

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



CONSTRUCTION MONITORING REPORT

[OCTOBER 2024 TO APRIL 2025]

Errant and Hostile Vehicle Mitigation
Treatments for the Southwest Metro Project
SMC-22-0722

SMCSWSW7-MRL-1NL-
EM-REP-001090

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AMENDMENTS			
Revision No	Date	Amendment	Date to Client
Rev1	15/05/2025	Update of data from October 2024 to April 2025 including results and discussion summaries.	16/05/2025
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CONTENTS

1	INTRODUCTION	4
2	NOISE AND VIBRATION	5
2.1	Results – Noise Monitoring	5
2.2	Results – Vibration Monitoring	13
2.3	Discussion – Noise and Vibration Monitoring	17
2.3.1	Noise monitoring.....	17
2.3.2	Vibration monitoring.....	18
3	COMPLAINTS MANAGEMENT	19
4	Construction Environmental Management Plan and Subplans - Amendments	35
	APPENDICES	36

TABLES

Table 1: Noise Monitoring Results	8
Table 2: Vibration monitoring locations	15
Table 3: Vibration monitoring results.....	15
Table 4: Complaints Recorded.....	20
Table 5: CEMP and Subplans - Amendments throughout Construction	35

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



1 INTRODUCTION

This Construction Monitoring Report has been prepared to satisfy the Condition C14 of CSSI 8256 and contains the results of Noise and Vibration Monitoring Program and Complaints Management, conducted as part of the Construction of Errant and Hostile Vehicle Mitigation Treatments (hereafter known as the Project).

The scope for the Project, generally includes:

- Errant vehicle mitigation (EVM) treatments consisting of:
 - Eight (8) station overbridge barriers
 - Seven (7) non-station road-over-rail overbridge barriers; and
 - 42 non-bridge locations along the southwest corridor
- Hostile vehicle mitigation (HVM) treatments in the eight (8) station precincts
- Other works
- Road upgrades (kerbside ramps) across various locations
- Fencing, finishing works and other streetscaping elements across various locations
- Remediation works.

In accordance with condition the Ministers Conditions of Approval (MCoA) C14, Construction Monitoring Report will be submitted to the following agencies for information:

- Inner West Council;
- City of Canterbury Bankstown; and
- DPHI.

The Independent Environmental Representative for the Project will review the report prior to submission.

This Construction Monitoring Report will not be submitted to the EPA as the Project is not subject to an EPL.

2 NOISE AND VIBRATION

The proposed Errant and Hostile Vehicle Mitigation Treatments are to be carried out along the Southwest Metro corridor. The Southwest corridor is located in predominantly suburban residential areas with mixed use near the stations, including commercial, residential, childcare and medical consulting rooms. These land-uses are mixed within the identified noise catchments, although in general there are clusters of industrial and commercial areas surrounding stations, primarily residential areas between stations. The area surrounding the project sites are affected by rail noise and vibration. The majority of works will occur along the Southwest Metro corridor.

Noise and vibration monitoring must be carried out for the duration of Construction. The predominant reason for monitoring noise and vibration associated with the construction works is to ensure compliance with modelled results for noisy works and to ensure compliance with modelled results and the project's Conditions of Approval(s) and NVMP. Modelling undertaken prior to noisy construction activities assesses if Respite Offers (RO) and Alternate Accommodation (AA) are required to be provided to sensitive receivers that are impacted by noise from works conducted outside of standard working hours. Other reasons to conduct noise and vibration monitoring include:

- In response to noise or vibration complaints
- If requested by Sydney Metro, the ER, DPHI or EPA
- To augment baseline noise levels, if the noise environment at a receiver is considered to be different from the noise logger locations used for the EIS
- To validate predicted noise levels associated with each works scenario assessed in the CNVIS, at the commencement of works and new construction activities or location
- To confirm baseline vibration levels currently experienced at heritage-listed structures and at any vibration-sensitive equipment
- Where vibration levels are predicted to exceed the vibration screening level, attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure, in accordance with Revised Environmental Mitigation Measure (REMM) NVC12; and
- As part of a plant noise audit.

The methodology and rationale for conducting noise and vibration monitoring is contained within the relevant Noise and Vibration Monitoring Plan (SMCSWSW7-MRL-1NL-EM-REP-001090).

2.1 Results – Noise Monitoring

This Construction Monitoring Report captures progress from the commencement of Construction from the 19th of October 2024 to 30th April 2025. The following scope of works was completed at each respective overbridge location where noise monitoring was required.

- Illawarra Road, Marrickville NSW
The implementation of the Temporary Traffic Management Plan was being conducted, which involved several instances of cutting thin strips into asphalt pavement behind noise blankets, to install new traffic loops.

Noise monitoring for this activity exceeded predicted levels. As this was the loudest aspect of the works in any given shift, noise levels returned below predicted levels on the conclusion of intermittent activity.

As mitigation, works involving cuts to pavement were completed as early into each respective shift as possible.

No additional mitigation measures are required as works have been completed within the area.

- **Livingstone Road, Marrickville NSW**
Piling (bored) was completed at the overbridge on all four corners. The work was completed as dayworks where noise results were within predicted levels. Monitoring was completed to verify that the noise impact of the activity was in accordance with the predicted levels of the project CNVIS.
- **Albermarle Street, Marrickville NSW**
Off-Structure Beams (OSB) were placed at Albermarle Street, which involved a full road closure as delivery of the OSBs were upon oversized vehicles and placement involved a large crane. No exceedance was recorded.
- **Wardell Road, Dulwich Hill NSW**
Piling (bored) was completed as nightworks due to Road Occupancy License restrictions. The works all fell within the predicted range, except for two instances of recording:
 - 04/03/2025, an object falling over close to the monitor produced an exceedance of the LaMax parameter.
 - 08/03/2025, shaker bar on the piling rig made an unusually loud sound on a single shake, causing the LaMax exceedance.
 - Confirming the average LAeq over the period of monitoring was within range.
 - No additional mitigations are warranted following this monitoring as piling has concluded within the location.
- **Duntroon Street, Hurlstone Park NSW**
Piling (bored) was completed as nightworks due to Road Occupancy License restrictions. The works all fell within the predicted range, except for two instances of recording:
 - 27/03/2025, shaker bar on the piling rig made a loud sound on a single shake, causing the LaMax exceedance.
 - 28/03/2025, shaker bar on the piling rig made a loud sound on a single shake, causing the LaMax exceedance.
 - Confirming residents adjacent to the monitoring location accepted Respite Offers for both the above shifts.

Following the Respite Offers that were accepted, no further mitigations are warranted as piling works have concluded.
- **Loch Street, Campsie NSW**
Powered hand tools were being used to remove existing metal screening on the overbridge. An exceedance was detected during the monitoring; however it was due to a passing freight train at the time of the recording.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



- Melford Street, Campsie NSW

Piling (bored) was completed at all four corners of the overbridge. Noise monitoring showed works fell within the predicted LAeq range, with an exceedance picked up on the piling rig intermittently shaking spoil.
- Canterbury Road, Canterbury NSW

Road sawing behind noise blankets was completed as part of utility relocation works across the overbridge. Noise monitoring showed works observed exceedances where the following mitigation were applied:

 - additional Respite Offer radius considerations for future works of similar nature
 - continuing of scheduling any road saw use as early within the night as possible.
- King Georges Road, Wiley Park NSW

An excavator was used to break asphalt footpath for the location of the new piles facilitating the Off-Structure Beam (OSB) of the overbridge. The works fell within the predicted range.
- Stacey Street, Bankstown NSW

As part of the Traffic Management Plan, partial demolition of the bridge deck was required, where noise impact was reduced by utilising an excavator bucket as opposed to a hammer attachment. No exceedances were observed throughout monitoring.

Table 1 below contains a summary of the noise monitoring results between October 2024 and April 2025.

Table 1: Noise Monitoring Results

Date/Time	Assessment Point	Measured Plant	Predicted Noise Level dB(A)		Measured Noise Level		Above predicted noise level	Comments
			L _{Aeq} (15min)	L _{Amax}	L _{Aeq} (15min)	L _{Amax}		
Illawarra Road, Marrickville								
13/01/2025, 11:17pm to 11:21pm	361 Illawarra Rd, Marrickville	Road saw, cutting traffic loops as part of TMP implementation	71	79	79.9	85.9	No	Yes, however intermittent and brief. Traffic loop cutting lasted four minutes. Over a 15 minute interval, the LAeq would have returned to near-predicted.
14/01/2025, 12:31pm to 12:36pm	361 Illawarra Rd, Marrickville	Road saw, cutting traffic loops as part of TMP implementation	71	79	79.8	79.1	No	Yes, however intermittent and brief. Traffic loop cutting lasted four minutes. Over a 15 minute interval, the LAeq would have returned to near-predicted.
21/01/2025, 10:23pm to 11:05pm	361 Illawarra Rd, Marrickville	Road saw, cutting traffic loops as part of TMP implementation	73	79	85.1	90.9	Yes	Yes, however intermittent and relatively brief, over a 40-minute period. The team mitigated the impact on surrounding residents by scheduling this set of traffic loop cuts as early within the night as possible, behind noise blankets. This set of traffic loop cuts were completed earlier than the previous two sets, as the team were actively staging works to complete these as early as possible.
21/01/2025, 11:11pm to 11:44pm	11 Warburton Street, Marrickville	Generator	71	83	77.5	82.5	Yes	Yes, however the monitoring was needing to be completed within the Minor Ancillary Facility, which does not factor in the solid brick wall separating direct line of sight with the targeted residence being 11 Warburton Street.
Livingstone Road, Marrickville								
19-10-2024, 11:29AM to 11:42AM	254 Livingstone Road, Marrickville	Excavator w bucket (13t), piling rig – bored, concrete pump, concrete cutting saw, hand tools, utes	75	85	62.8	78.2	No	Loudest aspect of the work was the shaking of the piling rig every couple minutes intermittently. The scope was completed during standard hours on Saturday 19-10-2024.
Albermarle Street, Dulwich Hill								

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Date/Time	Assessment Point	Measured Plant	Predicted Noise Level dB(A)		Measured Noise Level		Above predicted noise level	Comments
			L _{Aeq} (15min)	L _{Amax}	L _{Aeq} (15min)	L _{Amax}		
29/03/2025 11:32-11:55PM	36 Challis Ave, Dulwich Hill NSW 2203, Australia	OSB placement using Crane	71	89	69.6	82.8	No	Residents within 75m of the worksite were offered respite, over and above of the noise modelling for the scope of works.
Wardell Road, Dulwich Hill								
04/03/25 10:28-10:41PM	242 Wardell Rd, Dulwich Hill	Footpath saw cutting (behind noise blankets)	73	84	73.1	98.6	Yes	L _{Aeq} was accurately predicted, with recorded results observing closely associated results. L _{Amax} associated with this recording was from a piece of ATF fencing falling over.
06/03/25 1:06-1:24AM	242 Wardell Rd, Dulwich Hill	Piling	75	86	73.4	84.8	No	L _{Aeq} was accurately predicted, with recorded results observing closely associated results. L _{Amax} associated with piling is a shortly 2-3 second shake of the rig (emptying spoil) every 20-30 minutes. The lengthy time between shakes was due to the piling rig was specifically running at low revolutions, to minimise engine noise output in consideration of the sensitive receivers surrounding Dulwich Hill Station.
06/03/25 10:30PM- 10:45PM	242 Wardell Rd, Dulwich Hill	Piling	75	86	65.8	85.9	No	L _{Aeq} was accurately predicted, with recorded results observing closely associated results. L _{Amax} associated with piling is a shortly 2-3 second shake of the rig (emptying spoil) every 20-30 minutes. The lengthy time between shakes was due to the piling rig was specifically running at low revolutions, to minimise engine noise output in consideration of the sensitive receivers surrounding Dulwich Hill Station.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Date/Time	Assessment Point	Measured Plant	Predicted Noise Level dB(A)		Measured Noise Level		Above predicted noise level	Comments
			L _{Aeq} (15min)	L _{Amax}	L _{Aeq} (15min)	L _{Amax}		
08/03/25 1:09am-1.23am	8 Dudley St, Marrickville	Piling	75	86	72.8	94.41	Yes	Laeq was accurately predicted, with recorded results observing closely associated results. Lamax associated with piling is a short 2-3 second shake of the rig (emptying spoil) every 20-30 minutes. The lengthy time between shakes was due to the piling rig running at low revolutions, to minimise engine noise output in consideration of the sensitive receivers surrounding Dulwich Hill Station.
Duntroon Street, Hurlstone Park								
27/02/25 23:23-23:47	112 Duntroon St	Piling Rig / Excavator	76	87	76.7	100.7	Yes	Piling rig was in operation. Minimal traffic flow due to traffic control set up. The loudest sound was for approximately 3 seconds as the piling rig shook off spoil from the drill.
28/02/25 20:36-20:52	112 Duntroon St	Piling Rig / Excavator	76	87	74.6	96.8	Yes	Piling rig was in operation. Minimal traffic flow due to traffic control set up. The loudest sound was for approximately 3 seconds as the piling rig shook off spoil from the drill.
28/02/25 21:09-21:28	112 Duntroon St	Piling Rig / Excavator	76	87	68	81.6	No	Piling rig was in operation. Minimal traffic flow due to traffic control set up
Loch Street, Campsie								
02/11/2024 3:25pm – 3:48pm	23 Loch Street, Campsie	Powered hand tools	73	84	69.3	90.0	Yes	LaMax was from loud freight train passing by at approximately 3:29pm
Melford Street, Campsie								
18/11/2024 11:27am-11:42am	124 Melford Street	Background monitoring prior to daytime piling	78	87	59.3	79.9	No	Consistent traffic flow observed, site vehicles from SSI8256 were observed, likely due to an adjacent compound.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Date/Time	Assessment Point	Measured Plant	Predicted Noise Level dB(A)		Measured Noise Level		Above predicted noise level	Comments
			L _{Aeq} (15min)	L _{Amax}	L _{Aeq} (15min)	L _{Amax}		
10/01/2025 11:12am-11:27am	124 Melford Street	Piling	77	89	74.1	99.6	Yes	Piling works on the northwest corner of the overbridge. Construction generated noise was the dominant sound, with LaMax being generated from the piling rig shaking off excavated spoil, all which lasted about three seconds before returning to low-revolution drilling.
Canterbury Road, Canterbury								
03.02.2025 10:14-10:43	2 Charles Street, Canterbury	Saw cutting with road saw (behind noise blankets)	74	86	80.5	94.1	Yes	Whilst there was an exceedance of the predicted level, the work was scheduled as early within the night shift as possible. Following the use of the road saw, works returned to predicted levels as a vac truck completed the scope of works, using low-revolutions to reduce ambient noise output.
King Georges Road, Wiley Park Station								
05/11/2024 10:09pm - 10:47pm	76 King Georges Road, Wiley Park	Vac truck and powered hand tools	72	85	69.3	88.3	No	Vac truck was being used on low revs, dominant noise source was King Georges Road with LaMax coming from a modified car with a loud exhaust
02/12/2024 10:19pm – 10:54pm	76 King Georges Road, Wiley Park	Excavator (with hammer attachment) and powered hand tools	73	87	73	94.7	No	The residence where monitoring was conducted accepted an offer of Alternative Accommodation. Despite recorded levels being near that of predicted, the closest residence was assumed to be vacant at the time of works occurring. Works returned to low impact following the recording where excavator works ceased, Erosion and Sediment Control (ERSED) installations and site clean-up were taking place.
Stacey Street								
06/12/2024 12:15am - 12:45am	198 South Terrace, Bankstown	Excavator w bucket and hammer	76	83.3	63.4	83.3	No	Loudest scope was completed at the start of the shift, excavation stopped at 12:50am

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Date/Time	Assessment Point	Measured Plant	Predicted Noise Level dB(A)		Measured Noise Level		Above predicted noise level	Comments
			L _{Aeq} (15min)	L _{Amax}	L _{Aeq} (15min)	L _{Amax}		
12/01/2025 11:31pm -12:02am	198 South Terrace, Bankstown	Excavator w bucket and hammer	73	84	70	82.6	No	Scope of work became loud as the bridge deck median demo got closer to South Terrace. Road traffic running through constricted shuttle flow was consistently loud with several trucks passing through.
04/04/2025 11:13-11:37pm	198 South Terrace, Bankstown	Excavator w bucket (13T)	60	70	52.8	64.7	No	Scope of work was not noticeable at residence house, majority of loud noise is from regular traffic and cars.

2.2 Results – Vibration Monitoring

The sections below contain a summary of the vibration monitoring results observed while carrying out vibration intensive activities within close proximity to a heritage structure.

In summary, no exceedances to the established criteria for cosmetic damage in the Sydney Metro Construction Noise and Vibration Statement were recorded over the monitoring period at the following locations:

Doc No. TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1)

- M1 – Canterbury Station – Piling (bored) within 5m of heritage structure, no exceedance.
- M5 – Wiley Park Station – Excavator with hammer attachment to break through large pavers, no exceedance.
- M6 – Wiley Park Station – Piling (bored) within 5m of heritage structure, no exceedance.
- M7 – Belmore Station – Piling (bored) within 5m of heritage structure, no exceedance.

Doc No. TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5)

- M2 – Livingstone Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M3 – Livingstone Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M5 – Melford Street – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M6 – Melford Street – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M7 – Duntroon Street – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M8 – Duntroon Street – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M9 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M10 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M11 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M12 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M13 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.
- M14 – Wardell Road – Piling (bored) within 1m of Sydney Water asset, no exceedance.

The established criteria for cosmetic damage in the Sydney Metro Construction Noise and Vibration Statement are as follows:

- Reinforced or framed structures: 25.0 mm/s;
- Unreinforced or light framed structures: 7.5 mm/s;
- Heritage structures (structurally sound): 7.5 mm/s; and
- Heritage structures (structurally unsound): 2.5 mm/s.

During the reporting period, vibration monitoring was undertaken at the following locations:

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



CONSTRUCTION MONITORING REPORT

[OCTOBER 2024 to APRIL 2025]

Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090

Rev1

**Table 2: Vibration monitoring locations**

No.	Date	Plant	Location
Doc No. <i>TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1)</i>			
M1	26.12.2024-31.12.2024	Bored piling rig	Canterbury Station
M2	06.01.2025	Baseline vibration monitoring	Dulwich Hill Station
M3	06.01.2025	Baseline vibration monitoring	242 Wardell Road, Dulwich Hill
M4	07.01.2025	Baseline vibration monitoring	Hurlstone Park Station
M5	16.01.2025	Excavator w/ hammer attachment	Wiley Park Station
M6	21.01.2025	Bored piling rig	Wiley Park Station
M7	28.01.2025	Bored piling rig	Belmore Station
Doc No. <i>TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5)</i>			
M1	15.11.2024	Baseline monitoring	Livingstone Road overbridge
M2	17.12.2024	Bored piling rig	Livingstone Road overbridge
M3	19.12.2024	Bored piling rig	Livingstone Road overbridge
M4	07.01.2025	Baseline monitoring	Melford Street overbridge
M5	13.01.2025	Bored piling rig	Melford Street overbridge
M6	13.01.2025	Bored piling rig	Melford Street overbridge
M7	20.02.2025	Bored piling rig	Duntroon Street overbridge
M8	27.02.2025	Bored piling rig	Duntroon Street overbridge
M9	06.03.2025	Bored piling rig	Wardell Road overbridge
M10	06.03.2025	Excavator w/ hammer attachment	Wardell Road overbridge
M11	06.03.2025	Bored piling rig	Wardell Road overbridge
M12	07.03.2025	Bored piling rig	Wardell Road overbridge
M13	07.03.2025	Bored piling rig	Wardell Road overbridge
M14	07.03.2025	Excavator w/ hammer attachment	Wardell Road overbridge

Table 3: Vibration monitoring results

No.	Assessment point	Monitoring outcome	Comment
Doc No. <i>TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1)</i>			
M1	Canterbury Station	All piling activities produce vibration levels below the screening criterion of 7.5 mm/s PPV.	No further action
M2	Dulwich Hill Station	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action
M3	242 Wardell Road, Dulwich Hill	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action

CONSTRUCTION MONITORING REPORT

[OCTOBER 2024 to APRIL 2025]

Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090

Rev1



No.	Assessment point	Monitoring outcome	Comment
M4	Hurlstone Park Station	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action
M5	Wiley Park Station	At 4m away, the rock hammering works produced vibration levels below the screening criterion of 7.5 mm/s PPV.	No further action
M6	Wiley Park Station	At 2m away, the piling works produced vibration levels below the screening criterion of 7.5 mm/s.	No further action
M7	Belmore Station	At 12m away, the piling works produced vibration levels below the screening criterion of 7.5 mm/s.	No further action
Doc No. <i>TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5)</i>			
M1	Livingstone Road overbridge Sydney Water assets; W001/DN150 CICL, W002-A/DN250 CICL and W002-B/DN200	When there are no construction activities, all measured activities were below the screening criterion of 5 mm/s PPV.	No further action
M2	Livingstone Road overbridge Sydney Water assets; 2.5m away from piling works (in-line with W002-A/DN250 CICL and W002-B/DN200)	At 2.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M3	Livingstone Road overbridge Sydney Water assets; 3.5m away from piling works (in-line with W001/DN150 CICL)	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M4	Melford Street overbridge Sydney Water assets; W003 100CICL, S004-A 200PE, S004-B 200PE	When there are no construction activities, all measured activities were below the screening criterion of 5 mm/s PPV.	No further action
M5	Melford Street overbridge Sydney Water assets; 3.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M6	Melford Street overbridge Sydney Water assets; 2.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	At 2.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M7	Duntroon Street overbridge Sydney Water assets; 1m away from piling works (in-line with In line with W009-A OD125 PE encased in DN150 CICL).	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



No.	Assessment point	Monitoring outcome	Comment
M8	Duntroon Street overbridge Sydney Water assets; 3m away from piling works (in-line with In line with W009-A OD125 PE encased in DN150 CICL).	At 3m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M9	Wardell Road overbridge Sydney Water assets; 1m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M10	Wardell Road overbridge Sydney Water assets; 1.5m and 2m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL). Also assessing S006-E Oviform Brick Tunnel.	At 1.5m and 2m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M11	Wardell Road overbridge Sydney Water assets; 1m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M12	Wardell Road overbridge Sydney Water assets; 4m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	At 4m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M13	Wardell Road overbridge Sydney Water assets; 5m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	At 5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action
M14	Wardell Road overbridge Sydney Water assets; 3.5m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action

2.3 Discussion – Noise and Vibration Monitoring

2.3.1 Noise monitoring

Majorly, the noise monitoring conducted during the monitoring period observed results that did not exceed the predicted levels, the provision of construction noise mitigation measures is therefore considered to be appropriate for the project. Occasional exceedances of predicted levels were noted, however each exceedance had a reasonable justification, where the impact was acute and the impact to surrounding sensitive receivers was brief.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



It should also be noted that Martinus conducts regular inspection of the environmental controls, particularly the use of noise blankets in the dense urban environment that surround the Southwest Metro corridor. This proactive approach ensures that environmental controls are functioning properly rather than reactively inspecting the worksite following monitoring and reporting results.

