

Construction noise and vibration Monthly Report – November 2024

London Borough of Hillingdon

Non-Technical Summary	1
Abbreviations and Descriptions	3
1 Introduction	4
1.2 Measurement Locations	7
2 Summary of Results	9
2.1 Summary of Measured Noise Levels	9
2.2 Exceedances of the LOAEL and SOAEL	13
2.3 Exceedances of Trigger Level	16
2.4 Complaints	16
Appendix A Site Locations	17
Appendix B Monitoring Locations	23
Appendix C Data	28

List of tables

Table 1: Table of Abbreviations	3
Table 2: Monitoring Locations	7
Table 3: Summary of Measured dB L_{Aeq} Data over the Monitoring Period	10
Table 4: Summary of Measured PPV Data over the Monitoring Period	13
Table 5: Summary of Exceedances of LOAEL and SOAEL	14
Table 6: Summary of Exceedances of Trigger Levels	16
Table 7: Summary of Complaints	16

Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise monitoring carried out within the London Borough of Hillingdon during the month of November 2024.

Within this period noise and vibration monitoring was undertaken at the following worksites:

- Colne Valley Viaduct site (ref.: CVV), where compound operation, maintenance and operation of the haul road and jetty, pier construction, auto-transformer feeder station works, water pumping, installation of satellite welfare facilities and generator farms, South Abutment works, environmental maintenance, stockpiling, river crossing works, launching girder, deck finishes work, landscaping, jetty removal and gravel islands works were underway.
- West Ruislip Portal worksite (ref.: WRP) where construction of attenuation tanks, construction of concrete plant area, golf course maintenance works, removal of temporary conveyor structure, segment delivery and storage operation and main conveyor operation were underway.
- Breakspear Road worksite (ref.: BR), where installation of backfilling, installation of permanent drainage, works for the realignment of the river Pinn, aggregate storage, conveyor operations and noise barrier testing were underway.
- South Ruislip Ventilation Shaft worksite (ref.: SRVS), where road sweeping, shuttering, steel fixing, mechanical, electrical and plumbing works, coring, concrete breaking, lifting operations, concrete pouring, wire sawing, core drilling, cages fixing, backfilling, compaction, waterproofing, digging and site management were underway.
- Harvil Road worksite (ref.: HR), where tunnel boring machine material treatment, mound construction, permanent pond preparation, spoil handling, snagging works, operation of conveyor, pugmill and water treatment plant were underway.
- Northern Sustainable Placement Area worksite (ref.: NSPA) where fence installation, construction of footpath, seeding and tree planting preparation works, vegetation clearance, surface water and borehole monitoring were underway.

Further works, where monitoring did not take place, were also undertaken at the following locations:

- Copthall North, where material movement, backfilling, construction of Copthall Tunnel, attenuation pond works, headhouse and access road construction were underway.

The HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (<https://www.gov.uk/government/publications/hs2-information-papers-environment>), were not exceeded during the reporting period.

There were no exceedances of trigger levels as defined in Section 61 consents during the reporting period.

Three (3) complaints were received during the monitoring period. A description of complaints, the results of investigation and any actions taken are detailed in Table 7 of this report.

Abbreviations and Descriptions

The abbreviations, descriptions and project terminology used within this report can be found in Table 1.

Table 1: Table of Abbreviations

Acronym/Term	Definition
$L_{Aeq,T}$	See equivalent continuous sound pressure level
Ambient sound	A description of the all-encompassing sound at a given location and time which will include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, $L_{pAeq,T}$
Decibel(s), or dB	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale called the decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement. Audibility of sound covers a range of approximately 0-140dB.
Decibel(s) A-weighted, or dB(A)	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and is written as 'dB(A)'.
Equivalent continuous sound pressure level, or $L_{Aeq,T}$	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value, typically expressed as a decibel level.
Exclusion of data	Measurement of noise levels can be affected by weather conditions such as prolonged periods of rain, winds speeds higher than 5m/s and snow/ice ground cover. Noise levels measured during these periods are considered not representative of normal noise conditions at the site and, for the purposes of this report, are excluded from the assessment of exceedances and calculation of typical noise levels and are also greyed out in charts. Identifiable incongruous noise and vibration events not attributable to HS2 construction noise are also excluded.
Façade	A facade noise level is the noise level 1m in front of a large reflecting surface. The effect of reflection, is to produce a slightly higher (typically +3 dB) sound level than it would be if the reflecting surface was not there.
Free-field	A free-field noise level is the noise level measured at a location where no reflective surfaces, other than the ground, lies within 3.5 metres of the microphone position.
LOAEL	Lowest Observed Adverse Effect Level - the level above which adverse effects on health and quality of life can be detected.
Peak particle velocity, or PPV	Instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position. The PPV is a simple indicator of perceptibility and risk of damage to structures due to vibration. It is usually measured in mm/s.
SOAEL	Significant Observed Adverse Effect Level - the level above which significant adverse effects on health and quality of life occur.
Sound pressure level	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre and a change of 3dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
Vibration dose value, or VDV	An index used to evaluate human exposure to vibration in buildings. While the PPV provides information regarding the magnitude of single vibration events, the VDV provides a measure of the total vibration experienced over a specified period of time (typically 16h daytime and 8h night-time). It takes into account the magnitude, the number and the duration of vibration events and can be used to quantify exposure to continuous, impulsive, occasional and intermittent vibration. The vibration dose value is measured in $m/s^{1.75}$.

1 Introduction

1.1.1 HS2 is required to undertake noise (and vibration) monitoring as necessary to comply with the requirements of the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, including specifically Annex 1: Code of Construction Practice, in addition to any monitoring requirements arising from conditions imposed through consents under Section 61 of the Control of Pollution Act, 1974 or through Undertakings & Assurances given to third parties. Such monitoring may be undertaken for the following purposes:

- monitoring the impact of construction works;
- to investigate complaints, incidents and exceedance of trigger levels; or
- monitoring the effectiveness of noise and vibration control measures.

1.1.2 Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the London Borough of Hillingdon (LBH) for the period 1st to 30th November 2024.

1.1.3 Active construction sites in the local authority area where monitoring was undertaken during this period include:

- Colne Valley Viaduct worksite, ref.: CVV (see Plan 1 in Appendix A), where work activities included:
 - Compound operations.
 - Maintenance and operation of the haul road and jetty.
 - Pier construction, including drilling and concrete works.
 - Auto-transformer feeder station, including site preparations, bulk earthworks fill, drainage and tree removal.
 - Water pumping management works.
 - Installation of satellite welfare and generator farms.
 - South Abutment works, including earthworks, stabilisation, abutment construction, yard supporting activities, soiling and seeding and concrete reinforcement works.
 - Environmental maintenance.

- Stockpiling.
- Construction of River Colne crossing, including emergency obstruction dismantling works.
- Launching girder and deck works, including launching gantry erection, steel structure erection and dismantling, post tensioning works, stressing, grouting and crane assembly and dismantling works.
- Deck finishes works, including preparation and operation of storage yards, installation of access provision, traffic management, installation of parapets, stairs, noise barriers, troughs, pipes, steel works, storage of minor materials, construction of kerbs and concrete stitch, filling of voids and top openings, waterproofing, concrete works, steel works and drainage.
- Landscaping works, including removal of cofferdams, earthworks, ground profiling and cut, ground drainage, hardstanding removal, soil placement and de-vegetation.
- Jetty removal works, including excavation, backfill, landscaping, cutting piles, and steelworks.
- Gravel islands work.
- West Ruislip Portal worksite, ref.: WRP (see Plan 2 in Appendix A), where work activities included:
 - Construction of permanent attenuation tanks.
 - Construction of concrete plant area.
 - Removal of temporary conveyor structure.
 - Golf course maintenance works, including vegetation clearance and wildlife habitat maintenance.
 - Segment delivery and storage operations.
 - Main conveyor operation.
- Breakspear Road worksite, ref.: BR (see Plan 2 in Appendix A), where work activities included:
 - Backfilling.
 - Installation of permanent drainage.
 - Works for the realignment of the river Pinn.
 - Aggregate storage, including material deliveries and movements.
 - Conveyor operations.

- Noise barrier testing.
- South Ruislip Ventilation Shaft worksite, ref.: SRVS (see Plan 4 in Appendix A), where work activities included:
 - Road sweeping.
 - Shuttering.
 - Steel fixing.
 - Mechanical, electrical and plumbing works.
 - Coring.
 - Concrete breaking.
 - Lifting operations.
 - Concrete pouring.
 - Wire sawing.
 - Core drilling.
 - Cages fixing.
 - Backfilling.
 - Compaction.
 - Waterproofing.
 - Digging.
 - Site management, including site security and de watering.
- Harvil Road worksite, ref.: HR (see Plan 2 in Appendix A), where work activities included:
 - Tunnel boring machine material treatment.
 - Construction of mounds, including drainage, material placement and compaction.
 - Permanent pond preparation.
 - Conveyor and pugmill operation.
 - Spoil handling.
 - Operation of water treatment plant including maintenance and drainage works.
 - Snagging works.

- Northern Sustainable Placement Area worksite, ref.: NSPA (see Plan 3 in Appendix A), where activities included:
 - Fence installation.
 - Construction of footpath.
 - Seeding and tree planting preparation works.
 - Vegetation clearance.
 - Surface water and borehole monitoring.

Further works, where monitoring did not take place, were also undertaken at the following location:

- Copthall North, where material movement, backfilling, construction of Copthall Tunnel, attenuation pond works, headhouse and access road construction were underway.

1.1.4 The applicable standards, guidance, and monitoring methodology are outlined in the construction noise and vibration monitoring methodology report which can be found at the following location <https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>. Noise and vibration monitoring reports for previous months can also be found at this location.

1.2 Measurement Locations

1.2.1 Nineteen (19) noise and two (2) vibration monitoring installations were active in November in the LBH area. Table 2 summarises the location of noise and vibration monitoring installations within the LBH area in November 2024.

1.2.2 Maps showing the position of noise monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
CVV	DLC-NMP	Dew's Farm Cottages, Dews Lane, Harefield, Uxbridge
	HFM-NMP	Harefield Marina, Moorhall Road, London Borough of Hillingdon
	PLD-NMP	Peerless Drive, Harefield, Uxbridge
	WRC-NMP	Savay Lane, Denham, Uxbridge

Worksite Reference	Measurement Reference	Address
WRP	WRP-N001	Ruislip Golf Course, Ickenham Rd, Ruislip
	N048	Ruislip Golf Course, Ickenham Rd, Ruislip
	N056	83 The Greenway, Ickenham, Ruislip
	N057	123 The Greenway, Ickenham, Ruislip
	GW-V001	95 The Greenway, Ickenham, Uxbridge
BR	N065	Breakspear Road South, Harefield, Uxbridge
	N066	Hoylake Crescent, Ickenham, Uxbridge
	TKL-N001	Tile Kiln Lane, Harefield, Uxbridge
SRVS	N061	Cineworld South Ruislip car park, Ruislip
	TCA-N001	Trenchard Avenue, Ruislip
	SRVS-V001a	Braintree Road, Ruislip
HR	N067	Harvil Road worksite south boundary
	SSPA-HR	Harvil Road
	BSR-N001	Breakspear Road
	DGT-N001	Dogs Trust West London
NSPA	NSPA-N001	Newyears Green Lane
	NSPA-N002	Newyears Green Lane

2 Summary of Results

2.1 Summary of Measured Noise and Vibration Levels

2.1.1 Table 3 presents a summary of the measured noise levels at each monitoring location over the reporting period. The $L_{Aeq,T}$ is presented for each of the relevant time periods averaged over the calendar month, along with the highest single period $L_{Aeq,T}$ that was found to occur within the month.

Table 3: Summary of Measured dB LAeq Data over the Monitoring Period

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekday Average LAeq,T (Highest Day LAeq,T)					Saturday Average LAeq,T (Highest Day LAeq,T)					Sunday / Public Holiday Average LAeq,T (Highest Day LAeq,T)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
CVV	DLC-NMP	Dew's Farm Cottages, Dews Lane, Harefield	Façade	59.7 (61.4)	64.2 (71.1)	51.0 (55.9)	47.9 (54.4)	50.0 (59.7)	57.0 (59.8)	63.5 (65.1)	54.3 (57.0)	51.1 (57.4)	46.3 (55.1)	50.9 (58.6)	49.0 (58.6)
	HFM-NMP	Harefield Marina, Moorhall Road, London	Free-field	52.7 (55.0)	54.5 (58.1)	48.3 (55.5)	47.8 (58.3)	43.0 (50.9)	48.5 (49.5)	52.5 (54.3)	50.1 (50.1)	47.3 (49.7)	41.6 (45.2)	47.2 (51.3)	41.7 (46.6)
	PLD-NMP	Peerless Drive, Harefield, Uxbridge	Façade	50.6 (56.3)	56.9 (61.9)	48.3 (55.3)	47.3 (63.4)	42.5 (53.6)	46.9 (52.0)	50.8 (53.5)	50.5 (54.3)	51.9 (70.6)	42.8 (54.3)	49.6 (58.2)	41.4 (51.4)
	WRC-NMP	Savay Lane, Denham, Uxbridge	Façade	54.2 (56.2)	53.8 (56.5)	51.8 (53.8)	49.5 (56.6)	45.7 (53.6)	50.3 (51.2)	55.3 (63.5)	52.2 (53.1)	52.4 (68.9)	45.2 (52.5)	51.3 (56.7)	45.1 (51.8)
WRP	WRP-N001	West Ruislip Golf Club, Ickenham Rd, Ruislip	Free-field	47.2 (54.5)	48.8 (53.5)	46.9 (56.0)	47.4 (60.1)	43.6 (52.3)	46.6 (51.0)	49.5 (53.4)	49.0 (51.3)	49.8 (63.9)	42.8 (48.1)	49.6 (58.7)	43.6 (50.5)
	N048	West Ruislip Golf Club, Ickenham Rd, Ruislip	Free-field	58.4 (61.5)	60.5 (63.2)	54.1 (57.6)	54.1 (61.4)	50.4 (58.0)	55.7 (60.1)	59.7 (63.7)	54.1 (56.0)	57.3 (69.3)	50.0 (53.9)	54.5 (59.2)	50.0 (56.3)
	N056	83 The Greenway, Ickenham, Ruislip	Façade	61.9 (63.2)	61.0 (62.5)	61.5 (62.9)	60.2 (61.8)	56.6 (62.5)	59.4 (59.9)	60.0 (60.9)	60.3 (61.7)	60.4 (63.0)	54.1 (60.1)	59.7 (62.3)	56.9 (61.3)
	N057	123 The Greenway, Ickenham, Ruislip	Façade	59.4 (65.8)	57.8 (58.7)	58.5 (60.3)	57.6 (68.1)	53.7 (59.6)	56.5 (57.3)	57.3 (57.8)	57.4 (58.9)	57.3 (62.7)	50.6 (56.2)	56.1 (59.9)	53.8 (58.6)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
BR	N065	Breakspear Road South, Harefield	Free-field	66.0 (68.1)	66.1 (68.7)	66.4 (68.9)	63.9 (68.0)	59.1 (65.7)	63.2 (64.4)	65.7 (66.4)	66.0 (66.6)	65.4 (67.7)	58.7 (62.3)	63.8 (66.2)	59.8 (65.4)
	N066	Hoylake Crescent, Ickenham, Uxbridge	Free-field	56.5 (58.3)	57.1 (59.6)	56.7 (58.7)	56.4 (75.5)	52.1 (57.5)	54.2 (54.5)	56.0 (57.5)	55.3 (56.6)	57.3 (73.6)	49.7 (61.6)	55.0 (57.5)	52.1 (57.1)
	TKL-N001	Tile Kiln Lane, Harefield, Uxbridge	Free-field	48.5 (54.0)	49.9 (53.6)	49.2 (54.3)	48.9 (57.3)	45.1 (52.5)	47.5 (51.7)	51.0 (53.4)	51.7 (54.2)	49.8 (58.5)	44.8 (50.7)	50.4 (56.9)	44.6 (49.6)
SRVS	N061	Cineworld South Ruislip car park, Ruislip	Free-field	60.3 (63.3)	63.5 (65.3)	63.6 (70.5)	62.6 (72.3)	57.1 (73.3)	59.6 (61.3)	63.5 (64.8)	63.5 (64.4)	63.4 (66.6)	58.4 (67.7)	61.6 (70.6)	56.5 (61.6)
	TCA-N001	Trenchard Avenue, Ruislip	Free-field	59.0 (62.6)	60.5 (62.6)	59.7 (63.2)	58.0 (66.2)	53.9 (69.2)	56.4 (57.9)	58.7 (61.0)	59.0 (62.8)	57.9 (60.5)	51.5 (58.0)	57.8 (62.1)	53.2 (57.7)
HR	N067	Harvil Road worksite south boundary	Free-field	57.1 (59.7)	59.1 (62.9)	58.3 (68.6)	57.0 (69.1)	52.5 (68.0)	54.2 (56.1)	58.8 (60.8)	61.2 (67.6)	60.0 (68.1)	49.9 (60.8)	59.3 (65.0)	50.8 (56.5)
	SSPA-HR	Harvil Road	Free-field	59.6 (61.9)	60.1 (61.2)	59.1 (60.8)	58.9 (74.8)	55.3 (72.0)	57.6 (58.6)	59.7 (62.1)	58.6 (59.5)	58.5 (61.0)	52.9 (58.2)	60.0 (64.2)	50.9 (58.8)
	BSR-N001	Breakspear Road	Free-field	69.3 (70.4)	68.7 (71.0)	68.6 (70.1)	66.4 (69.2)	61.4 (67.9)	66.0 (67.4)	68.2 (69.4)	68.5 (69.0)	67.6 (70.3)	60.8 (63.6)	65.8 (69.5)	62.5 (68.4)
	DGT-N001	Dogs Trust West London	Façade	53.6 (57.4)	54.1 (57.6)	50.9 (55.2)	49.4 (55.3)	45.8 (56.2)	50.6 (54.0)	54.3 (56.9)	54.3 (54.5)	51.9 (56.0)	44.5 (48.1)	51.2 (57.6)	46.1 (54.0)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
NSPA	NSPA-N001	Newyears Green Lane	Free-field	59.6 (61.8)	59.8 (64.0)	58.5 (64.2)	54.4 (67.1)	50.4 (60.1)	54.1 (55.4)	58.0 (59.4)	58.7 (62.2)	56.7 (69.2)	47.2 (51.9)	54.8 (60.8)	51.1 (58.7)
	NSPA-N002	Newyears Green Lane	Free-field	46.5 (52.0)	49.8 (61.8)	45.7 (55.8)	44.6 (54.9)	40.1 (49.8)	44.5 (49.7)	47.9 (51.8)	47.7 (49.4)	47.6 (54.3)	39.8 (44.4)	48.0 (56.9)	39.1 (47.7)

2.1.2 Table 4 presents a summary of the measured vibration levels at each monitoring location over the reporting period. The highest PPV measured during the monitoring along any axis is presented in the table.

Table 4: Summary of Measured PPV Data over the Monitoring Period

Worksite Reference	Measurement Reference	Monitor Address	Highest PPV measured in any axis, mm/s
WRP	GW-V001	95 The Greenway, Ickenham, Uxbridge	1.30 (Y-axis)
SRVS	SRVS-V001a	Braintree Road, Ruislip	2.89 (Z-axis)

2.1.3 Appendix C presents graphs of the noise and vibration monitoring data over the month for each of the measurement locations. Noise data presented consists of the hourly L_{Aeq} values and, where relevant, the $L_{Aeq,T}$ values (where the time period T has been taken to be the averaging period as specified in Table 1 of HS2 Information Paper E23). Vibration data presented consist of hourly PPV values. The full data set for the monitoring equipment can be found at the following location: <https://data.gov.uk/dataset/24542ae7-dd44-444f-b259-871c4cc43b5e/environmental-monitoring-data>.

2.2 Exceedances of the LOAEL and SOAEL

2.2.1 The lowest observed adverse effect level (LOAEL) is defined in the Planning Practice Guidance – Noise (PPG) as the level above which "noise starts to cause small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life".

2.2.2 The significant observed adverse effect level (SOAEL) is defined in the 'Planning Practice Guidance – Noise' as the level above which "noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

2.2.3 HS2 Phase One Information Paper E23: Control of Construction Noise and Vibration sets out the LOAELs and SOAELs for construction noise.

2.2.4 Where reported construction noise levels exceed the LOAEL and SOAEL, relevant periods will be identified. Summary statistics to evaluate ongoing qualification for noise insulation and temporary rehousing are also presented where relevant.

2.2.5 Table 5 presents a summary of recorded exceedances of the LOAEL and SOAEL at each measurement location over the reporting period, including the number of exceedances during each time period.

Table 5: Summary of Exceedances of LOAEL and SOAEL

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
CVV	DLC-NMP	Dew's Farm Cottages, Dews Lane, Harefield, Uxbridge	Weekday	0700-0800	3	No exceedance
			Weekday	0800-1800	2	
			Sunday	0700-2200	8	
			Night	2200-0700	25	
	HFM-NMP	Harefield Marina, Moorhall Road, London	All days	All periods	No exceedance	No exceedance
	PLD-NMP	Peerless Drive, Harefield, Uxbridge	All days	All periods	No exceedance	No exceedance
	WRC-NMP	Savay Lane, Denham, Uxbridge	All days	All periods	No exceedance	No exceedance
WRP	WRP-N001	West Ruislip Golf Club, Ickenham Rd, Ruislip	All days	All periods	No exceedance	No exceedance
	N048	West Ruislip Golf Club, Ickenham Rd, Ruislip	All days	All periods	No exceedance	No exceedance
	N056	83 The Greenway, Ickenham, Ruislip	All days	All periods	No exceedance	No exceedance
	N057	123 The Greenway, Ickenham, Ruislip	All days	All periods	No exceedance	No exceedance

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
BR	N065	Breakspear Road South, Harefield, Uxbridge	All days	All periods	Not applicable*	No exceedance
	N066	Hoyle Crescent, Ickenham, Uxbridge	All days	All periods	No exceedance	No exceedance
	TKL-N001	Tile Kiln Lane, Harefield, Uxbridge	Night	2200-0700	26	No exceedance
SRVS	N061	Hoyle Crescent, Ickenham, Uxbridge	All days	All periods	Not applicable**	Not applicable**
	TCA-N001	Trenchard Avenue, Ruislip	All days	All periods	Not applicable*	No exceedance
HR	N067	Harvil Road worksite south boundary	All days	All periods	No exceedance	No exceedance
	SSPA-HR	Harvil Road	All days	All periods	No exceedance	No exceedance
	BSR-N001	Breakspear Road	All days	All periods	Not applicable*	No exceedance
	DGT-N001	Dogs Trust West London	All days	All periods	No exceedance	No exceedance
NSPA	NSPA-N001	Newyears Green Lane	All days	All periods	No exceedance	No exceedance
	NSPA-N002	Newyears Green Lane	All days	All periods	No exceedance	No exceedance

* The LOAEL has not been assessed due to high baseline levels

** The defined LOAEL and SOAEL criteria are not applicable to non-residential receptor

2.2.6 Exceedances of the LOAEL were recorded at two (2) monitoring locations during weekday and Sunday daytime and night periods.

2.2.7 No exceedances of the SOAEL were recorded at any monitoring location during November 2024.

2.3 Exceedances of Trigger Level

2.3.1 Table 6 provides a summary of exceedances of the Section 61 trigger noise levels determined to be due to HS2 related construction noise measured during the reporting period, along with the findings of any investigation.

Table 6: Summary of Exceedances of Trigger Levels

Complaint Reference Number (if applicable)	Worksite Reference	Date and Time Period	Identified Source	Results of Investigation (including noise monitoring results)	Actions Taken
-	-	-	-	-	-

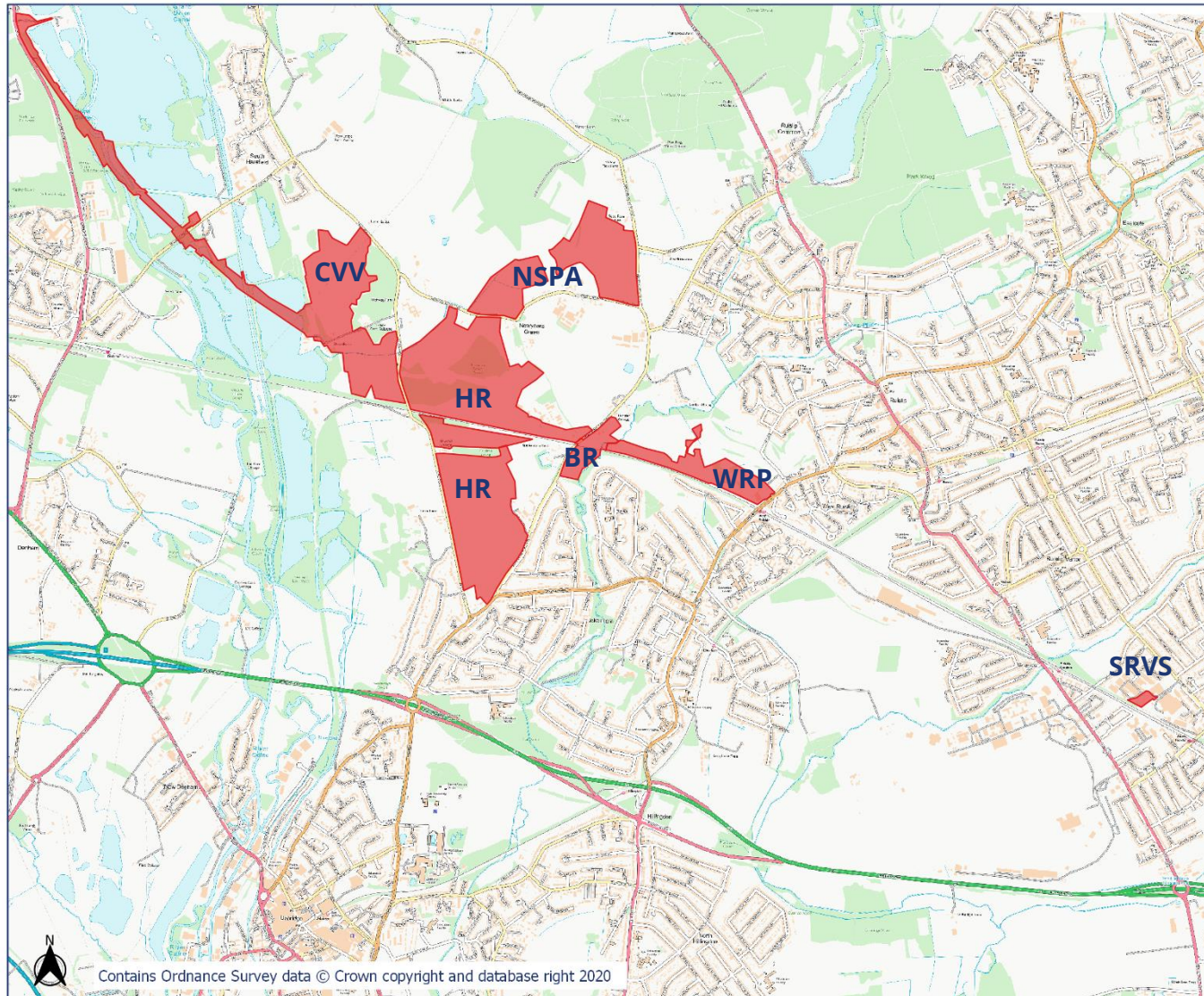
2.4 Complaints

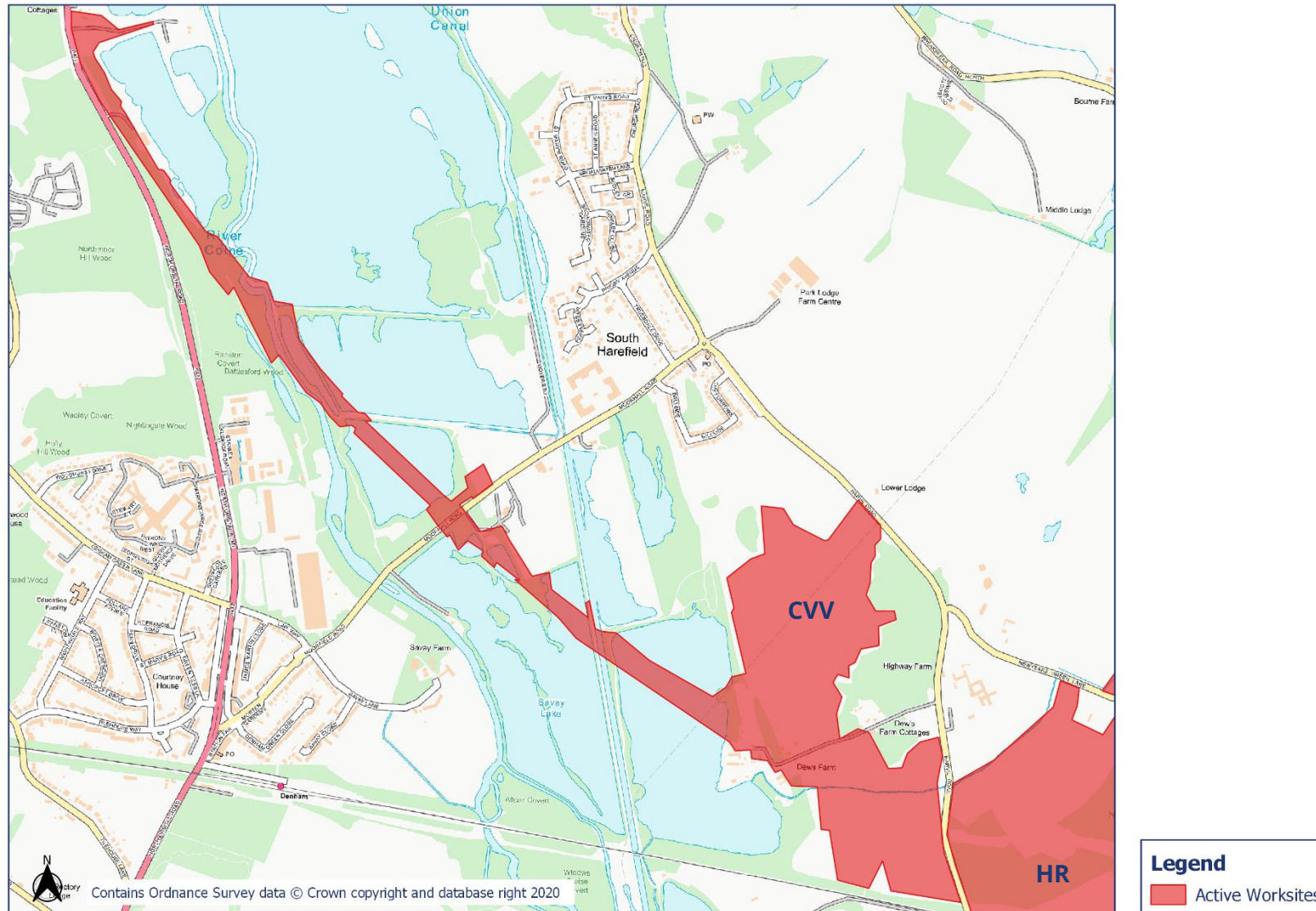
2.4.1 Table 7 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

