HS2

February 2024

Construction Noise and Vibration Monthly Report – December 2023

Buckinghamshire

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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 Buckinghamshire (BS) during the month of December 2023.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of the A422 Turweston North worksite (ref.: A422 TN) where material movements, excavation and replace, crushing and screening and platform works were underway.
- Noise monitoring was undertaken in the vicinity of the School End (ref.: SE) and Hermitage Chetwode (ref.: HC) worksites where compound development, haul road maintenance, bulk excavation, topsoil stripping, removal of badger fencing, fencing works, stockpiling, vehicle movements and drainage works were underway.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where access and haul road maintenance, drainage works, culvert works, topsoil stripping, vehicle movements and stockpiling were underway.
- Noise monitoring was undertaken in the vicinity of the West Street Overbridge worksite (ref.: WSO), where waterproofing and technical backfill were underway.
- Noise monitoring was undertaken in the vicinity of the Calvert worksite (ref.: CAL) where operation of concrete batching plant, piling, material movements and earthworks and maintenance were underway.
- Noise monitoring was undertaken in the vicinity of the Woodlands worksite (ref.: WDL) where installation of wingwalls, technical backfill and material movements were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where no works were underway.
- Noise monitoring was undertaken in the vicinity of the Meadoway and Glebe House worksite (ref: MW&GH) where overbridge works, earthworks and diversion works were underway.
- Noise monitoring was undertaken in the vicinity of Oat Close worksite (ref: OC) where stockpiling, overbridge and excavation works were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane worksite (ref.: NLL) where earthworks, site access road maintenance, silt trenching, utility diversions, drilling, culvert construction and fencing installation works were underway.

- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel worksite (ref.: WGT) where fencing installation, excavation, construction of utilities bridge, pedestrian footbath and compound, surface water management, earthworks, concrete works, installation of posts, edgings and shutters, de-vegetation, concrete and tarmac processing, stockpiling, widening of compound carpark and batching plant maintenance works were underway.
- Noise monitoring was undertaken in the vicinity of Grove Farm worksite (ref.: GF) where material deliveries were underway.
- Noise monitoring was undertaken in the vicinity of Small Dean Viaduct Compound worksite (ref.: SDVC) where earthworks, installation of steel cage and scaffolding, utility works, pier installation and demobilisation and foundation installation works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref.: RLE) where earthworks and pond construction works were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Dean Viaduct worksite (ref.: WDV) where scaffolding and hammerhead installation, steel fixing and construction of launch platform were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref.: LL) where fencing works were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref.: SHCW) where no works were underway.
- Noise monitoring was undertaken in the vicinity of North Portal worksite (ref.: NP) where plant operations, building construction, piling platform, tunnel bore machine preparation and porous portal structure works were underway.
- Noise monitoring was undertaken in the vicinity of Chesham Road worksite (ref.: CHSM), where site operation, concrete, internal structure and building works were underway.
- Noise monitoring was underway in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, tunnel connections, basement construction, superstructure concrete, building construction, landscaping and drainage works were underway.
- Noise monitoring was underway in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, internal structure construction, tunnel connection and superstructure concrete works were underway.
- Noise monitoring was underway in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance, tunnel connection and internal and external building works were underway.

- Noise monitoring was underway in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where site operation, road maintenance, internal and external building works and ground level works were underway.
- Noise monitoring was underway in the vicinity of the Colne Valley Viaduct worksite, which is partly located in the London Borough of Hillingdon (LBH), (ref.: CVV), where jetty and haul road maintenance and operation, compound operations, auto transformed feeder station works, ground investigation, pier construction, pumping water management, satellite compound welfare, abutment works, generator farm operation, gas crossing emergency dismantling works, fencing, environmental maintenance, River Colne crossing, girder, deck and landscaping works were underway.

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

- Godington where construction of the site access road, topsoil stripping and vegetation clearance were underway.
- North of School End where bulk excavation, vegetation clearance, stockpiling, drainage, pond excavation and maintenance, removal of badger fencing, fencing works and vehicle movements were underway.
- Charndon Lodge where drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where platform earthworks, landscaping and drainage works were underway.
- Addison Road where earthworks, utility works highway construction and installation of parapets were underway.
- Shepherds Furze Culvert where stockpile fill and maintenance was underway.
- MCJ where earthwork maintenance was underway.
- SLC/13 where piling was underway.
- FCC Cell 6 where stockpile fill and maintenance was underway.
- Greatmoor Culvert where formwork, reinforcement and concrete works, installation of pre-cast elements, waterproofing and technical backfill were underway.
- GUN28 overbridge where formwork reinforced concrete works and technical backfill were underway.
- QUA36 overbridge where piling works were underway.
- Hills Farm where stockpile fill and maintenance were underway.

- Edgcott Road overbridge where formwork, reinforcement and concrete works were underway.
- Thame Valley Viaduct Causeway where piling, drainage, installation of reinforced cement concrete, pile cropping, formwork installation and lifting beams were underway.
- Along A41 where concrete batching works, earthworks, highway works, drainage, installation of kerbing and pavement, vehicle restrain systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Bowood Lane where fencing, excavation, platform works, construction of utilities bridge and surface water management were underway.
- Nash Lee Road Diversion where material movements and earthworks were underway.
- Aylesbury Golf Course where utility diversion works 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 exceeded three (3) times during the reporting period.

There were two (2) exceedances of trigger levels as defined in Section 61 consents during the reporting period. Further details can be found in Table 7 of this report.

Three (3) complaints were received within the Buckinghamshire area during the monitoring period. A description of the complaints, the results of investigations and any actions taken are detailed in Table 8 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 December 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 Buckinghamshire (BS) Local Authority area for the period 1st to 31st December 2023.

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

- A422 Turweston North worksite, ref.: A422 TN (see Plan 1 in Appendix A), where works activities included:
  - Material movements.
  - Excavation and replace.
  - Crushing and screening.
  - Platform works.
- School End worksite, ref.: SE (see Plan 2 in Appendix A) and Hermitage Chetwode Worksite ref.: HC (see plan 2 in Appendix A), where works activities included:
  - Compound development.
  - Haul road maintenance.
  - Bulk excavation works.
  - Topsoil stripping.

    - Removal of badger fencing.
    - Drainage works, including pond maintenance.
    - Fencing works.
    - Stockpiling.
    - Vehicle movements.
- Twyford worksite, ref.: TW (see Plan 2 in Appendix A), where works activities included:
    - Access and haul road maintenance.
    - Drainage works.
    - Culvert works.
    - Topsoil stripping.
    - Vehicle movements.
    - Stockpiling.
- West Street Overbridge worksite, ref.: WSO (see Plan 2 in Appendix A), where works activities included:
    - Waterproofing.
    - Technical backfill.
- Calvert worksite, ref.: CAL (see Plan 3 in Appendix A) where works activities included:
    - Operation of concrete batching plant.
    - Piling.
    - Material movements.
    - Earthworks and maintenance.
- Woodlands worksite, ref.: WDL (see Plan 4 in Appendix A) where works activities included:
    - Installation of wingwalls.
    - Technical backfill.
    - Material movements.
- Quainton worksite, ref.: QAR (see Plan 4 in Appendix A) where no works activities were underway.

- Meadoway and Glebe House worksite, ref.: MW&GH (see Plan 5 in Appendix A), where works activities included:
    - Overbridge works, including construction of abutments and piers.
    - Earthworks.
    - Diversion works, including utilities.
- Oat Close worksite, ref.: OC (see Plan 5 in Appendix A), where works activities included:
    - Excavation.
    - Overbridge works, including piling, formwork reinforced concrete, beam installation and earthworks.
    - Stockpiling.
- Nash Lee Lane worksite, ref.: NLL (see Plan 6 in Appendix A), where works activities included:
    - Earthworks, including material movements, testing, excavation and replace.
    - Site access road maintenance.
    - Site maintenance, including wheel wash and refuelling plant operation and surface water management.
    - Silt trenching.
    - Utility diversions.
    - Drilling for boreholes.
    - Culvert construction.
    - Fencing installation.
- Wendover Green Tunnel worksite, ref.: WGT (see Plan 6 in Appendix A), where works activities included:
    - Fencing installation.
    - Excavation.
    - Construction of utilities bridge.
    - Surface water management.
    - Earthworks, including stockpiling of materials.
    - Concrete works.

    - Installation of posts.
    - Construction of pedestrian footpath.
    - De-vegetation.
    - Installation of edgings.
    - Concrete and tarmac processing.
    - Stockpiling.
    - Installation of shutters.
    - Widening of compound carpark.
    - Compound construction.
    - Batching plant maintenance.
- Grove Farm worksite, ref.: GF (see Plan 7 in Appendix A), where works activities included:
    - Material deliveries.
- Small Dean Viaduct Compound worksite, ref.: SDVC (see Plan 7 in Appendix A), where works activities included:
    - Earthworks, including material movements, testing and stockpiling.
    - Installation of steel cage and scaffolding.
    - Utility works, including installation of cables and telecom assets.
    - Pier installation and de-mobilisation, including concrete pours.
    - Foundation installation.
- Rocky Lane Embankment worksite, ref.: RLE (see Plan 7 in Appendix A), where works activities included:
    - Earthworks, including stockpile relocation.
    - Pond construction, including installation of headwall and pipes.
- Wendover Dean Viaduct worksite, ref.: WDV (see Plan 7 in Appendix A), where works activities included:
    - Scaffolding installation.
    - Steel fixing.
    - Hammerhead installation.

    - Construction of launch platform.
- Leather Lane worksite, ref.: LL (see Plan 8 in Appendix A), where works activities included:
    - Fencing.
- South Heath Cutting worksite, ref.: SHCW (see Plan 8 in Appendix A), where no works activities were underway.
- North Portal worksite, ref.: NP (see Plan 8 in Appendix A), where works activities included:
    - Site support, including plant operation.
    - Piling platform works including scraping, installation of hardstanding, earthworks and dismantling works.
    - Porous portal structure works including reinforced concrete frame and concrete works.
    - Building construction including scraping, installation of hardstanding, surfacing, services and drainage.
    - Tunnel bore machine preparation.
- Chesham Road worksite, ref.: CHSM (see Plan 8 in Appendix A), where works activities included:
    - General site activities.
    - Internal structure works, including reinforced concrete works.
    - Concrete works.
    - Internal and external building works.
- Little Missenden Vent Shaft worksite ref.: LM (see Plan 9 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - Tunnel connection works.
    - Basement construction including installation of basement internals.
    - Superstructure concrete works.
    - Building construction works.
    - Landscaping.
    - Drainage works.

- Amersham Vent Shaft worksite, ref.: AM (see Plan 10 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - Internal structure construction.
    - Tunnel connection works.
    - Superstructure concrete works.
- Chalfont St Giles Vent Shaft worksite, ref.: CSG (see Plan 11 in Appendix A), where works activities included:
    - General site activities including operation of plant.
    - Road maintenance.
    - Tunnel connection works.
    - Internal and external building works.
- Chalfont St Peter Vent Shaft worksite, ref.: CSP (see Plan 12 in Appendix A), where works activities included:
    - Operation of plant.
    - Road maintenance.
    - Ground level works including external works.
    - Internal and external building works.
- Colne Valley Viaduct - Load Test Pile 1 worksite, which is partly located in the London Borough of Hillingdon (LBH), ref.: CVV (see Plan 13 in Appendix A), where works activities included:
    - Jetty and haul road operation and maintenance.
    - Compound operations.
    - Auto transformed feeder station works including site preparation, bulk earthworks filling, drainage works and vegetation clearance.
    - Ground investigation works.
    - Pier construction, including tower crane mobilisation and demobilisation, formwork reinforced concrete works and post-tensioning.
    - Pumping water management.
    - Satellite compound welfare and generator farm operation.

- Abutment works, including yard support activities and formwork reinforced concrete works.
- Gas crossing emergency dismantling works.
- Fencing works.
- Environmental maintenance.
- River Colne crossing including emergency removal of obstruction to reinforced concrete crossing.
- Girder and deck erection and installation, including span segmental erection, internal post-tensioning, steel structure erection and dismantling, stressing and grouting, crane assembly and dismantling.
- Deck finishes including preparation and operation of storage yards, installation of below deck access provision, traffic management on deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor materials to the storage yards and deck, installation of access to top of deck, operation of support plant, construction of kerbs, construction of concrete stitch, filling of voids and top openings, waterproofing, diaphragm walls construction, abutment works, concrete works (within deck), drainage and steel works.
- Landscaping works including removal of cofferdams, earthworks, profiling and cutting, manhole chamber construction, drainage, soil placement and vegetation clearance.

1.1.4 Further works, where monitoring did not take place, were also undertaken at:

- Godington where construction of the site access road, topsoil stripping and vegetation clearance were underway.
- North of School End where bulk excavation, vegetation clearance, stockpiling, drainage, pond excavation and maintenance, removal of badger fencing, fencing works and vehicle movements were underway.
- Charndon Lodge where drainage works were underway.
- Infrastructure Maintenance Depot (IMD) where platform earthworks, landscaping and drainage works were underway.
- Addison Road where earthworks, utility works, highway construction and installation of parapets were underway.
- Shepherds Furze Culvert where stockpile fill and maintenance was underway.
- MCJ where earthwork maintenance was underway.
- SLC/13 where piling was underway.

- FCC Cell 6 where stockpile fill and maintenance was underway.
- Greatmoor Culvert where formwork, reinforcement and concrete works, installation of pre-cast elements, waterproofing and technical backfill were underway.
- GUN28 overbridge where formwork reinforced concrete works and technical backfill were underway.
- QUA36 overbridge where piling works were underway.
- Hills Farm where stockpile fill and maintenance were underway.
- Edgcott Road overbridge where formwork, reinforcement and concrete works were underway.
- Thame Valley Viaduct Causeway where piling, drainage, installation of reinforced cement concrete, pile cropping, formwork installation and lifting beams were underway.
- Along A41 where concrete batching works, earthworks, highway works, drainage, installation of kerbing and pavement, vehicle restrain systems operation and signage installation were underway.
- Fleet Marston where earthworks, culvert and overbridge works were underway.
- Bowood Lane where fencing, excavation, platform works, construction of utilities bridge and surface water management were underway.
- Nash Lee Road Diversion where material movements and earthworks were underway.
- Aylesbury Golf Course where utility diversion works were underway.

1.1.5 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 Thirty-nine (39) noise and seven (7) vibration monitoring installations were active in December in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in December 2023.

1.2.2 Noise monitor SVF-NMP1, within the vicinity of Colne Valley Viaduct worksite (ref.: CVV), was decommissioned on 15th December.

1.2.3 Vibration monitors BP-Vib1 and WF-Vib1, within the vicinity of Oat Close worksite (ref.: OC) were decommissioned on 20th December.

1.2.4 Maps showing the positions of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
A422 TN	TN-NMP1	Turweston, Brackley
SE	SE-NMP1	School End, Chetwode
	SE-Vib1	School End, Chetwode
HC	HC-NMP1	Hermitage, Chetwode
TW	TW-NMP1	Twyford, Buckinghamshire
WSO	WSO-NMP1	West Street, Twyford
CAL	SHC-NMP1	School Hill Compound, Calvert
	BRA-Vib1	13 Brackley Lane, Calvert Village
	FCC-NMP1	Calvert South
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton
	WDL-Vib1	Station Road, Quainton
QAR	QAR-NMP2	Station Rd, Quainton
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
OC	MF-NMP1	Moat Farm, Marsh Lane
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
	WF-Vib1	41 Westfield, Hawkslade
	BP-NMP1	Booker Park School, Aylesbury
	BP-Vib1	Booker Park School, Aylesbury
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover

Worksite Reference	Measurement Reference	Address
	ER-Vib1	Ellesborough Rd, Wendover
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
GF	GF-Vib1	Grove Farm, Wendover
SDVC	SDVC-NMP1	Rocky Lane, Wendover
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover
	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath
SHCW	PR-NMP1	Potters Row, South Heath
NP	BFH-NMP1	Bury Farm, Great Missenden
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missenden
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath
AM	AM-NMP1	Amersham Vent Shaft Worksite, Whielden Lane, Amersham
LM	LM-NMP1	Little Missenden, A413, Amersham
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite, Chesham Lane, Chalfont St. Peter
CVV*	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	DFS-NMP1	Denham Film Studio, Uxbridge
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire

* This worksite is within the London Borough of Hillingdon, for more details on the works taking place please refer to the London Borough of Hillingdon Noise and Vibration Report available at: https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2

2 Summary of Results

2.1 Summary of Measured Noise 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 L_{Aeq} Data over the Monitoring Period

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
A422 TN	TN-NMP1	Turweston, Brackley	Free-field	48.7	51.4	47.1	45.3	43.6	44.4	50.1	50.6	47.9	43.8	48.2	43.1
				(52.6)	(56.4)	(50.5)	(50.6)	(53.7)	(49.0)	(52.8)	(55.8)	(56.6)	(53.1)	(54.7)	(50.9)
SE	SE-NMP1	School End, Chetwode	Free-field	46.9	53.3	40.9	40.2	40.0	42.3	45.5	47.5	45.4	42.7	45.7	42.3
				(52.5)	(58.6)	(45.6)	(48.1)	(55.1)	(46.1)	(47.0)	(51.8)	(57.8)	(54.7)	(59.1)	(56.1)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	48.1	53.6	43.8	43.6	43.4	44.5	48.1	50.3	47.7	44.9	47.7	43.7
				(53.4)	(58.7)	(48.9)	(50.2)	(57.5)	(51.4)	(50.3)	(52.0)	(58.6)	(57.0)	(60.2)	(55.8)
TW	TW-NMP1	Twyford	Free-field	43.1	50.8	41.2	40.2	39.7	42.8	46.3	46.9	45.9	43.7	45.8	43.8
				(50.7)	(58.5)	(48.6)	(48.0)	(55.5)	(50.1)	(52.3)	(52.3)	(58.3)	(54.9)	(60.8)	(54.0)
WSO	WSO-NMP1	West Street, Twyford	Free-field	53.8	59.2	52.5	51.9	53.2	53.8	59.3	59.8	61.3	58.1	60.1	61.8
				(71.0)	(77.3)	(73.8)	(72.5)	(75.1)	(65.7)	(71.9)	(68.0)	(75.8)	(73.2)	(82.8)	(77.7)
CAL	SHC-NMP1	School Hill Compound, Calvert	Free-field	53.6	58.3	51.0	47.8	48.5	52.6	56.0	56.3	57.2	56.0	57.1	56.8
				(65.0)	(71.6)	(68.9)	(67.6)	(67.9)	(62.8)	(61.8)	(64.4)	(67.8)	(68.3)	(69.8)	(66.3)
	FCC-NMP1	Calvert South	Free-field	48.5	51.4	43.6	41.3	40.6	43.6	44.6	44.8	44.5	42.2	46.1	42.7
				(55.3)	(62.6)	(49.0)	(48.3)	(54.2)	(46.1)	(49.2)	(50.1)	(58.9)	(53.1)	(58.4)	(52.9)
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Free-field	58.4	64.6	48.1	47.0	47.1	47.4	54.7	56.2	52.5	46.9	54.5	49.2
				(68.5)	(71.4)	(56.6)	(56.9)	(57.1)	(53.8)	(62.6)	(72.2)	(64.0)	(53.5)	(75.2)	(54.9)

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
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	53.4	56.2	52.9	50.5	50.0	51.1	59.4	59.5	60.1	58.7	64.0	61.7
				(67.7)	(70.5)	(70.2)	(72.9)	(75.5)	(60.3)	(66.0)	(70.2)	(75.1)	(74.3)	(76.9)	(76.1)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	54.3	56.4	55.1	53.4	50.1	52.1	55.8	56.3	55.8	51.7	55.7	51.8
				(57.5)	(61.0)	(58.3)	(56.8)	(60.6)	(54.1)	(57.2)	(59.0)	(62.0)	(63.9)	(60.6)	(56.5)
OC	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	45.6	49.7	45.0	44.4	43.0	43.1	46.3	47.3	46.9	46.3	49.2	47.9
				(50.6)	(56.7)	(48.6)	(51.6)	(59.7)	(52.1)	(51.6)	(52.0)	(56.3)	(59.0)	(58.0)	(56.7)
	MF-NMP1	Moat Farm, Marsh Lane	Free-field	46.5	48.9	45.6	45.2	44.4	43.1	45.9	46.3	49.2	47.8	50.0	49.5
				(53.2)	(57.6)	(51.5)	(51.2)	(58.6)	(52.7)	(52.9)	(53.7)	(56.5)	(58.8)	(58.4)	(56.2)
	BP-NMP1	Booker Park School, Aylesbury	Free-field	54.0	54.4	51.7	46.5	50.9	52.5	55.8	50.2	49.7	50.1	51.1	51.6
				(55.3)	(58.8)	(60.6)	(54.9)	(57.6)	(57.8)	(61.3)	(52.6)	(56.0)	(60.4)	(57.4)	(56.1)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	53.9	56.6	52.7	50.1	47.2	50.0	55.3	54.7	53.1	47.4	54.0	48.6
				(57.8)	(61.0)	(57.1)	(55.4)	(57.2)	(53.3)	(57.3)	(57.8)	(58.0)	(54.9)	(59.1)	(55.1)
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	52.5	58.6	51.8	49.5	46.1	50.0	54.9	53.8	52.3	47.7	53.5	49.2
				(57.5)	(66.1)	(57.7)	(56.6)	(59.0)	(55.7)	(58.2)	(56.5)	(56.8)	(55.7)	(58.3)	(55.4)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	45.7	52.5	46.0	43.9	44.1	44.8	46.6	45.2	51.5	46.5	52.0	51.1
				(60.8)	(64.5)	(69.6)	(70.0)	(67.4)	(48.8)	(53.0)	(53.0)	(66.5)	(59.4)	(58.8)	(62.1)
	BL-NMP1	Bacombe Lane, Wendover	Free-field	47.2	53.3	47.1	44.2	40.6	45.4	49.0	49.5	48.3	41.0	48.2	42.2
				(52.2)	(61.8)	(51.3)	(49.9)	(51.7)	(50.4)	(50.0)	(50.2)	(50.6)	(51.8)	(52.3)	(48.8)

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
	WT-NMP1	A413, Wendover	Free-field	65.3	66.8	65.8	62.7	59.2	62.7	65.7	65.9	64.4	57.9	64.3	59.0
				(68.0)	(69.2)	(68.5)	(67.3)	(68.4)	(65.4)	(67.1)	(66.7)	(67.5)	(62.5)	(68.9)	(68.3)
GF	GF-NMP1	Grove Farm, Wendover	Free-field	51.3	53.5	48.4	44.9	42.3	49.5	50.3	47.6	48.4	42.9	49.3	44.0
				(58.2)	(57.8)	(55.2)	(52.6)	(56.4)	(54.6)	(53.3)	(49.6)	(53.9)	(55.9)	(56.6)	(54.9)
SDVC	SDVC-NMP1	Rocky Lane, Wendover	Free-field	61.1	62.0	61.0	59.4	56.5	61.3	63.8	64.3	62.3	56.8	61.8	49.5
				(66.4)	(66.5)	(66.1)	(65.5)	(65.8)	(62.6)	(65.0)	(65.6)	(65.0)	(61.3)	(65.6)	(63.2)
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	50.6	55.4	49.2	47.3	45.6	51.1	56.3	54.3	54.6	48.6	54.2	51.0
				(58.0)	(61.8)	(52.9)	(54.2)	(59.5)	(56.4)	(62.9)	(63.1)	(63.6)	(60.3)	(64.2)	(58.7)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	57.8	60.7	56.4	53.9	49.9	54.1	60.1	60.6	58.0	51.7	59.3	51.8
				(65.8)	(66.2)	(58.0)	(58.2)	(58.5)	(56.6)	(66.8)	(67.6)	(66.7)	(60.2)	(66.8)	(56.9)
WDV	WDV-NMP1	Upper Wendover Dean Farm, A413, Wendover	Free-field	52.1	55.1	51.1	48.6	48.0	49.9	53.4	53.1	51.6	49.9	53.8	49.4
				(60.4)	(57.8)	(56.4)	(55.6)	(56.2)	(55.2)	(55.6)	(56.4)	(55.4)	(56.9)	(61.2)	(55.6)
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	51.8	54.8	51.0	48.2	48.6	52.4	56.0	54.5	54.5	58.1	56.6	53.8
				(71.5)	(74.2)	(68.4)	(65.5)	(71.7)	(69.7)	(69.4)	(68.0)	(78.0)	(79.6)	(74.1)	(69.5)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	51.6	54.7	50.2	48.8	47.4	50.9	56.3	57.7	59.1	57.7	59.5	56.6
				(67.5)	(71.7)	(61.7)	(68.8)	(75.1)	(54.5)	(64.4)	(65.7)	(72.6)	(72.5)	(72.1)	(70.6)
NP	BFH-NMP1	Bury Farm, Great Missenden	Free-field	45.8	48.9	46.0	43.6	40.3	43.1	48.8	48.9	48.9	45.0	49.6	45.9
				(51.0)	(53.1)	(51.5)	(50.6)	(52.4)	(44.9)	(53.9)	(56.2)	(56.1)	(53.2)	(58.2)	(51.9)

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
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	52.1	56.0	50.6	49.0	45.3	47.6	53.1	51.8	51.1	47.7	51.8	49.0
				(63.1)	(81.9)	(55.1)	(58.8)	(59.0)	(47.6)	(54.9)	(53.0)	(59.3)	(58.7)	(57.5)	(57.0)
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missenden	Free-field	50.9	51.3	46.0	44.6	41.4	54.5	51.4	51.3	48.1	43.4	49.7	45.3
				(56.6)	(54.2)	(51.2)	(53.5)	(55.4)	(54.5)	(53.1)	(52.7)	(53.2)	(53.6)	(56.7)	(51.7)
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	57.2	58.7	56.1	53.3	50.0	55.2	57.2	57.1	56.5	51.7	55.6	52.1
				(60.5)	(61.8)	(59.2)	(57.0)	(60.2)	(55.2)	(59.3)	(60.5)	(64.8)	(61.3)	(61.0)	(61.1)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	61.0	62.2	60.4	58.0	53.8	57.3	61.5	61.3	59.6	52.1	59.2	54.1
				(64.0)	(64.7)	(61.8)	(61.6)	(60.2)	(59.1)	(64.0)	(64.1)	(61.9)	(56.7)	(62.0)	(60.3)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	53.8	55.0	54.0	51.0	46.9	51.0	55.4	55.8	55.1	48.3	54.8	50.2
				(61.8)	(59.3)	(58.5)	(56.7)	(56.5)	(54.3)	(57.3)	(58.0)	(58.5)	(54.6)	(60.8)	(59.9)
	PWC-NMP1	Patricia Holmes, LM Worksite, Amersham	Free-field	60.3	61.0	60.6	57.4	52.8	56.3	60.4	60.8	59.9	51.6	59.3	54.4
				(63.3)	(63.0)	(62.5)	(60.6)	(61.5)	(57.5)	(61.8)	(62.2)	(62.1)	(55.5)	(61.9)	(60.7)
CSG	CSG-NMP1	CSG Worksite, Bottom House Farm Lane	Free-field	45.4	48.8	44.0	41.9	38.5	43.7	46.3	42.3	44.8	39.6	46.7	40.3
				(49.7)	(53.0)	(51.3)	(54.2)	(49.5)	(47.8)	(48.8)	(44.0)	(50.7)	(45.8)	(51.2)	(47.5)
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane, Chalfont St. Peter	Free-field	57.0	58.2	56.3	53.4	48.0	54.1	57.2	57.7	55.6	46.6	54.7	48.7
				(60.6)	(60.4)	(58.8)	(57.5)	(55.6)	(54.9)	(58.8)	(58.6)	(58.6)	(51.7)	(60.8)	(53.6)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	48.1	49.1	47.1	44.9	39.9	46.6	47.2	47.3	46.1	41.1	47.6	42.2
				(52.8)	(51.9)	(52.6)	(48.3)	(50.0)	(50.3)	(49.4)	(47.7)	(49.5)	(45.7)	(51.2)	(48.8)

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
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	56.7 (59.1)	57.8 (58.9)	57.4 (59.2)	55.2 (57.5)	50.2 (57.0)	53.6 (54.1)	57.5 (58.4)	57.8 (58.9)	56.6 (58.5)	48.9 (53.2)	56.5 (60.0)	51.5 (56.2)
CVV	CVV-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	61.6 (65.0)	62.3 (64.3)	61.7 (64.8)	58.2 (62.9)	55.6 (64.2)	57.8 (60.8)	61.2 (62.3)	62.4 (63.7)	59.6 (63.5)	52.8 (58.8)	59.4 (64.2)	54.6 (63.6)
	DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	50.5 (54.9)	50.5 (53.3)	50.0 (59.0)	47.4 (53.6)	44.0 (56.9)	46.8 (47.6)	49.7 (50.0)	47.1 (47.2)	49.0 (55.4)	44.7 (51.6)	50.8 (62.6)	45.6 (51.6)
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	49.6 (52.9)	50.2 (52.1)	49.1 (53.1)	47.0 (52.0)	43.1 (53.7)	42.6 (42.6)	45.5 (45.5)	47.1 (47.1)	47.8 (50.4)	45.8 (51.2)	49.8 (52.0)	47.2 (49.8)

2.1.2 Table 4 presents a summary of the measured vibration levels at the 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
SE	SE-Vib1	School End, Chetwode	0.83 (Y-axis)
WDL	WDL-Vib1	Station Road, Quainton	1.82 (X-axis)
SHC	BRA-Vib1	13 Brackley Lane, Calvert Village	0.90 (Z-axis)
OC	BP-Vib1	Booker Park School, Aylesbury	1.73 (Y-axis)
	WF-Vib1	41 Westfield, Hawkslade	1.35 (X-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	3.18 (Y-axis)
WDV	WDV-Vib1	Upper Wendover Dean Farm, A413, Wendover	1.48 (Y-axis)
GF	GF-Vib1	Grove Farm, Wendover	0.80 (X-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 at nearby receptors, 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 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	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
A422 TN	TN-NMP1	Turweston, Brackley	All days	All periods	No exceedance	No exceedance
SE	SE-NMP1	School End, Chetwode	All days	All periods	No exceedance	No exceedance
HC	HC-NMP1	Hermitage, Chetwode	All days	All periods	No exceedance	No exceedance
TW	TW-NMP1	Twyford	All days	All periods	No exceedance	No exceedance
WSO	WSO-NMP1	West Street, Twyford	Weekday Saturday	0800-1800 0800-1300	5 2	No exceedance
CAL	SHC-NMP1	School Hill Compound, Calvert	All days	All periods	Not Applicable	Not Applicable
	FCC-NMP1	Calvert South	All days	All periods	No exceedance	No exceedance
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	Weekday Saturday	0700-0800 0800-1800 1300-1400	13 15 1	2 No exceedance 1
QAR	QAR-NMP2	Station Rd, Quainton	All days	All periods	No exceedance	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
OC	MF-NMP1*	Moat Farm, Marsh Lane	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	All days	All periods	No exceedance	No exceedance
	BP-NMP1	Booker Park School, Aylesbury	All days	All periods	No exceedance	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	All days	All periods	No exceedance	No exceedance
	NLL-NMP2	Nash Lee Lane, Nash Lee	Weekday	0800-1800	1	No exceedance
WGT	ER-NMP1	Ellesborough Rd, Wendover	Weekday	0800-1800	1	No exceedance
	BL-NMP1	Bacombe Lane, Wendover	All days	All periods	No exceedance	No exceedance
	WT-NMP1	A413, Wendover	Weekday Saturday	0800-1800 0800-1300	19 5	No exceedance No exceedance
GF	GF-NMP1	Grove Farm, Wendover	All days	All periods	No exceedance	No exceedance
SDVC	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
RLE	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Saturday	0800-1300	1	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekday Saturday	0800-1800 0800-1300	4 2	No exceedance No exceedance
WDV	WDV-NMP1	A413, Wendover	All days	All periods	No exceedance	No exceedance
LL	GD-NMP1	Grimms Ditch, The Lee, South Heath	Weekday Saturday	0800-1800 0800-1300	3 2	No exceedance No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	Weekday Saturday	0800-1800 0800-1300	3 1	No exceedance No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
NP	BFH-NMP1	Bury Farm, Great Missenden	Saturday	1400-2200	1	No exceedance
	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	All days	All periods	No exceedance	No exceedance
	BLH-NMP1	Bayleys Hatch, South Heath, Great Missinden	All days	All periods	No exceedance	No exceedance
CHSM	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekday Saturday	0700-0800 1900-2200 1300-1400 1400-2200	1 4 1 7	No exceedance No exceedance No exceedance No exceedance
AM	AM-NMP1*	Whielden Lane, Amersham	All days	All periods	No exceedance	No exceedance
LM	LM-NMP1*	Little Missenden Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Not Applicable	Not Applicable	Not Applicable	Not Applicable
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
CSP	CFC-NMP1	Cricket Field Cottages, Chesham Lane	All days	All periods	No exceedance	No exceedance
	CSP-NMP2*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
	CSP-NMP3*	Chalfont St Peter Vent Shaft Worksite	All days	All periods	No exceedance	No exceedance
CVV	CVV-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	DFS-NMP1*	Denham Film Studio, Uxbridge	Weekday Saturday Sunday	1900-2200 1400-2200 0700-2200	2 1 3	No exceedance No exceedance No exceedance

Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	All days	All periods	No exceedance	No exceedance

* A distance correction has been applied when calculating exceedances of the LOAEL and SOAEL.

2.2.6 Exceedances of the LOAEL were recorded at twelve (12) monitoring locations during the month of December 2023. LOAEL exceedances were recorded during weekday, evening, Saturday and Sunday working periods.

2.2.7 For the purpose of reporting the number of days where the SOAEL is exceeded, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL exceedances at each measurement location is shown in Table 6 and December be lower than the total sum of individual exceedances reported in Table 5 for each location.

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
WDL	WDL-NMP1	Woodlands Farmhouse, Station Rd, Quainton	3

2.2.8 Three (3) SOAEL exceedances were recorded due to HS2 construction works during December 2023. The exceedances occurred at WDL-NMP1 during weekday and Saturday working hours.

2.3 Exceedances of Trigger Level

2.3.1 Table 7 provides a summary of exceedances of the S61 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 7: 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
-	WDL	05/12/2023 0800-1800	Road sweeper	Exceedance of +4.3 dB $L_{Aeq,10hr}$ at noise monitor. The monitor is located immediately adjacent to site access road. Exceedance not predicted at nearby receptors.	The EHO was informed of the results of the investigation and no further actions were taken.
-	WDL	14/12/23 0800-1800	Heavy goods vehicles moving over speedbump on site access road	Exceedance of +4 dB $L_{Aeq,10hr}$ at noise monitor. The monitor is located immediately adjacent to site access road. Exceedance not predicted at nearby receptors.	The EHO was informed of the results of the investigation and no further actions were taken.