2.3.2 Vibration monitoring

The vibration monitoring results observed during the reporting period did not record any exceedances to the respective vibration criteria associated with each works scope.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



3 COMPLAINTS MANAGEMENT

Martinus Rail’s stakeholder and community objectives for the Project include:

- Identifying stakeholders and community members interested in or potentially affected by the in-scope works
- Establishing strong relationships with stakeholders and the local respective communities to facilitate two-way communication and involvement when appropriate
- Maximising understanding of the timing and potential impacts of construction activities at the respective sites and the measures to reduce these impacts
- Identifying issues for consideration in construction planning to reduce the impact on the community, where possible, and to respond to community feedback
- Collaborating with other Sydney Metro contractors and geographically related projects to streamline communications and avoid duplication where possible.
- Ensure Martinus Rail takes reasonable steps to coordinate works and minimize construction fatigue and cumulative impacts.

Martinus Rail’s approach to stakeholder and community engagement is to complete work with minimal disruption. Where any issues are raised by stakeholders and/or community members, Martinus Rail will address them in accordance with the Sydney Metro’s Overarching Community Communications Strategy and Construction Complaints Management System.

During the reporting period, the following complaints were recorded by the Project in summary:

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Table 4: Complaints Recorded

Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
Broughton Street Canterbury	1/04/2025 12:32	Email	Noise & Vibration - OOHW; Respite & AA - Respite	Resident lives facing rail corridor and reported hearing noise across the weekend. Requested respite.	Complaint received by JHLOR who forwarded the complaint to Martinus. Resident did not provide full address. Martinus at Canterbury was low impact, any noisy work in the area was likely ARTC scope.	Responded to resident providing the work notification and confirmed that properties on Broughton St did not trigger respite offers relating to Martinus scope of overbridge remediation work. JHLOR also provided ARTC contact details for follow-up.	Closed
Broughton Street Canterbury	30/03/2025 22:50	SMS	Noise & Vibration - OOHW	Resident sent a message complaining about noise at night over the weekend period.	Stakeholder and Communications Manager attempted to call the resident for further information and left a voice message. Mobile number was searched for in Conman to see if more details were available however it was not registered against a stakeholder.	Awaiting to hear from resident. Awaiting noise monitoring results to verify noise modelling. Noise modelling unable to take place on this occasion so previous noise modelling referred too. Possession trackwork EDM was sent 28 March. OOHWA 15 was received for Canterbury. Night work notified to occur between 4am Saturday 29 March until midnight Sunday 31 March 2025 on 20 March. Waited 5 days for a response from resident and no response so complaint has been closed. Complaint will be reopened if response is received.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
Canterbury	31/03/2025 11:03	Email	Noise & Vibration - OOHV	Resident complained about noise from construction work in night time hours and not being offered additional mitigation when it is impacting sleep.	Stakeholder and Communications Manager reviewed possession work report. Resident mentioned work in night time hours where Martinus were not working and ARTC was likely source of noise. Discussed with ARTC environmental manager 31/3 and confirm email address to share response too. Email shared with ARTC 31/3. Followed up with ARTC to confirm on 3/4. Martinus overbridge work was minor and not overnight and did not trigger RO or AA at Canterbury.	Stakeholder and Communications Manager responded to resident seeking full address of residence, and provided the community notification and information on minor scope that occurred at the overbridge over the weekend. Resident has not responded or provided additional information.	Closed
511/11 Charles Street Canterbury	30/03/2025 8:40	Email	Noise & Vibration - OOHV	Resident at Charles St at Canterbury complained about noise at their home overnight.	Stakeholder and Communications Manager reviewed location of resident and the video provided on Sunday night. Reviewed possession report to show night works took place between 9am and 11pm.	Stakeholder and Communications Manager attempted to call resident to find out further details as ARTC were also working in the rail corridor closer to the resident's address. Sent resident an email explaining works completed at the overbridge over the weekend, and provided ARTC contact details. Resident responded positively.	Closed
16/74 Floss Street Hurlstone Park	30/03/2025 17:50	Email - Community Inbox	Noise & Vibration - OOHV	Resident at Floss St Hurlstone Park complained hearing noise at night and requested compensation/respice voucher.	Stakeholder and Communications Manager reviewed additional mitigation measures and noise models, also listened to video provided from resident. Property is over 100m from work area.	Stakeholder and Communications Manager responded to resident that they were not eligible for respice vouchers for this work	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



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Stakeholder: 259260	29/03/2025 19:43	Email - Community Inbox	Socio-economic - Business impacts/benefits; Traffic, Transport & Parking	Business owner adjacent to work at Hurlstone Park overbridge complained about traffic changes, which led to customers being late to appointments and parking impacts and potential loss of business.	Stakeholder and Communications Manager reviewed TMP and communications relating to W39 possession works. Business was consulted prior in weeks leading up to work about traffic and parking impacts.	Stakeholder and Communications Manager responded to business that traffic changes are approved and that compensation is generally not provided for approved activities, and that works were now complete with all traffic changes reinstated.	Closed
12 Crinan Street Hurlstone Park	31/03/2025 10:32	Phone call - 1800 Info Line	Socio-economic - Business impacts/benefits; Traffic, Transport & Parking	Business owner complained about amount of parking used for the relocated replacement bus stops on Crinan Street. The space used was for multiple buses when only 1 would show up at a time and loss of local parking may cause local business impacts.	Prior to work, communications team had engaged with local business owners, including the complainant. Stakeholder and Communications Manager called business owner to listen to concerns from the weekend works and hear more detail. Spoke to engineer about the Floss Street carpark. Noted preference for bus stop relocation or reducing space taken for future works if relevant. Note that the westbound bus stop was moved in response to business feedback to minimise parking loss outside businesses.	Informed stakeholder works are now complete and traffic changes have been reinstated, including bus stop locations. Explained purpose for car parking removal at temporary bus stop. Provided update on Floss Street carpark reopening. Stakeholder satisfied with response.	Closed
5 Railway Street HURLSTONE PARK	30/03/2025 10:33	Email	Traffic, Transport & Parking	Resident complained that worker vehicles were parking on Railway Street.	JHLOR received the residents complaint directly. Their community team acknowledged the complaint and their investigation found Martinus was working at the station overbridge (Several streets away). Street parking is not restricted, however an agreement was previously in place with the MSB construction contractor adjacent to the complainant's property.	Vehicles were moved after noting the resident's request with the site supervisor. Follow up response sent to resident.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
122 Melford Street Hurlstone Park	26/03/2025 16:31	Phone call - 1800 Info Line	Property - Access; Traffic, Transport & Parking	Resident complained about approved location of temporary site amenities caravan outside of property on Melford Street. Explained annoyance of parking loss due to having young children, concern for privacy and safety for vehicles getting past. Frustrated at the last five years of local work. Note that resident was aggressive throughout the call.	Stakeholder and Communications Manager called resident to listen to concerns and explain the purpose of the caravan for the bridge closure and lift from Thursday until Monday. Resident had already approached site supervisor and engineer with aggressive behaviour when it was requested to park in other locations on the street.	Stakeholder and Communications Manager discussed with engineer to investigate moving it to resident suggested location on Hurlstone Ave and whether we can move it if the workers do not require it for a day. Emailed to confirm can move the caravan however works are now cancelled for the weekend. Resident satisfied with the effort and consideration.	Closed
Oxford Street Belmore	25/03/2025 13:13	Phone call - 1800 Info Line	Flora & Fauna	Resident believes a Sydney Metro truck hit a tree on Brande Street, Belmore and would like tree cleaned up from the road.	Stakeholder and Communications Manager contacted site engineer to investigate whether we are working in the area and if there are reports of trees being damaged. No evidence could be provided to suggest it was a Metro work vehicle to differentiate from another vehicle travelling in the area.	Stakeholder and Communications Manager visited area and took image. Located the branch and followed up with resident again to confirm it was the tree. Resident confirmed. Site supervisor arranged disposal.	Closed
Oxford Street Belmore, Oxford Street Belmore	24/03/2025 15:13	Phone call - 1800 Info Line	Waste management; Worker behaviour	Resident calling to report rubbish being left by workers alongside the rail line on railway Parade, opposite Brande and Peel Street in Belmore. Rubbish includes coffee cups and lunch packets.	Stakeholder and Communications Manager called resident to discuss details with the resident. Resident suggest providing a temporary bin for workers at these two locations as notes instances of rubbish being left in the corridor for several months. Resident has also reported it to Council.	Stakeholder and communications manger discussed with site supervisor about reminding workers about the importance of removing any lunch rubbish from the work area. Also noted that rubbish also enters areas of the rail corridor that by external parties. Proposed solution of bins around work areas discussed with site engineer. Resident happy with response.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
3 Wilga Avenue Dulwich Hill,	10/03/2025 12:08	Email	Noise & Vibration - OOHW; Notification of work; Respite & AA - Respite	Resident contacted Sydney Metro about disruption caused by the noise from machinery and operation occurring overnight on March 3, 4, 5 and 6 2025 as well as on March 7 with track works, trucks, and other machinery noise.	Reviewed night work schedule at Wardell Road between 4 - 8 March and location of residence, which backs onto rail corridor but is a distance from the location of the work. Reviewed noise models, no additional mitigation measures were required. Liaised with S2B to check any works at night.	Email sent to resident informing them of piling work notification, noise mitigation and confirmed no offers of additional mitigation were available to them relating to these specific works. Added two local residents to email distribution list.	Closed
57a Ewart Lane Dulwich Hill	7/03/2025 7:36	Email	Noise & Vibration - OOHW; Notification of work	Resident contacted S2B to complain about the noise from works occurring this week at the Dulwich Hill overbridge, specifically on Tuesday and Thursday night.	Stakeholder and Communications contacted resident. Reviewed OOHWA and planned night work schedule and work was in line with models.	Explained night work approval process, noise mitigation, notification explaining piling work is expected to be noisy and remaining night work. Confirmed no additional mitigation offered in line with current approvals. Added resident to email distribution list. Resident happy with resolution.	Closed
115 Duntroon Street Hurlstone Park	28/02/2025 7:10	Email	Notification of work; Respite & AA - Alternative Accommodation	Resident contacted Sydney Metro to complain about alternative accommodation not being offered to their residence for the two nights of work at Hurlstone Park overbridge and not receiving the latest notification.	Stakeholder and Communication Manager reviewed OOHWA, checked address in relation to additional mitigation, address not qualified. Discussed the purpose of night works with site engineer to provide more information to resident. Liaised with the site team as resident approached site team and disrupted work.	Sent email to the resident providing additional information to explain the approval process for night works and the assessment for additional mitigation. Agreed to address additional questions via a phone call with an engineer. Call occurred 6/3/25. Follow up actions include contacting traffic control company about pack down and a request to call resident ahead of night works.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
Stakeholder: 245540	28/02/2025 1:14	Email	Noise & Vibration - OOHW; Notification of work	Resident made contact because they were unaware of night works occurring and could hear the noise from the residence last into the night.	Stakeholder and Communications Manager called resident. Confirmed resident eligible for additional mitigation of respite as a sensitive receiver.	Sent email to resident summarising actions taking including registering resident to receive email updates. Sent voucher to resident. Provided copy of the letter sent and notification advising of the rescheduled night works. Resident was satisfied with resolution.	Closed
28 Floss Street Hurlstone Park	28/02/2025 9:31	Email	Noise & Vibration - OOHW	Resident filled out the customer enquiry form to query the construction disruption and why the works were permitted at night.	Stakeholder and Communications Manager attempted to call resident. Reviewed OOHWA and investigated residence address in proximity to the works. Referred to noise monitoring data.	Email sent to provide details explaining these works could not be completed during the day, noise mitigation measures in place and our contact details. Advised that day work was not approved by Council due to the pedestrian foot traffic and to prevent disruption to the bus and bus stop. Confirmed that notifications had been provided on 30 Jan and 21 Feb and the property was not identified for respite on Thursday 27 and Friday 28 February.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



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6 Warburton Street Marrickville	26/02/2025 11:55	Email	Noise & Vibration - OOHV; Respite & AA - Respite	Resident contacted other contractor regarding night works from the past month and most recently the night prior and enquired about receiving respite due to the noise they could hear from their household at 10.25pm.	Stakeholder and Communications Manager called resident to gather more details on the nights of work and the work activities. Reviewed Illawarra Road work schedule, approved out of hours and latest community notification. Liaised with site engineer to determine noise experienced by resident. Also visited location of work.	Close out email sent advising resident that previous night's work included emergency works on behalf of a utility company, Telstra, to install NBN and power cables into pipes on one side of the overbridge. Confirmed with resident that notifications sent on 22 January explaining continuation of night works from January into February, and subsequent communications on 4 and 17 February on the progress of the night work. Site supervisors reminded of community expectations on reducing and limiting noise as much as possible.	Closed
3/15 HURLSTONE AV HURLSTONE PARK, 3/15 Hurlstone Avenue Hurlstone Park	13/02/2025 9:32	Email	Flora & Fauna; Restoration	Resident contacted another contractor due to previous complaint about council gardens. Resident request that materials and equipment be moved from Melford Street near Canberra Street due to concerns for protecting the garden.	Stakeholder and Communications Manager attempted to call resident. No response. Raised actions with site team who arranged for removal and restoration of area as well as liaising with hire company to recover equipment.	Email sent to resident advising of the actions taken, what we are doing to ensure our site team is storing materials in appropriate areas and that the area has now been cleared. Suspected damage of the drain to be investigated by previous contractor. Environmental inspection occurred on 13 February 2025.	Closed
Stakeholder: 257972	24/01/2025 16:22	Email	Noise & Vibration - Standard hours	Resident works from home and is impacted by works at Canterbury overbridge and is seeking redress.	Reviewed residential address. Reviewed approved OOHWA and resident not eligible for respite.	Responded to resident detailing reason for works during standard construction hours and work activities planned for this week. Provided information on planned additional mitigation offers of respite for night works and confirmed we would contact resident if offers are to be made. Signed resident up to receive email notifications.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
C608/359 Illawarra Road Marrickville	22/01/2025 7:52	Email	Noise & Vibration - OOHV; Respite & AA - Respite	Resident impacted by noise that occurred at 10.44pm. Requested compensation for the trouble.	Responded to resident to inform them of additional mitigation process and advised noise modelling showed resident not eligible for respite for this work.	Martinus reviewed results of noise monitoring carried out on night of complaint and found it to be compliant and within predicted levels. Environment inspection of night works occurred the following night, 22 January and no additional mitigation measures were applicable. Works were notified on 19 December.	Closed
1 Arthur Street Marrickville	21/01/2025 13:24	Phone call - 1800 Info Line	Noise & Vibration - OOHV; Respite & AA - Respite	Resident impacted by night works that occurred at 10pm and 2am. Requested respite for future works.	Stakeholder and Communications Manager called resident to listen to their experience. Resident moved into the area in November 2024 and can hear ARTC freight trains. Explained process for out of hours work approval, notifications sent to inform residents about works occurring and confirmed Martinus were working on nights noise was heard and we would be responding to the complaint	Added resident's email address into the Sydney Metro database to receive notifications. Resident acknowledged works needed to take place at night and works were completed within approved hours. Stakeholder and Communications Manager emailed resident the summarising additional mitigations in place.	Closed
10 Dudley Street Marrickville	15/01/2025 9:15	Email - Community Inbox	Consultation - OOHV; Noise & Vibration - OOHV	Resident wrote to communicate they were unaware of night works occurring and could hear the noise from their residence.	Reviewed OOHVA and work activities taken place. Stakeholder and Communications Manager reviewed video and informed site team of complaint.	Added residents email address into the Sydney Metro database to receive notifications. Responded to resident with a summary of communications and a description of the work activities and explaining why night work was required. Resident received appropriate notification via Dec-Jan update	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
4/20-22 Station Street Marrickville	14/01/2025 0:55	Email - Community Inbox	Noise & Vibration - OOHV; Respite & AA - Alternative Accommodation; Respite & AA - Respite	Resident impacted by night works at Illawarra Road between 8pm and 12.30am.	Stakeholder and Communications Manager raised the complaint with project engineer who reviewed night work report and noise monitoring results and images provided by site supervisor. Discussed whether any other noise mitigations could be used for the remaining night shifts. Stakeholder and Communications Manager reviewed video taken by resident.	Stakeholder and Engagement Manager called stakeholder to hear further details and hear from resident any suggestions on reducing impacts. Respite offers will be considered for future work impacting this residence taking into account modelled levels.	Closed
301/2-8 Arthur Street Marrickville	11/01/2025 19:16	Email - Community Inbox	Consultation - Respite; Respite & AA - Respite	Resident responded to a night work reminder email to complain about the notice for noisy work and no offer of respite.	Reviewed OOHWA 12 and the approved work activities and mitigation measures. Resident escalated complaint to Sydney Metro who will also be responding with information about additional mitigation measures.	Stakeholder and Engagement Manager responded to resident providing the notification dates of 19 December and 22 November 2024. Provided information relating to residents building.	Closed
27 Hurlstone Avenue Hurlstone Park, 27 Hurlstone Avenue Hurlstone Park	9/01/2025 14:21	Email - Community Inbox	Property - Damage/prevention; Water & soil management	Issues with water coming into the residents' garage, believed it was to do with Martinus work, however determined that it is not related to Martinus scope of work.	Project Manager was informed. Supervisor attended site to investigate the issue. Client was informed. Construction team attended site along with enviro manager the next morning and conducted site walk. Determined that the issue was not related to Martinus piling work. Review underway with Sydney Metro as to whether issue may be cumulative impact from prior contractor work.	Resident was informed of outcome of initial investigation. Resident will be updated as further investigation progresses. Martinus considering possible mitigation options. Mid March SM and Contractor inspected the rail corridor adjacent to the garage. Confirmation was received that the area has now been regraded to slope away from the garage wall as much as the local topography allows which should direct water runoff away from property. Resident was happy with this result and thanked SM for the update.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
Stakeholder: 189779	30/12/2024 11:21	Uncategorised Email	Noise & Vibration - OOHV	Complaint due to night work at Canterbury Road during the holiday period	Informed the construction team of complaint to ensure that mitigation measures were in place	emailed the resident to acknowledge complaint, provide information about the work, and future work schedule along with contact details of our project team.	Closed
608/11 Charles Street Canterbury	1/01/2025 18:45	Email - Community Inbox	Noise & Vibration - OOHV	Concerns with the use of a reversing beeper that has been waking her up throughout the night work and can hear it again tonight.	Contacted the construction team and spoke to them about the use of the beeper. It is required for safety and is being used to unload materials. Will try to ensure that it is used earlier in the night.	Called the resident and informed them that the beeper is required due to safety, however, will investigate if there is other options in the future. Also said that it will be used in the early part of the evening to unload materials.	Closed
219/2d Charles Street Canterbury	31/12/2024 12:37	Email - Community Inbox	Noise & Vibration - OOHV	Noise complaint due to night work at Canterbury Road during the holiday period	Informed the construction team to ensure mitigation measures are in place for future night work	Emailed the resident back with acknowledgement of the complaint, information about the work, future night work planned.	Closed
420/2d Charles Street Canterbury	28/12/2024 7:49	Email - Community Inbox	Noise & Vibration - OOHV	Complaint about noise during night work at Canterbury Road during the holiday period	Informed the construction team to ensure that mitigation measures are in place for future night work	Emailed resident back with acknowledgement of the complaint, information about the night work schedule and details of the mitigation measures in place.	Closed
Canterbury	26/12/2024 15:56	Email - Community Inbox	Noise & Vibration - OOHV; Respite & AA - Alternative Accommodation	Complaint about work at night and request for offer or AA / compensation during work at Canterbury Road over the holiday period.	Informed the construction team of the complaint to ensure mitigation measures are in place for future night work.	Emailed the resident back with the information about the approved work and eligibility of AA offers and that we would assess further work and be in touch with respite offers if required in the future.	Closed
72/10-12 Broughton Street Canterbury	6/01/2025 12:32	Email - Community Inbox	Air Quality; Noise & Vibration - OOHV	Complaint about night work noise from workers and dust from work during Christmas period work.	Informed construction team about the nature of the complaint to ensure that mitigation measures are in place for future work	Called the resident (no answer), responded to email with acknowledgement of complaint and corrective actions.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



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Broughton Street Canterbury	26/12/2024 22:20	Phone call - TfNSW info line	Noise & Vibration - OOHW; Notification of work	Complaint received from resident near laydown area Canterbury station. Issue was noise after hours and he wasn't aware of the work occurring at night. Resident was mainly concerned about deliveries near his property. He went outside and spoke to a site supervisor who informed him that approved work is occurring at night and to call the community line.	Called the site team to inform them there had been a complaint about noise from deliveries and that it was important they continued to reduce noise where possible when in the approved laydown area.	Team called the resident back immediately and spoke to him about the work occurring that night and upcoming work planned for the coming days between 26-28 Dec. Added additional contact information for resident to receive additional information in future.	Closed
901/10b Charles Street Canterbury	8/12/2024 20:24	Phone call - 1800 Info Line	Respite & AA - Alternative Accommodation; Respite & AA - Respite	Resident called the contact centre upset that construction works were occurring all day Sunday and no respite or alternative accommodation was offered. Resident is seeking additional mitigation for future works during the weekend.	Left message on residents phone on Sunday evening. Stakeholder and Communications Manager contacted stakeholder again on Monday morning and left message. Resident contacted back explained individual circumstances. Acknowledge and understood that no additional mitigation was offered this weekend due to the type of work activities however future works will be taking place.	Resident request to receive additional mitigation for future works to be considered alongside the next OOH works application.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