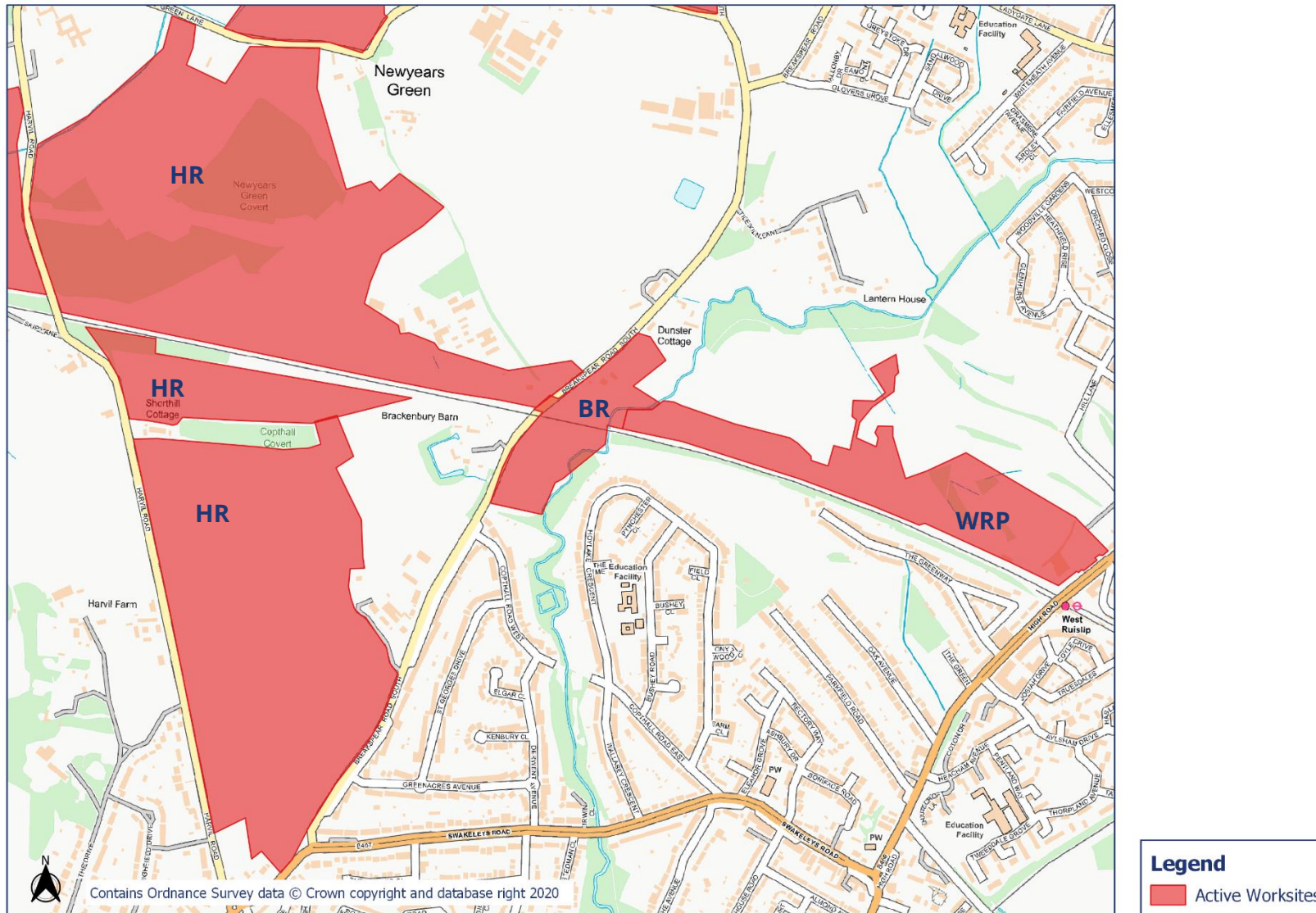
Table 7: Summary of Complaints

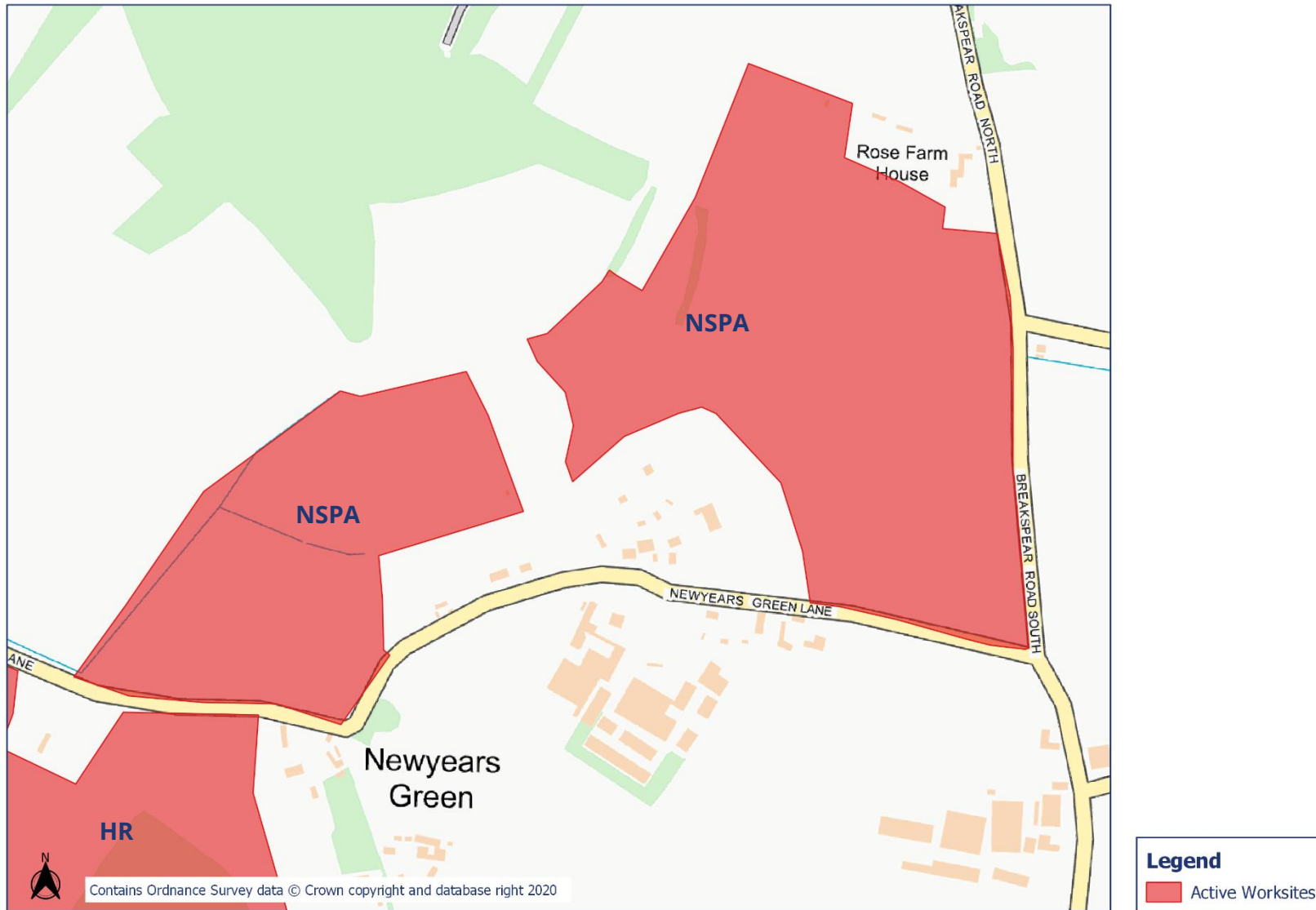
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-24-45826-C	WRP	Complaint regarding general noise from site.	The noise was identified as due to the cleaning of metal pipes using high pressure jets on nearby tunnelling works to remove cement. All activities consented with local council and no exceedances of the Section 61 thresholds were recorded due to these works.	Additional monitors have been installed to monitor the area. Resident has been updated with findings of investigation.
HS2-24-115951-E-C	SRVS	Complaint due to noise and vibration felt at the property.	Property is more than 800m away from any HS2 worksites, therefore noise and vibration experienced are unlikely to be related to HS2 Works.	Investigation undertaken and complainant informed of the outcome.
HS2-24-116212-E-C	WRP	Complaint about loud machinery noise at night.	Works are carried out 24/7 within permitted night-time works consent relating to the operation of the Tunnel Boring Machines. Noise monitors were checked and were within consented levels.	The complaint was investigated, and a response was provided to the stakeholder.

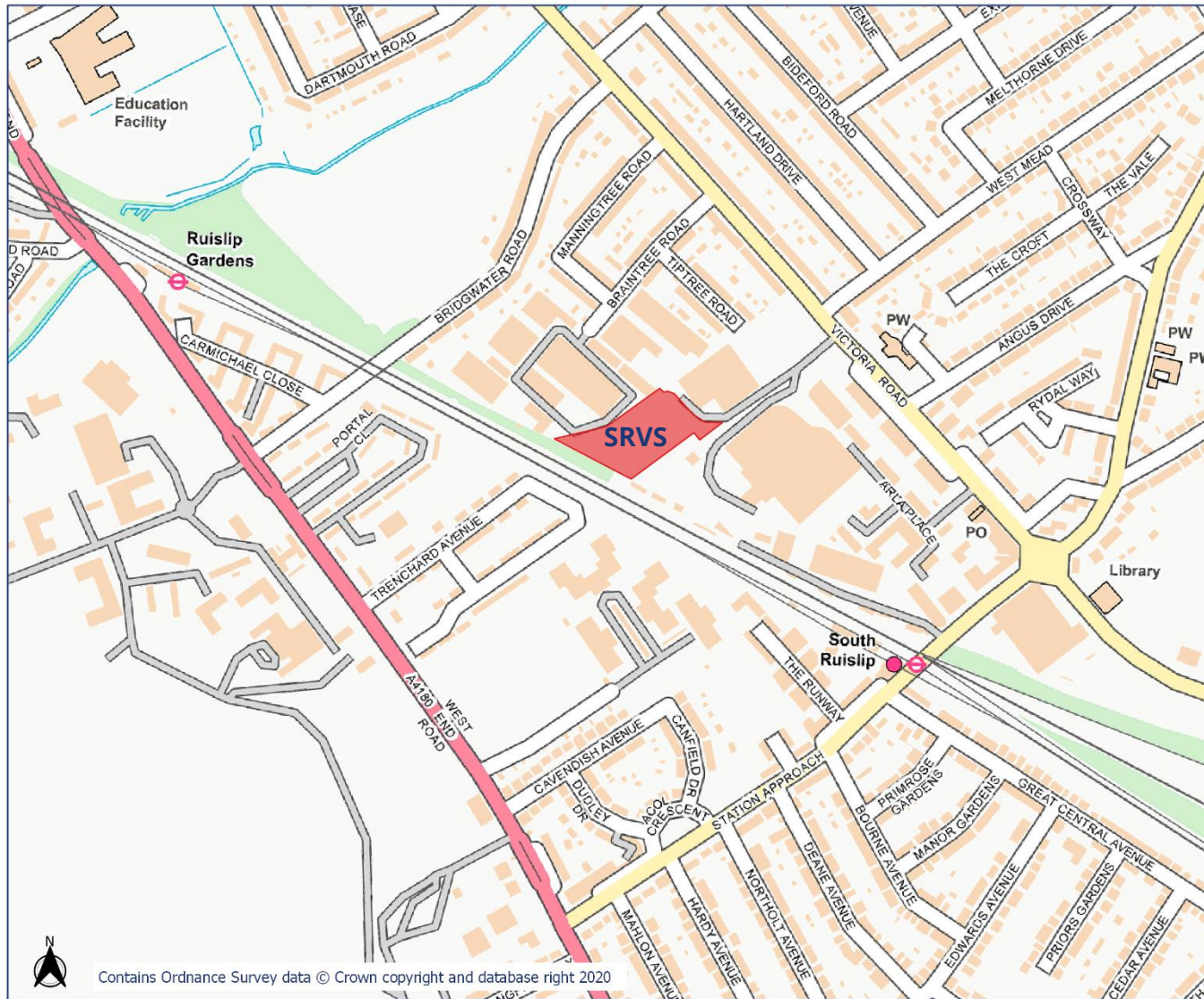
Appendix A Site Locations







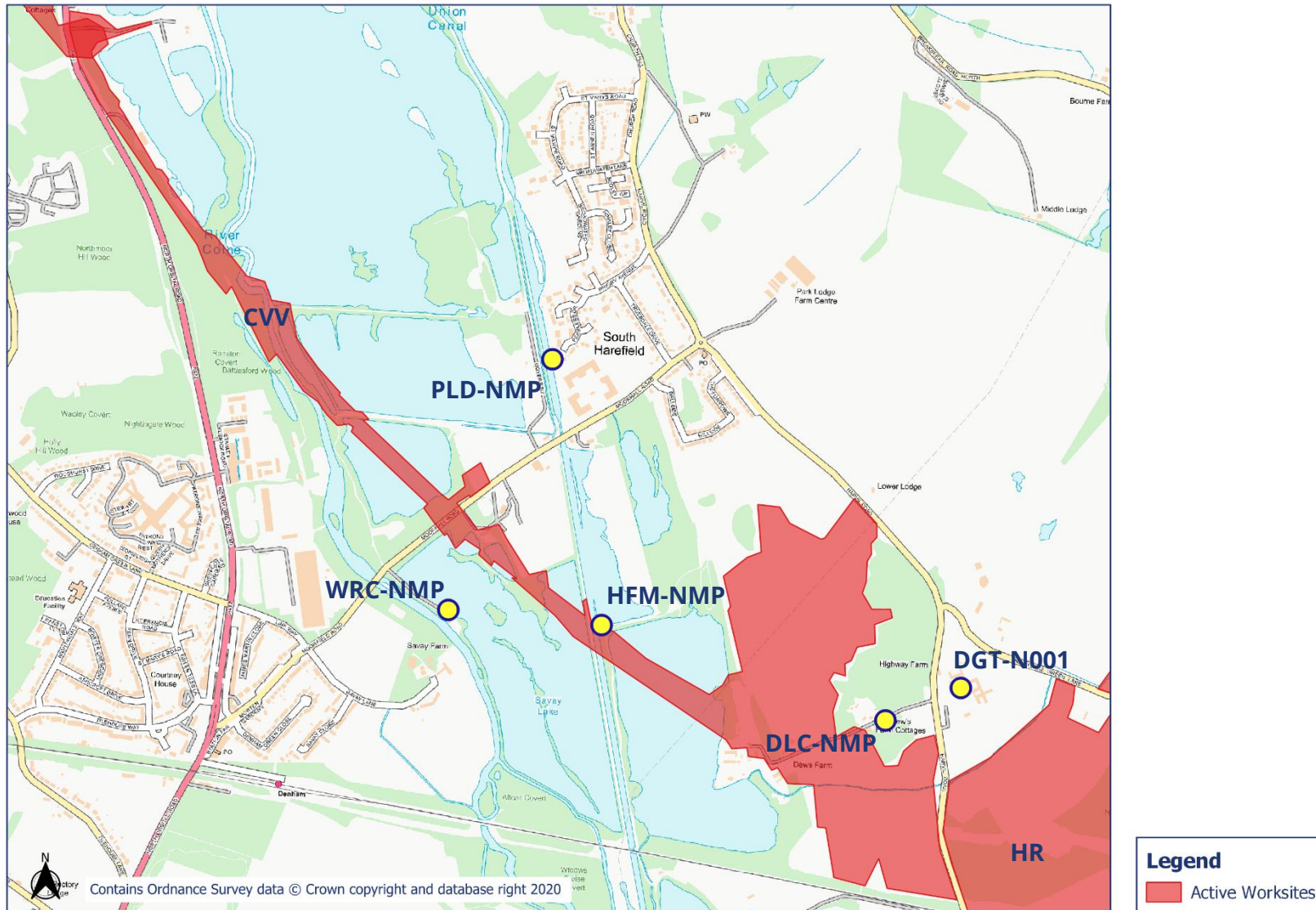


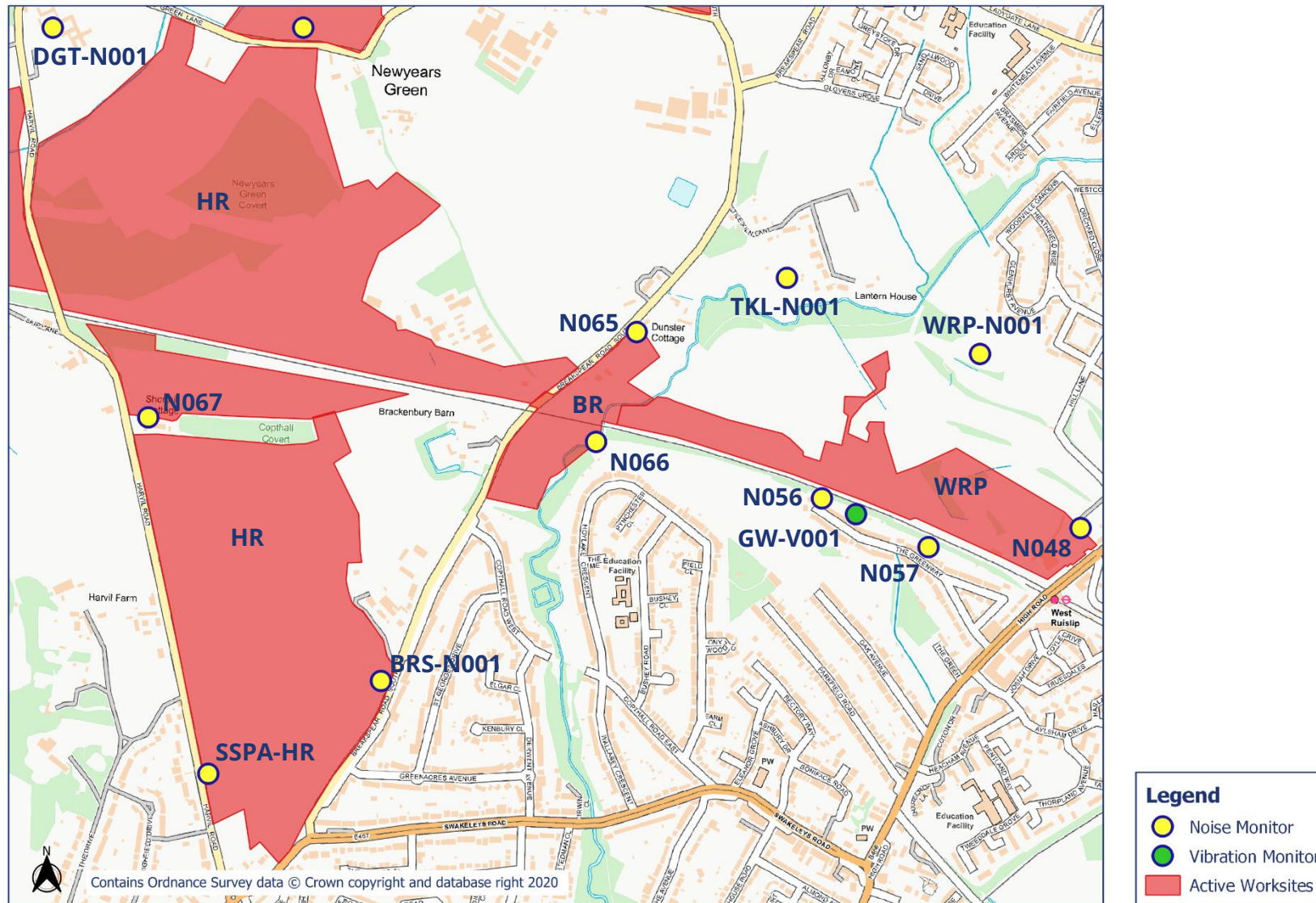


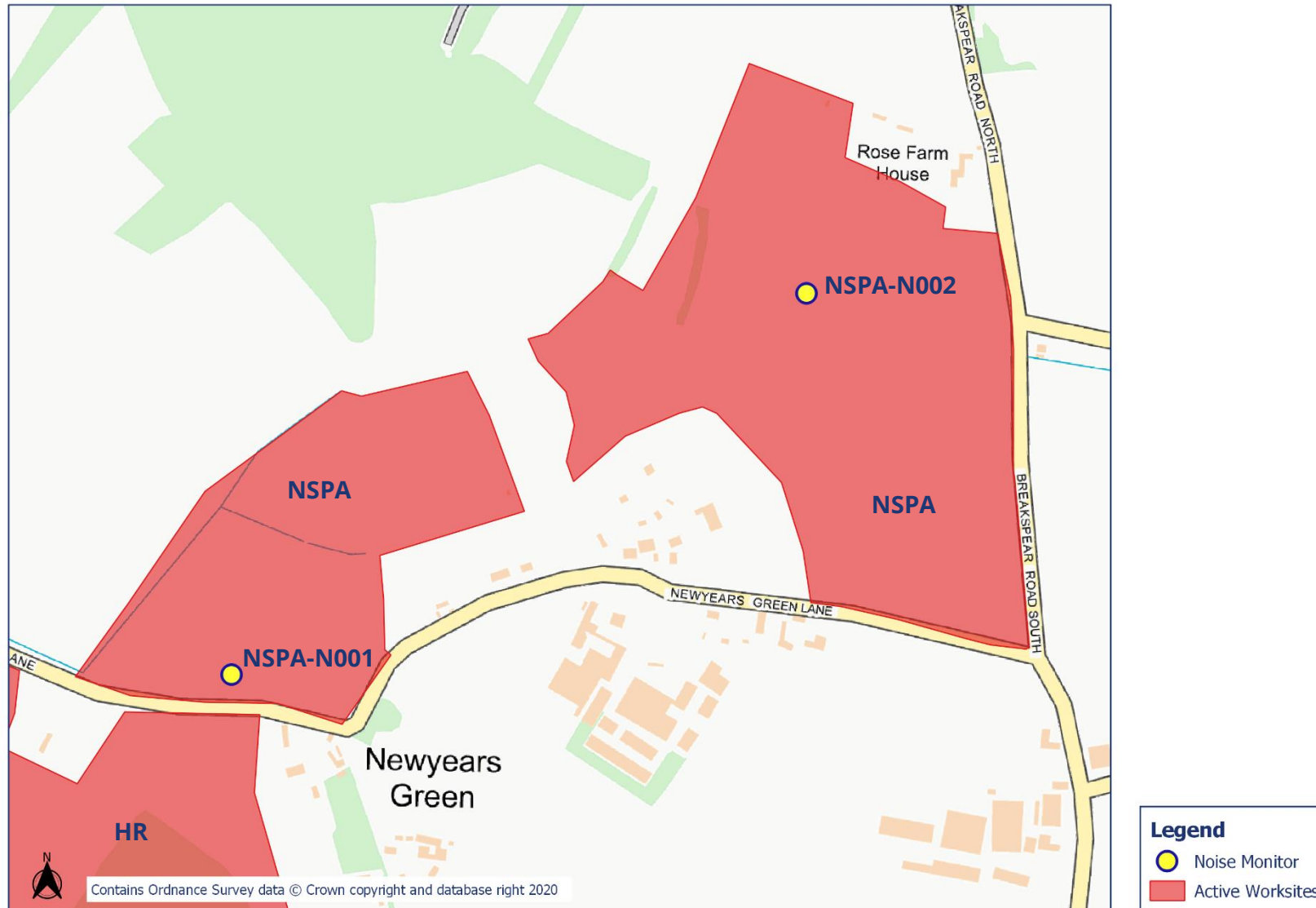
Legend

- Active Worksites

Appendix B Monitoring Locations







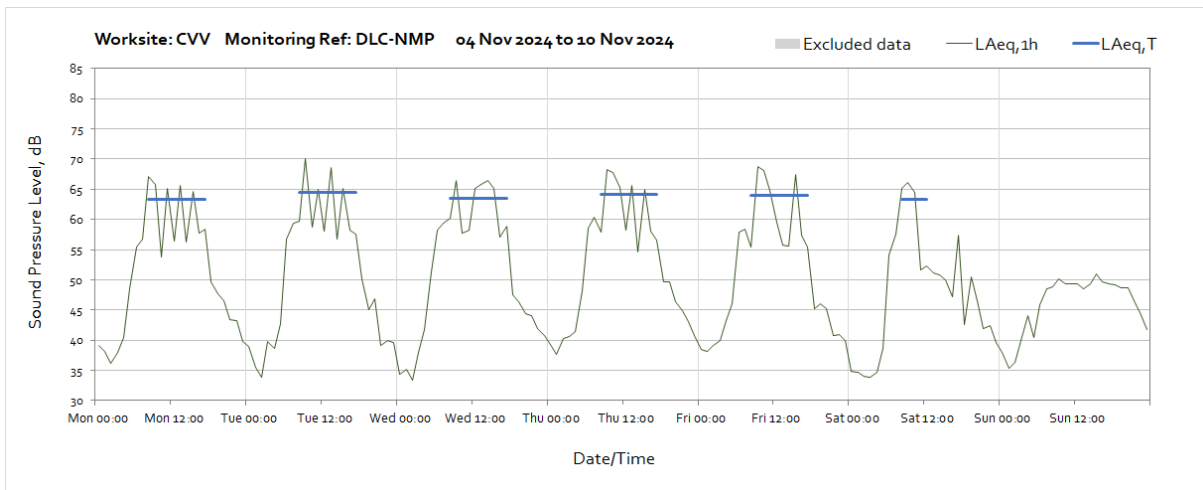
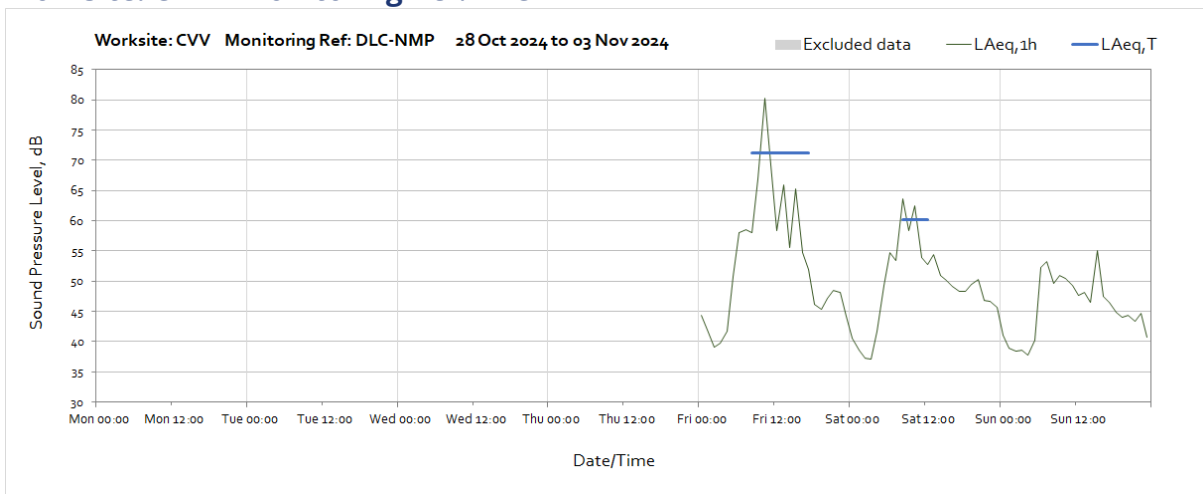


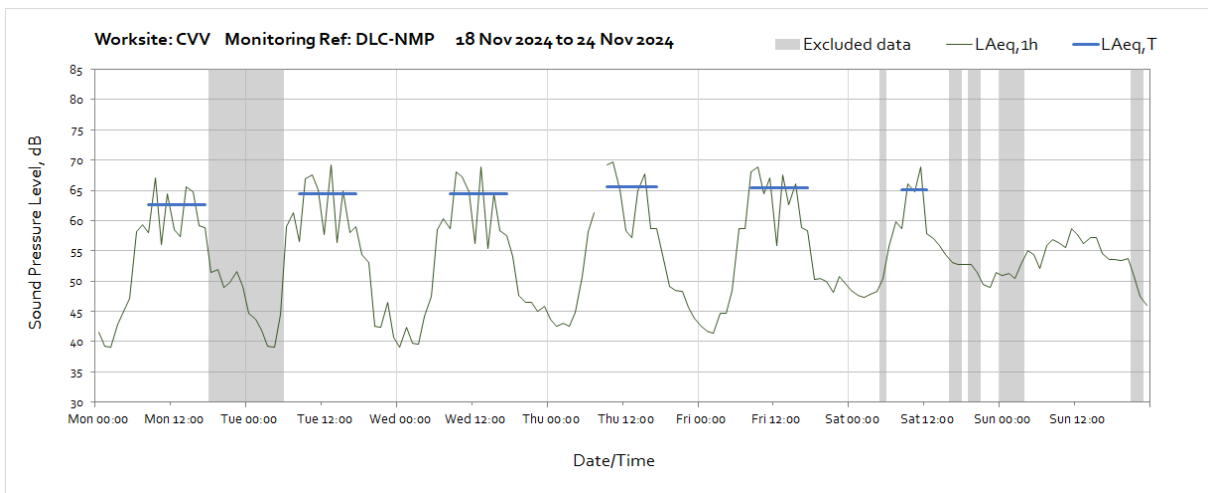
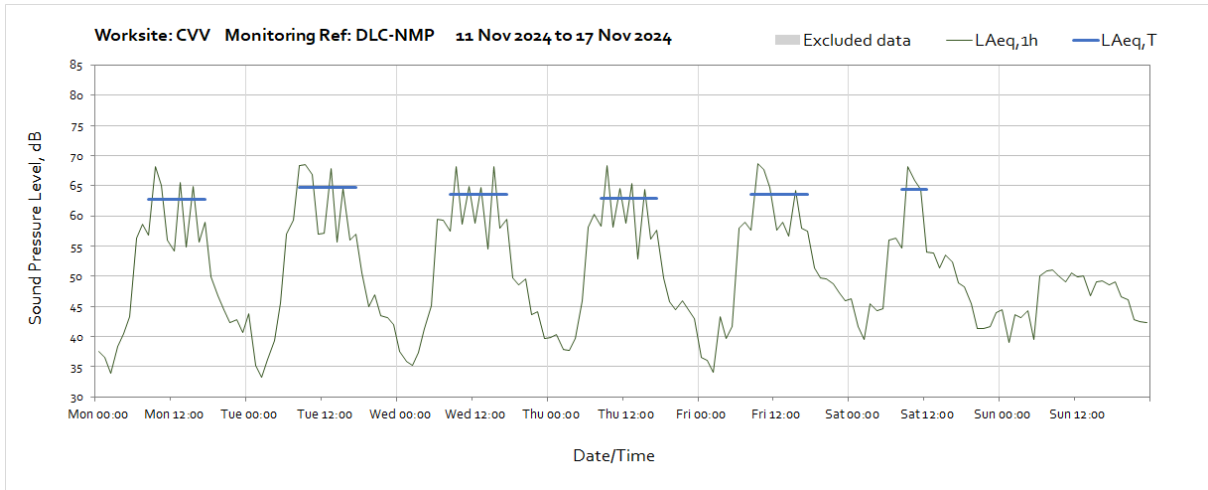
Appendix C Data

Noise

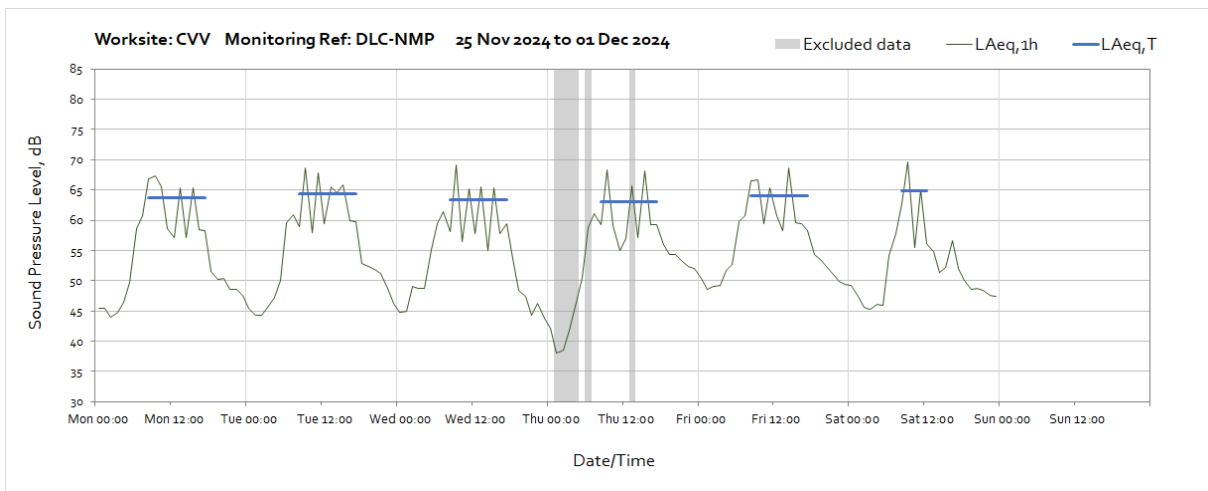
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods where noise levels are adversely affected by weather or only measured for part of the period, which are not representative of HS2 construction works, have been greyed out and excluded from the calculation of the $L_{Aeq,T}$ values in Table 3 of the main report.

