



Noise and Vibration Construction Monitoring Report February to July 2026

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Parklife Metro D&C

Document Approval

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Glossary/Abbreviations

Abbreviation	Expanded Text
BRD	Bradfield Station
CEMF	Construction Environmental Management Framework
CNVS	Sydney Metro Construction Noise and Vibration Standard
Condition	Planning Minister's Condition of Approval
Construction	Includes all work required to construct the CSSI as described in the documents listed in Conditions A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work.
dB(A)	A-weighted decibels is an expression of the relative loudness of sounds in the air as perceived by the human ear.
DNVIS	Detailed Noise and Vibration Impact Statement
EPA	NSW Environmental Protection Authority – The Appropriate Regulatory Authority for project activities on NSW land (off-airport land), as defined in Section 6(2)(c) of the POEO Act 1997
EPL	Environmental Protection Licence
ER	Independent Environmental Representative
LA_{eq}	Equivalent Continuous Sound Level
LDN	Luddenham Station
LP or SPL	Sound Pressure Level
LW or SWL	Sound Power Level
LWD	Linewide
NCA	Noise Catchment Area
NML	Noise Management Level
NVCMR	Noise and Vibration Construction Monitoring Report
NVMP	Noise and Vibration Monitoring Program
OHE	Orchard Hills Station
OOHW	Out of Hours Works
Parklife Metro (PLM)	Consortium comprising entities of Plenary, Siemens, RATP Dev and Webuild as the Applicant for the Sydney Metro Western Sydney Airport SSTOM Package.
Parklife Metro D&C	Parklife Metro Design and Construct. Consists of Webuild S.P.A, Siemens Mobility Pty Ltd and Richard Crookes Constructions Pty Ltd. Responsible for the construction of SSTOM Works
PNL	Predicted Noise Level
RBL	Rating Background Noise Level
SMF	Stabling and maintenance facility
SMWSA	Sydney Metro Western Sydney Airport
SPL	Sound Pressure Level
SSTOM	Stations, Systems, Trains, Operations and Maintenance
STM	St Marys Station
SWL	Sound Power Level

Abbreviation	Expanded Text
the Project	Sydney Metro Western Sydney Airport

1 Introduction

1.1 Background

Sydney Metro is Australia's biggest public transport program comprising four main packages of work including Metro North-West Line, Sydney Metro City and Southwest, Sydney Metro West, and Sydney Metro Western Sydney Airport (SMWSA, the Project). The SMWSA will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport and the growing region.

The Project involves the construction and operation of a new metro railway line around 23km in length to connect Western Sydney suburbs from Bradfield in the south with St Marys in the north. The alignment includes a combination of tunnel, surface, bridges and viaduct sections, and comprises of six new metro stations between St Marys and Bradfield Station, as well as a stabling and maintenance facility and operational control centre to support the operation of the new metro railway line (refer to Figure 1).

Parklife Metro D&C (PLM) has been engaged to deliver the Stations, Systems, Trains, Operations and Maintenance (SSTOM) works. The scope of the SSTOM package comprises:

- construction of six new stations
- installation of tracks, signalling, mechanical and electrical systems
- supplying new driverless trains
- construction of stabling and maintenance facility at Orchard Hills
- operation and maintenance of the line and its assets, and
- handback of operations and maintenance at the end of term.

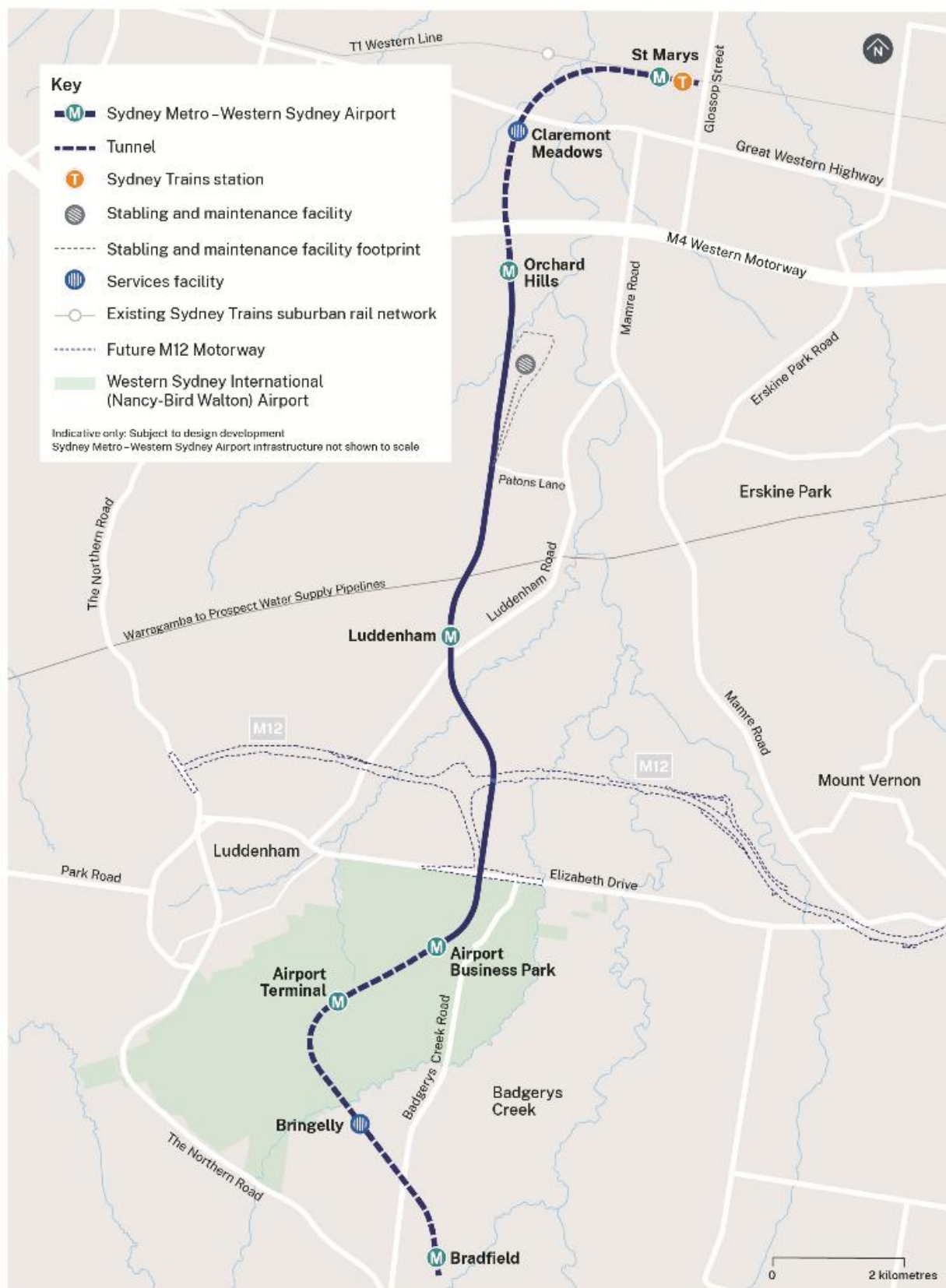


FIGURE 1 OVERVIEW OF SMWSA PROJECT

1.1.1 Scope of report

This Noise and Vibration Construction Monitoring Report (NVCMR) has been prepared for works approved under the Infrastructure Approval Critical State Significant Infrastructure (CSSI) -10051 associated with the delivery of the off-airport portion of the SMWSA SSTOM Works. This report provides the results of noise and vibration monitoring undertaken as part of the Noise and Vibration Monitoring Program (NVMP) during the reporting period from 1 February to 31 July 2026. This noise and vibration construction monitoring report is the sixth issue since PLM construction works commenced in 2023.

The result of the monitoring is readily available in this report to the construction team, the proponent and independent Environmental Representative (ER) and is provided to the Planning Secretary and Environment Protection Authority EPA upon request as per Condition C15 of CSSI 10051. This monitoring report will be submitted to the Planning Secretary, ER and relevant regulatory agencies in accordance with Condition C22 of CSSI 10051.