2.4 Complaints

2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

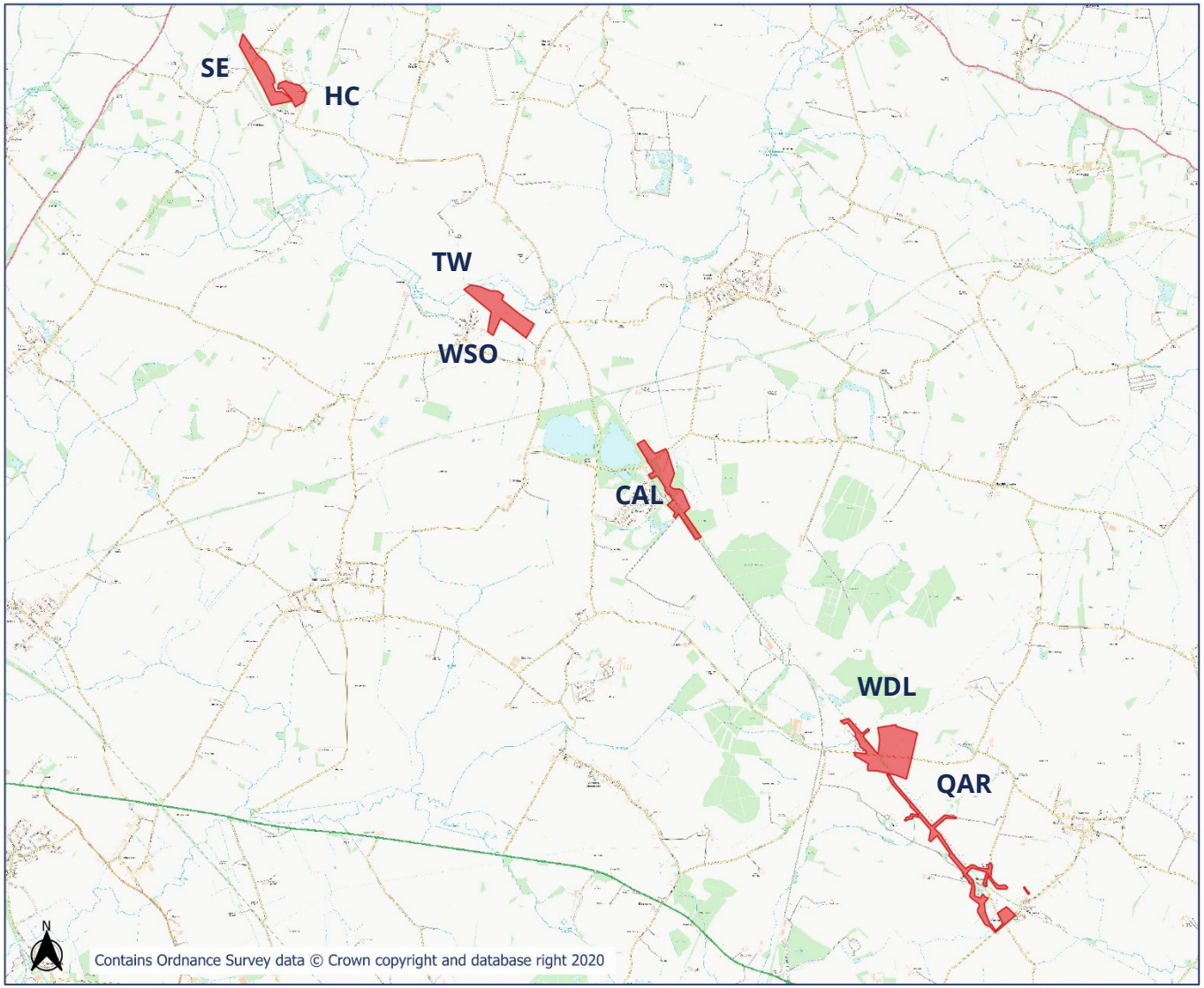
Table 8: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-23-103823-E-C	SHCW	Complaint due to alarm noise from site.	Electronic malfunction caused alarm to go off. This had to be reset by a third-party engineer for safety reasons.	Resident was informed of the results of the investigation and an apology was given.
HS2-23-103989-E-C	NLL	Disturbance due to generator noise.	Generator was automatically switched on by fail safe system for Siltbuster low batteries. Generator settings have been amended to avoid further disturbance.	Stakeholder was informed of the results of the investigation and an apology was given.
HS2-23-104159-E-C	NP	Complaint due to generator noise noticed by resident walking past site.	Disturbance was caused by generator operation. No exceedances at nearby noise monitors were found.	Resident was informed of the results of the investigation. Site team will continue to

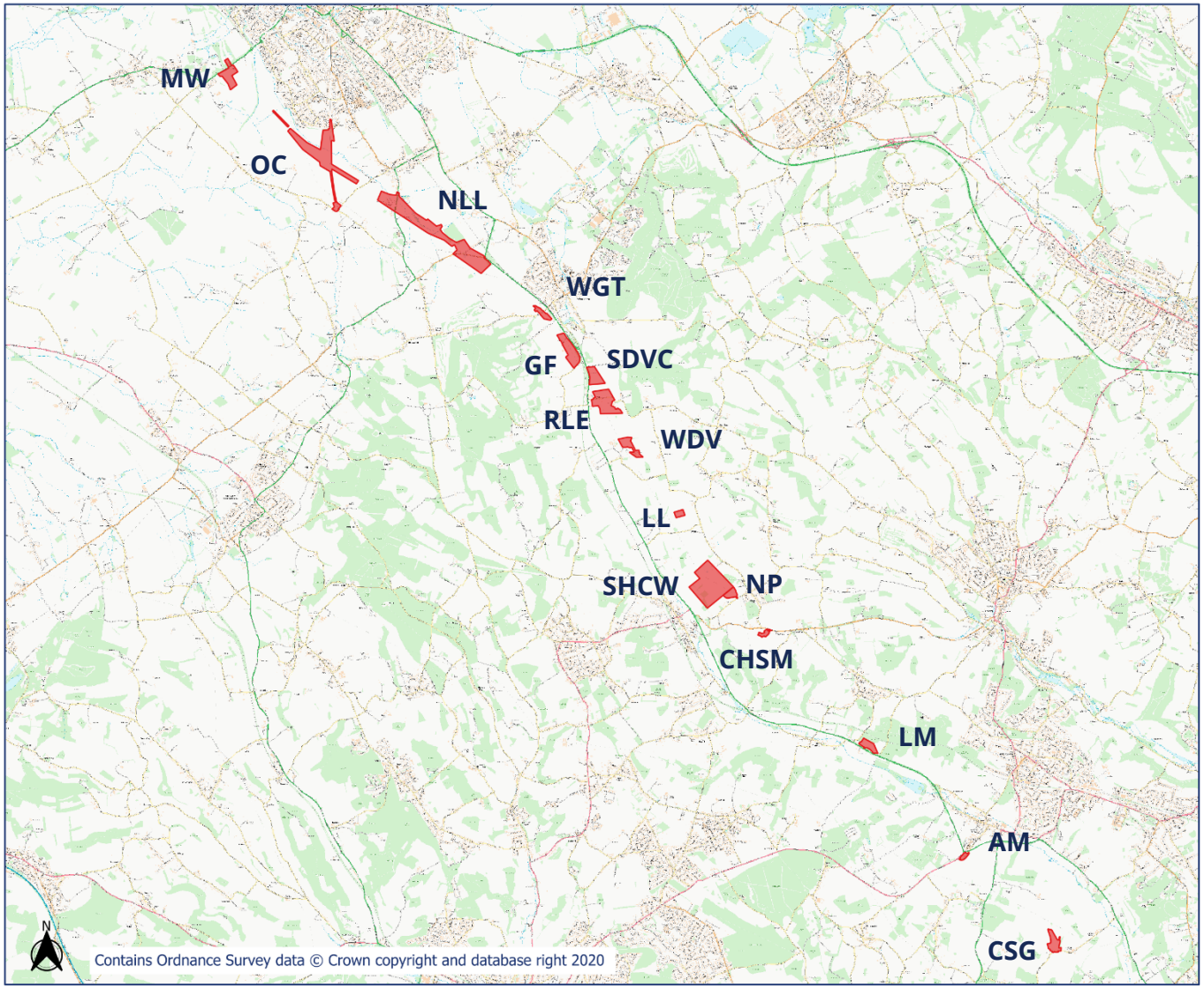
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
				investigate further mitigation.

Appendix A Site Locations

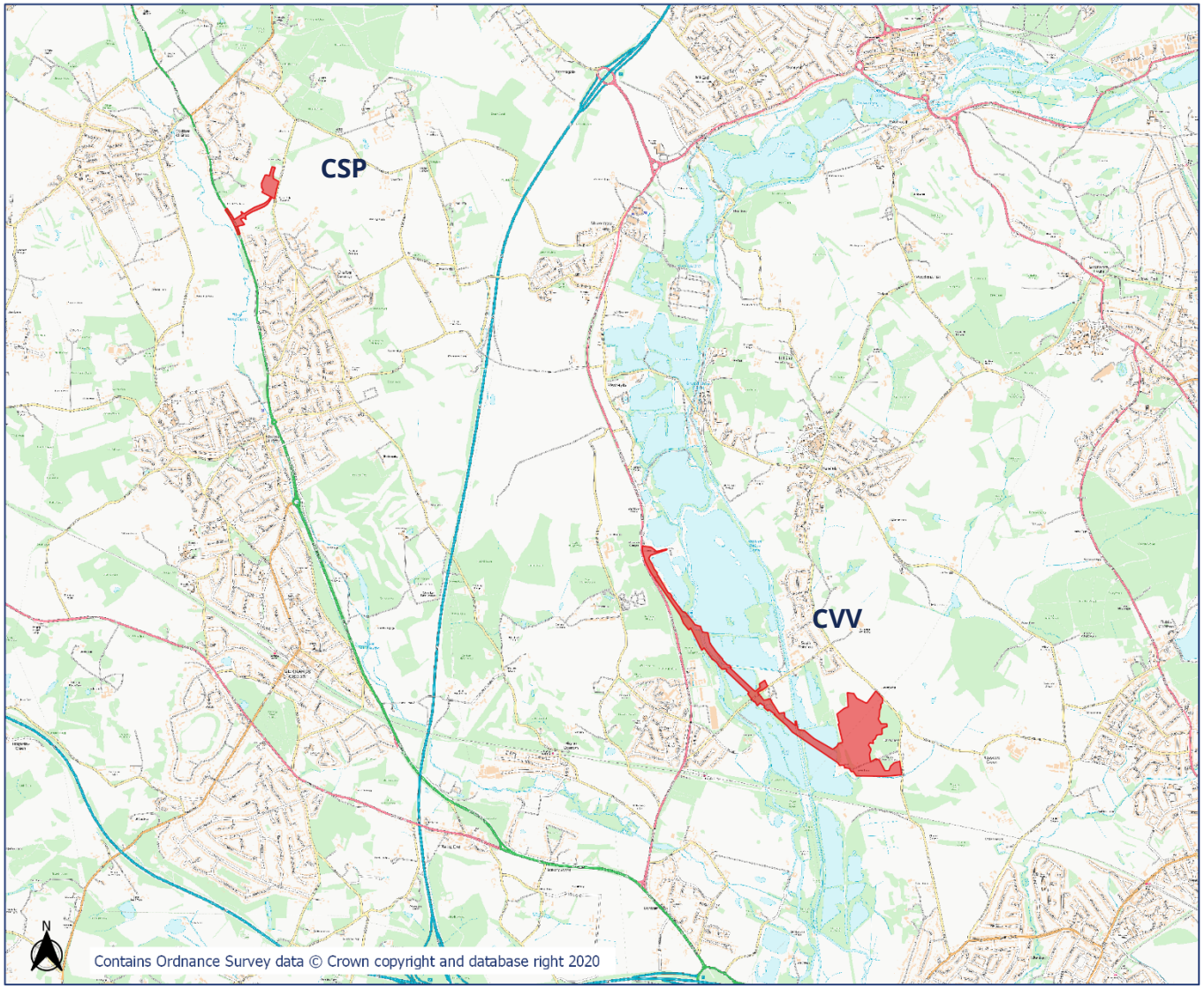
HS2 Worksite Identification Plan - Overview 1