Worksite: CVV - Monitoring Ref: DLC-NMP

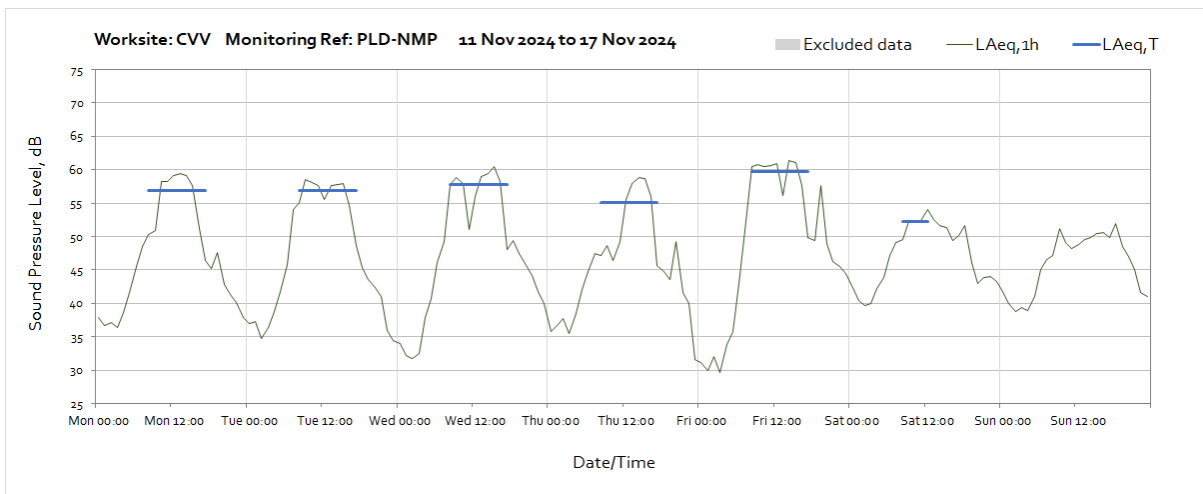
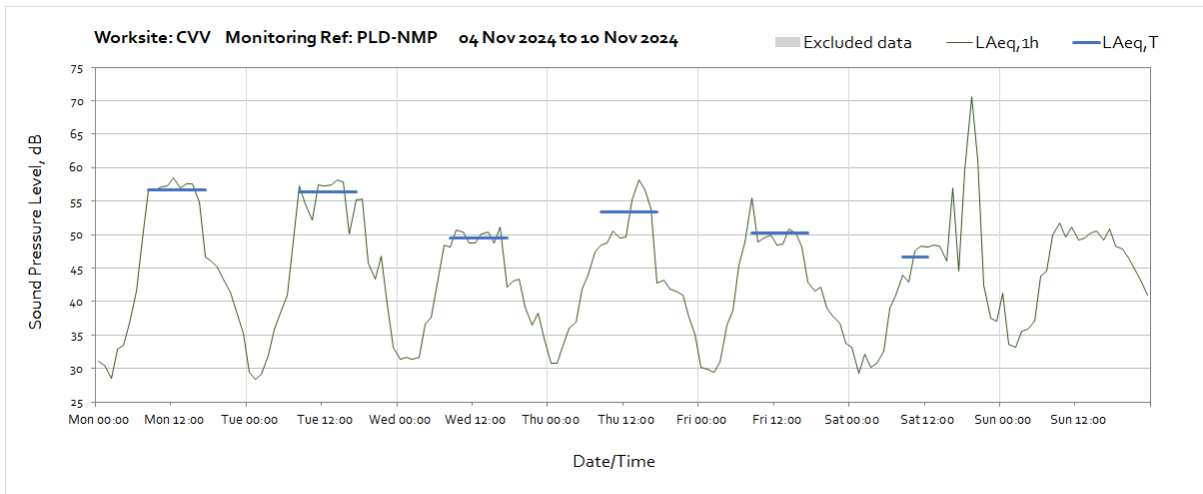
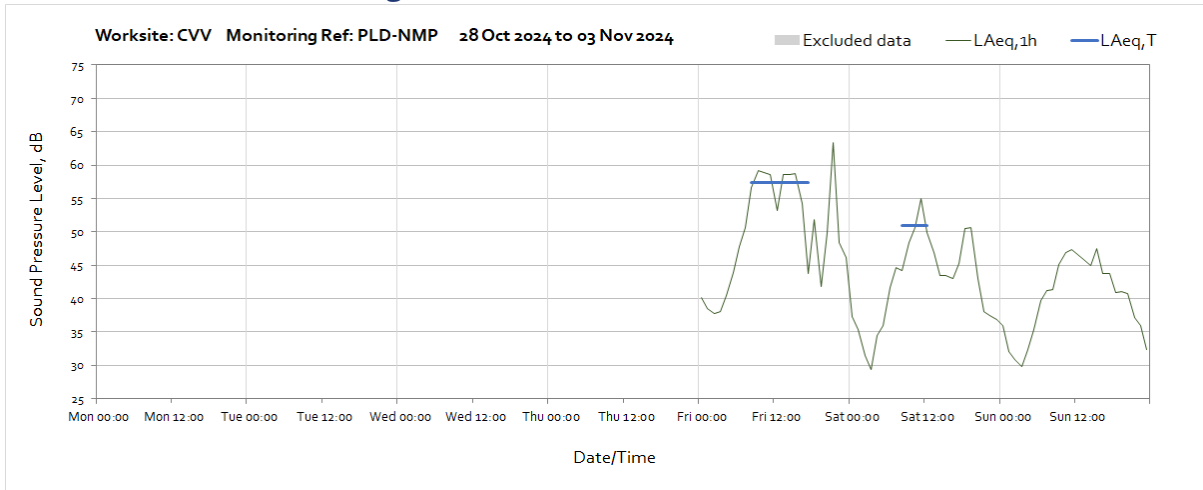


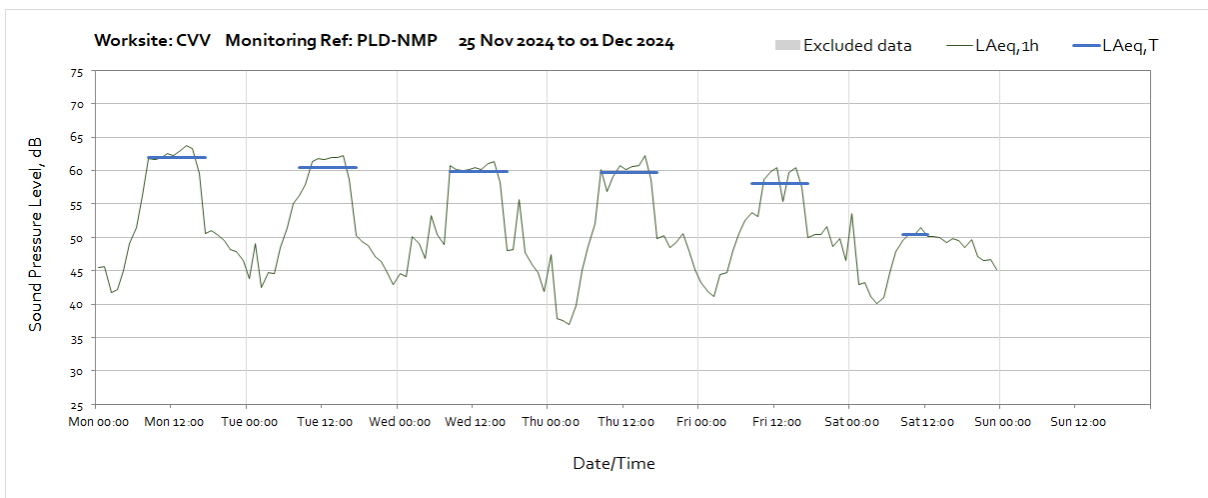
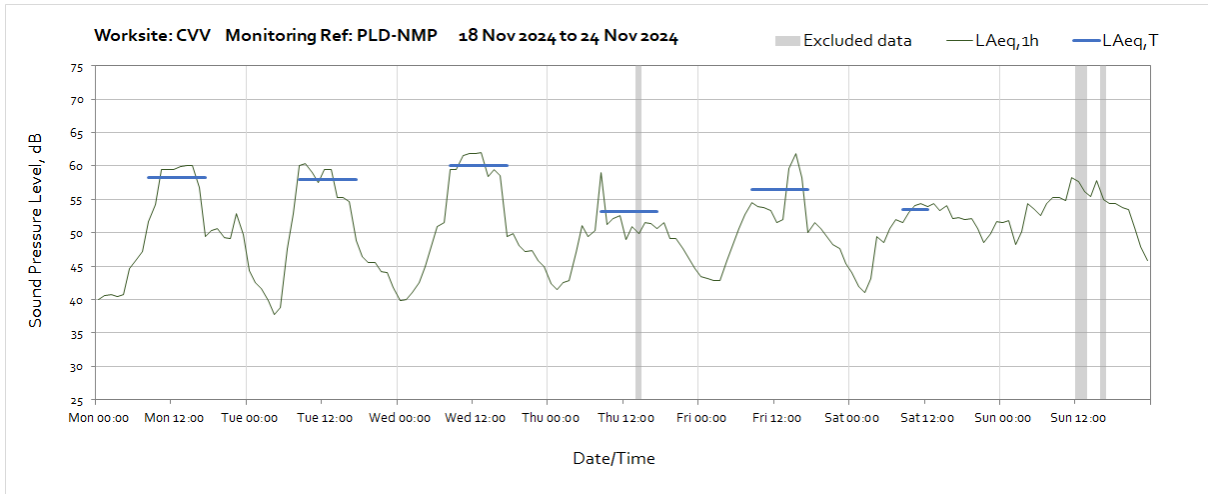


Note: Missing data between 08:00 and 09:00 on Thursday 21st November was due to a transmission error at the monitoring station.

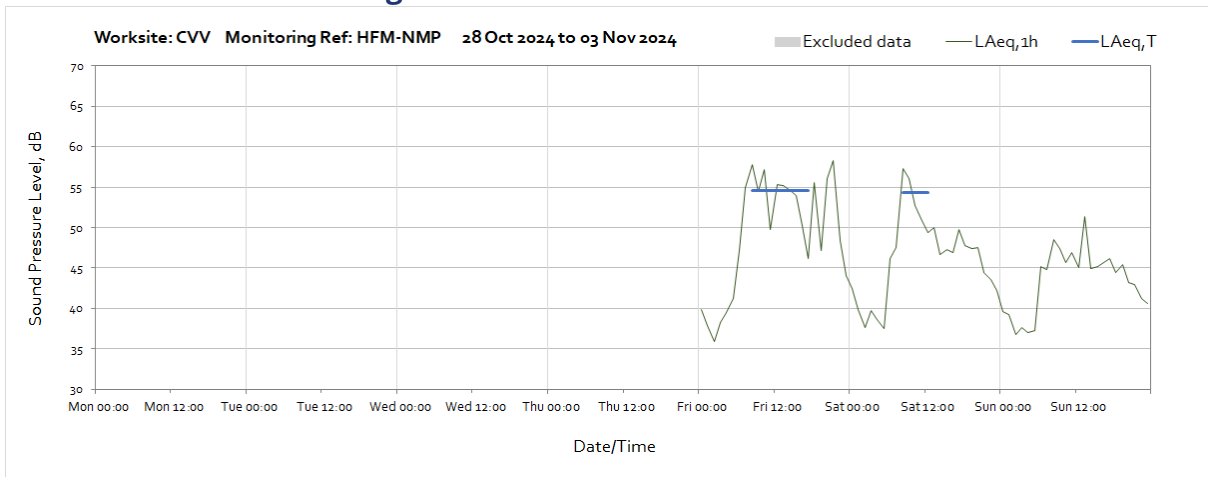


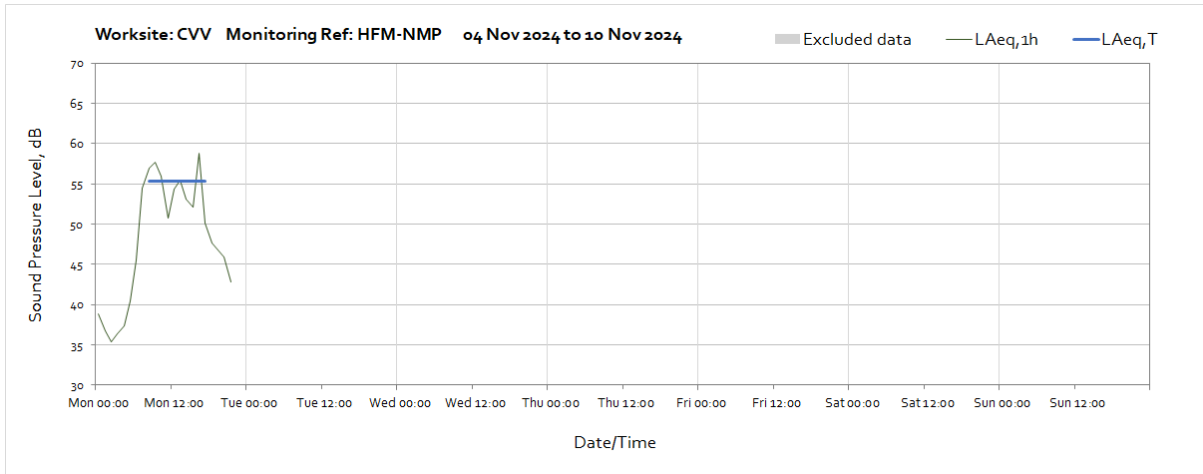
Worksite: CVV – Monitoring Ref: PLD-NMP



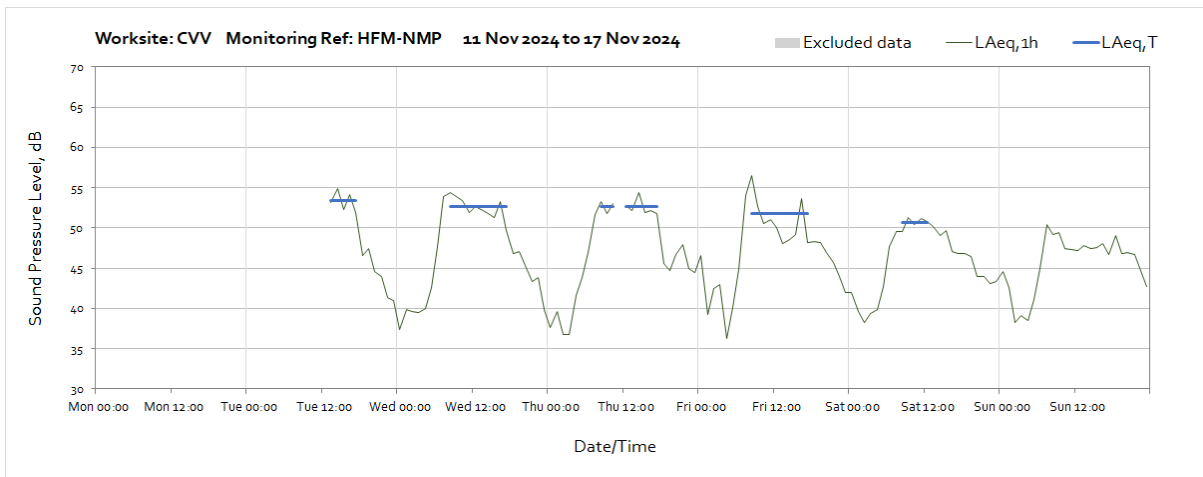


Worksite: CVV - Monitoring Ref: HFM-NMP

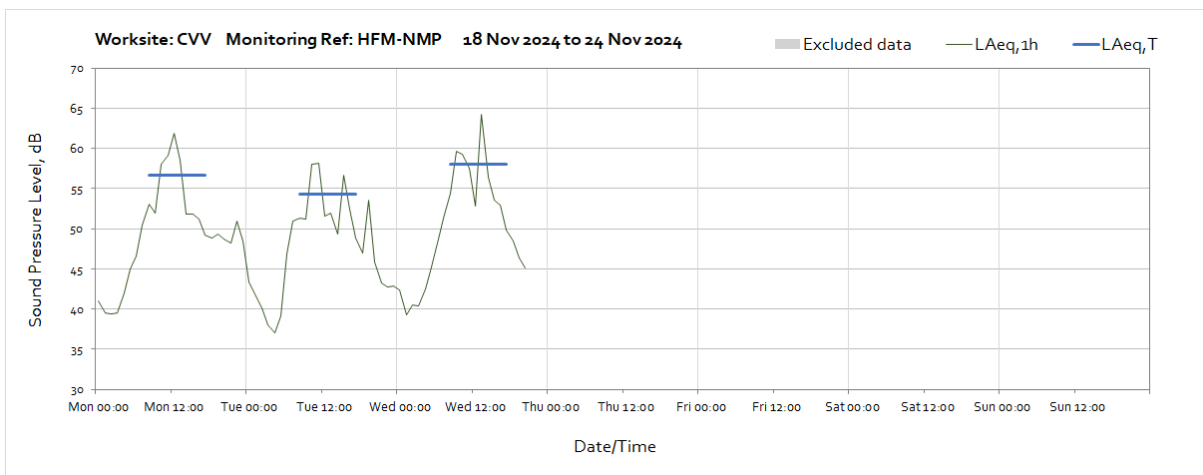




Note: Missing data between 22:00 on Monday 4th November and 13:00 on Tuesday 12th November was due to insufficient light reaching the solar panels at the monitoring station.

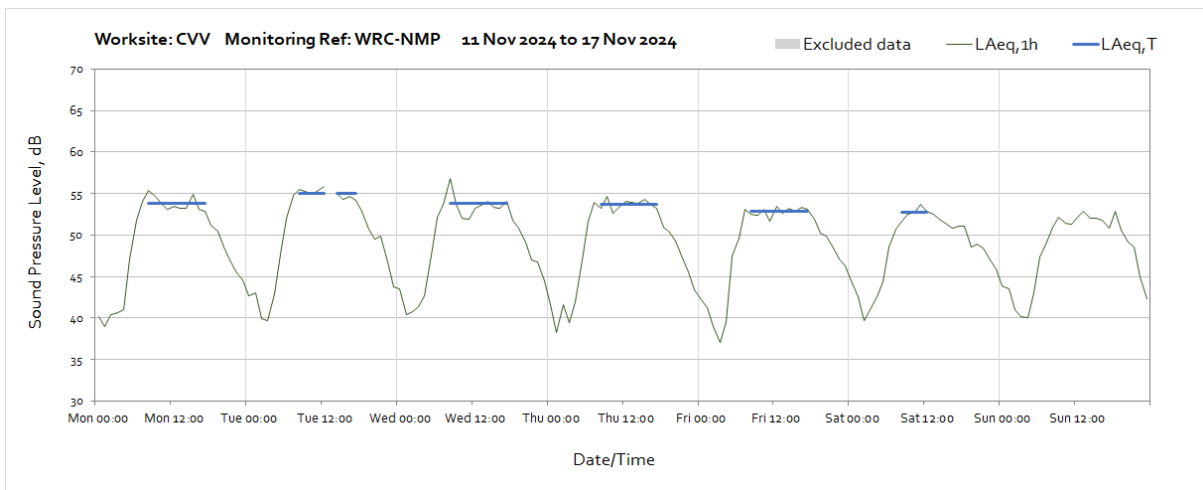
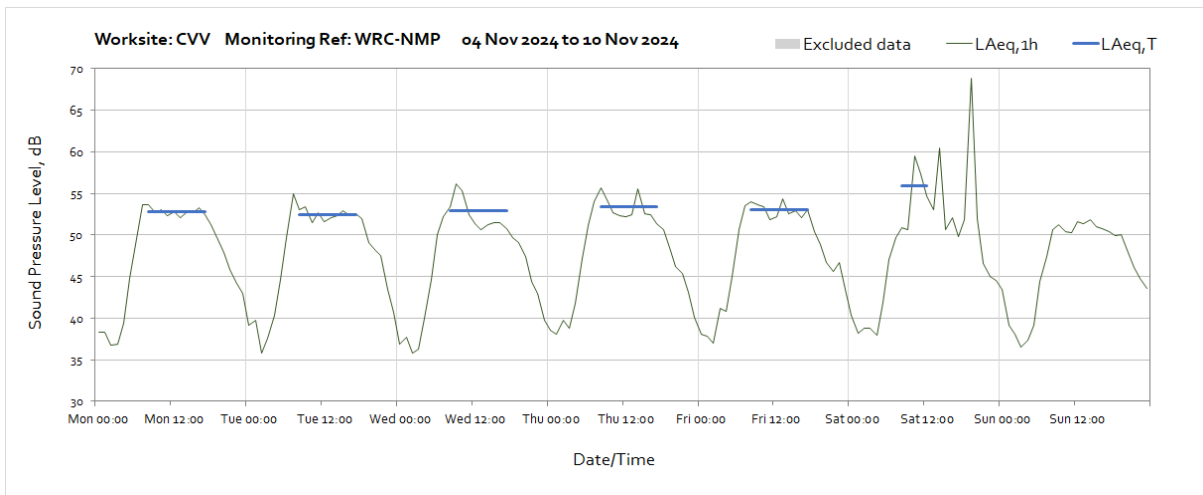
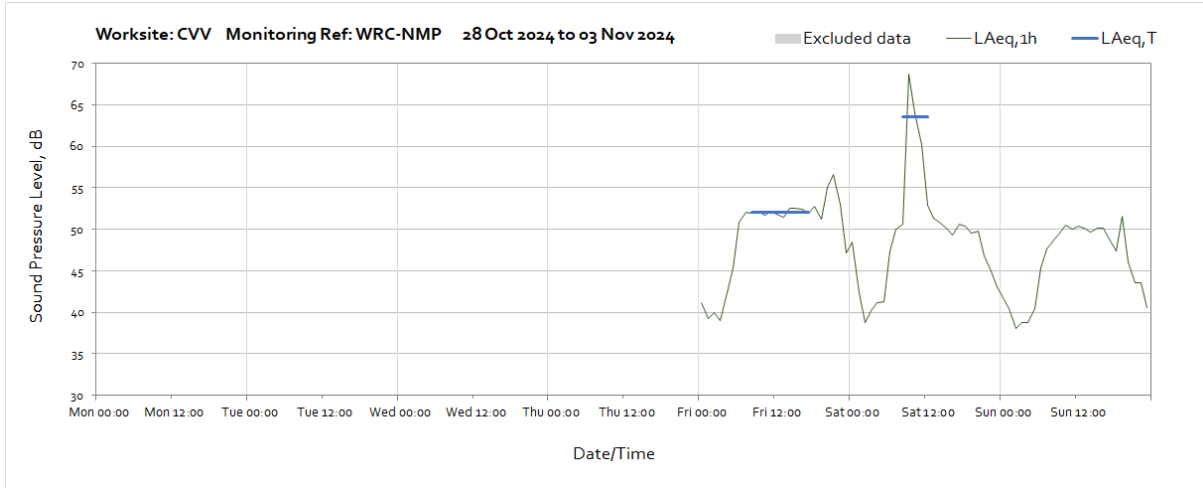


Note: Missing data between 11:00 and 12:00 on Thursday 14th November was due to insufficient light reaching the solar panels at the monitoring station.



Note: Missing data between 21:00 on Wednesday 20th November and the end of the month was due to insufficient light reaching the solar panels at the monitoring station.

Worksite: CVV – Monitoring Ref: WRC-NMP

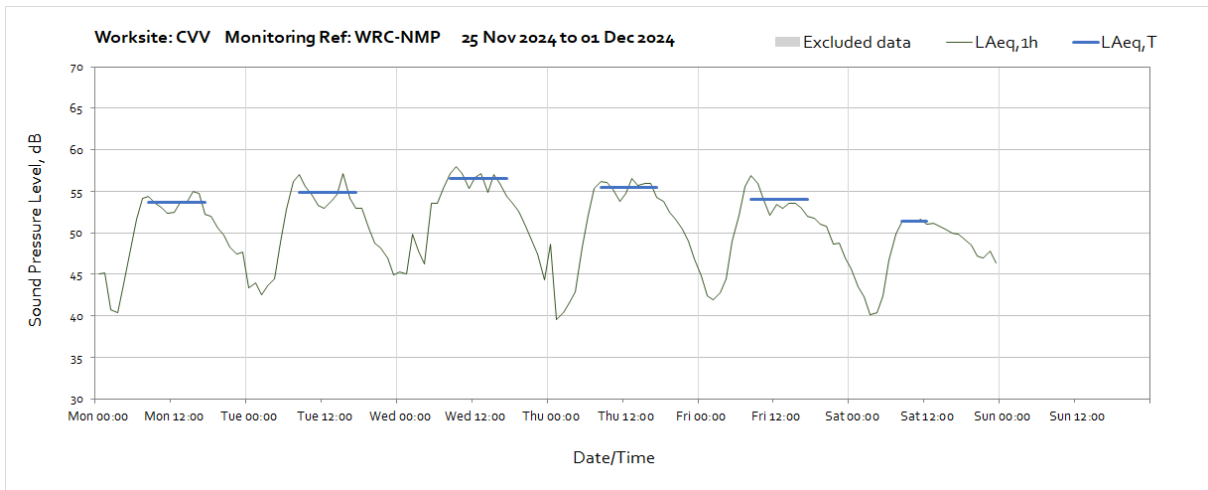


Note: Missing data between 13:00 and 14:00 on Tuesday 12th November was due to field calibration.