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196 South Terrace Bankstown	5/12/2024 23:35	Phone call - 1800 Info Line	Air Quality; Visual amenity	Resident made contact to seek changes to the construction lights on Stacey St, Bankstown overbridge and express concern over dust going onto property from construction works above.	Stakeholder and Communications Manager contact site engineer to ask that lights are directed away from resident and to seek an update on the excavation and site conditions. Site engineer angled the lights to attempt to reduce light away from the household direction and noted excavation has stopped on the main section of the bridge and will be moving down to the lower sections with lower elevation so their will be less dust impacts.	Stakeholder and Communications Manager called resident back to relay actions taken including lights being directed further downwards. Stakeholder and Communications Manager relayed property address and suggestion about additional dust suppression to site engineer. Additional mitigation investigated and a trailer mounted mister will be used going forwards.	Closed
57 Haldon Street Lakemba	3/12/2024 8:52	Phone call - 1800 Info Line	Socio-economic - Business impacts/benefits; Traffic, Transport & Parking	Business owner concerned about reduction in customers during Lakemba Station overbridge night works due to perceived lack of parking and fencing on footpaths.	Stakeholder and Communications Manager contacted site engineer to discuss site set up arrangements. Confirmed works are not in front of the business and are on the opposite side of the overbridge. Contacted business owner back to inform him of the works notified, including removal of parking spaces, and that we will be returning to the same location. Business owner explained previous frustrations with Council works.	Site engineer visited the business at night on 3 December to discuss any changes we can make to ensure business is visible. Stakeholder and Communications Manager sent email reminder to businesses on Haldon Street about night works at Lakemba Station.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



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Stakeholder: 256472	25/11/2024 21:50	Phone call - 1800 Info Line	Consultation - OOHW	Resident contacted call centre as they did not receive the notification that night works were occurring. Overbridge work was notified by three communications to resident's address on 11 and 15 November.	Martinus Stakeholder and Communications Manager confirmed that notification and respite offer letter was delivered to the resident's property. SCM queried and confirmed the location of the resident's letterbox as the property has two residences and resident is a tenant.	Martinus Stakeholder and Communications Manager contacted the resident in the morning and explained how we have attempted to contact resident, and the offer of respite provided. SCM informed resident of the purpose of the night works. Resident accepted original respite offer.	Closed
2 Hollands Avenue Marrickville	2/11/2024 16:20	Phone call - 1800 Info Line	Noise & Vibration - Standard hours	Resident expressed annoyance at the noise from a generator for the site worker caravan amenities during Livingstone Road overbridge works on Saturday during standard construction hours.	Stakeholder and Communications Manager received a complaint from JHLOR contractor. Stakeholder and Communications Manager contacted the site engineer to raise the resident concern about hearing the generator throughout the day. Noted that the generator was fenced off and whether we could do anything to reduce the noise. Discussed why we needed to use the generator for the workers amenities and proposed a solution with the resident to reduce the use of the generator. Informed resident that we would be returning to the overbridge location for future works. Resident queried how long the compound would be there. Responded until around June 2025 during the 12 month shutdown.	Resident happy with proposed outcome of turning generator off whenever not in use and for noise blankets to be installed in front of the caravan wall where the generator is mounted to further reduce noise.	Closed

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
2b Charles Street Canterbury	13/06/2024 12:12	Phone call - 1800 Info Line	Noise & Vibration - OOHW	Resident at Canterbury who lives on ground floor of neighbouring apartment block contacted the 1800 information line to complain about the noise experienced across the previous night, which caused sleep to be disturbed. Resident requested consideration of noise mitigation to minimise noise for future work.	Stakeholder and Communications Manager called the resident to acknowledge the complaint and seek further information. The resident explained they are sensitive to the sound of a saw cutter and could hear the noise around 10pm and 11pm. The resident was happy he had received a response and did not seek additional information. Stakeholder and Communications Manager liaised with the Environment and Sustainability Manager to check noise monitoring results. It was also confirmed that noise mats were in place at the work location and were relocated as work progressed to be as close to the work area as practical.	Initial noise monitoring results showed that the noise from the work were below predicted levels. More detailed noise assessment results have been requested to guide respite considerations at this property for any similar work in future.	Closed

CONSTRUCTION MONITORING REPORT

[OCTOBER 2024 to APRIL 2025]

Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090

Rev1



Address	Date/Time	How was the complaint received?	Topics raised by the Stakeholder	Nature of complaint	Investigation	Close out	Complaint Status
115 Duntroon Street Hurlstone Park	12/06/2024 10:12	Email	Noise & Vibration - OOHV; Notification of work; Worker behaviour	Hurlstone Park resident replied to an email reminder of night works occurring at Hurlstone Park to express frustration at night works appearing to not be well planned by contractors. Queried the purpose of noisy work occurring at night specifically cutting into concrete with the appearance of little noise mitigation. Expressed frustration at traffic control banging and crashing road signs and having loud conversations in front of residence.	Senior site supervisor provided images of the site set up including noise blankets installed around the works. Stakeholder and Communications Manager called the stakeholder to acknowledge the complaint and provide details. Stakeholder is frustrated with four years of work at the station. Work was notified to occur between 8pm and 5am and permits were received to occupy the footpath between 8.30pm - 5am.	Senior site supervisor has informed the traffic control team to take extra care when removing traffic signs and allow for additional time to pack up if needed to prevent banging and clanging. Night shift team to continue to use noise blankets as specified in the approved OOHWA. Email sent to stakeholder to summarise the information discussed on the phone. Noise monitoring to be reviewed in line with model.	Closed
57 Haldon Street Lakemba	6/05/2024 20:10	Approached team member on site	Socio-economic - Business impacts/benefits	Cafe manager adjacent to Haldon St bridge utility investigation work approached the senior site supervisor to complain about works commencing during business operation hours. Believed foot traffic was impacted, and business should be compensated.	Senior site supervisor explained work duration and locations. Explained that the TGS (Traffic Guidance Scheme) is designed to manage pedestrian access to Haldon Street and continue past the work site with minimal impact. Also explained an ROL (Road Occupancy Licence) was issued by the local council, which provides approval from Council to undertake these works under these conditions. The 24hr community hotline number was provided.	Traffic control will continue to direct pedestrians around the work site in accordance with the TGS. The site team are minimising any impacts associated with the approved utility investigation works. No further correspondence from the stakeholder has been received.	Closed

4 Construction Environmental Management Plan and Subplans- Amendments

The Construction Environmental Management Plan and associated Subplans were approved by the Department of Planning, Housing and Infrastructure (DPHI) on the 10th of October 2024 (Appendix B).

The following table captures the changes and amendments made to the CEMP and Subplans throughout the Construction Period (October 2024 – April 2025), that have been reviewed and accepted by Sydney Metro and the Environmental Representative for the project.

Table 5: CEMP and Subplans - Amendments throughout Construction

Amendment No.	Management Plan	Description
1	CEMP	Table 7 – Reference to the NVMP has been updated
2	CEMP	Appendix A – Compliance table – error repair to A35 and A37 references
3	CEMP	Appendix A – D1, E31, E34, E46, E53, TC6 wording amended away from Martinus responsibility due to being an operational aspect.
4	CEMP	Section 3.3 – Section added to address environmental 'life cycle perspective' of products and general considerations around product procurement and disposal.
5	CEMP	Environmental Control Maps – Overall updates to reflect site conditions
6	Noise and Vibration Management Subplan (NVMP)	Appendix A – reference errors amended to several conditions throughout the table.
7	Heritage Management Subplan (HMP)	Section 5.1.3 – formatting error amended.
8	HMP	Appendix A – NAH19 and AH1 reference amended.
9	HMP	Appendix A – NAH21 and NAH22 missing, now added.
10	HMP	Header – error stating CEMP on pg. 61 amended to state HMP
11	VAMP	Table 7 – wording relating to CoA A20, Column 5 (<i>Compliance</i>) has been amended to reflect considerations around a <i>Change Notice</i> issued to Martinus from Sydney Metro regarding safety hazards around boundary screening being implemented on temporary fencing around worksites with high pedestrian thoroughfare and limited separation around public vehicles.

CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



APPENDICES

APPENDIX A – Vibration Monitoring Reports

SYDNEY METRO SOUTHWEST METRO CONVERSION AND STATION WORKS (SWM4) PROJECT

Heritage Structures Vibration Monitoring Report

10 February 2025

Martinus

TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1)

Document details

Detail	Reference
Doc reference:	TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1)
Prepared for:	Martinus
Address:	U3B, 33-35 Belmont Street, Sutherland New South Wales 2232 Australia
Attention:	Phillip Matevski

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
10.02.2025	First Issue	0	1	R. Zhafranata	M. Tabacchi	M. Tabacchi
R:\AssocSydProjects\TN751-TN800\TN794 mt SWM4\1 Docs\04 Vibration Monitoring\TN794-01-04F03 Heritage Structures Vibration Monitoring Report (r1).docx						

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The work presented in this document was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian/New Zealand Standard AS/NZS ISO 9001.

This document is issued subject to review and authorisation by the suitably qualified and experienced person named in the last column above. If no name appears, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

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The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

External cladding disclaimer: No claims are made and no liability is accepted in respect of any external wall and/or roof systems (eg facade / cladding materials, insulation etc) that are: (a) not compliant with or do not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes; or (b) installed, applied, specified or utilised in such a manner that is not compliant with or does not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes.

Contents

1	Introduction	5
2	Cosmetic damage vibration objectives	5
3	Vibration monitoring methodology	6
4	Monitoring locations	6
5	Results summary	6
6	Conclusion	8
APPENDIX A	Glossary of terminology	9
APPENDIX B	Monitoring details, results, locations	10
B.1	Canterbury Station piling works vibration monitoring	11
B.2	Dulwich Hill Station baseline vibration monitoring	13
B.3	242 Wardell Rd baseline vibration monitoring	15
B.4	Hurlstone Park baseline vibration monitoring	17
B.5	Wiley Park Station vibration monitoring	19
B.6	Wiley Park Station vibration monitoring	21
B.7	Belmore Station piling works vibration monitoring	23

List of tables

Table 4-1: Monitoring locations	6
Table 5-1: Summary results	6

1 Introduction

Renzo Tonin & Associates was engaged to undertake vibration monitoring during vibration intensive works associated with the SWM4 Project that are within proximity of heritage structures.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

Appendix A contains a glossary of acoustic terms used in this report.

2 Cosmetic damage vibration objectives

In accordance with Section 6.7 of the Noise and Vibration Management Plan¹ for the Project, the relevant cosmetic damage screening level per receiver type are shown below:

- Structurally sound heritage structures (reinforced or light framed structures): 25 mm/s ppv
- Structurally sound heritage structures (unreinforced or light framed structures): 7.5 mm/s ppv

¹ Noise and Vibration Management Plan Errant and Hostile Vehicle Mitigation Treatments for the Southwest Metro Project, SMC-22-0722, MR-EHVMT-EE-02, Rev A, 29 April 2024

3 Vibration monitoring methodology

The vibration monitor was installed as close as practicable to the assessed heritage structures. Monitoring location surfaces were brushed to displace any dirt and the accelerometers were attached to the surface using double sided adhesive tape. In accordance with CoA E30, a heritage specialist was consulted to review the vibration monitoring methodology, which was approved. The accelerometers used in the measurements have current calibration checks and were deemed suitable for the measurements.

The details of the instrumentation being used for each measurement is defined in APPENDIX B.

4 Monitoring locations

The vibration monitoring was conducted at the locations presented in Table 4-1. Figures depicting the monitoring locations have been prepared for each measurement in APPENDIX B.

Table 4-1: Monitoring locations

ID	Date	Distance to works	Plant	Assessment point	Location
M1	26.12.2024 – 31.12.2024	15-25m	Bored piling rig	Canterbury Station	As shown in Appendix B.1
M2	06.01.2025	N/A	Baseline vibration monitoring	Dulwich Hill Station	As shown in Appendix B.2
M3	06.01.2025	N/A	Baseline vibration monitoring	242 Wardell Road, Dulwich Hill	As shown in Appendix B.3
M4	07.01.2025	N/A	Baseline vibration monitoring	Hurlstone Park Station	As shown in Appendix B.4
M5	16.01.2025	4m	Excavator with hammer attachment	Wiley Park Station	As shown in Appendix B.5
M6	21.01.2025	2m	Bored piling rig	Wiley Park Station	As shown in Appendix B.6
M7	28.01.2025	12m	Bored piling rig	Belmore Station	As shown in Appendix B.7

5 Results summary

The results of the vibration monitoring are summarised in Table 5-1. The vibration monitoring details and results from each location are shown in APPENDIX B.

Table 5-1: Summary results

ID	Assessment point	Monitoring results	Monitoring Outcome	Comment
M1	Canterbury Station	See Appendix B.1 for details	All piling activities produce vibration levels below the screening criterion of 7.5 mm/s PPV.	No further action required

ID	Assessment point	Monitoring results	Monitoring Outcome	Comment
M2	Dulwich Hill Station	See Appendix B.2 for details	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action required
M3	242 Wardell Road, Dulwich Hill	See Appendix B.3 for details	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action required
M4	Hurlstone Park Station	See Appendix B.4 for details	When there are no construction activities, all measured activities were below the screening criterion of 7.5 mm/s PPV.	No further action required
M5	Wiley Park Station	See Appendix B.5 for details	At 4m away, the rockhammering works produced vibration levels below the screening criterion of 7.5 mm/s PPV.	No further action required
M6	Wiley Park Station	See Appendix B.6 for details	At 2m away, the piling works produced vibration levels below the screening criterion of 7.5 mm/s.	No further action required
M7	Belmore Station	See Appendix B.7 for details	At 12m away, the piling works produced vibration levels below the screening criterion of 7.5 mm/s.	No further action required

6 Conclusion

Renzo Tonin & Associates was engaged to undertake vibration monitoring to protect heritage assets from potential vibration impacts.

The vibration monitoring confirms compliance with the NVMP vibration limits.

APPENDIX A Glossary of terminology



The following is a brief description of the technical terms used to describe vibration to assist in understanding the technical issues presented.

Peak particle velocity (ppv)	The maximum instantaneous velocity of a particle at a point during a given time interval.
Vibration	A mechanical phenomenon whereby oscillations occur about an equilibrium point; a periodic back-and-forth motion of an elastic body or medium, commonly resulting when almost any physical system is displaced from its equilibrium condition.

APPENDIX B

Monitoring details, results, locations

B.1 Canterbury Station piling works vibration monitoring

Measurement ID:	M1	
Assessment point:	Canterbury Station	
 	Date:	26.12.2024 – 31.12.2024
	Measurement type:	Unattended vibration monitoring
	Meas. location:	Canterbury Station
	Measured distance:	15-25m from piling works
	Geology:	Tiles
	Plant	Bored piling rig
	Instrumentation:	Sigicom C22 (SN: 116242)
	Notes	Unattended vibration monitor installed on Canterbury Station concourse structure. The monitoring point was the closest location relative to the piling works and the most secure location for the vibration monitor to be left unattended on site for the whole monitoring duration.

Monitoring location

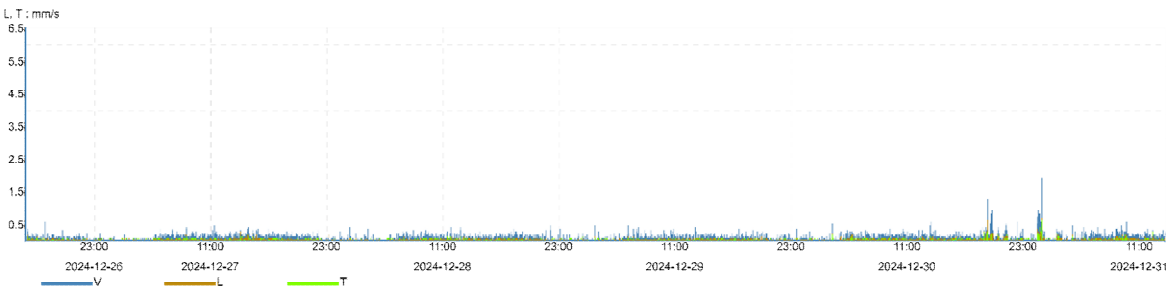


Comments
Vibration monitoring was conducted during the piling works between 26 th December 2024 and 31 st December 2024. Based on the results shown below, the works produced vibration levels below the screening criterion of 7.5 mm/s.


Appendix B.1: vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	ppv (mm/s)
M1									
26.12.2024 – 31.12.2024 02:42pm – 02:38pm	15-25m	Bored piling rig	0.3	2.50	0.10	0.95	0.10	0.70	7.5 mm/s

Figure B.1: 26.12.2024 – 31.12.2024 unattended vibration monitoring results (all axes)



B.2 Dulwich Hill Station baseline vibration monitoring

Measurement ID:	M2	
Assessment point:	Dulwich Hill Station	
	Date:	19.12.2024
	Measurement type:	Baseline vibration monitoring
	Meas. location:	Dulwich Hill Station
	Measured distance:	N/A
	Geology:	Concrete slab
	Plant	Car passbys, bus passbys, truck passbys
	Instrumentation:	Sigicom C22 (SN: 116242)
	Notes	Monitor was installed on Dulwich Hill concourse structure.

Monitoring location




Comments

Baseline vibration monitoring was conducted when there were no construction activities occurring on 6th January 2025. All measured vibration levels were below 7.5 mm/s when there were no construction activities occurring.

Appendix B.2: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	ppv (mm/s)
M2									
06.01.2025 01:30pm – 02:30pm	N/A	Baseline vibration monitoring; car passbys, bus passbys, truck passbys	0.45	0.75	0.45	1.80	0.35	1.30	7.5 mm/s

B.3 242 Wardell Rd baseline vibration monitoring

Measurement ID:	M3
Assessment point:	242 Wardell Road, Dulwich Hill
<div><div></div><div><div>Date:</div><div>06.01.2025</div></div><div><div>Measurement type:</div><div>Baseline vibration monitoring</div></div><div><div>Meas. location:</div><div>242 Wardell Rd, Dulwich Hill</div></div><div><div>Measured distance:</div><div>N/A</div></div><div><div>Geology:</div><div>Concrete slab</div></div><div><div>Plant</div><div>Car passbys, bus passbys, truck passbys</div></div><div><div>Instrumentation:</div><div>Sigicom C22 (SN: 116242)</div></div><div><div>Notes</div><div>Monitor was installed on 242 Wardell Rd residential receiver.</div></div></div>	

Monitoring location




Comments

Baseline vibration monitoring was conducted when there were no construction activities occurring on 6th January 2025. All measured vibration levels were below 7.5 mm/s when there were no construction activities occurring.

Appendix B.3: Baseline vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	ppv (mm/s)
M3									
06.01.2025 02:35pm – 03:00pm	N/A	Baseline vibration monitoring; car passbys, bus passbys, truck passbys	0.34	0.57	0.54	0.67	0.32	0.73	7.5 mm/s

B.4 Hurlstone Park baseline vibration monitoring

Measurement ID:	M4		
Assessment point:	Hurlstone Park Station		
	Date:	07.01.2025	
	Measurement type:	Baseline vibration monitoring	
	Meas. location:	Hurlstone Park Station	
	Measured distance:	N/A	
	Geology:	Concrete slab	
	Plant	Car passbys, bus passbys, truck passbys	
	Instrumentation:	Sigicom C22 (SN: 116242)	
	Notes	Monitor was installed on Hurlstone Park Concourse structure.	

Monitoring location




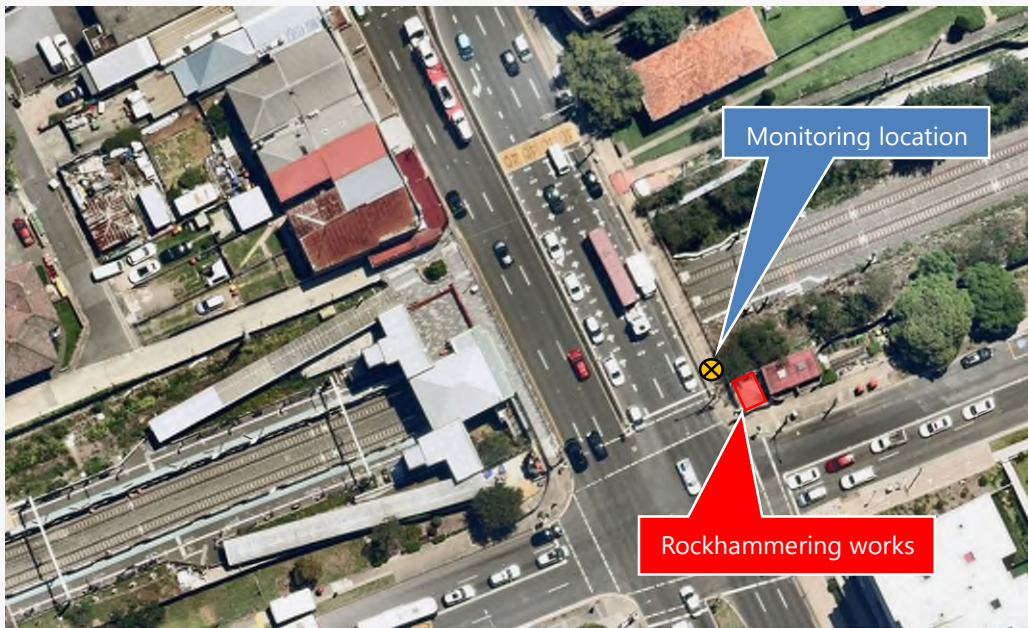
Comments

Baseline vibration monitoring was conducted when there were no construction activities occurring on 7th January 2025. All measured vibration levels were below 7.5 mm/s when there were no construction activities occurring.

Appendix B.4: Baseline vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	ppv (mm/s)
M4									
07.02.2025 11:00am – 12:00pm	N/A	Baseline vibration monitoring; car passbys, bus passbys, truck passbys	0.45	0.76	0.54	0.89	0.35	0.65	7.5 mm/s



B.5 Wiley Park Station vibration monitoring

Measurement ID:	M5	
Assessment point:	Wiley Park Station	
	Date:	16.01.2025
	Measurement type:	Attended vibration monitoring
	Meas. location:	Wiley Park Station
	Measured distance:	4m from rockhammering works
	Geology:	Concrete
	Plant	Excavator with hammer attachment
	Instrumentation:	Sigicom C22 (SN: 116242)
Notes		Vibration monitor installed on the King Georges Road overbridge, approximately 4m away from the rockhammering works.
Monitoring location		
		
Comments		
Vibration monitoring was conducted during the rockhammering works on 16 th January 2025. Based on the results shown below, the works produced vibration levels below the screening criterion of 7.5 mm/s. Therefore, the vibration monitoring confirms compliance with the NVMP vibration limits.		