TABLE 1 REQUIREMENTS RELEVANT TO NOISE AND VIBRATION MONITORING REPORT

Condition	Requirement
C14	Each Construction Monitoring Program must provide: (a) details of baseline data available including the period of baseline monitoring; (b) details of baseline data to be obtained and when; (c) details of all monitoring of the project to be undertaken; (d) the parameters of the project to be monitored; (e) the frequency of monitoring to be undertaken; (f) the location of monitoring; (g) the reporting of monitoring results and analysis results against relevant criteria; (h) details of the methods that will be used to analyse the monitoring data; (i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts; (j) a consideration of SMART principles; (k) any consultation to be undertaken in relation to the monitoring programs; and (l) any specific requirements as required by Conditions C15 to C16.
C15	The Noise and Vibration Construction Monitoring Program must include: (a) noise and vibration monitoring at representative residential and other locations (including at the worst- affected residences), subject to property owner approval, to confirm construction noise and vibration levels; (b) monitoring undertaken during the day, evening and night-time periods throughout the construction period and cover the range of activities being undertaken; (c) method and frequency for reporting monitoring results; and (d) a process to undertake real time noise and vibration monitoring. The results of the monitoring must be readily available to the construction team, the Proponent and ER. The Planning Secretary and EPA must be provided with access to the results on request.
C22	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.
E38	Work must only be undertaken during the following hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; (b) 8:00am to 1:00pm Saturdays; and (c) at no time on Sundays or public holidays. (c) at no time on Sundays or public holidays.

E43	Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria: (a) construction 'Noise affected' noise management levels established using the Interim Construction Noise Guideline (DECC, 2009); (b) preferred vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); (c) Australian Standard AS 2187.2 - 2006 "Explosives - Storage and Use - Use of Explosives" (for human exposure); (d) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and (e) the vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage). Any work identified as exceeding the noise management levels and / or vibration criteria must be managed in accordance with the Noise and Vibration CEMP Sub-plan.
E44	All reasonable and feasible mitigation measures must be applied when the following residential ground-borne noise levels are exceeded: (a) evening (6:00 pm to 10:00 pm) — internal LAeq(15 minute): 40 dB(A); and (b) night (10:00 pm to 7:00 am) — internal LAeq(15 minute): 35 dB(A). The mitigation measures must be outlined in the Noise and Vibration CEMP Sub-plan, including in any Out-of-Hours Work Protocol, required by Condition E42.
E47	Detailed Noise and Vibration Impact Statements (DNVIS) must be prepared for any work that may exceed the NMLs, vibration criteria and / or ground-borne noise levels specified in Conditions E43 and E44 at any residence outside construction hours identified in Condition E38, or where receivers will be highly noise affected or subject to vibration levels above those otherwise determined as appropriate by a suitably qualified structural engineer under Condition E87. The DNVIS must include specific mitigation measures identified through consultation with affected sensitive land user(s) and the mitigation measures must be implemented for the duration of the works. A copy of the DNVIS must be provided to the ER before the commencement of the associated works. The Planning Secretary and the EPA may request a copy (ies) of the DNVIS.
CEMF 3.16a	Issue specific environmental monitoring will be undertaken as required or as additionally required by any approval, permit or licence conditions.
CNVS 6.1	Measurements of sound power level.
CNVS 6.2	Monitoring to be undertaken where a DNVIS predicts NMLs will be exceeded.
CNVS 5.1	Where it has been identified that specific construction activities are likely to exceed the relevant noise or vibration goals, noise or vibration monitoring may be conducted at the affected receiver(s) or a nominated representative location (typically the nearest receiver where more than one receiver have been identified). Monitoring can be in the form of either unattended logging or operator attended surveys. The purpose of monitoring is to inform the relevant personnel when the noise or vibration goal has been exceeded so that additional management measures may be implemented.
EPL - 21807	
L3.1	The licensee must minimise noise and vibration impacts at residences and other sensitive land uses. To meet the requirements of this condition the licensee must: a) implement the guidance in the Interim Construction Noise Guideline (DEC, 2009) and the Assessing Vibration: a technical guideline (DEC, 2006); b) implement all reasonable and feasible measures to minimise noise impacts in accordance with the Interim Construction Noise Guideline (DEC, 2009); and c) implement vibration mitigation in accordance with the Assessing Vibration: a Technical Guideline (DEC, 2006). In this condition, 'reasonable' and 'feasible', in relation to noise management, have the same meaning as defined in the Interim Construction Noise Guideline (DEC, 2009).

2 Monitoring

This section provides a summary of the monitoring completed in the six-month reporting period from the start of February 2026 to the end of July 2026.

PLM construction activities subject to noise monitoring within the reporting period included deliveries, concrete pouring, earth works, batch plant operations, railway track construction, tower crane disassemble, concrete hammering, substation and crane lifting associated with tunnel and underground station fitout. Construction activities undertaken during the reporting period are summarised in Table 2.

Detailed monitoring results for each program are presented in the Appendix A.

TABLE 2 CONSTRUCTION ACTIVITIES DURING THIS REPORTING PERIOD

Site	Construction Activities
St Marys Station	• General operation of ancillary facility* • Station box – formwork reinforced steel concrete pour (FRP) • Tunnel and underground station box fitout* • Precast beams and installations* • Crane lifts* • Tower crane disassemble* • Utilities Investigation • Water treatment plant operation*
Claremont Meadows	• Tunnel fitout* • Water treatment plant operation* • Ventilation operations*
Orchard Hills Station	• General operation of ancillary facility • Station Box – FRP • Batch plant operation* • Rail activities* • Tunnel and underground station box fitout* • Deliveries* • Crane lifts* • Mechanical, electrical and plumbing (MEP) services installation • Retaining wall construction

Stabling Maintenance Facility	• General operation of ancillary facility* • Bulk earthworks • In-ground utility installation • FRP • Structural building • Track and rail construction* • Overhead wiring installation • Internal and external building fitout • Substation Partial Energisation • Deliveries
Luddenham Station	• General operation of ancillary facility • Bulk earthworks • In-ground utility installation • Station structures FRP • Precinct works • Deliveries
Bradfield Station	• General operation of ancillary facility* • Station Box – FRP • Precast beam delivery and installation* • Tunnel and underground station box fitout* • Deliveries • Bulk earthworks • In-ground utility installation
Bringelly Service Facility	• General operations of service facility* • Tunnel support service and fitout works* • Operation of ventilation fans*
Linewide	• In-ground utility installation • Active Transport Corridor (ATC) - road and bridge construction • Galvanised steel troughing (GST) install • FRP works • Track and rail installation • Overhead wiring installation • Fencing

NOTE * REFERS TO WORKS UNDERTAKEN OUTSIDE OF STANDARD CONSTRUCTION HOURS

2.1 Attended Noise Monitoring

Attended noise monitoring is required to validate noise predictions, including Noise Management Level (NML) compliant works, as well as measure the effectiveness of mitigation measures outlined in the management plans and detailed noise and vibration impact statement (DNVIS). It is undertaken at the first opportunity of starting a new OOH activity, where a change of construction methods or techniques is anticipated to result in increased noise and as required by the EPL or a DNVIS. Noise monitoring may also be conducted in response to complaints or at the request made by the EPA.

All noise monitoring conducted both during standard construction hours and out of hours (OOH), demonstrated compliance with DNVIS predicted noise levels within the reporting period. All exceedances in LAeq 15 minute attended noise monitoring results were confirmed to be derived from external sources, unrelated to PLM construction. Three (3) noise complaints were received during the reporting period. Investigations determined that two (2) complaints were associated with noise sources unrelated to PLM construction. The remaining complaint related to an isolated truck horn during standard construction hours. As this was an isolated event and not representative of ongoing construction noise, no complaint-triggered noise monitoring was required during the reporting period, and no monitoring requests were made by the EPA.

There was a reduction in OOH works undertaken by PLM during the reporting period, primarily due to the completion of major construction activities and modifications to the construction program. This included the completion of large-scale concrete pours at the station box sites, precast beam delivery and installation at St Marys Station, and the cessation of concrete batch plant operations at Orchard Hills Station. The completion of these major OOH work scopes, together with changes to the construction program, resulted in a reduction in the overall volume of OOH works undertaken during the reporting period.

Summary results of all attended noise monitoring conducted by PLM in the reporting period are provided in Appendix A (Attended activity-specific noise monitoring).

All monitoring locations are presented in Appendix B and the latest NATA accredited noise calibration certificates are provided in Appendix D, earlier calibration certificates are available within previous reports.

2.2 Unattended noise monitoring

Unattended loggers have been installed at targeted locations based on risk assessments of stakeholder exposure to the planned works. The indicative locations of the loggers have been provided in the relevant DNVIS. The unattended noise monitoring devices collect audio with a photograph taken when a potential noise exceedance is recorded. This information is evaluated to determine the source and cause.