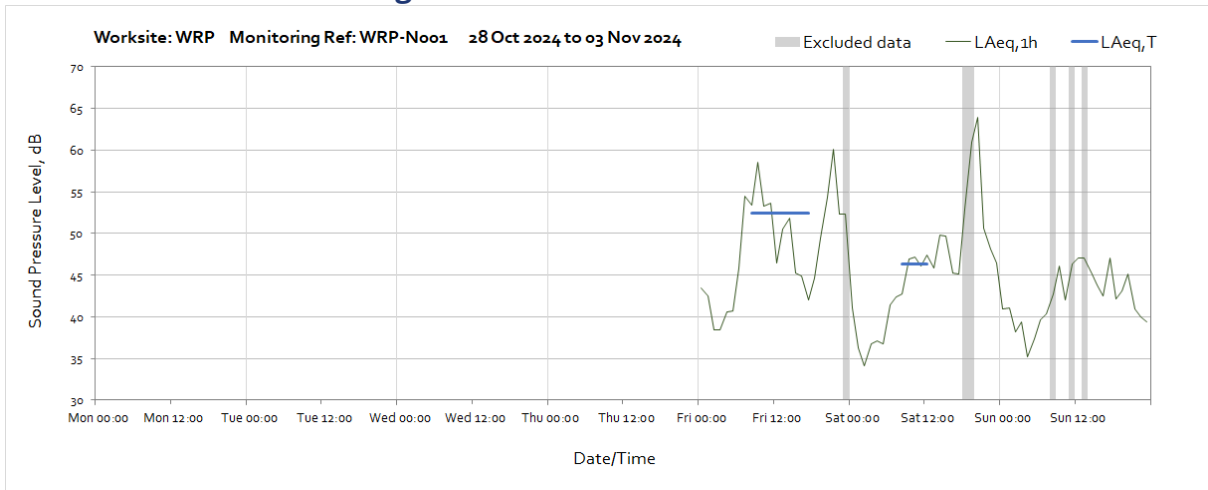
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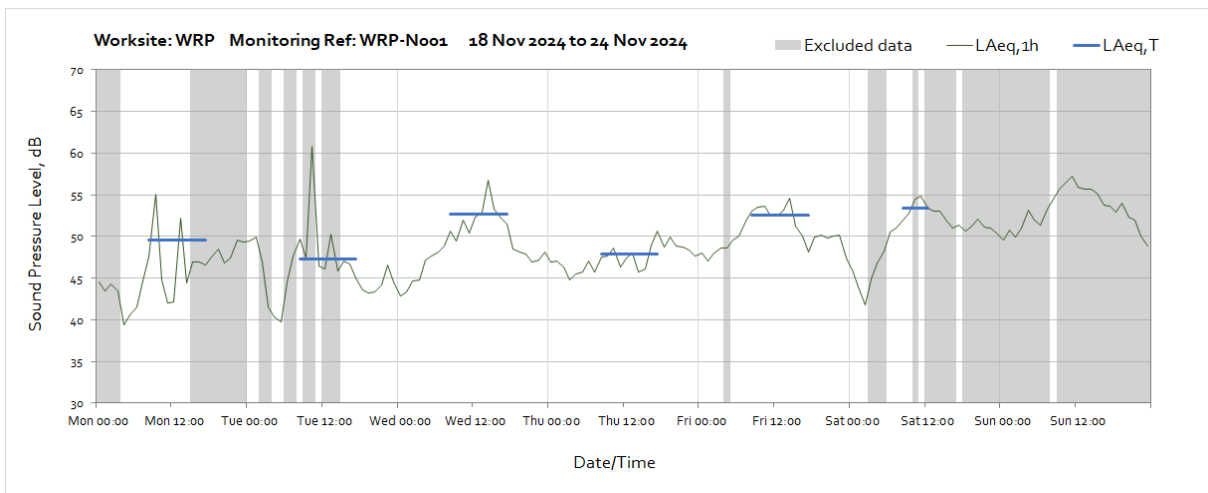
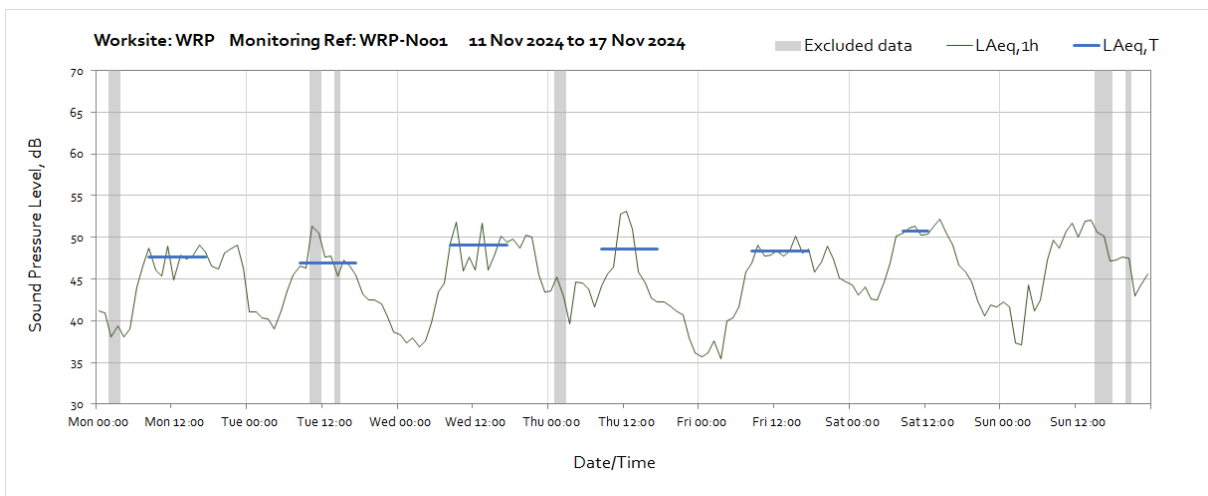
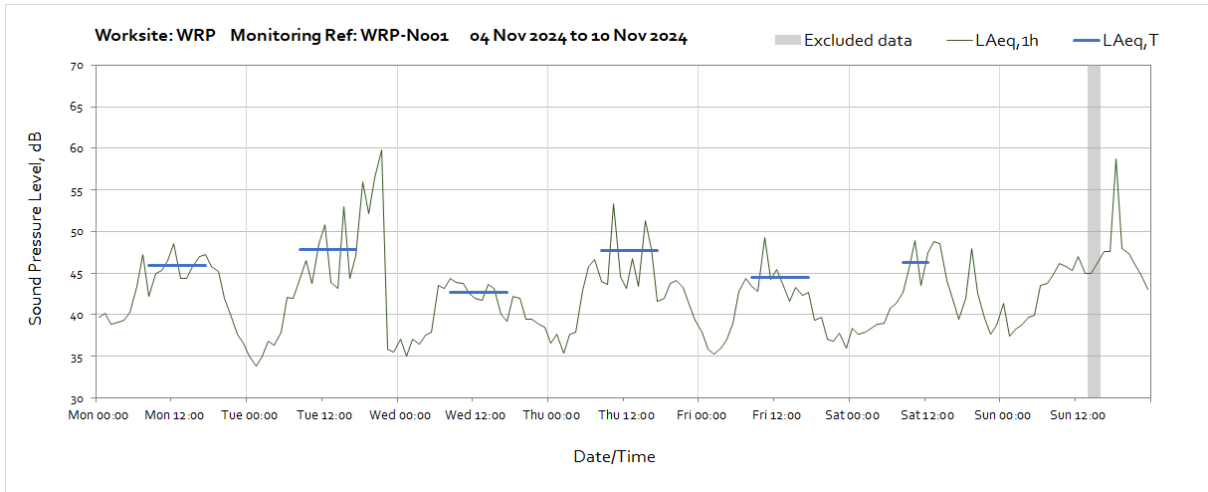


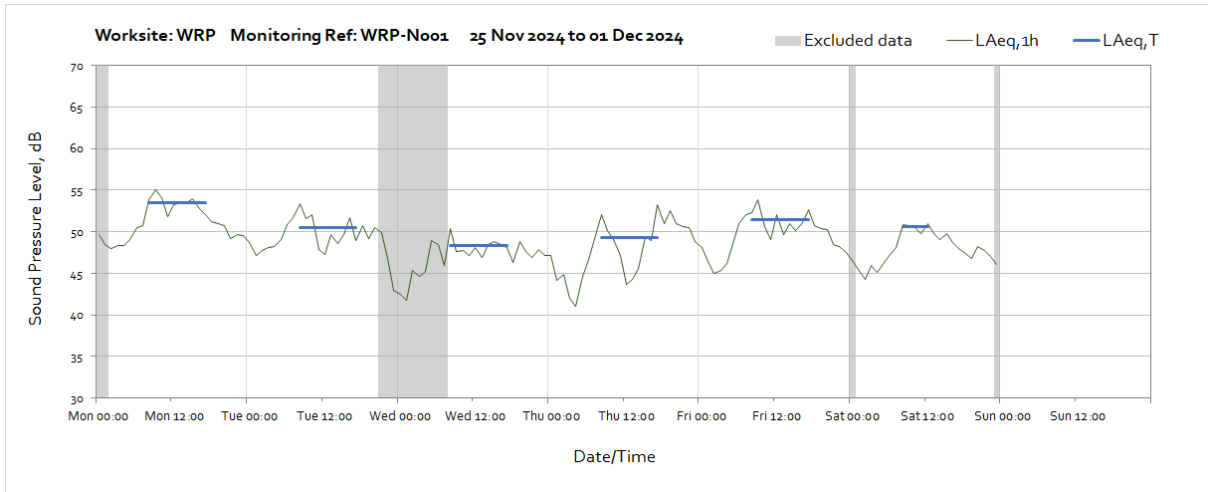
Note: Missing data between 15:00 on Tuesday 19th November and 20:00 on Friday 22nd November was due to insufficient light reaching the solar panels at the monitoring station.



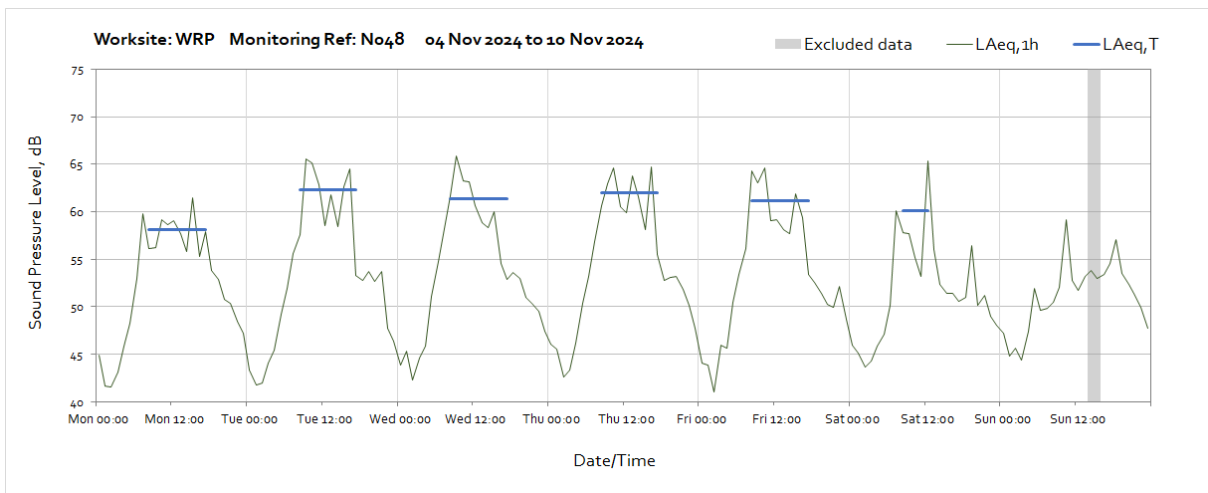
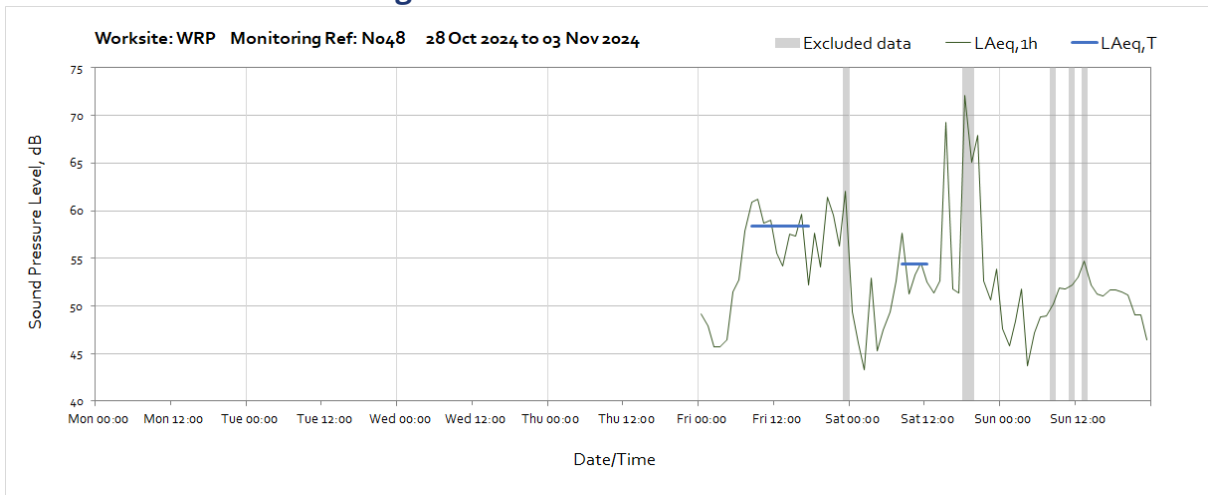
Worksite: WRP – Monitoring Ref: WRP-N001

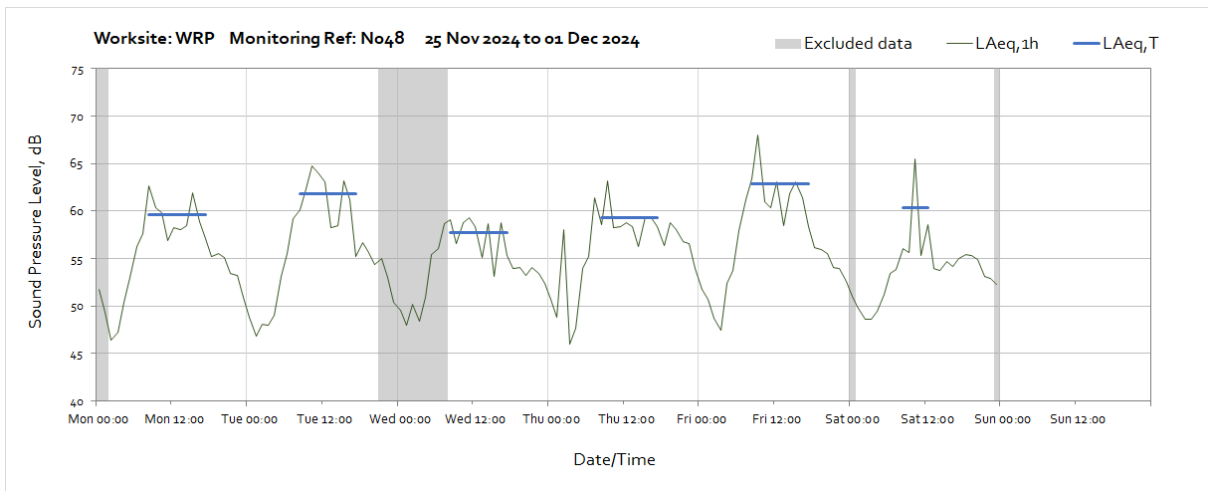
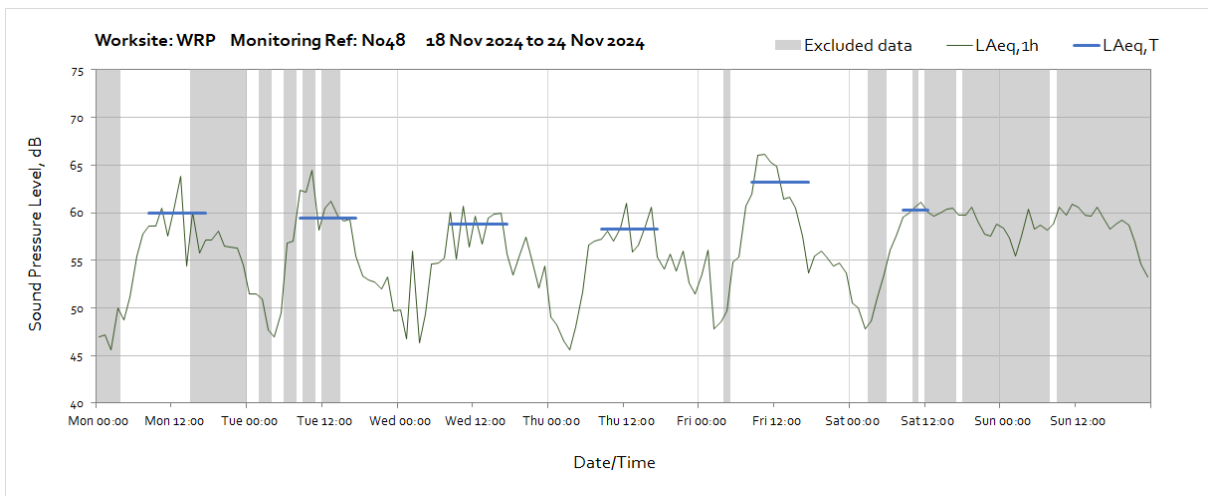
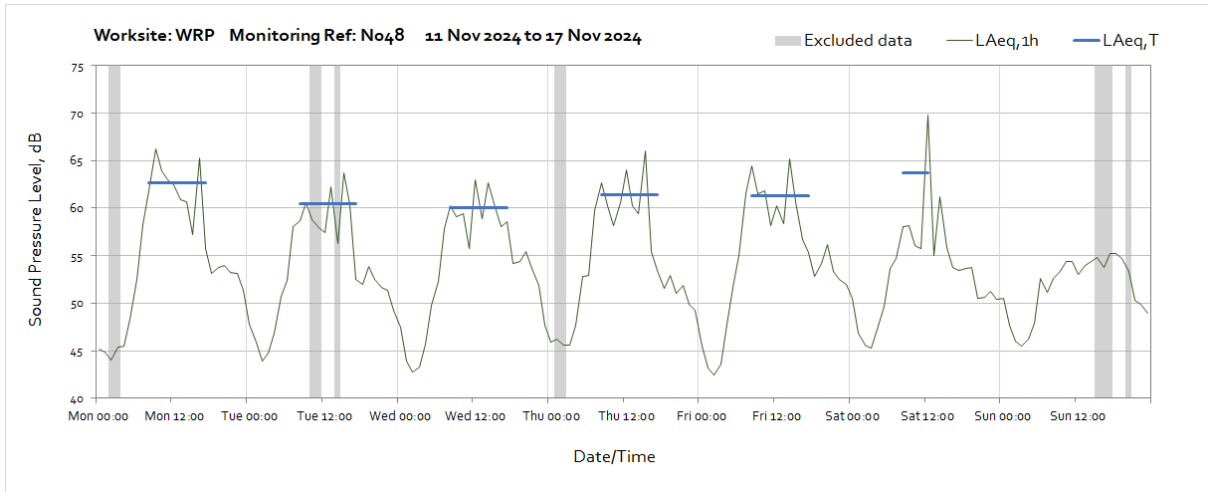




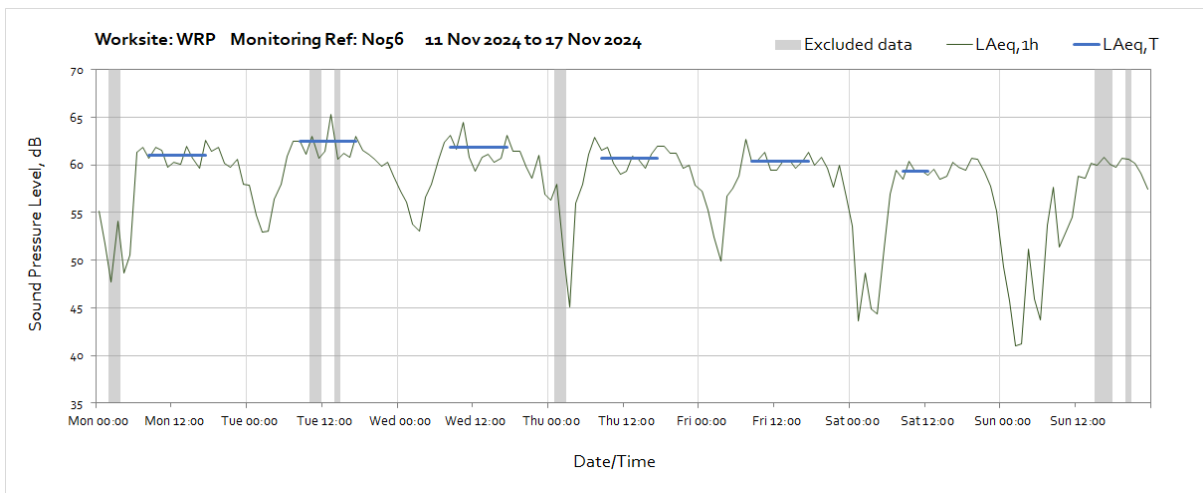
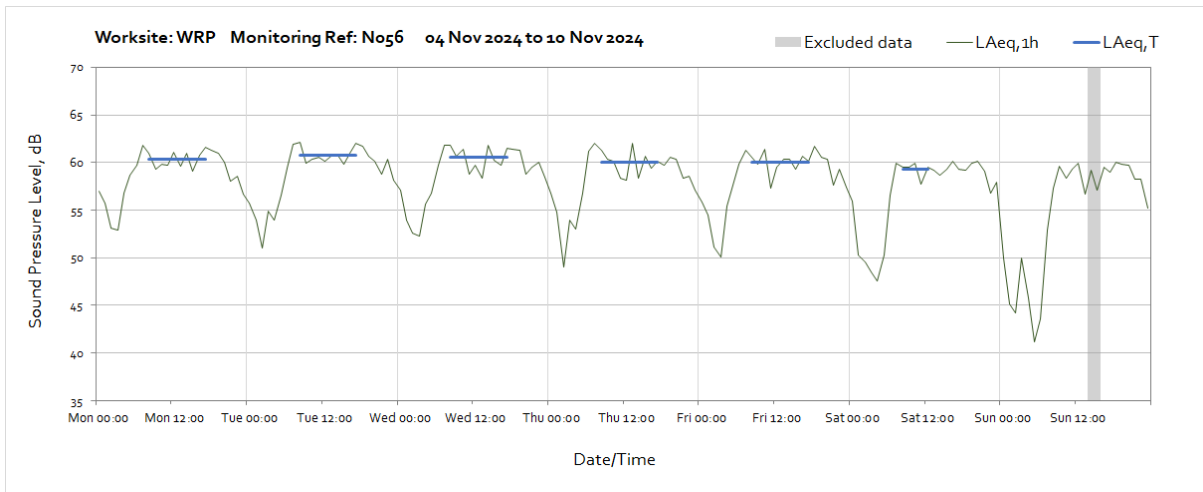
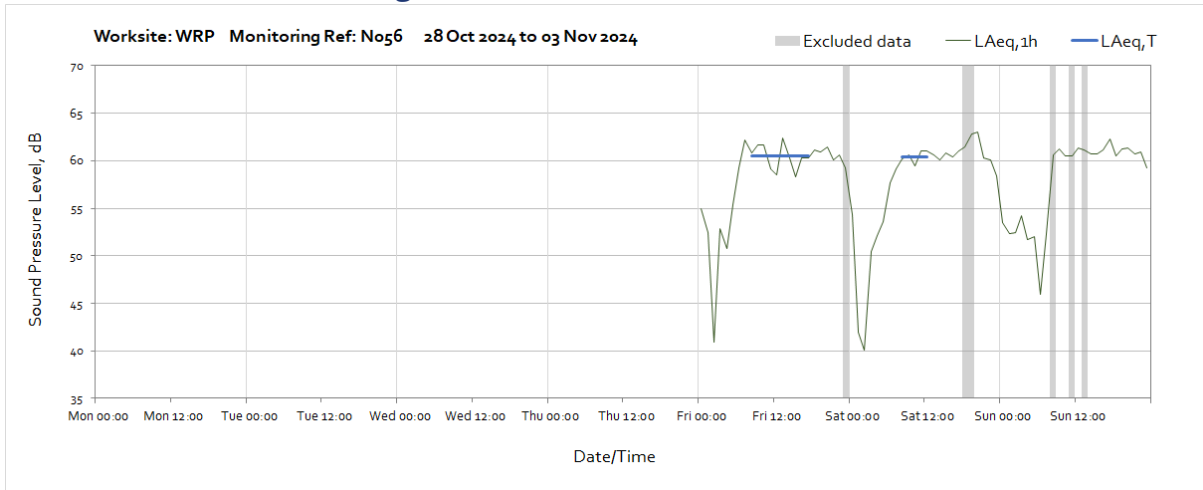


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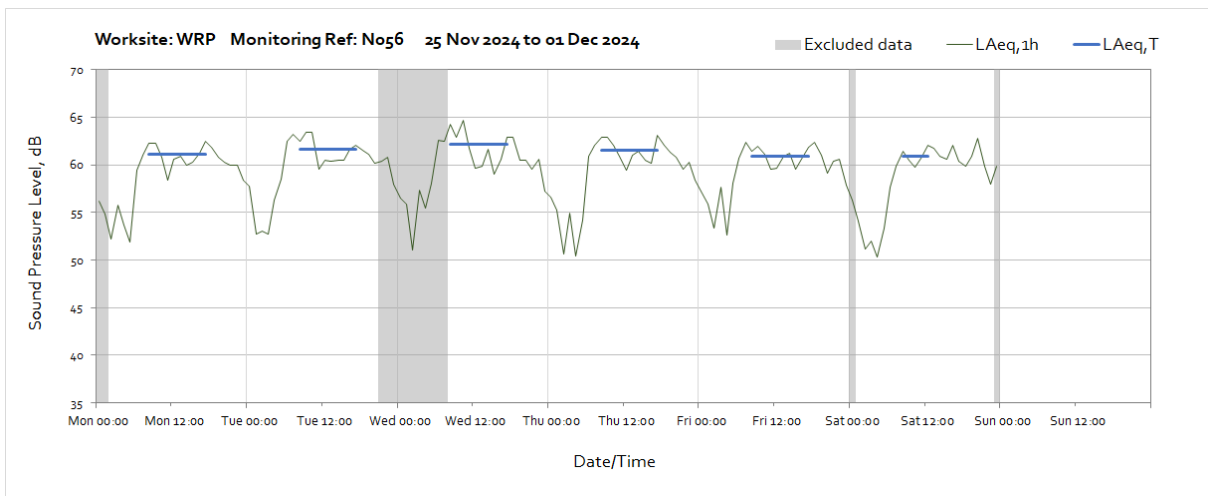
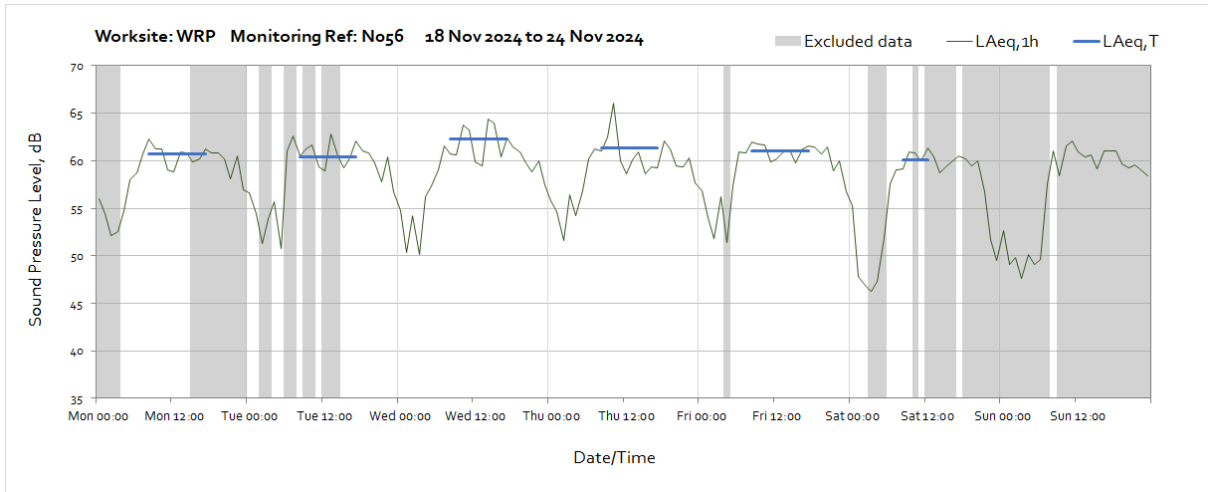




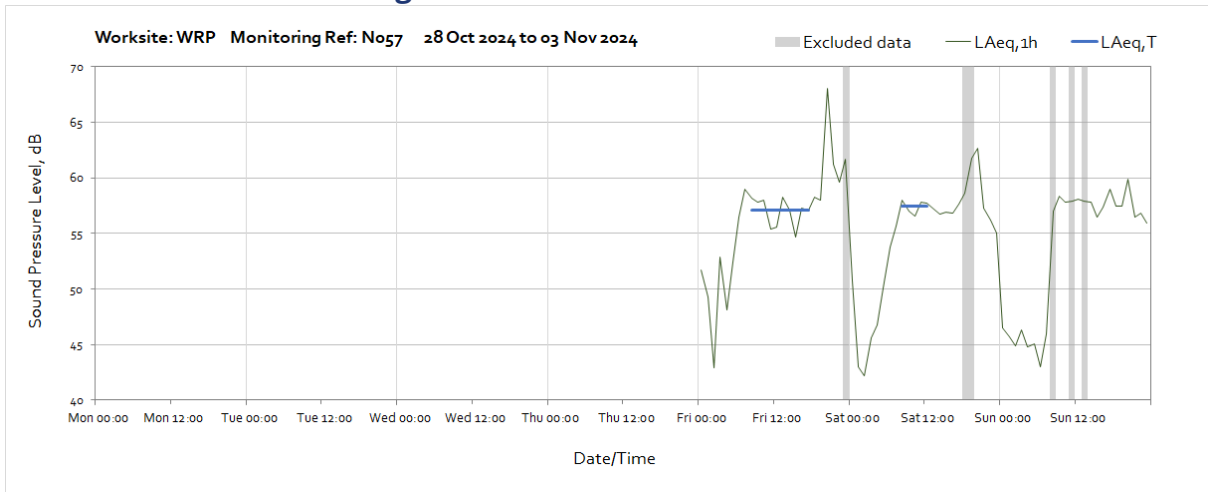
Worksite: WRP – Monitoring Ref: N056

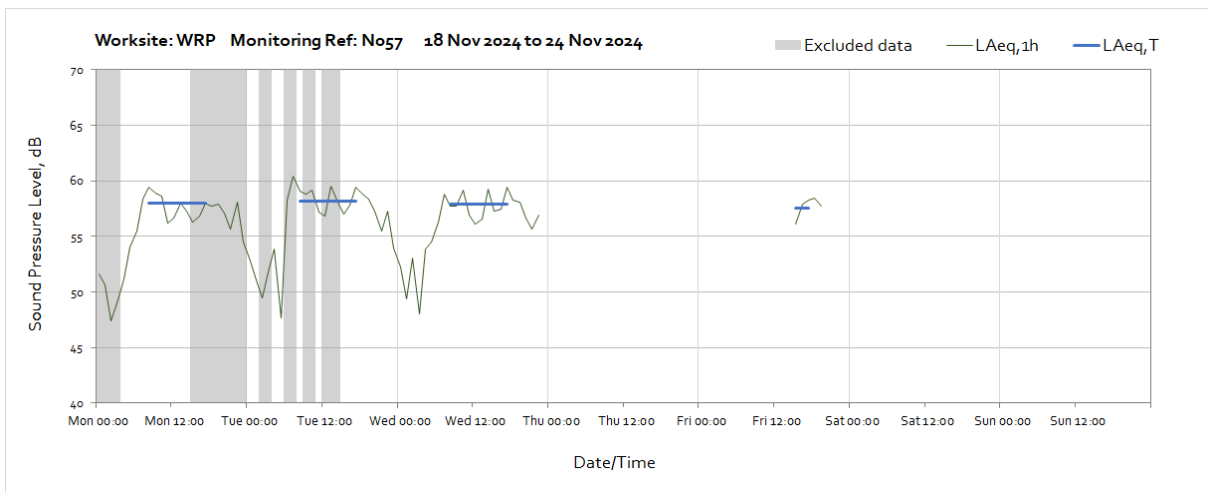
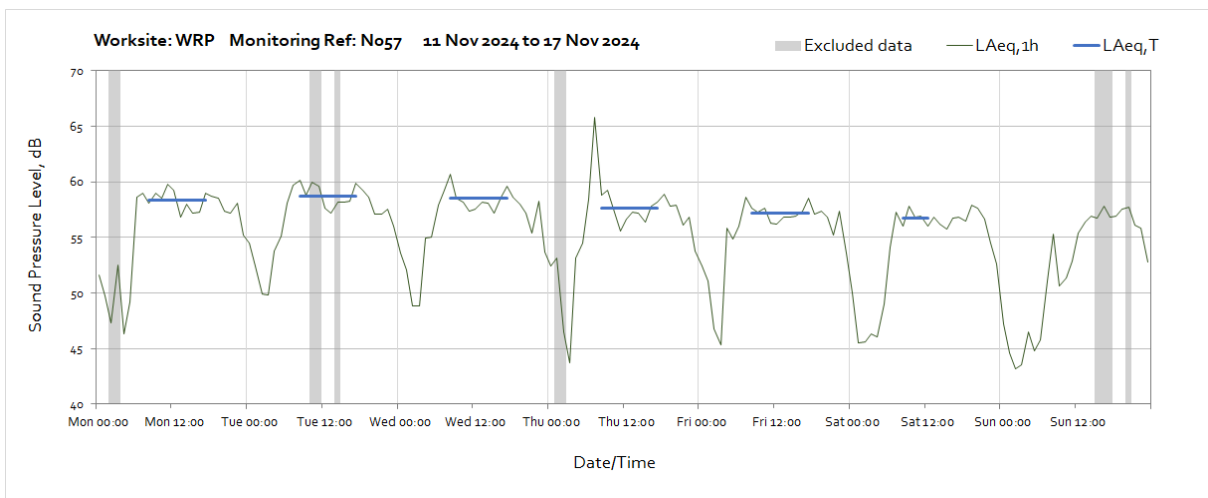
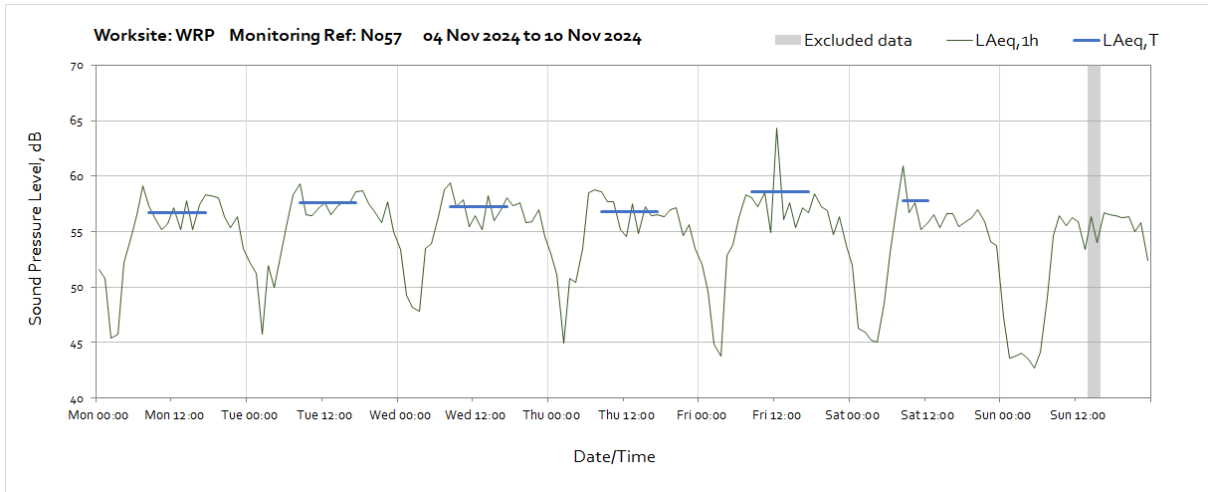


