZ key has been removed. If XYZ key not accessible we need to be able to place sensor to protect the wrong running direction. Confirm with the Operator that the ATWS has been tested and is operational. Workers immediately move to the designated safe place when warned. Provide ALL CLEAR handsignal after workers and equipment are in a safe place. After the warning has been cancelled, confirm there is no approaching rail traffic between the sensors and the worksite before allowing work to resume.	PO
<b>Ineffective ATWS warnings / Adjoining / surrounding worksites</b>	Test and confirm workers can see and hear the warning in the noisiest environment. Explain the emergency warnings. Workers to be within 50m of warning device. Workers to remain within sight and hearing of warning unit at all times. Radios not to be used near ATWS.	PO
<b>Train warning time longer than expected (stopping points or ATWS equipment fault)</b>	Workers to remain in a safe place until confirmed the ATWS is working correctly. Contact the Signaller or visually confirm the line is clear between the sensors and the worksite. Potential stopping points: Down N24.51	PO
<b>Adjacent live lines</b>	Remain within the tracks being protected by the ATWS	PO
<b>Unsignalled movements in Yard limits</b>	Position lookout(s) in safe place. Confirm minimum sighting distance can be achieved. Test effective communication and be within sight and hearing of the workers.	PO / lookouts
<b>Second train warning cancelled in error</b>	Nominate a team member to confirm with the Operator when each rail traffic has completely passed the worksite. Tell the PO and workers about the second train warning. Cancel each warning after each train has completely passed the worksite.	Operator / nominated team member
<b>Distraction</b>	Obtain permission from PO to use electronic devices in the Danger Zone.	All
<b>Obstructions to safe place</b>	Agree on paths to reach designated safe places from the worksite.	PO
<b>Electrical storms</b>	Stop work immediately	All





Safe Work Instruction

**ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance**



**Worksite Protection Plan – Lookout Working**

**Signaller details**

	<b>Hornsby Panel</b>	<b>9701 1510</b>
	<b>Hornsby North Panel</b>	<b>9701 1513</b>

**Protection Officer details**

name	signature	contact No.
RSW or RIW No.	designation	Planned duration

Workplace Supervisor details:

Type of work: **Routine Maintenance Activities**

<b>Worksite location</b>			
On the	<b>Up Main North line</b>		<input type="checkbox"/>
between	<b>24.66 Auto Signal</b>	and	<b>25.20 Auto Signal</b>
On the	<b>Down Main North line</b>		<input type="checkbox"/>
between	<b>N 24.51 Auto Signal</b>	and	<b>N 25.21 Auto Signal</b>

**Worksite Assessment**

The Lookout Working Prohibited Locations Register been consulted Yes

**Warning method**

<b>ATWS</b>	<b>Horn / Whistle / Voice</b> <i>Cross out if not applicable</i>
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**Minimum Warning Time Calculations**

Maximum track speed

Number of ATWS Sensors used  Position of ATWS Sensors  and

Number of dedicated Lookouts used  Position of Lookouts  To

**Note** - Lookouts are relocated to positions within these KMs as workers move along the worksite.

<input type="text" value="7 sec"/>	+	<input type="text" value="3 sec"/>	+	<input type="text" value="10 sec"/>	=	<b>Minimum Warning Time (MWT)</b>	<input type="text" value="20 sec"/>	<input type="text" value="105 km/h"/>	<input type="text" value="584 metres"/>	Identify Line Down Main
<input type="text" value="7 sec"/>	+	<input type="text" value="3 sec"/>	+	<input type="text" value="10 sec"/>			<input type="text" value="20 sec"/>	<input type="text" value="100 km/h"/>	<input type="text" value="556 metres"/>	Identify Line Up Main
<i>See Time (S)</i>		<i>Move Time (M)</i>		<i>Safe Time</i>	<i>(S+M+10 sec = MWT)</i>			<i>Track speed</i>	<i>Minimum Sighting Distance as calculated</i>	

**Where are the safe places identified for the ATWS Operator, Lookouts and workers?**

Lookouts:

Workers:

Confirm mandatory first train tests were completed for all sensors Yes

Ensure the workers have been briefed about these work details Yes

NOTE: Diagrams and instructions that follow form part of this worksite protection plan.