Worksite Identification Plan - Overview 2

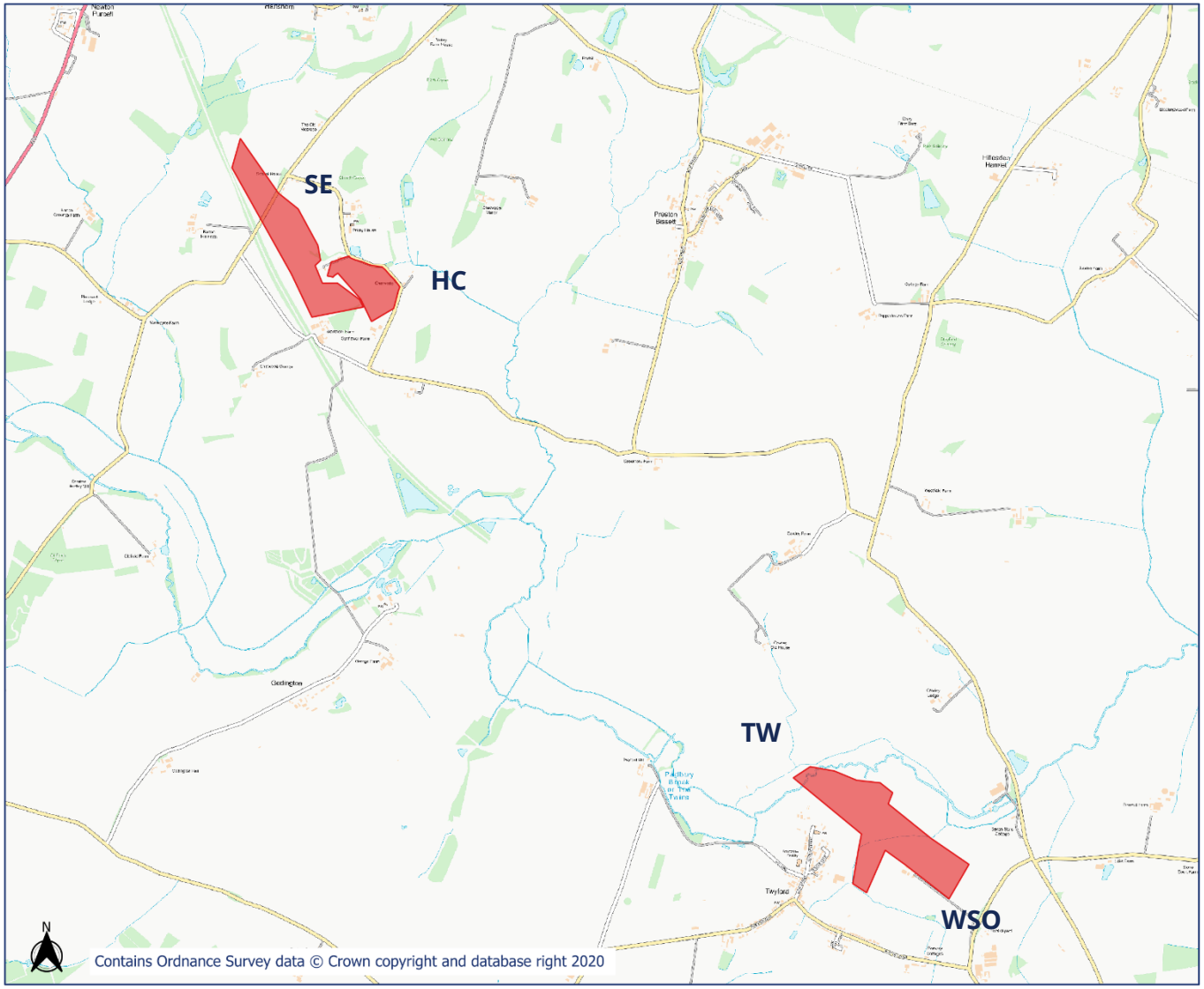


Worksite Identification Plan - Overview 3

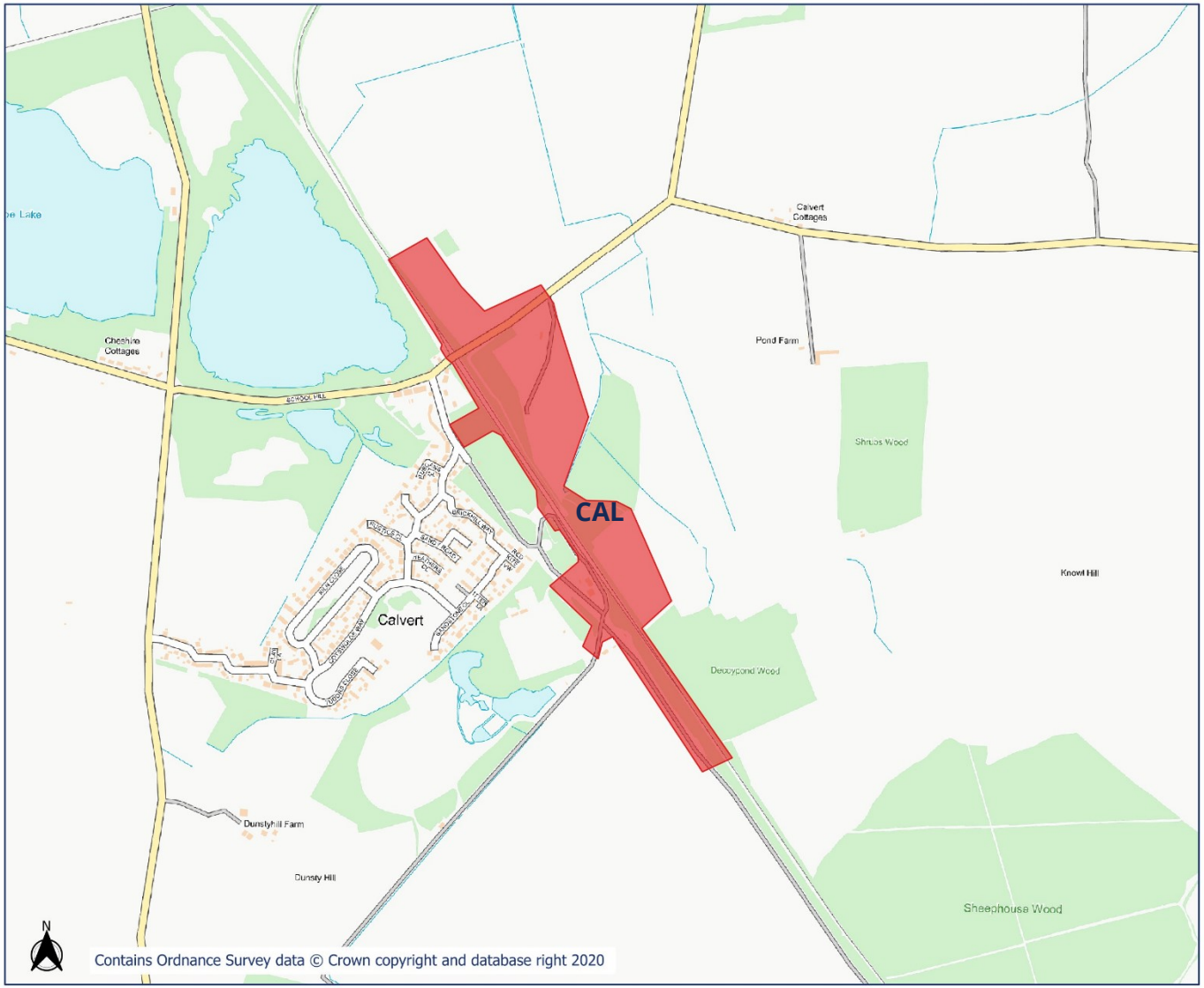


Worksite Identification Plan - 1

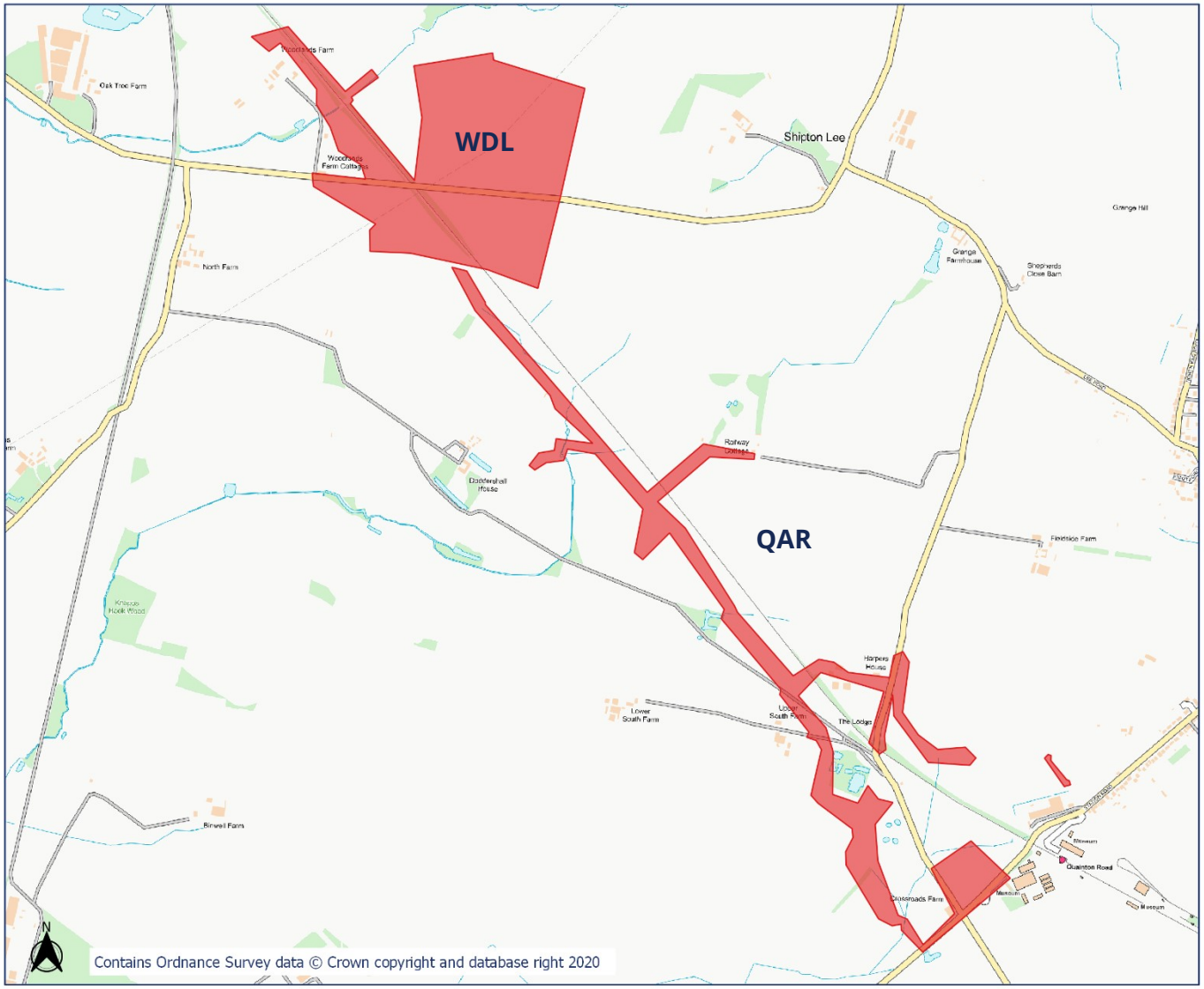
Worksite Identification Plan - 2



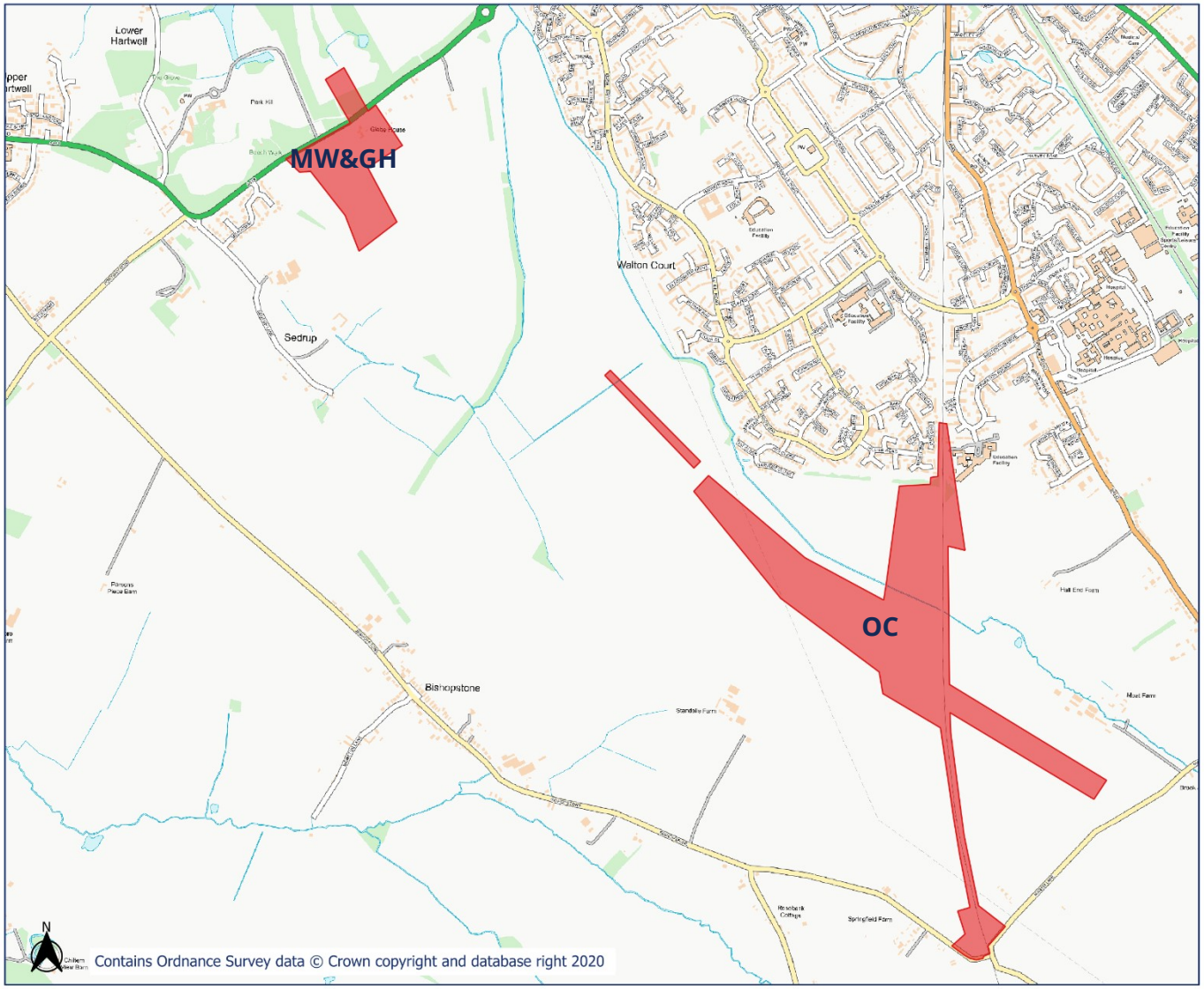
Worksite Identification Plan - 3



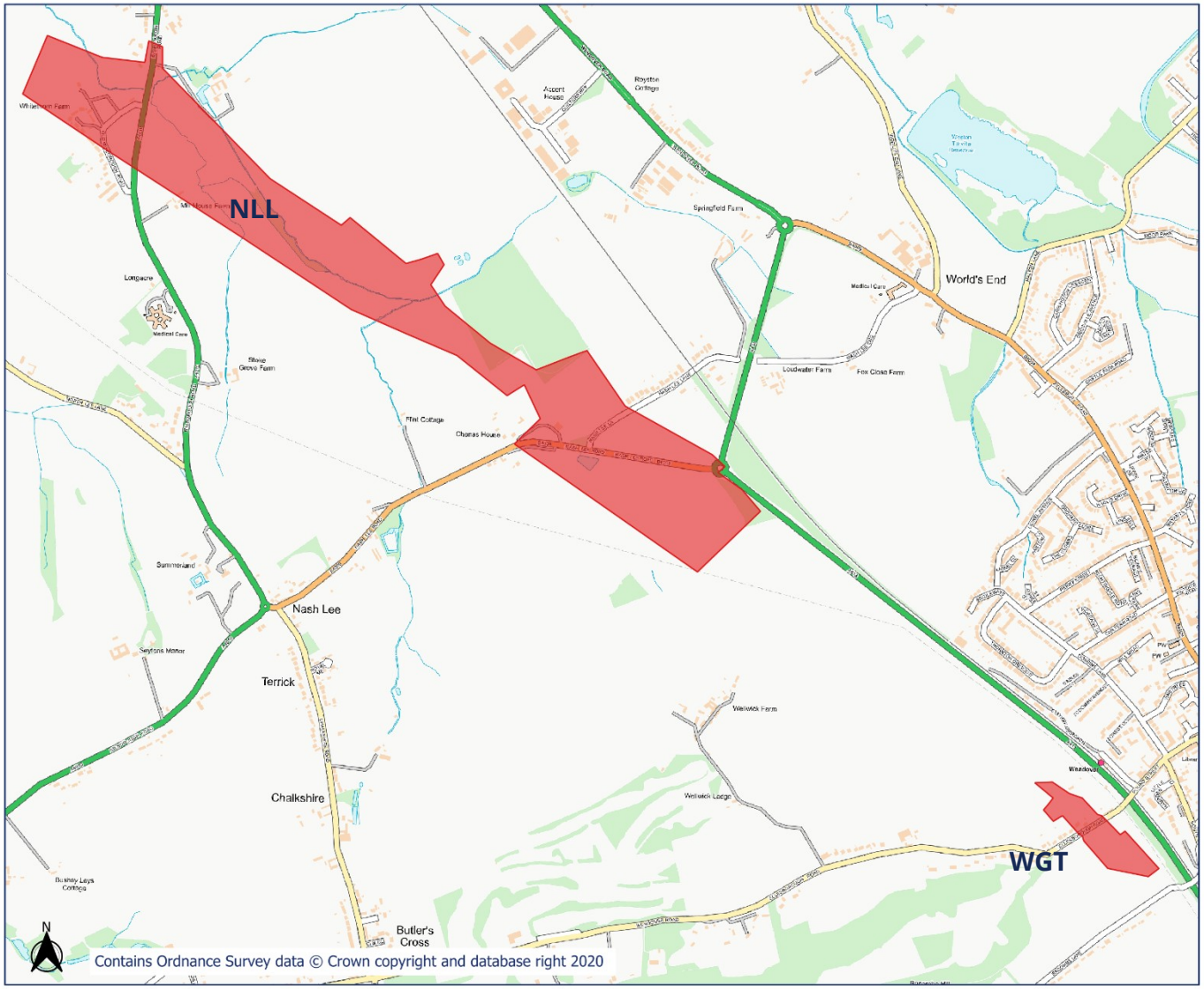
Worksite Identification Plan - 4



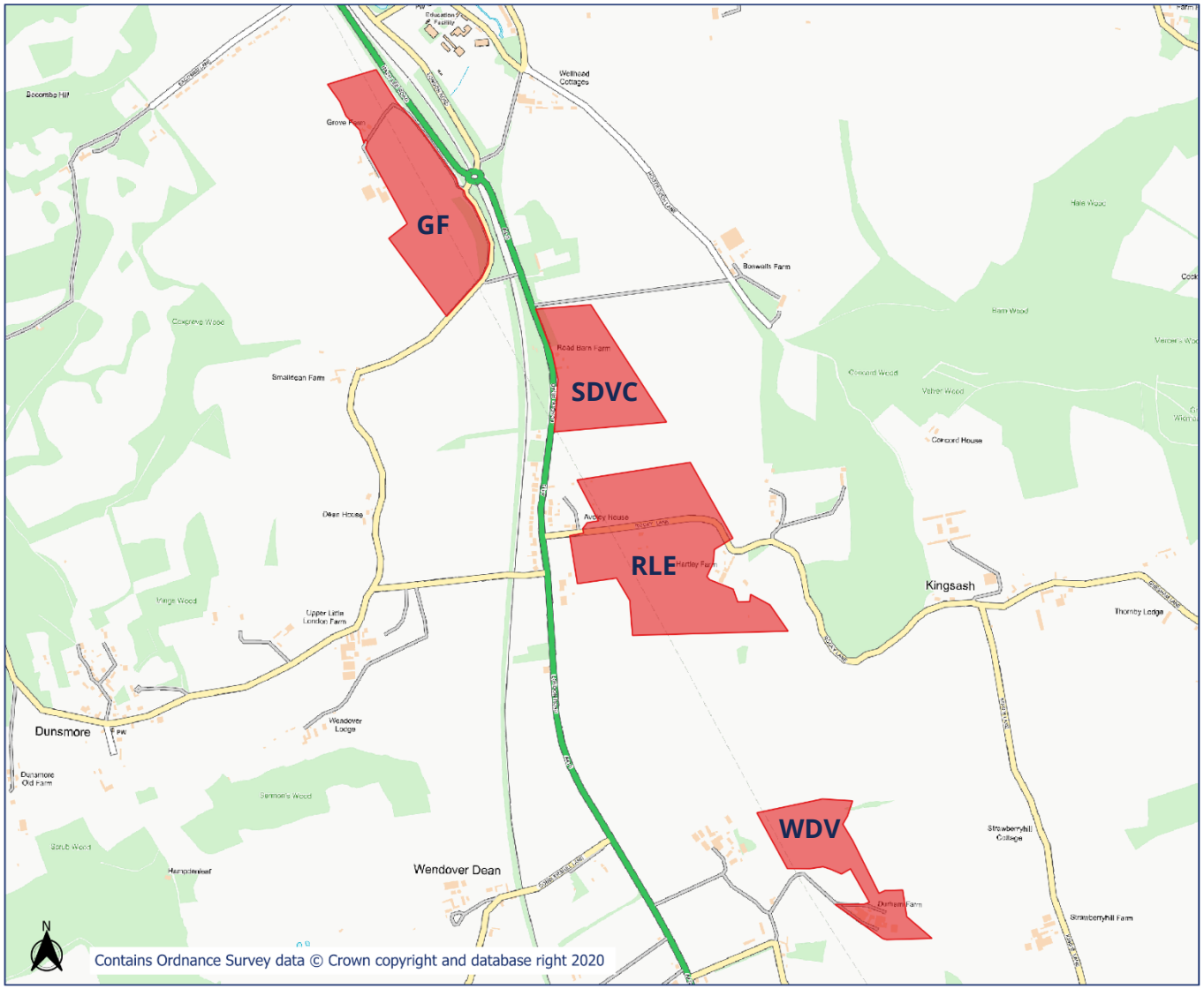
Worksite Identification Plan - 5



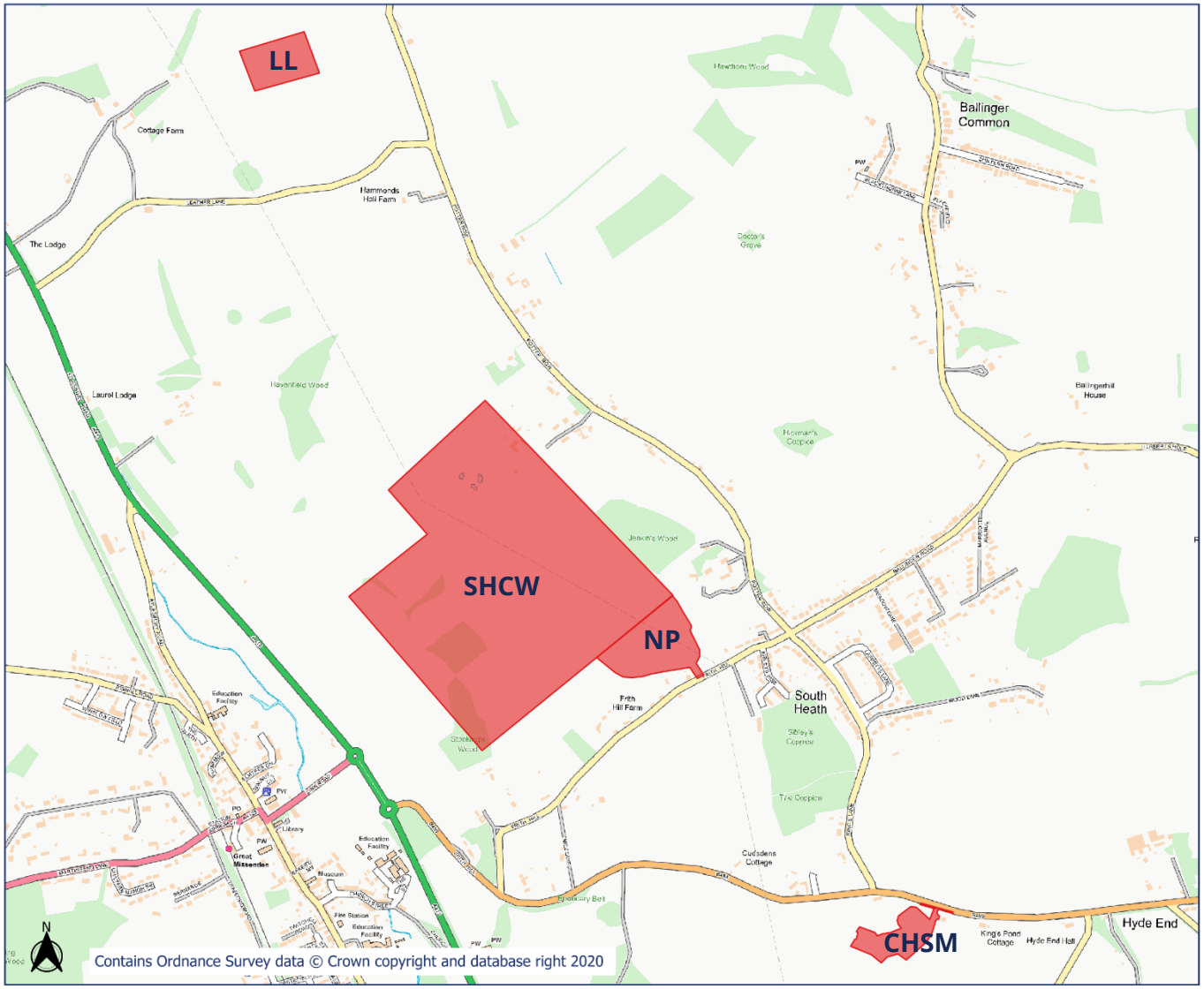
Worksite Identification Plan - 6



Worksite Identification Plan - 7



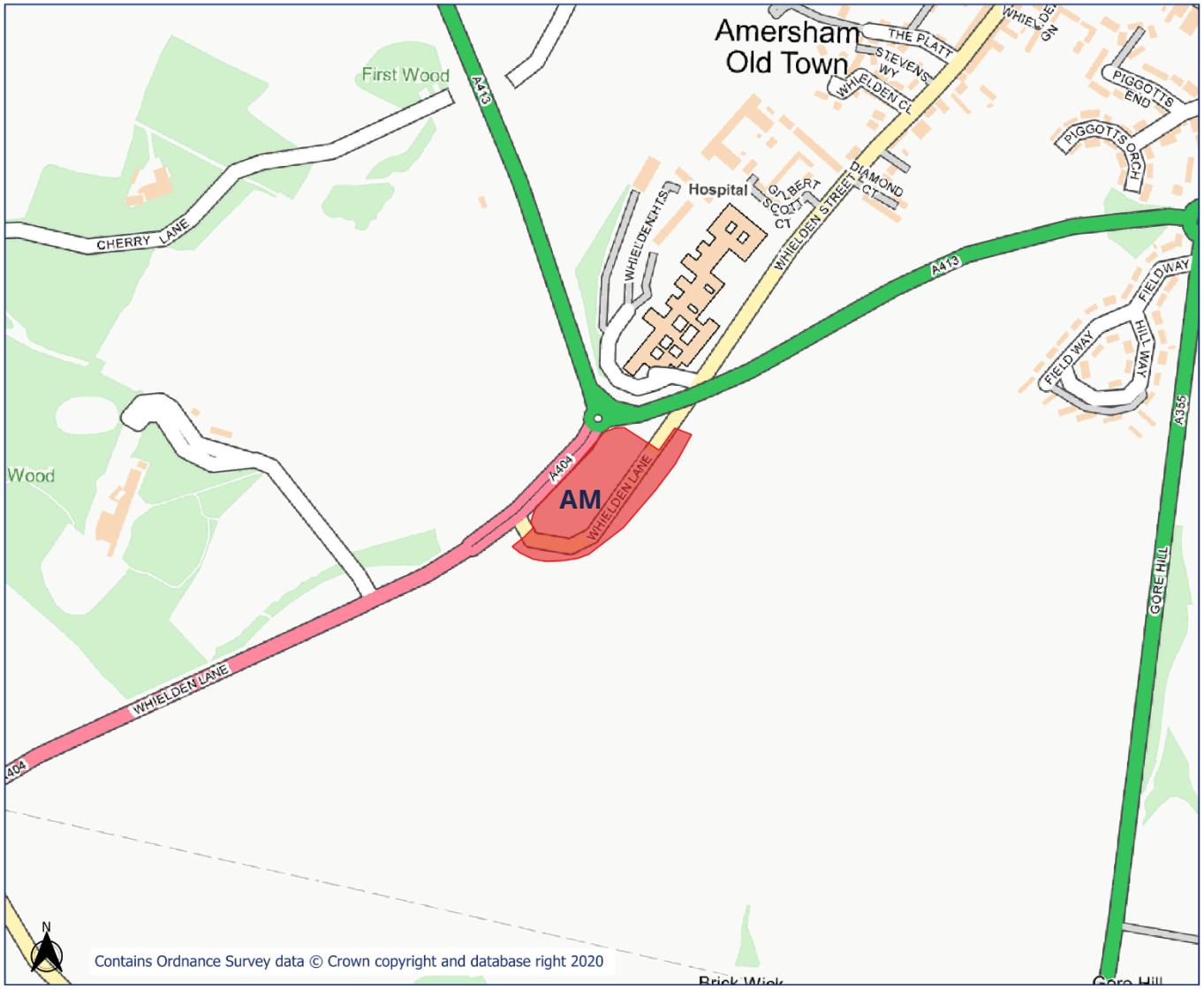
Worksite Identification Plan - 8



Worksite Identification Plan - 9

Legend
Active Worksites

Worksite Identification Plan - 10

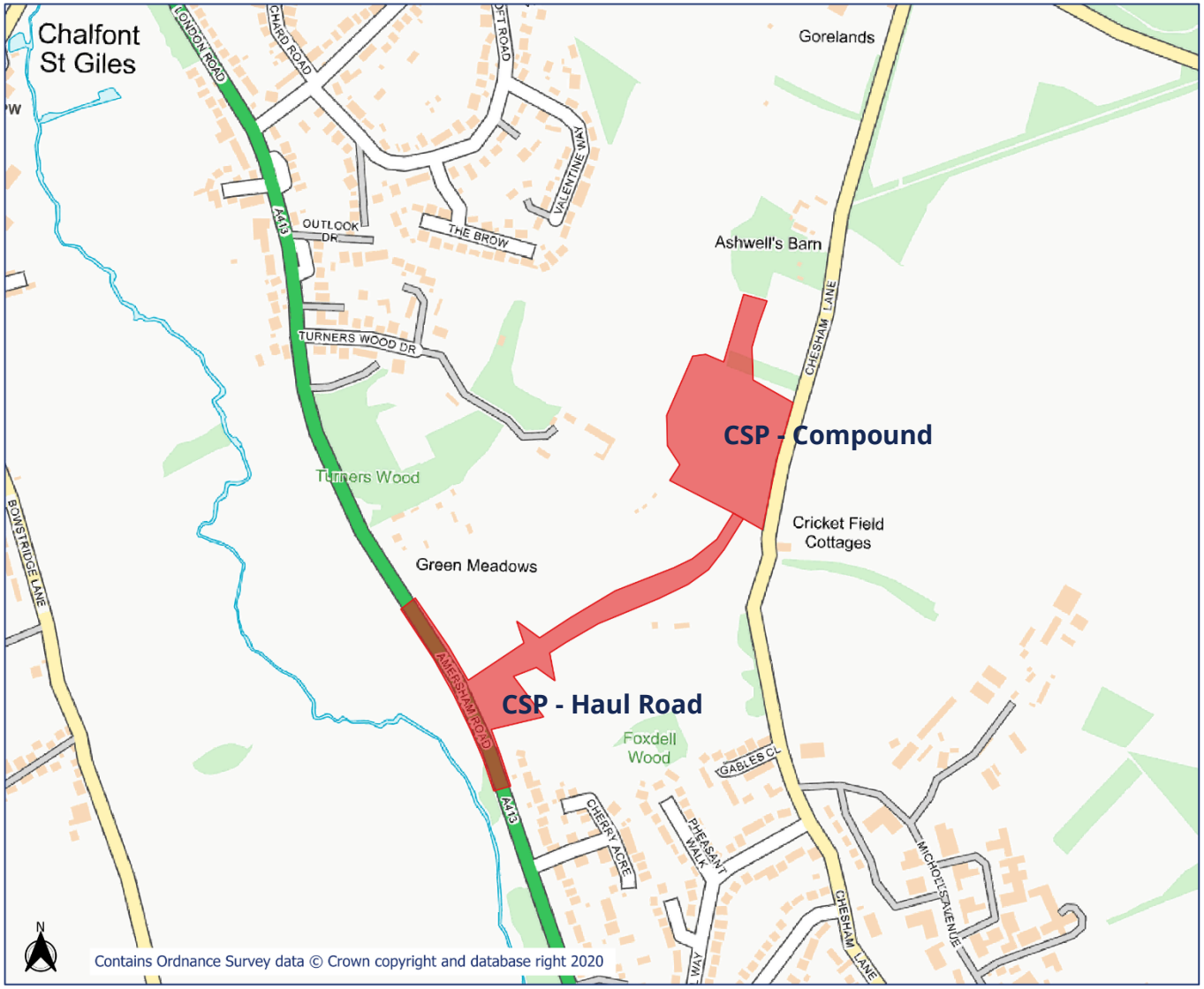


Worksite Identification Plan - 11

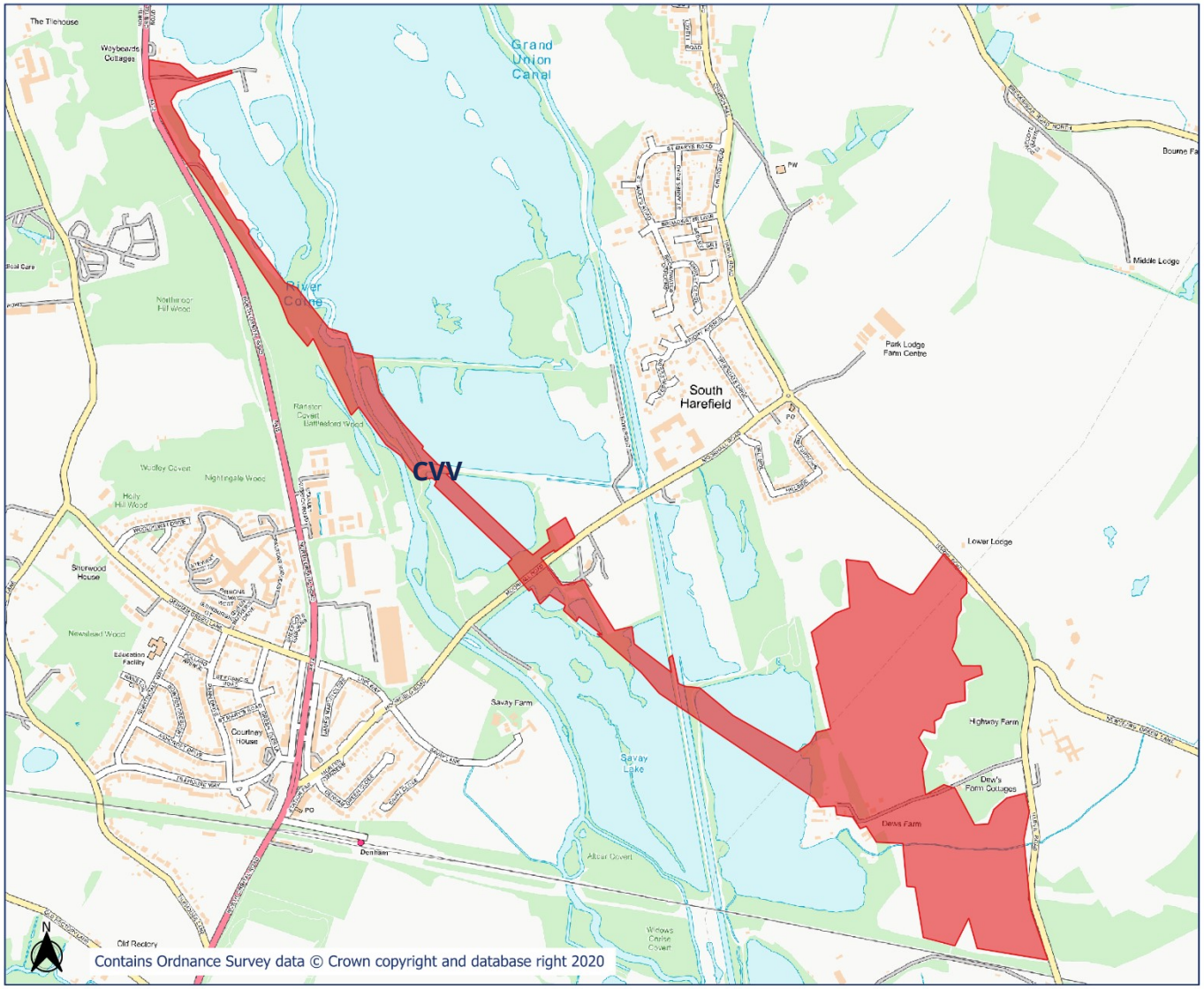
Legend

Active Worksites

Worksite Identification Plan - 12



Worksite Identification Plan - 13



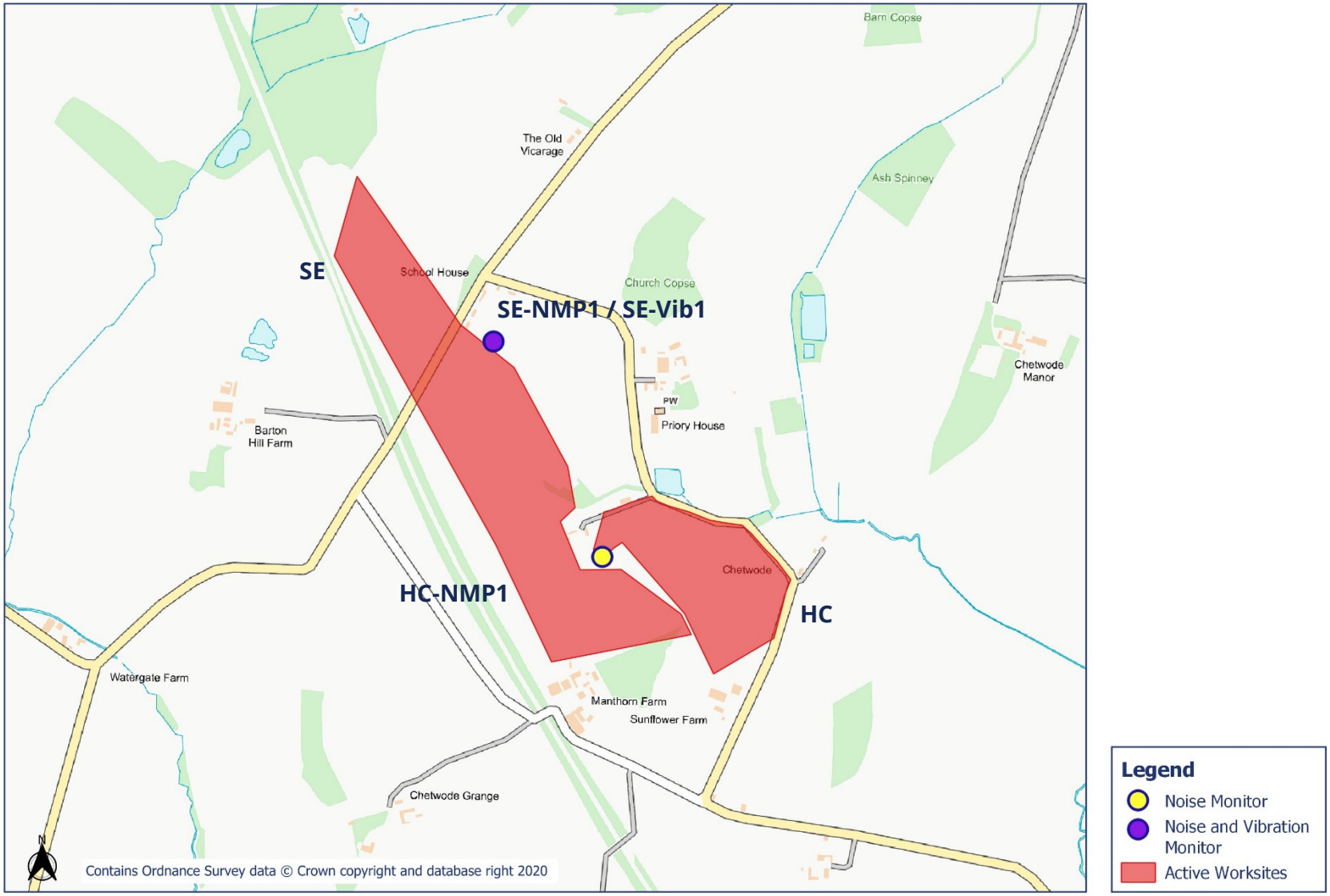
Legend

Active Worksites

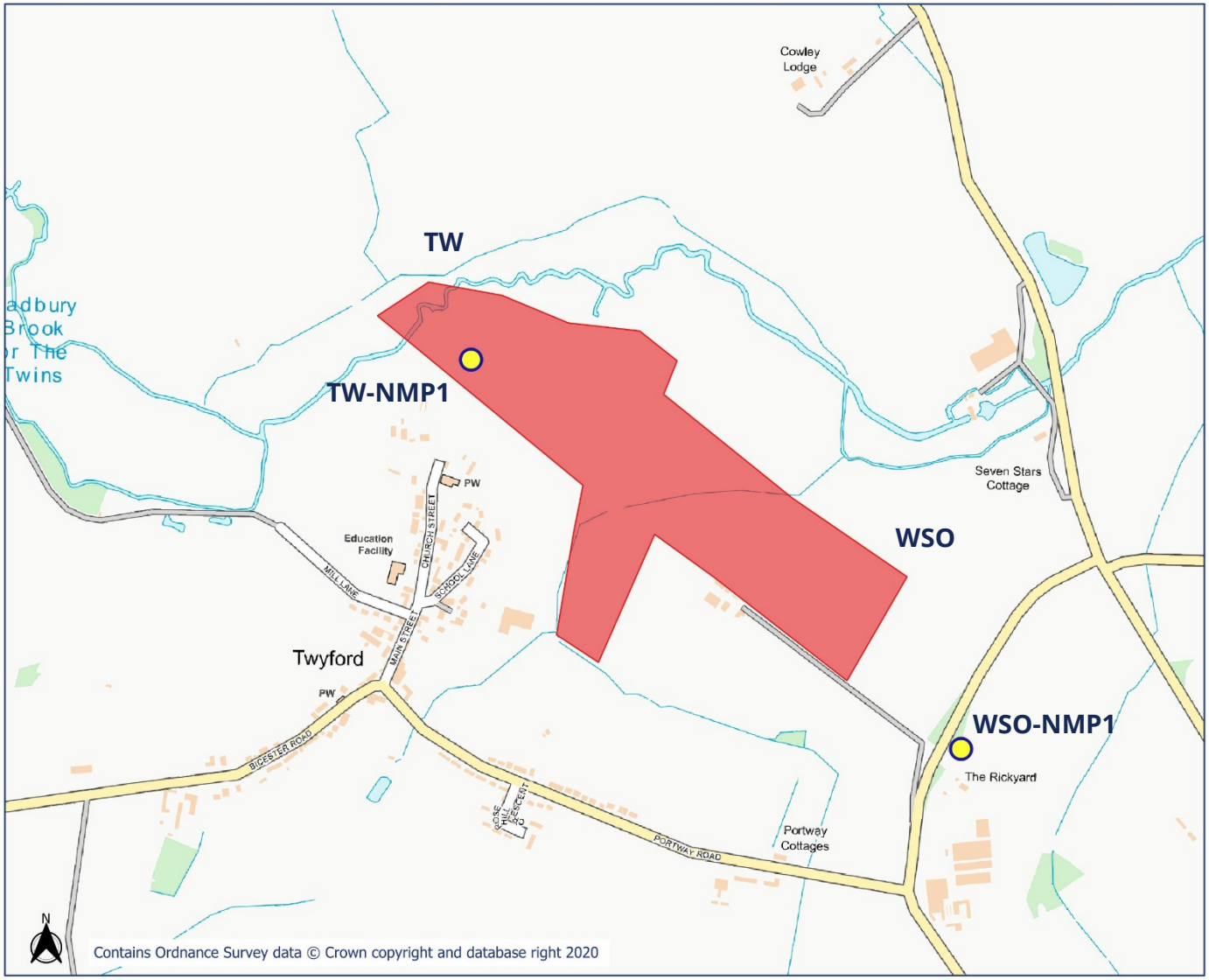
Appendix B Monitoring Locations

Noise and Vibration Monitoring Plan - 1

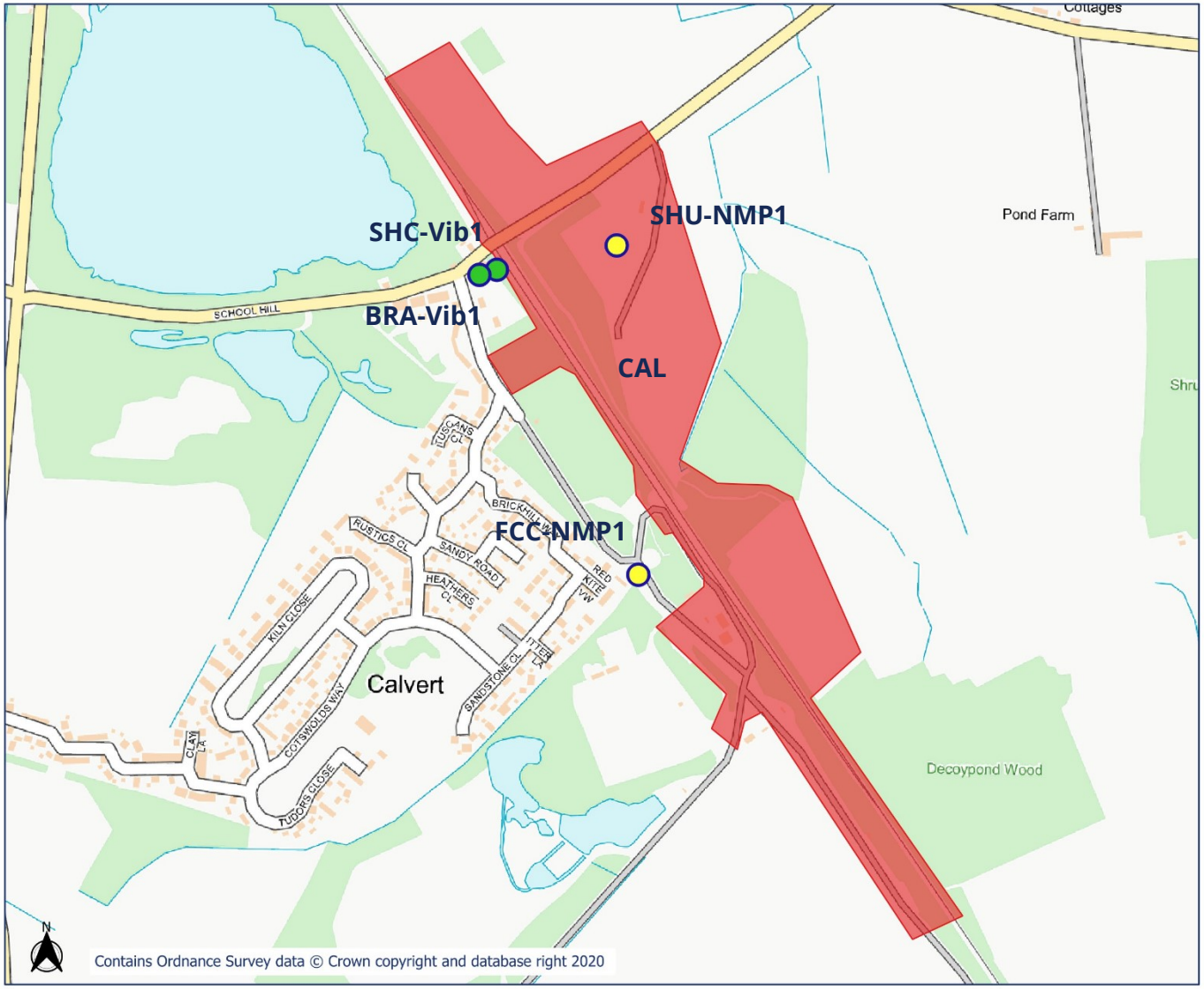
Noise and Vibration Monitoring Plan - 2



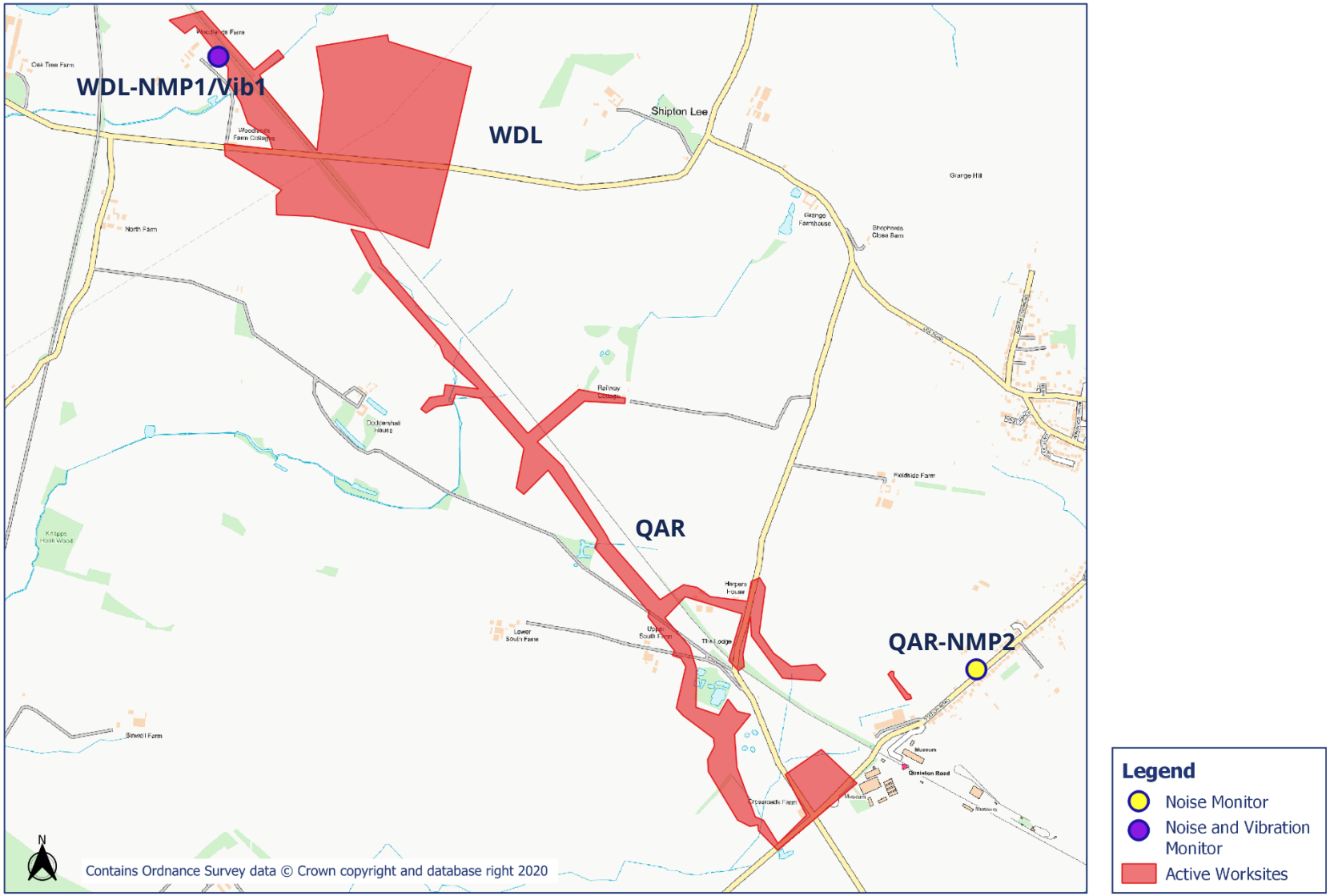
Noise and Vibration Monitoring Plan - 3



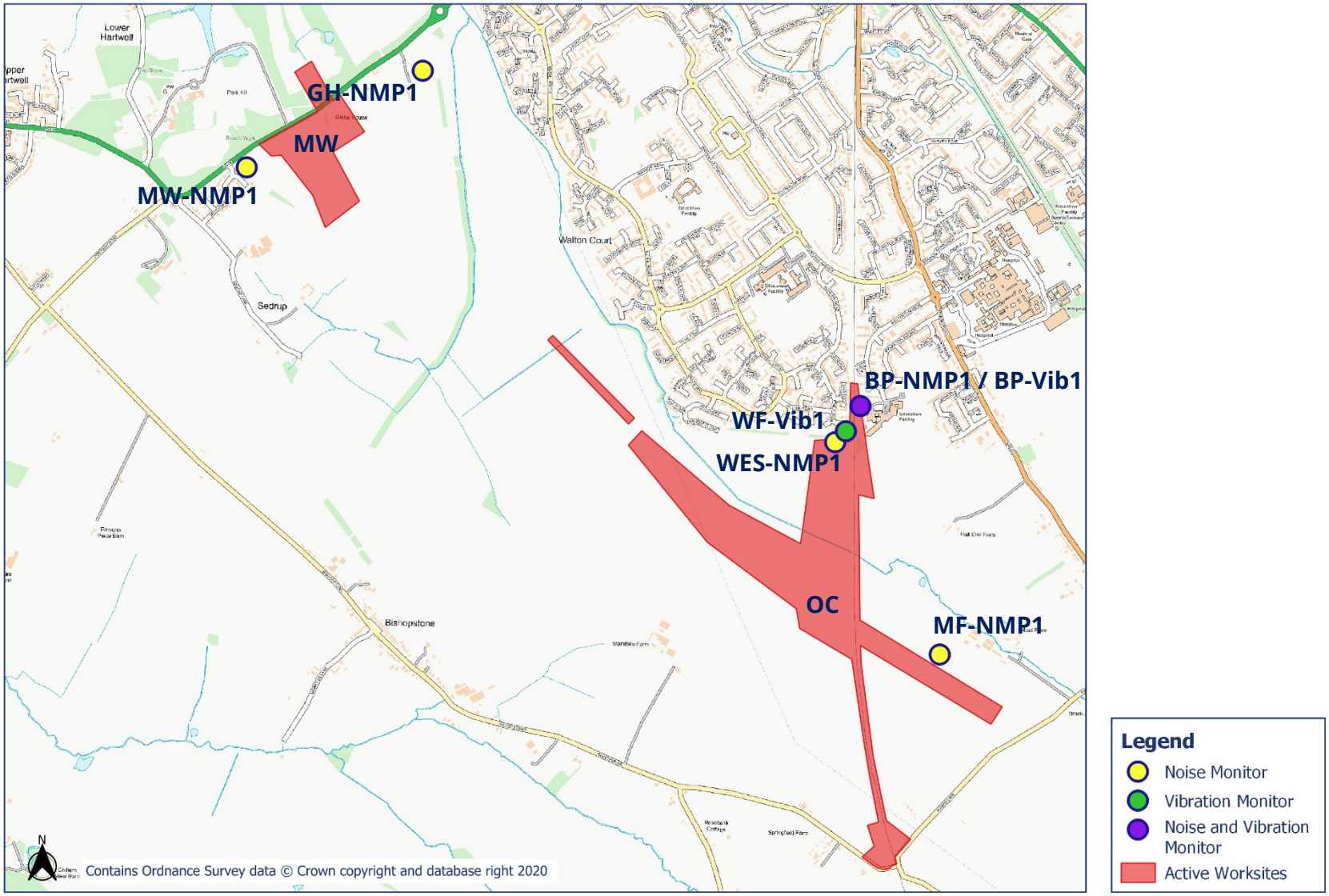
Noise and Vibration Monitoring Plan - 4



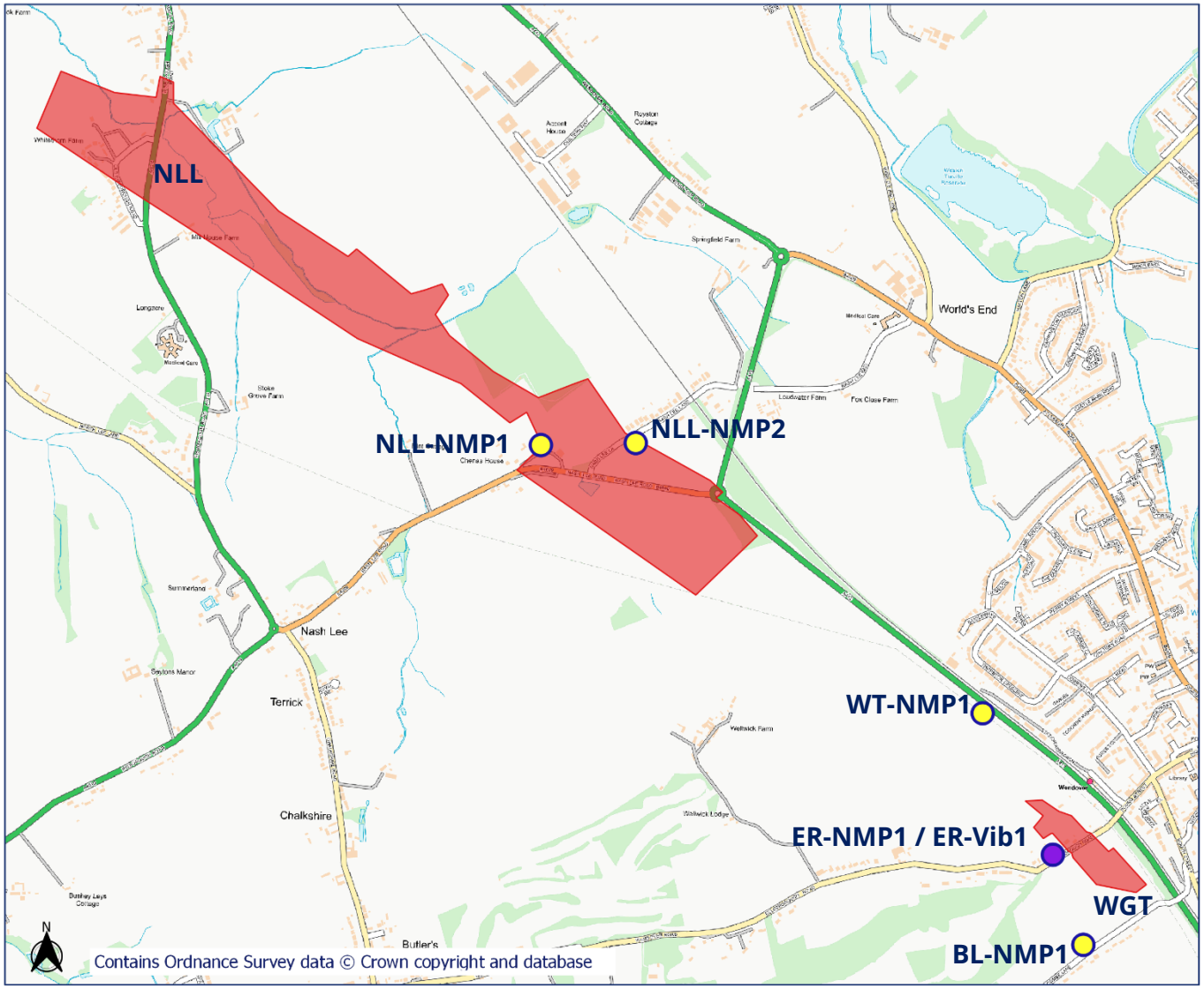
Noise and Vibration Monitoring Plan - 5



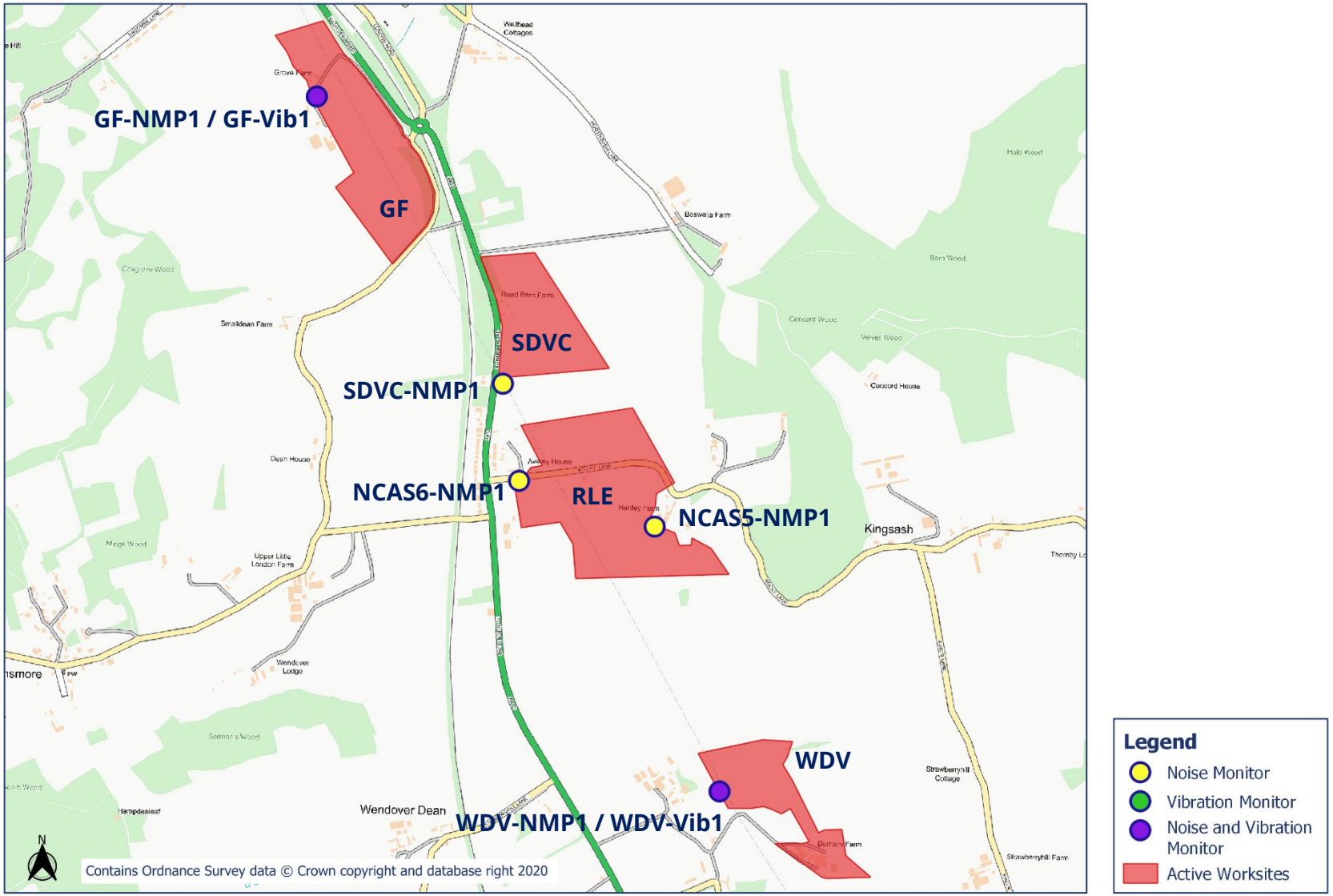
Noise and Vibration Monitoring Plan - 6



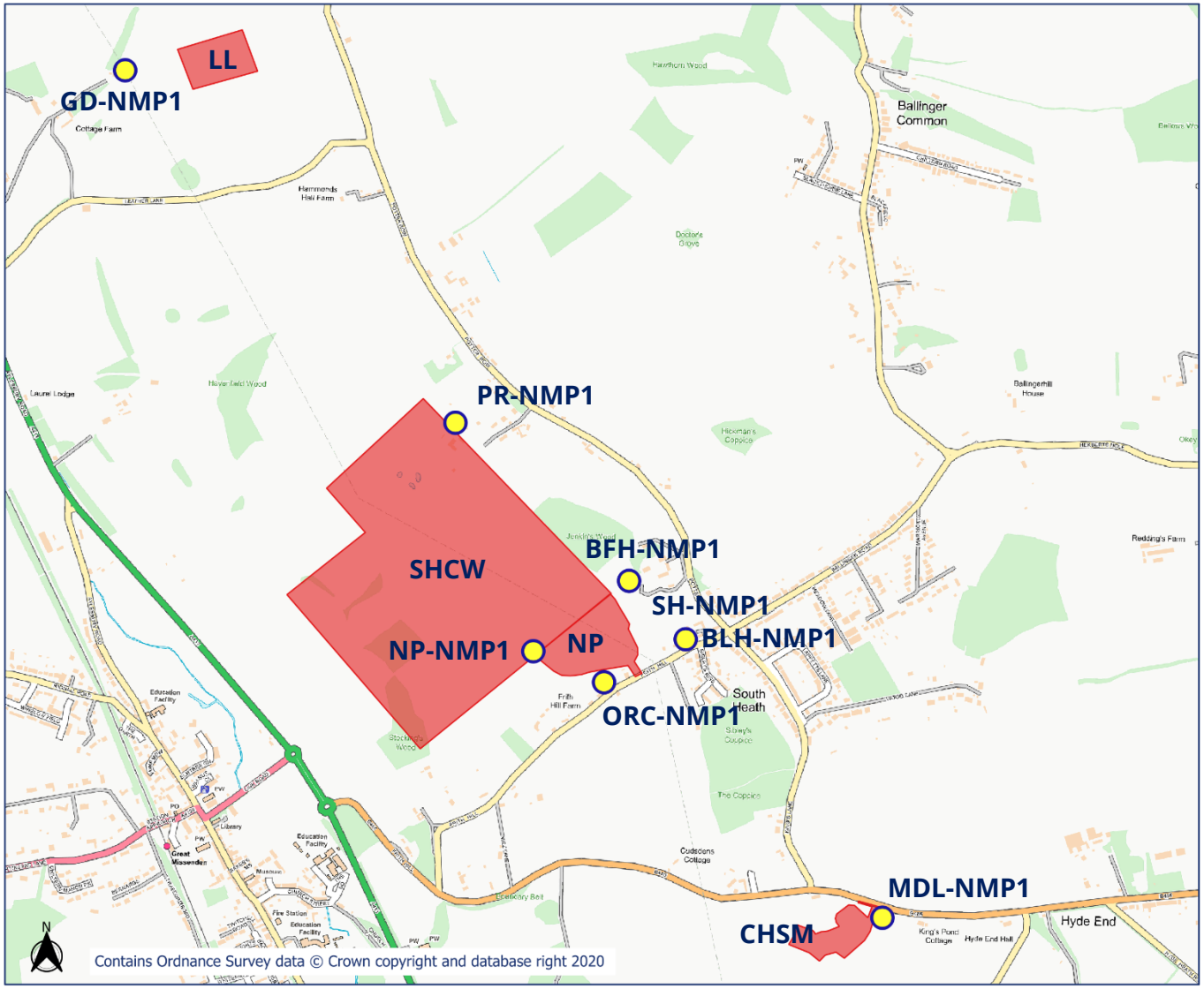
Noise and Vibration Monitoring Plan - 7



Noise and Vibration Monitoring Plan - 8

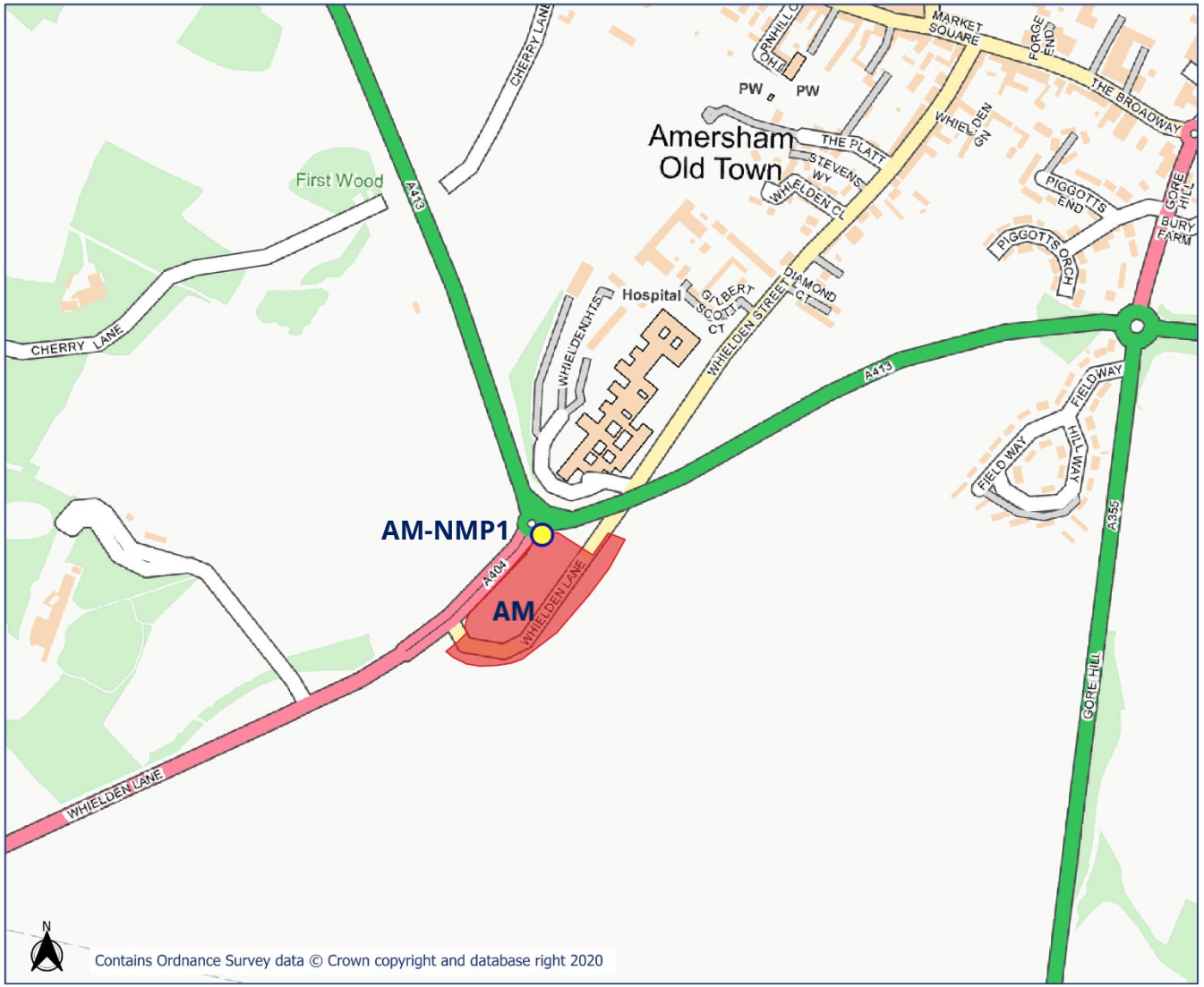