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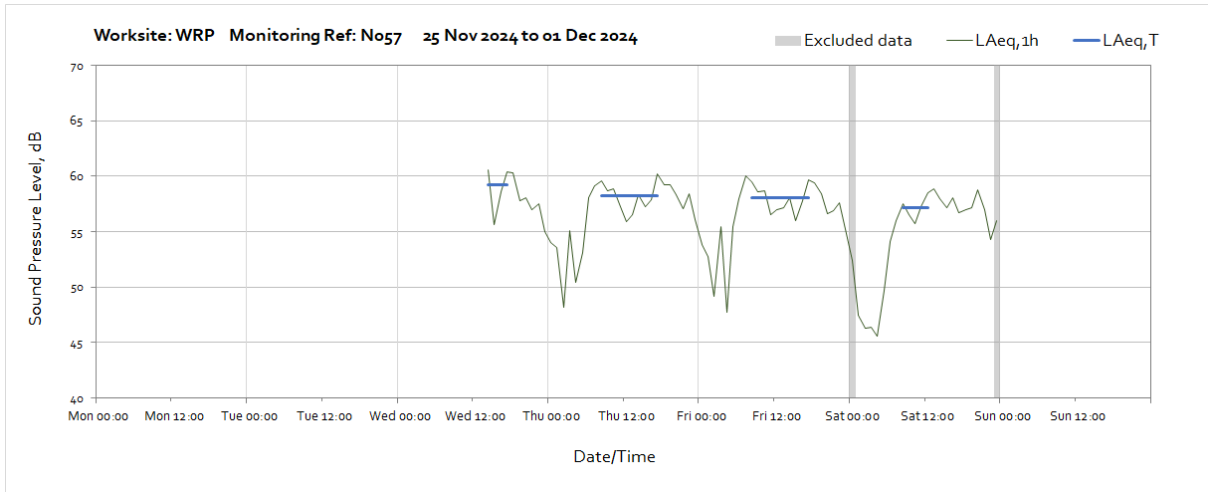


Worksite: WRP – Monitoring Ref: N057



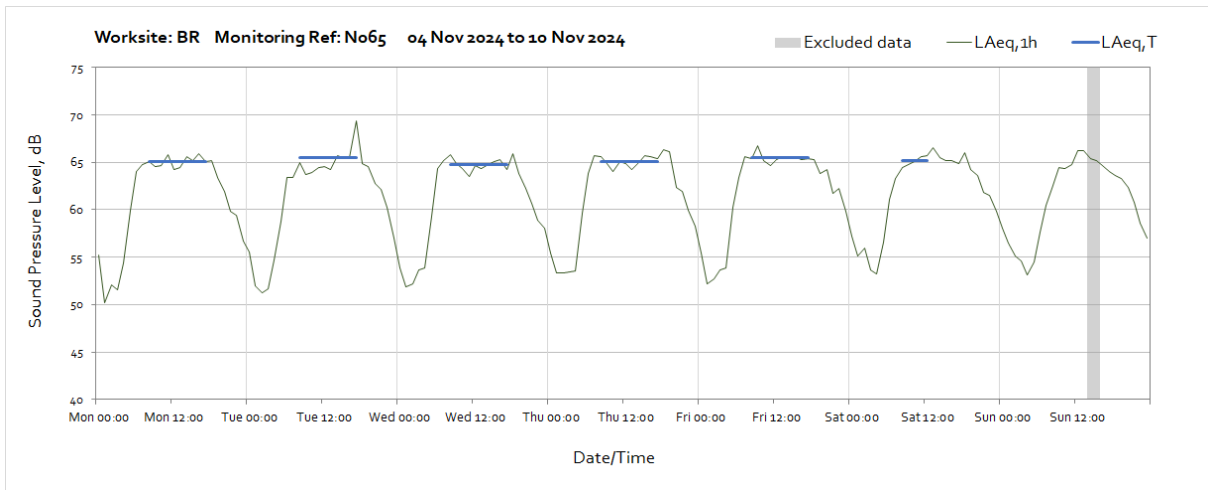
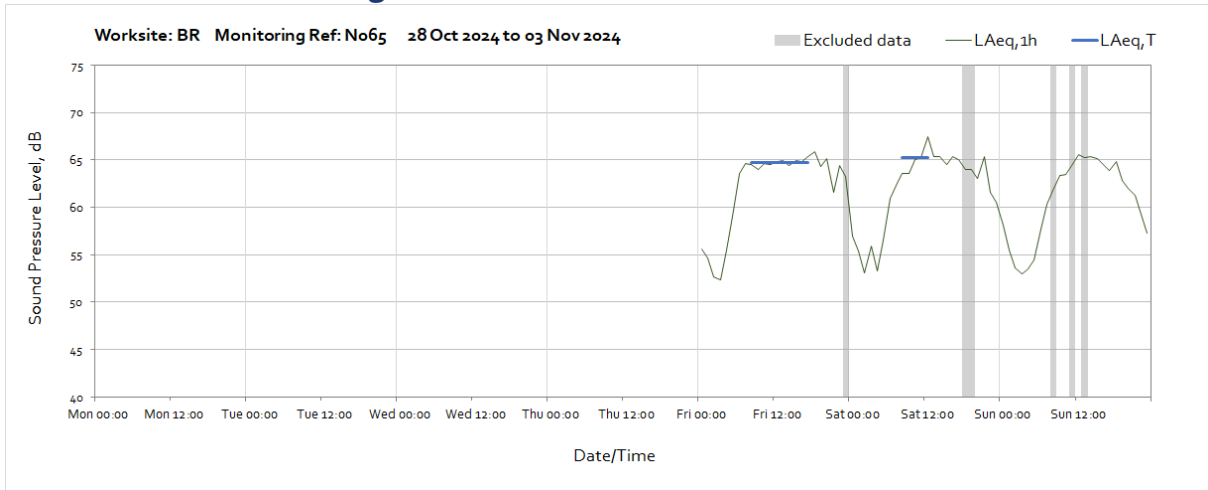


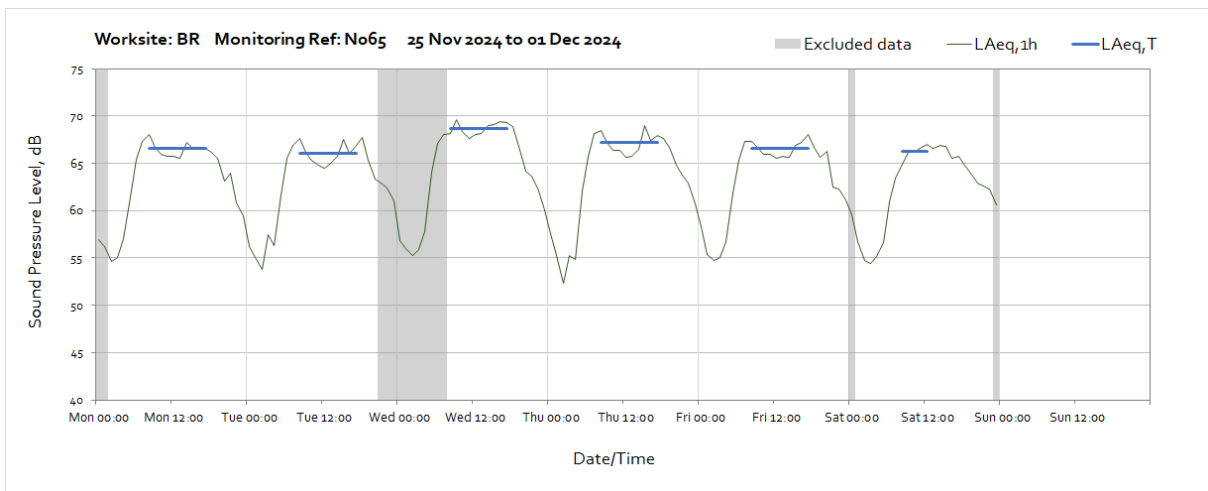
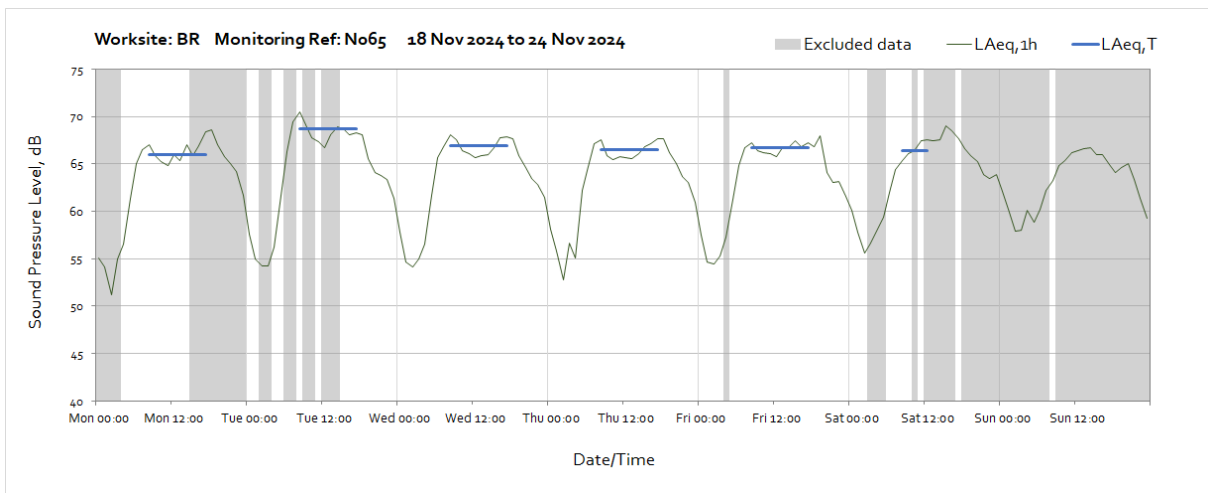
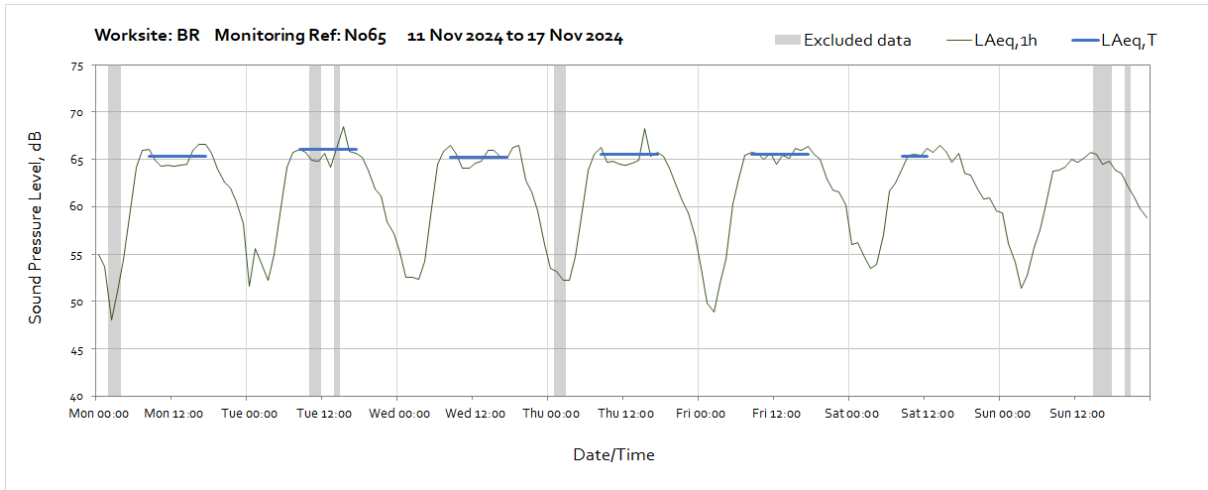
Note: Missing data throughout the week was due to loss of site power.



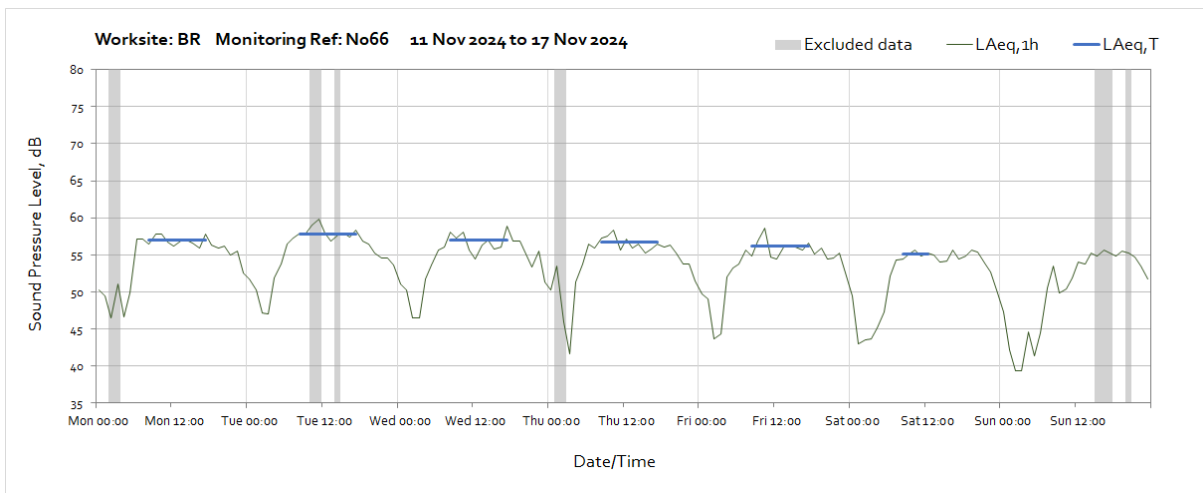
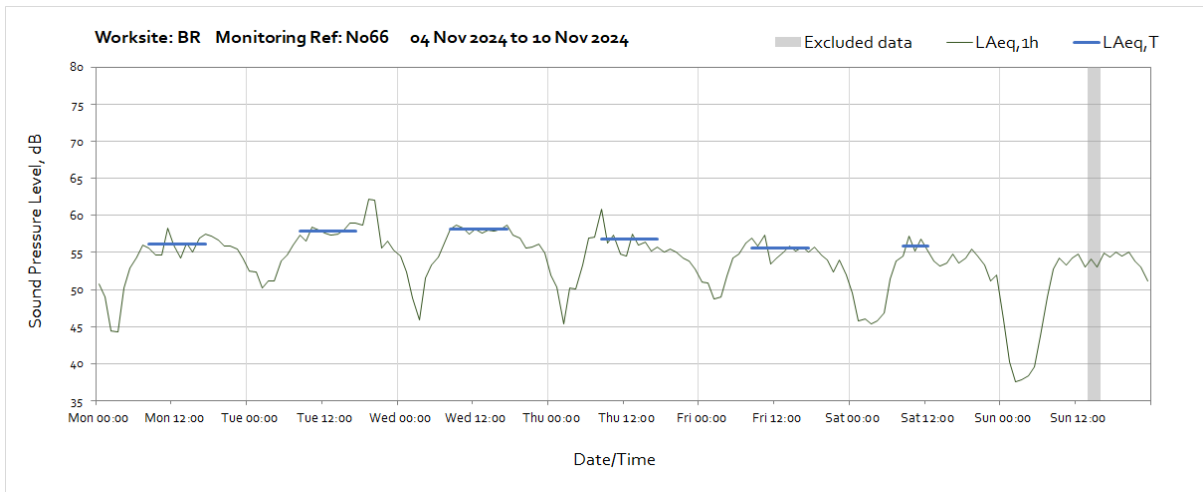
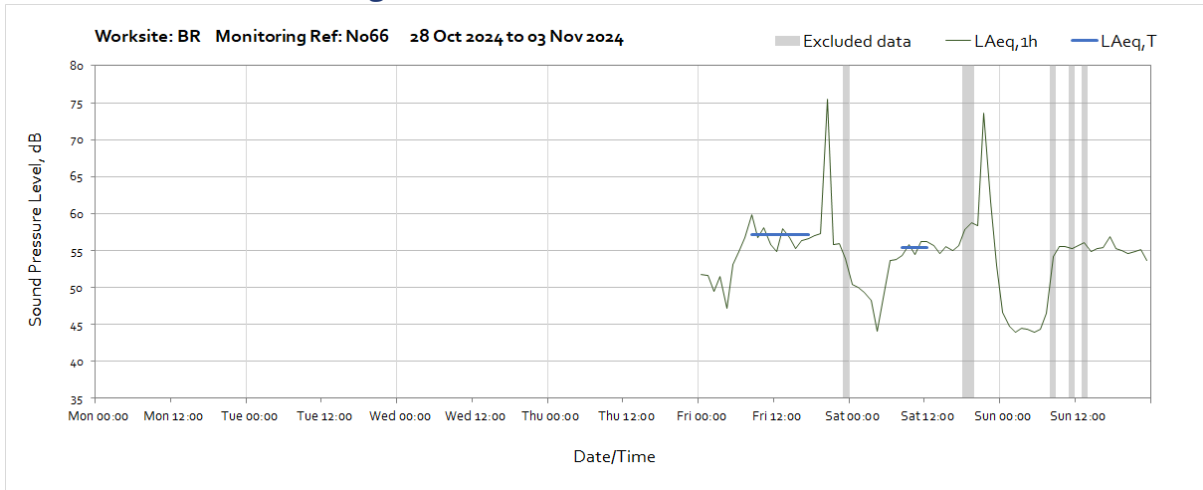
Note: Missing data between 20:00 on Friday 22nd November and 14:00 on Wednesday 27th November was due to loss of site power.

Worksite: BR – Monitoring Ref: N065

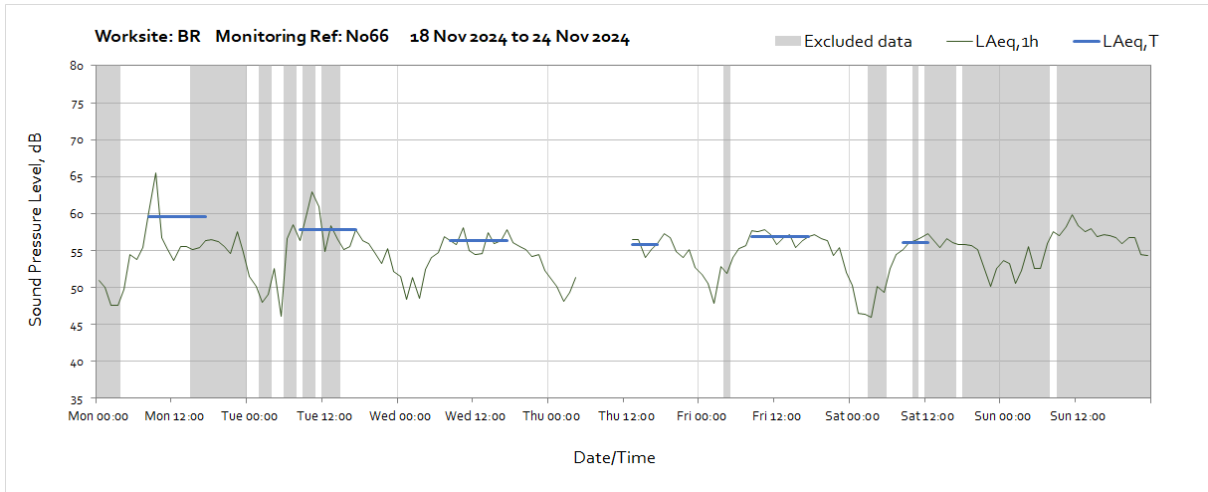




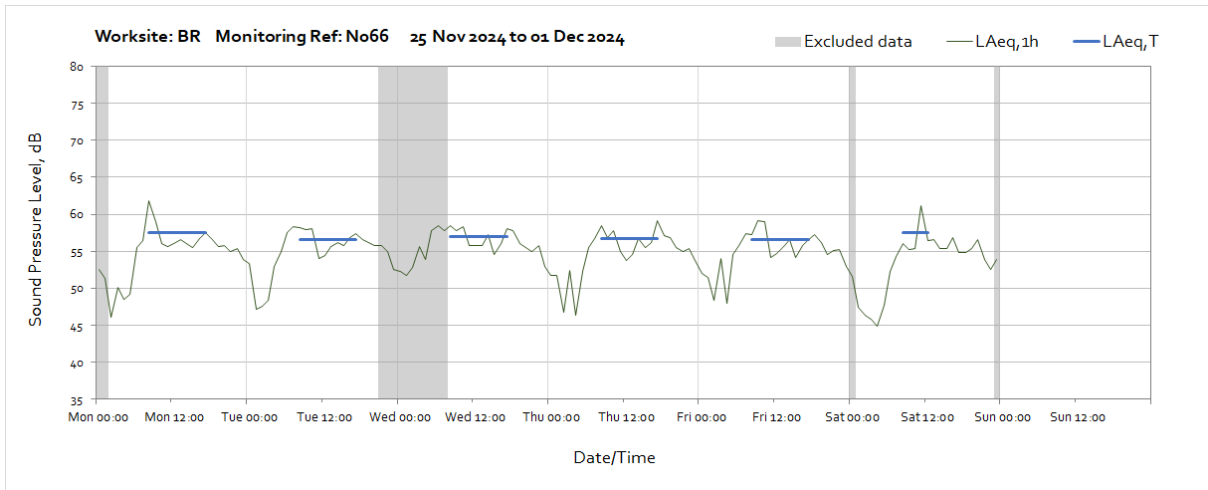
Worksite: BR – Monitoring Ref: N066



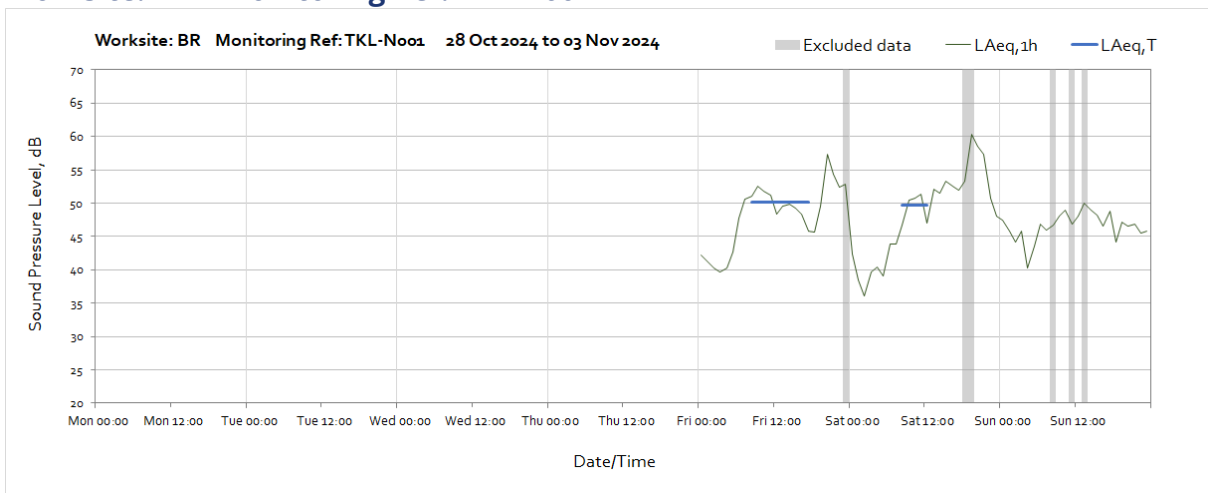
OFFICIAL

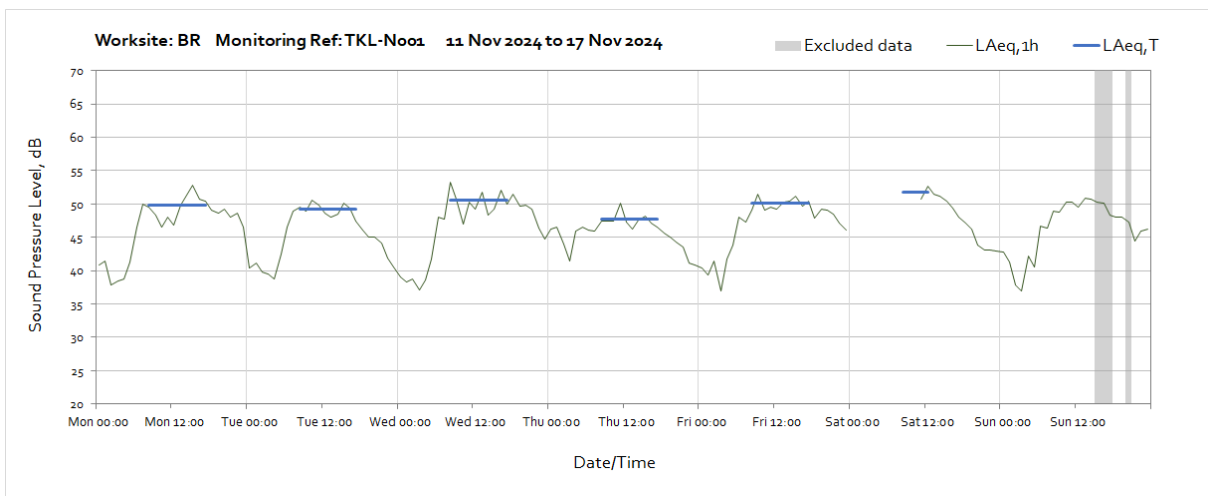
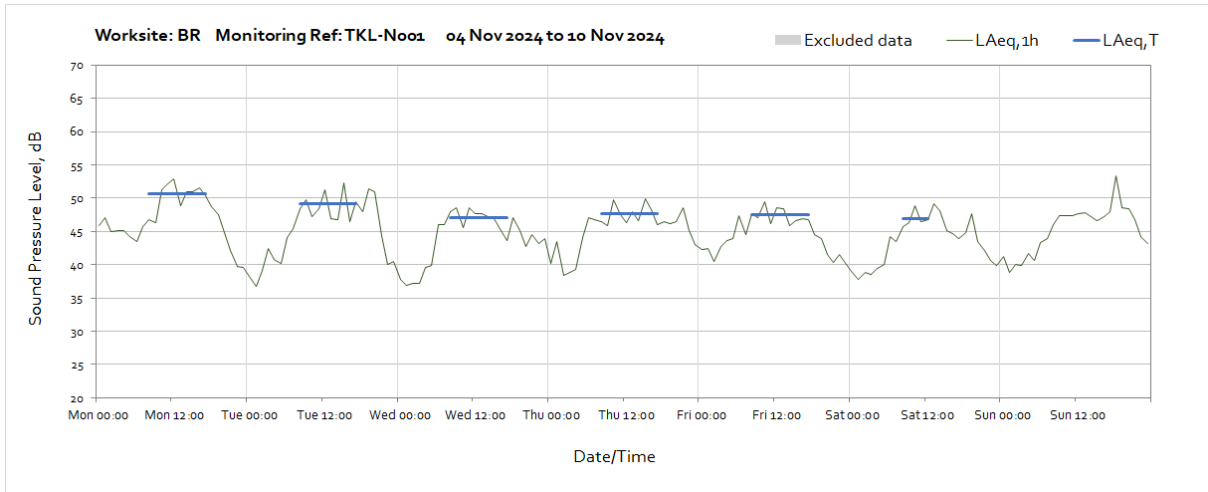


Note: Missing data between 05:00 and 13:00 on Thursday 21st November was due to depleted battery at the monitoring station.