Appendix B.5: Vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	
M5									
16.01.2025 10:20pm – 11:20pm	4m	Excavator with hammer attachment	1.55	2.33	1.65	2.75	1.40	1.95	7.5 mm/s



B.6 Wiley Park Station vibration monitoring

Measurement ID:	M6
Assessment point:	Wiley Park Station
	Date: 21.01.2025
	Measurement type: Attended vibration monitoring
	Meas. location: Wiley Park Station
	Measured distance: 2m from piling works
	Geology: Concrete
	Plant: Excavator with hammer attachment
	Instrumentation: Sigicom C22 (SN: 116242)
Notes	Vibration monitor installed on the King Georges Road overbridge, approximately 2m away from the piling works.
Monitoring location	
	
Comments	
Vibration monitoring was conducted during the piling works on 21 st January 2025. Based on the results shown below, the works produced vibration levels below the screening criterion of 7.5 mm/s. Therefore, the vibration monitoring confirms compliance with the NVMP vibration limits.	

Appendix B.6: Vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion ppv (mm/s)
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	
M6									
21.01.2025 01:45am – 02:15am	2m	Bored piling rig	1.40	2.95	0.95	2.20	0.90	1.55	7.5 mm/s

B.7 Belmore Station piling works vibration monitoring

Measurement ID:	M7																
Assessment point:	Belmore Station																
 	<table><tr><td>Date:</td><td>28.01.2025</td></tr><tr><td>Measurement type:</td><td>Attended vibration monitoring</td></tr><tr><td>Meas. location:</td><td>Belmore Station</td></tr><tr><td>Measured distance:</td><td>12m from piling works</td></tr><tr><td>Geology:</td><td>Concrete</td></tr><tr><td>Plant</td><td>Bored piling rig</td></tr><tr><td>Instrumentation:</td><td>Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)</td></tr><tr><td>Notes</td><td>Attended vibration monitoring was undertaken on Belmore Station building structure. It is noted that the measured piling location was the closest pile location to the station structure.</td></tr></table>	Date:	28.01.2025	Measurement type:	Attended vibration monitoring	Meas. location:	Belmore Station	Measured distance:	12m from piling works	Geology:	Concrete	Plant	Bored piling rig	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)	Notes	Attended vibration monitoring was undertaken on Belmore Station building structure. It is noted that the measured piling location was the closest pile location to the station structure.
	Date:	28.01.2025															
Measurement type:	Attended vibration monitoring																
Meas. location:	Belmore Station																
Measured distance:	12m from piling works																
Geology:	Concrete																
Plant	Bored piling rig																
Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)																
Notes	Attended vibration monitoring was undertaken on Belmore Station building structure. It is noted that the measured piling location was the closest pile location to the station structure.																

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 28th January 2025. Based on the results shown below, the works produced vibration levels below the screening criterion of 7.5 mm/s. Therefore, the vibration monitoring confirms compliance with the NVMP vibration limits.

Appendix B.7: vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criterion
			X-axis		Y-axis		Z-axis		
			95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	95 th percentile	Maximum ppv	
M7									
28.01.2025 10:12pm – 10:42pm	12m	Bored piling rig	0.32	0.86	1.18	1.32	0.74	1.20	7.5 mm/s

SYDNEY METRO SOUTHWEST METRO CONVERSION AND STATION WORKS (SWM4) PROJECT

Sydney Water Assets Vibration Monitoring Report

18 March 2025

Martinus

TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5)

Document details

Detail	Reference
Doc reference:	TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5)
Prepared for:	Martinus
Address:	U3B, 33-35 Belmont Street, Sutherland New South Wales 2232 Australia
Attention:	Phillip Matevski

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
10.01.2025	First Issue	0	1	A. Hannelly	R. Zhafranata	M. Tabacchi
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25.02.2025	Updated to include M7	-	3	A. Hannelly	R. Zhafranata	R. Zhafranata
03.03.2025	Updated to include M8	-	4	A. Hannelly	R. Zhafranata	R. Zhafranata
18.03.2025	Updated to include M9-M14	-	5	A. Hannelly	R. Zhafranata	R. Zhafranata
R:\AssocSydProjects\TN751-TN800\TN794 mt SWM4\1 Docs\04 Vibration Monitoring\TN794-01-04F02 Sydney Water Asset Vibration Monitoring Report (r5).docx						

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We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

External cladding disclaimer: No claims are made and no liability is accepted in respect of any external wall and/or roof systems (eg facade / cladding materials, insulation etc) that are: (a) not compliant with or do not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes; or (b) installed, applied, specified or utilised in such a manner that is not compliant with or does not conform to any relevant non-acoustic legislation, regulation, standard, instructions or Building Codes.

Contents

1	Introduction	5
2	Sydney Water vibration limits	5
3	Vibration monitoring methodology	5
4	Monitoring locations	6
5	Results summary	7
6	Conclusion	10
APPENDIX A	Glossary of terminology	11
APPENDIX B	Monitoring details, results, locations	12
B.1	Livingstone Rd Overbridge P01 piling works vibration monitoring	13
B.2	Livingstone Rd Overbridge P03 piling works vibration monitoring	16
B.3	Melford Street Overbridge P01 piling works vibration monitoring	19
B.4	Melford Street Overbridge P02 piling works vibration monitoring	22
B.5	Floss Street overbridge piling works vibration monitoring	25
B.6	Floss Street overbridge piling works vibration monitoring	28
B.7	Wardell Road overbridge piling works vibration monitoring	31
B.8	Wardell Road overbridge piling works vibration monitoring	34
B.9	Wardell Road overbridge piling works vibration monitoring	37
B.10	Wardell Road overbridge piling works vibration monitoring	40
B.11	Wardell Road overbridge piling works vibration monitoring	43
B.12	Wardell Road overbridge piling works vibration monitoring	46

List of tables

Table 4-1: Monitoring locations	6
Table 5-1: Summary results	8

1 Introduction

Renzo Tonin & Associates was engaged to undertake vibration monitoring during vibration intensive works associated with the SWM4 Project that are within proximity of the Sydney Water assets.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001.

Appendix A contains a glossary of acoustic terms used in this report.

2 Sydney Water vibration limits

In accordance with Sydney Water Specialist Engineering Assessment¹, the vibration limits for Sydney Water buried assets are shown in Figure 2-1.

Figure 2-1: Sydney Water vibration limits

Asset type	Threshold values for velocity (PPV) measured on the asset in mm/s
Brittle Pipe assets – RC, VC/ EW, CICL	Maximum PPV for intermittent vibrations 10mm/s
	Maximum PPV for continuous vibrations 5mm/s
Ductile Pipe assets – SCL, DI, PVC, PE, PP, GRP	Maximum PPV for intermittent vibrations 20mm/s
	Maximum PPV for continuous vibrations 10mm/s
Masonry	3 mm/s
Unreinforced concrete	3 mm/s

For the brittle pipe assets, the following vibration limits have been applied for intermittent vibration intensive works:

- 5 mm/s PPV screening criterion
- 10 mm/s PPV stop works limits

3 Vibration monitoring methodology

The vibration monitor was installed as close as practicable to the assessed asset. Monitoring location surfaces were brushed to displace any dirt and the accelerometers were attached to the surface using double sided adhesive tape. The accelerometers used in the measurements have current calibration checks and were deemed suitable for the measurements.

The details of the instrumentation being used for each measurement is defined in APPENDIX B.

¹ Sydney Water Specialist Engineering Assessment, Doc No: D0001870, Version 1, Issue Date: 19 February 2021

4 Monitoring locations

The vibration monitoring was conducted at the locations presented in Table 4-1. Figures depicting the monitoring locations have been prepared for each measurement in APPENDIX B.

Table 4-1: Monitoring locations

ID	Date	Distance to works	Plant	Assessment point	Location
M1	15.11.2024	1-10m	Baseline vibration monitoring; pedestrian, cyclists, car passbys, truck passbys, bus passbys	Livingstone Road Overbridge: Sydney Water assets; W001/DN150 CICL, W002-A/DN250 CICL and W002-B/DN200	As shown in report TN794-01-04F01 Livingstone Rd Bridge Baseline Vibration Monitoring Report (r1)
M2	17.12.2024	2.5m	MRC 1.2t bored piling rig	Livingstone Road Overbridge: 2.5m away from piling works (in-line with W002-A/DN250 CICL and W002-B/DN200)	As shown in Appendix B.1
M3	19.12.2024	3.5m	MRC 1.2t bored piling rig	Livingstone Road Overbridge: 3.5m away from piling works (in-line with W001/DN150 CICL)	As shown in Appendix B.2
M4	07.01.2025	1-10m	Baseline vibration monitoring; pedestrian, car passby	Melford Street Overbridge: Sydney Water assets; W003 100CICL, S004-A 200PE, S004-B 200PE	As shown in Appendix B.3
M5	13.01.2025	3.5m	MRC 1.2t bored piling rig	Melford Street Overbridge: 3.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	As shown in Appendix B.3
M6	13.01.2025	2.5m	Zaxis 170W Excavator with drill attachment	Melford Street Overbridge: 2.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	As shown in Appendix B.4
M7	20.02.2025	1m	MRC 1.2t bored piling rig	Floss Street Overbridge: 1m away from piling works (in-line with W009-A OD125 PE encased in DN150 CICL).	As shown in Appendix B.5
M8	27.02.2025	3m	MRC 1.2t bored piling rig	Floss Street Overbridge: 3m away from piling works (in-line with W009-A OD125 PE encased in DN150 CICL).	As shown in Appendix B.6

ID	Date	Distance to works	Plant	Assessment point	Location
M9	06.03.2025	1m	MRC 1.2t bored piling rig	Wardell Road Overbridge: 1m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	As shown in B.7
M10	06.03.2025	1.5m & 2m	14t excavator with auger attachment	Wardell Road Overbridge: 1.5m and 2m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL). Also assessing S006-E Oviform Brick Tunnel.	As shown in B.8
M11	06.03.2025	1m	MRC 1.2t bored piling rig	Wardell Road Overbridge: 1m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	As shown in B.9
M12	07.03.2025	4m	MRC 1.2t bored piling rig	Wardell Road Overbridge: 4m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	As shown in B.10
M13	07.03.2025	5m	14t excavator with auger attachment	Wardell Road Overbridge: 5m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	As shown in B.11
M14	07.03.2025	3.5m	MRC 1.2t bored piling rig	Wardell Road Overbridge: 3.5m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	As shown in B.12

5 Results summary

The results of the vibration monitoring are summarised in Table 5-1. The vibration monitoring details and results from each location are shown in APPENDIX B.

Table 5-1: Summary results

ID	Assessment point	Monitoring results	Monitoring Outcome	Comment
M1	Livingstone Road Overbridge: Sydney Water assets; W001/DN150 CICL, W002-A/DN250 CICL and W002-B/DN200	See report TN794-01-04F01 Livingstone Rd Bridge Baseline Vibration Monitoring Report (r1)	When there are no construction activities, all measured activities were below the screening criterion of 5 mm/s PPV.	No further action required
M2	Livingstone Road Overbridge: 2.5m away from piling works (in-line with W002-A/DN250 CICL and W002-B/DN200)	See Appendix B.1 for details	At 2.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M3	Livingstone Road Overbridge: 3.5m away from piling works (in-line with W001/DN150 CICL)	See Appendix B.2 for details	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M4	Melford Street Overbridge: Sydney Water assets; W003 100CICL, S004-A 200PE, S004-B 200PE	See Appendix B.3 for details	When there are no construction activities, all measured activities were below the screening criterion of 5 mm/s PPV.	No further action required
M5	Melford Street Overbridge: 3.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	See Appendix B.3 for details	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M6	Melford Street Overbridge: 2.5m away from piling works (in-line with W003 100CICL). Also assessing S004-A 200PE, S004-B 200PE.	See Appendix B.4 for details	At 2.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M7	Floss Street Overbridge: 1m away from piling works (in-line with In line with W009-A OD125 PE encased in DN150 CICL).	See Appendix B.5 for details	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M8	Floss Street Overbridge: 3m away from piling works (in-line with In line with W009-A OD125 PE encased in DN150 CICL).	See Appendix B.6 for details	At 3m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required

ID	Assessment point	Monitoring results	Monitoring Outcome	Comment
M9	Wardell Road Overbridge: 1m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	See Appendix B.7 for details	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M10	Wardell Road Overbridge: 1.5m and 2m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL). Also assessing S006-E Oviform Brick Tunnel.	See Appendix B.8 for details	At 1.5m and 2m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M11	Wardell Road Overbridge: 1m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	See Appendix B.9 for details	At 1m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M12	Wardell Road Overbridge: 4m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	See Appendix B.10 for details	At 4m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M13	Wardell Road Overbridge: 5m away from piling works (in-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/OD219 SCL). Also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole.	See Appendix B.11 for details	At 5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required
M14	Wardell Road Overbridge: 3.5m away from piling works (in-line with W006-E DN500 CICL/OD356 SCL).	See Appendix B.12 for details	At 3.5m away, all piling activities produce vibration levels below the screening criterion of 5 mm/s PPV.	No further action required

6 Conclusion

Renzo Tonin & Associates was engaged to undertake vibration monitoring to protect the Sydney Water assets from potential vibration impacts.

The vibration monitoring confirms compliance with the Sydney Water vibration limits.

APPENDIX A


Glossary of terminology

The following is a brief description of the technical terms used to describe vibration to assist in understanding the technical issues presented.

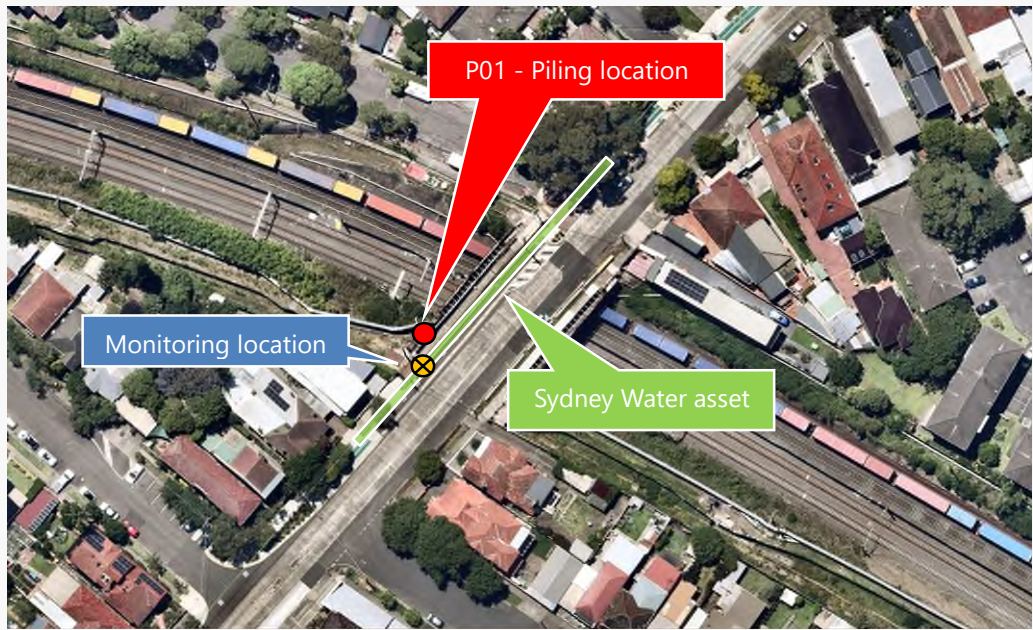
Peak particle velocity (ppv)	The maximum instantaneous velocity of a particle at a point during a given time interval.
Vibration	A mechanical phenomenon whereby oscillations occur about an equilibrium point; a periodic back-and-forth motion of an elastic body or medium, commonly resulting when almost any physical system is displaced from its equilibrium condition.

APPENDIX B **Monitoring details, results, locations**

B.1 Livingstone Rd Overbridge P01 piling works vibration monitoring

Measurement ID:	M2	
Assessment point:	In-line with W002-A/DN250 CICL and W002-B/DN200	
	Date:	17.12.2024
	Measurement type:	Vibration
	Meas. location:	In line with W002-A/DN250 CICL and W002-B/DN200
	Measured distance:	2.5m
	Geology:	Competent soil
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W002-A/DN250 CICL and W002-B/DN200 Sydney Water assets, approximately 2.5m from the works.	

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 17th December 2024. Based on the results shown below, the works produced vibration levels below the screening criterion of 5 mm/s at 2.5m away.

Appendix B.1: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration limits
			X-axis		Y-axis		Z-axis		ppv (mm/s)
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	
M2									
17.12.2024 12:21pm – 12:46pm	2.5m	MRC 1.2t Bored piling rig	5	2.20	5	2.86	4	1.51	5 mm/s 10 mm/s

Figure B.1: 17.12.2024 measured vibration levels from all P01 works (X-Axis)

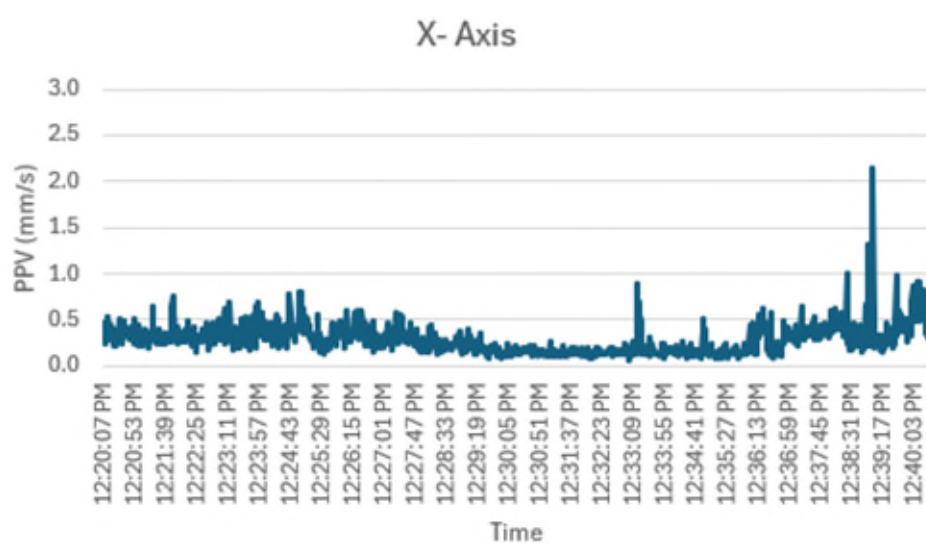


Figure B.1: 17.12.2024 measured vibration levels from all P01 works (Y-Axis)

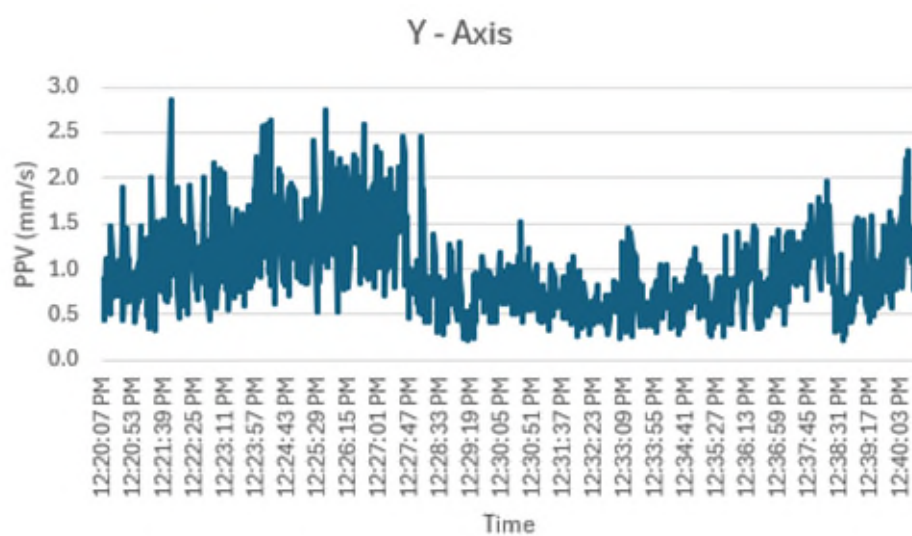
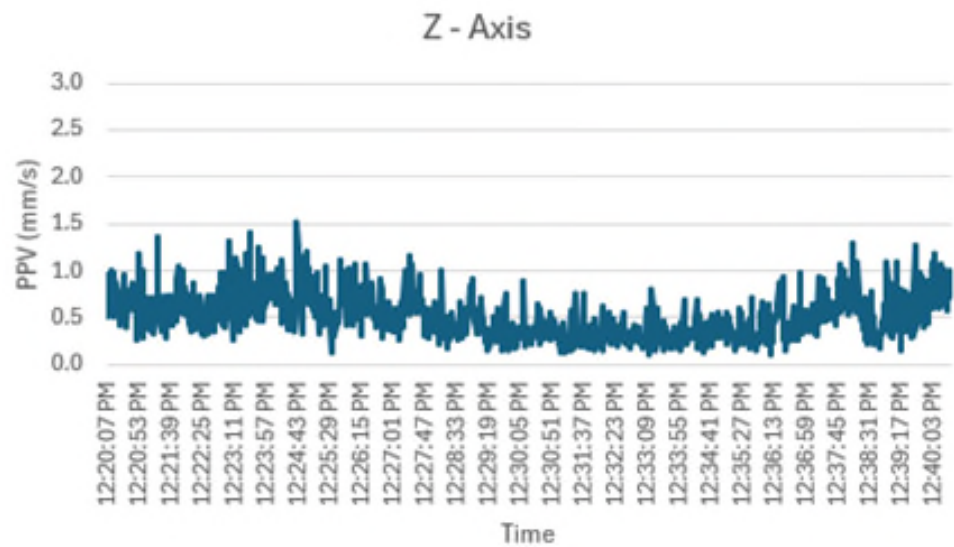



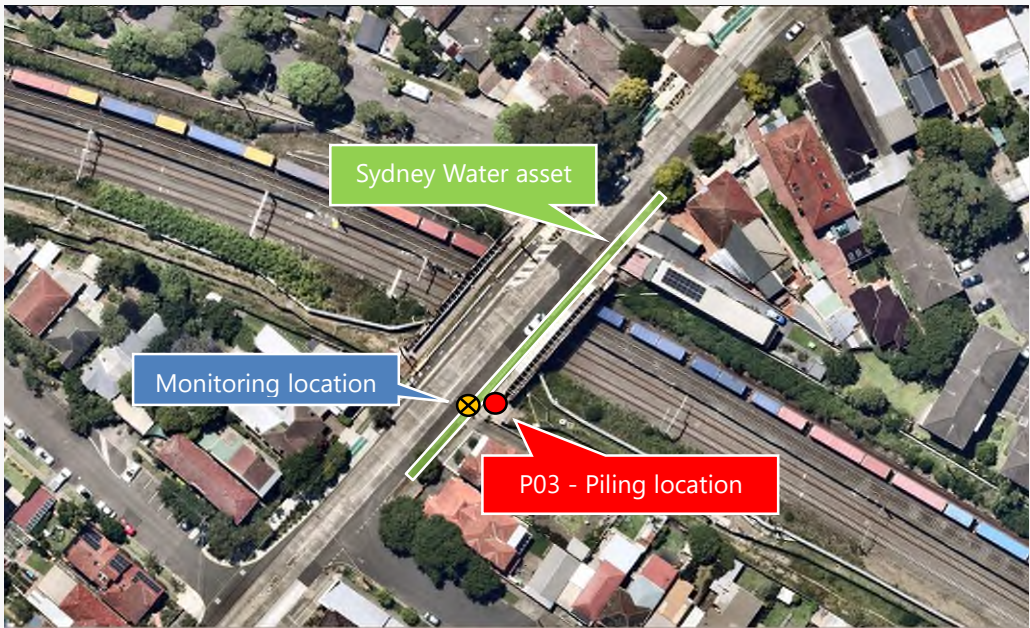
Figure B.1: 17.12.2024 measured vibration levels from all P01 works (Z-Axis)



B.2 Livingstone Rd Overbridge P03 piling works vibration monitoring

Measurement ID:	M3
Assessment point:	In line with W001/DN150 CICL
	
Date:	19.12.2024
Measurement type:	Vibration
Meas. location:	In line with W001/DN150 CICL
Measured distance:	3.5m
Geology:	Competent soil
Plant	MRC 1.2t bored piling rig
Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W001/DN150 CICL Sydney Water asset, approximately 3.5m from the works.