Noise and Vibration Monitoring Plan - 9

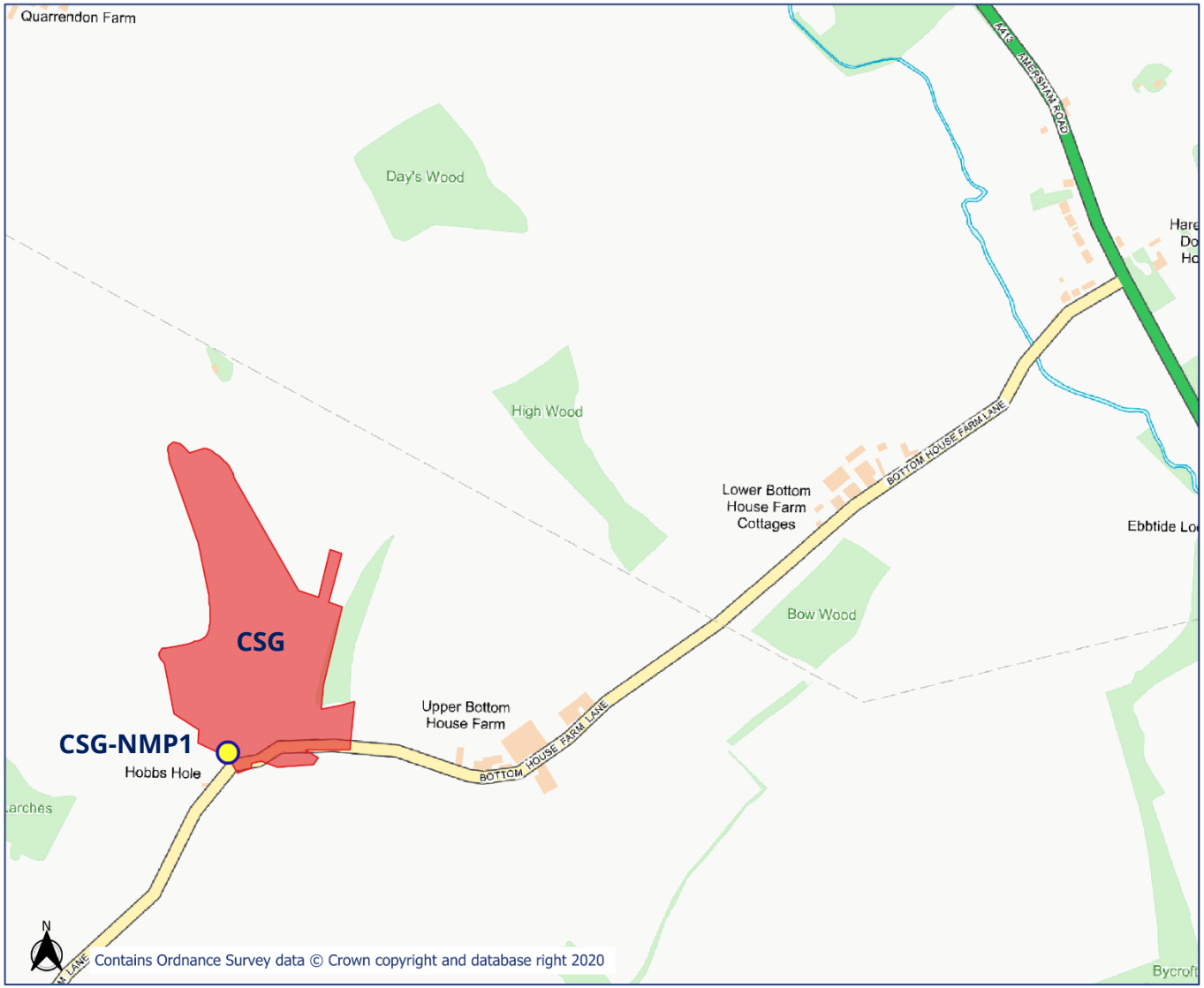


Noise and Vibration Monitoring Plan - 10

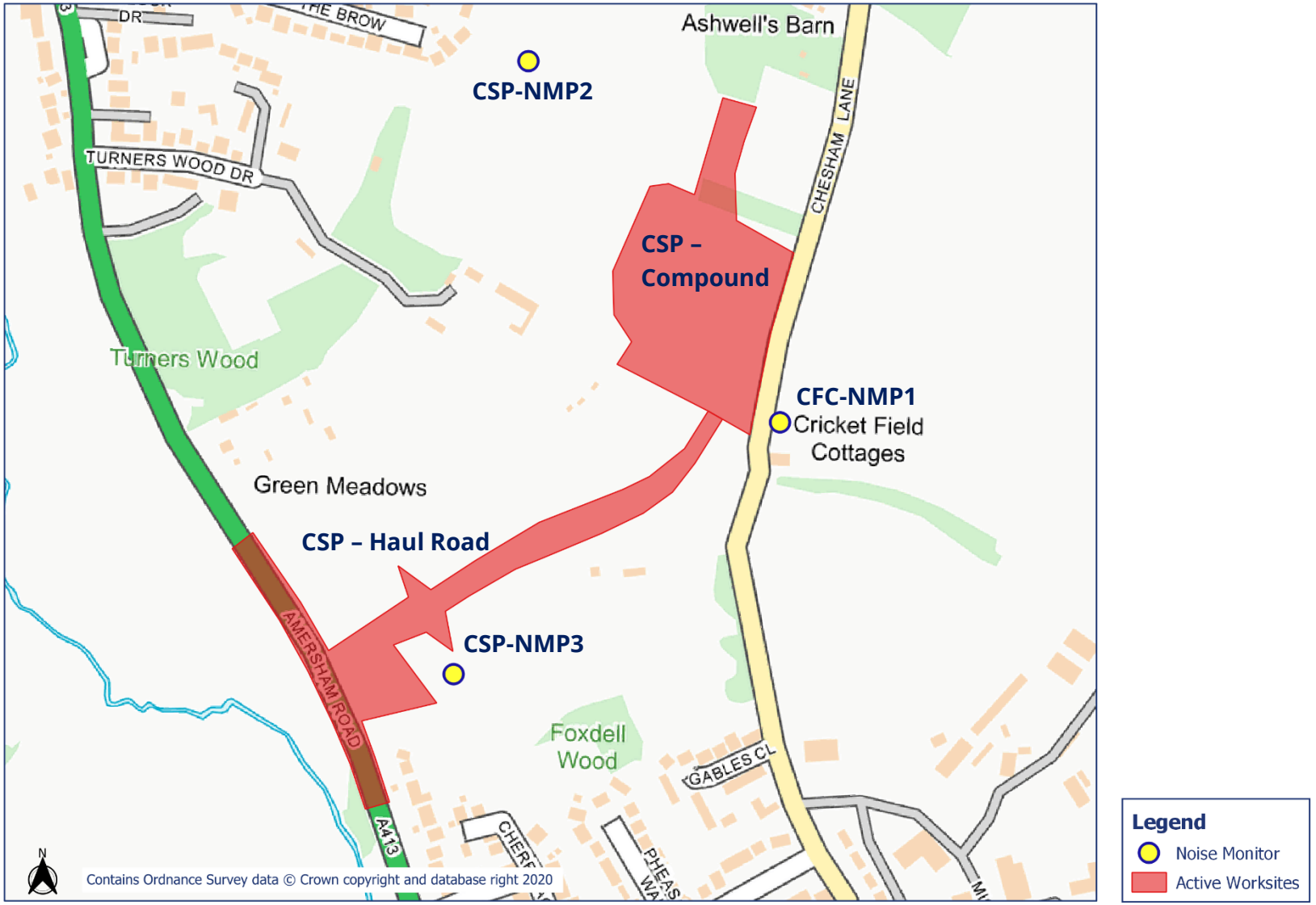
HS2 Noise and Vibration Monitoring Plan - 11



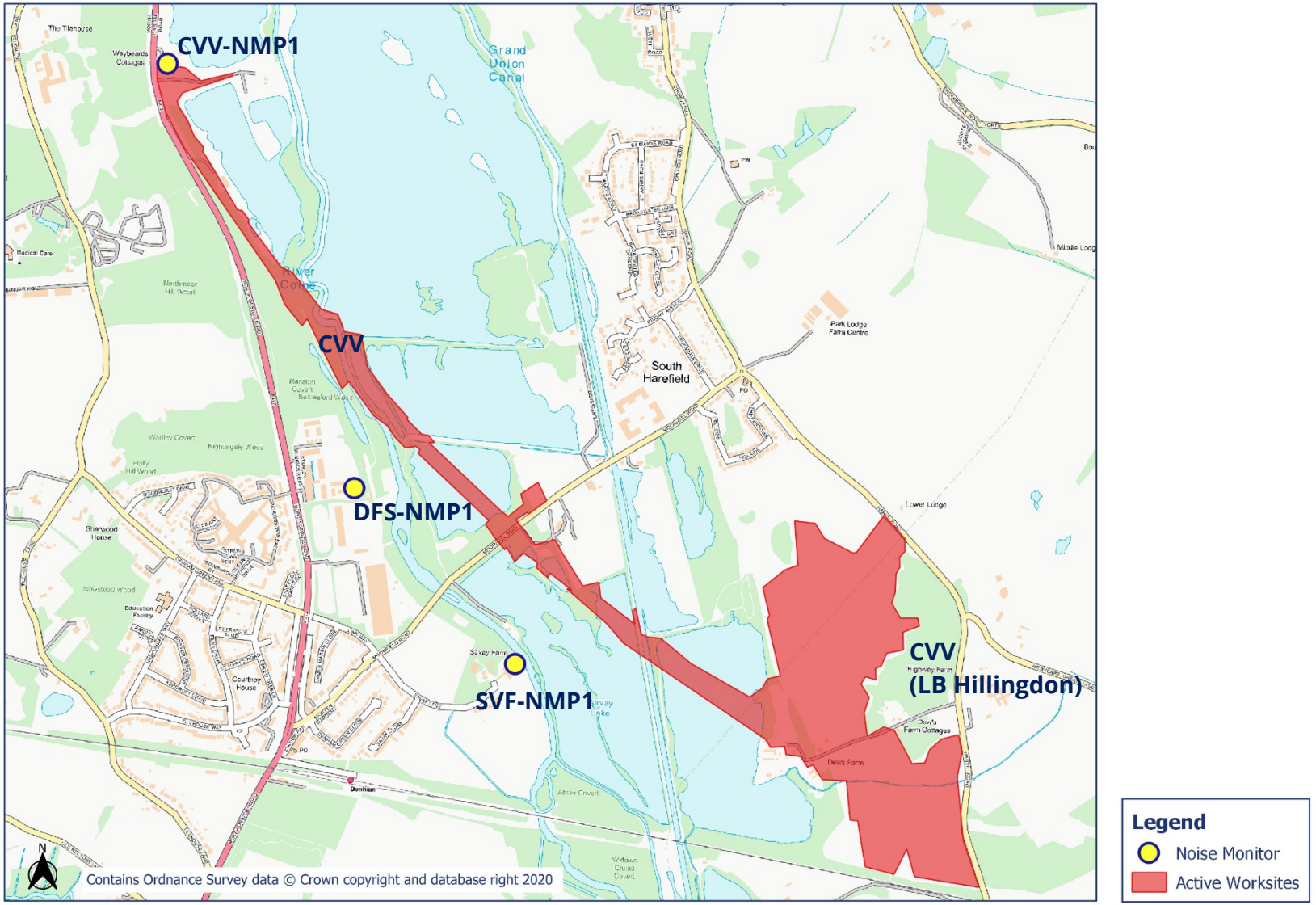
Noise and Vibration Monitoring Plan - 12



Noise and Vibration Monitoring Plan - 13



Noise and Vibration Monitoring Plan - 14



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.

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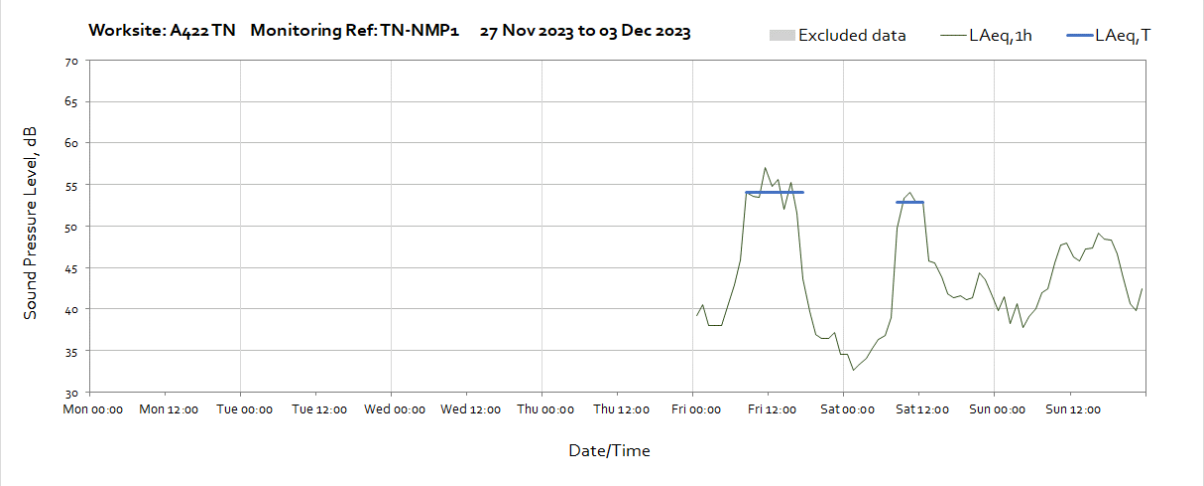

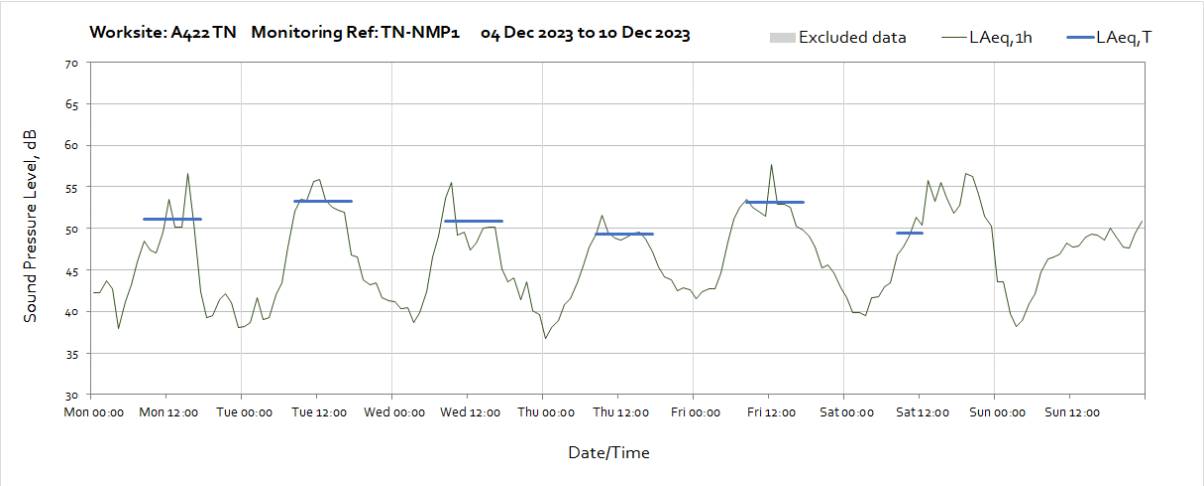

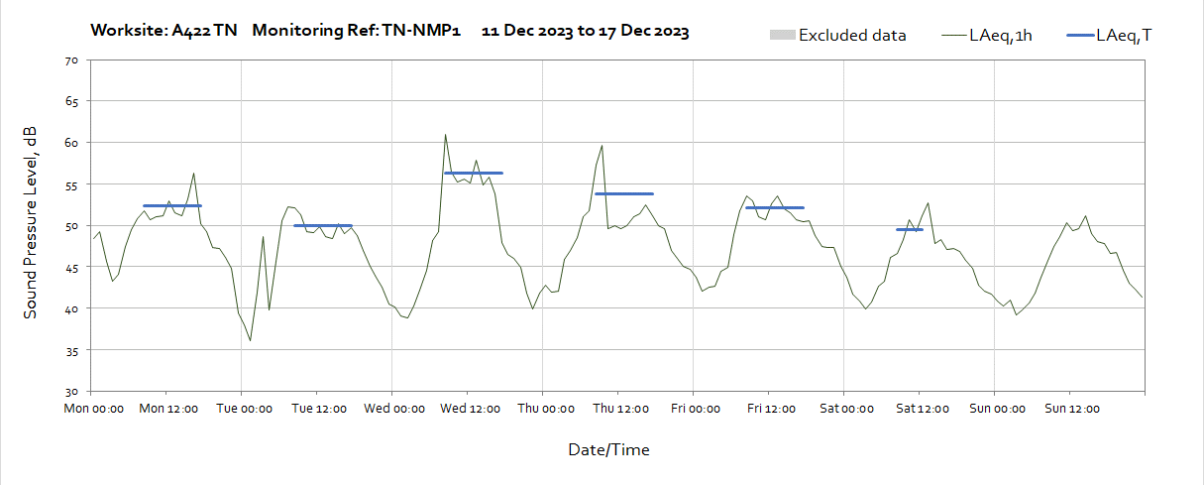
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LAeq,T
Sound Pressure Level, dB
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65
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45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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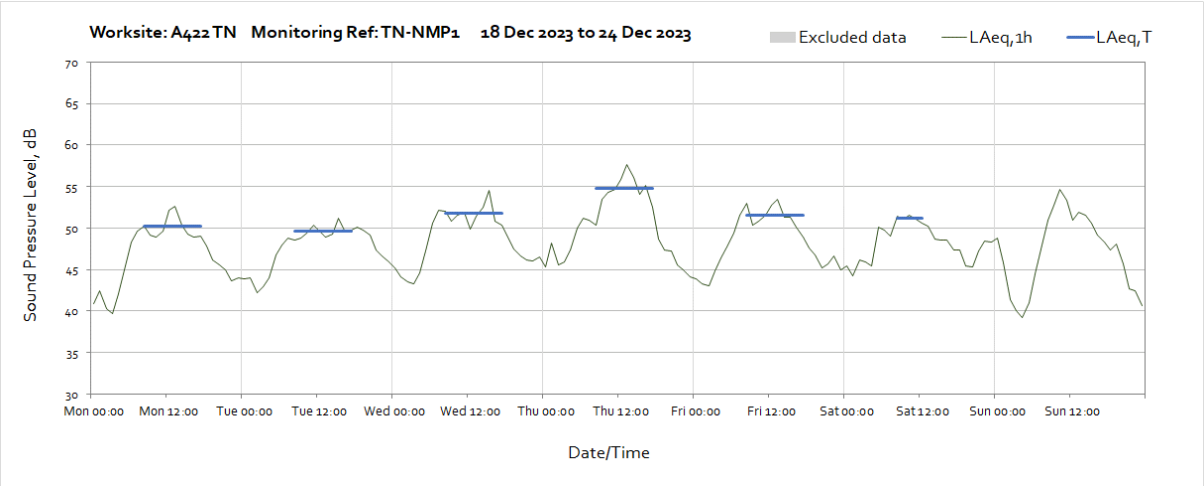
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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Tue 12:00
Wed 00:00
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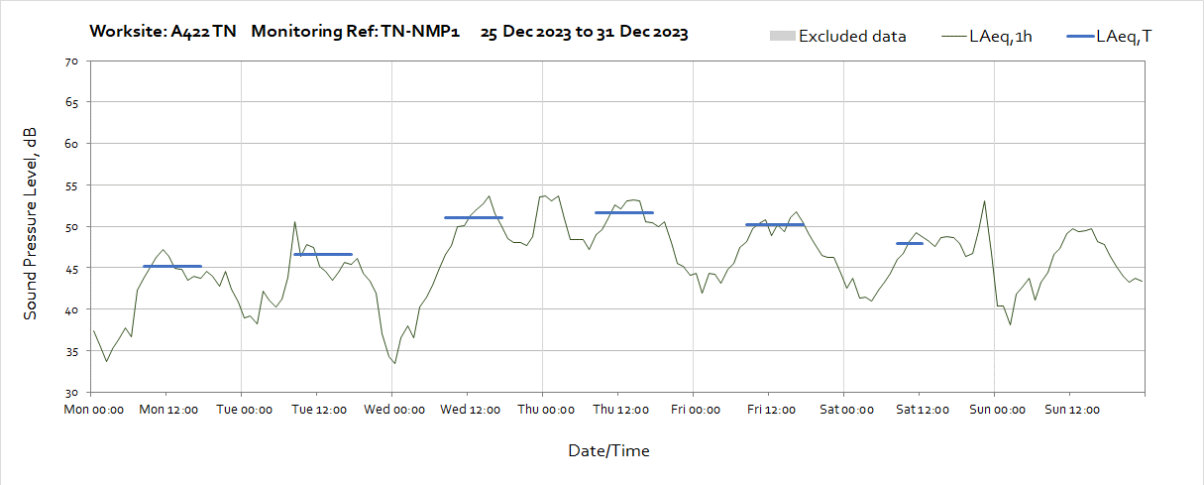
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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Excluded data
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LAeq,T
Sound Pressure Level, dB
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Tue 12:00
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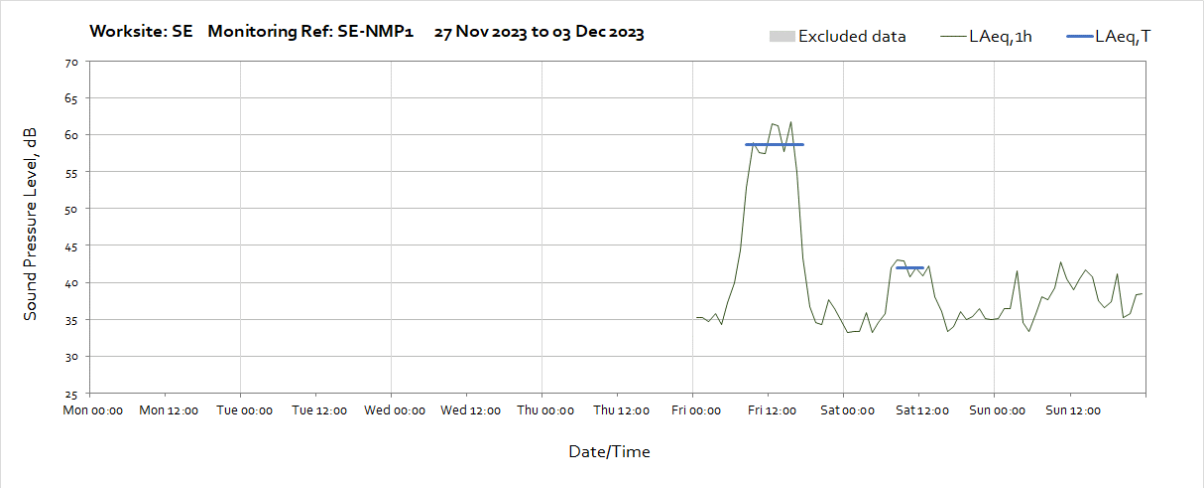
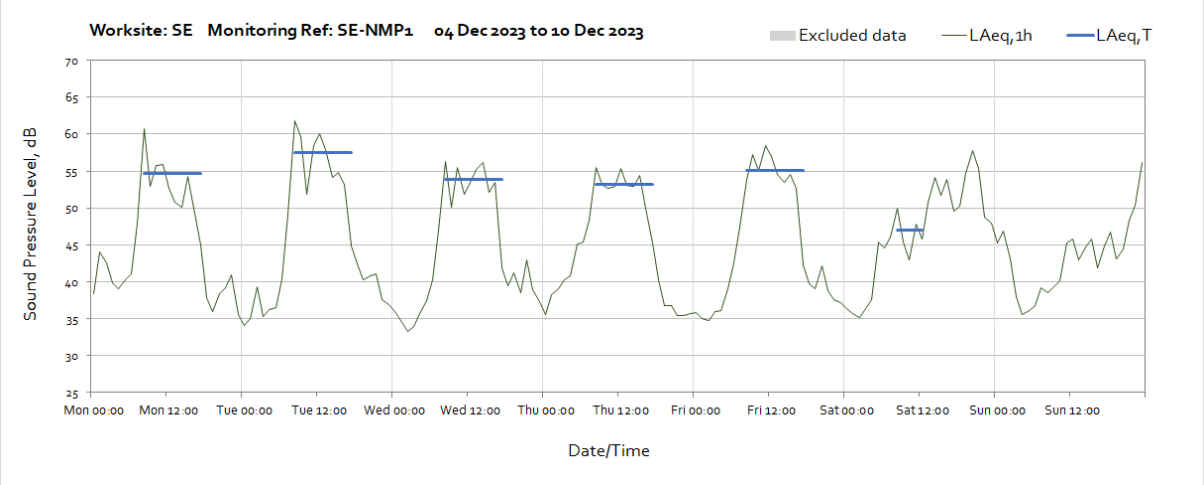
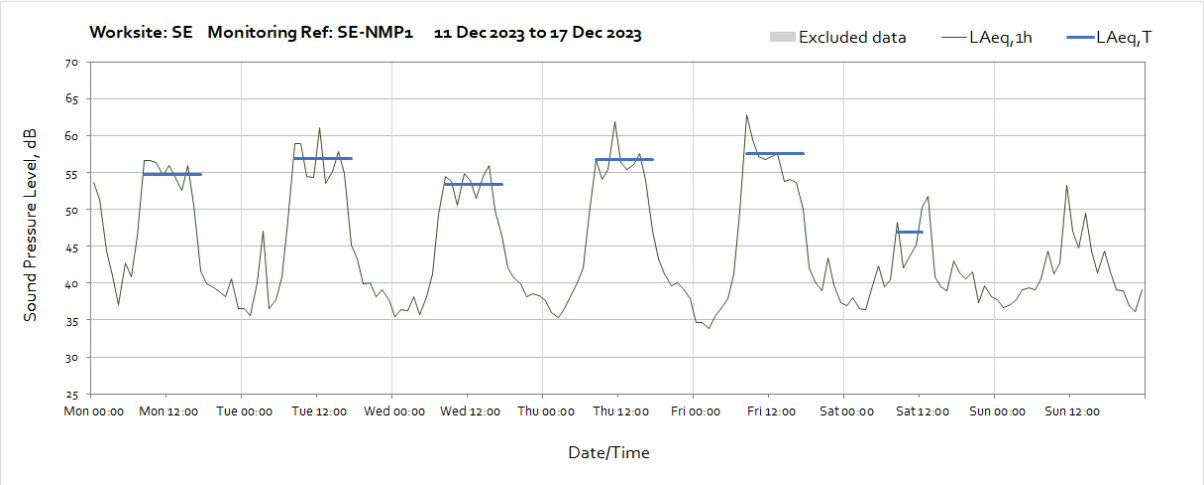
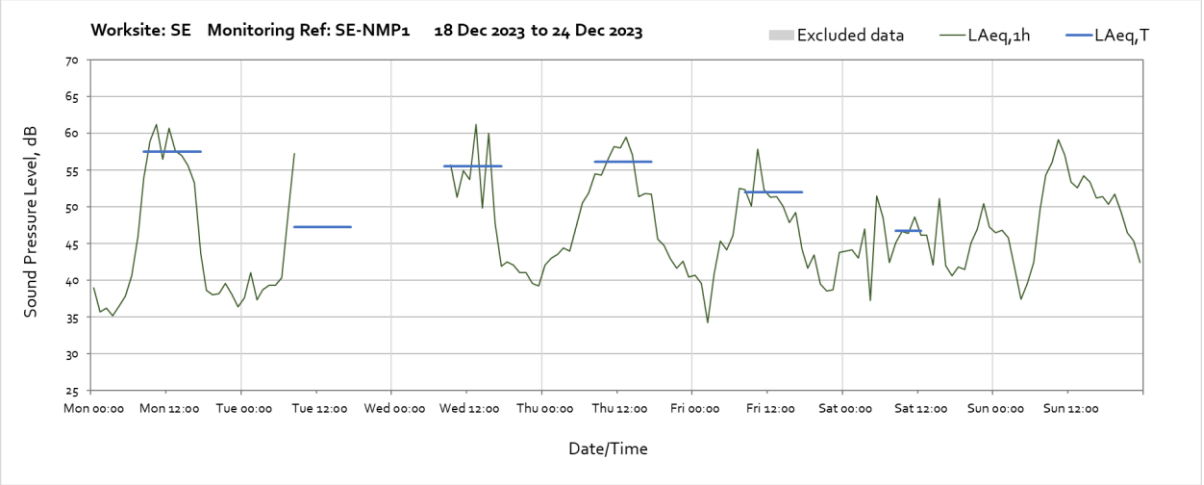
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: SE – Monitoring Ref: SE-NMP1