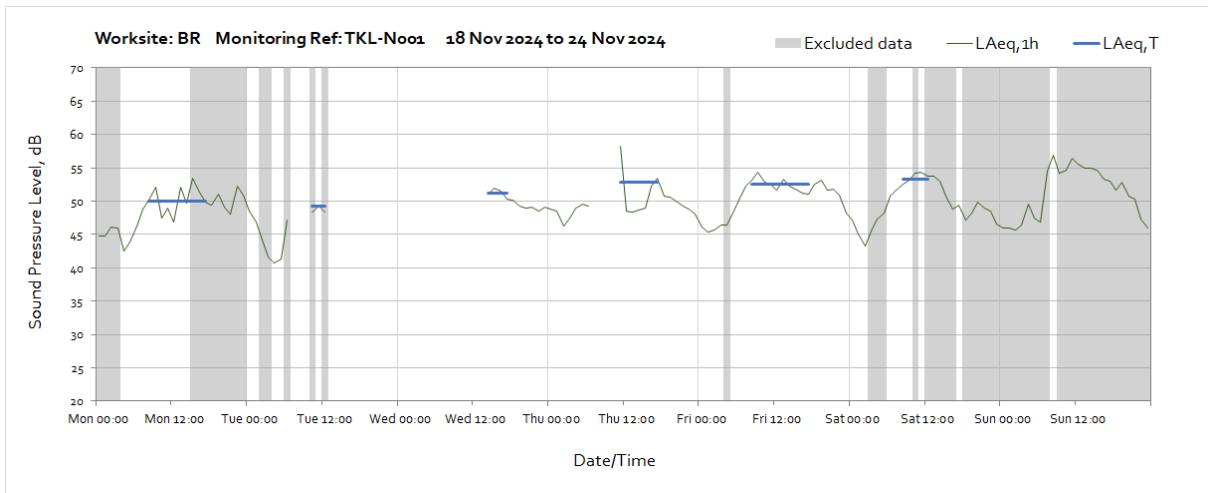


Worksite: BR – Monitoring Ref: TKL-N001

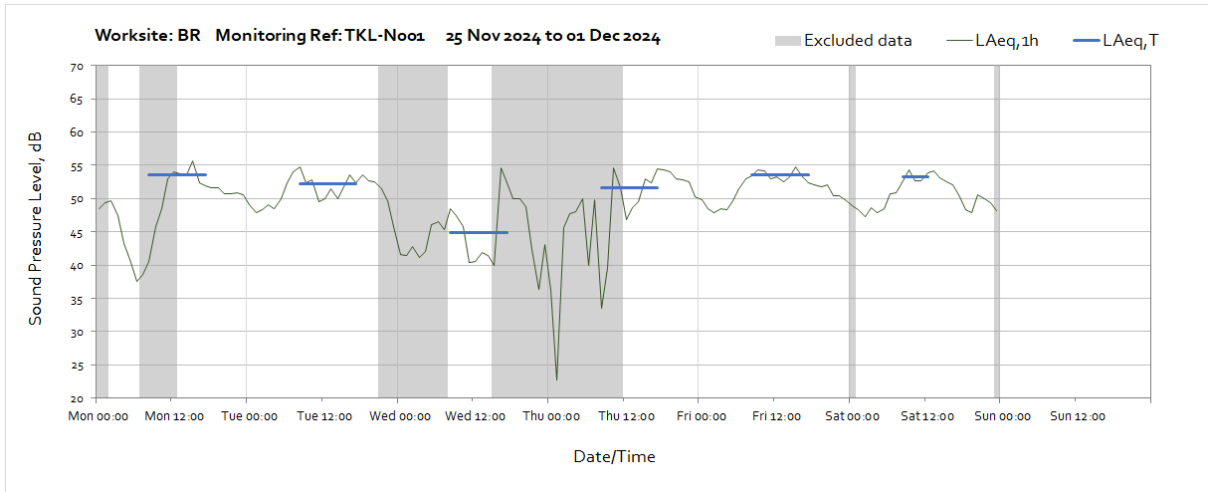




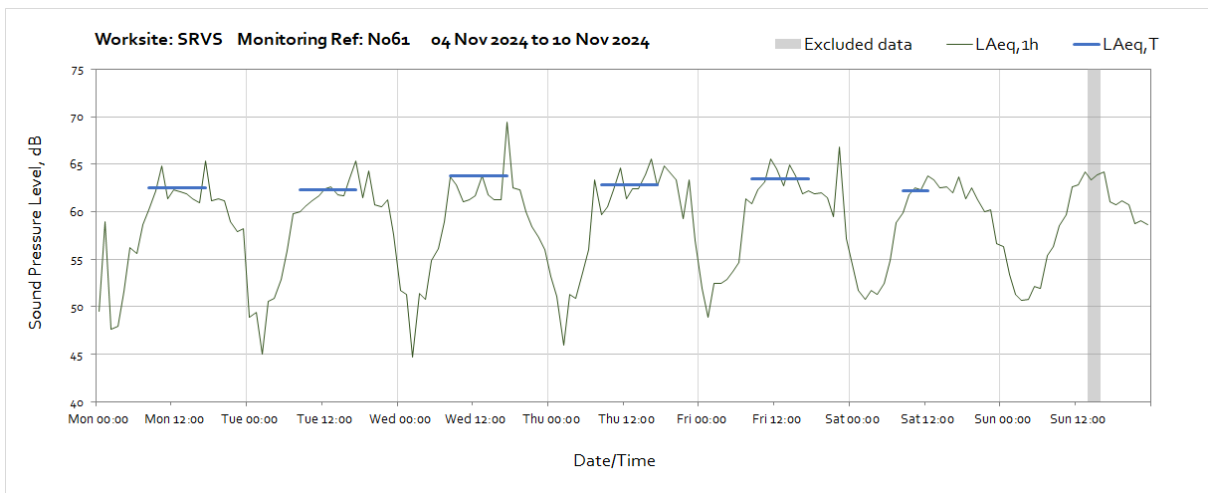
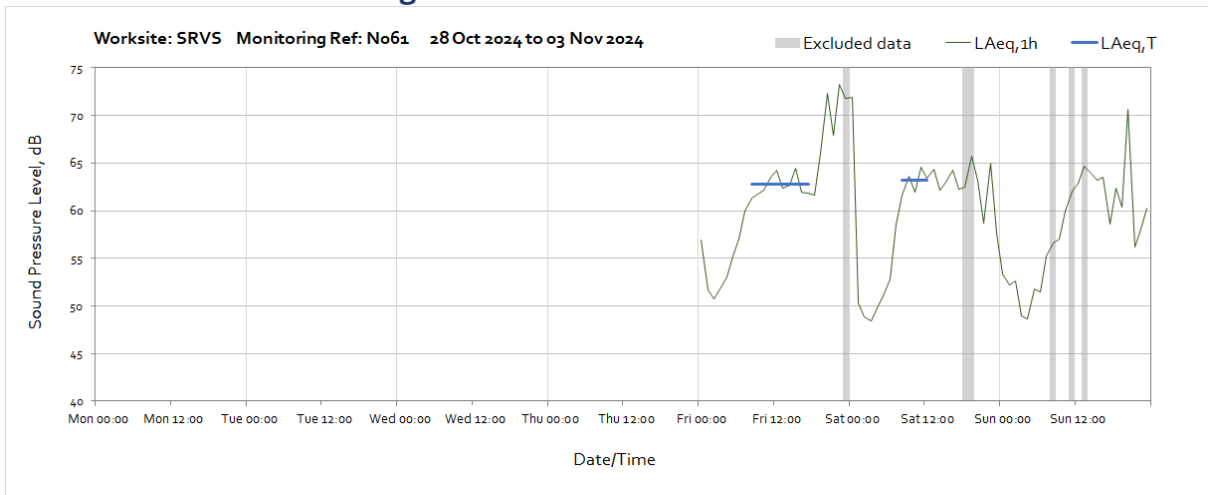
Note: Missing data between 00:00 and 11:00 on Saturday 16th November was due to depleted battery at the monitoring station.

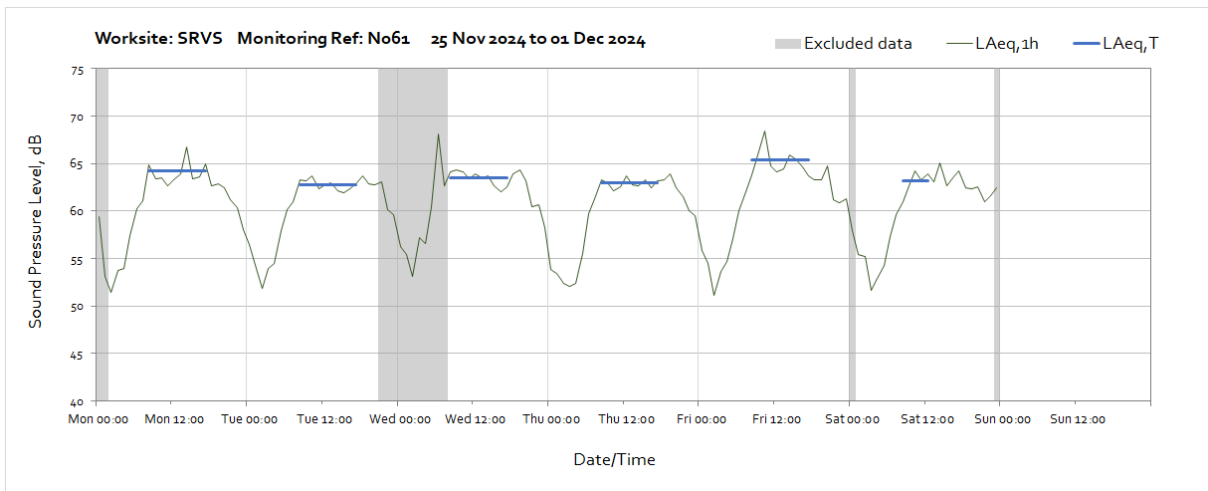
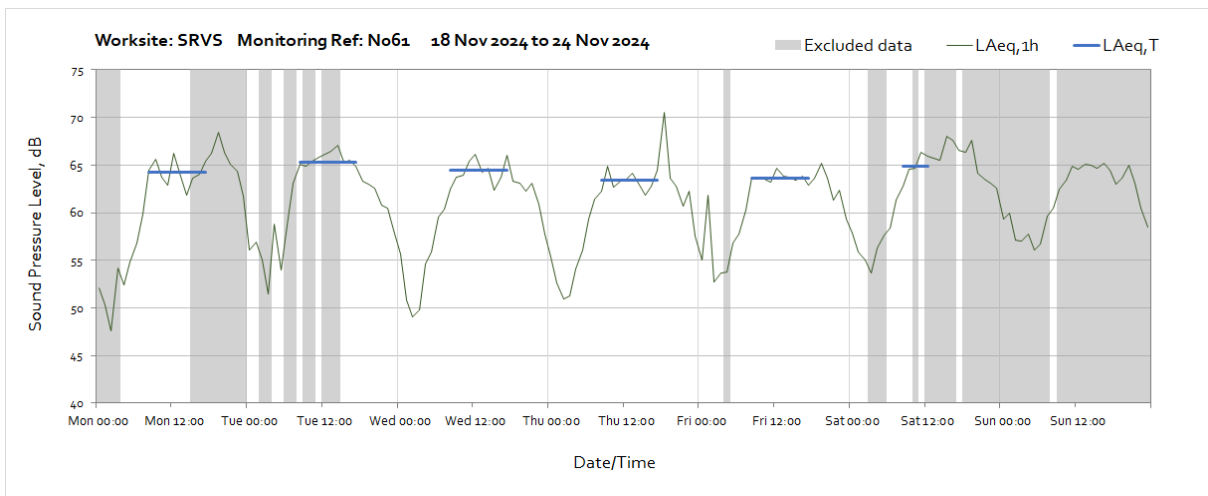
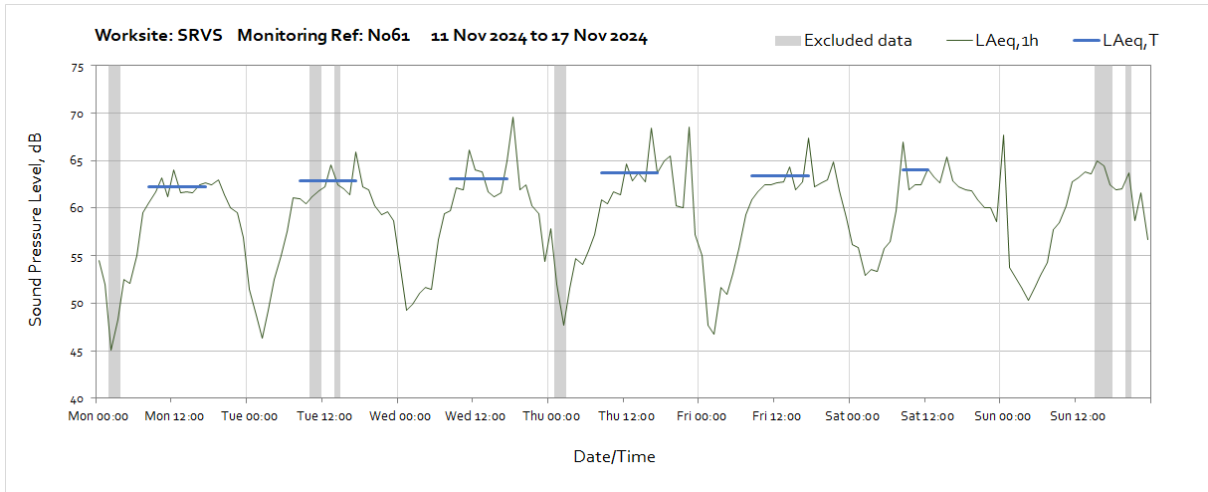


Note: Missing data throughout the week was due to depleted battery at the monitoring station.

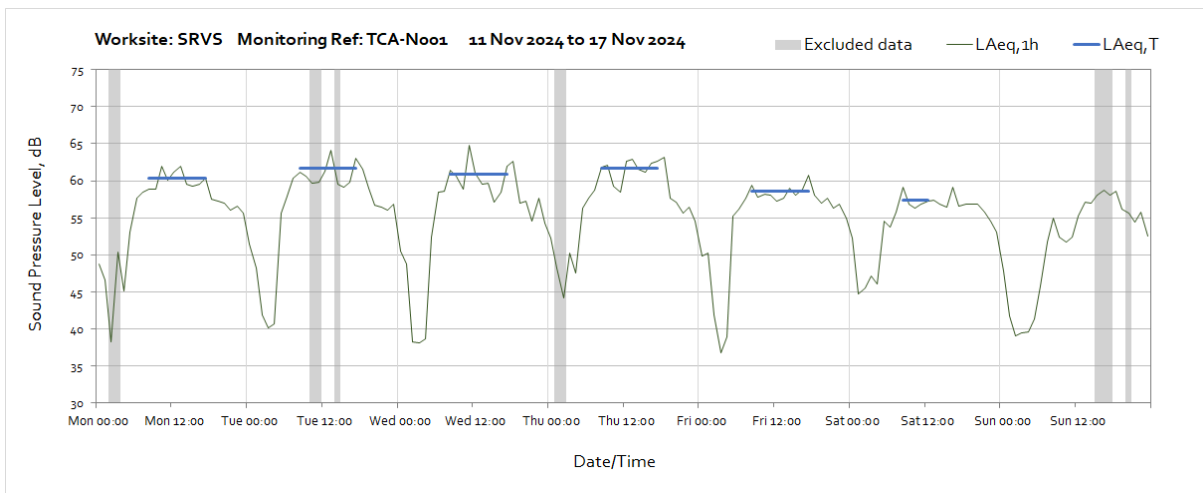
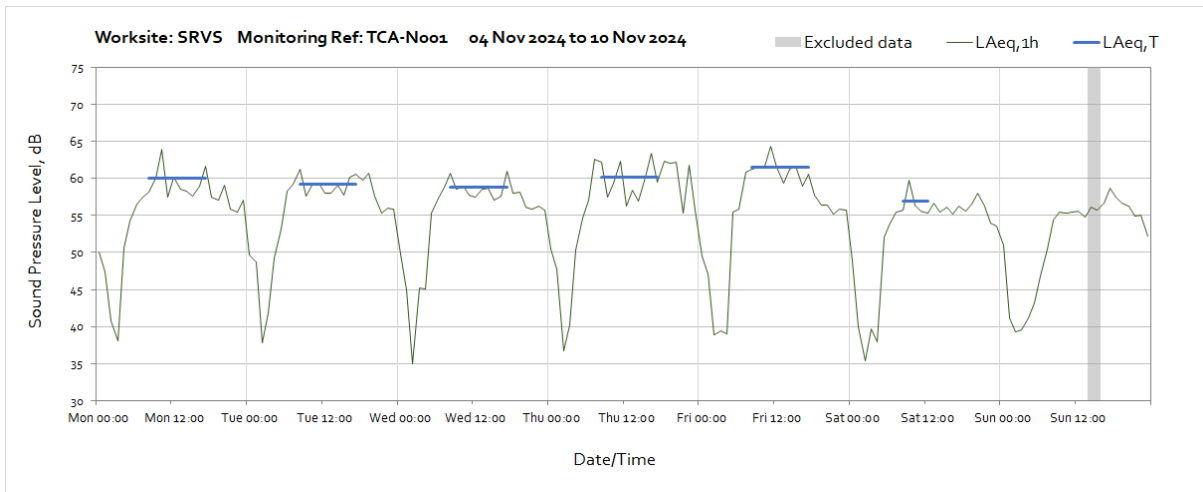
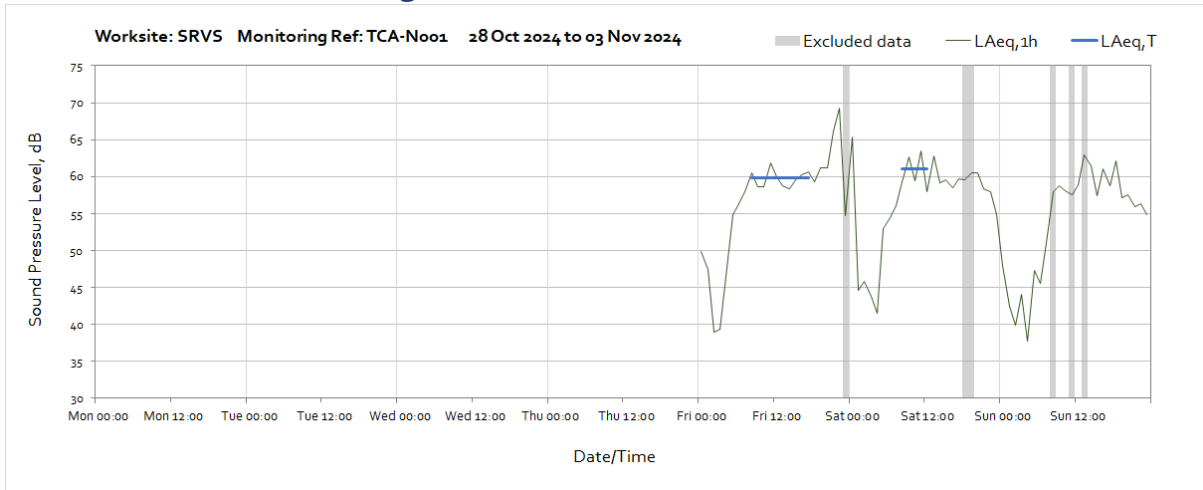


Worksite: SRVS – Monitoring Ref: N061

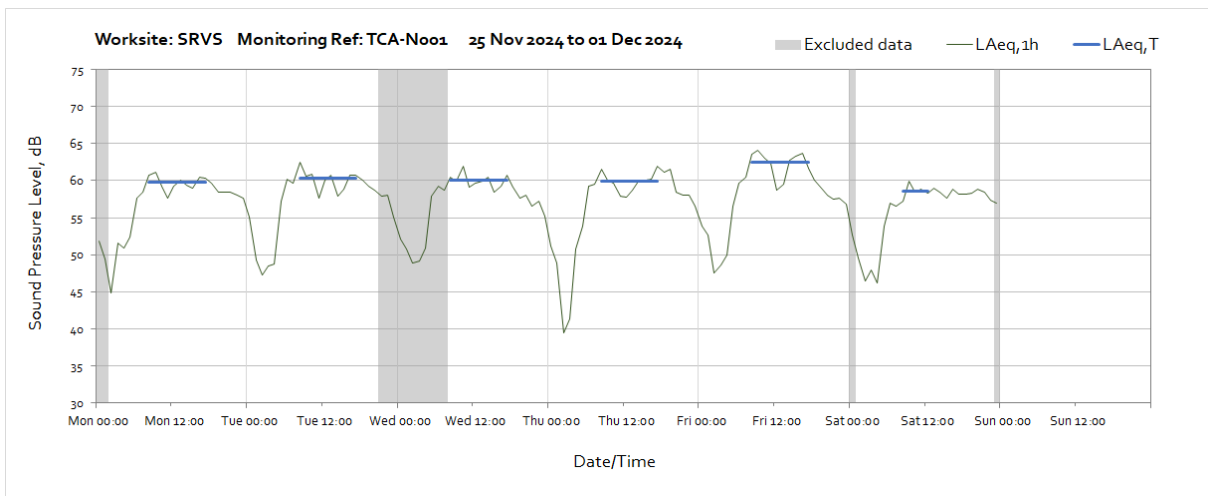
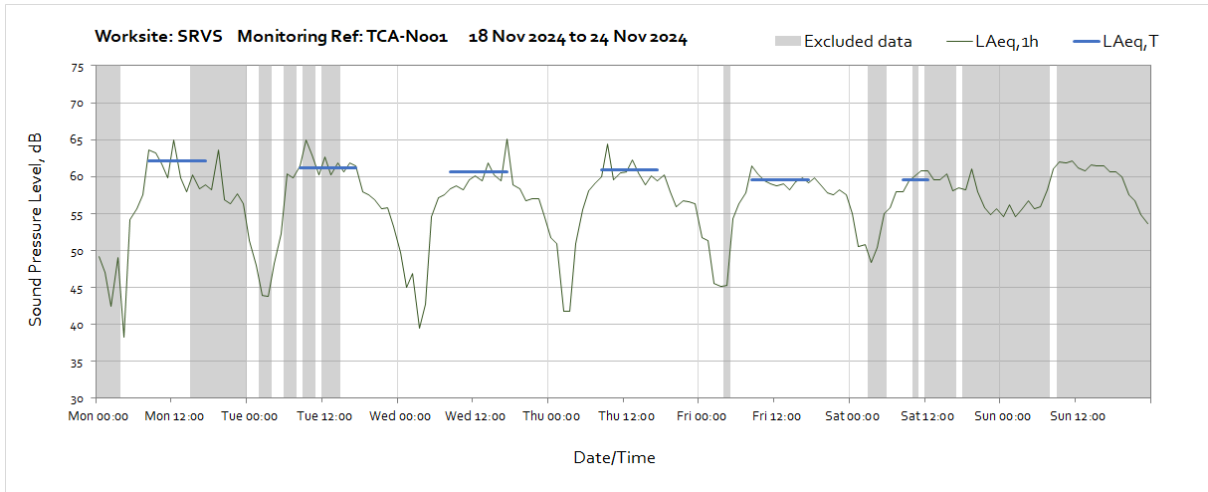




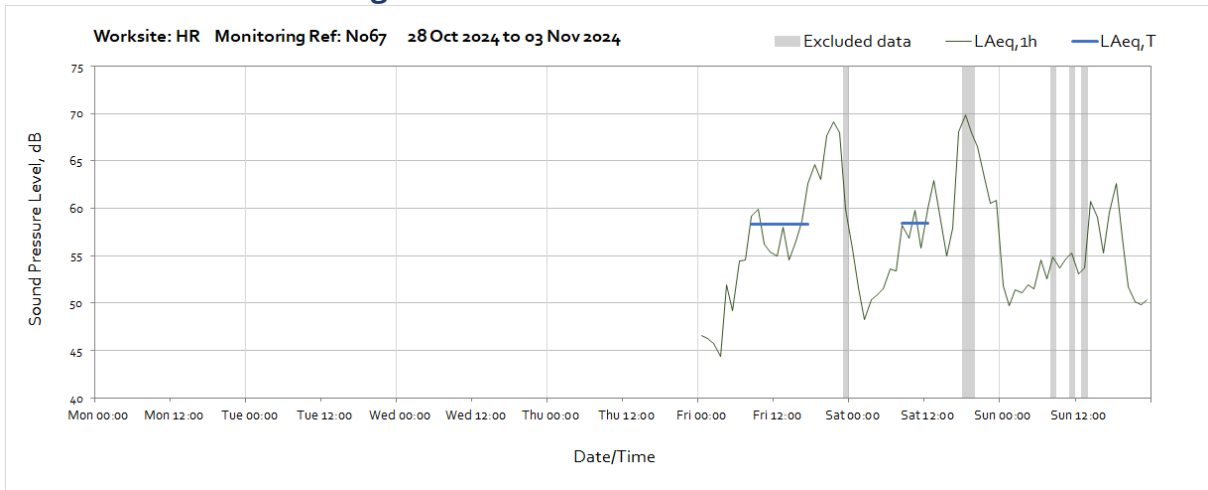
Worksite: SRVS – Monitoring Ref: TCA-N001

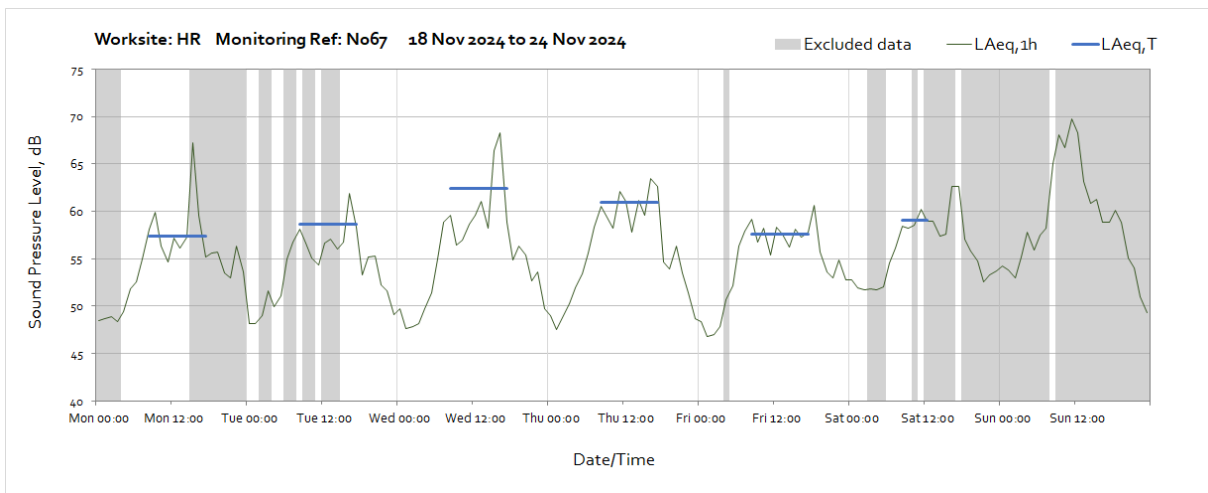
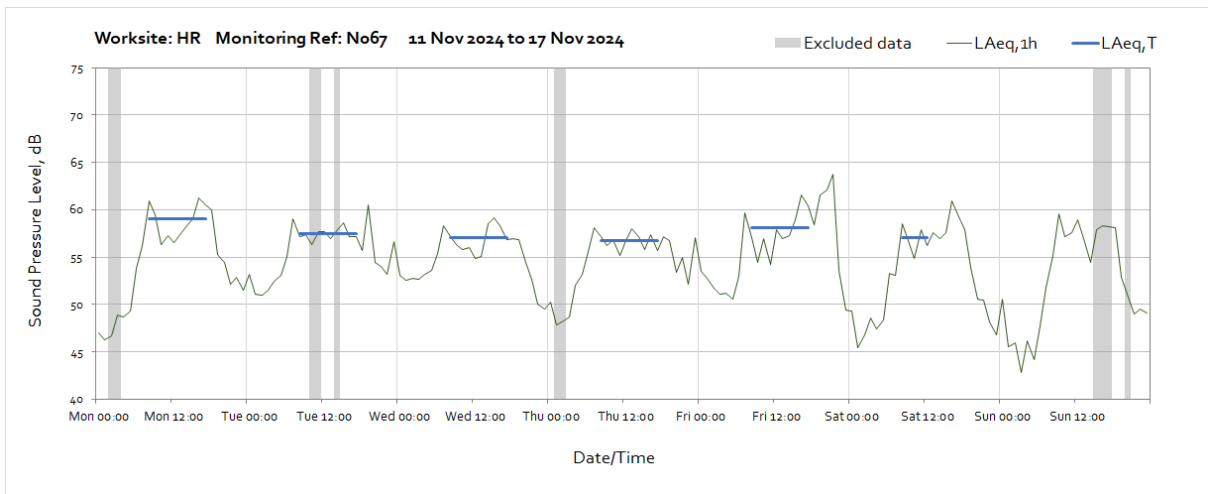
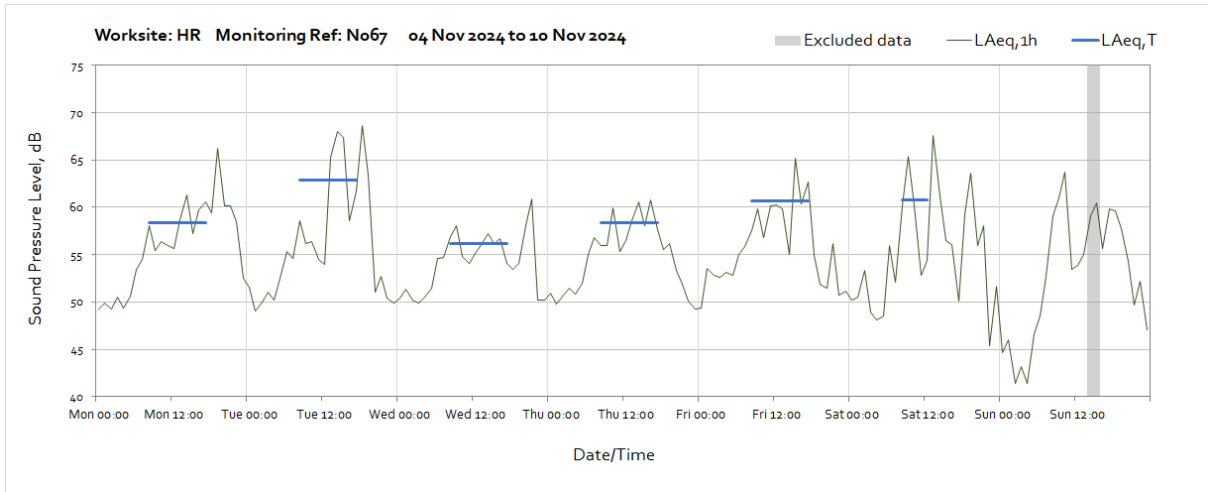