**ATWS Check-sheet**

**Planning**

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**1. How will the installed location of sensor(s) be verified?**

- The PO will have direct line of sight to the sensor from the worksite location
- The installer will travel from the sensor location to the worksite location on the same side of track
- The ID no. of the first train will be verified between the operator and installer

Train ID # observed:

Verified by installer:  (tick to confirm)

**Testing**

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**2. Record evidence of mandatory First Trains Tests:**

a. Record Train ID # or type of train observed for all sensors:

b. Confirm mandatory first train tests are complete for all sensors installed  (tick to confirm)

**Pre-work Briefing**

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**3. Identify potential stopping points affecting warning times:**

Record any potential stopping points e.g. (stations or signals) between the sensor(s) and worksite which could cause variable warning times:

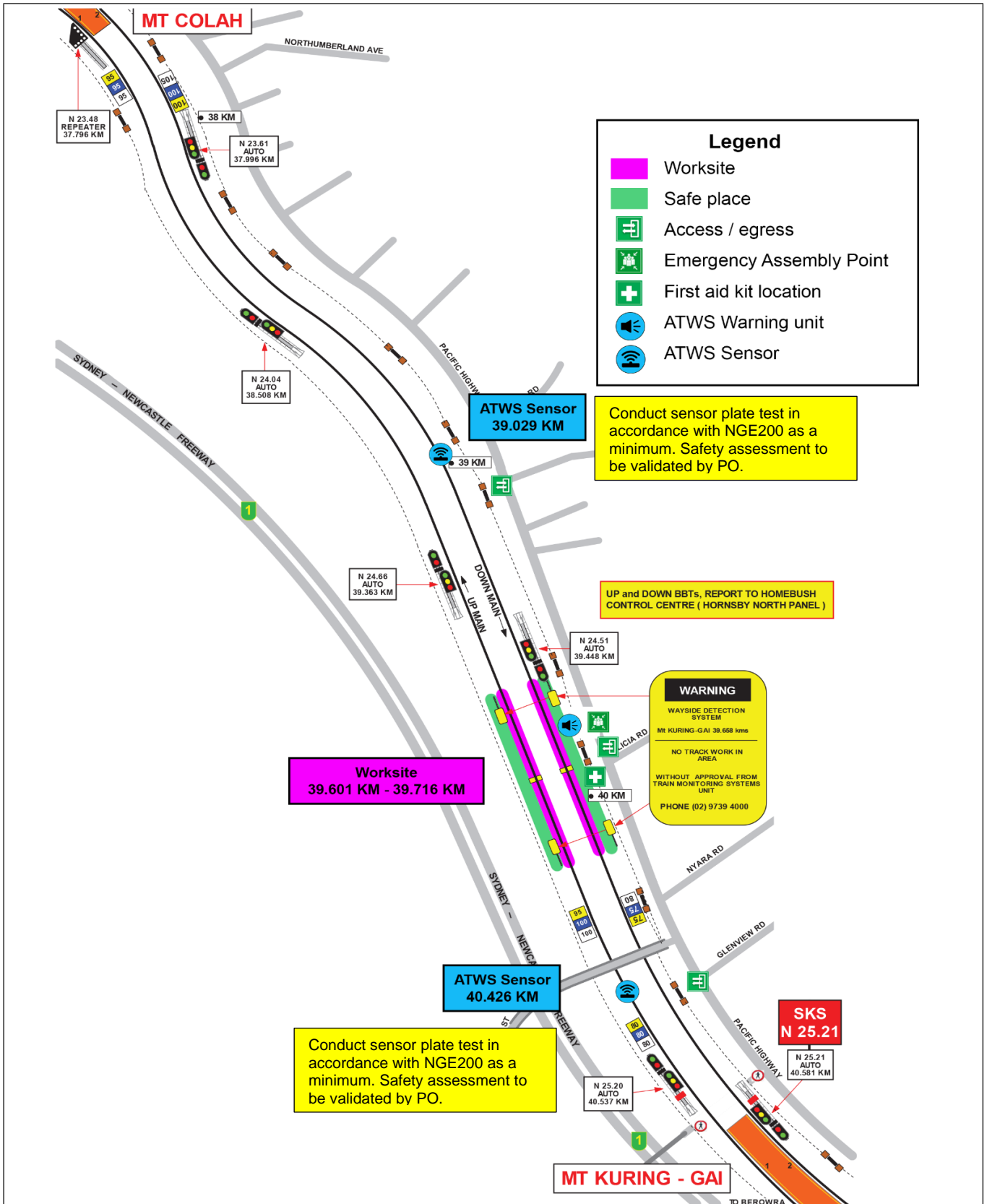
**N24.51**

Note: Factors affecting warning times should be highlighted to staff during the pre-work brief

# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

Tick if used

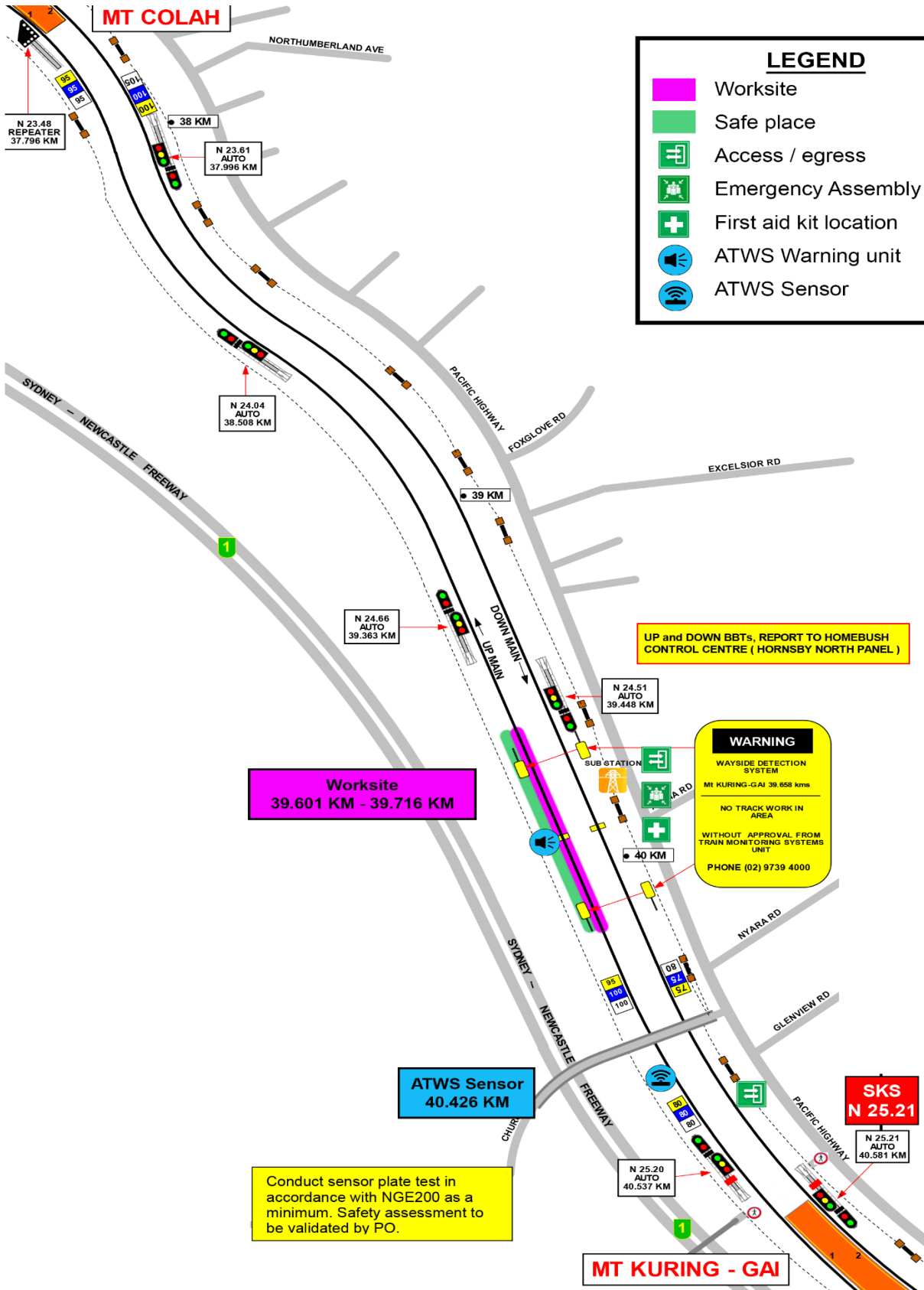
Worksite on Up & Down Main lines



# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

Tick if used

Worksite on Up Main line



**LEGEND**

- Worksite
- Safe place
- Access / egress
- Emergency Assembly Point
- First aid kit location
- ATWS Warning unit
- ATWS Sensor

UP and DOWN BBTs, REPORT TO HOMEBUSH CONTROL CENTRE ( HORNSBY NORTH PANEL )

**WARNING**

WAYSIDE DETECTION SYSTEM  
Mt KURING-GAI 39.658 kms

NO TRACK WORK IN AREA

WITHOUT APPROVAL FROM TRAIN MONITORING SYSTEMS UNIT

PHONE (02) 9739 4000

**Worksite**  
39.601 KM - 39.716 KM

**ATWS Sensor**  
40.426 KM

Conduct sensor plate test in accordance with NGE200 as a minimum. Safety assessment to be validated by PO.