Within the reporting period, PLM set up unattended noise monitors at Linewide Portion 1 North and Linewide Portion 1 South based on the extent of outside of standard construction hours work planned at these locations. Whilst data can be used for targeted unattended noise monitoring, PLM conducted all targeted monitoring via attended measurements. Unattended noise monitoring summary is provided in Appendix A (Unattended site monitoring data).

As shown in Appendix A, the average LAeq noise levels were below the applicable NMLs for all monitoring locations and assessment periods, with the exception of Portion 1 South, where the calculated average exceeded the NML by 6 dB during the day and 1 dB during the night.

Bulk earthworks associated with the Portion 1 ATC, temporary stockpile yard and Blaxland Creek bridge construction are considered to have contributed to the elevated noise levels recorded by the unattended logger at Portion 1 South. However, no PLM OOH works were undertaken during the night-time period around this location. Accordingly, the occasional elevated noise levels recorded during these periods, including instances exceeding NMLs, were attributed to external sources rather than PLM construction activities. These sources included animal activity, aircraft movements, non-PLM human activity and rainfall in the surrounding area.

2.3 Plant/Equipment Verification

Verification spot checks are performed for noise-intensive plant where it is required in the NVMP to check noise levels against the manufacturer's specifications. These checks are conducted on significant noise generating items of plant and would be monitored at first opportunity. The Project Noise Monitoring and Verification Register was reviewed during the reporting period to confirm that all significant plant due for six-monthly verification was captured and assessed.

Summary of sound power level (SWL) checks for plant and equipment are listed in Table 3. In many instances, distances greater than 7m were required due to safety restrictions and the maximum allowable levels were adjusted accordingly in these instances.

During this reporting period, sound power level checks indicated no exceedance of maximum allowable LA_{eq} for the equipment listed in Table 3.

TABLE 3 SUMMARY OF PLANT/EQUIPMENT NOISE VERIFICATION AGAINST APPROVED MAXIMUM SOUND POWER LEVELS

Date	Machinery	Activity location	Recorded SWL (dBA)	Maximum SWL (dBA) ¹	Exceedance of Predicted (dBA)	Comments
3/02/2026	Track tamper	SMF	83	113	No	Track tamper is compliant. Measurement was taken from 7m distance
2/07/2026	Hydraulic hammer – 34 tonne excavator	St Marys	107	122	No	Hammer is compliant. Noise measurement was taken from 7m distance behind ATF fence and noise blanket in place. SWL remains compliant with 5-10dB correction added to account for mitigation.
17/07/2026	Rail profile grinder	SMF	104	122	No	Rail profile grinder is compliant. Noise measurement was taken from 14m distance. The closest distance possible at the time.

1. MAXIMUM ALLOWABLE SOUND POWER LEVELS AS LISTED IN THE NOISE AND VIBRATION MANAGEMENT PLAN.

2.4 Vibration monitoring

Vibration monitoring is required whenever construction activities such as vibration compaction, rock breaking or work involving vibration intensive plant have the potential to adversely impact human comfort or compromise nearby structures, sensitive buildings, or critical infrastructure. Monitoring is also required to be undertaken in response to specific triggers such as complaints, exceedances of established criteria, or as identified through the project's detailed vibration impact assessments.

Concrete hammering associated with the removal of the tower crane base at St Marys was undertaken outside the minimum working distance trigger thresholds for heritage structures relative to the heritage goods shed. Accordingly, vibration monitoring was not required, and the works had no adverse vibration impacts on the heritage goods shed. No unattended or structural vibration monitoring has been triggered in the DNVIS approved at the time of this report. During this reporting period, there was no human comfort trigger to conduct vibration monitoring required for the construction activities nearest receivers.

2.5 Detailed Noise and Vibration Impact Statement (DNVIS)

DNVIS are required for any works that may exceed the NMLs, vibration criteria and / or ground-borne noise levels in Condition E43 and E44 at any residence outside construction hours specified in condition E38 or where receivers will be highly noise affected or subject to vibration levels above those determined by a suitably qualified structural engineer. The DNVIS includes specific mitigation measures identified through consultation with affected sensitive land user(s) and mitigation measures that must be implemented for the duration of works in accordance with the Interim Construction Noise Guideline (DEC, 2009).

DNVIS are required for approvals where different construction hours are permitted or required under an EPL in force in respect of the CSSI 10051 Conditions of Approval.

Noise or vibration monitoring is conducted at the affected receivers or nominated representative locations (typically the nearest receiver where one or more receivers are affected that are identified). Monitoring is usually in the form of attended monitoring but can be in the form of unattended logging. PLM uses noise monitoring data to indicate when additional noise management measures are required.

A summary for DNVIS applicable to this reporting period is provided listed in Table 4. They give an indication of potential works that may exceed NML, vibration criteria and/or ground-borne noise levels.

TABLE 4 DNVIS APPLICABLE DURING THE REPORTING PERIOD

Title	Revision	Approval Date	Site	Scope of work
St Marys Station – Concrete and Utility Works	03	26/11/2025	St Marys	Predominantly concrete work, utilities work, crane operations
Claremont Meadows Services Facility – OOH Works	01	13/10/2025	Claremont Meadows	Tunnel fit-out and supporting surface works, deliveries and ventilation
Orchard Hills Station – OHE Batch Plant and Concrete OOH	05	8/04/2025	Orchard Hills	DNVIS updated to include tunnel fitout and supporting surface works, precast beam installation, and station precinct activities.
Stabling and Maintenance Facility	03	19/12/2025	SMF	Concrete works, utility and bulk power supply installation
Linewide	00	31/01/2024	Linewide Off-Airport	DNVIS approved for track work.
Bringelly Services Facility	01	22/12/2025	Bringelly	Tunnel fit-out and supporting surface work, deliveries and ventilation
Bradfield Station – Concrete Works OOH	04	7/11/2024	Bradfield	Predominantly concrete works and crane operations

2.6 Conclusion

Summary results of attended and unattended noise monitoring conducted by PLM during the reporting period (Appendix A), demonstrates no confirmed PLM-attributable noise or vibration exceedances were identified during the reporting period.

2.7 Correction Log

It is possible from time to time for incorrect data to get published in good faith. As soon as practicable after the licensee becomes aware that the published noise monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading.

There are no matters included in the correction log for this reporting period.

Appendices

Noise and Vibration Construction Monitoring Report February to July 2026

Appendix A Noise Monitoring Results

Attended activity-specific noise monitoring

Full field notes for attended noise monitoring including weather records are retained on file with the key data being summarised in the table below.

