Safe Work Instruction

ATWS Worksite Protection for Medlow Bath condition and monitoring equipment maintenance

DOCUMENT NO.	D2022/3750
WORK DESCRIPTION	Routine Maintenance activities - Condition monitoring equipment maintenance
WPP Number	CMO5BWS 10178
SCOPE:	Routine maintenance activities performed by Condition Monitoring Operations team. • on the **Up Main** and **Down Main West lines** between **114.470 km** to **114.576 km** • that does not involve the use of tools or equipment, or • 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 • this protected worksite is outside yard limits
AUTHORISATIONS:	**Protection Officer, ATWS Operator (Operator) & ATWS Installer (Installer):** • Protection Officer (PO) Level 1 – 4, and • WATWS – Wireless Automatic Track Warning System
PERSONAL PROTECTIVE EQUIPMENT	• High visibility vest, boots, high visibility lookout sleeve • Hard hat & safety eyewear as required • Personal Protective Equipment (PPE) clothing
SAFETY CONTROLS – Lookout Working (ATWS) arrangements:	• Automatic Track Warning System (ATWS) - provides visual and audible warning for workers • Installed ATWS sensors for Down direction running on the **Down West Main at 113.885 km** • Installed ATWS sensors for Up direction running on the **Up West Main at 115.217 km** **IMORTANT!** • This document must not be used to install or adjust the ATWS sensors • All sensors in the plan and shown on the diagram must be connected to transmit a warning
PRESTART REQUIREMENTS:	• Refer to D2015-45354 Wireless ATWS (Automatic Track Warning System) to install or remove sensors
FURTHER INFORMATION:	*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	3
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	2
Tripod	Tripod for Device	3
ZFS Radio Transmitter	Radio Transmitter Device	2
ZPW Warning Unit	Control & Warning Device	1

Prepared using SMS-06-TP-4317 v1.5, Custodian: Senior Safety Specialist Safety Systems; Approver: Director Safety and Standards; Issue date: 19/08/2021

Protection Officer/Operator assessment checklist		
Protection Officer's name:		**Yes** *(Tick if Yes)*
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: • On-site safety assessment has been completed for relevancy of works being undertaken • The required protection details, environment and tasks are unchanged from the details of this SWI • All boxes have been ticked if applicable and crossed if not applicable • All fields have been completed		
Corridor Safety Number	**Protection Officer Signature**	**Date**

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.

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Worksite Protection Pre-work Briefing

Briefing date: / /

Protection Officer details

name	signature	contact No.

Work location:

Scope of work:

Worksite protection: **Lookout Working (ATWS)** Refer to Worksite Protection Plan for details

Hazards (e.g. Site specific hazards identified, including physical environment, human errors, plant and equipment)	**Controls** (to be implemented to eliminate or reduce the risk to the lowest practicable level)	**Person responsible for Control**
Crossing live lines	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
Accessing Danger Zone to conduct plate test	Use appropriate safety measures as validated by a PO. Refer to diagram for minimum safety assessment.	Qualified PO
Electricity	ATWS antennae not to encroach safe approach distance to overhead wiring	Operator
Slips, trips, falls carrying ATWS equipment	Use correct manual handling techniques, secure safety boots, clear obstacles for work area and agree a safe path.	All
Approaching rail traffic	All points of entry have been validated and ATWS safety measures (sensors) have been installed. 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
Ineffective ATWS warnings / Adjoining / surrounding worksites	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
Train warning time longer than expected (stopping points or ATWS equipment fault)	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: Nil	PO
Adjacent live lines	Remain within the tracks being protected by the ATWS	PO
Second train warning cancelled in error	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
Distraction	Obtain permission from PO to use electronic devices in the Danger Zone.	All
Obstructions to safe place	Agree on paths to reach designated safe places from the worksite.	PO
Electrical storms	Stop work immediately	All

Hazards (e.g. Site specific hazards identified, including physical environment, human errors, plant and equipment)	**Controls** (to be implemented to eliminate or reduce the risk to the lowest practicable level)	**Person responsible for Control**

☐ A final site inspection has been conducted immediately before commencing work, and any new hazards and controls have been included.

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Workplace Supervisor details

name	signature	contact No.

Yes ☐ the Workplace Supervisor acknowledges that the Protection Officer will arrange worksite protection as required.

Participant acknowledgement

NOTE: Recipients of the briefing are to question the Briefer if they don't understand any part of this briefing.