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 19th December 2024. Based on the results below, , the works produced vibration levels below the screening criterion of 5 mm/s at 3.5m away.

Appendix B.2: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M3									
19.12.2024 12:01pm – 12:49pm	3.5m	MRC 1.2t Bored piling rig	5	2.01	5	2.68	4	2.45	5 mm/s 10 mm/s

Figure B.2: 19.12.2024 measured vibration levels from all P03 works (X-Axis)

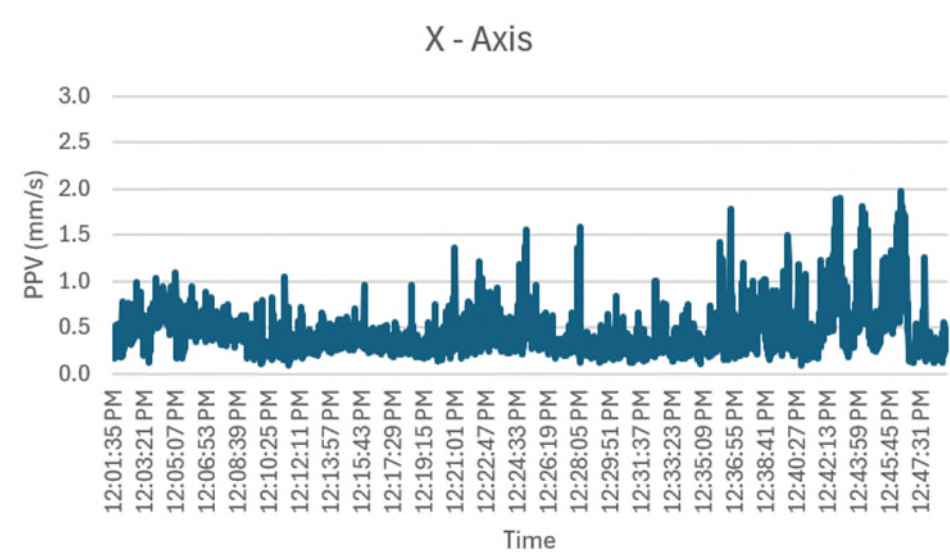


Figure B.2: 19.12.2024 measured vibration levels from all P03 works (Y-Axis)

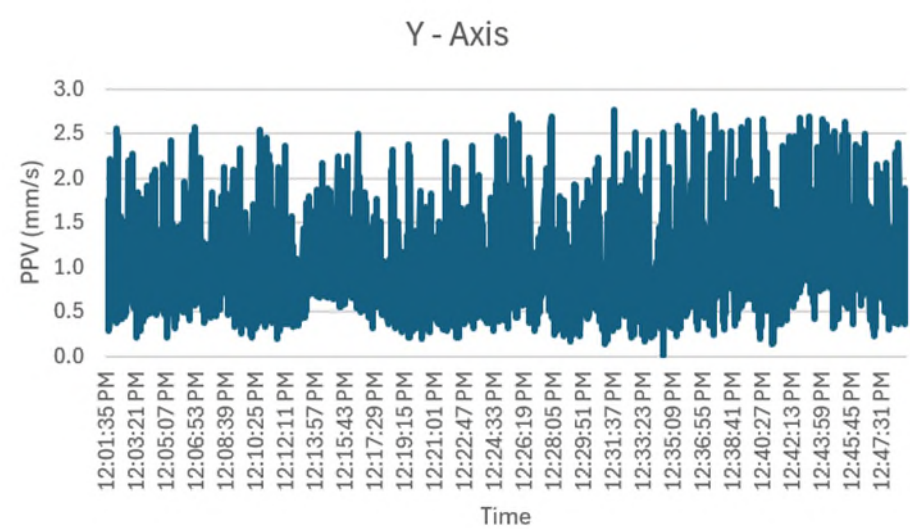
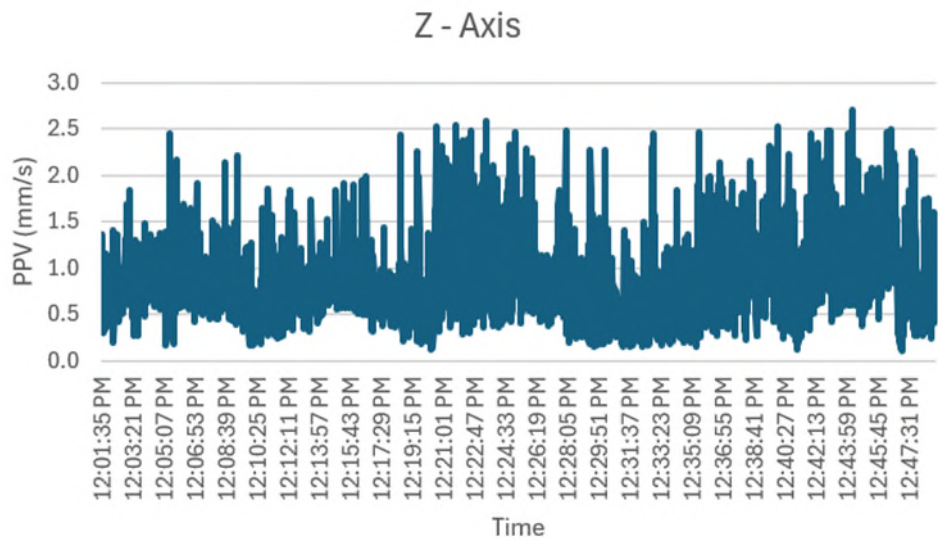



Figure B.2: 19.12.2024 measured vibration levels from all P03 works (Z-Axis)



B.3 Melford Street Overbridge P01 piling works vibration monitoring

Measurement ID:	M4 & M5	
Assessment point:	In line with W003 100CICL. Also assessing S004-A 200PE and S004-B 200PE.	
	Date:	13.01.2025
	Measurement type:	Vibration
	Meas. location:	In line with W003 100CICL
	Measured distance:	3.5m
	Geology:	Piling works undertaken on competent soil
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
	Notes	Monitor located on surface above the W003 100CICL Sydney Water asset, approximately 3.5m from the works. This measuring point is also assessing S004-A 200PE and S004-B 200PE assets.

Monitoring location



Comments

Baseline vibration monitoring shows that vibration levels were below 5 mm/s when there were no construction activities occurring on site. Vibration monitoring was conducted during the piling works on 13th January 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 3.5m away.

Appendix B.3: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria ppv (mm/s)
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	
M4									
07.01.2025	1-10m	Baseline vibration monitoring; pedestrian, car passby	-	0.49	-	1.02	-	0.79	5 mm/s 10 mm/s
M5									
13.01.2025 11:06am – 11:40am	3.5m	MRC 1.2t Bored piling rig	4	1.13	4	2.30	4	2.25	5 mm/s 10 mm/s

Figure B.3: 13.01.2025 measured vibration levels from all P01 works (X-Axis)

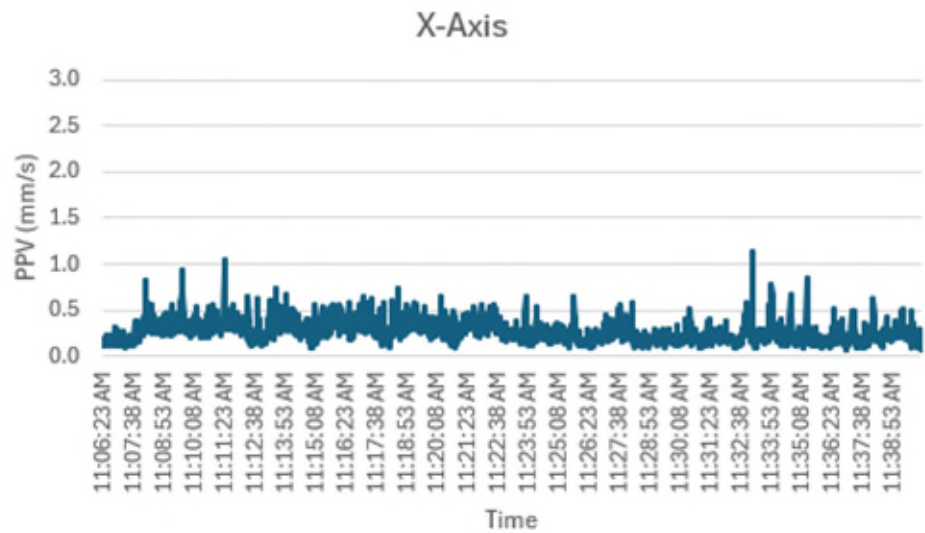


Figure B.3: 13.01.2025 measured vibration levels from all P01 works (Y-Axis)

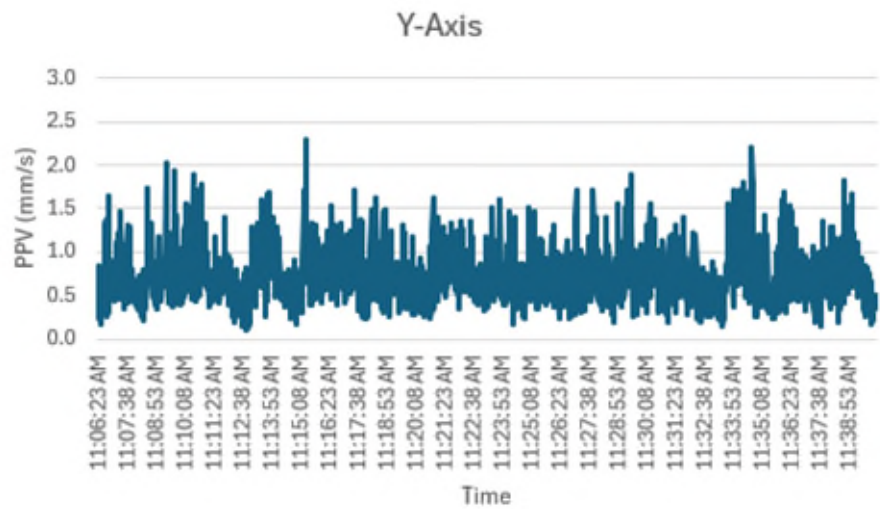
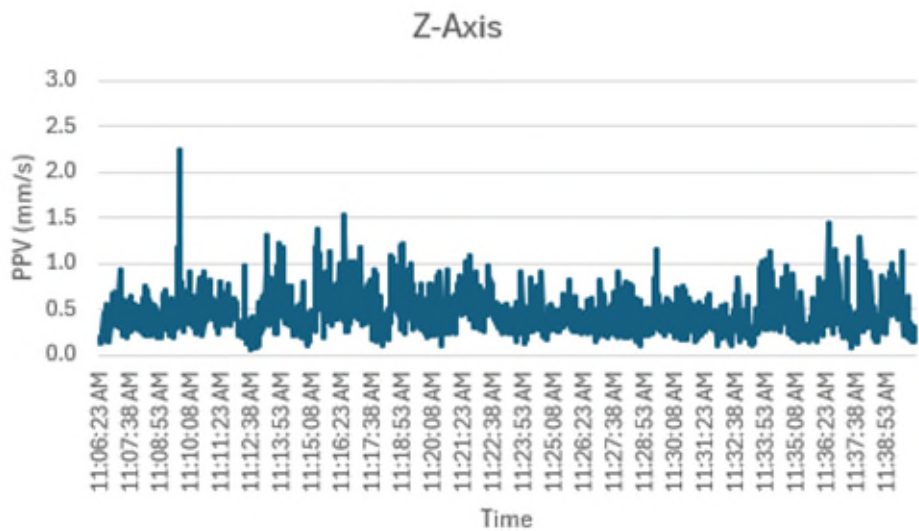



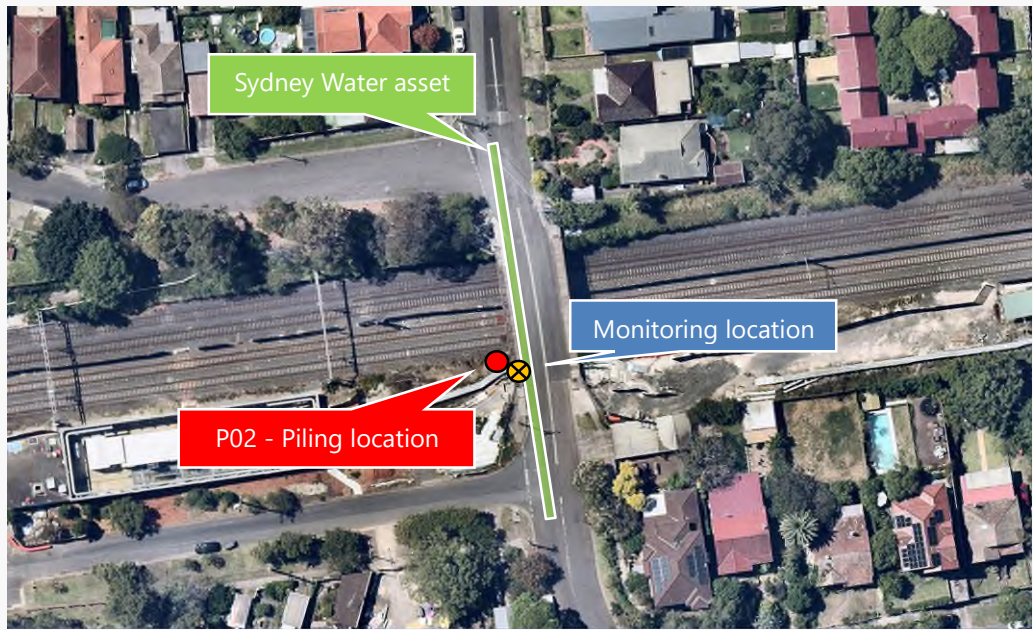
Figure B.2: 13.01.2025 measured vibration levels from all P01 works (Z-Axis)



B.4 Melford Street Overbridge P02 piling works vibration monitoring

Measurement ID:	M6
Assessment point:	In line with W003 100CICL. Also assessing S004-A 200PE and S004-B 200PE.
	
Date:	13.01.2025
Measurement type:	Vibration
Meas. location:	In line with W003 100CICL
Measured distance:	2.5m
Geology:	Piling works undertaken on competent soil
Plant	Zaxis 170W Excavator with drill attachment
Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W003 100CICL Sydney Water asset, approximately 2.5m from the works. This measuring point is also assessing S004-A 200PE and S004-B 200PE assets.

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 13th January 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 2.5m away.

Appendix B.4: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M6									
13.01.2025 12:25pm – 02:46pm	2.5m	Zaxis 170W Excavator with drill attachment	4	2.75	4	2.45	4	1.81	5 mm/s 10 mm/s

Figure B.4: 13.01.2025 measured vibration levels from all P02 works (X-Axis)

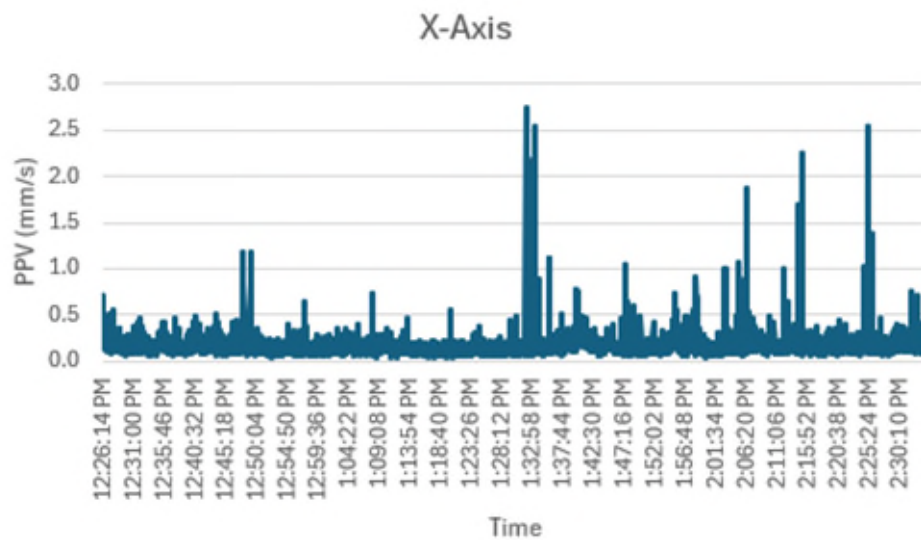


Figure B.4: 13.01.2025 measured vibration levels from all P02 works (Y-Axis)

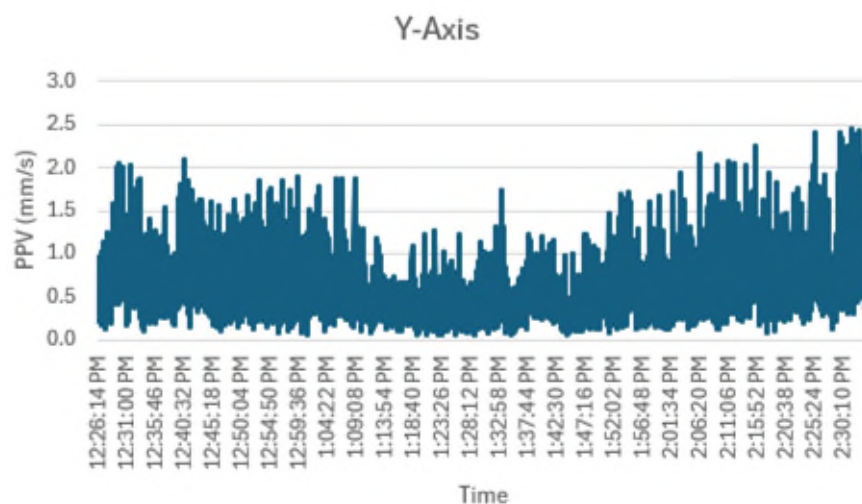
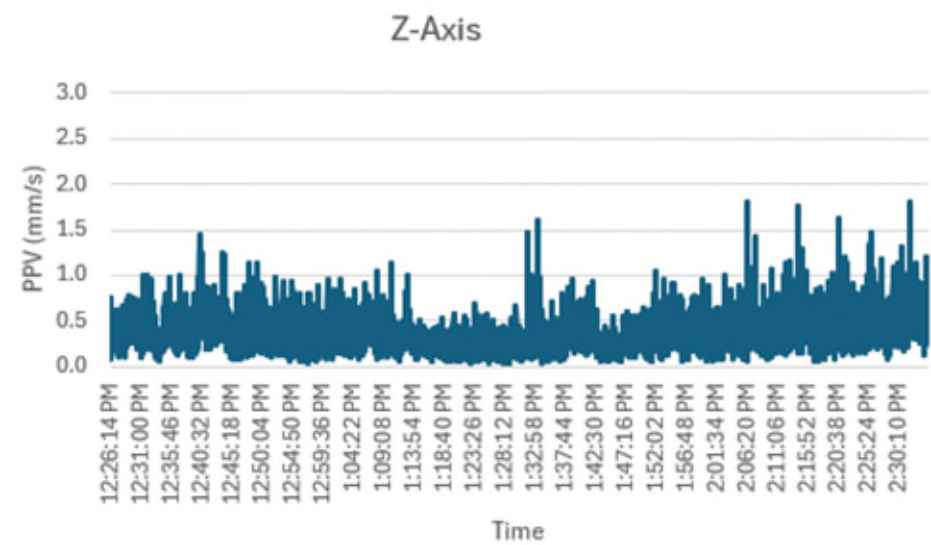




Figure B.4: 13.01.2025 measured vibration levels from all P02 works (Z-Axis)



B.5 Floss Street overbridge piling works vibration monitoring

Measurement ID:	M7	
Assessment point:	In line with W009-A OD125 PE encased in DN150 CICL	
	Date:	20.02.2025
	Measurement type:	Vibration
	Meas. location:	In line with W009-A OD125 PE encased in DN150 CICL
	Measured distance:	1m
	Geology:	Piling works undertaken on competent soil
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sigicom C22 (SN: #116237)
Notes		Monitor located on surface above the W009-A OD125 PE encased in DN150 CICL Sydney Water asset, approximately 1m from the works.
Monitoring location		
		
Comments		
Vibration monitoring was conducted during the piling works on 20 th February 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 1m away.		