Date	Time	Time Period	Construction Activity ²	Site Location	Monitoring Location/Address/DNVIS ID	Monitoring trigger	NCA ¹	NML dB(A)	Predicted LAeq(15min) dB(A)	Recorded LAeq(15min) dB(A)	LAmaz dB(A)	LA10	LA90	PLM Works Compliant with PNL	Comments
12/02/2026	22:22	OOH-Night	Substation Partial Energisation	SMF	43a Luddenham Road, Orchard Hills	First opportunity	9	39	39	37.7	47	38.9	36.4	Yes	Substation hum was faintly audible during the monitoring session. Additional noise sources included powerlines buzzing, distant traffic from the M4 and planes. Recorded measurement was below NML.
19/02/2026	00:30	OOH-Night	Pre-cast Install	St Marys	4 Chesham Street, St Marys	Routine monthly	3	41	59	48.7	68.9	49	42.6	Yes	PLM work was periodically audible with additional noise sources coming from traffic along Glossop Road. Recorded noise levels were below predicted DNVIS levels.
23/02/2026	22:23	OOH-Night	Utilities Investigation	St Marys	3 Station Street, St Marys	First opportunity	3	41	79	63.2	77.3	65.1	60.7	Yes	PLM work was the dominant noise source with vacuum truck and excavator operating. PLM work was below predicted DNVIS levels.
27/02/2026	6:33	OOH-Night	Boral batch plant	Orchard Hills	40 Landsdowne Road, Orchard Hills	Routine monthly	8	45	45	60.9	87	63	47.3	Yes	PLM work was faintly audible during breaks in traffic between 35 and 40dB. The dominant noise source coming from traffic along Kent Road and Lansdowne Road. PLM work was below predicted DNVIS.
16/03/2026	22:02	OOH-Night	Material crange	Bradfield	145 Badgerys Creek Road, Bradfield	Routine monthly	12	39	42	45.2	49.1	46.1	44.4	Yes	PLM works were faintly audible between 38 and 39 dB with insect and frogs the dominant noise source throughout the measurement. PLM works were compliant with DNVIS predictions.
16/03/2026	00:32	OOH-Night	Pre-cast Install	St Marys	4 Chesham Street, St Marys	Routine monthly	3	41	59	51.5	85.5	50.1	45.1	Yes	PLM works were audible throughout the measurement along with traffic noise from Glossop Street. Recorded noise levels were below predicted DNVIS levels.
22/03/2026	13:21	OOH-Day	Rail tamping	SMF	43a Luddenham Road, Orchard Hills	First opportunity	9	45	41	40.4	60.2	43.4	34.8	Yes	PLM tamper noise was faintly audible on occasions but well below NML. The dominant noise sources were birds, traffic noise from Luddenham Road and four plane fly overs.
23/03/2026	18:10	OOH-Evening	Rail Tamping	SMF	11 Cabernet Circuit, Orchard Hills	First opportunity	8	49	46	44.6	61.5	46	39.7	Yes	PLM works dominant noise source with tamping audible throughout measurement. PLM works compliant with predicted noise levels and noise management levels.
25/03/2026	6:15	OOH-Night	Material Cranage	Orchard Hills	40 Landsdowne Road, Orchard Hills	First opportunity	8	45	52	62.4	84.4	64.5	53	Yes	PLM work was audible during breaks between 43 to 46 dB. The dominant noise source was coming from traffic on Kent and Lansdowne Roads. PLM work was compliant with predicted DNVIS levels.
25/03/2026	6:40	OOH-Night	Concrete Pour	St Marys	4 Chesham Street, St Marys	Routine monthly	3	41	53	48.9	63.8	50.6	45.8	Yes	PLM construction was faintly audible during the monitoring session with additional noise sources coming from birds, trains passing through St Marys Station, and traffic along Chesham Street and Glossop Street. PLM work was compliant with DNVIS predictions.
30/03/2026	6:15	OOH-Night	Boral batch plant	Orchard Hills	40 Landsdowne Road, Orchard Hills	Routine monthly	8	45	45	65.3	88.6	64.5	50.2	Yes	PLM construction was faintly audible during brief breaks in traffic between 37 and 40 dB which was consistent along Kent Road and Lansdowne Road throughout the monitoring session. Crickets and birds in the background were also a contributing factor to the total noise. PLM work was compliant with predicted DNVIS levels as determined during breaks in traffic.
22/04/2026	22:39	OOH-Night	Pre-cast Install	Bradfield	145 Badgerys Creek Road, Bradfield	Routine monthly	12	39	42	43.9	53.1	45.8	41.5	Yes	PLM works were faintly audible between 37 and 39 dB, below background levels. The dominant noise sources included constant crickets and goat calls in the surrounding area. Recorded noise levels were below predicted DNVIS levels.
23/04/2026	01:38	OOH-Night	Pre-cast Install	St Marys	4 Chesham Street, St Marys	Routine monthly	3	41	59	52.8	74.9	52	41.7	Yes	PLM crange works audible with additional noise sources coming from traffic along Glossop Street. Recorded noise levels were below predicted DNVIS levels.
7/05/2026	00:15	OOH-Night	Pre-cast Install	Bradfield	145 Badgerys Creek Road, Bradfield	Routine monthly	12	39	42	41.6	64.4	40.6	39.3	Yes	PLM construction was the dominant noise source throughout the attended monitoring session, with additional noise sources coming from distant traffic, along with noises from dogs and sheep in the surrounding area. PLM work was compliant with DNVIS predictions.
14/05/2026	00:09	OOH-Night	Pre-cast Install	St Marys	4 Chesham Street, St Marys	Routine monthly	3	41	59	48.7	61	51.7	44.1	Yes	PLM crange works audible with additional noise sources coming from passing trains and traffic along Glossop Street. Recorded noise levels were below predicted DNVIS levels.
22/05/2026	21:03	OOH-Evening	Tower Crane Dismantle	St Marys	3 Station Street, St Marys	First opportunity	3	42	68	57.2	69.3	60.1	52.3	Yes	PLM construction was the dominant noise throughout the measurement with crane noise measured between 55 and 60dB. Trains passing and distant traffic noise was audible but generally drowned out by crane noise. PLM construction noise was measured below the DNVIS prediction for the tower crane dismantle activity.
17/06/2026	12:44	Standard hours	Bulk Earthworks	SMF	43a Luddenham Road, Orchard Hills	First opportunity	9	50	59	36.9	52.5	39.1	33.8	Yes	PLM works were faintly audible during the monitoring session. Contributing noise sources were from traffic on Luddenham Road and birds. Construction noise was measured below NML.
24/07/2026	13:23	Standard hours	Concrete Hammering	Orchard Hills	40 Landsdowne Road, Orchard Hills	First opportunity	8	54	<75	53.3	76.8	50.8	39.9	Yes	PLM work was audible intermittently through the monitoring session with additional noise sources such as traffic, birds and plane noise measuring at equal or higher noise levels. PLM work was below NML and therefore compliant.

1.REFER TO APPENDIX C FOR NCA MAPS
2.PLANT AND EQUIPMENT FOR CONSTRUCTION ACTIVITY CAN BE REVIEWED WITHIN THE RELEVANT DNVIS (REFER TO TABLE 4)

Unattended Site Monitoring Data

Unattended noise monitoring data is provided as an average LAeq for each 15 minute period over the representative period, during the date range of monitoring, and provides noise data during the various construction periods.

Date	Construction Activities	Activity Location	Monitoring Location	NML			Recorded Day (7am to 6pm) Avg LAeq15min	Recorded Evening (6pm to 10pm) Avg LAeq 15min	Recorded Night (10pm to 7am) Avg LAeq 15min	Comments
				Day	Evening	Night				
01/02/2026 – 31/07/2026	Earthworks, drainage, track construction, services	SSTOM Portion 1 North	Linewide Portion 1 – North-East Site (NCA08)	54	49	45	48	43	41	Real time noise averages (LAeq) captured within the reporting period. Dominant noise source was from the natural environment.
01/02/2026 – 31/07/2026	Earthworks, drainage, track construction, services	SSTOM Portion 1 South	Linewide Portion 1 – South-West site (NCA08)	54	49	45	60	48	46	Real time noise averages (LAeq) captured within the reporting period. Dominant noise source was from the natural environment.

Appendix B Monitoring Locations

Attended monitoring was conducted at the nearest safe and accessible locations, considering noise barriers, property access, and traffic safety.