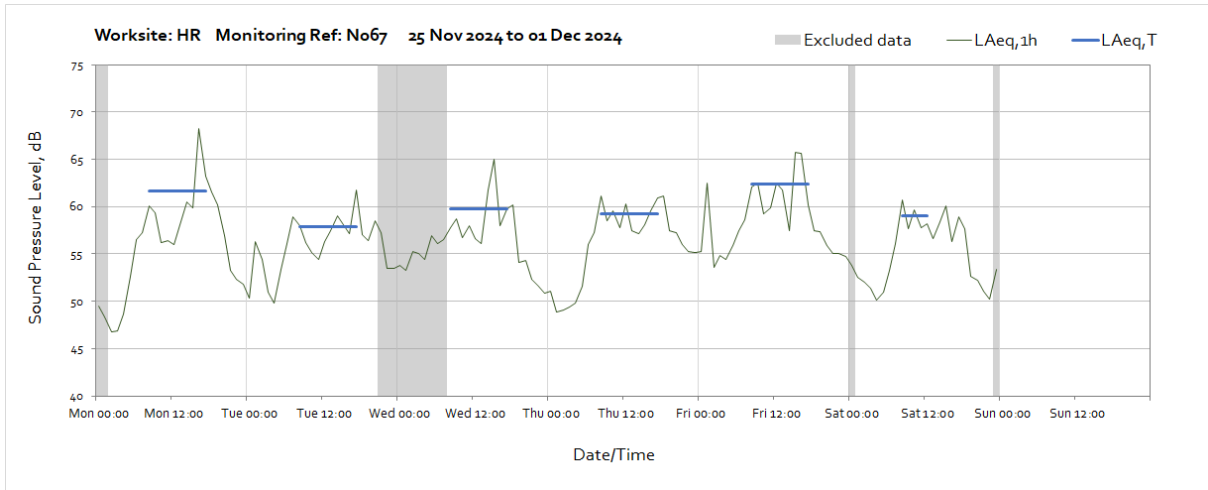
OFFICIAL



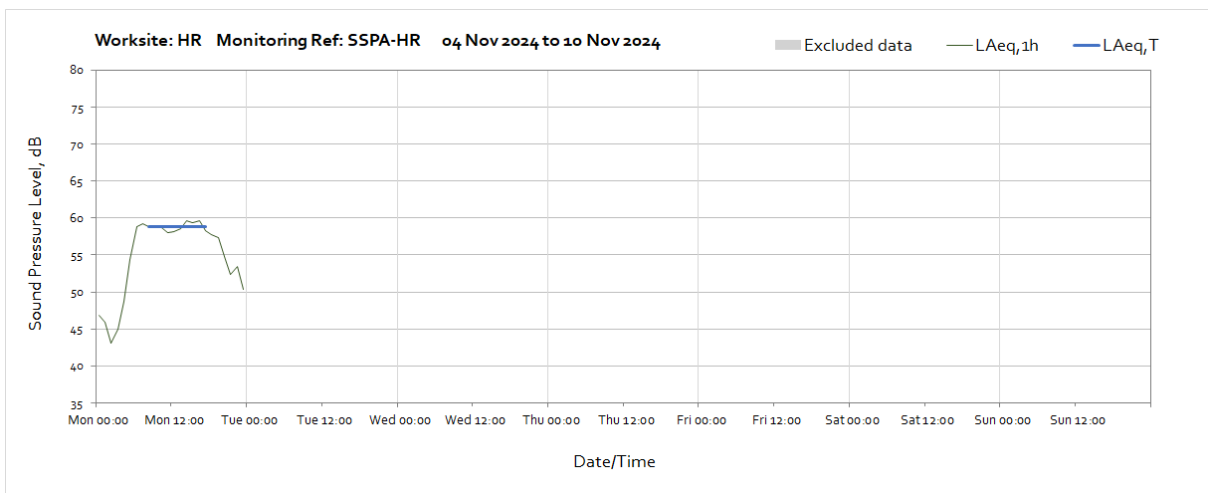
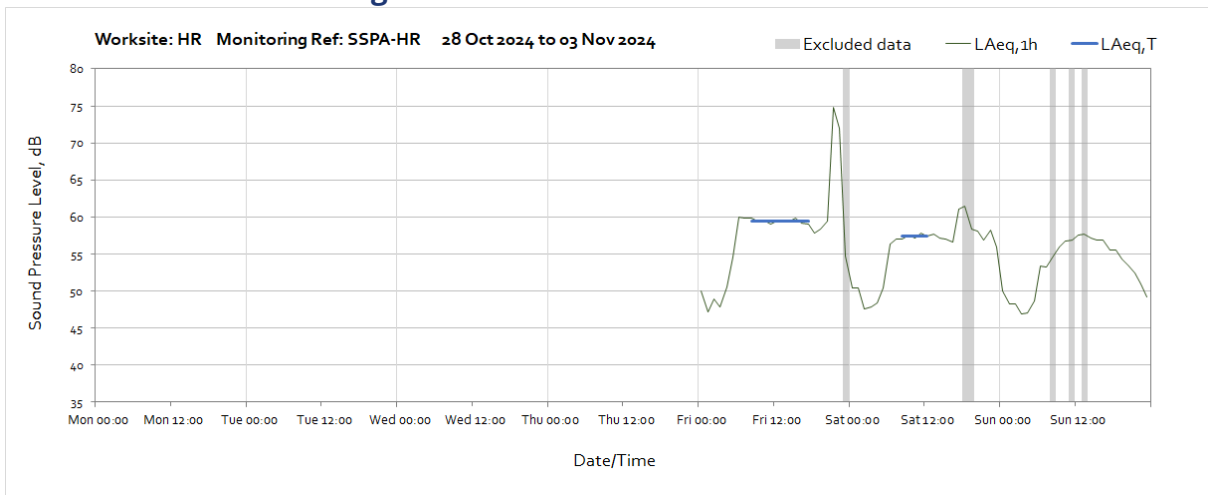
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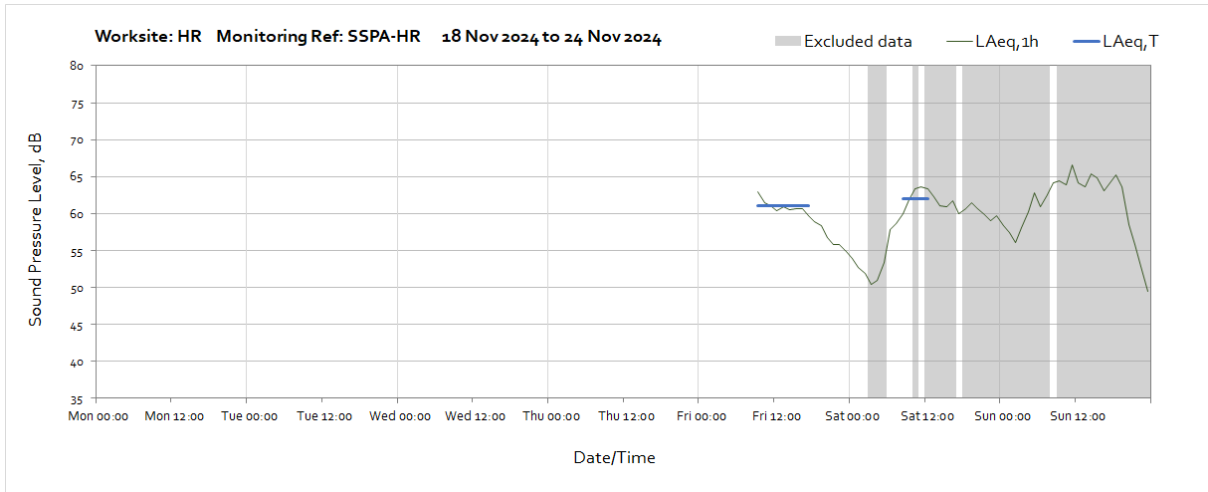




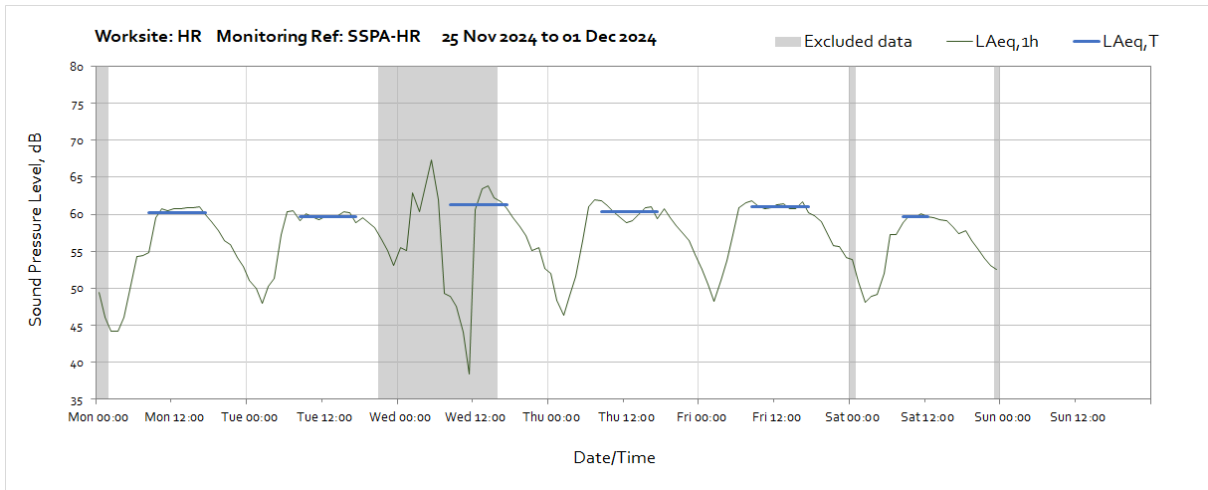
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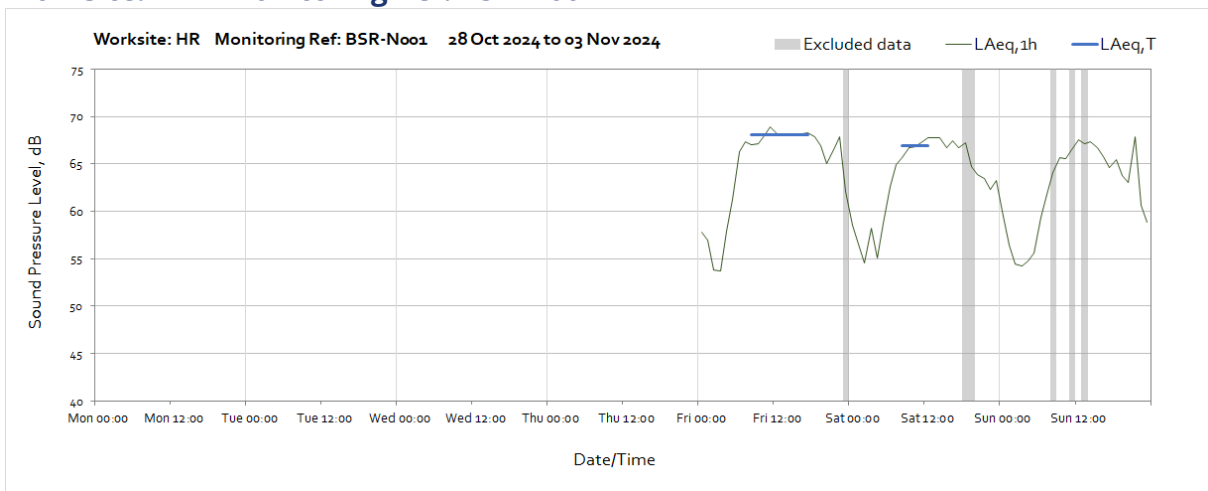
Note: Missing data between 00:00 on Tuesday 5th November and 09:00 on Friday 22nd November was due to depleted battery at the monitoring station.

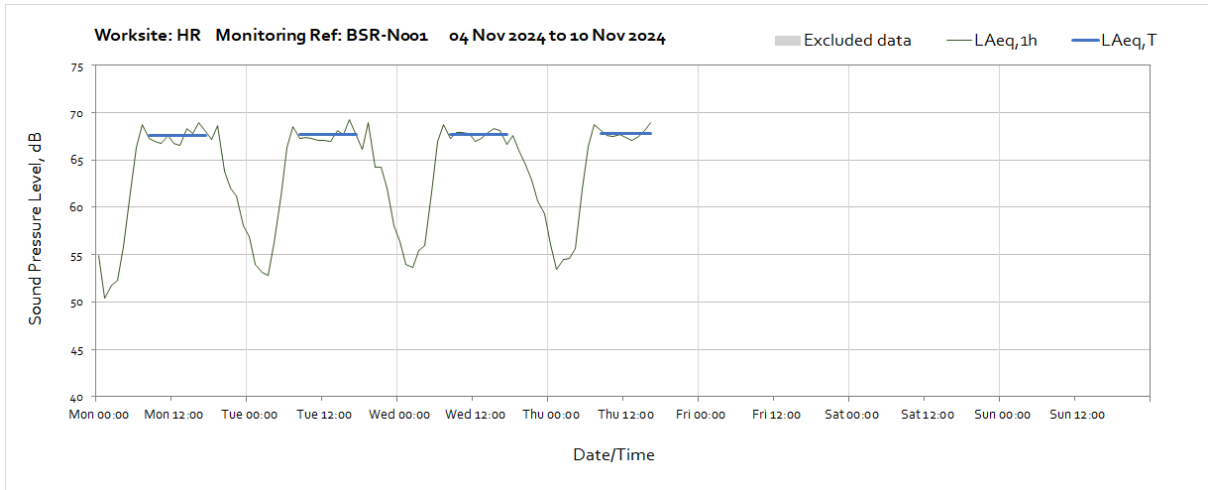


Note: Missing data between 00:00 on Tuesday 5th November and 09:00 on Friday 22nd November was due to depleted battery at the monitoring station.

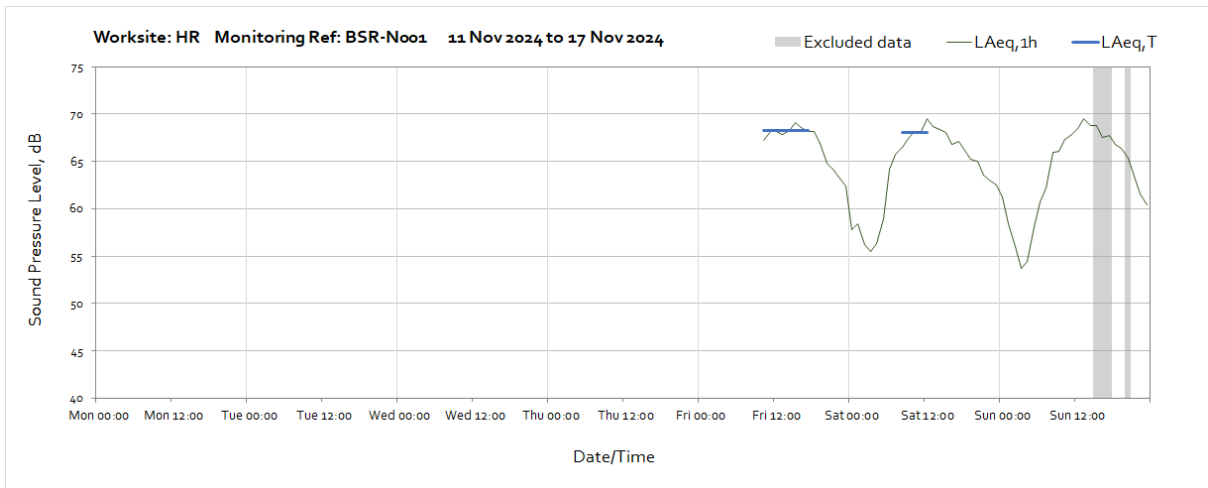


Worksite: HR - Monitoring Ref: BSR-N001

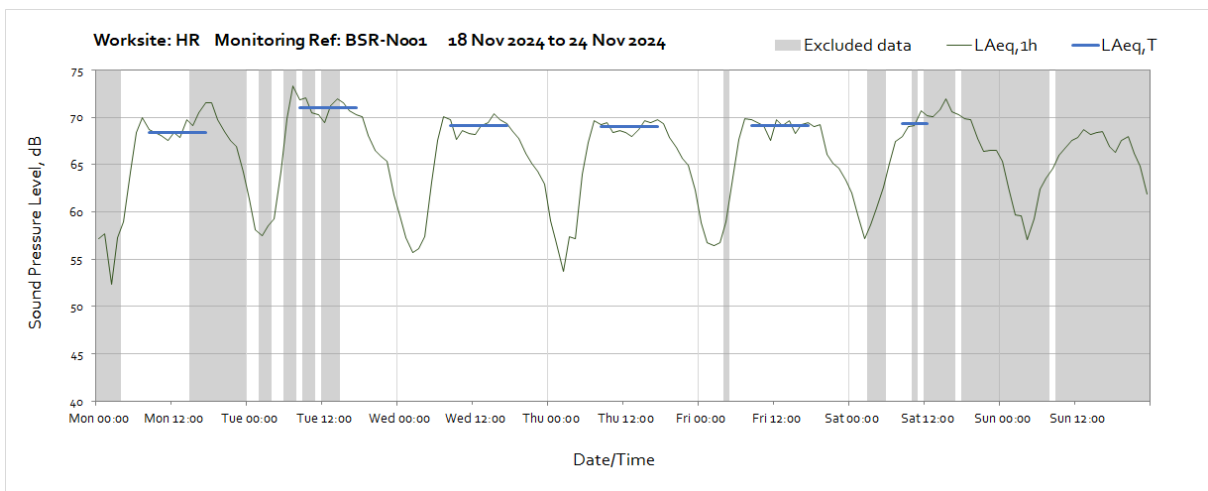


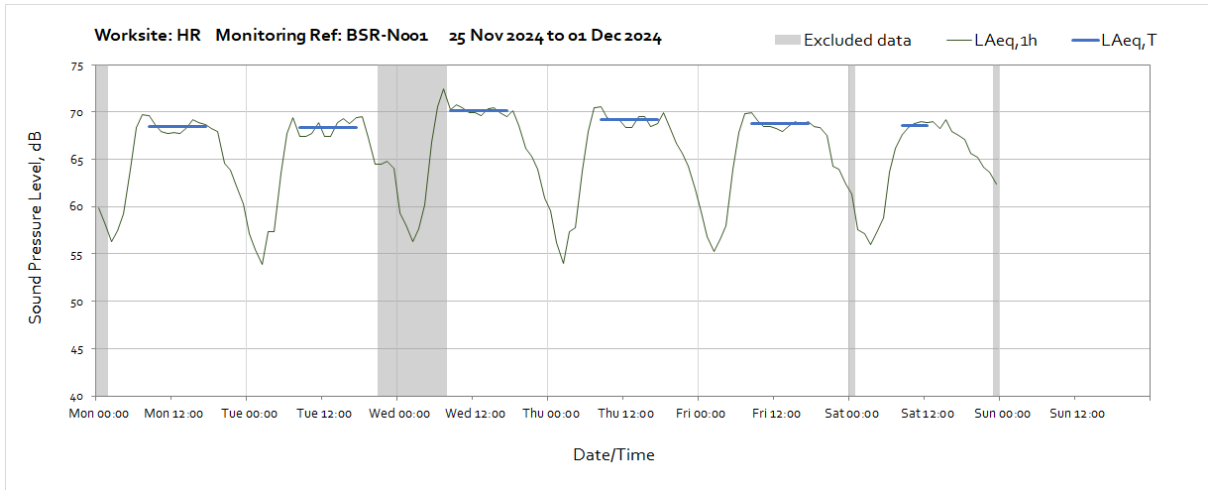


Note: Missing data between 17:00 on Thursday 7th November and 10:00 on Friday 15th November was due to depleted battery at the monitoring station.

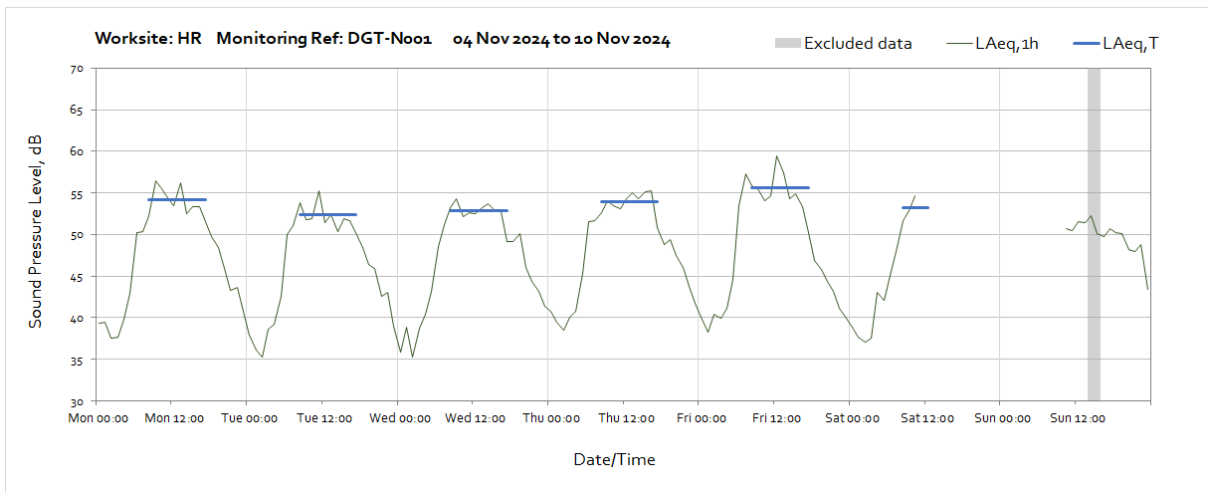
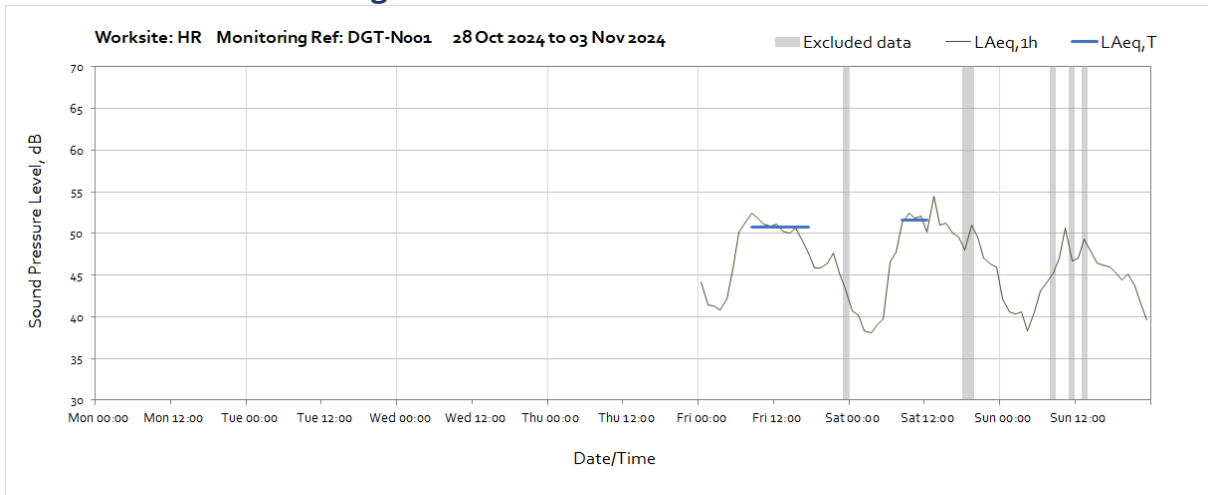


Note: Missing data between 17:00 on Thursday 7th November and 10:00 on Friday 15th November was due to depleted battery at the monitoring station.

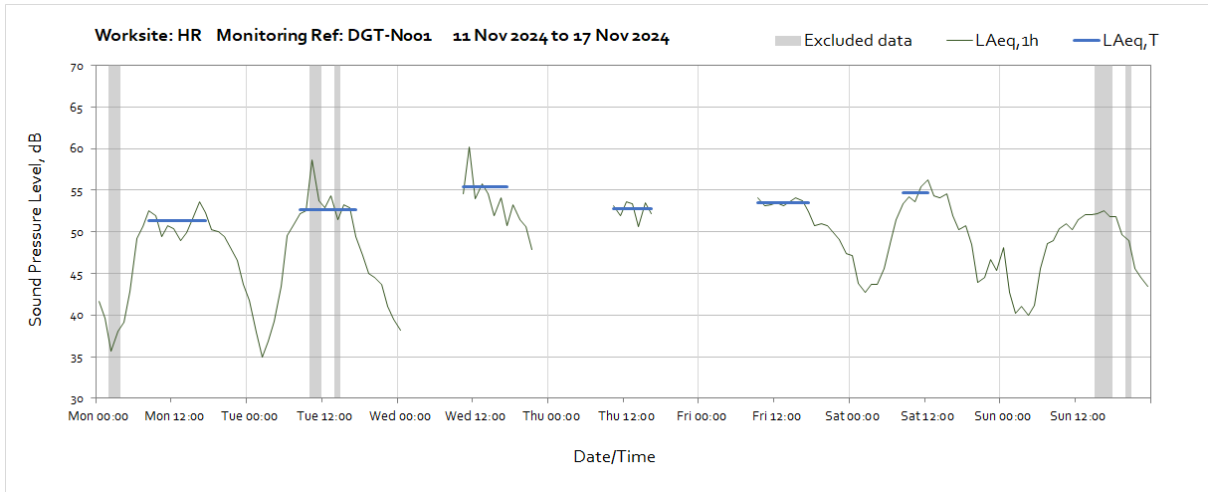




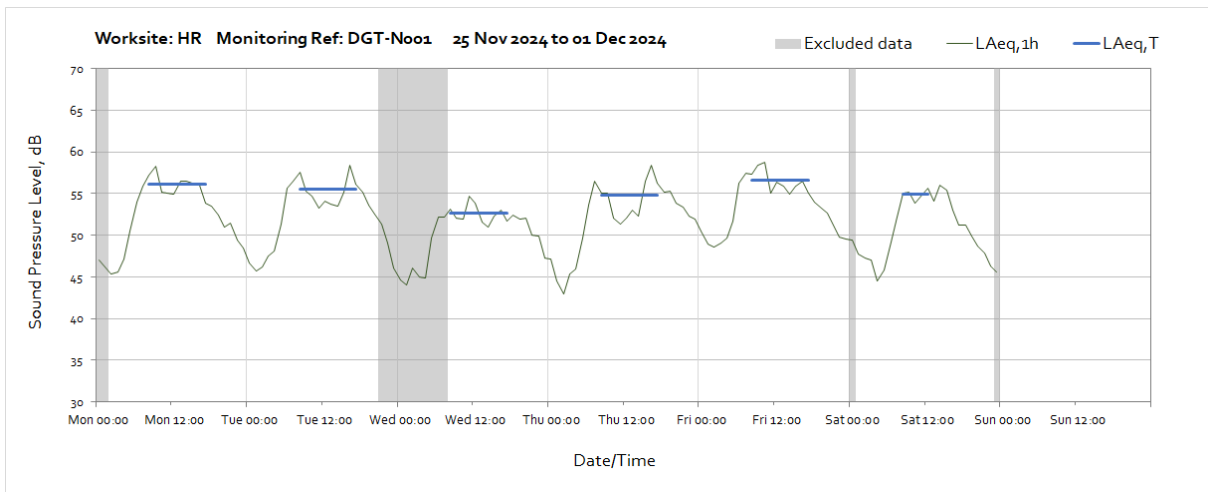
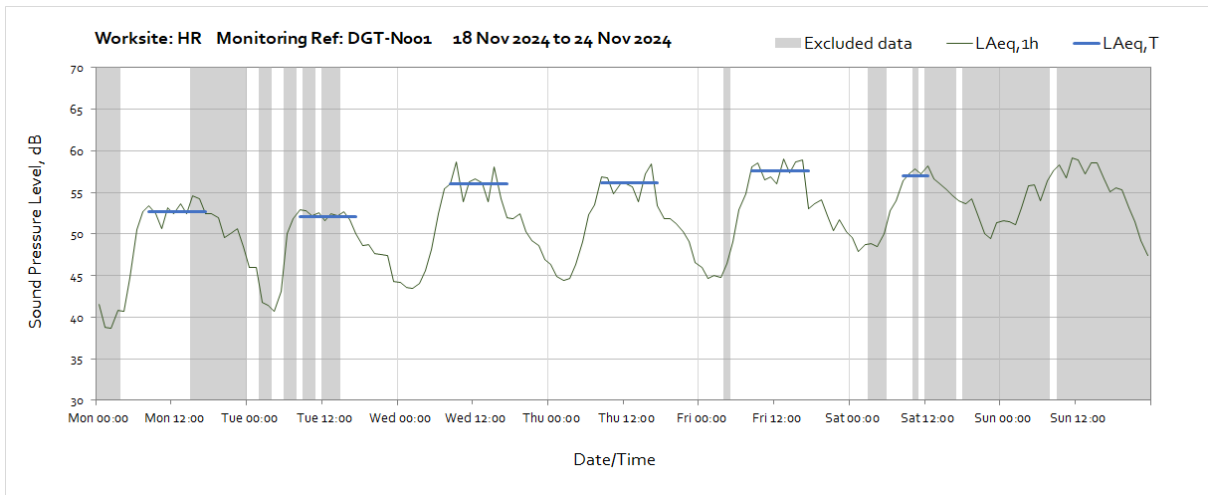
Worksite: HR – Monitoring Ref: DGT-N001



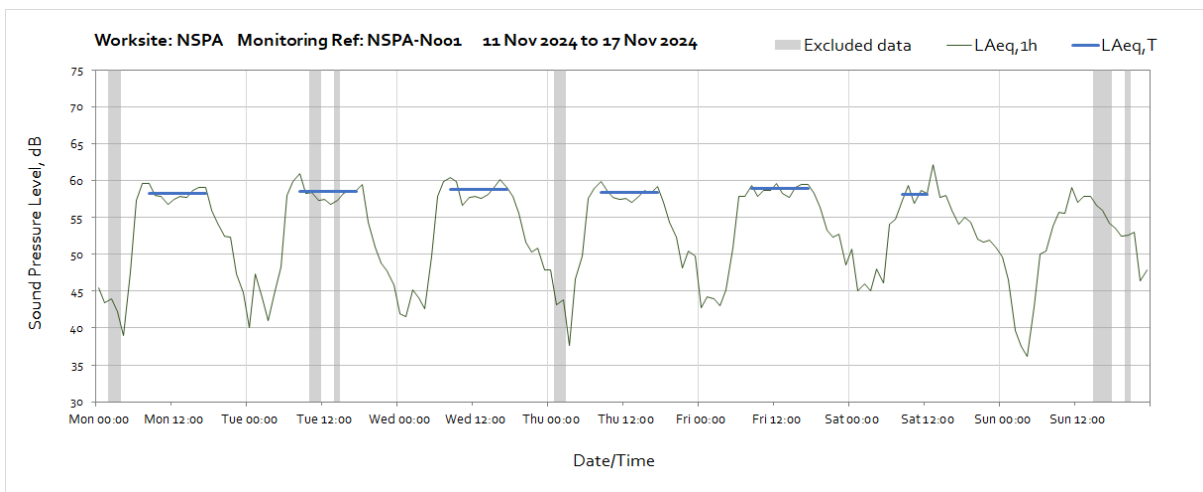
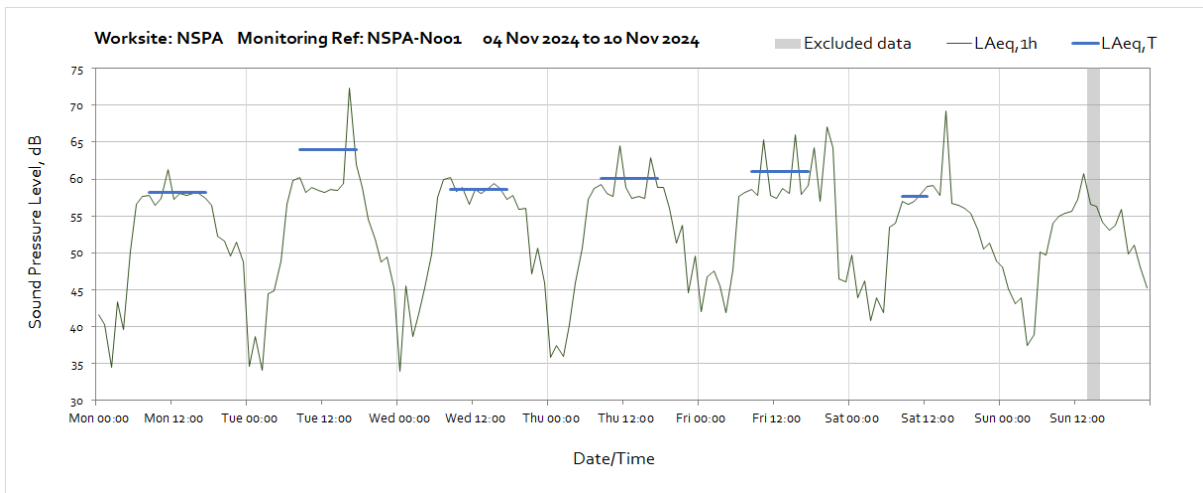
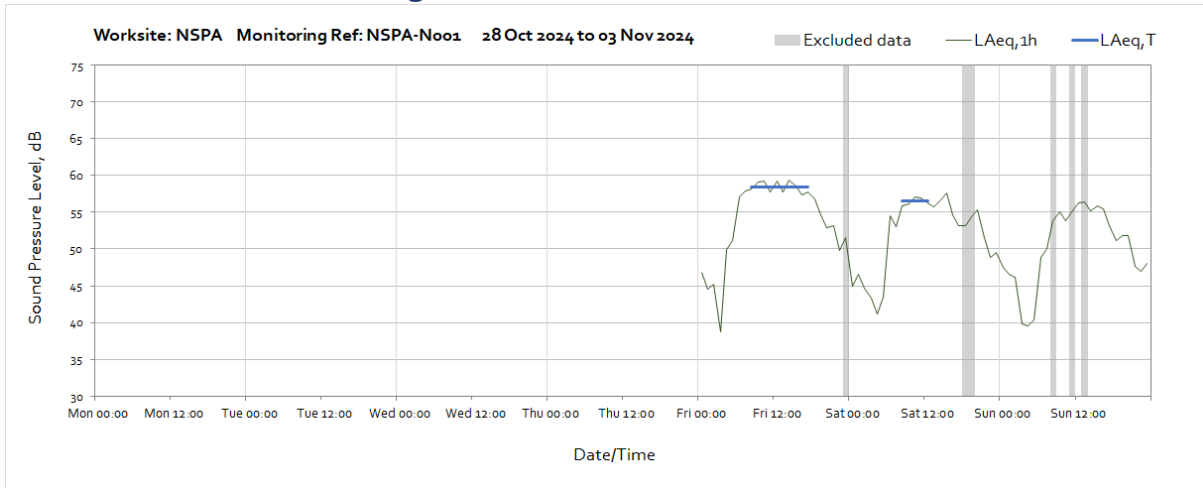
Note: Missing data between 11:00 on Saturday 9th November and 10:00 on Sunday 10th November was due to depleted battery at the monitoring station.