Appendix B.5: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M7									
20.02.2025 11:45am – 01:30pm	1m	MRC 1.2t bored piling rig	59	2.96	7	1.80	55	2.10	5 mm/s 10 mm/s

Figure B.5: 20.02.2025 measured vibration levels from piling works (X-Axis)

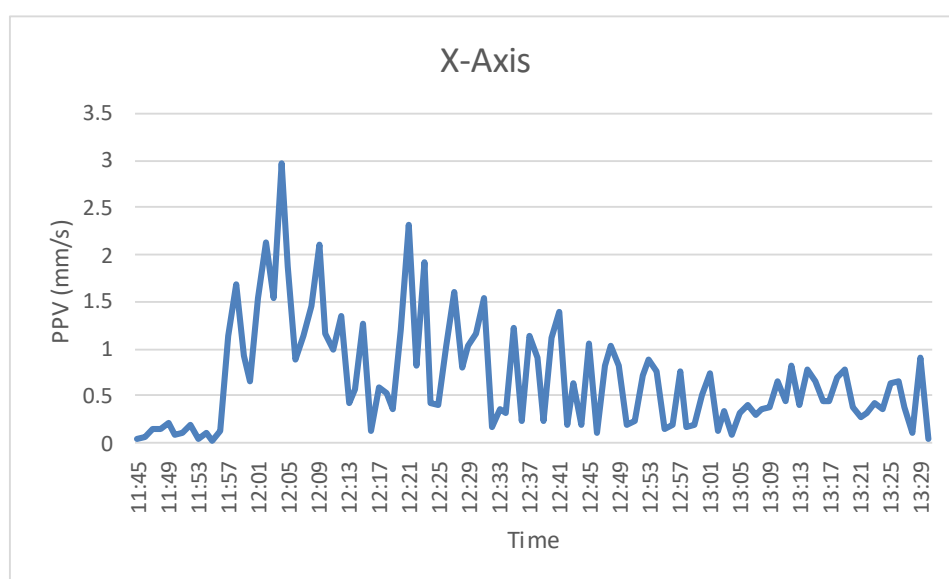


Figure B.5: 20.02.2025 measured vibration levels from piling works (Y-Axis)

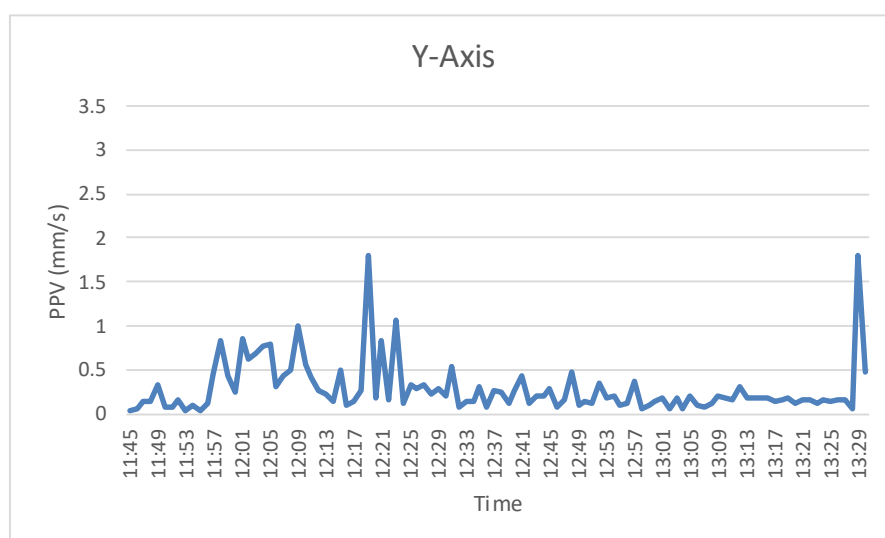
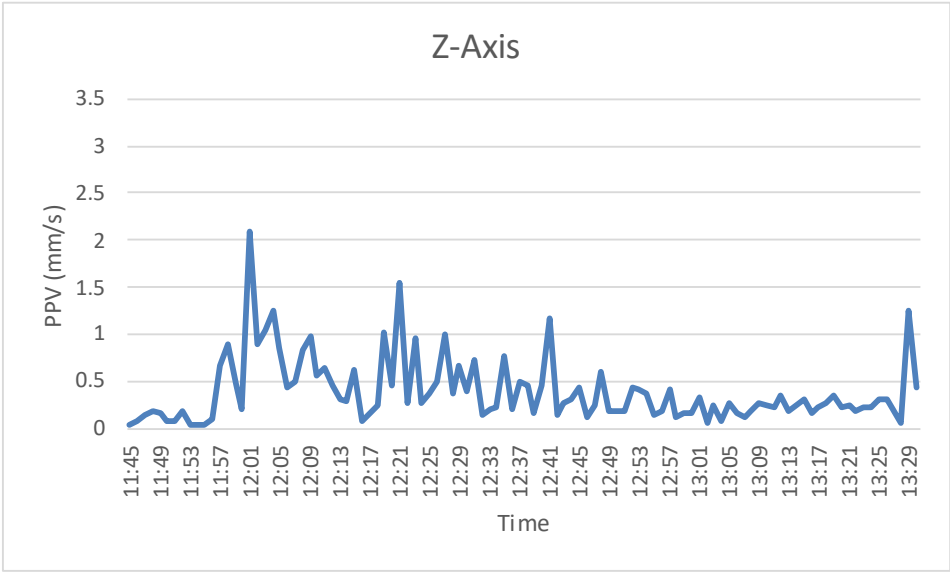

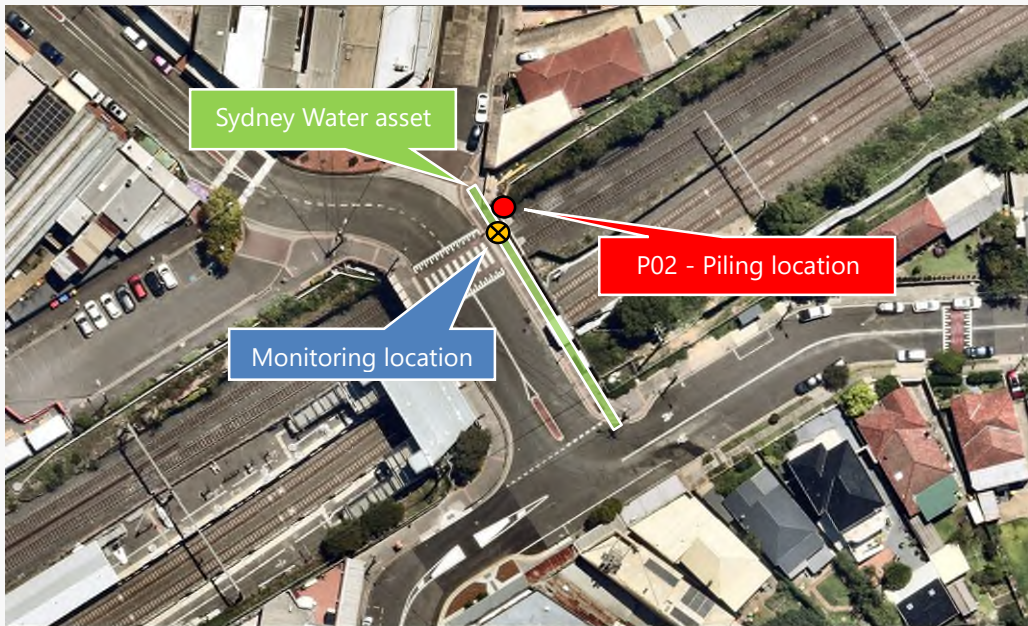


Figure B.5: 20.02.2025 measured vibration levels from piling works (Z-Axis)



B.6 Floss Street overbridge piling works vibration monitoring

Measurement ID:	M8	
Assessment point:	In line with W009-A OD125 PE encased in DN150 CICL	
	Date:	27.02.2025
	Measurement type:	Vibration
	Meas. location:	In line with W009-A OD125 PE encased in DN150 CICL
	Measured distance:	3m
	Geology:	Piling works undertaken on competent soil
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W009-A OD125 PE encased in DN150 CICL Sydney Water asset, approximately 3m from the works.	
Monitoring location		
		
Comments		
Vibration monitoring was conducted during the piling works on 27 th February 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 3m away.		

Appendix B.6: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M8									
27.02.2025 11:19pm – 12:21am	3m	MRC 1.2t bored piling rig	80	2.08	4	1.10	50	0.77	5 mm/s 10 mm/s

Figure B.6: 27.02.2025 measured vibration levels from piling works (X-Axis)

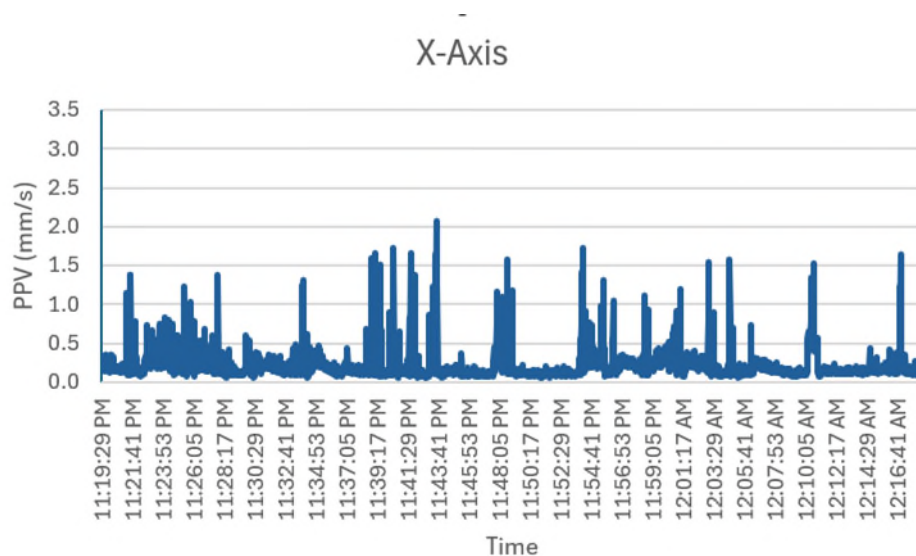


Figure B.6: 27.02.2025 measured vibration levels from piling works (Y-Axis)

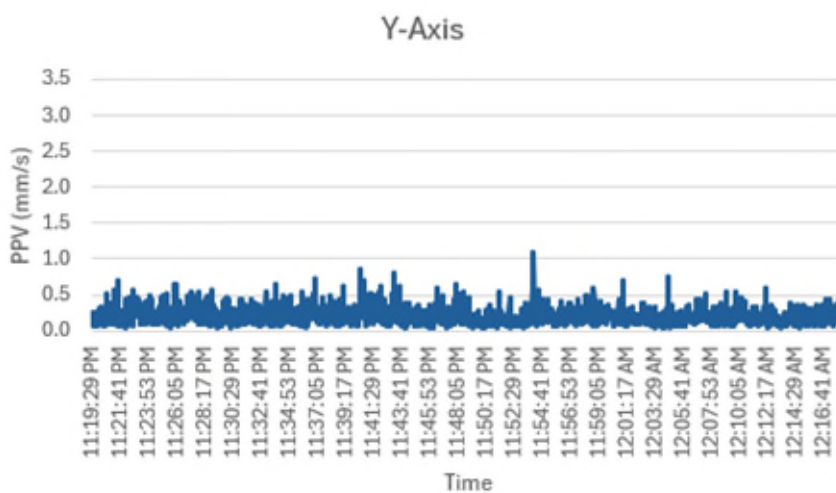
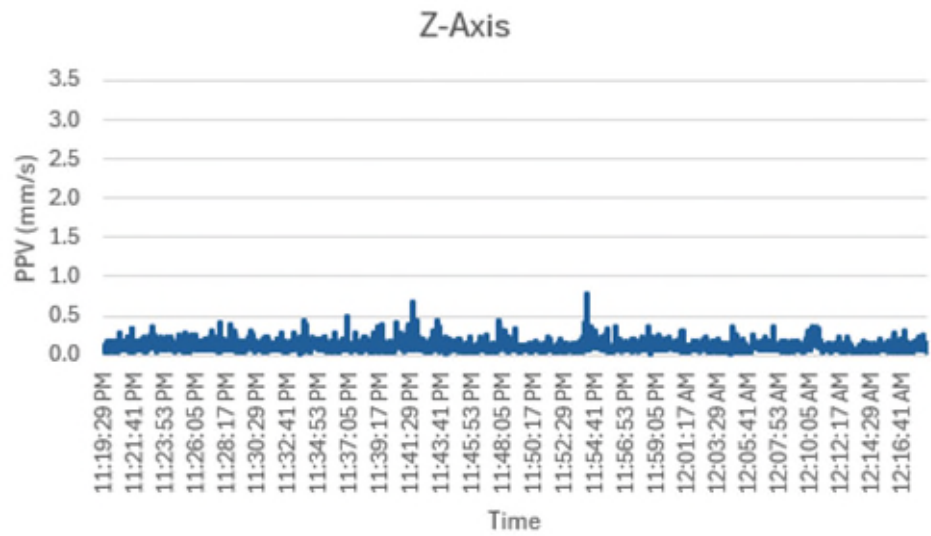
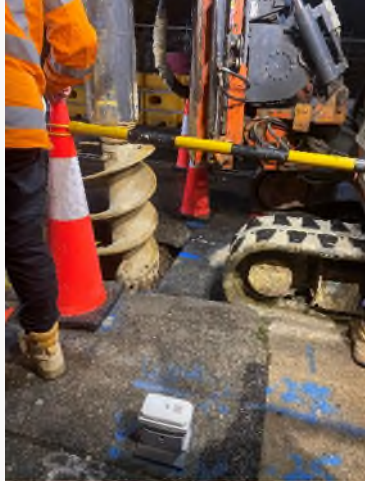


Figure B.6: 27.02.2025 measured vibration levels from piling works (Z-Axis)

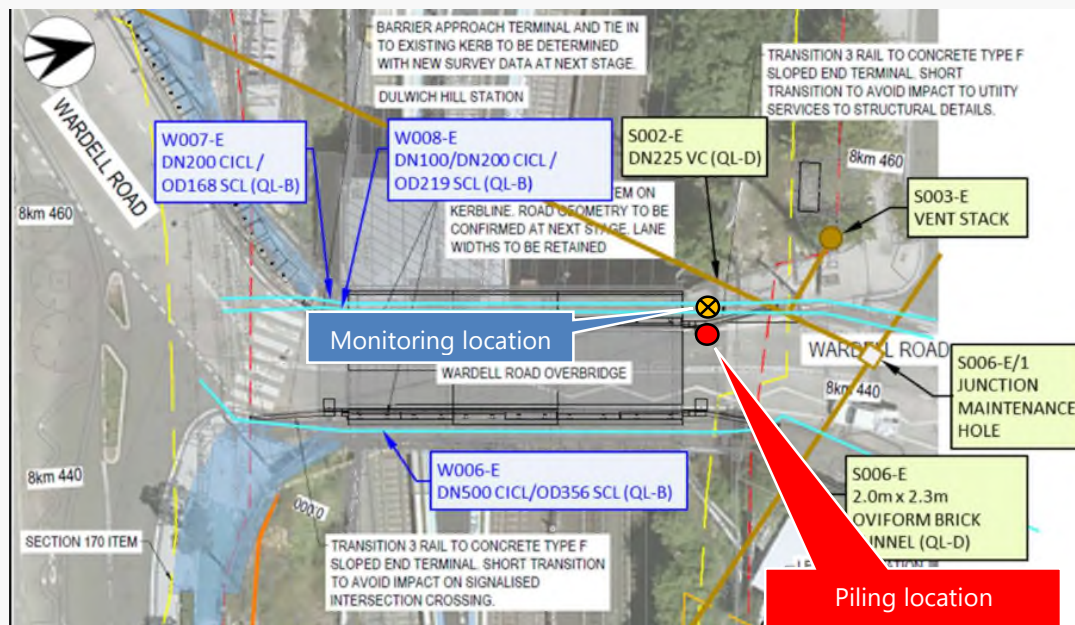


B.7 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M9
Assessment point:	In-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL
Date:	06.03.2025
Measurement type:	Vibration
Meas. location:	In-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL
Measured distance:	1m
Geology:	Piling works undertaken on soft rock
Plant	MRC 1.2t bored piling rig
Instrumentation:	Sigicom C22 (SN: #116242)
Notes	Monitor located on surface above the W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL Sydney Water asset, approximately 1m from the works. This measuring point is also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole assets.



Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 6th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 1m away.

Appendix B.7: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M9									
06.03.2025 12:40am – 01:05am	1m	MRC 1.2t bored piling rig	158	3.05	85	2.10	108	0.90	5 mm/s 10 mm/s

Figure B.7: 06.03.2025 measured vibration levels from piling works (X-Axis)

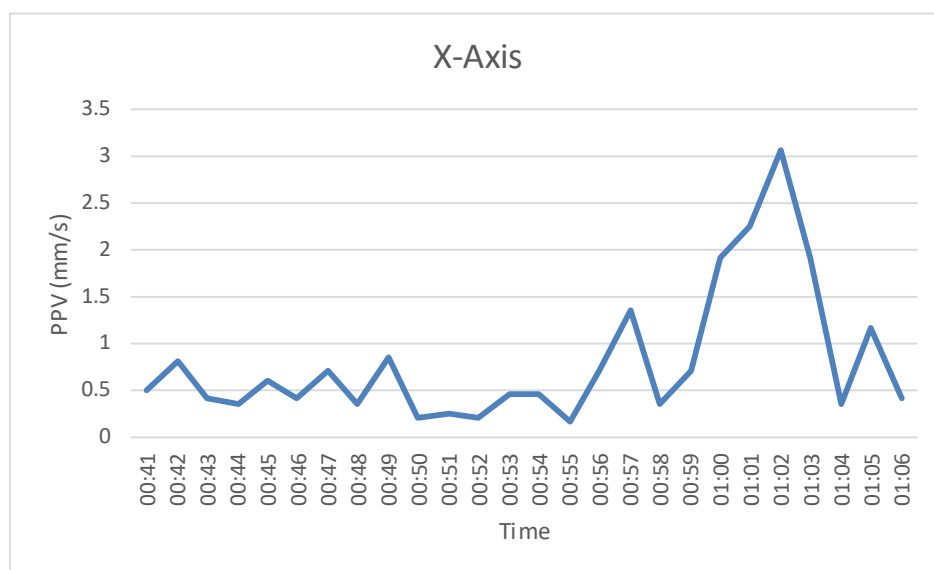


Figure B.7: 06.03.2025 measured vibration levels from piling works (Y-Axis)

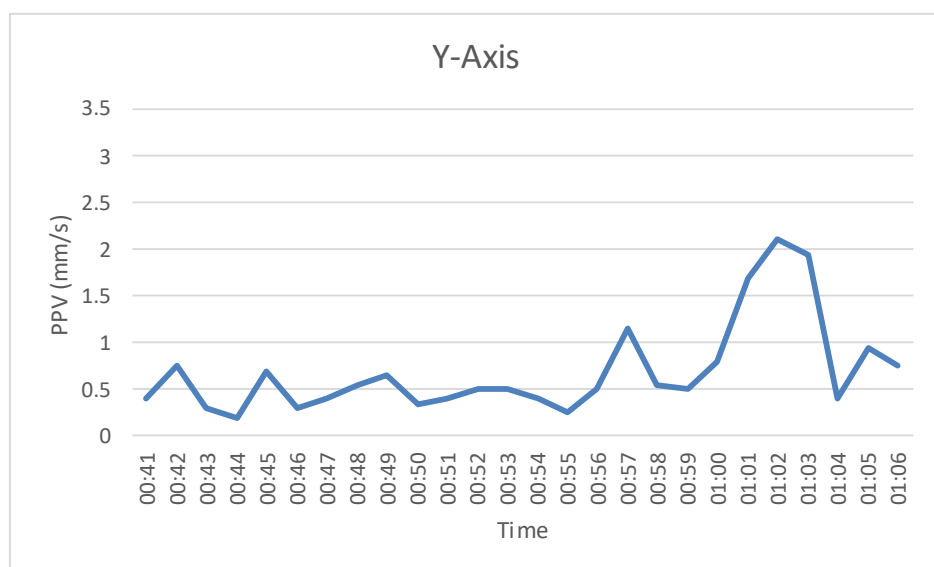
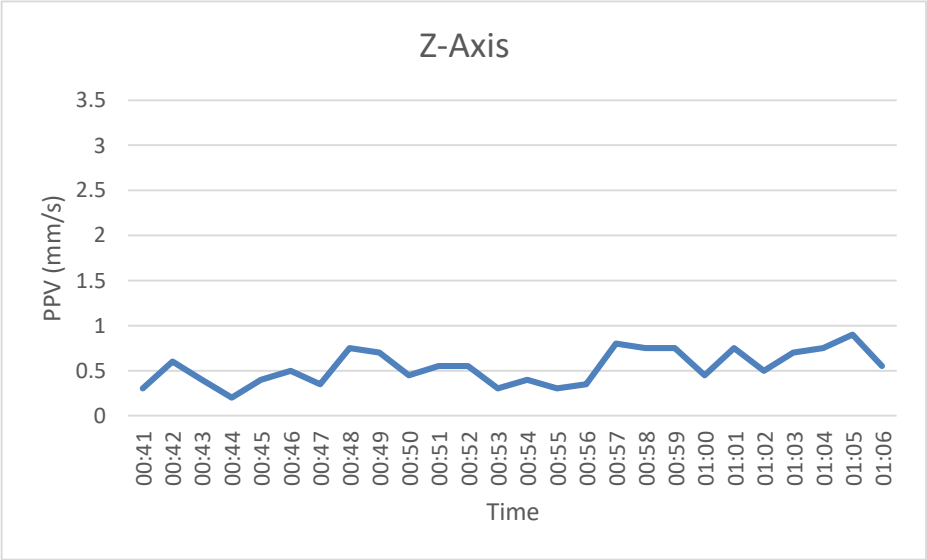




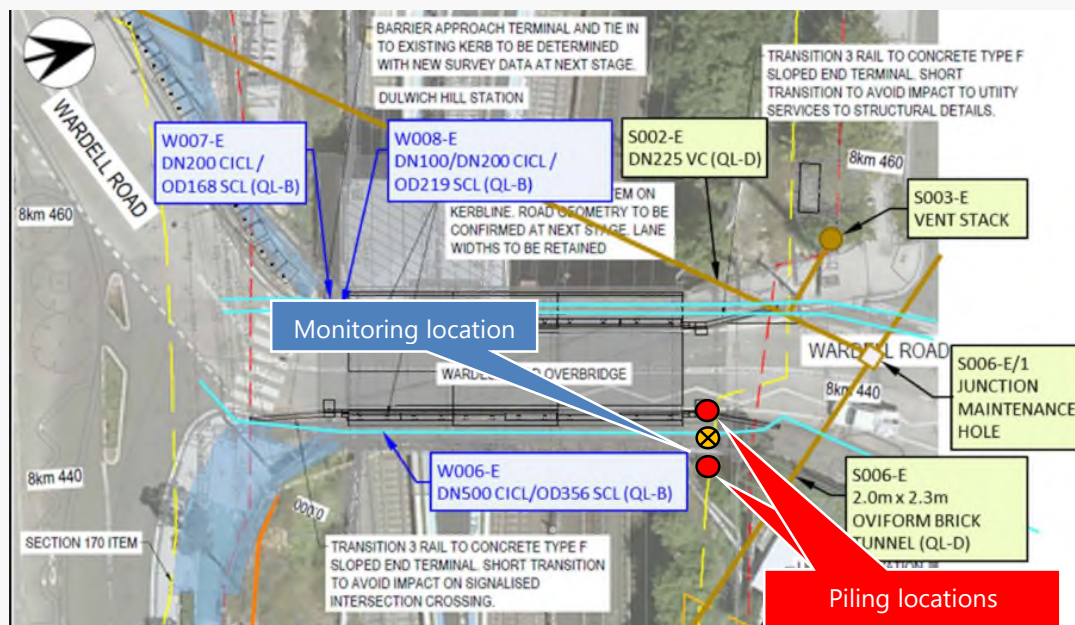
Figure B.7: 06.03.2025 measured vibration levels from piling works (Z-Axis)



B.8 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M10	
Assessment point:	In-line with W006-E DN500 CICL/OD356 SCL	
	Date:	06.03.2025
	Measurement type:	Vibration
	Meas. location:	In-line with W006-E DN500 CICL/OD356 SCL
	Measured distance:	1.5m and 2m
	Geology:	Piling works undertaken on soft rock
	Plant	14t excavator with auger attachment
	Instrumentation:	Sigicom C22 (SN: #116242)
	Notes	Monitor located on surface above the W006-E DN500 CICL/OD356 SCL Sydney Water asset, approximately 1.5m and 2m from the works. This measuring point is also assessing S006-E Oviform Brick Tunnel asset.