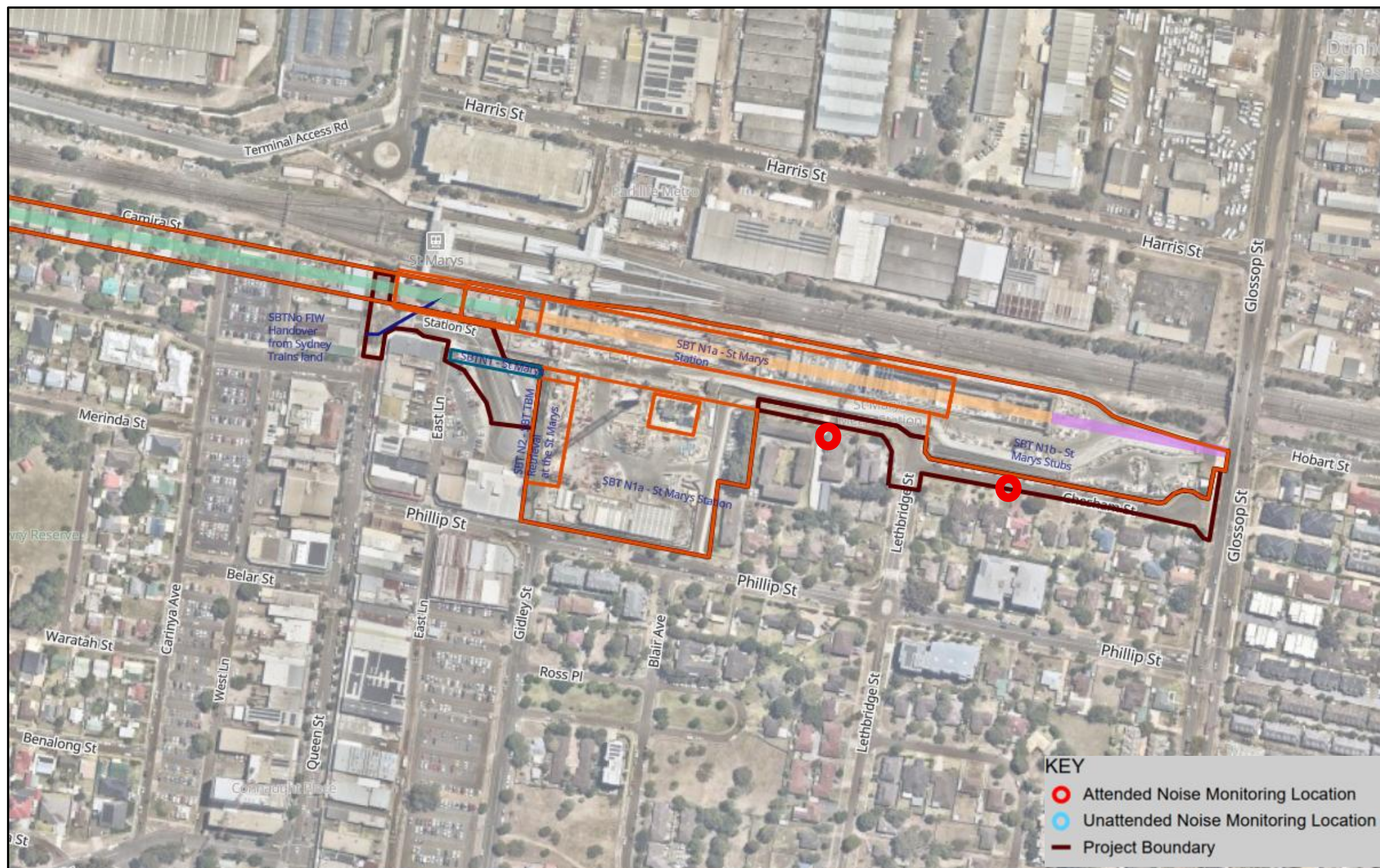


FIGURE 2 LOCATIONS OF NOISE MONITORING UNDERTAKEN DURING THIS REPORTING PERIOD (ST MARYS)

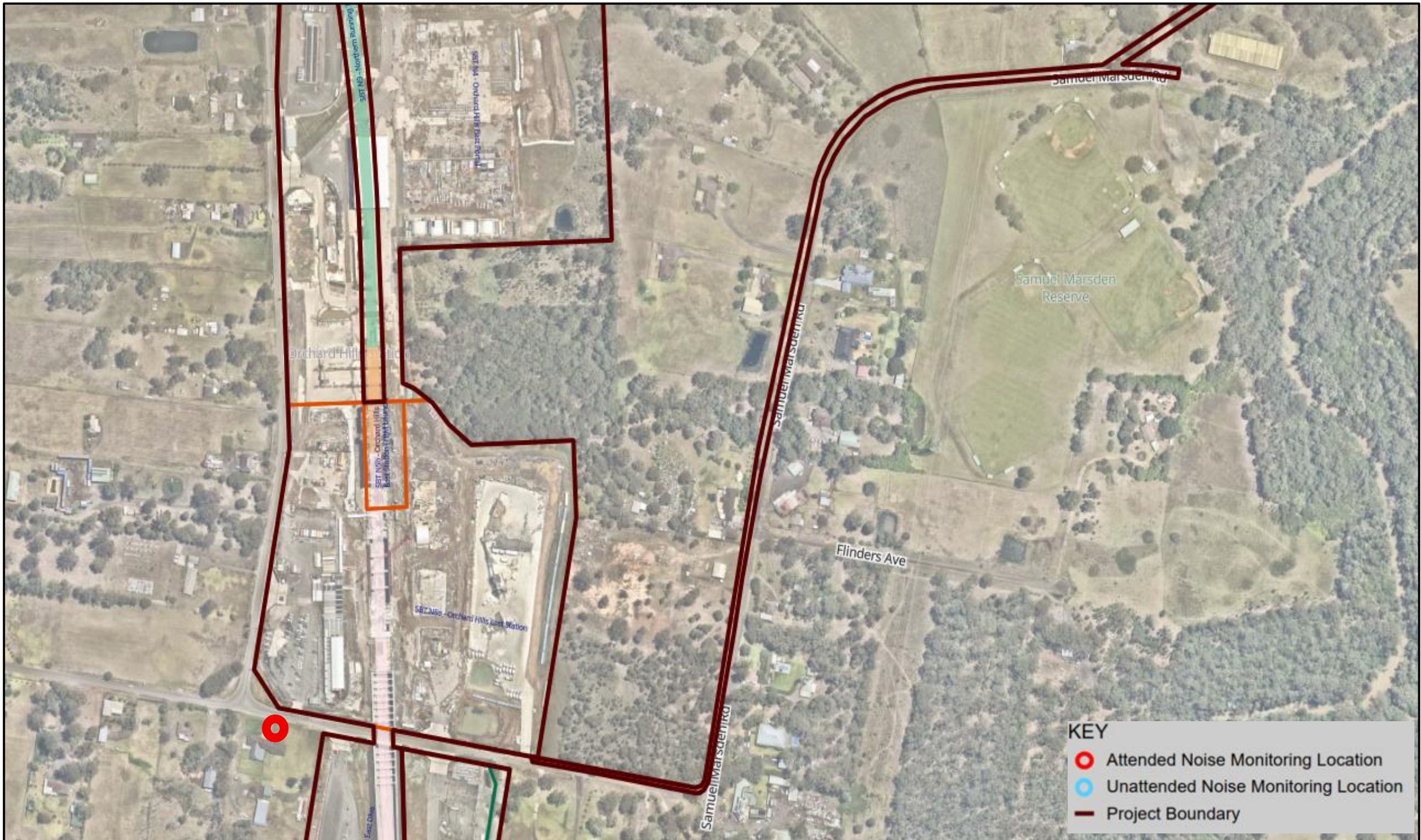


FIGURE 3 LOCATIONS OF NOISE MONITORING UNDERTAKEN DURING THIS REPORTING PERIOD (ORCHARD HILLS)

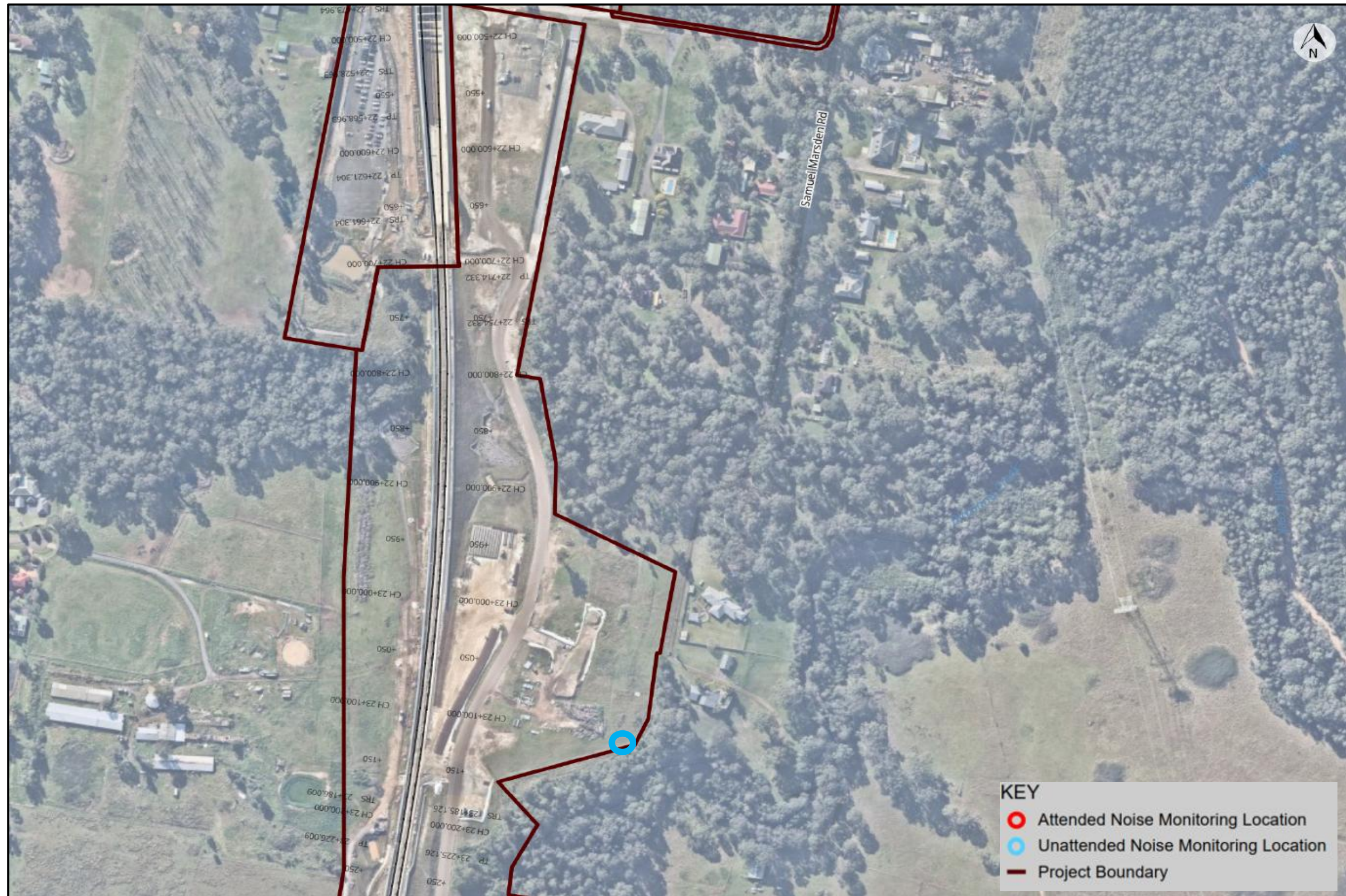


FIGURE 4 LOCATIONS OF NOISE MONITORING UNDERTAKEN DURING THIS REPORTING PERIOD (LINEWIDE PORTION 1)