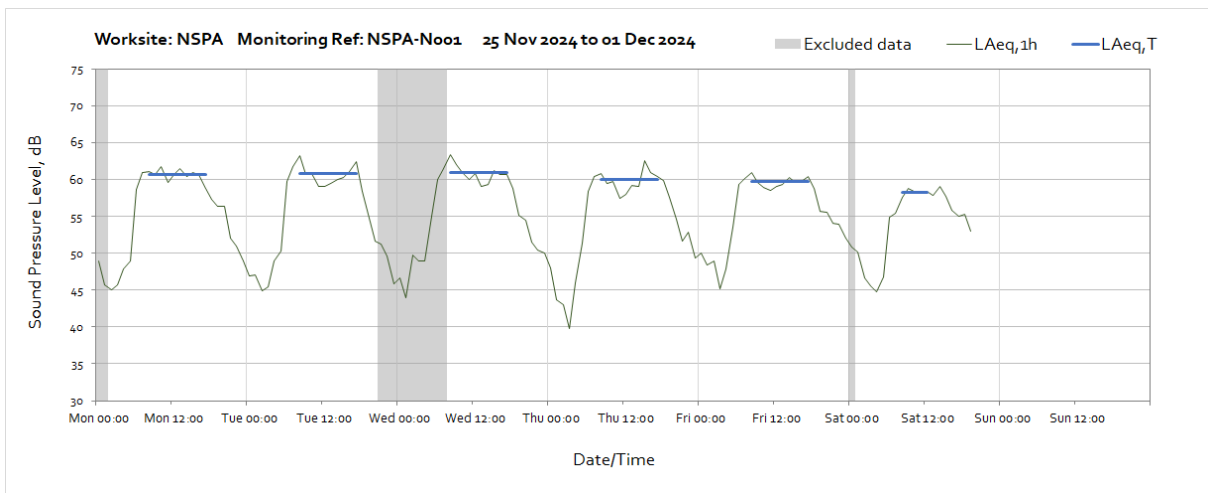
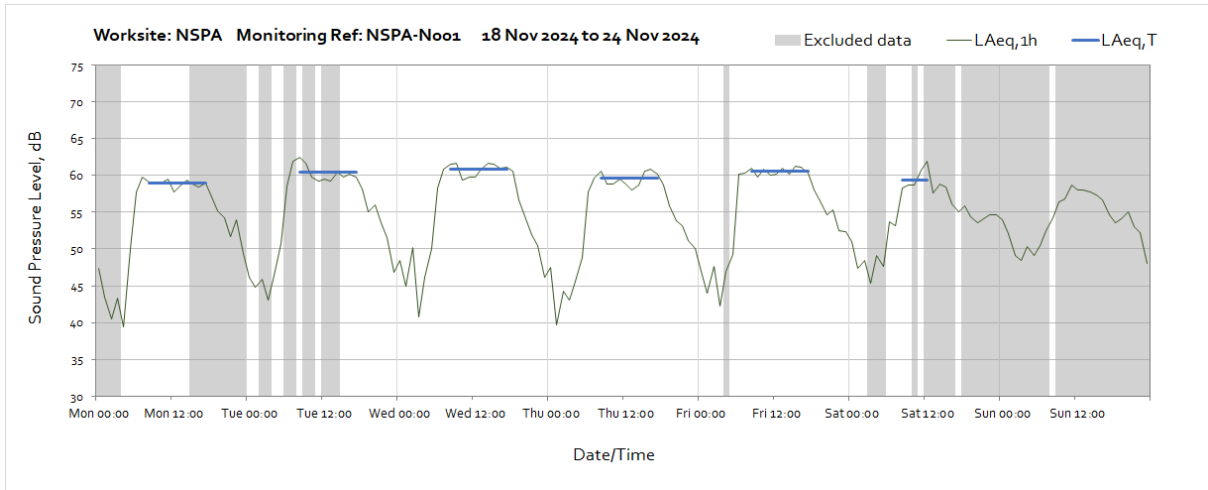


Note: Missing data throughout the week was due to depleted battery at the monitoring station.

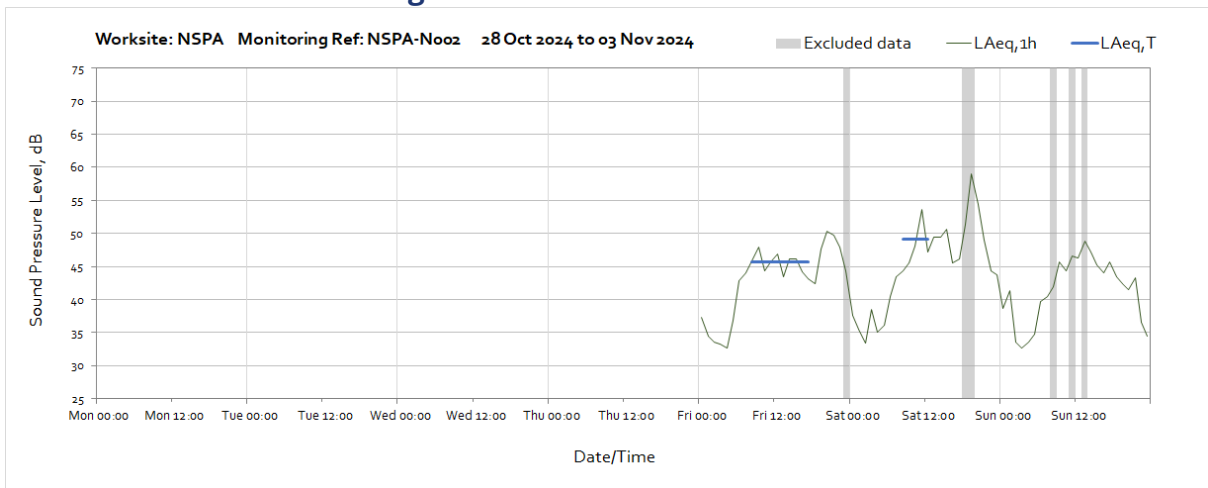


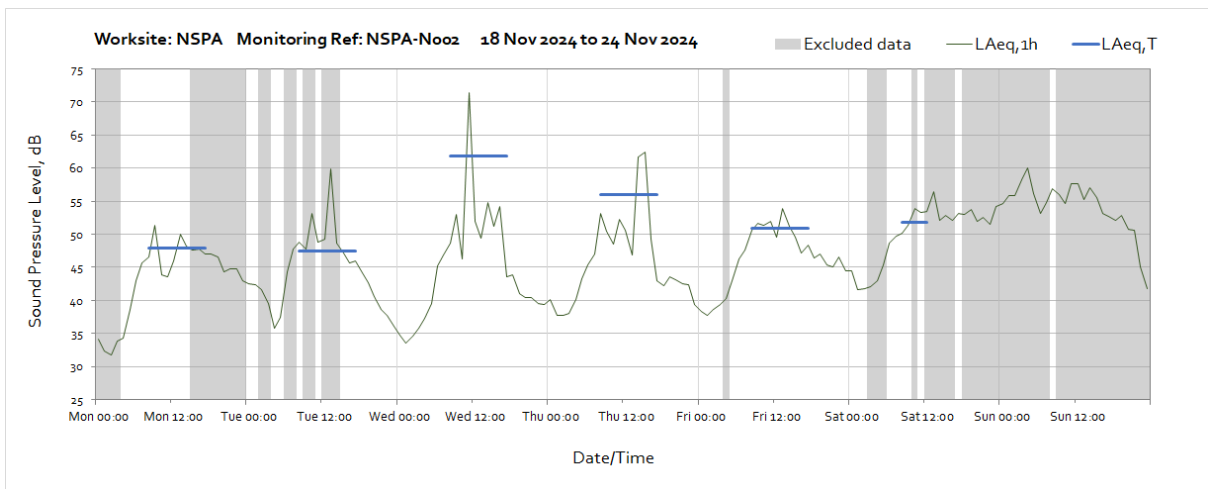
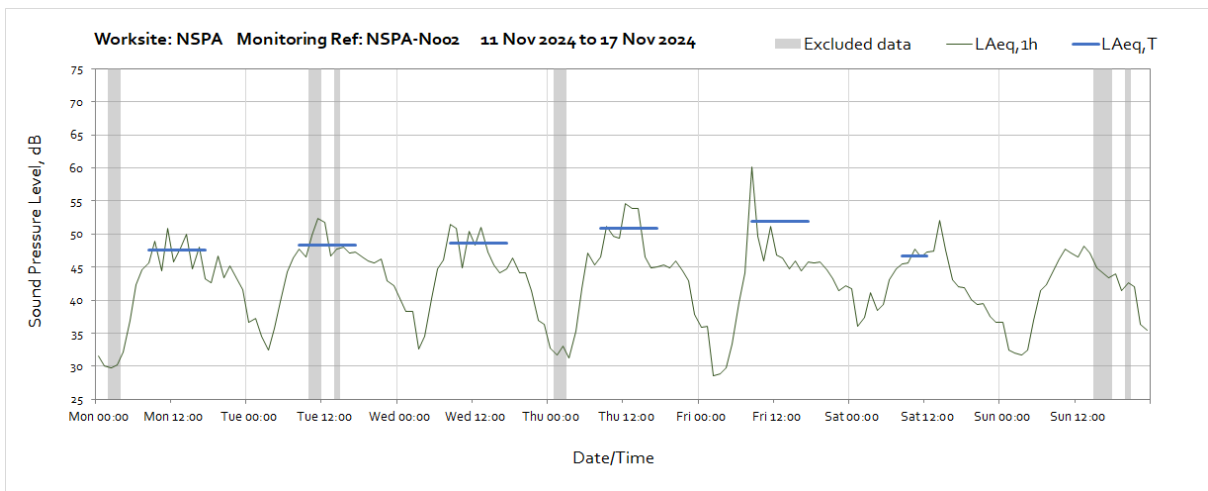
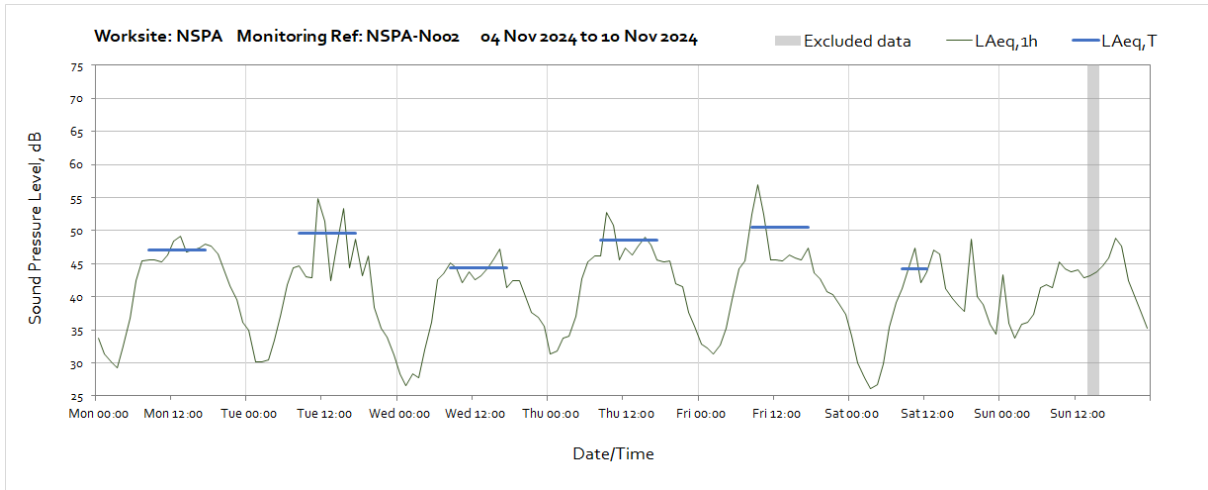
Worksite: NSPA – Monitoring Ref: NSPA-N001

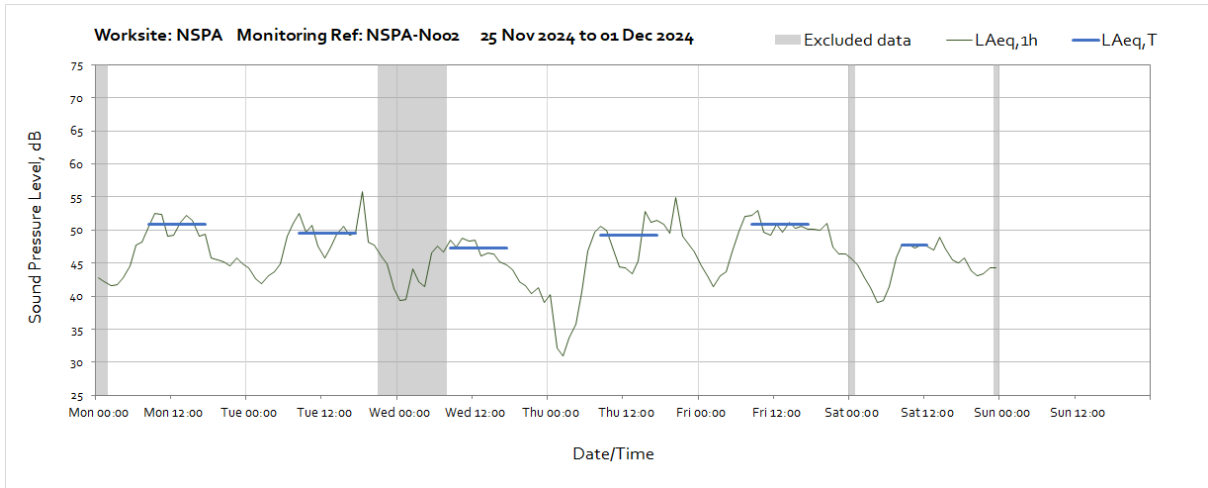




Worksite: NSPA – Monitoring Ref: NSPA-N002



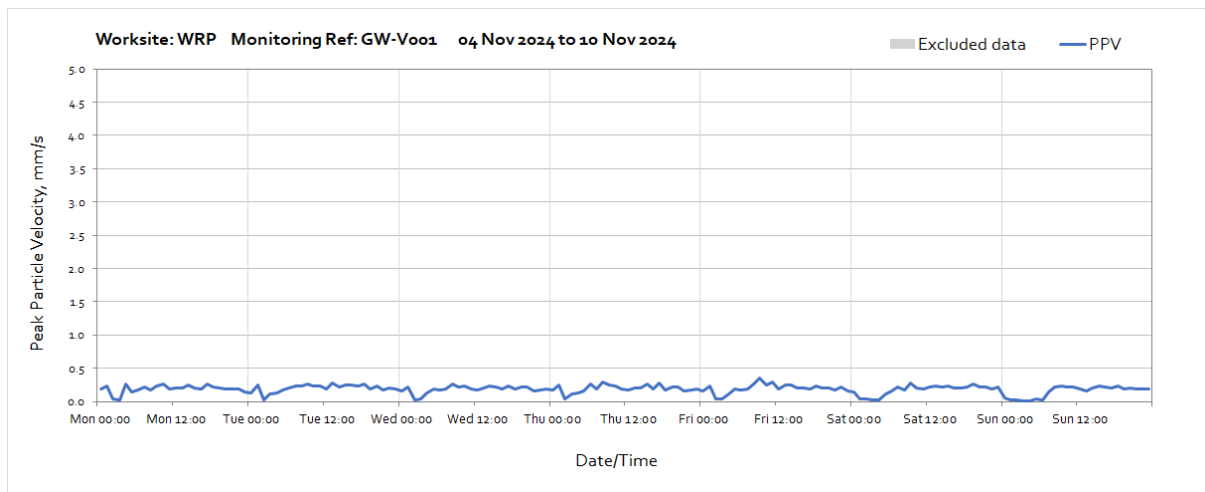
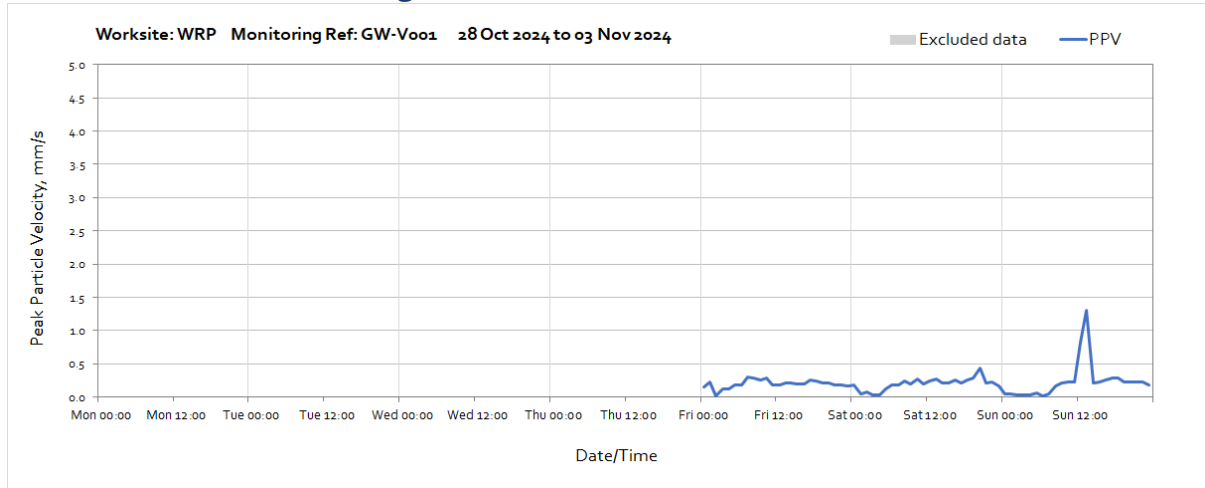


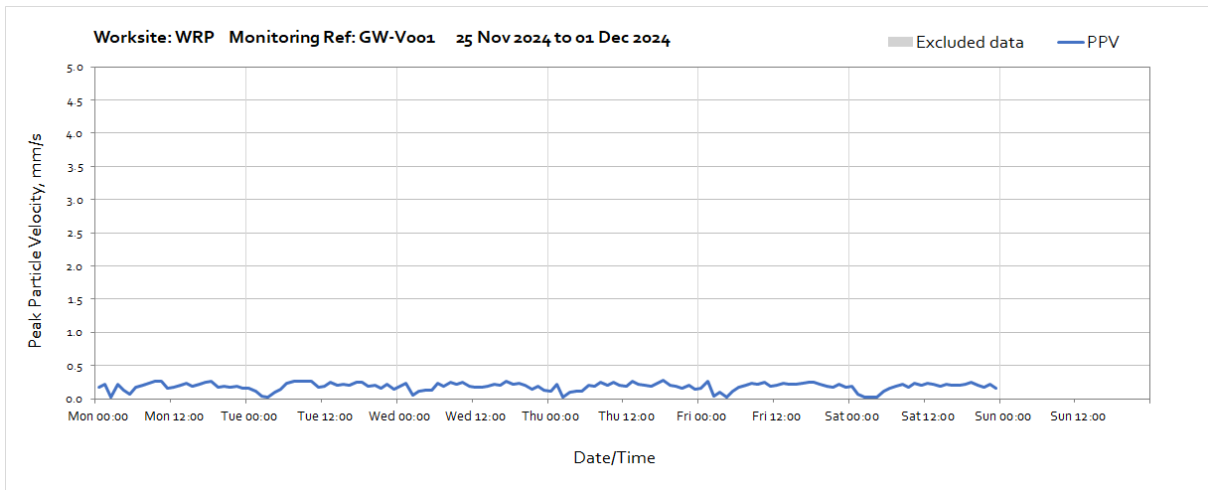
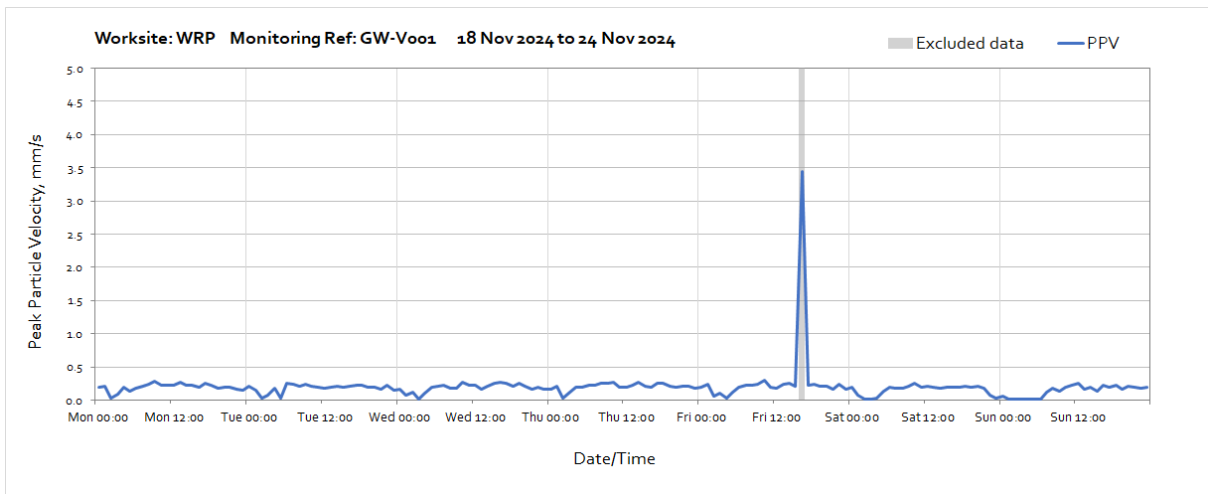
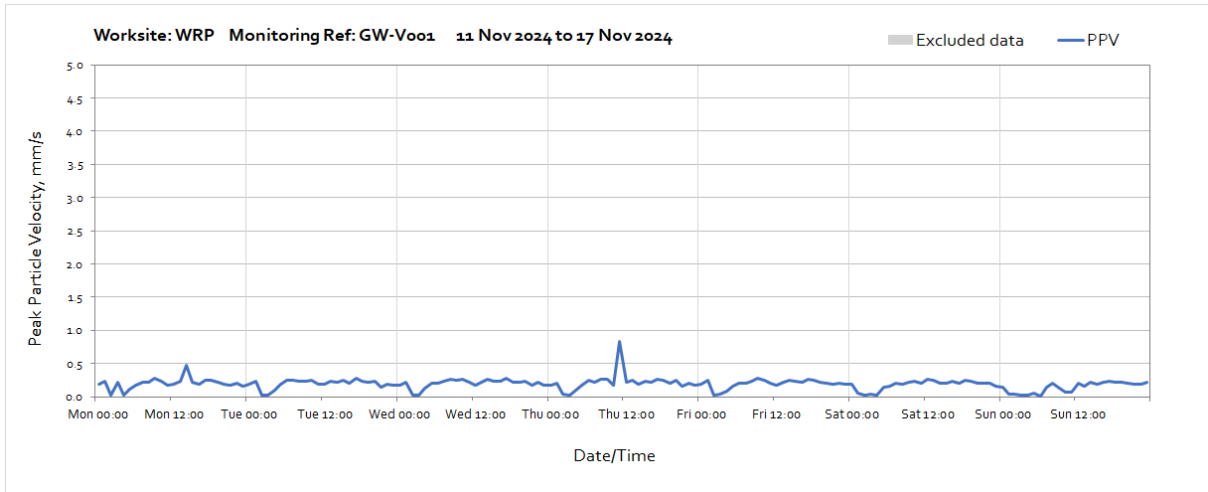


Vibration

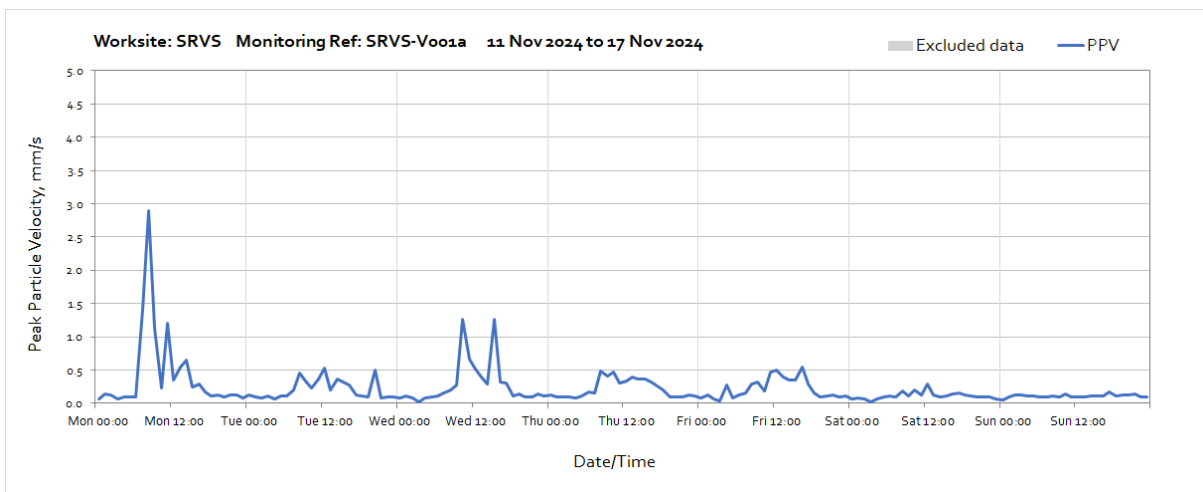
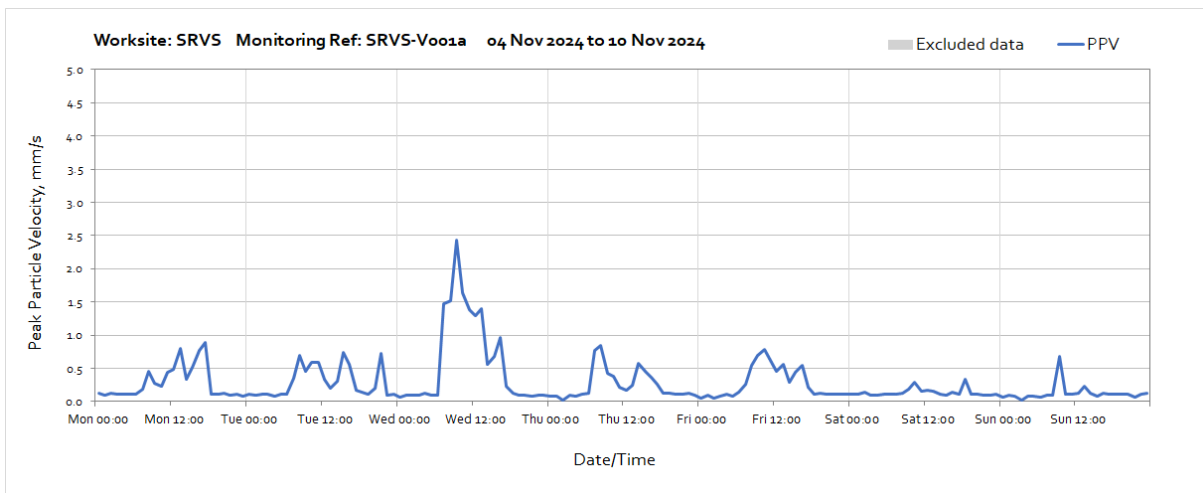
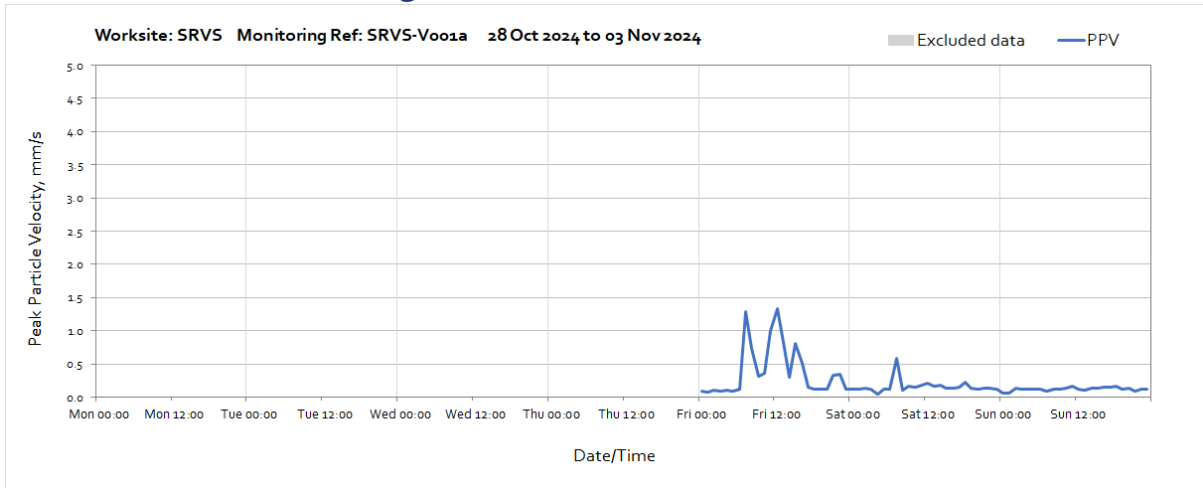
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axis x, y, and z. Periods where PPV values have been affected by local interference with the vibration monitor or only measured for part of the period, which are not representative of HS2 construction works, have been greyed out and excluded when calculating values in Table 4 of the main report.

Worksite: WRP – Monitoring Ref: GW-V001





Worksite: SRVS – Monitoring Ref: SRVS-V001a



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