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 6th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 1.5m and 2m away.

Appendix B.8: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M10									
06.03.2025 10:18pm – 11:00pm	1.5m	14t excavator with auger attachment	66	2.65	79	2.20	43	2.05	5 mm/s 10 mm/s
06.03.2025 11:00pm – 11:40pm	2m	14t excavator with auger attachment	205	2.10	108	0.80	128	0.75	5 mm/s 10 mm/s

Figure B.8: 06.03.2025 measured vibration levels from piling works (X-Axis)

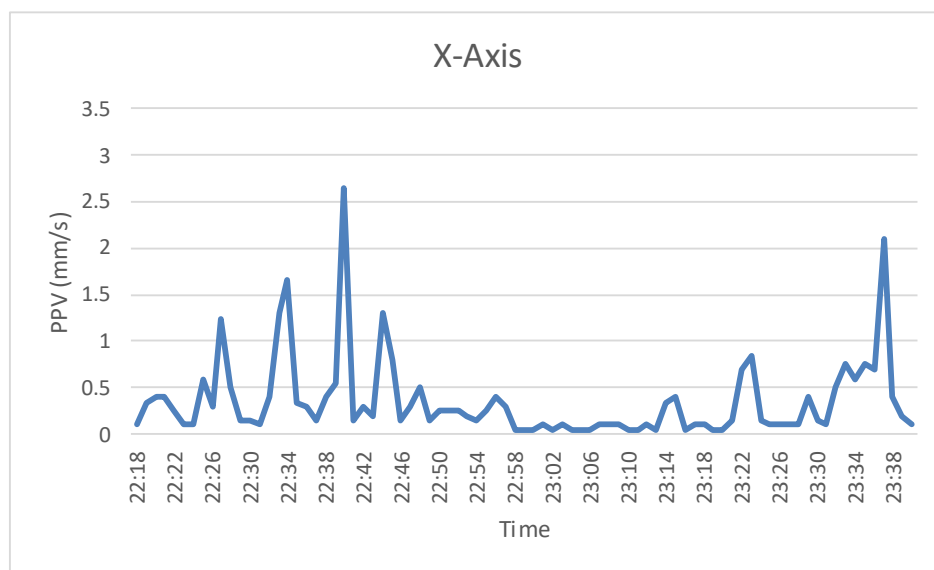


Figure B.8: 06.03.2025 measured vibration levels from piling works (Y-Axis)

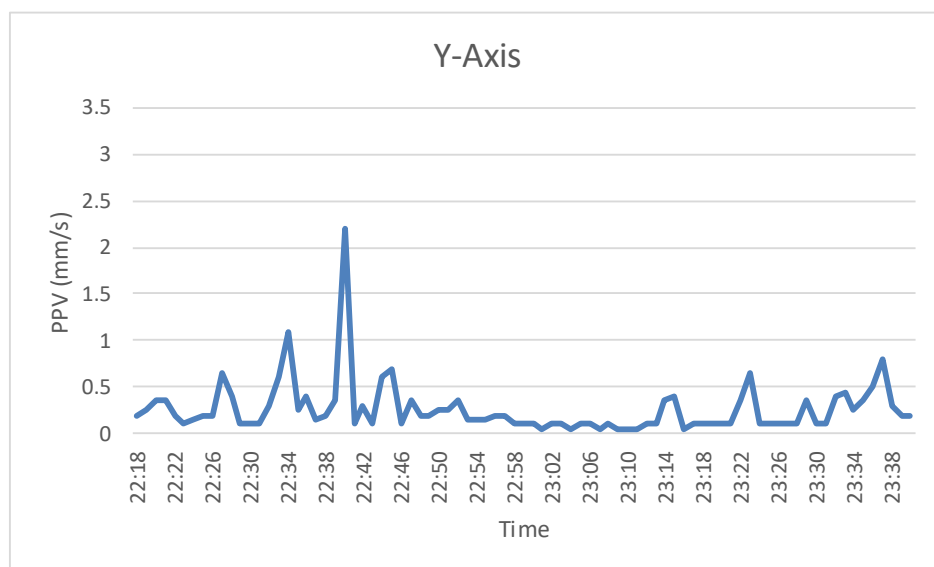
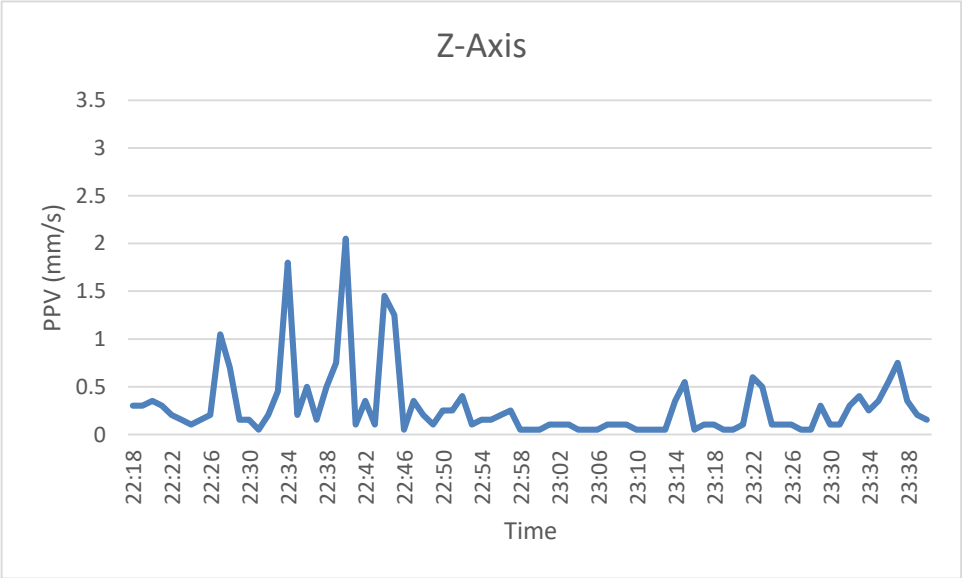
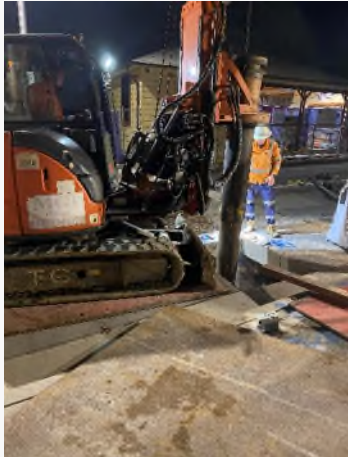


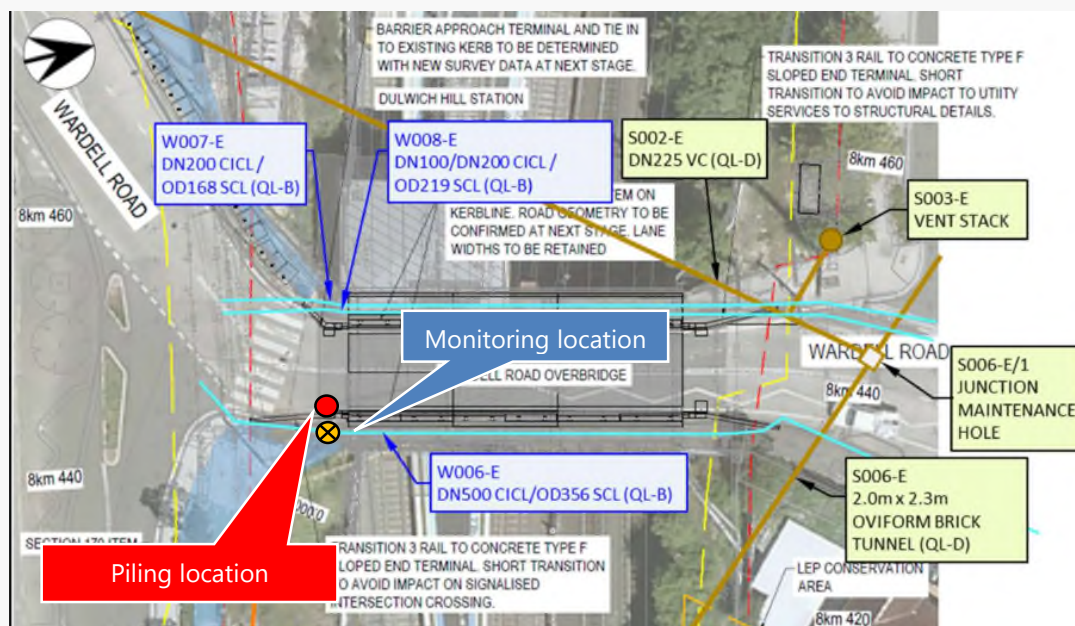
Figure B.8: 06.03.2025 measured vibration levels from piling works (Z-Axis)



B.9 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M11	
Assessment point:	In-line with W006-E DN500 CICL/OD356 SCL	
	Date:	06.03.2025
	Measurement type:	Vibration
	Meas. location:	In-line with W006-E DN500 CICL/OD356 SCL
	Measured distance:	1.m
	Geology:	Piling works undertaken on soft rock
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sigicom C22 (SN: #116242)
	Notes	Monitor located on surface above the W006-E DN500 CICL/OD356 SCL Sydney Water asset, approximately 1m from the works.

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 6th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 1m away.

Appendix B.9: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria ppv (mm/s)
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	
M11									
06.03.2025 11:42pm – 12:18am	1m	MRC 1.2t bored piling rig	186	3.15	1.40	2.20	98	2.05	5 mm/s 10 mm/s

Figure B.9: 06.03.2025 measured vibration levels from piling works (X-Axis)

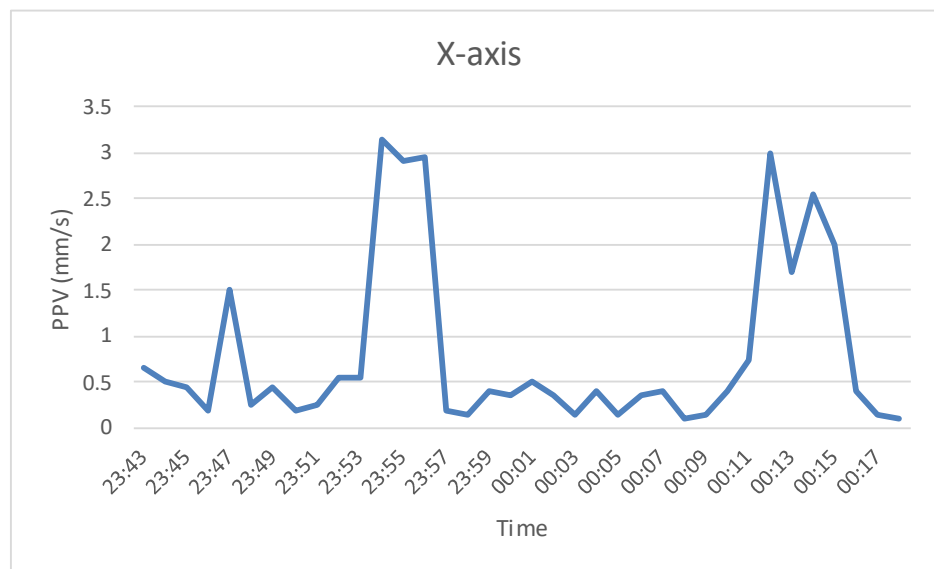


Figure B.9: 06.03.2025 measured vibration levels from piling works (Y-Axis)

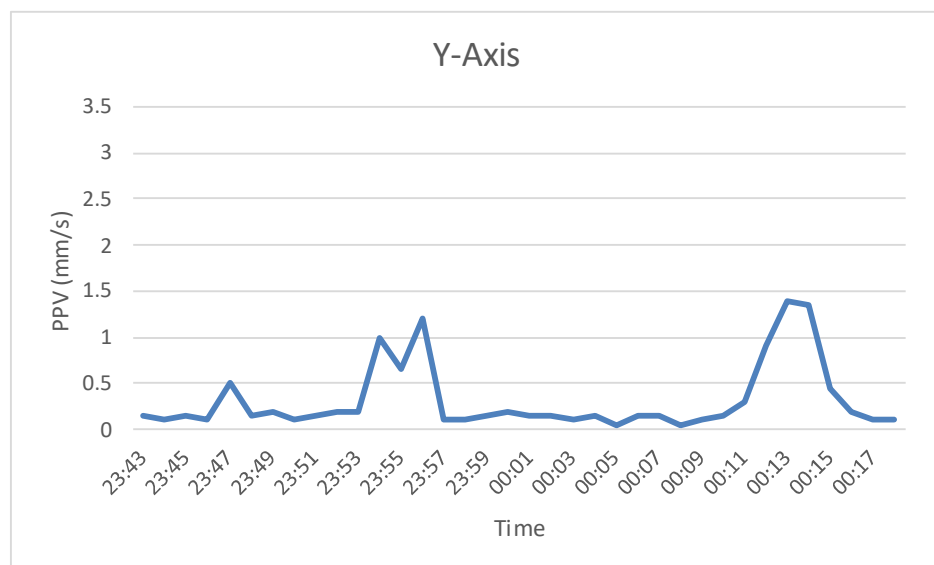
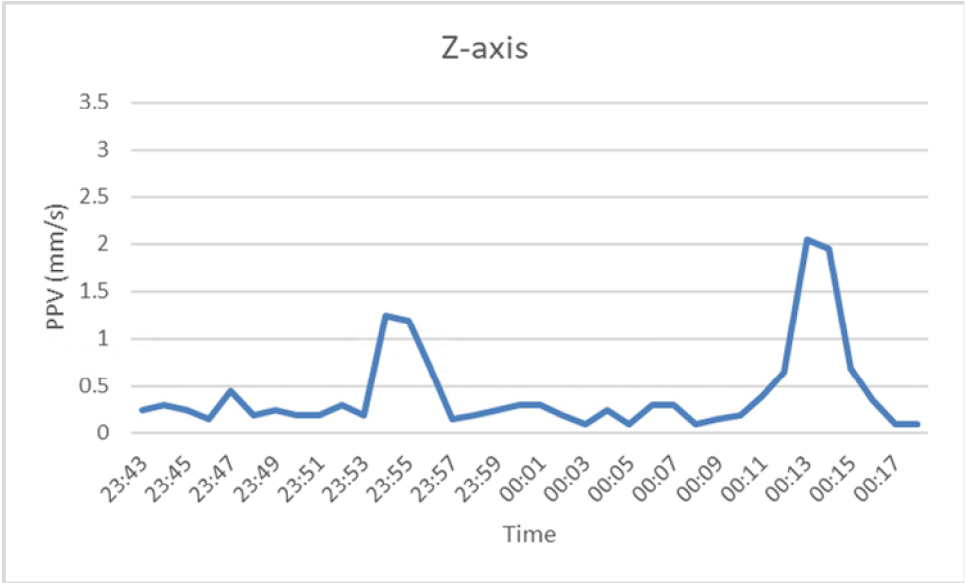



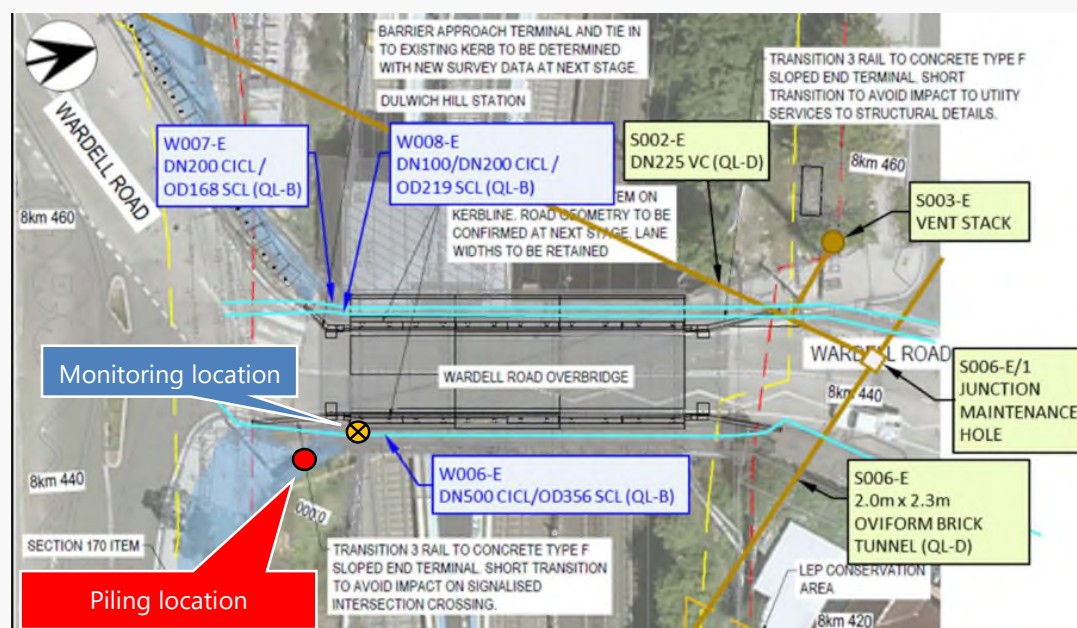
Figure B.9: 06.03.2025 measured vibration levels from piling works (Z-Axis)



B.10 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M12	
Assessment point:	In-line with W006-E DN500 CICL/OD356 SCL	
	Date:	07.03.2025
	Measurement type:	Vibration
	Meas. location:	In-line with W006-E DN500 CICL/OD356 SCL
	Measured distance:	4m
	Geology:	Piling works undertaken on soft rock
	Plant	MRC 1.2t bored piling rig
	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
	Notes	Monitor located on surface above the W006-E DN500 CICL/OD356 SCL Sydney Water asset, approximately 4m from the works.

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 7th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 4m away.