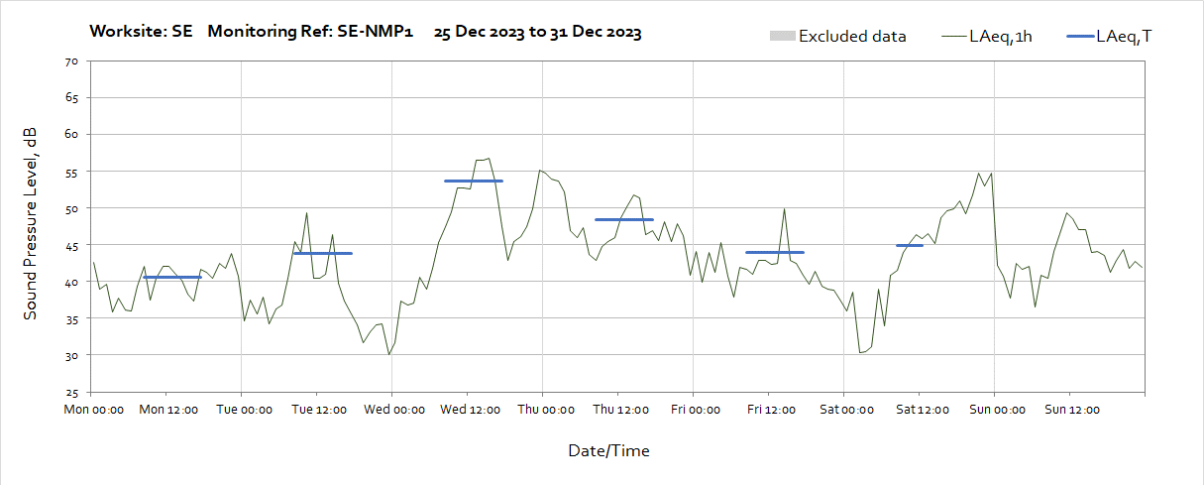




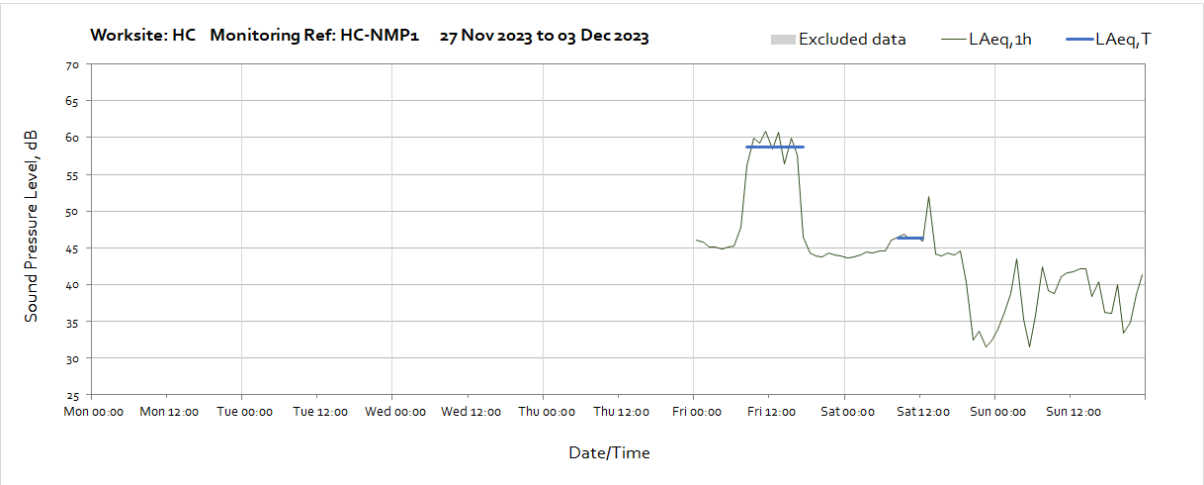


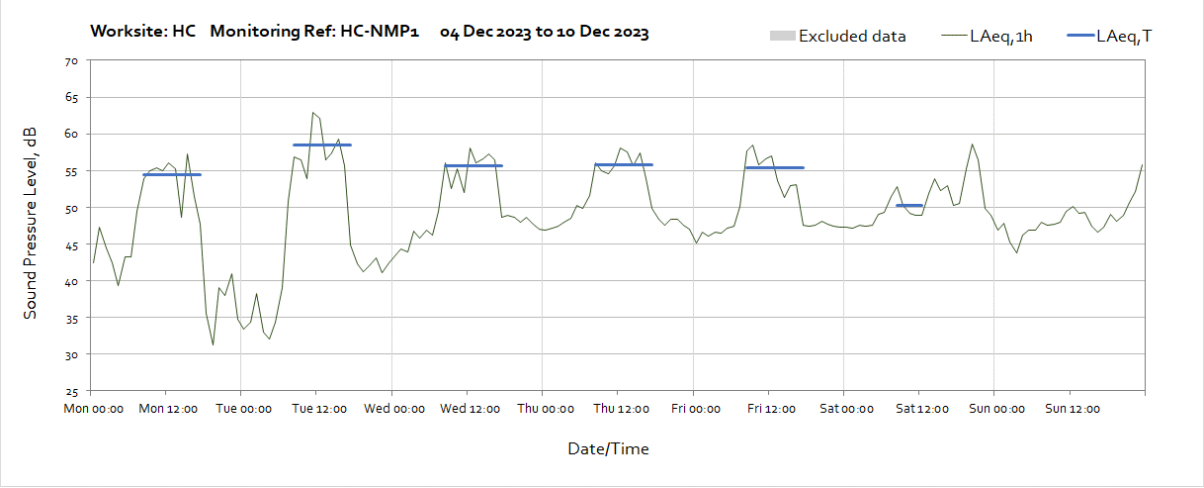


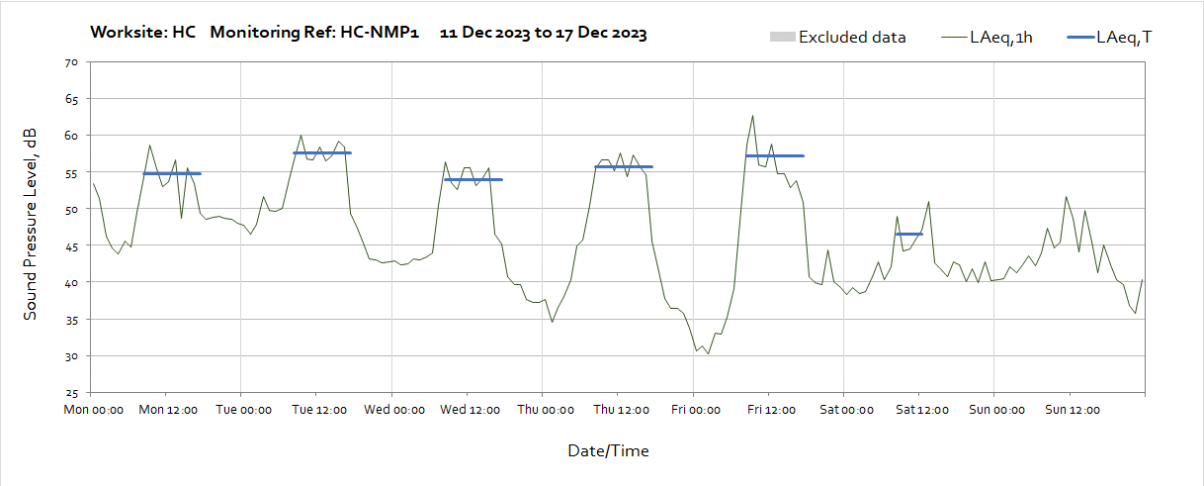
Note: Missing data between 09:00 on Tuesday 19th December until 09:00 on Wednesday 20th December was due to a depleted battery.

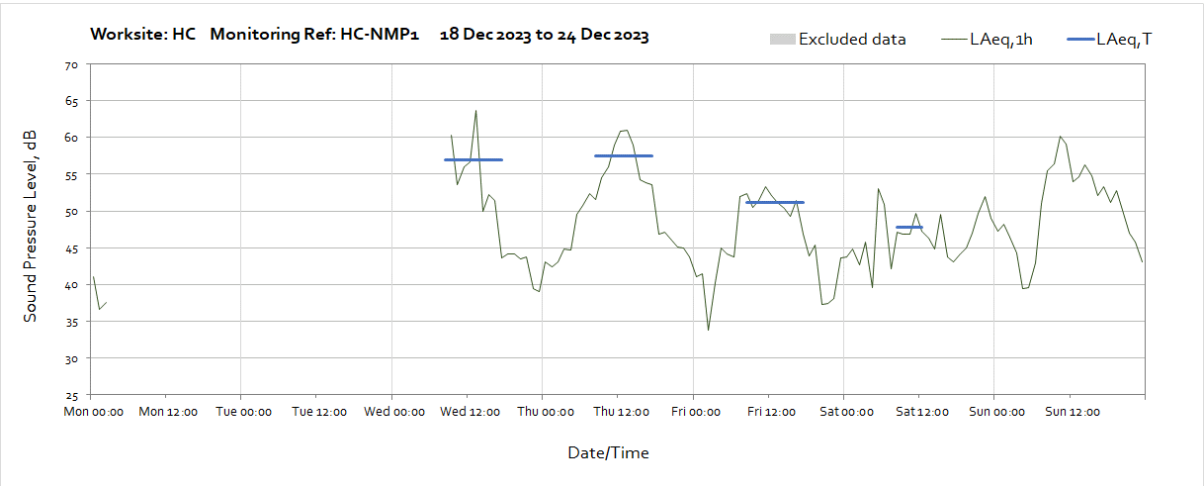


Worksite: HC – Monitoring Ref: HC-NMP1

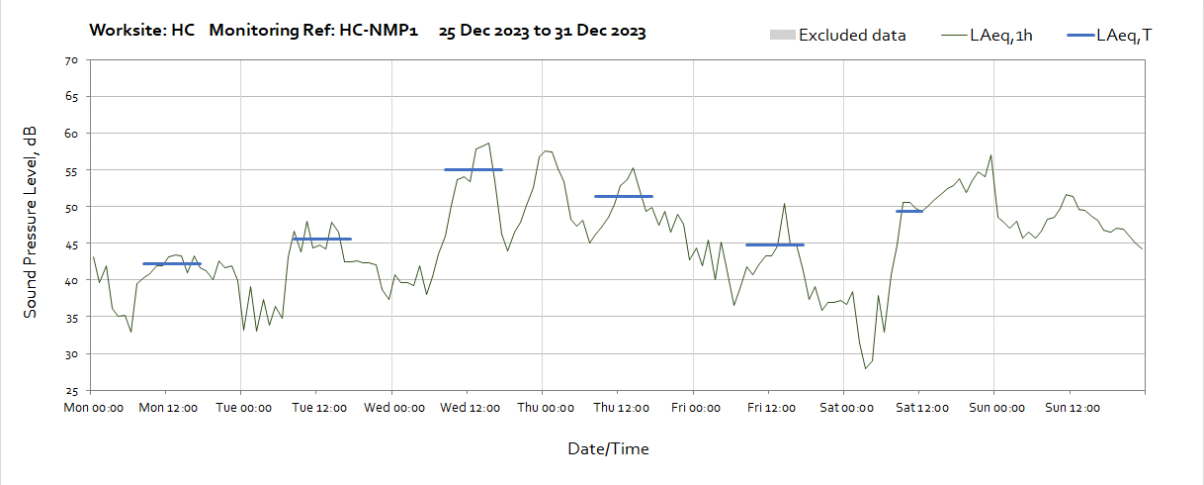




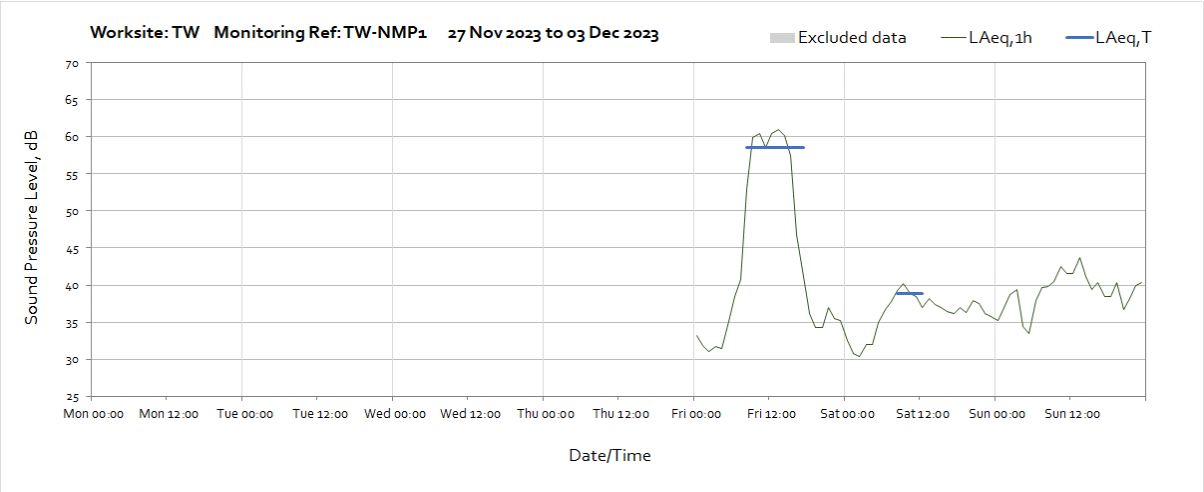


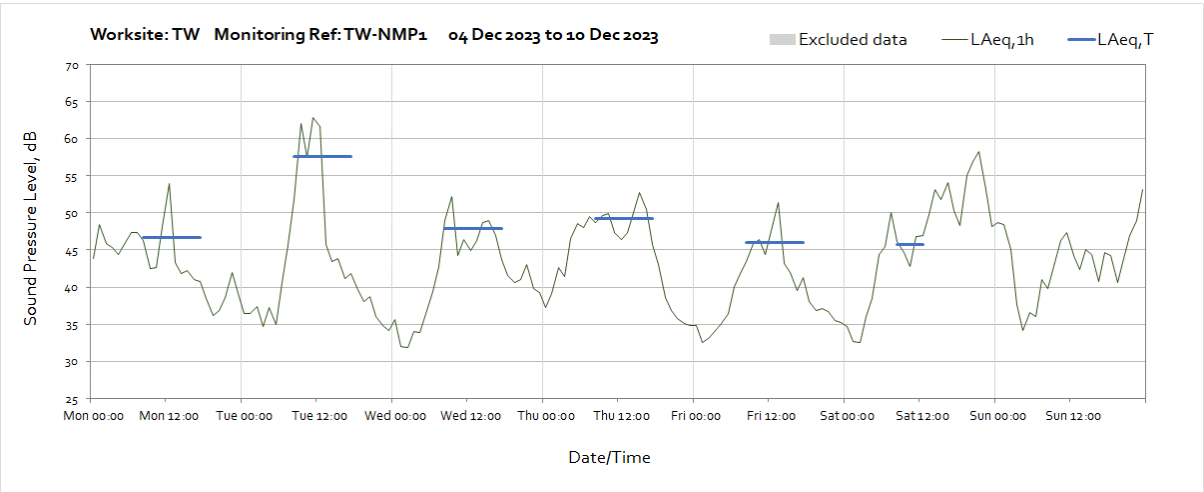


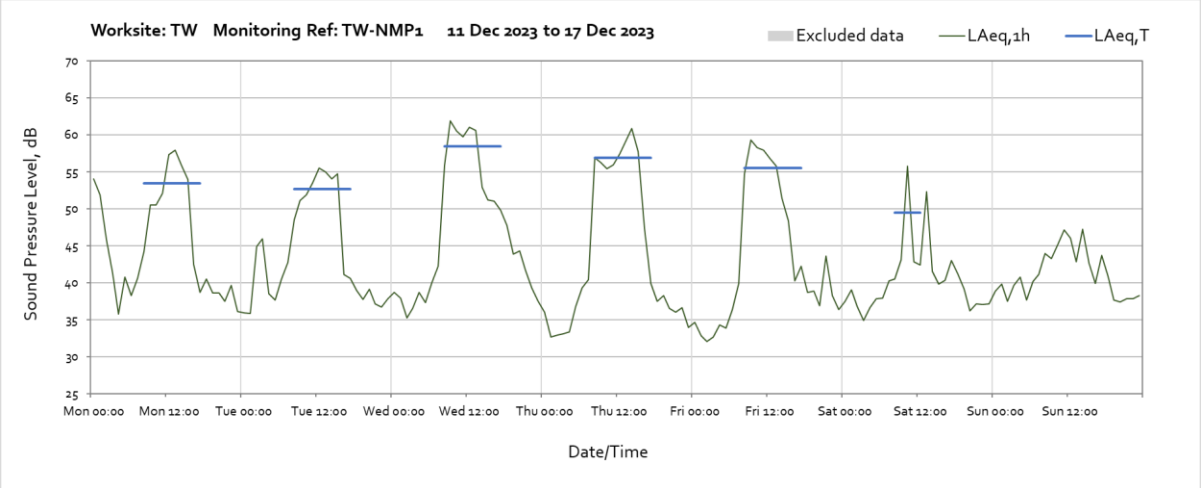
Note: Missing data between 03:00 on Monday 18th December until 09:00 on Wednesday 20th December was due to a depleted battery.



Worksite: TW – Monitoring Ref: TW-NMP1



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LAeq,T
Sound Pressure Level, dB
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60
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50
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40
35
30
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Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Thu 12:00
Fri 00:00
Fri 12:00
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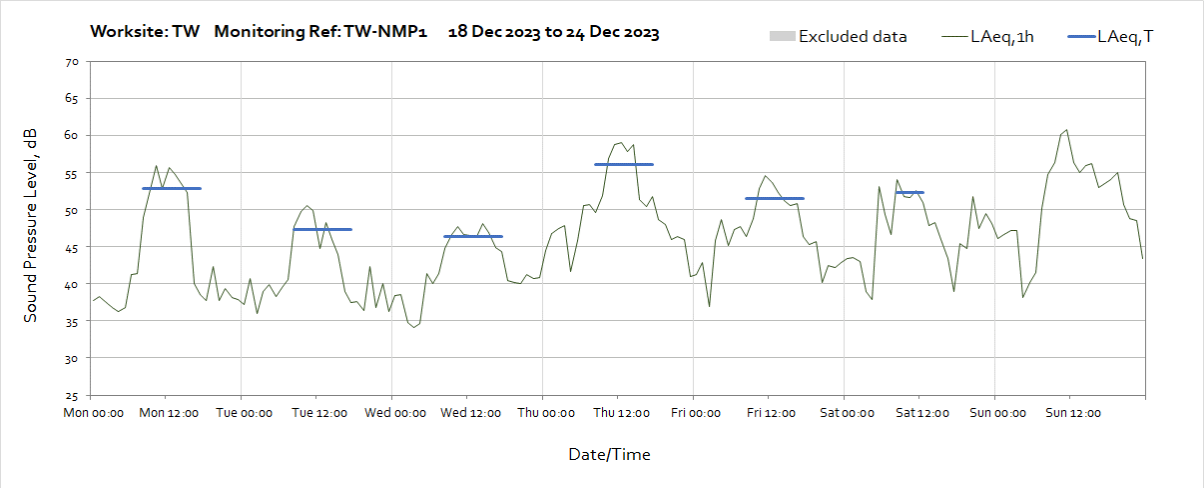
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: TW Monitoring Ref: TW-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
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LAeq,T
Sound Pressure Level, dB
70
65
60
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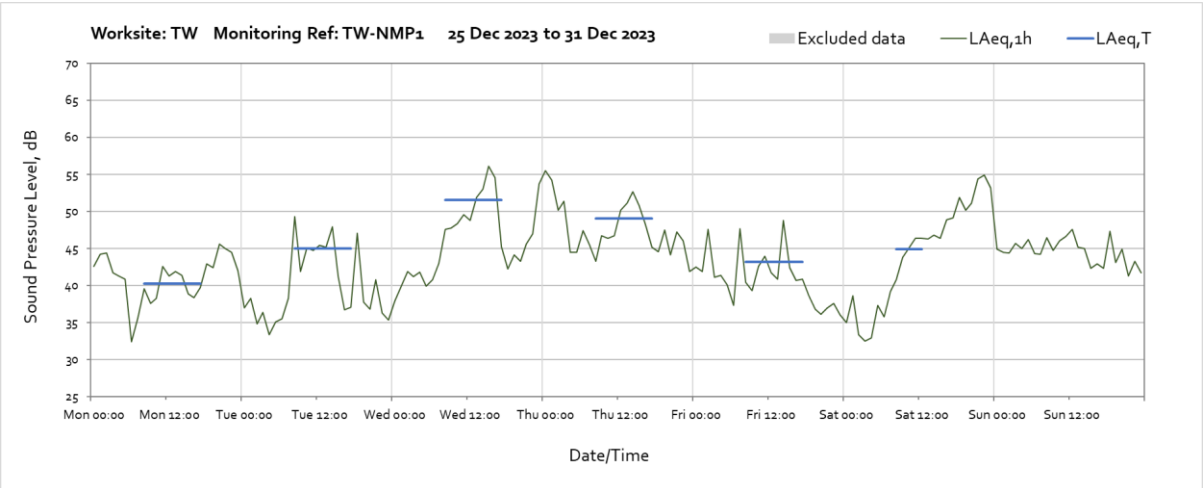
Sun 12:00
Date/Time


Worksite: TW Monitoring Ref: TW-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
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LAeq,T
Sound Pressure Level, dB
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60
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50
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Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
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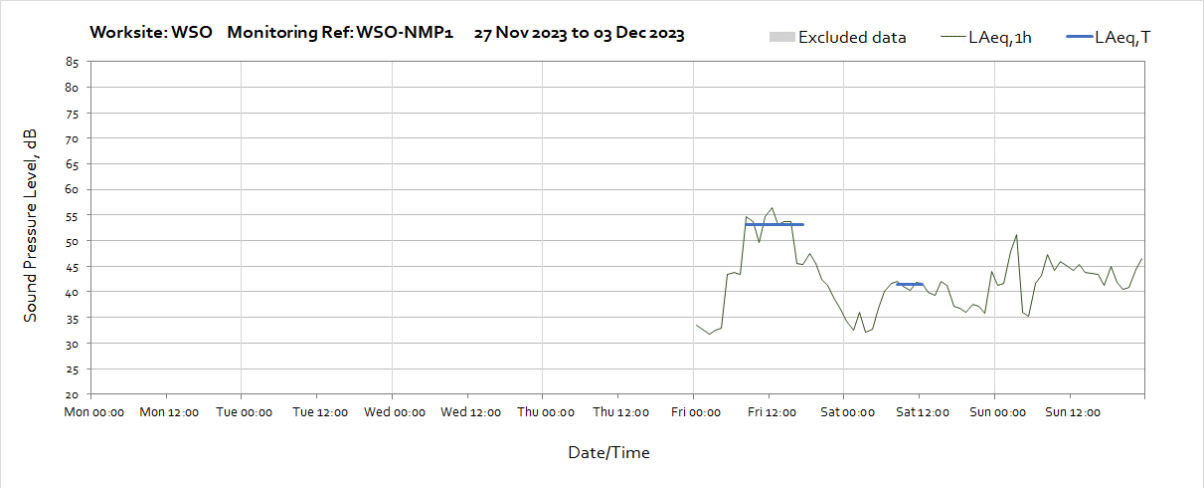
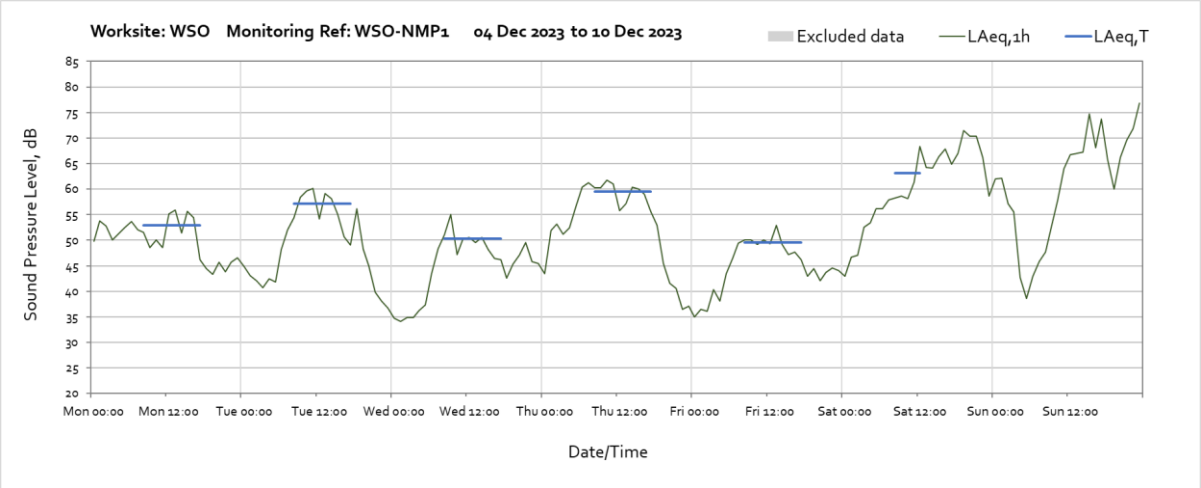
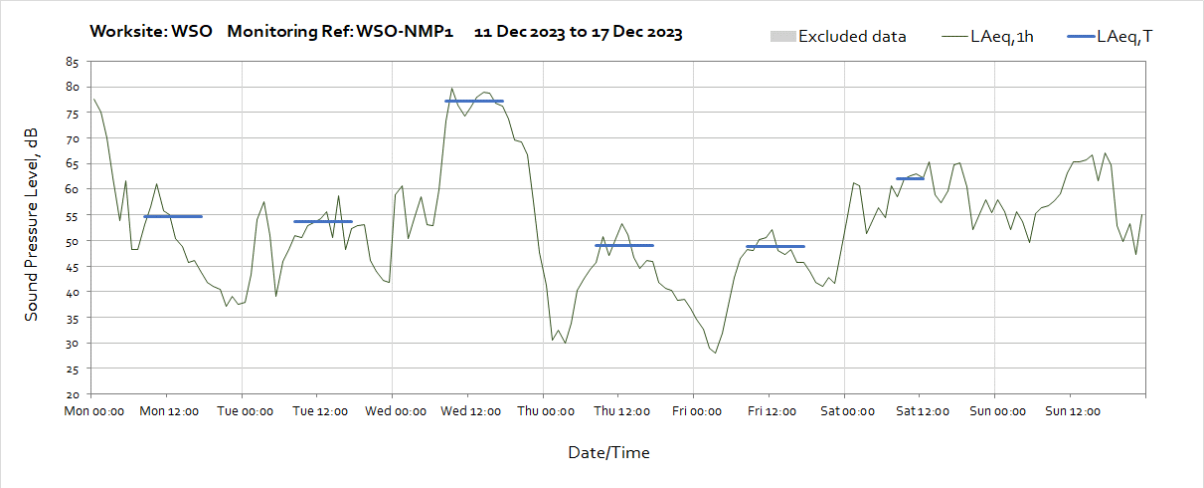
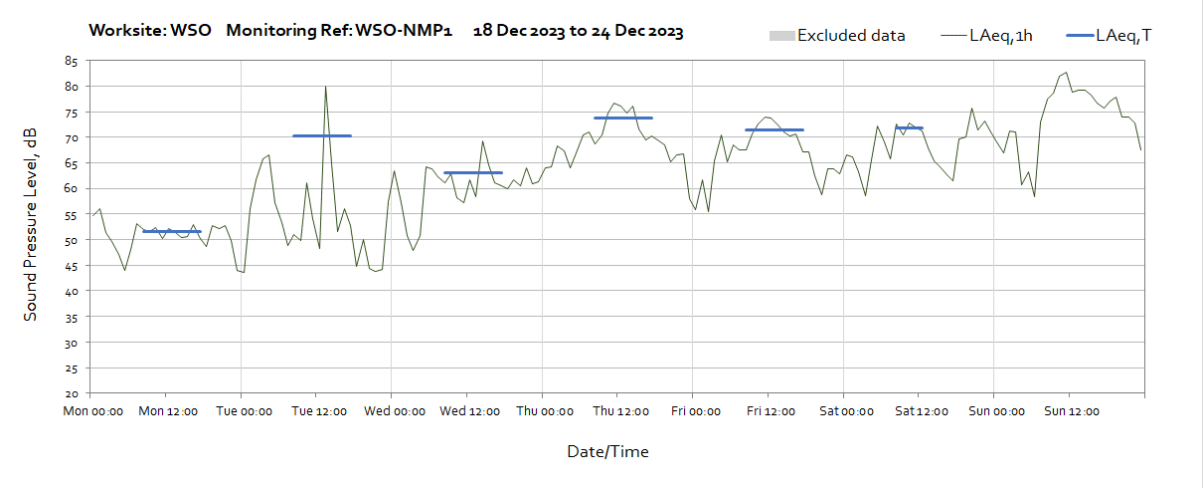
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

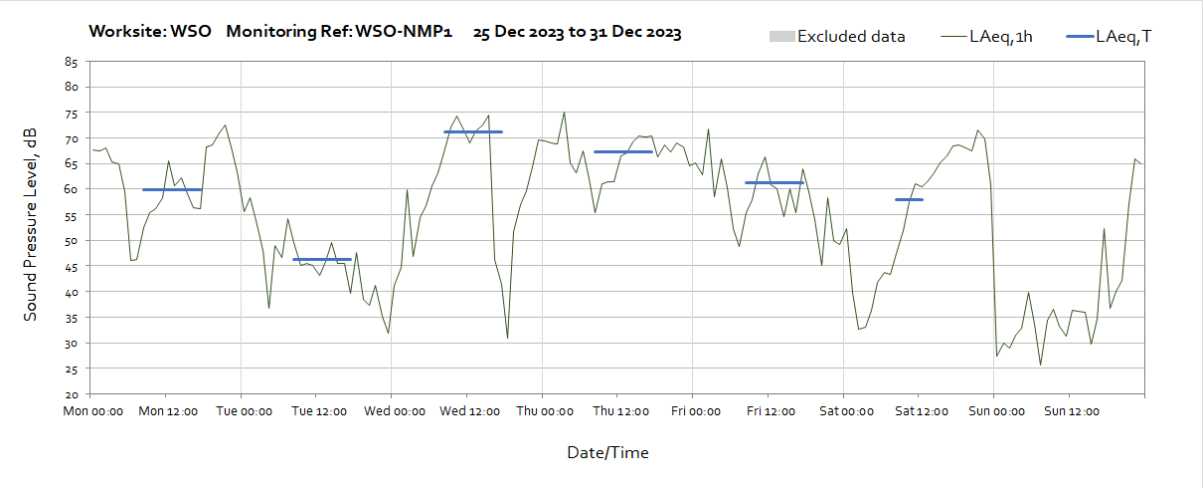
Worksite: WSO – Monitoring Ref: WSO-NMP1



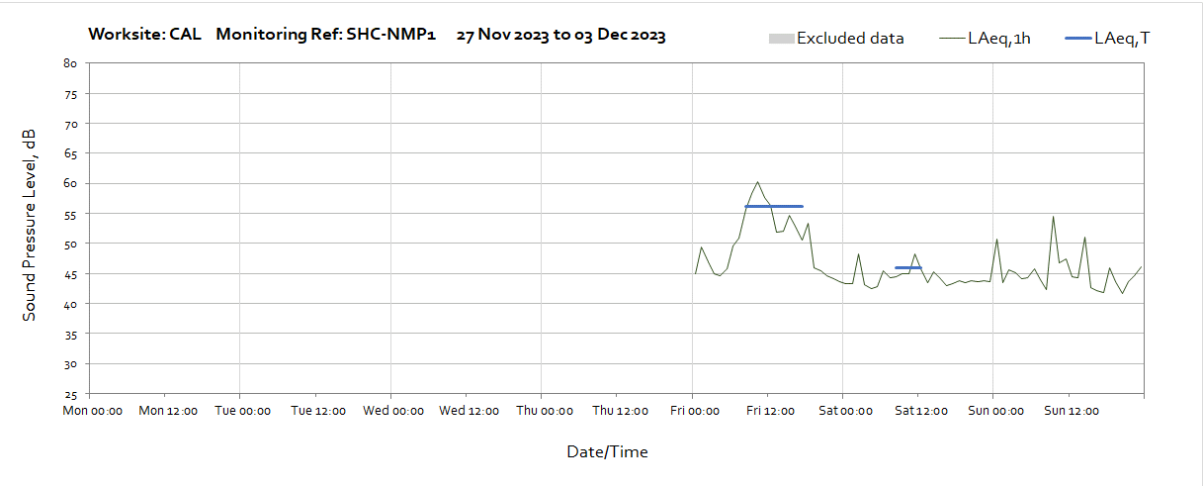


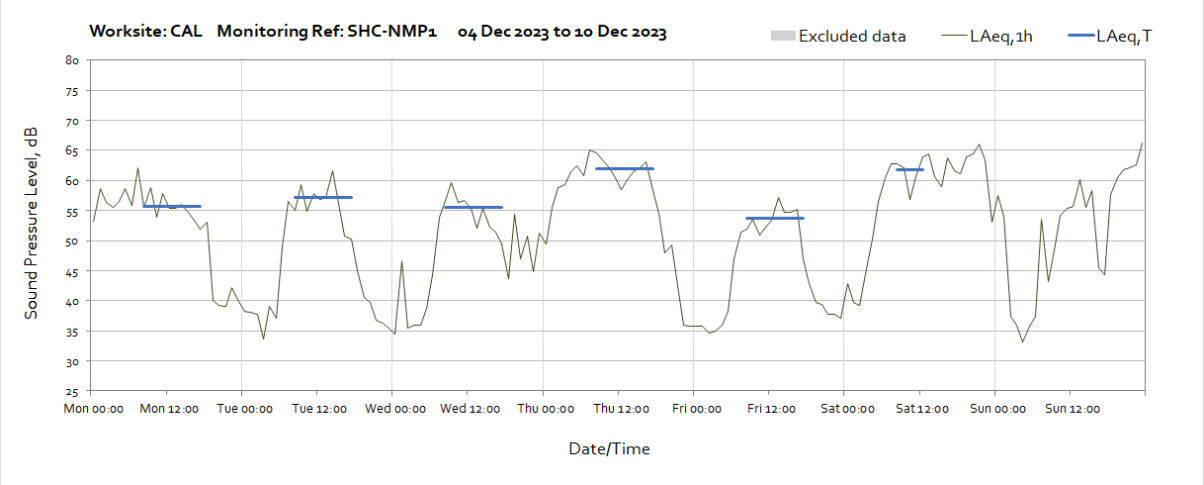






Worksite: CAL – Monitoring Ref: SHC-NMP1




Worksite: CAL Monitoring Ref: SHC-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
75
70
65
60
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45
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Mon 00:00
Mon 12:00
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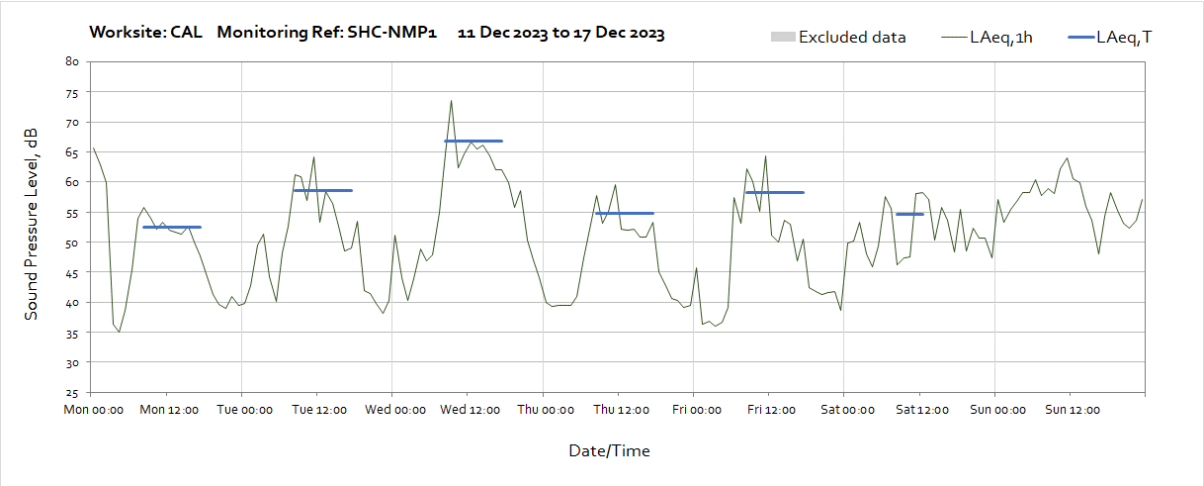
Date/Time


Worksite: CAL Monitoring Ref: SHC-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
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60
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Mon 00:00
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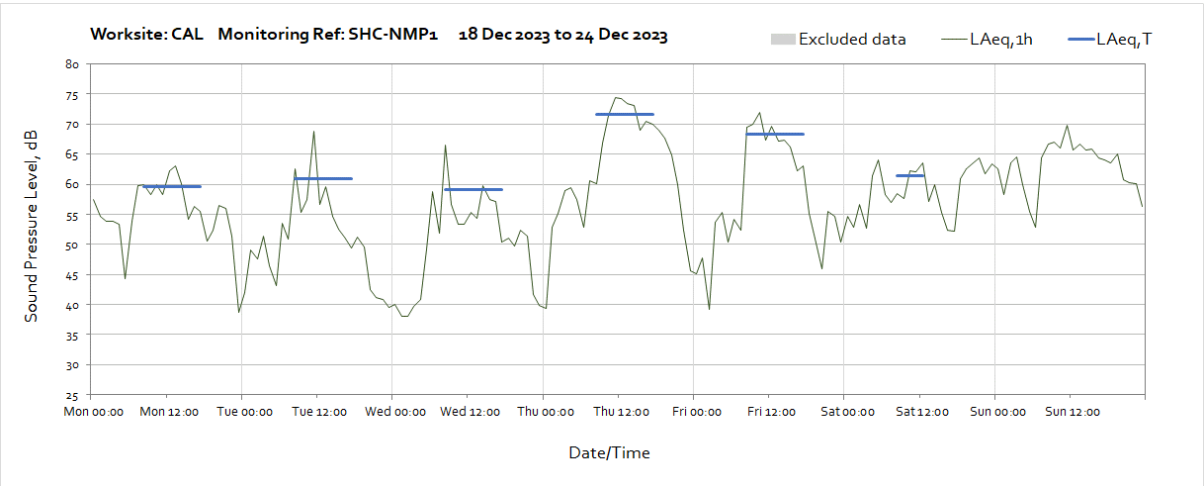
Date/Time