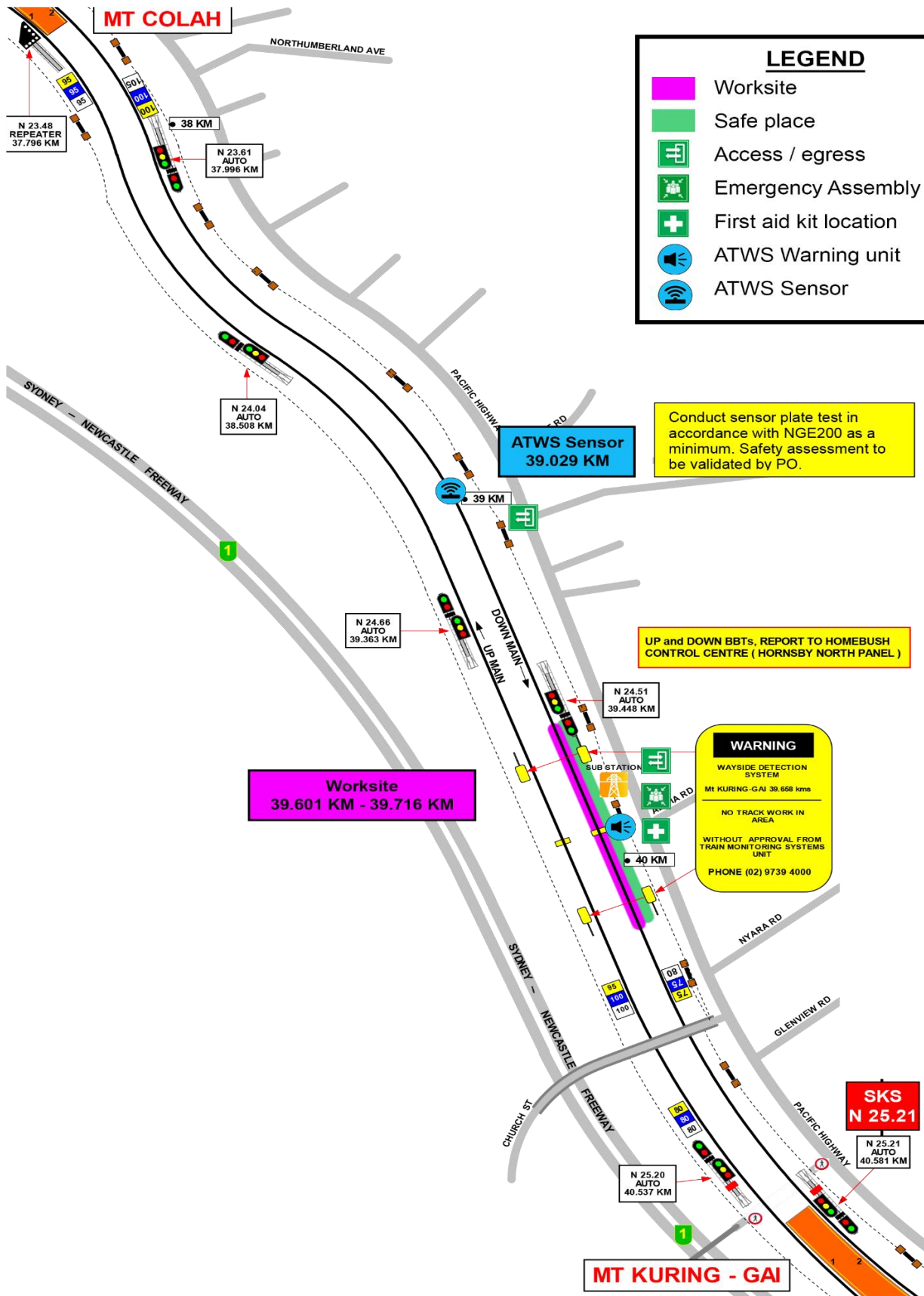
**MT KURING - GAI**

**SKS**  
N 25.21

# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance



Tick if used



Worksite on Down Main line



# ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

<b>INSTRUCTIONS:</b>	<ol style="list-style-type: none"> <li>Workers enter the rail corridor via access gate N00 39.613 D.</li> <li>Use assets to validate worksite location on the <b>Up Main and Down Main lines</b> between 39.601km to 39.716km</li> <li>Conduct WP Pre-work briefing to set-up ATWS.</li> <li>Tell Signaller at <b>Hornsby Panel and Hornsby North Panel</b> about the use of lookout working with ATWS.</li> </ol>
Tick if used <input type="checkbox"/>	<ol style="list-style-type: none"> <li>Access Up Cess 40.426km, verify sensor label and connect to sensor cable, calibrate with test plate, connect, and turn on the transmitter.</li> </ol>
Tick if used <input type="checkbox"/>	<ol style="list-style-type: none"> <li>Access Dn Cess 39.029 km, verify sensor label, connect to sensor cable, calibrate with the plate, connect and turn on transmitter.</li> </ol>
	<ol style="list-style-type: none"> <li>Place warning system on same side of tracks if working on one track only within sight and hearing of workers, conduct siren and light self test and connect to transmitter(s).</li> <li>Record first traffic movement test for each sensor on ATWS Check-sheet</li> <li>Conduct WP Pre-work briefing for lookout working with ATWS and confirm workers have seen and heard the warning.</li> <li>Start work when advised by the PO, and move to the designated safe place when warned.</li> <li>When work is complete, and workers and equipment are in a safe place, turn off and pack up warning unit.</li> </ol>
Tick if used <input type="checkbox"/>	<ol style="list-style-type: none"> <li>Access Up Cess to turn off and pack up transmitter unit(s).</li> </ol>
Tick if used <input type="checkbox"/>	<ol style="list-style-type: none"> <li>Access Dn Cess to turn off and pack up transmitter unit(s).</li> </ol>
	<ol style="list-style-type: none"> <li>Access Dn Cess for all workers to leave the rail corridor via access gate N00 39.613 D.</li> <li>Tell Signaller at <b>Hornsby Panel and Hornsby North Panel</b> when work is completed and the workers and their equipment are clear of the Danger Zone.</li> </ol>