All workers listed below acknowledge that they:

1. hold the applicable and current Rail Safety Worker Authorisation
2. have been briefed on the identified hazards and controls
3. have been briefed on the risks from adjacent lines and/or worksites
4. have been briefed on the planned worksite protection
5. understand the limits of the worksite
6. have been briefed on the contents of the Worksite Protection Plan
7. have been shown the worksite protection diagram or map

Name	Signature	Time of briefing: hh:mm	Amendment briefing: hh:mm and initial

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Worksite Protection Plan – Lookout Working

Signaller details

name	Katoomba	9851 7401

Protection Officer details

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

Workplace Supervisor details:

Type of work: **Routine Maintenance Activities**

Worksite location

On the	**Up Main West line**			☐
between	**71.8 Auto Signal**	**and**	**70.6 Auto Signal**	
On the	**Down Main West line**			☐
between	**70.1 Auto Signal**	**and**	**71.3 Auto Signal**	

Worksite Assessment

The Lookout Working Prohibited Locations Register been consulted Yes ☐

Warning method

ATWS | Horn / Whistle / Voice

Cross out if not applicable

Minimum Warning Time Calculations

Maximum track speed: 115 km/h

Number of ATWS Sensors used	1 / 2	Position of ATWS Sensors	113.885 km	and	115.217 km		
Number of dedicated Lookouts used		Position of Lookouts		To			

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

See Time (S)	+ Move Time (M)	+ Safe Time	= Minimum Warning Time (MWT) (S+M+10 sec = MWT)	Track speed	Minimum Sighting Distance as calculated	
7 sec	3 sec	10 sec		20 sec	115 km/h	639 metres	Identify Line Up Main
7 sec	3 sec	10 sec		20 sec	100 km/h	556 metres	Identify Line Down Main

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

Lookouts: **N/A**

Operator & Workers: **Up Cess for Up Main. Down Cess for Down Main.**

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

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 he operator and installer

Train ID # observed: _____

Verified by installer: ☐ (tick to confirm)

Testing

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

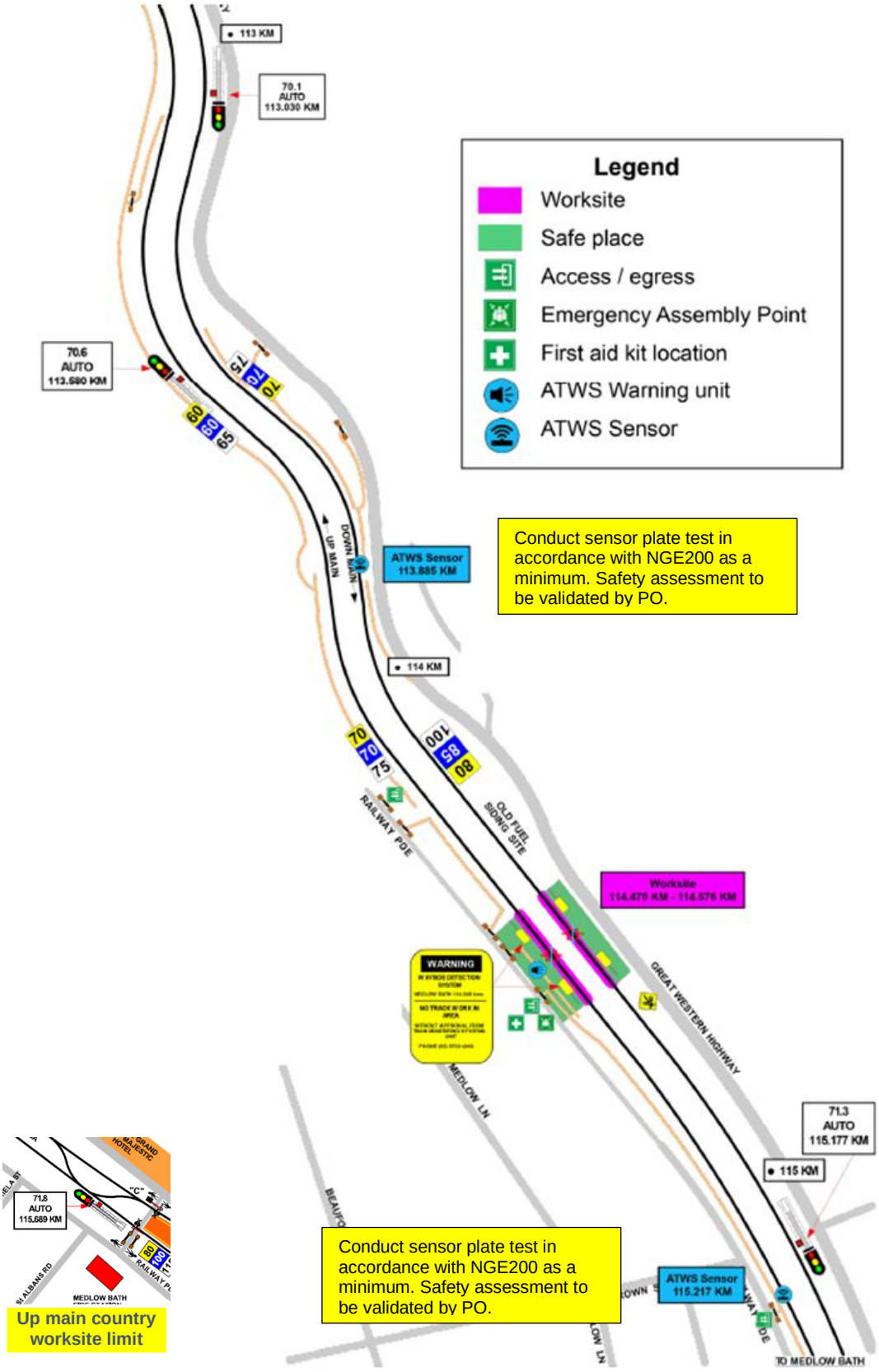
3. Identify potential stopping points affecting warning times:

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

_____

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

Tick if used ☐	**Worksite on Up & Down Main lines**



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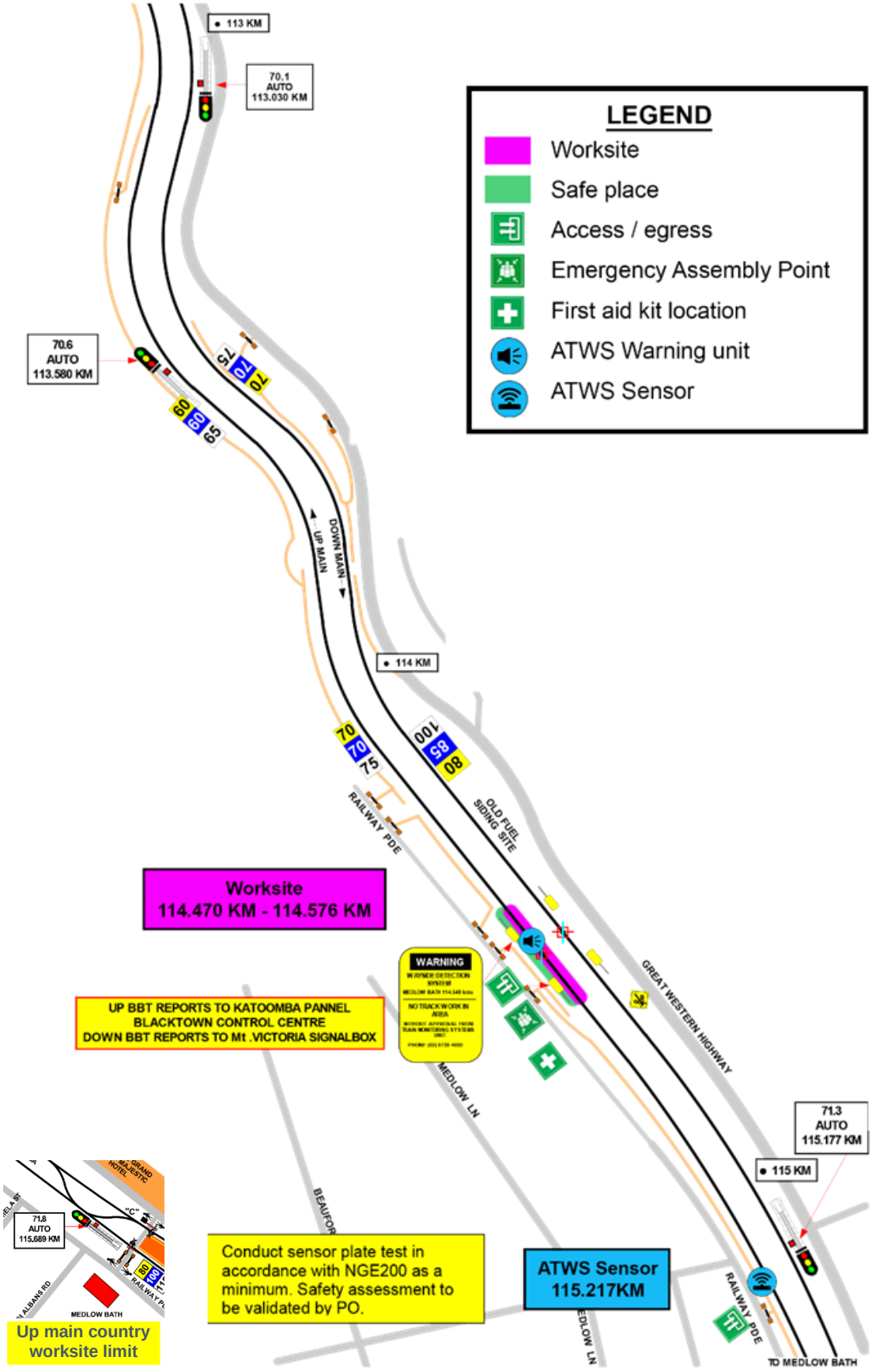
Tick if used ☐	**Worksite on Down Main line**