Worksite: CAL Monitoring Ref: SHC-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
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Mon 00:00
Mon 12:00
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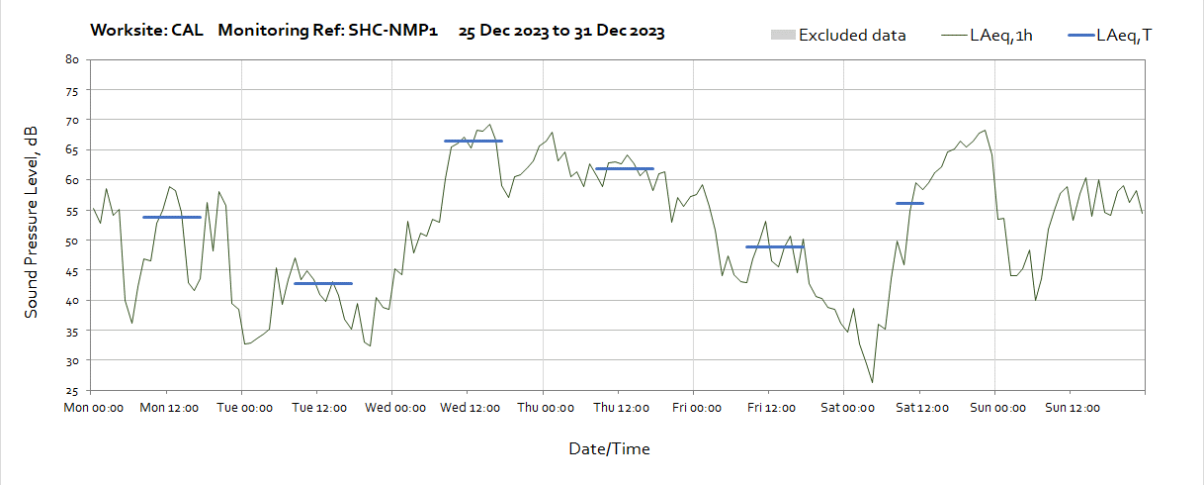
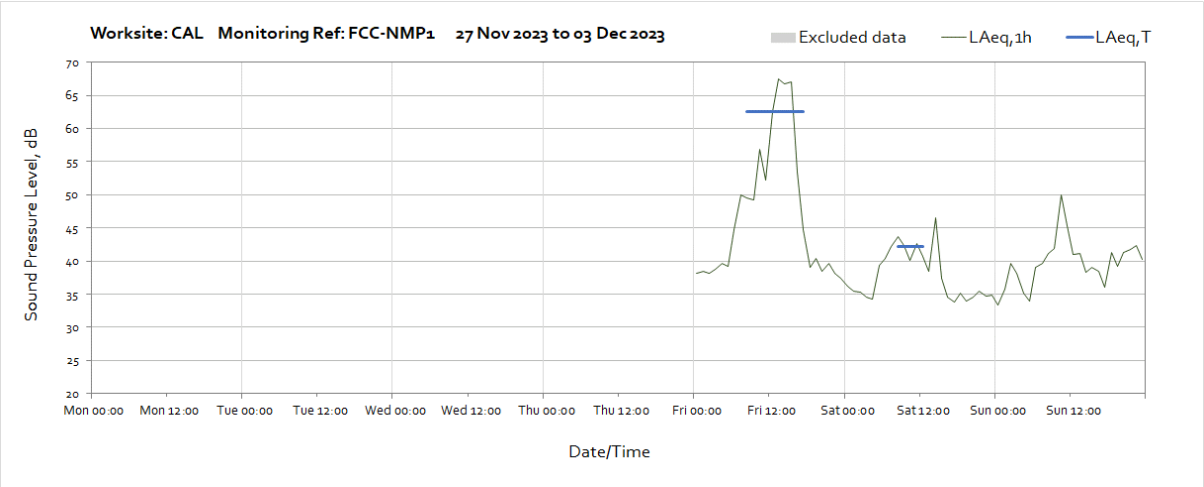
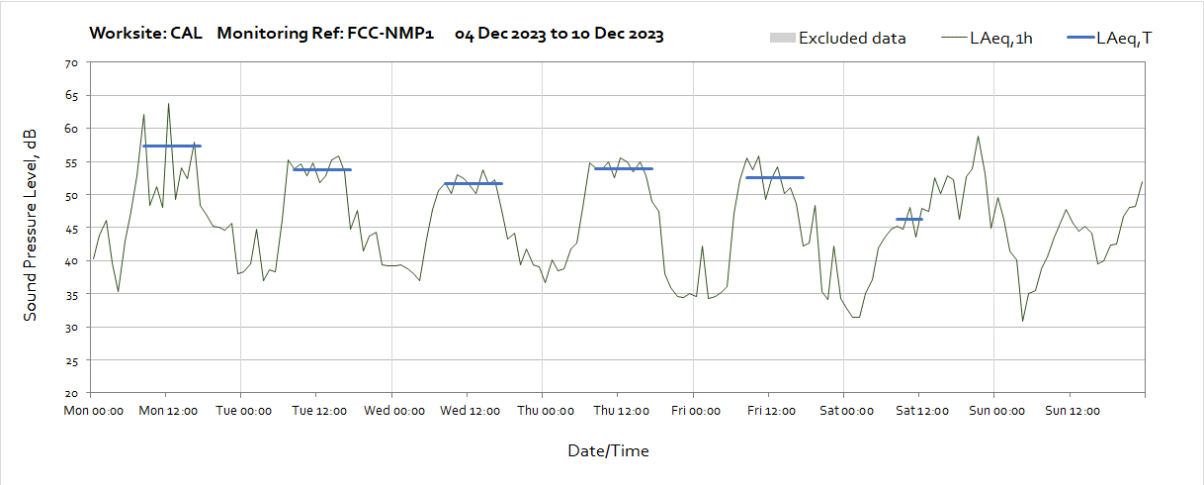
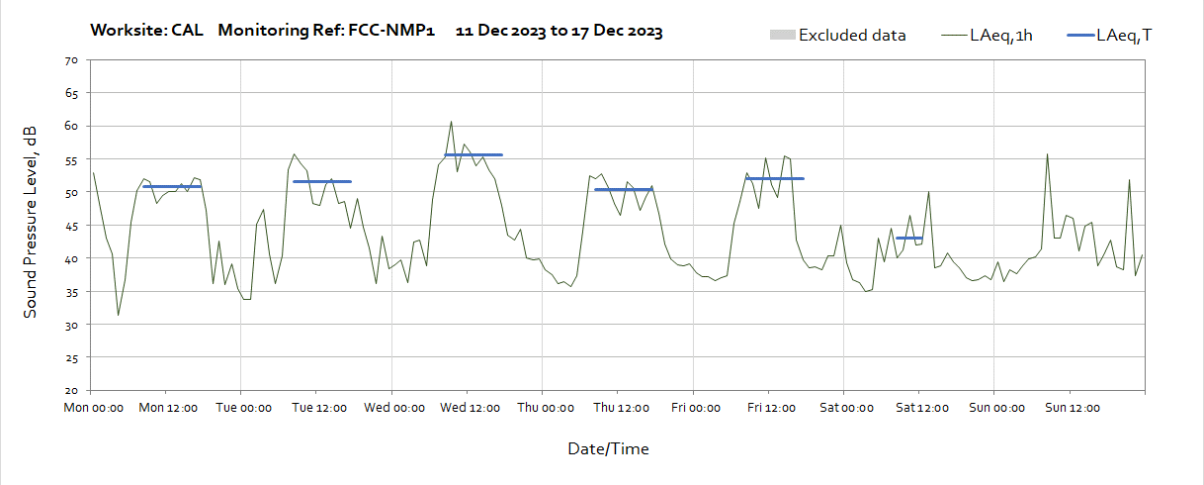
Date/Time



Worksite: CAL – Monitoring Re: FCC-NMP1






Worksite: CAL Monitoring Ref: FCC-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
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Mon 00:00
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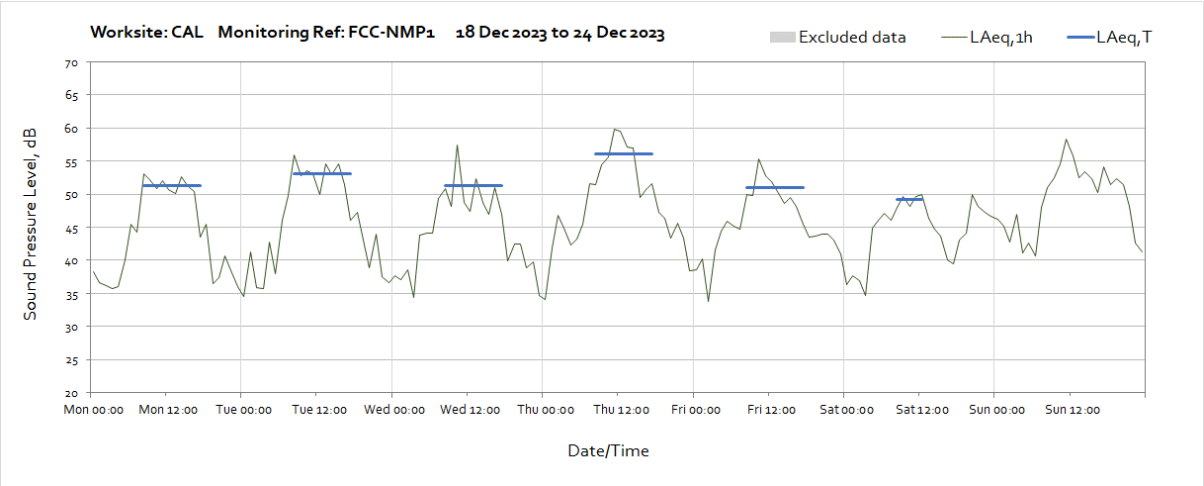
Date/Time


Worksite: CAL Monitoring Ref: FCC-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
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45
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Mon 00:00
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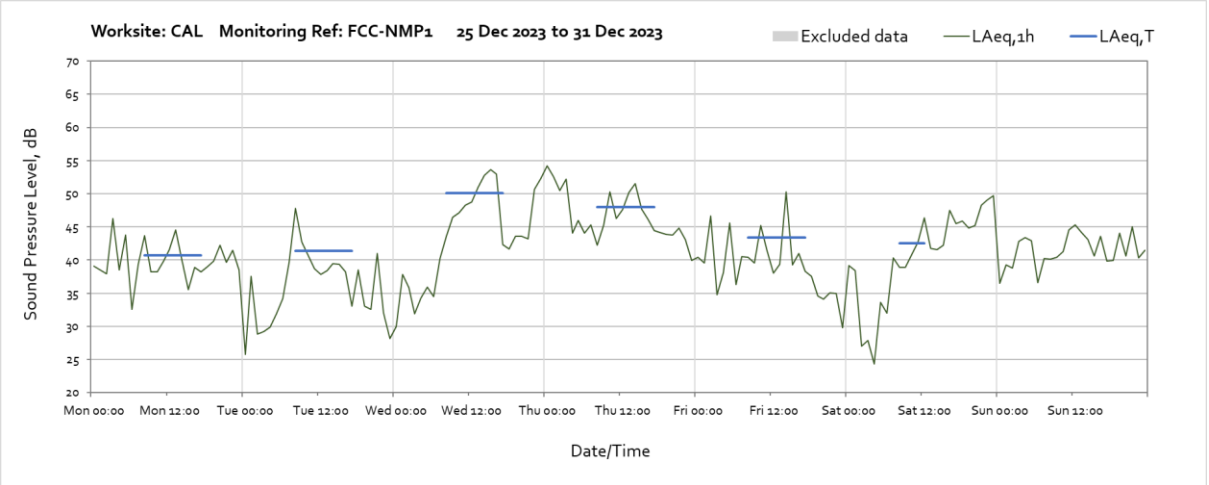
Date/Time


Worksite: CAL Monitoring Ref: FCC-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
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Mon 00:00
Mon 12:00
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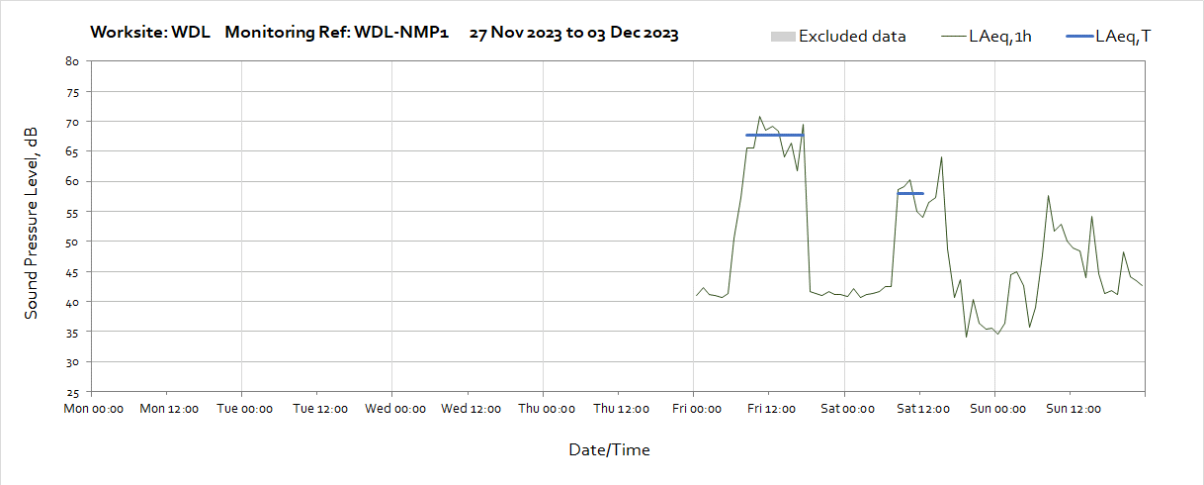
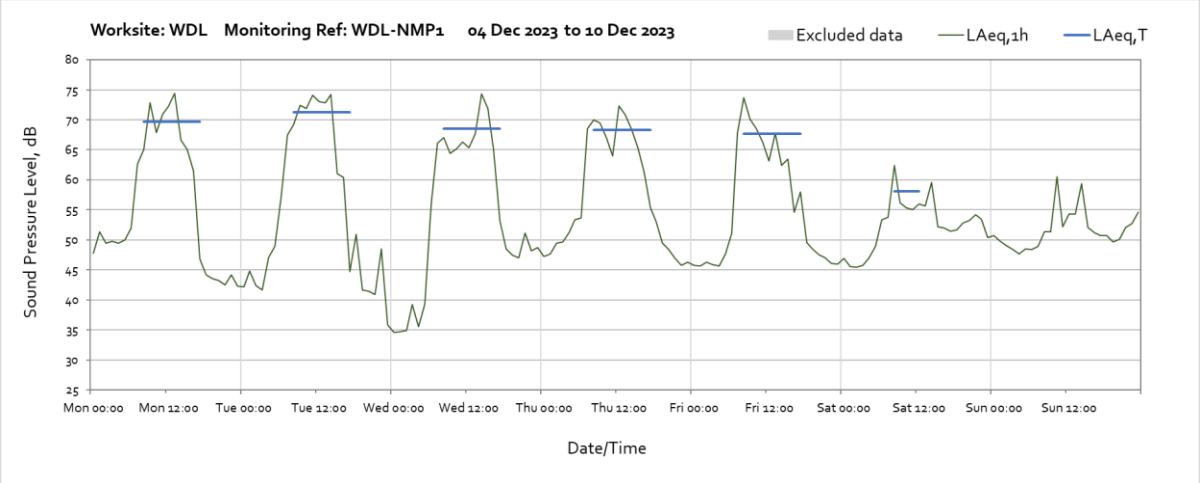
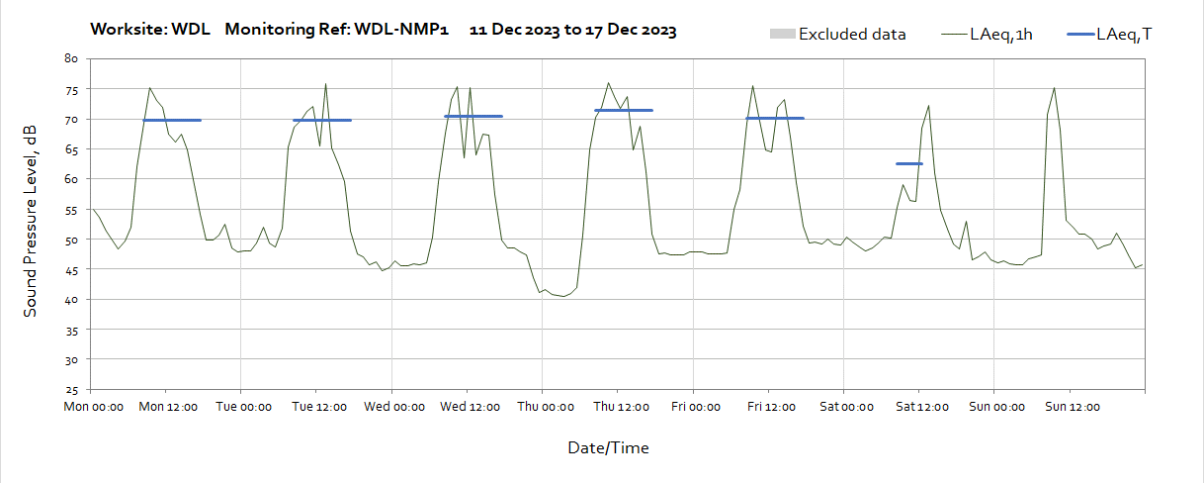
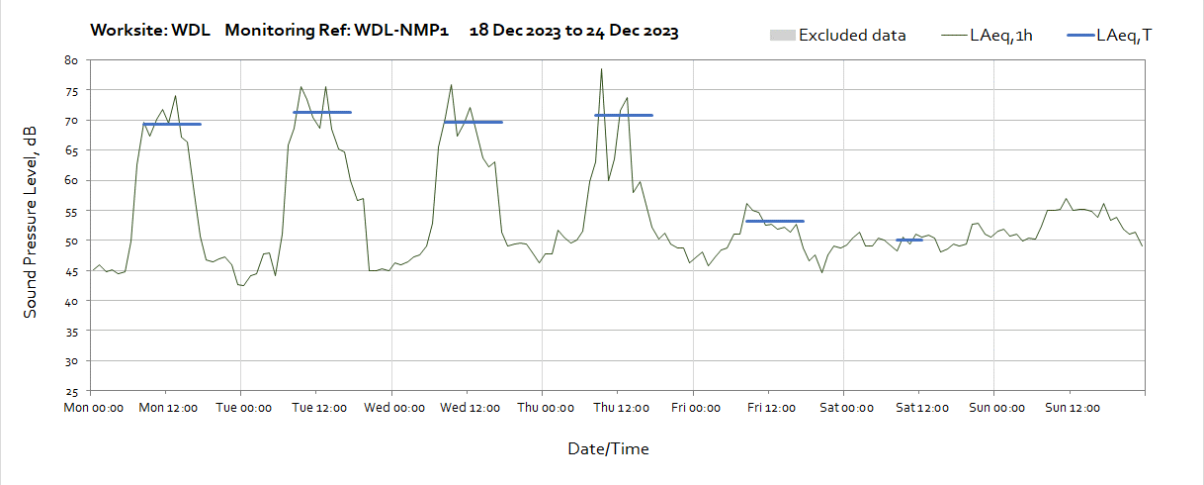
Date/Time

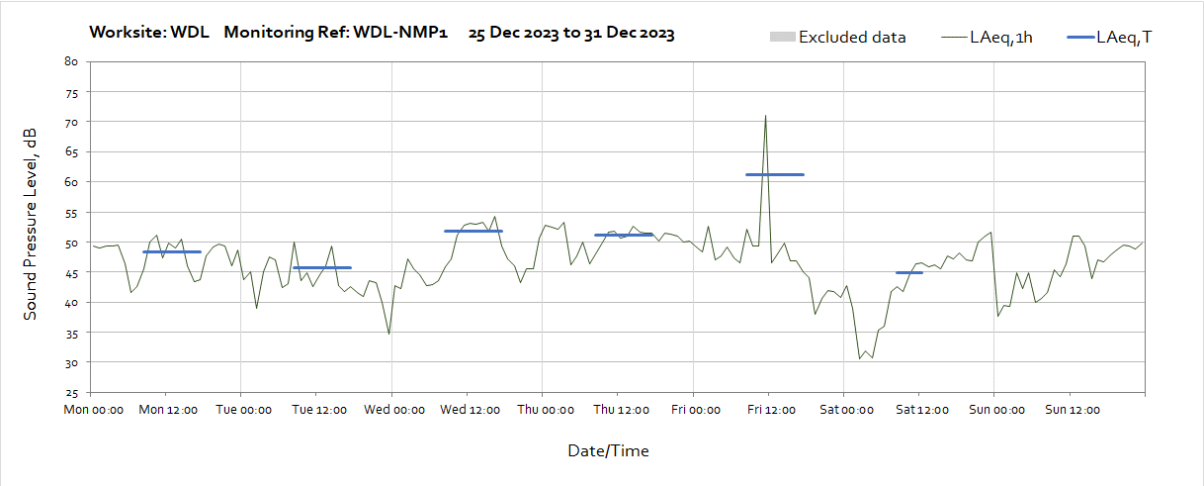
Worksite: WDL – Monitoring Ref: WDL-NMP1



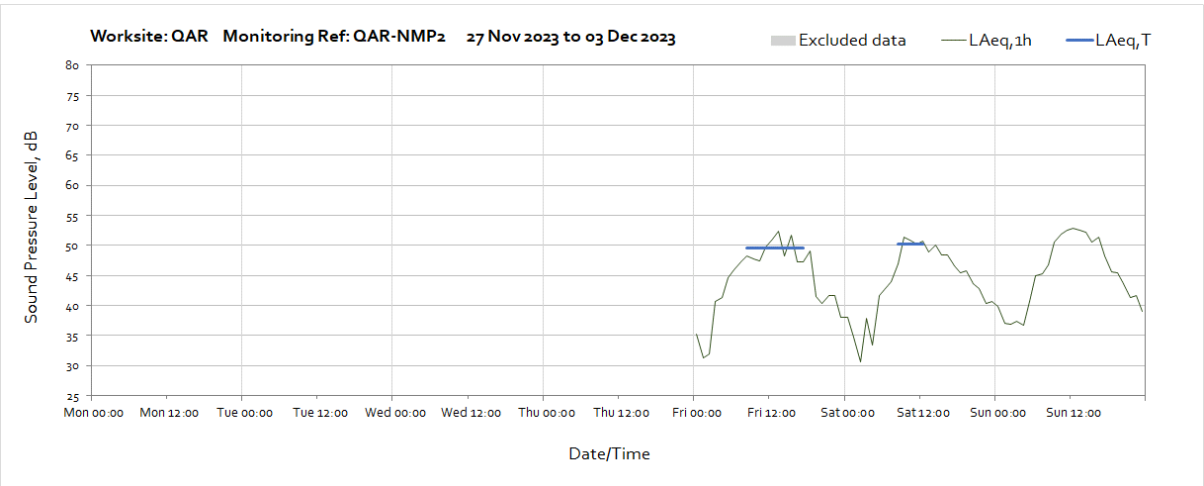


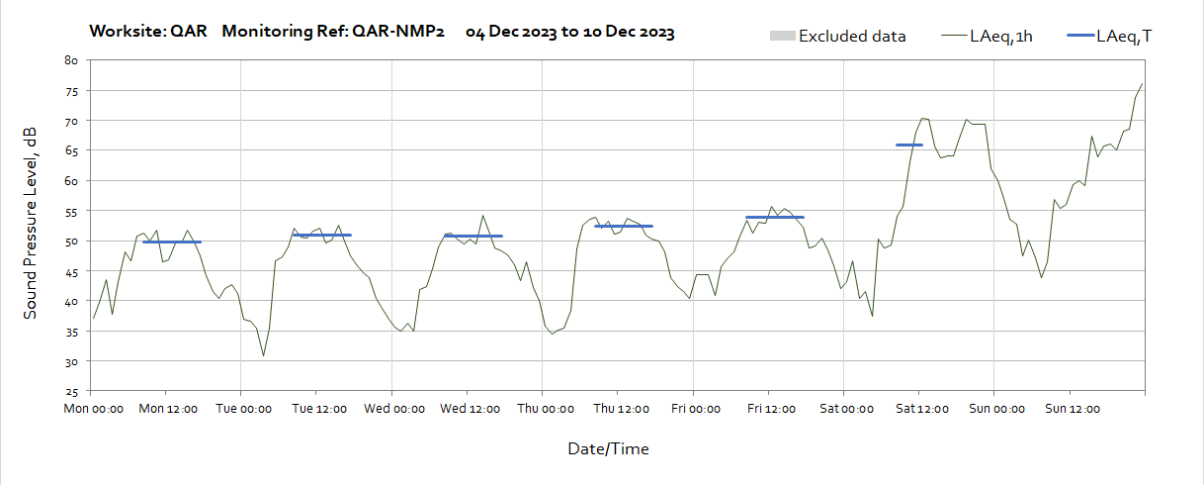






Worksite: QAR – Monitoring Ref: QAR-NMP2




Worksite: QAR Monitoring Ref: QAR-NMP2 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
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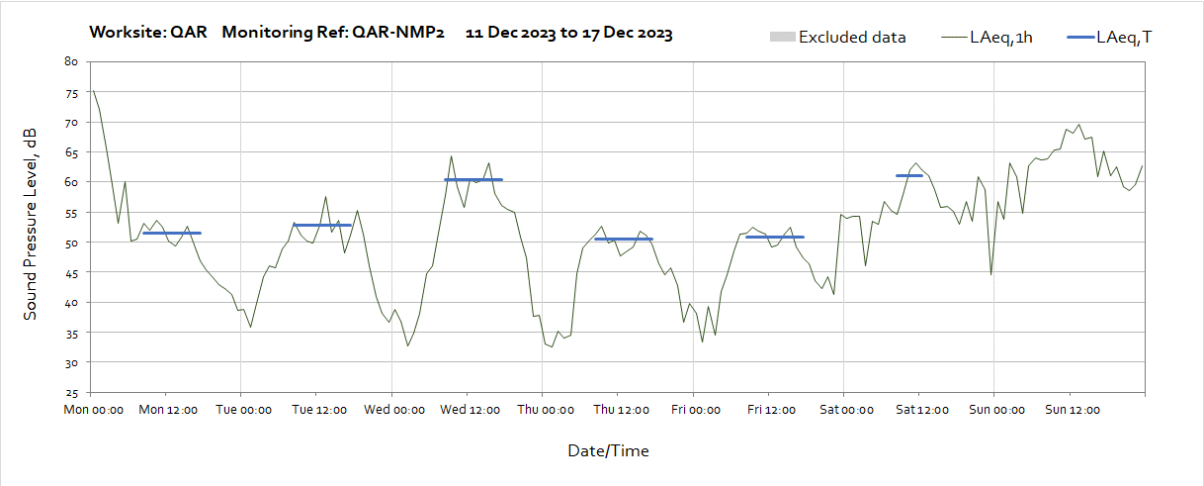
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
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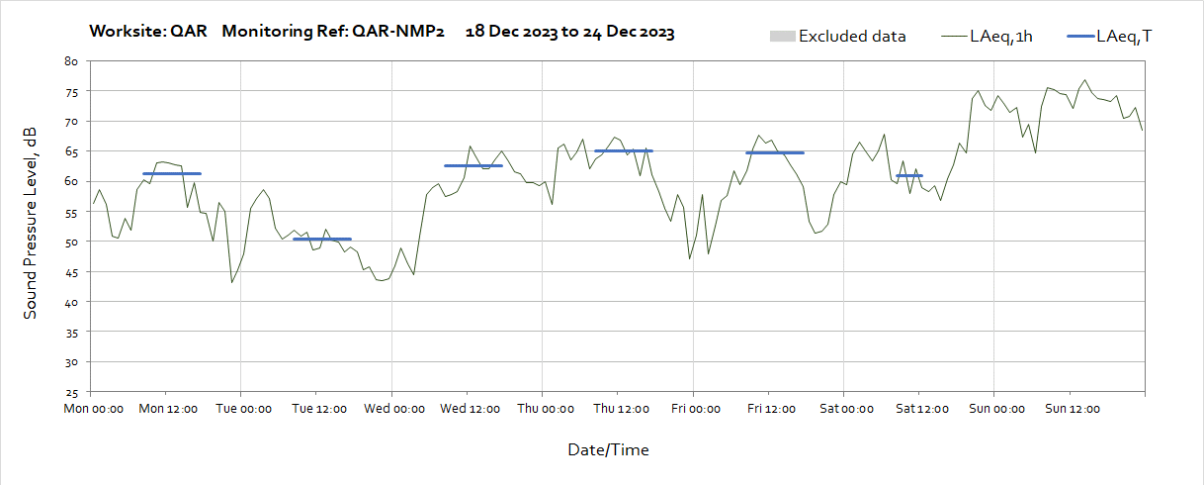
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
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55
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Mon 00:00
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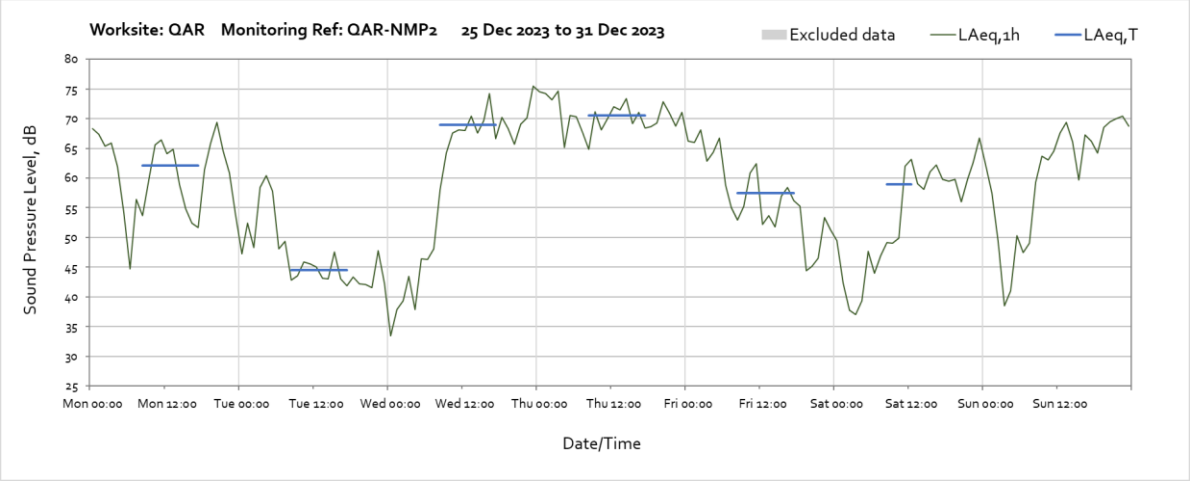
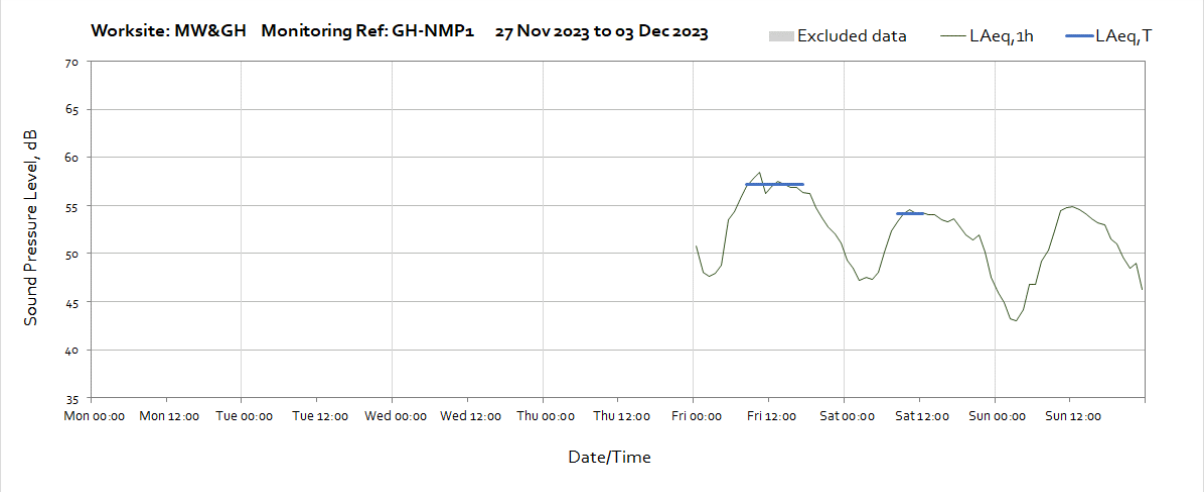
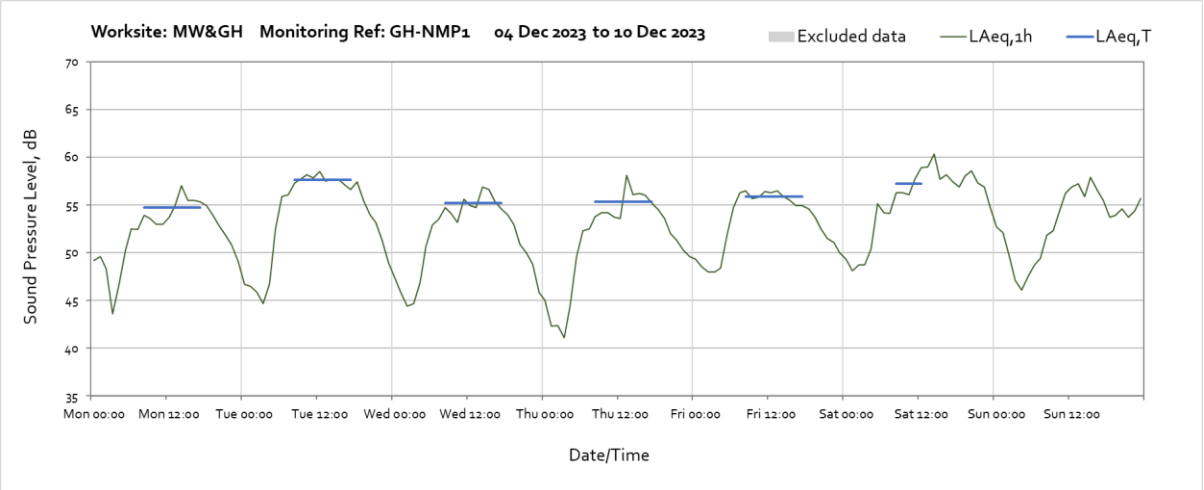
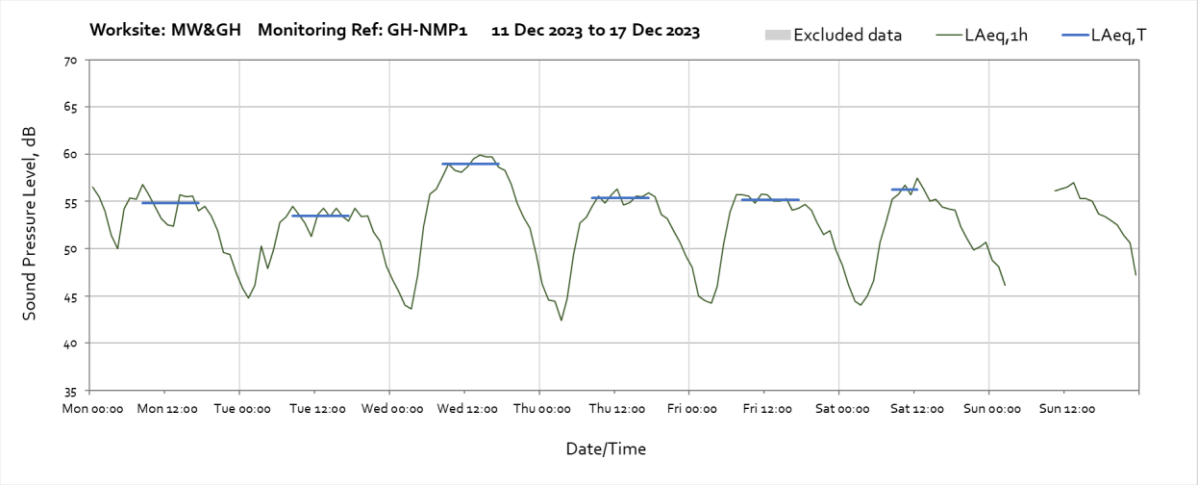
Date/Time