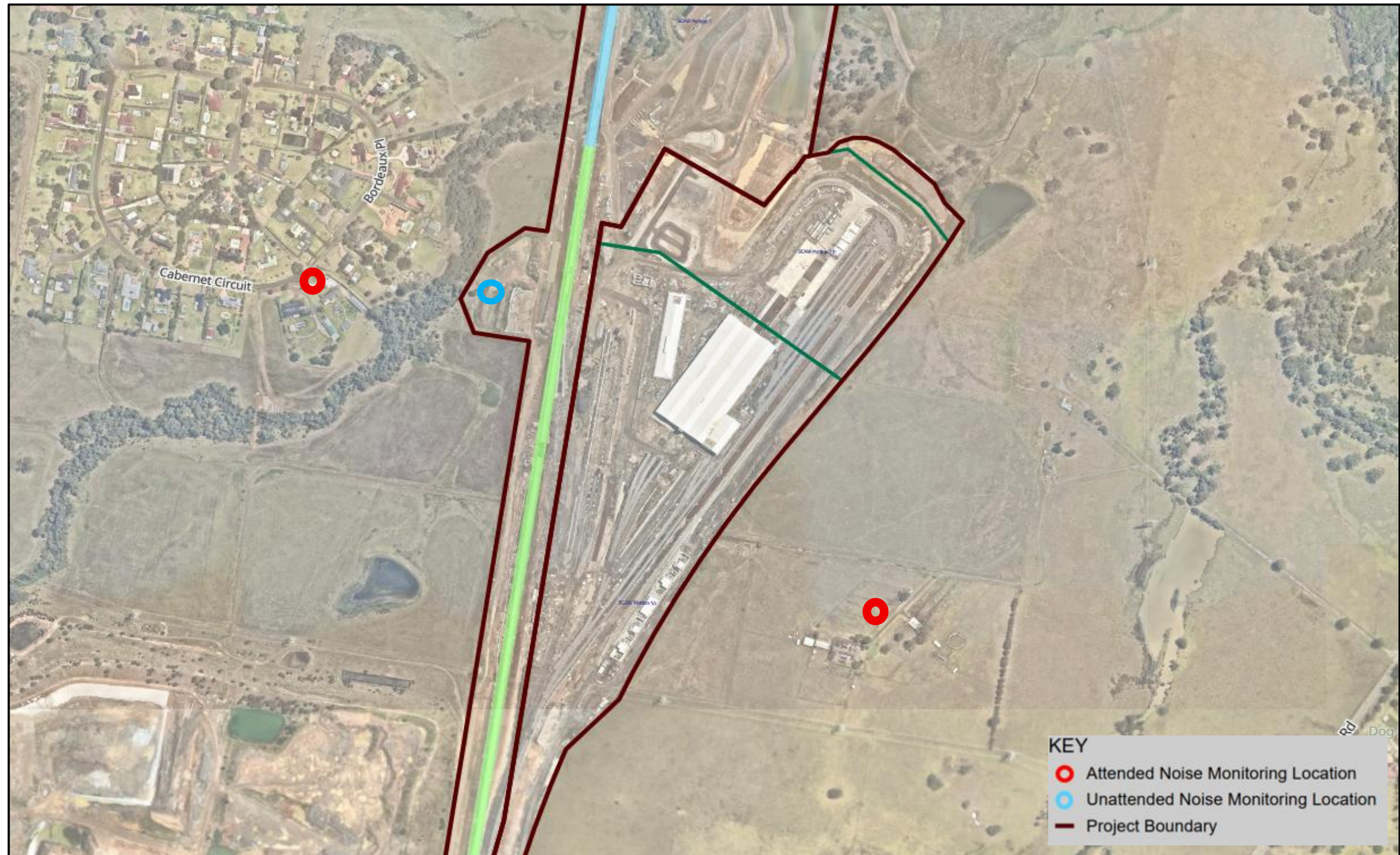
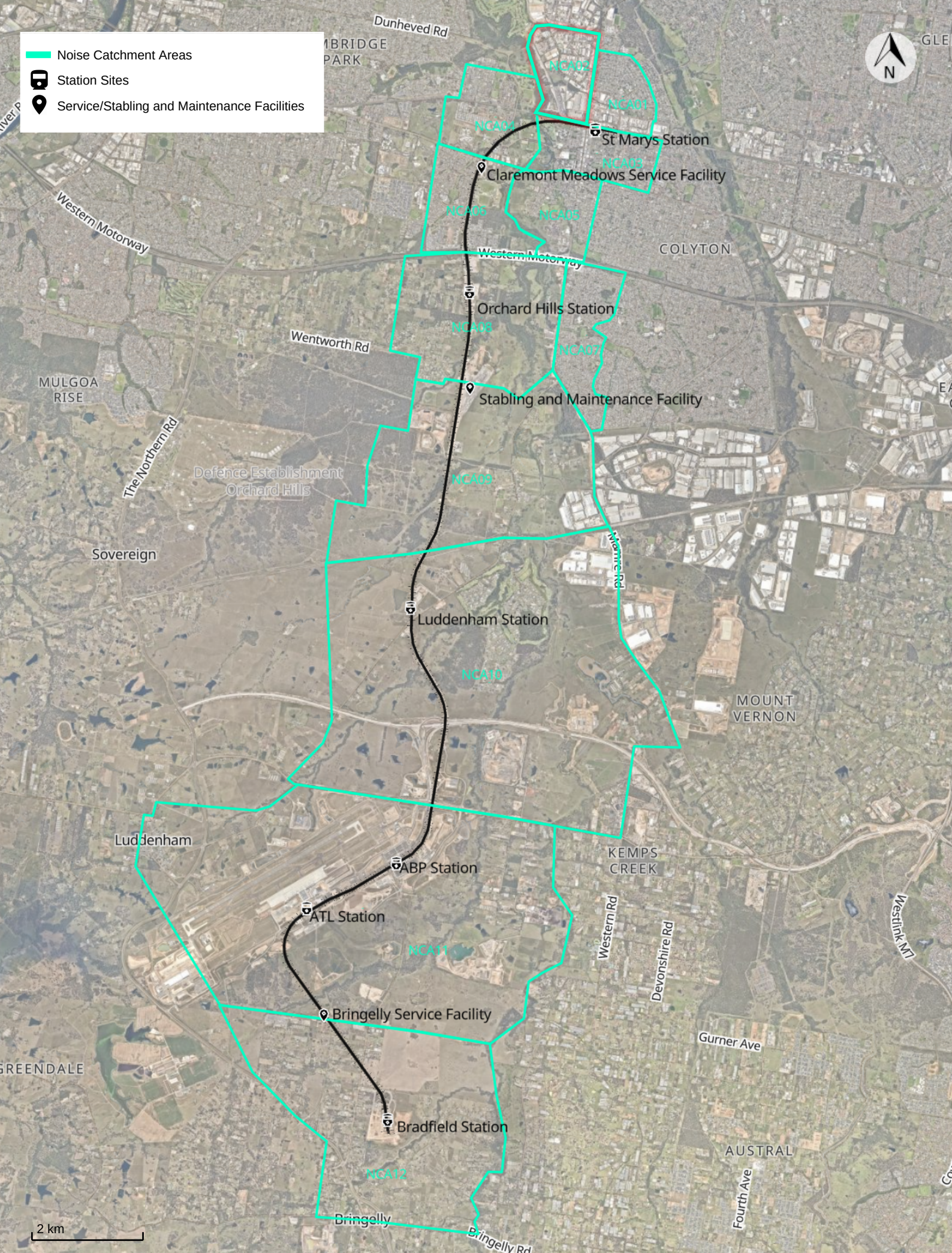