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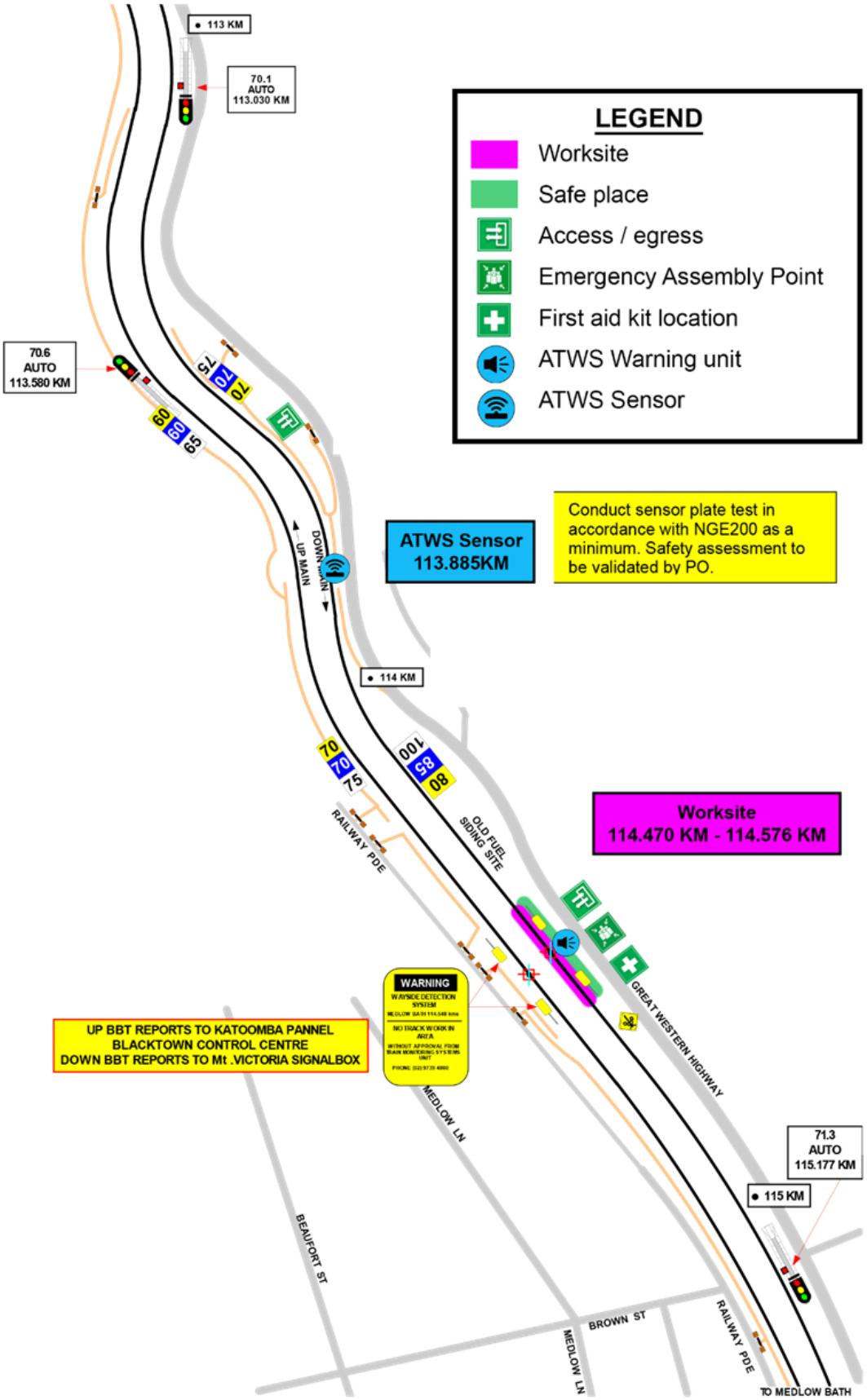
113 KM
70.1
AUTO
113.030 KM
70.6
AUTO
113.580 KM
LEGEND
Worksite
Safe place
Access / egress
Emergency Assembly Point
First aid kit location
ATWS Warning unit
ATWS Sensor
ATWS Sensor
113.885KM
Conduct sensor plate test in accordance with NGE200 as a minimum. Safety assessment to be validated by PO.
UP MAIN
DOWN MAIN
114 KM
Worksite
114.470 KM - 114.576 KM
OLD FUEL SIDING SITE
RAILWAY PDE
GREAT WESTERN HIGHWAY
WARNING
UP BBT REPORTS TO KATOOMBA PANNEL
BLACKTOWN CONTROL CENTRE
DOWN BBT REPORTS TO Mt .VICTORIA SIGNALBOX
MEDLOW LN
71.3
AUTO
115.177 KM
115 KM
BEAUFORT ST
BROWN ST
MEDLOW LN
RAILWAY PDE
TO MEDLOW BATH