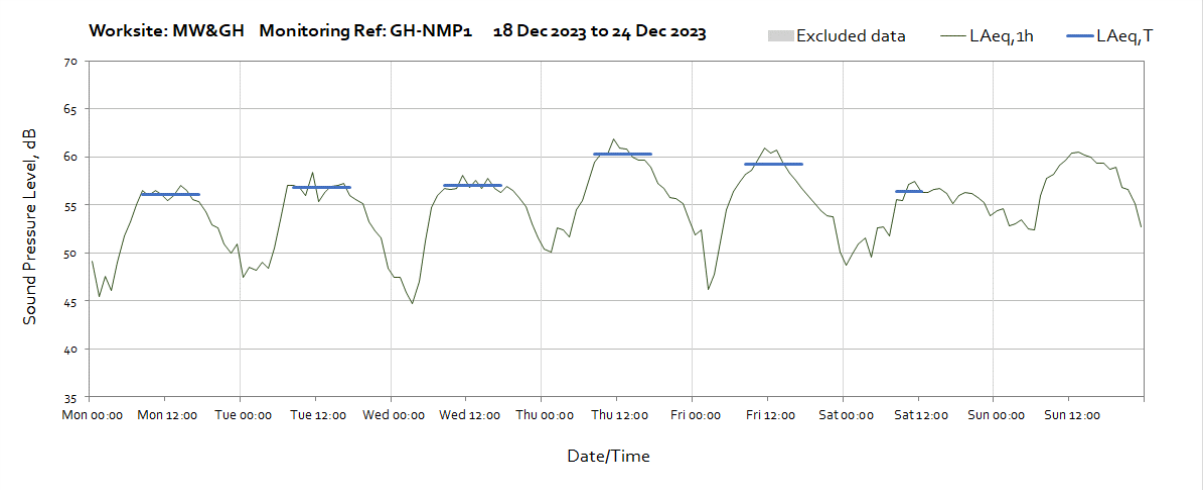
Worksite: MW&GH – Monitoring Ref: GH-NMP1

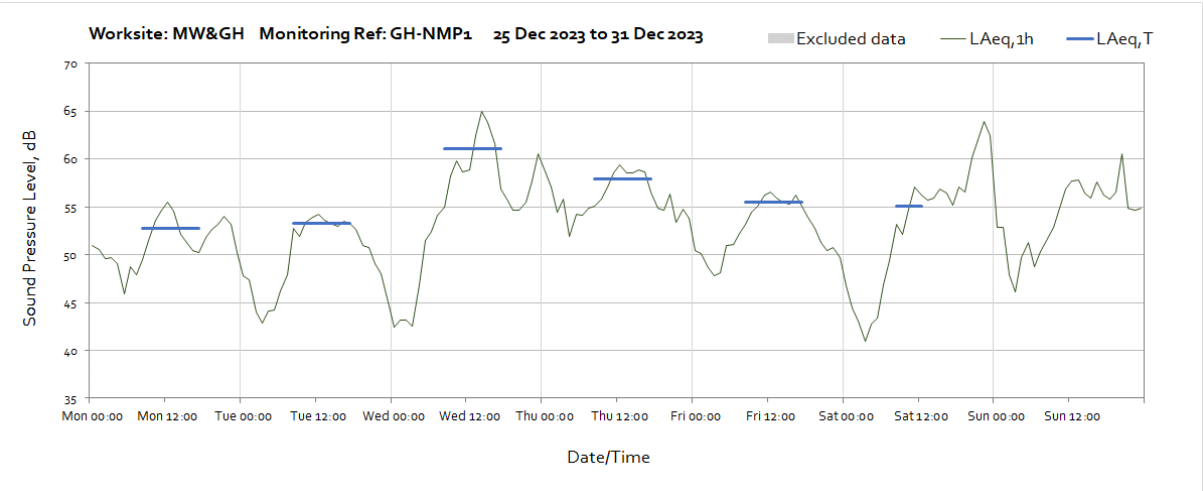




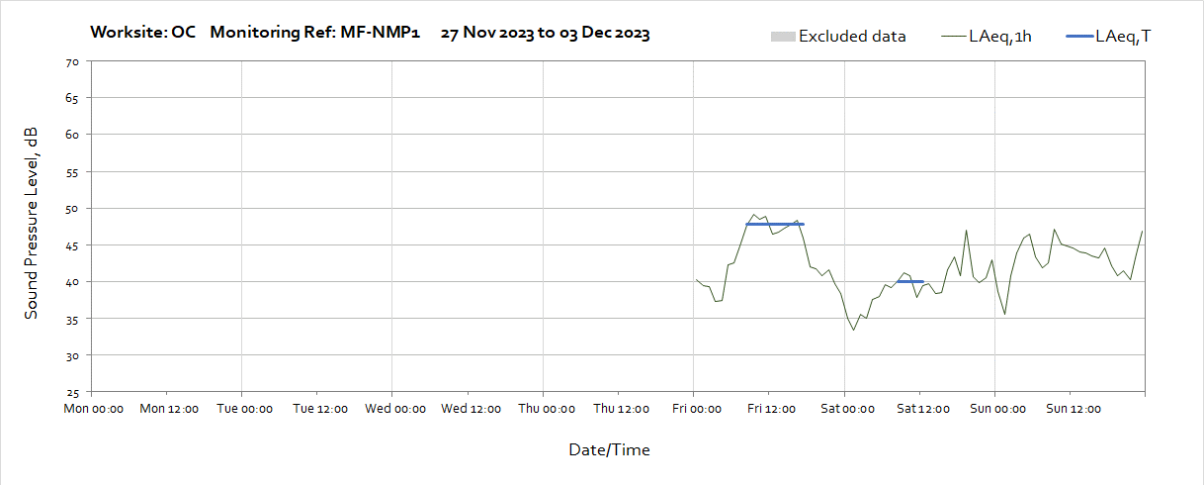


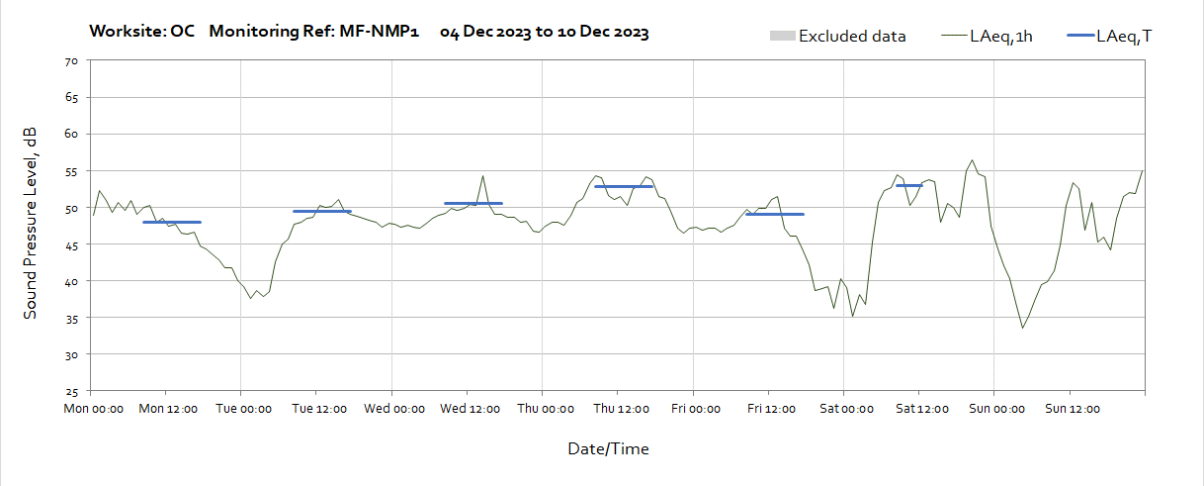
Note: Missing data between 03:00 and 10:00 on Sunday 17th December was due to a deleted battery.

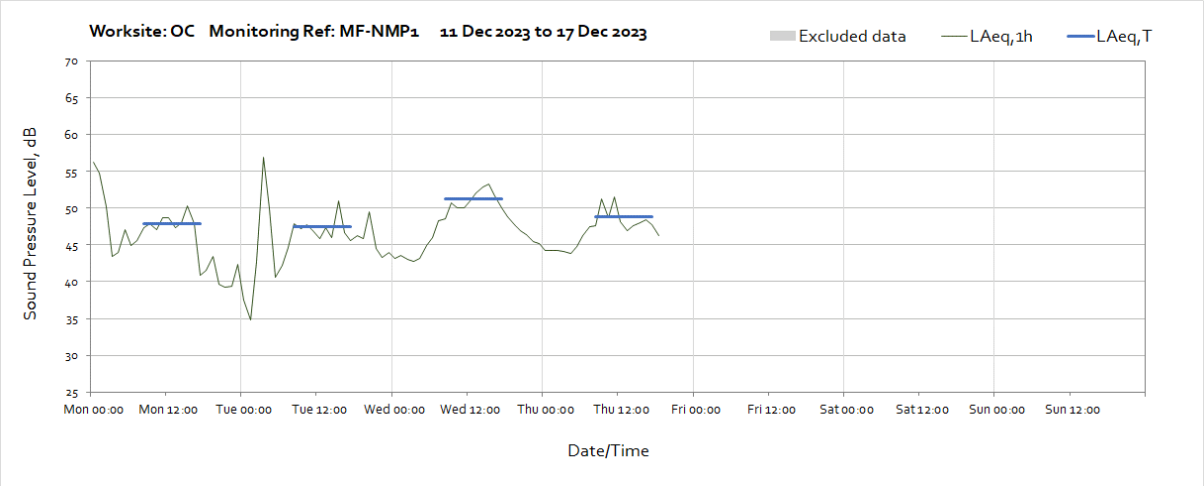




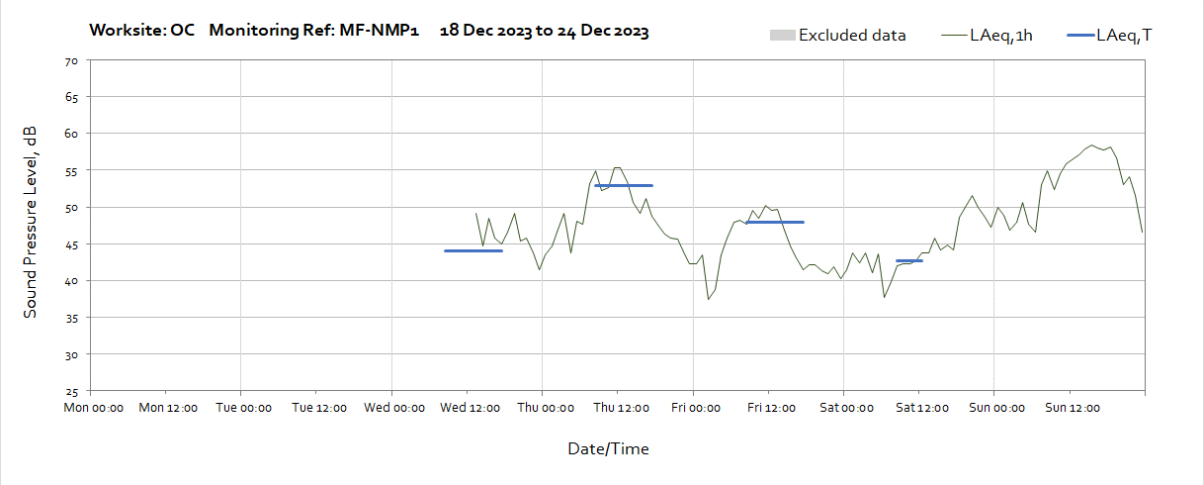
Worksite: OC – Monitoring Ref: MF-NMP1



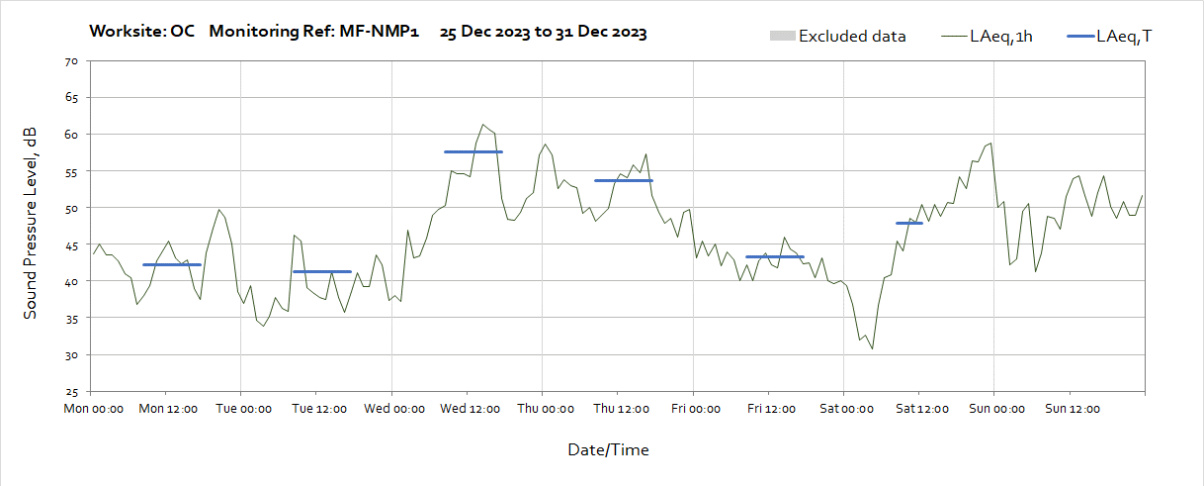




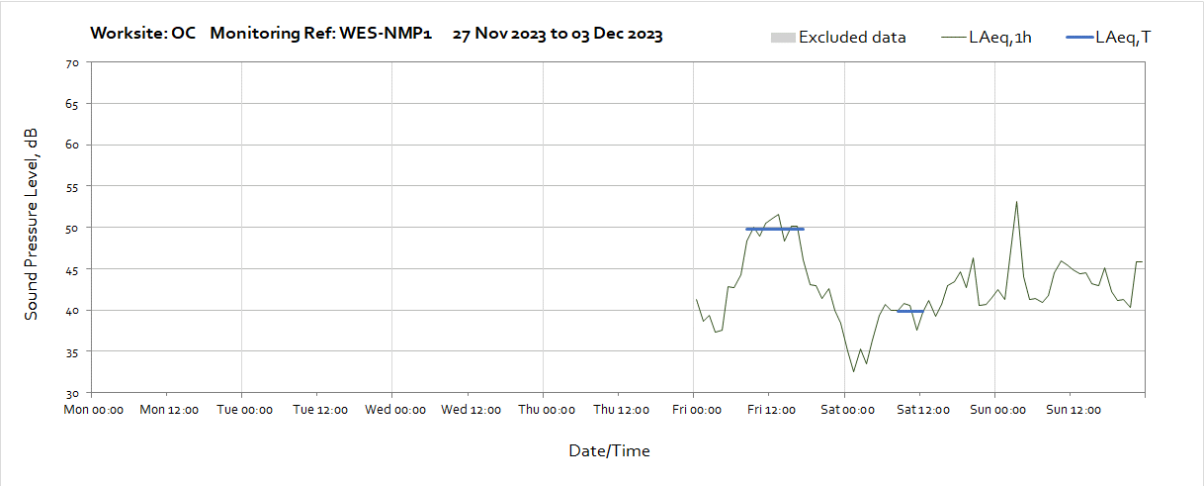
Note: Missing data between 19:00 on Thursday 14th December until 13:00 on Wednesday 20th December was due to depleted battery.

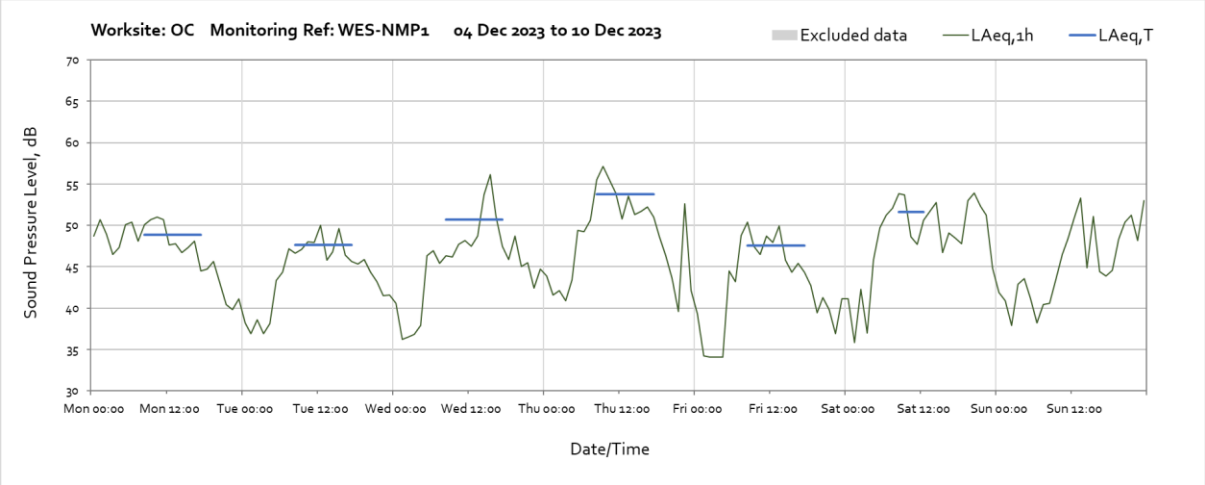


Note: Missing data between 19:00 on Thursday 14th December until 13:00 on Wednesday 20th December was due to a depleted battery.



Worksite: OC – Monitoring Ref: WES-NMP1




Worksite: OC Monitoring Ref: WES-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
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Mon 00:00
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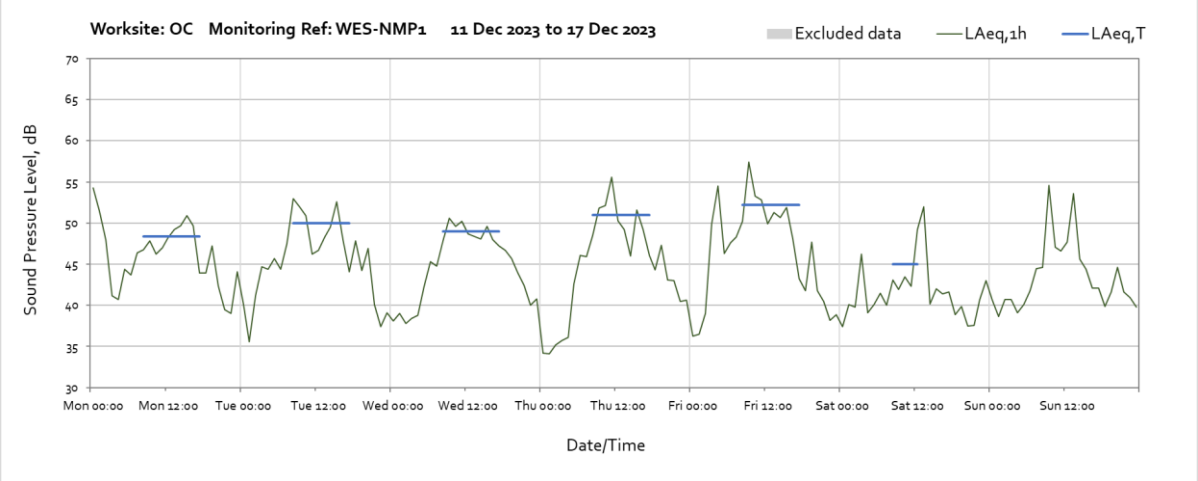
Date/Time


Worksite: OC Monitoring Ref: WES-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
Mon 12:00
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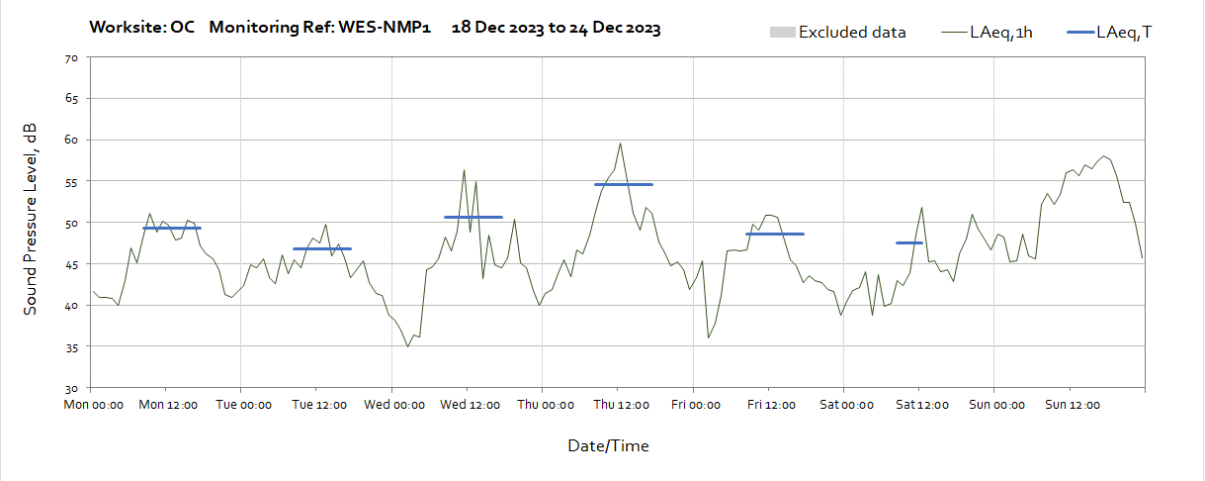
Date/Time


Worksite: OC Monitoring Ref: WES-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
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Mon 00:00
Mon 12:00
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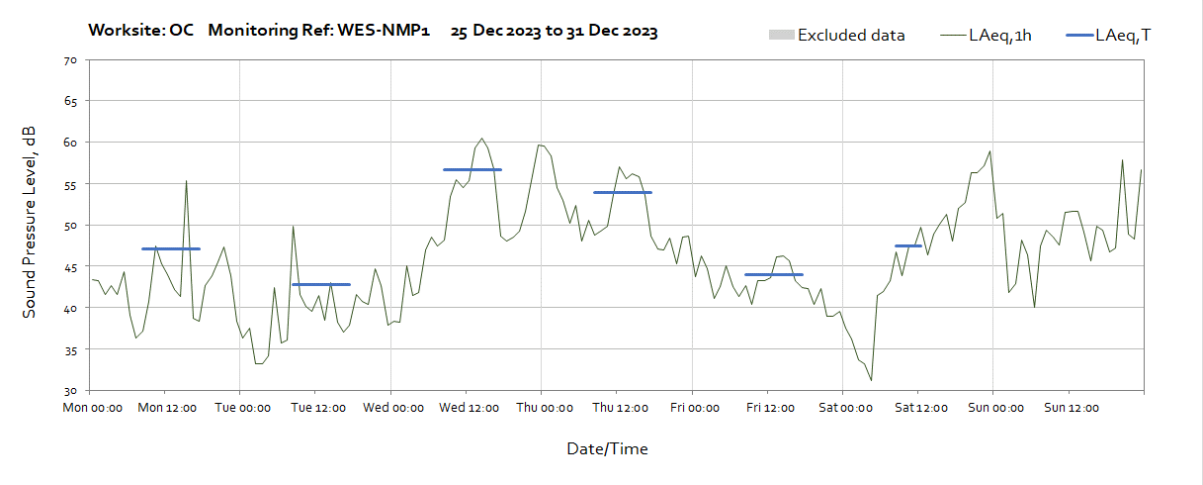
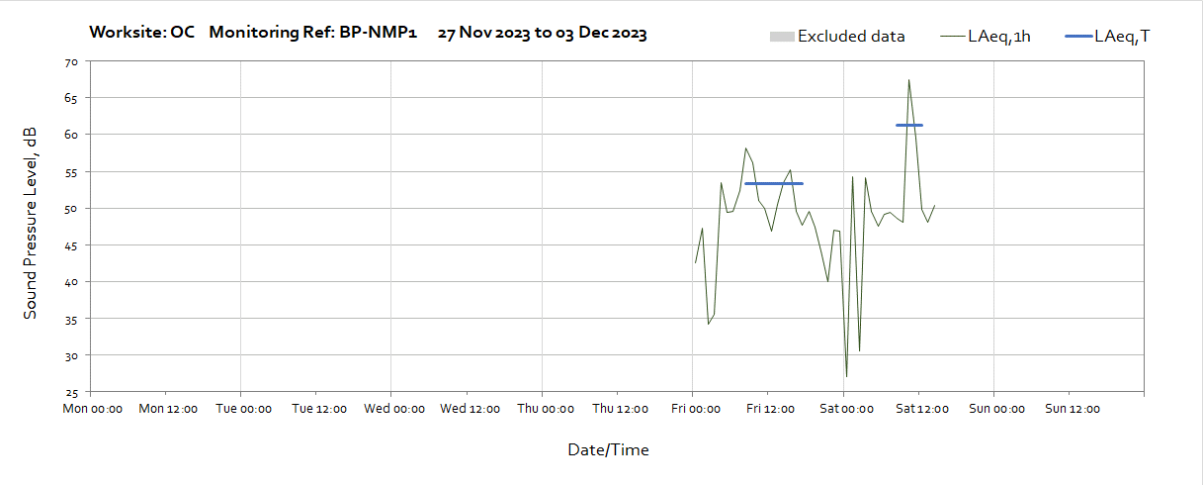
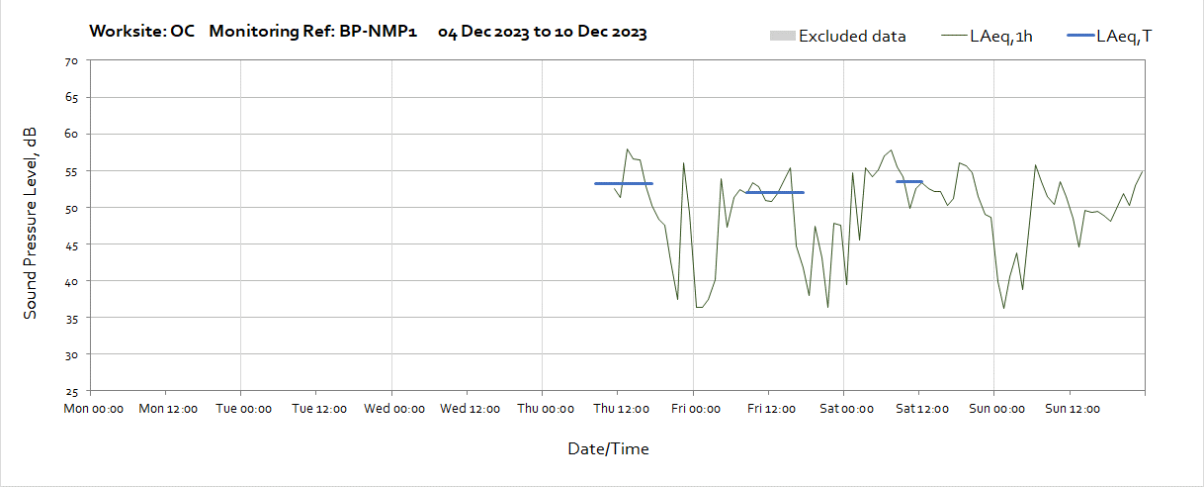
Date/Time



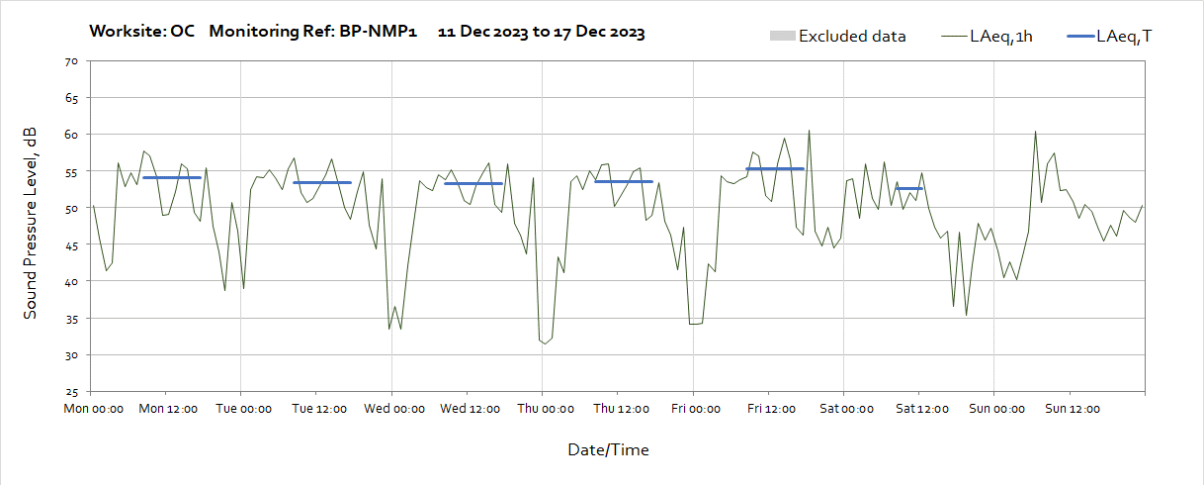
Worksite: OC – Monitoring Ref: BP-NMP1

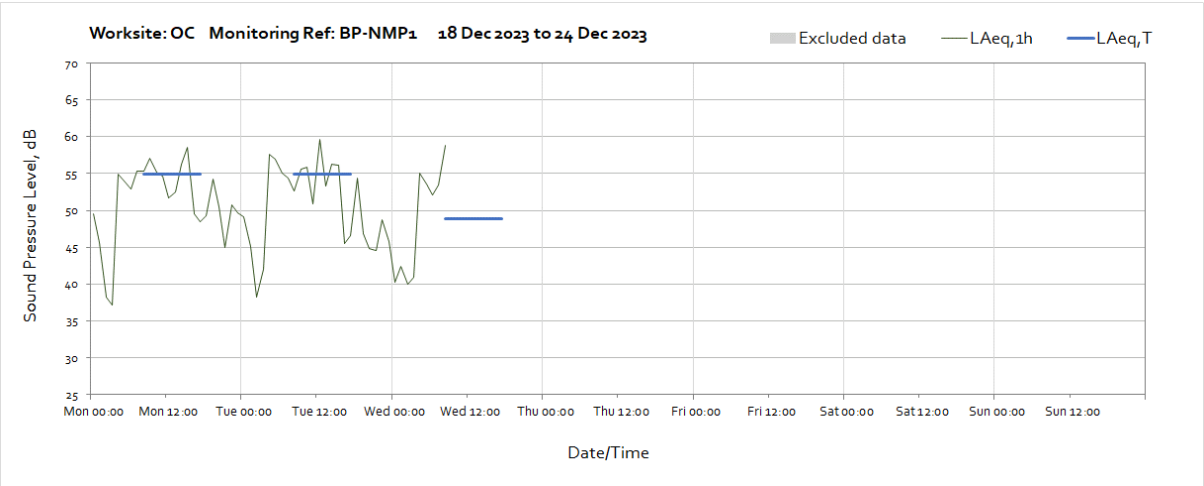


Note: Missing data between 15:00 on Saturday 2nd December until 11:00 on Thursday 7th December was due to a depleted battery.



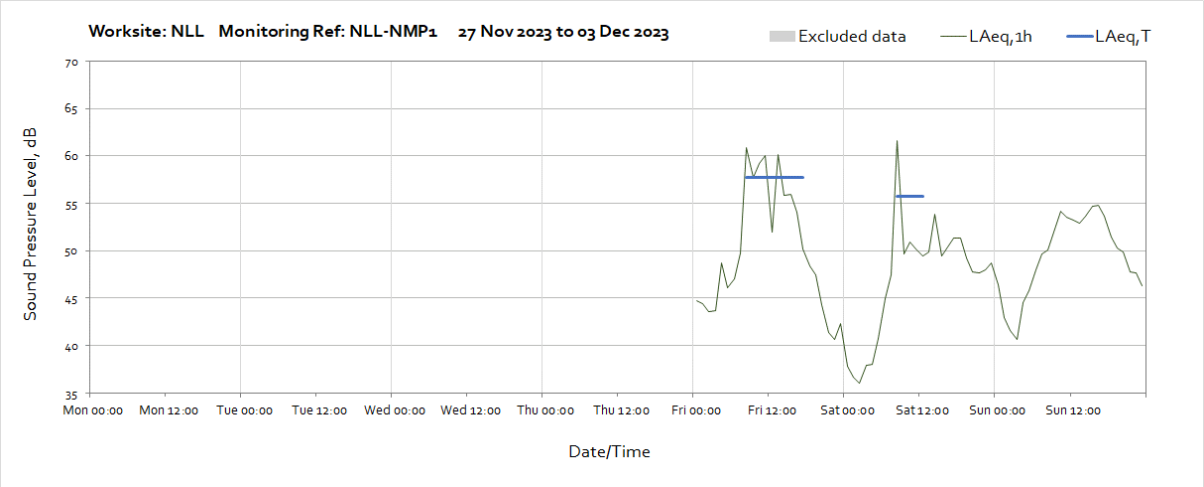
Note: Missing data between 15:00 on Saturday 2nd December until 11:00 on Thursday 7th December was due to a depleted battery.

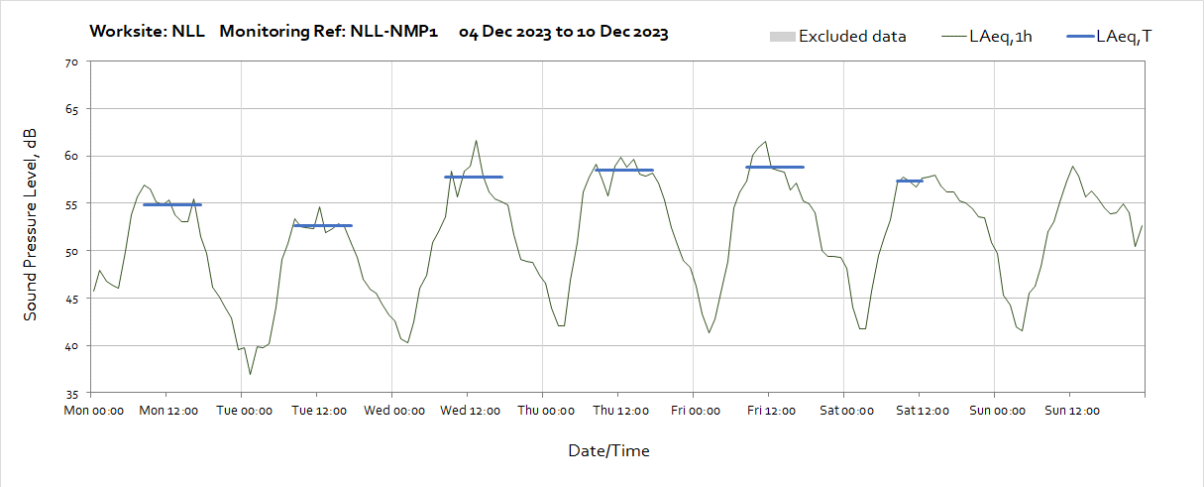


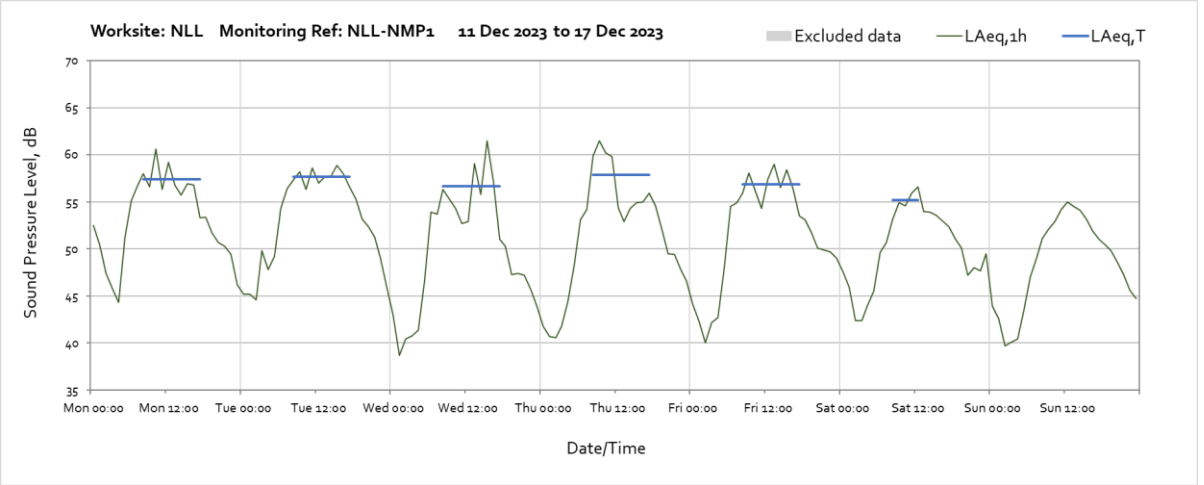


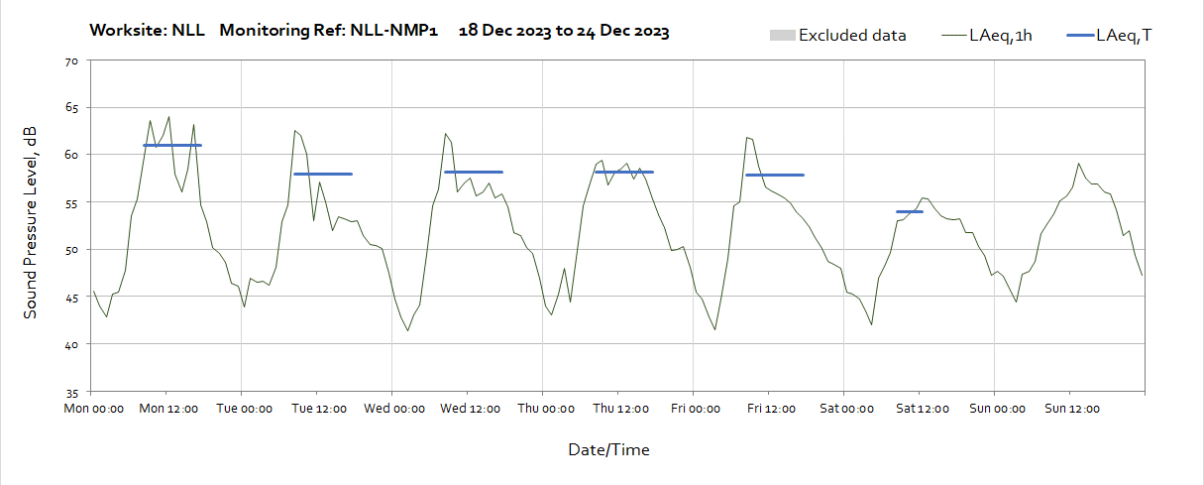
Note: The monitor was retrieved at 09:00 on Wednesday 20th December.