FIGURE 5 LOCATIONS OF NOISE MONITORING UNDERTAKEN DURING THIS REPORTING PERIOD (STABLING AND MAINTENANCE FACILITY AND LINEWIDE)

23
Parklife Metro © All rights reserved
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Appendix C

Noise Catchment Areas



Appendix D Certificate of Calibration



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www.acousticresearch.com.au

Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C25631-V1

Client Details Parklife Metro D&C
Level 7, 175 Liverpool Street
Sydney NSW 2000

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34745923

Atmospheric Conditions

Ambient Temperature : 20.8 °C
Relative Humidity : 47.9 %
Barometric Pressure : 100.71 kPa

Calibration Technician : Shaheen Boaz
Calibration Date : 22-Sep-2025

Secondary Check: Rhys Gravelle
Report Issue Date : 22-Sep-2025

Approved Signatory :

Juan Aguero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.07	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests	Environmental Conditions
Generated SPL	Temperature
Frequency	Relative Humidity
Distortion	Barometric Pressure

±0.10 dB
±0.07 %
±0.20 %

±0.1 °C
±1.9 %
±0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

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NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.



Sound Calibrator
IEC 60942:2017
Calibration Test Report

Calibration Number C25631-V1

Client Details	Parklife Metro D&C Level 7, 175 Liverpool Street Sydney NSW 2000		
-----------------------	--	--	--

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34745923

Atmospheric Conditions

Ambient Temperature : 20.8 °C
Relative Humidity : 47.9 %
Barometric Pressure : 100.71 kPa

Calibration Technician :	Shaheen Boaz	Secondary Check:	Rhys Gravelle
Calibration Date :	22-Sep-2025	Report Issue Date :	22-Sep-2025

Approved Signatory :

Juan Agüero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -			
Specific Tests	Environmental Conditions		
	Generated SPL	±0.10 dB	Temperature ±0.1 °C
	Frequency	±0.07 %	Relative Humidity ±1.9 %
	Distortion	±0.20 %	Barometric Pressure ±0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



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Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C25632-V1

Client Details Parklife Metro D&C
Level 7, 175 Liverpool Street
Sydney NSW 2000

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34645808

Atmospheric Conditions

Ambient Temperature : 21.3 °C
Relative Humidity : 46.9 %
Barometric Pressure : 100.7 kPa

Calibration Technician : Shaheen Boaz
Calibration Date : 22-Sep-2025

Secondary Check: Rhys Gravelle
Report Issue Date : 22-Sep-2025

Approved Signatory :

Juan Aguero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.12	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests	Environmental Conditions
Generated SPL	Temperature
Frequency	Relative Humidity
Distortion	Barometric Pressure

±0.10 dB
±0.07 %
±0.20 %

±0.1 °C
±1.9 %
±0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

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Sound Calibrator

IEC 60942:2017

Calibration Test Report

Calibration Number C25632-V1

Client Details	Parklife Metro D&C Level 7, 175 Liverpool Street Sydney NSW 2000
-----------------------	--

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34645808

Atmospheric Conditions

Ambient Temperature : 21.3 °C
Relative Humidity : 46.9 %
Barometric Pressure : 100.7 kPa

Calibration Technician : Shaheen Boaz
Calibration Date : 22-Sep-2025

Secondary Check: Rhys Gravelle
Report Issue Date : 22-Sep-2025

Approved Signatory :

Juan Agüero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -			
Specific Tests		Environmental Conditions	
Generated SPL	±0.10 dB	Temperature	±0.1 °C
Frequency	±0.07 %	Relative Humidity	±1.9 %
Distortion	±0.20 %	Barometric Pressure	±0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



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Sound Calibrator

IEC 60942:2017

Calibration Certificate

Calibration Number C25633-V1

Client Details Parklife Metro D&C
Level 7, 175 Liverpool Street
Sydney NSW 2000

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34645809

Atmospheric Conditions

Ambient Temperature : 21.5 °C
Relative Humidity : 46.9 %
Barometric Pressure : 100.71 kPa

Calibration Technician : Shaheen Boaz
Calibration Date : 22-Sep-2025

Secondary Check: Rhys Gravelle
Report Issue Date : 22-Sep-2025

Approved Signatory :

Juan Aguero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	93.91	1000.00

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	±0.10 dB	Temperature	±0.1 °C
Frequency	±0.07 %	Relative Humidity	±1.9 %
Distortion	±0.20 %	Barometric Pressure	±0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

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Sound Calibrator
IEC 60942:2017
Calibration Test Report

Calibration Number C25633-V1

Client Details	Parklife Metro D&C Level 7, 175 Liverpool Street Sydney NSW 2000		
-----------------------	--	--	--

Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NC-75	34645809

Atmospheric Conditions			
Ambient Temperature :	21.5 °C		
Relative Humidity :	46.9 %		
Barometric Pressure :	100.71 kPa		

Calibration Technician :	Shaheen Boaz	Secondary Check:	Rhys Gravelle
Calibration Date :	22-Sep-2025	Report Issue Date :	22-Sep-2025

Approved Signatory :

Juan Agüero

Characteristic Tested	Result
Generated Sound Pressure Level	Pass
Frequency Generated	Pass
Total Distortion	Pass

The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Uncertainties of Measurement -			
Specific Tests	Environmental Conditions		
	<i>Generated SPL</i>	<i>Temperature</i>	± 0.1 °C
	<i>Frequency</i>	<i>Relative Humidity</i>	± 1.9 %
	<i>Distortion</i>	<i>Barometric Pressure</i>	± 0.019 kPa

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



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Sound Level Meter

IEC 61672-3:2013

Calibration Certificate

Calibration Number C25752-V1

Client Details			
Parklife Metro D&C Level 7, 175 Liverpool Street Sydney, NSW, 2000			
Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument :	Rion	NL-53	00630296
Microphone :	Rion	UC-59	27362
Pre-amplifier :	Rion	NH-25	33121
Firmware Version :	01.00		
Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature : 24.7 °C		Ambient Temperature : 23 °C	
Relative Humidity : 34.5 %		Relative Humidity : 34.9 %	
Barometric Pressure : 99.15 kPa		Barometric Pressure : 99.11 kPa	
Calibration Technician : Shaheen Boaz		Secondary Check: Rhys Gravelle	
Calibration Date : 17-Nov-2025		Report Issue Date : 19-Nov-2025	
Approved Signatory : 			Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	N/A
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	Pass
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
125Hz	±0.13 dB	Temperature	±0.1 °C
1kHz	±0.13 dB	Relative Humidity	±1.9 %
8kHz	±0.14 dB	Barometric Pressure	±0.019 kPa
Electrical Tests	±0.13 dB		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

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Sound Level Meter IEC 61672-3:2013 Calibration Test Report

Calibration Number C25752-V1

Client Details		Parklife Metro D&C Level 7, 175 Liverpool Street Sydney, NSW, 2000	
Equipment Tested :	<i>Manufacturer</i>	<i>Model</i>	<i>Serial</i>
Instrument Serial Number :	Rion	NL-53	00630296
Microphone Serial Number :	Rion	UC-59	27362
Pre-amplifier Serial Number :	Rion	NH-25	33121
Firmware Version :	01.00		
Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	24.7 °C	Ambient Temperature :	23 °C
Relative Humidity :	34.5 %	Relative Humidity :	34.9 %
Barometric Pressure :	99.15 kPa	Barometric Pressure :	99.11 kPa
Calibration Technician :	Shaheen Boaz	Secondary Check:	Rhys Gravelle
Calibration Date :	17-Nov-2025	Report Issue Date :	19-Nov-2025

Approved Signatory :

Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	N/A
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	Pass
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
125Hz	±0.13 dB	Temperature	±0.1 °C
1kHz	±0.13 dB	Relative Humidity	±1.9 %
8kHz	±0.14 dB	Barometric Pressure	±0.019 kPa
Electrical Tests	±0.13 dB		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



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Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.

Accredited for compliance with ISO/IEC 17025 - Calibration.

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Hexanode Calibration Certificate



27 Nov 2025

Noise

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 104 Commonwealth Street, Surry Hills, NSW, 2010.

NATA Certificates of Calibration that comply with the Class 2 performance requirements of IEC 61672.3 are available on request.