Appendix B.10: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M12									
07.03.2025 07:52pm – 08:25pm	4m	MRC 1.2t bored piling rig	125	0.77	4	0.77	100	0.51	5 mm/s 10 mm/s

Figure B.10: 07.03.2025 measured vibration levels from piling works (X-Axis)

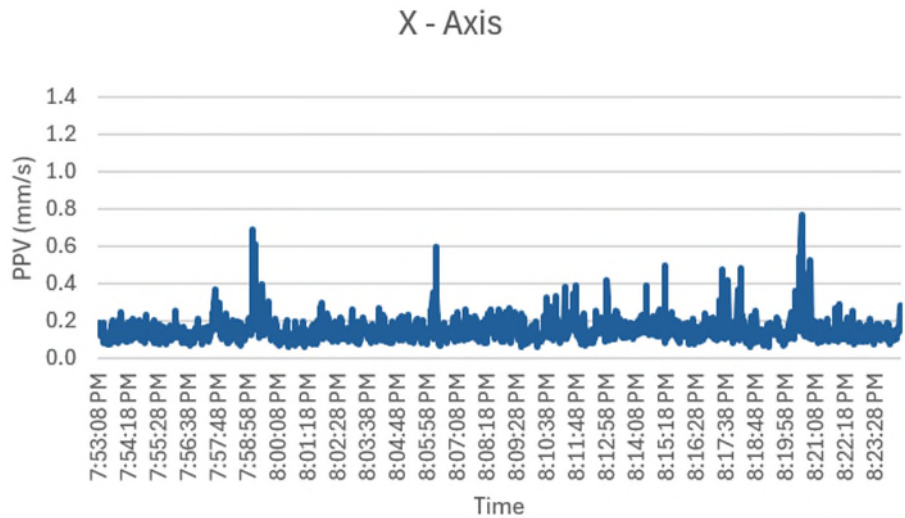


Figure B.10: 07.03.2025 measured vibration levels from piling works (Y-Axis)

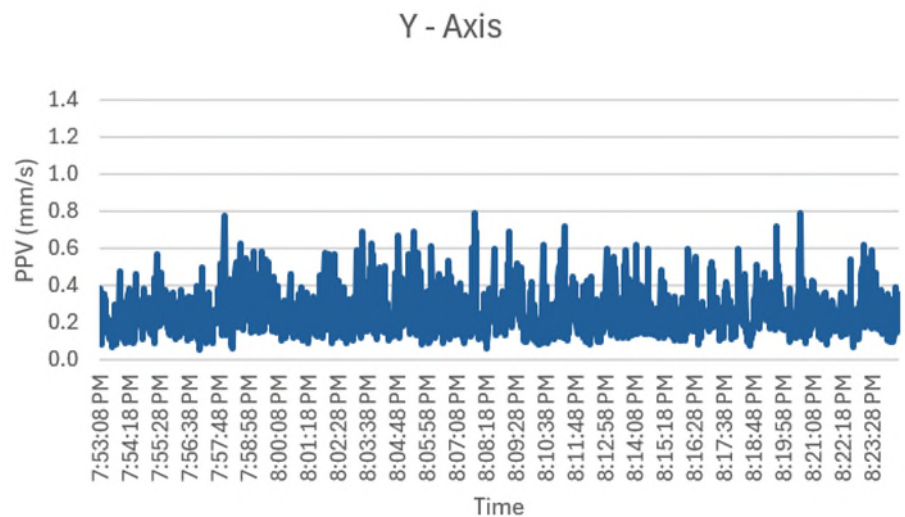
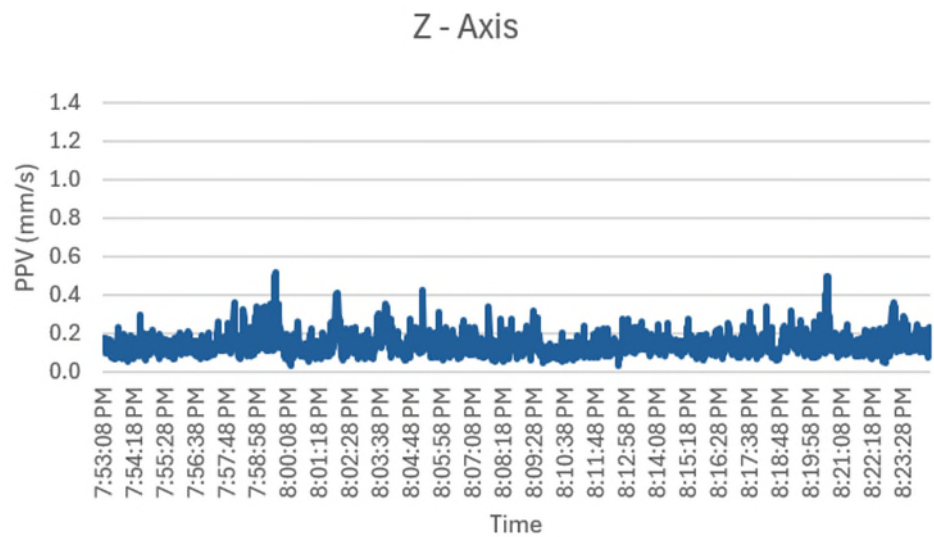
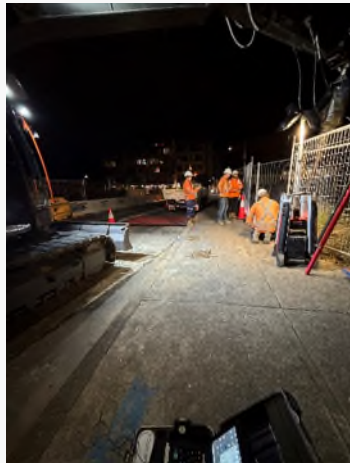


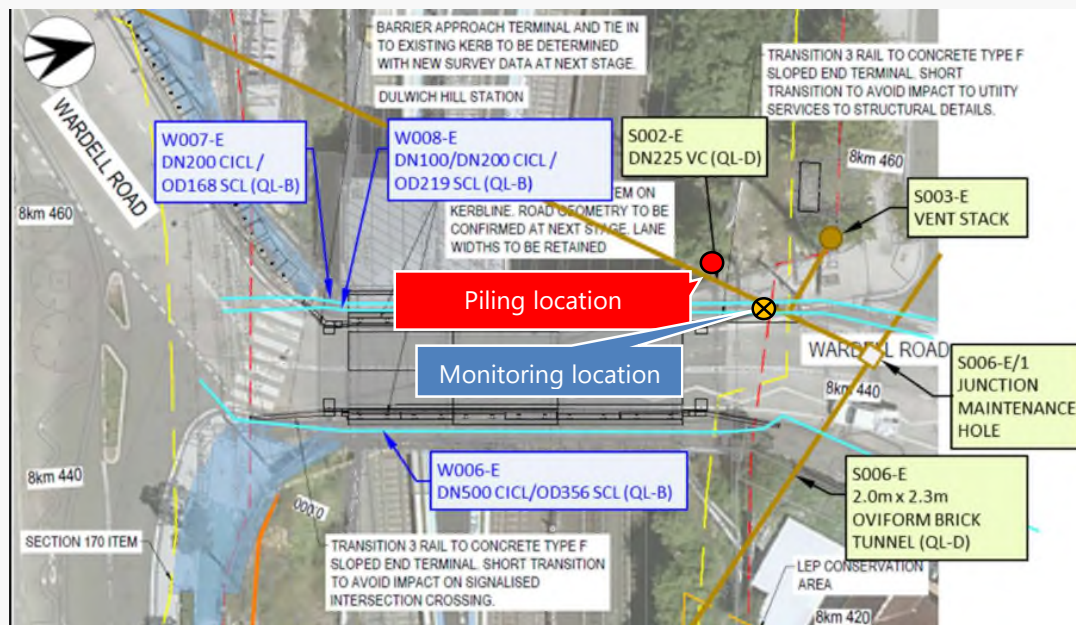
Figure B.10: 07.03.2025 measured vibration levels from piling works (Z-Axis)



B.11 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M13	
Assessment point:	In-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL	
	Date:	07.03.2025
	Measurement type:	Vibration
	Meas. location:	In-line with W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL
	Measured distance:	5m
	Geology:	Piling works undertaken on soft rock
	Plant	14t excavator with auger attachment
	Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W007-E DN200 CICL/OD168 SCL and W008-E DN100/DN200 CICL/ OD219 SCL Sydney Water asset, approximately 5m from the works. This measuring point is also assessing S002-E DN225 VC, S003-E Vent Stack and S006-E/1 Junction Maintenance Hole assets.	

Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 7th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 5m away.

Appendix B.11: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M13									
07.03.2025 09:32pm – 10:04pm	5m	14t excavator with auger attachment	50	0.90	50	1.00	4	0.76	5 mm/s 10 mm/s

Figure B.11: 07.03.2025 measured vibration levels from piling works (X-Axis)

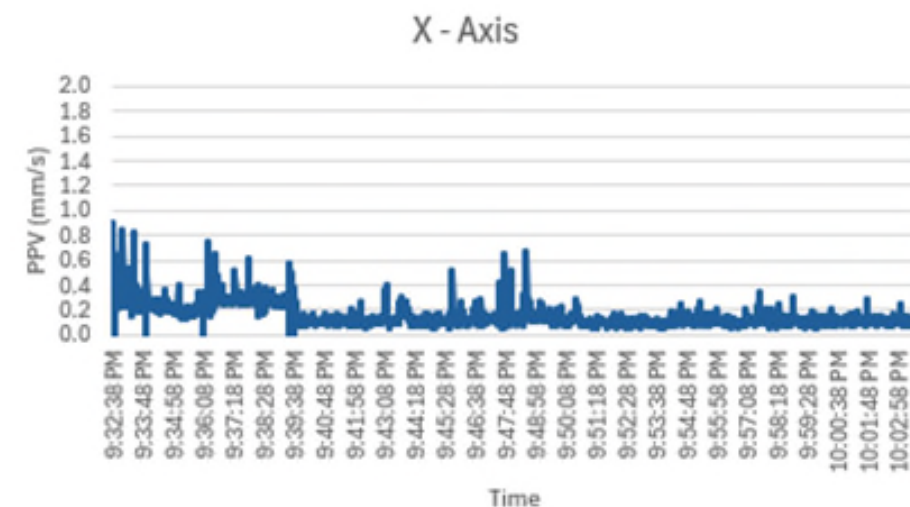


Figure B.11: 07.03.2025 measured vibration levels from piling works (Y-Axis)

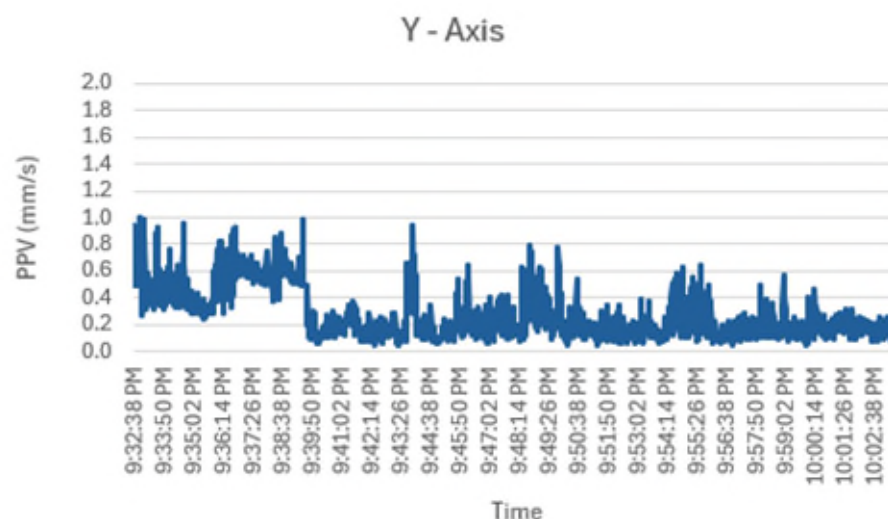
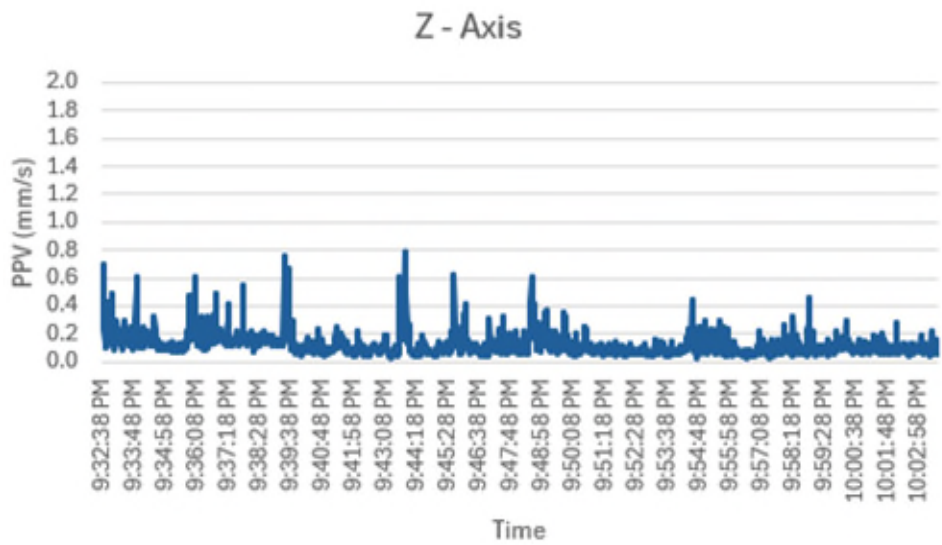
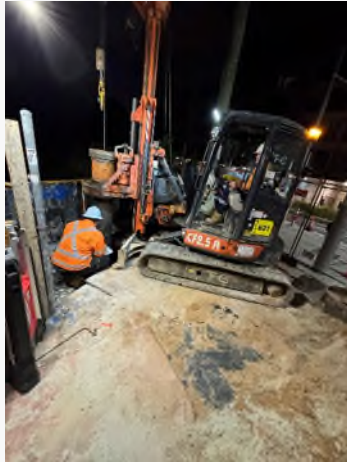


Figure B.11: 07.03.2025 measured vibration levels from piling works (Z-Axis)

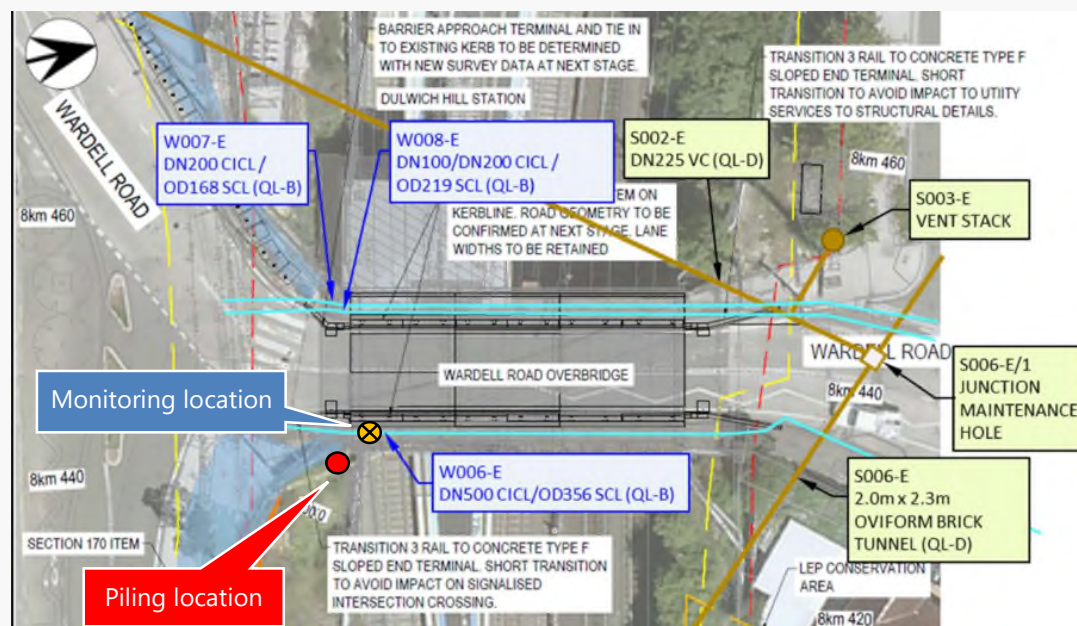


B.12 Wardell Road overbridge piling works vibration monitoring

Measurement ID:	M14
Assessment point:	In-line with W006-E DN500 CICL/OD356 SCL
Date:	07.03.2025
Measurement type:	Vibration
Meas. location:	In-line with W006-E DN500 CICL/OD356 SCL
Measured distance:	3.5m
Geology:	Piling works undertaken on soft rock
Plant	MRC 1.2t bored piling rig
Instrumentation:	Sinus Soundbook-1 + B&K Type 4524B (SN: 39142)
Notes	Monitor located on surface above the W006-E DN500 CICL/OD356 SCL Sydney Water asset, approximately 3.5m from the works.



Monitoring location



Comments

Vibration monitoring was conducted during the piling works on 7th March 2025. Based on the results below, the works produced vibration levels below the screening criterion of 5 mm/s at 3.5m away.

Appendix B.12: Piling works vibration monitoring results summary

Date and Time	Distance (m)	Plant operating	Measured peak particle velocity (ppv), mm/s						Vibration criteria
			X-axis		Y-axis		Z-axis		
			Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	Frequency (Hz)	Maximum ppv	ppv (mm/s)
M14									
07.03.2025 11:15pm – 11:46pm	3.5m	MRC 1.2t bored piling rig	4	0.19	5	0.39	50	0.36	5 mm/s 10 mm/s

Figure B.12: 07.03.2025 measured vibration levels from piling works (X-Axis)

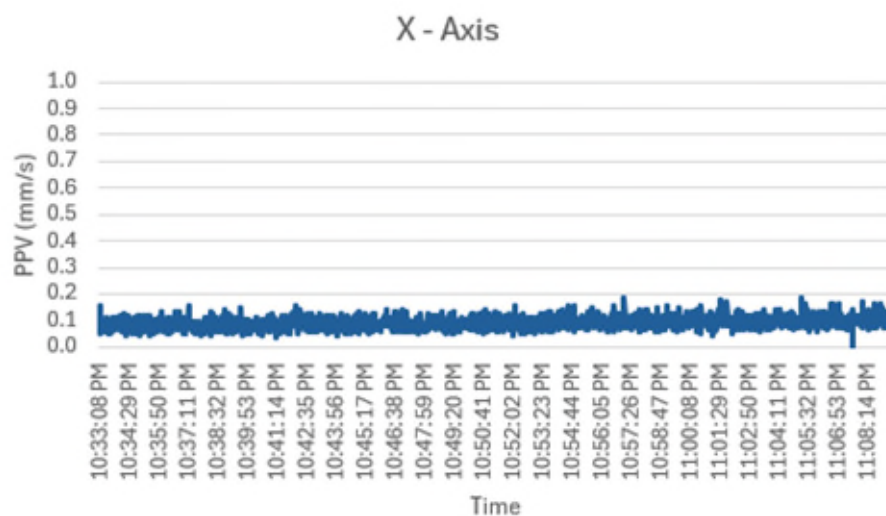


Figure B.12: 07.03.2025 measured vibration levels from piling works (Y-Axis)

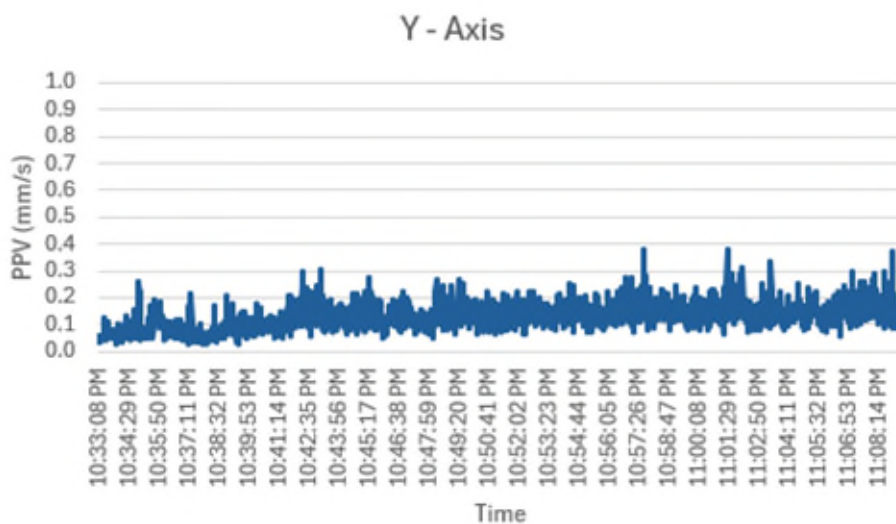
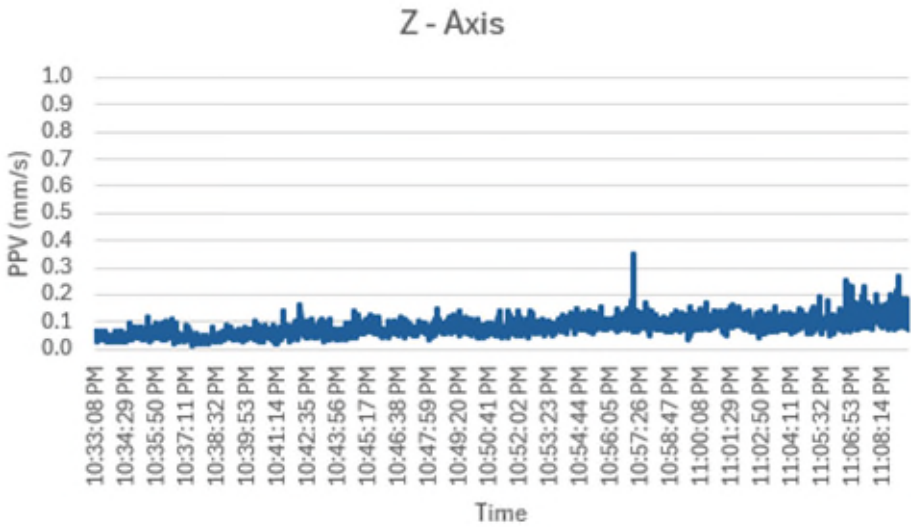


Figure B.12: 07.03.2025 measured vibration levels from piling works (Z-Axis)



CONSTRUCTION MONITORING REPORT [OCTOBER 2024 to APRIL 2025]	
Doc No.: SMCSWSW7-MRL-1NL-EM-REP-001090	Rev1



APPENDIX B – CEMP and Subplans Approval Evidence

Fil Cerone
Director of Sustainability, Environment and Planning
Sydney Metro

Attention: Sam Fard – Senior Manager Environment

10/10/2024

Subject: Sydney Metro, City & Southwest, Sydenham to Bankstown, Errant and Hostile Vehicle Mitigation Treatments – Construction Management Environmental Plan and Sub-plans.

Dear Mr Cerone

Thank you for submitting the Sydney Metro, City & Southwest, Sydenham to Bankstown Errant and Hostile Vehicle Mitigation Treatments (EHVMT) – Construction Environmental Management Plan and Sub-plans as outlined in Table 1 (the documents), on 30 August 2023. Thank you also for responding to the Department's requests for additional information.

I note the documents in Table 1 have been:

- prepared in consultation with the relevant stakeholders,
- reviewed by Sydney Metro and no issues have been raised with the Department, and
- endorsed by the project Environmental Representative.

Accordingly, as nominee of the Planning Secretary, I approve the documents listed in Table 1 under conditions C2 and C6 of SSI 8256. Further, I approve the monitoring programs incorporated into those documents under condition C11 of SSI 8256.

Table 1 – CEMP and Sub-plans

Document	Revision	Reference
Construction Environmental Management Plan (CEMP)	D	SSI-8256-PA-431
Heritage Management Plan (HMP)	C	SSI-8256-PA-433
Noise and Vibration Management Plan (NVMP)	C	SSI-8256-PA-432
Waste and Spoil Management Plan (WSMP)	B	SSI-8256-PA-434
Utility Management Strategy (UMS)	B	SSI-8256-PA-435

If there are any inconsistencies between the documents and the conditions of approval, the conditions prevail.

Please ensure you make the documents and this letter publicly available on the project website as soon as possible.

If you wish to discuss the matter further, please contact Lincoln De Haas at Lincoln.dehaas@dpie.nsw.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'G. Brown', written over a light grey rectangular background.

Grant Brown
Acting Director
Infrastructure Management

As nominee of the Planning Secretary