Tick if used <input type="checkbox"/>	<b>Position of ATWS transmitter and sensor on Down Main North line at 39.029 km</b>	
	 <p>Image 1: Transmitter and sensor installation location</p>	 <p>Image 2: Sensor access gate <b>N00 39.313 D</b></p>

Tick if used <input type="checkbox"/>	<b>Position of ATWS transmitter and sensor on Up Main North line at 40.426 KM</b>	
	 <p>Image 1: Transmitter and sensor installation location</p>	 <p>Image 2: Sensor access gate <b>N00 39.313 D</b></p>



## ATWS Worksite Protection for Mt Kuring-Gai condition and monitoring equipment maintenance

*(This page is optional and may be separated and given to the assigned operator to assist set-up of ATWS equipment. Refer also to Refer to "D2015-45354 Wireless ATWS (Automatic Trak Warning System)" for detailed instructions.)*

### Setup Stage 2: checklist for ATWS worksite warning unit

Step	Task Description	Operator Check
1	Confirm equipment is within inspection date	
2	Confirm Audible level	
3	Confirm and set Radio Channel for Warning unit	
4	Book in ATWS sensor 1	
5	Book in ATWS sensor 2	
6	Perform Worksite Warning Test with all ATWS sensor	
7	Ensure the workers have seen the visual warning and heard the audible warning	
8	Select and Confirm Channel for the Radio Transmitter	
9	Confirm worksite warning unit is operational with Installers and advise them to lock devices & remove key	

### Setup Stage 1: Checklist for ATWS transmitter and sensor

Step	Task Description	Installer Check
1	Verify Track Label for location of sensor as per the Protection Diagram and Photos in this document	
2	Confirm equipment is within inspection date	
3	Sensor direction is per Worksite Protection Diagram and photos in this document	
4	Connect sensor cable to junction box	
5	Confirm all batteries are fully charged	
6	Connect junction box to ZFS using channel T1-T4	
7	Commence calibration and automatic self- test	
8	Perform function test using test plate	
9	Confirm transmitter booked in to correct T- channel (T1-T4)	
10	Select & confirm channel for the radio transmitter (AU3 OR au4)	
11	Perform worksite warning test using test plate	
12	Lock device & remove key	