Serial Number	Noiseboard ID	Calibration Value	Calibration Date	Calibration Due
HEX-000641	4273865-006-0924000020	2.779169	25 Jun 2025	25 Jun 2027

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source
Reference Sound Level Calibrator:	Lutron SC-941
Calibration Reference Level:	94dB
Calibration Reference Frequency:	1 KHz
Environmental Conditions:	The environmental conditions remained within the acceptable limits as defined in IEC 61672.3

Hexanode Calibration Certificate



27 Nov 2025

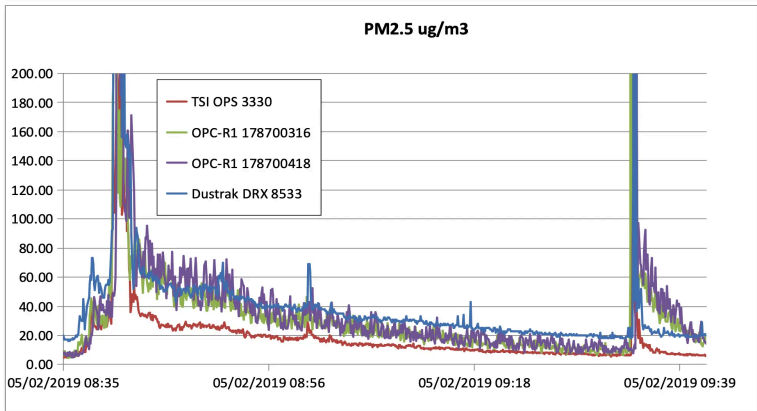
Dust

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

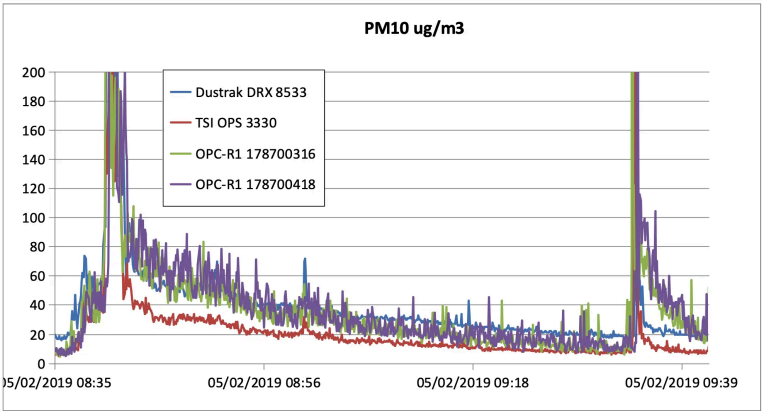
The Hexanode Multi device utilises the Alphasense OPC-R2 particle monitor to provide real-time dust measurements. These sensors are calibrated at manufacture by Alphasense. Whilst the R2 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense R2 is available [here](#).

Particle range	µm spherical equivalent size (based on RI of 1.5)	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram period (seconds)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	particles/second	10,000
Max coincidence probability	% concentration at 106 particles/L	0.7

Prior to deployment, the R2 is tested against TSI Optical Particle Sizer 3330 and DustTrak instruments.



Comparison of PM2.5 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.



Comparison of PM10 monitoring by OPC-R2 sensor and TSI OPS 3330 and DustTrak instruments. All are set at 5s averaging and are sampling the ambient air of a workshop, the raw 3330 data has been used to calculate a PM figure.

Hexanode Calibration Certificate



17 Dec 2025

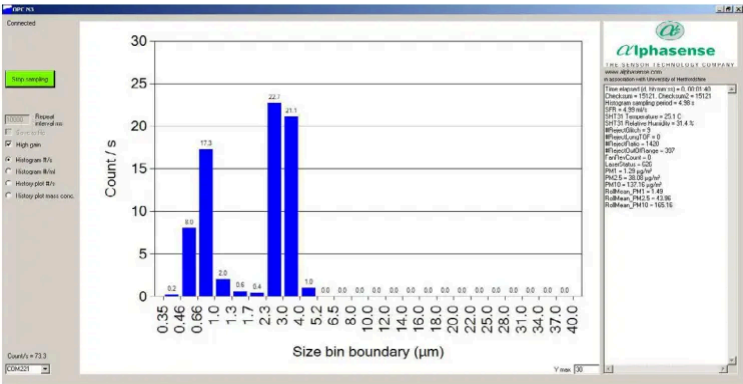
Dust

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

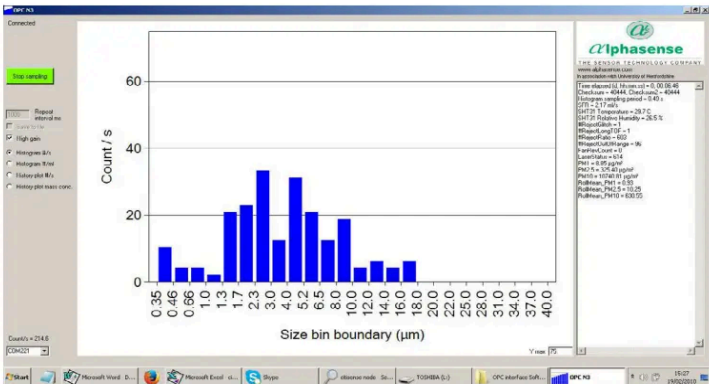
The Hexanode utilises the Alphasense N3 Optical Particle Sensor to provide real-time dust measurements. Whilst the N3 does not have any gravimetric sampling capabilities, measurements can be adjusted using a K-Factor if one is available. SiteHive software will also provide measurements from the nearest Government air quality station for reference. The full data sheet for the Alphasense N3 is available [here](#).

Particle range	Particle range* μm spherical equivalent size (based on RI of 1.5)	0.35 to 40
Size categorisation	Number of software bins	24
Sampling interval	Histogram period (seconds)	1 to 30
Total flow rate (typical)	L/min	5.5
Sample flow rate (typical)	mL/min	280
Max particle count rate	Particles/second	10,000
Max coincidence probability	%concentration at 106 particles/L	0.84
Max coincidence probability	%concentration at 500 particles/L	0.24

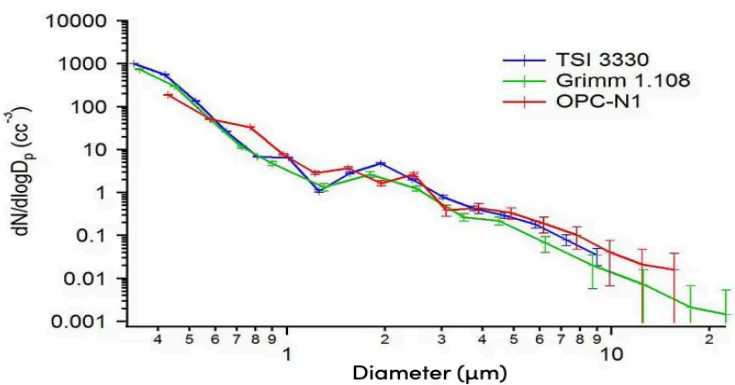
OPC-N3 response to 0.75 and 3 μm PSL calibration standards



OPC-N3 response to a broad size range test dust



Particle Size Derivative Comparison



The OPC-N3 uses the same algorithms for 0.3 - 17 μm as the OPC-N1.

Hexanode Calibration Certificate



17 Dec 2025

Noise

Thank you for choosing SiteHive for your realtime environmental management. This calibration certificate is valid for the device below.

The Hexanode sound level meter has been pressure calibrated by SiteHive using a NATA Certified (IEC 60942: Sound calibrators) Sound Level Calibrator, at 104 Commonwealth Street, Surry Hills, NSW, 2010.

NATA Certificates of Calibration that comply with the Class 2 performance requirements of IEC 61672.3 are available on request.

Serial Number	Noiseboard ID	Calibration Value	Calibration Date	Calibration Due
HEX-001093	4273865-010-0825000091	5.763226	24 Nov 2025	24 Nov 2027

Accuracy:	Complies with precision requirements of IEC 61672 for Class 2
Acoustic overload point:	135 dBSPL
Frequency Range:	20 Hz ~ 12.5 kHz
Frequency Rating:	Z, A and C weighting
Parameters (dB):	Frequency & time weighted integrations, statistical levels, and more
Direction of Arrival:	Device angle & cartesian angle (0°-360°) of dominant noise source
Reference Sound Level Calibrator:	Lutron SC-941
Calibration Reference Level:	94dB
Calibration Reference Frequency:	1 KHz
Environmental Conditions:	The environmental conditions remained within the acceptable limits as defined in IEC 61672.3