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INSTRUCTIONS:	1. Workers enter the rail corridor via access gate **W00 114.655 U.** 2. Use assets to validate worksite location on **Up Main and Down Main West lines** between **114.470 km** to **114.576 km** 3. Conduct WP Pre-work briefing to set-up ATWS. 4. Tell Signaller at **Katoomba Panel** about the use of lookout working with ATWS. If applicable 5. Tell Signaller at **Mt Victoria Panel** about the use of lookout working with ATWS. If applicable
Tick if used ☐	6. Access **Up Cess 115.217 km**, verify sensor label & connect to sensor cable, calibrate with test plate, connect and turn on the transmitter.
Tick if used ☐	7. Access **Dn Cess 113.885 km**, verify sensor label, connect to sensor cable, calibrate with test plate, connect and turn on transmitter.
	8. Place warning system on same side of tracks if working on one track only within sight & hearing of workers, conduct siren & light self test, & connect to transmitter(s). 9. Record first rail traffic movement test for each sensor on ATWS Check-sheet. 10. Conduct WP Pre-work briefing for lookout working with ATWS and confirm workers have seen and heard the warning. 11. Start work when advised by the PO, and move to the designated safe place when warned. 12. When work is complete, and workers and equipment are in a safe place, turn off and pack up warning unit
Tick if used ☐	13. Access Up Cess to turn off and pack up transmitter unit(s).
Tick if used ☐	14. Access Dn Cess to turn off and pack up transmitter unit(s).
	15. Access **Up Cess** for all workers to leave the rail corridor via access gate **W00 114.655 U**. 16. Tell Signaller at **Katoomba Panel** when work is completed and the workers and their equipment are clear of the Danger Zone. If applicable 17. Tell Signaller at **Mt Victoria Panel** when work is completed and the workers and their equipment are clear of the Danger Zone. If applicable

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Tick if used ☐	Position of ATWS transmitter and sensor on Up Main West line at 115.217 KM

Image 1: Sensor and transmitter installation location

Image 2: Sensor access using access gate W00 115.175 U

Tick if used ☐	Position of ATWS transmitter and sensor on Down Main West line at 113.885 KM

Image 1: Sensor and transmitter installation location

Image 2: Sensor access using access gate W00 114.174 U

Protection Officer's diary

Date	Time	Notes

(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 Track 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** Up Main 115.217 Km	**Installer Check** Down Main 113.885 Km
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		