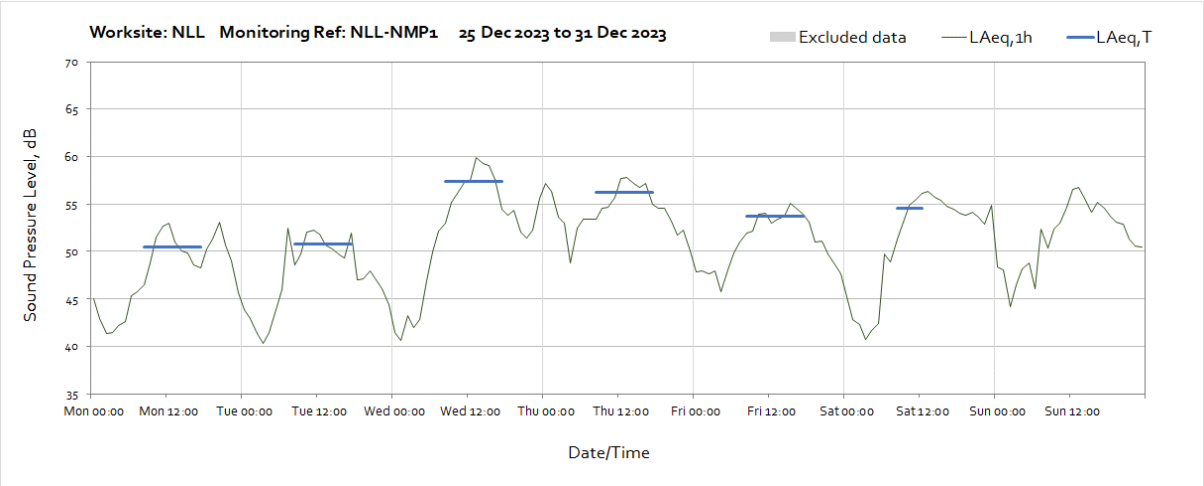
Worksite: NLL – Monitoring Ref: NLL-NMP1



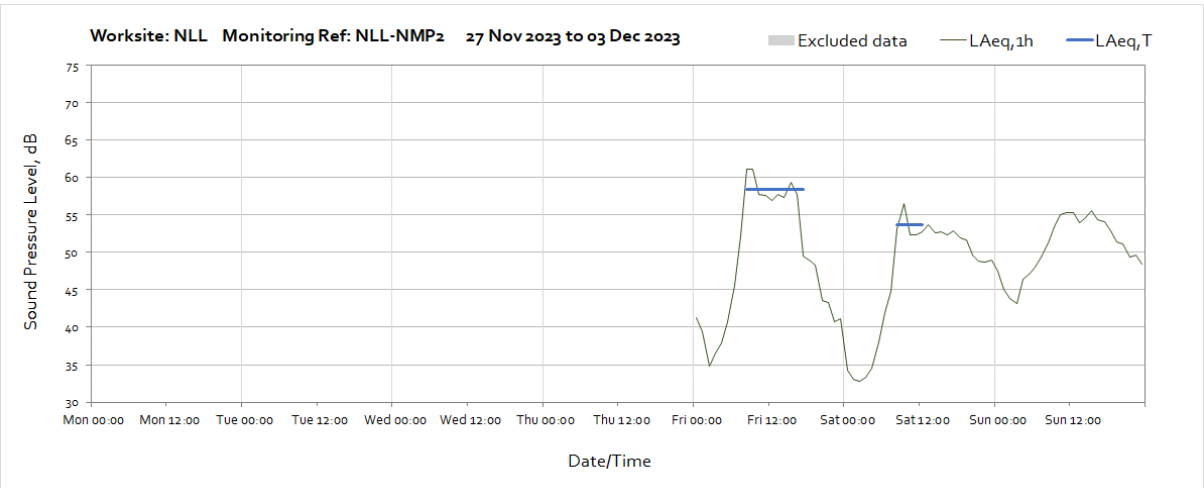


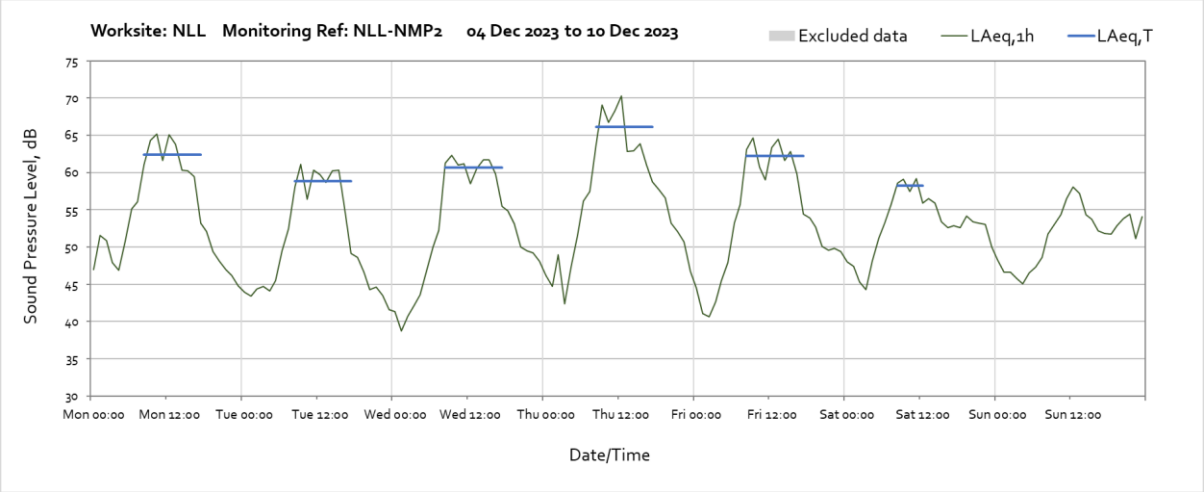






Worksite: NLL – Monitoring Ref: NLL-NMP2




Worksite: NLL Monitoring Ref: NLL-NMP2 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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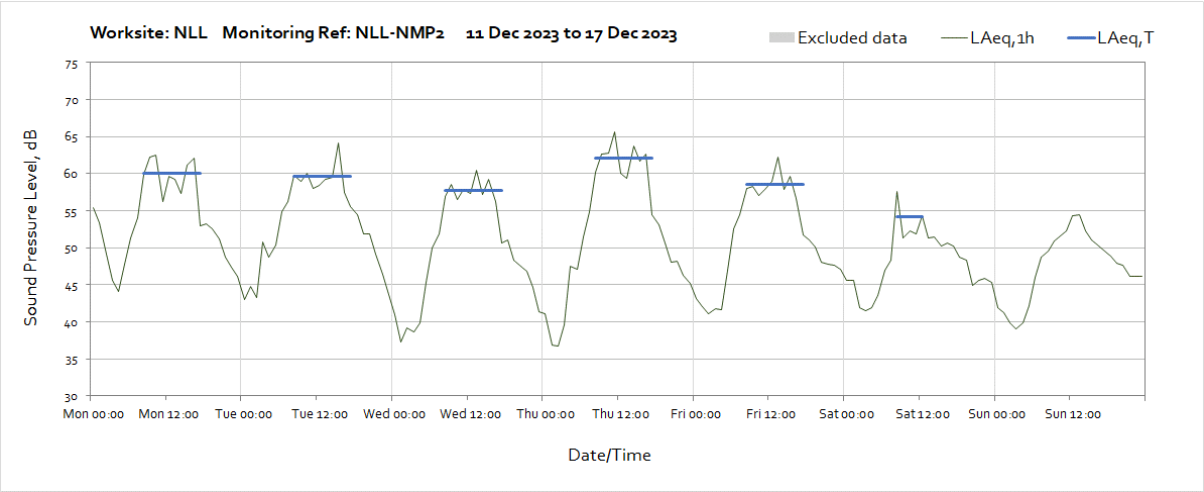
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP2 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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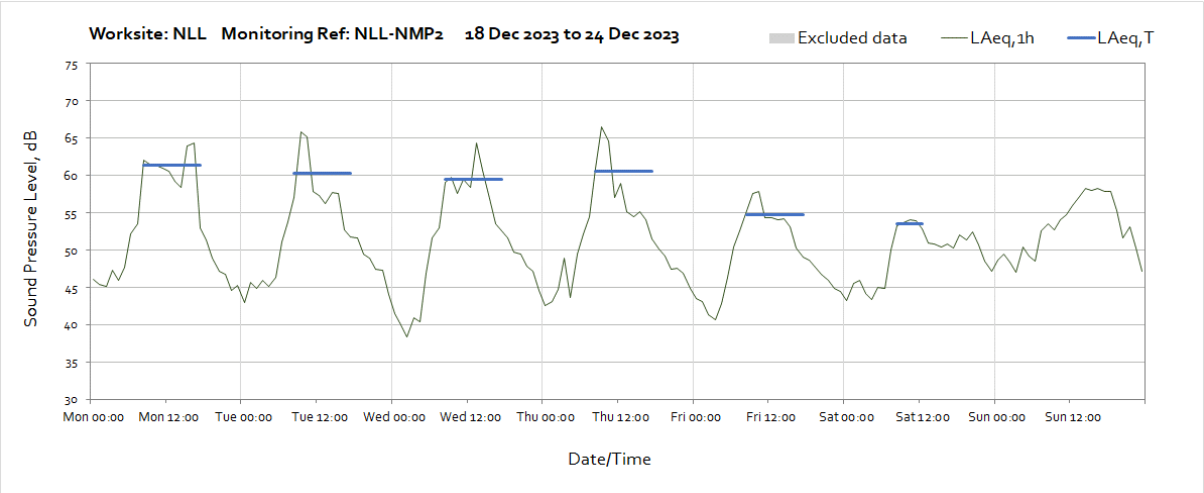
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP2 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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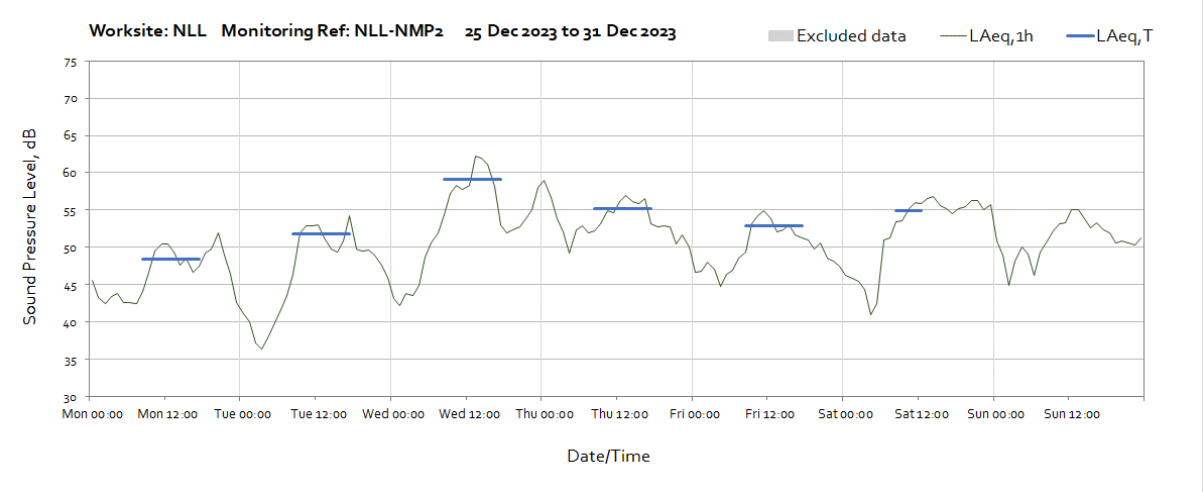
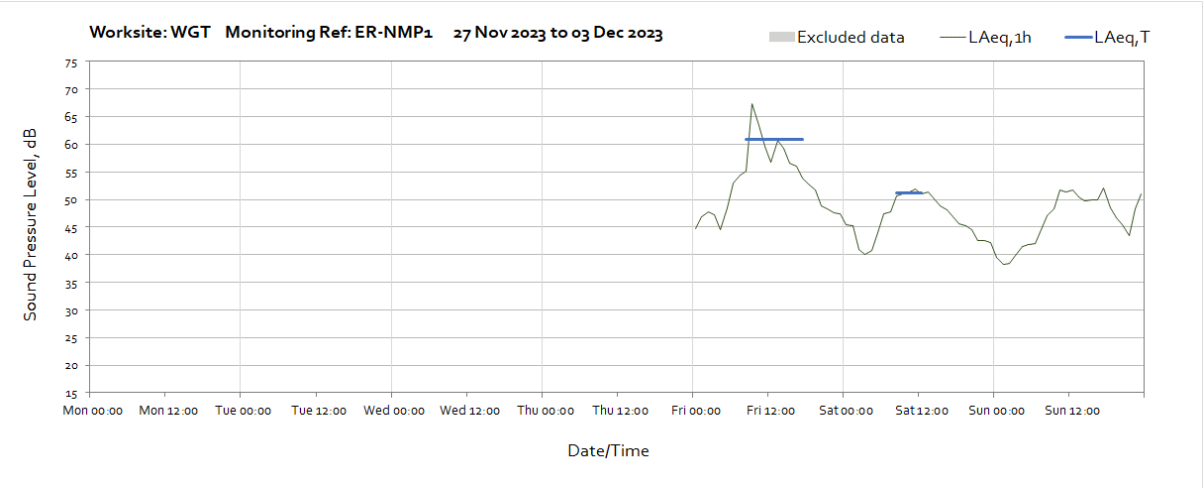
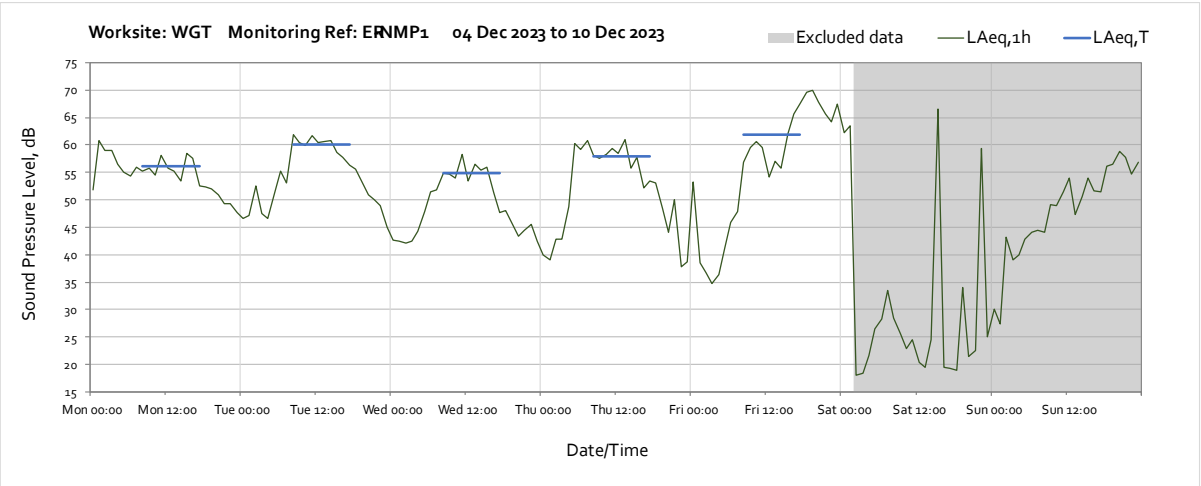
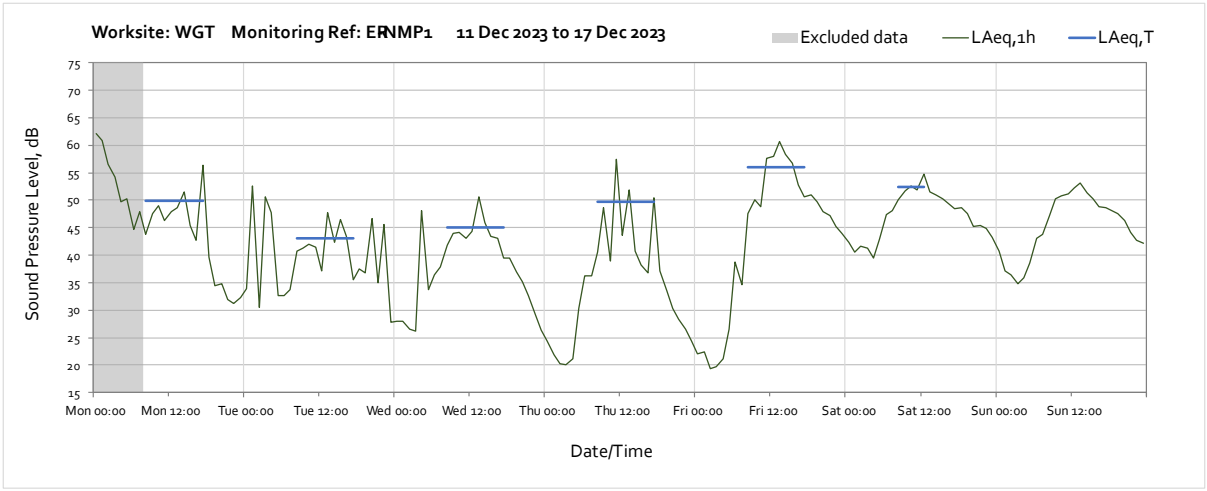


Worksite: WGT – Monitoring Ref: ER-NMP1






Worksite: WGT Monitoring Ref: ERNMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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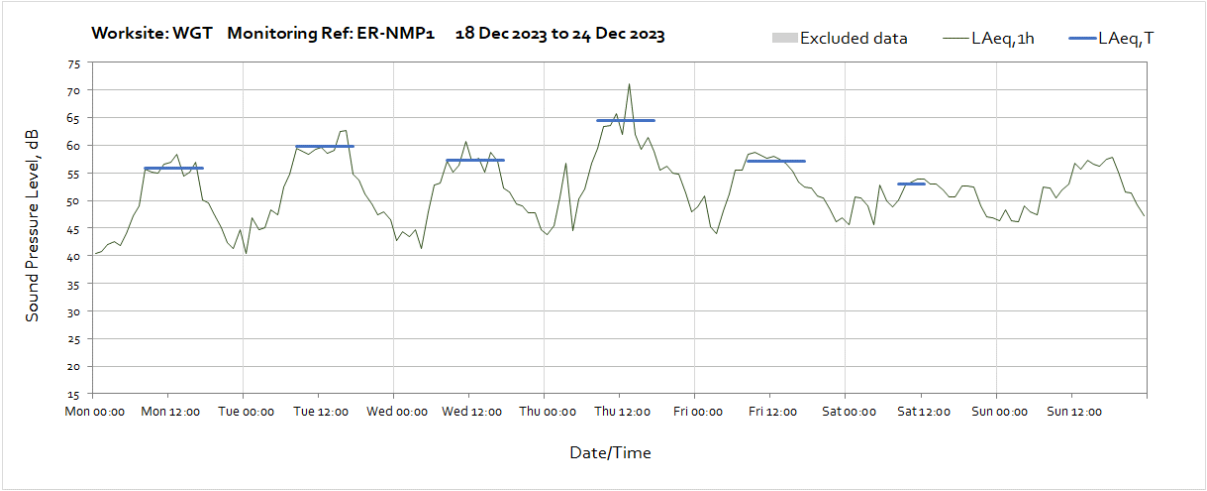
Date/Time


Worksite: WGT Monitoring Ref: ER-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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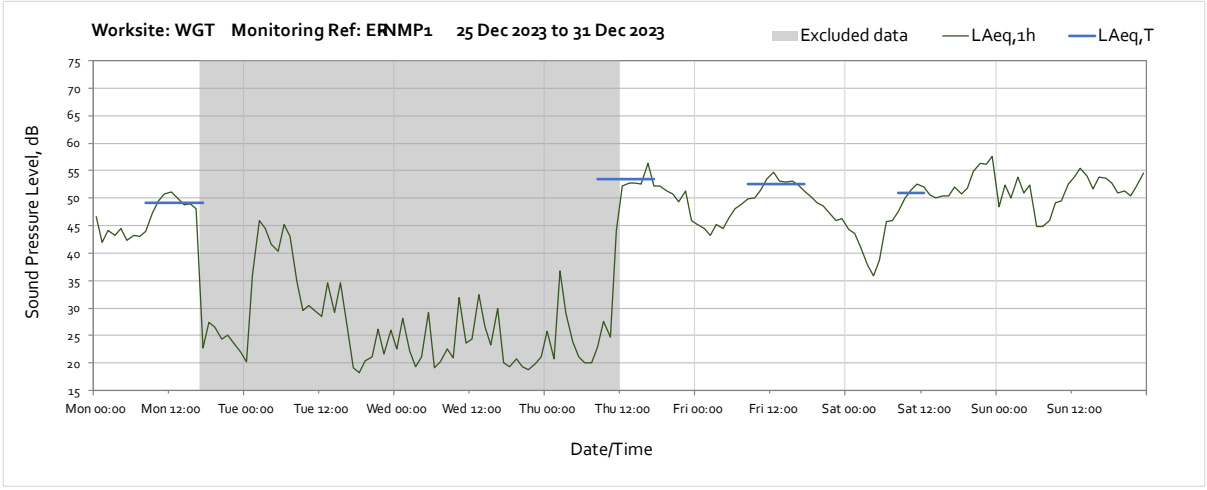
Worksite: WGT Monitoring Ref: ERNMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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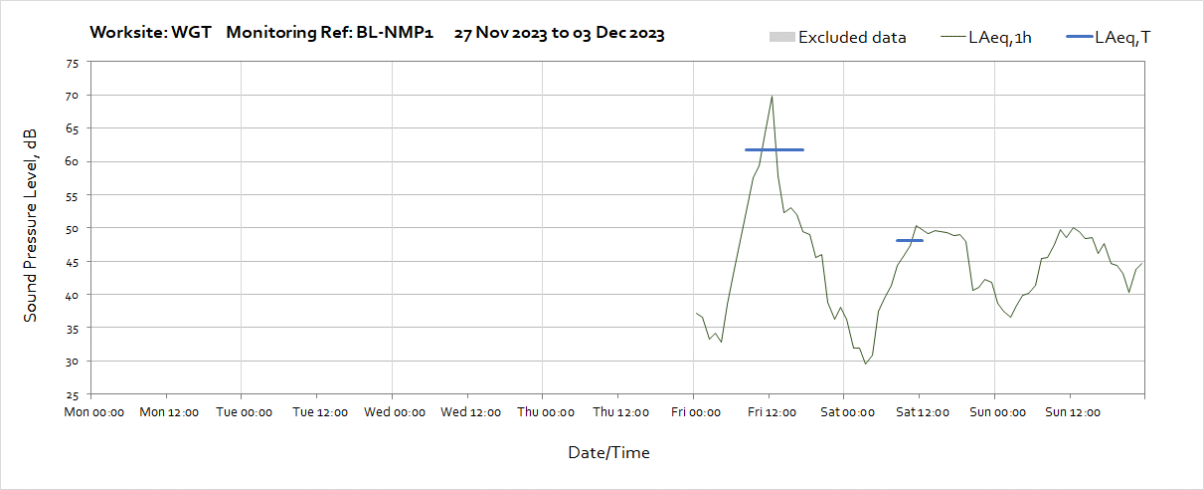
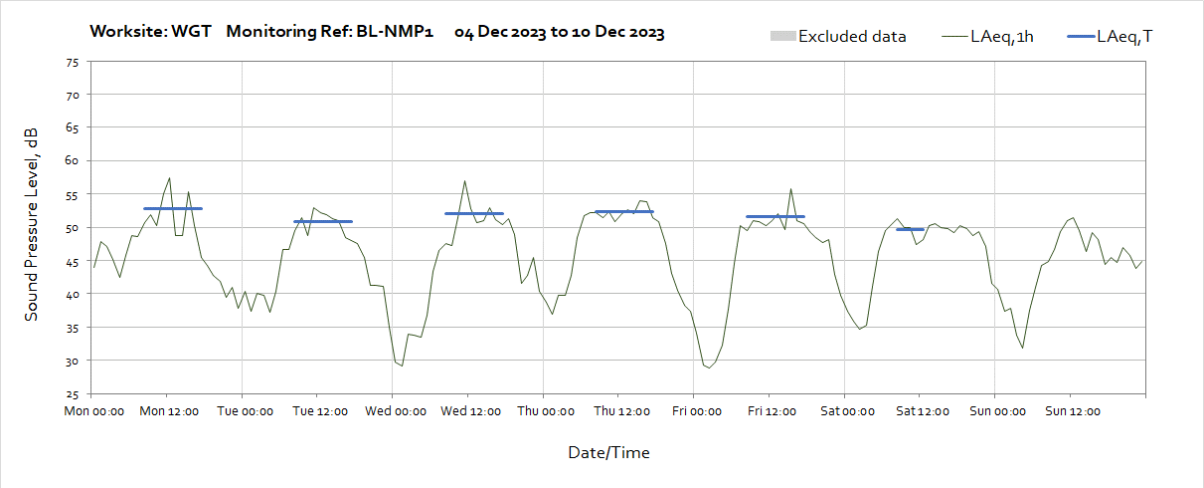
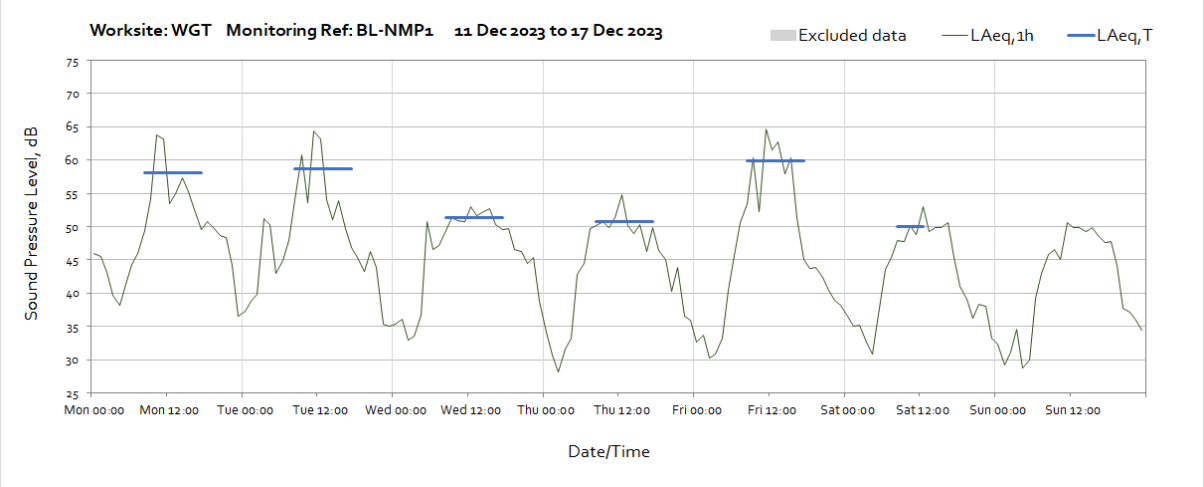
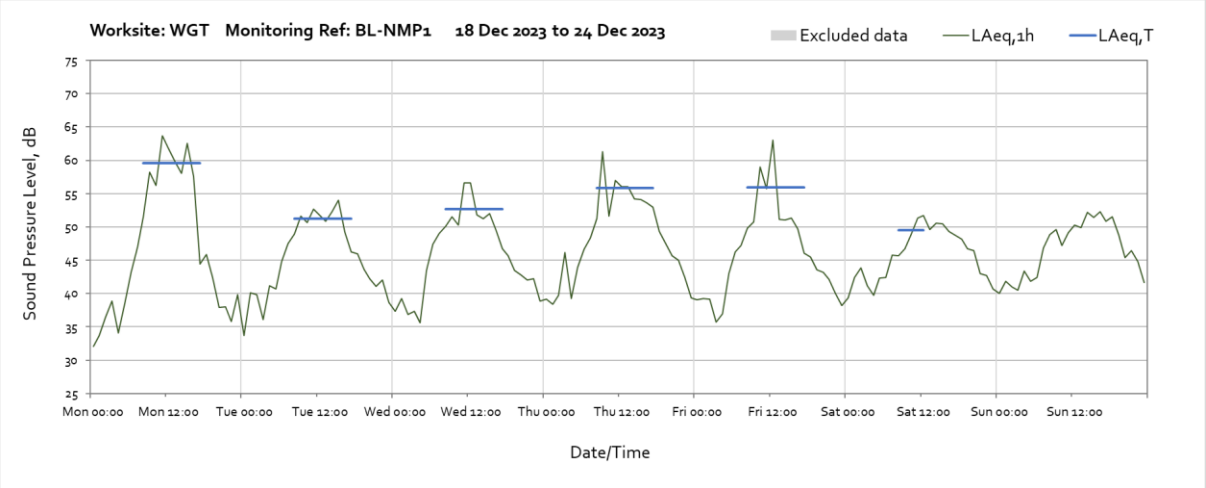
Date/Time

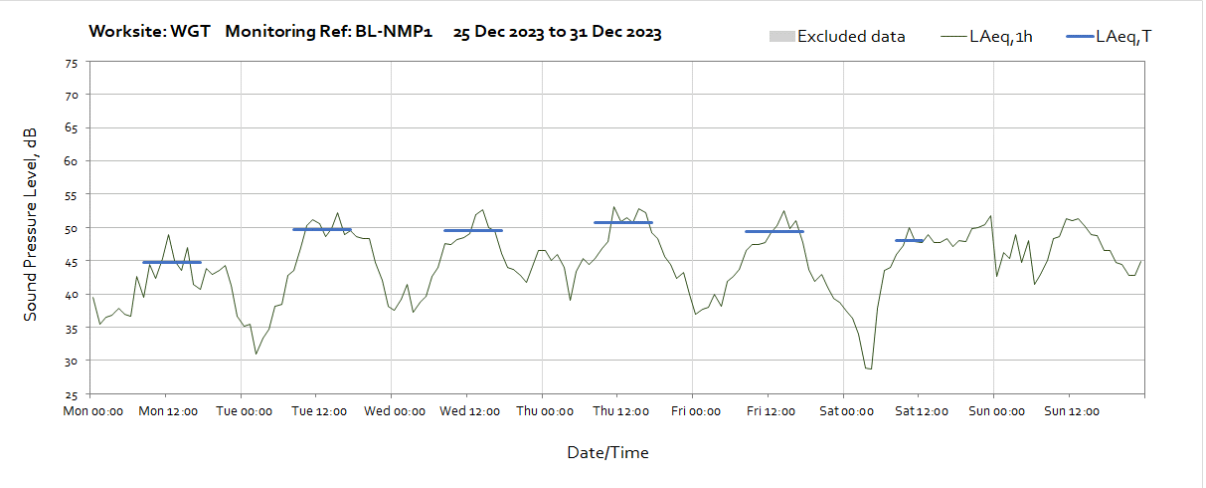
Worksite: WGT – Monitoring Ref: BL-NMP1



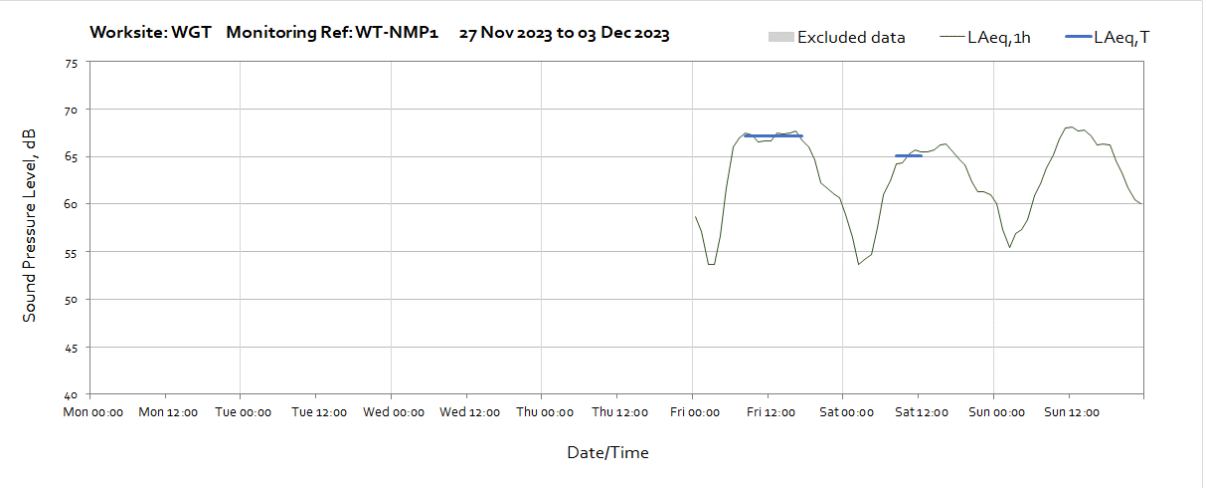


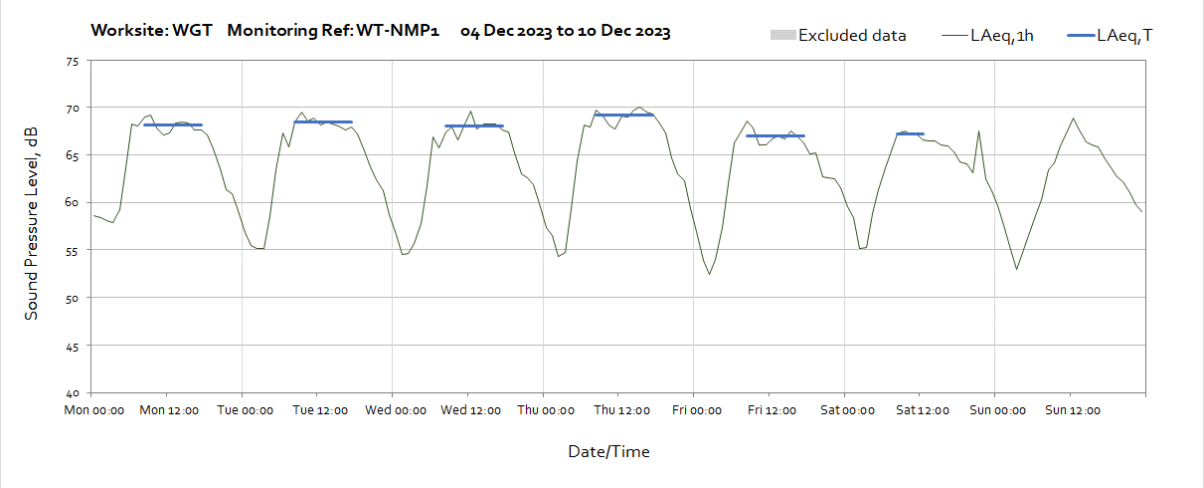






Worksite: WGT – Monitoring Ref: WT-NMP1




Worksite: WGT Monitoring Ref: WT-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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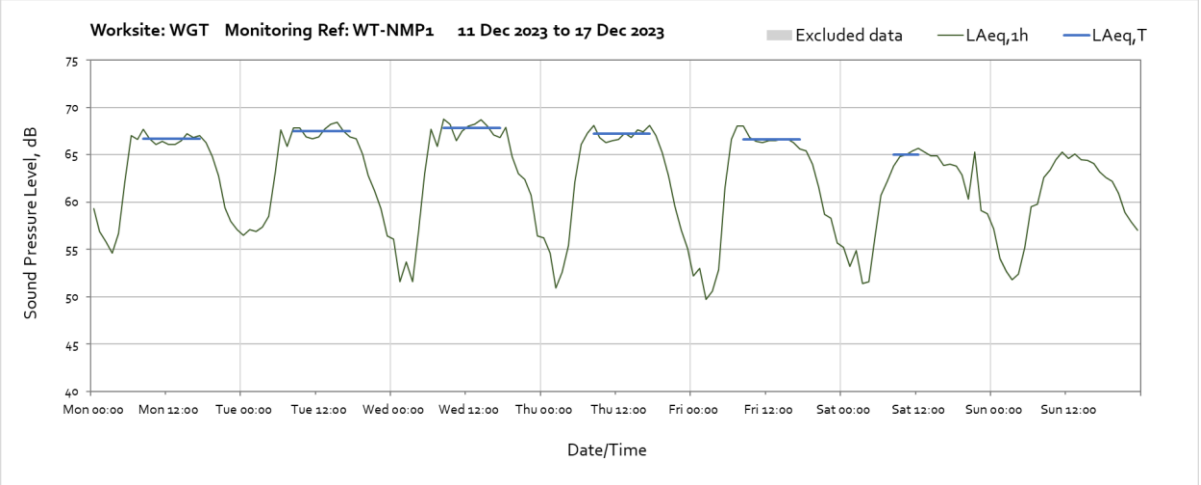
Worksite: WGT Monitoring Ref: WT-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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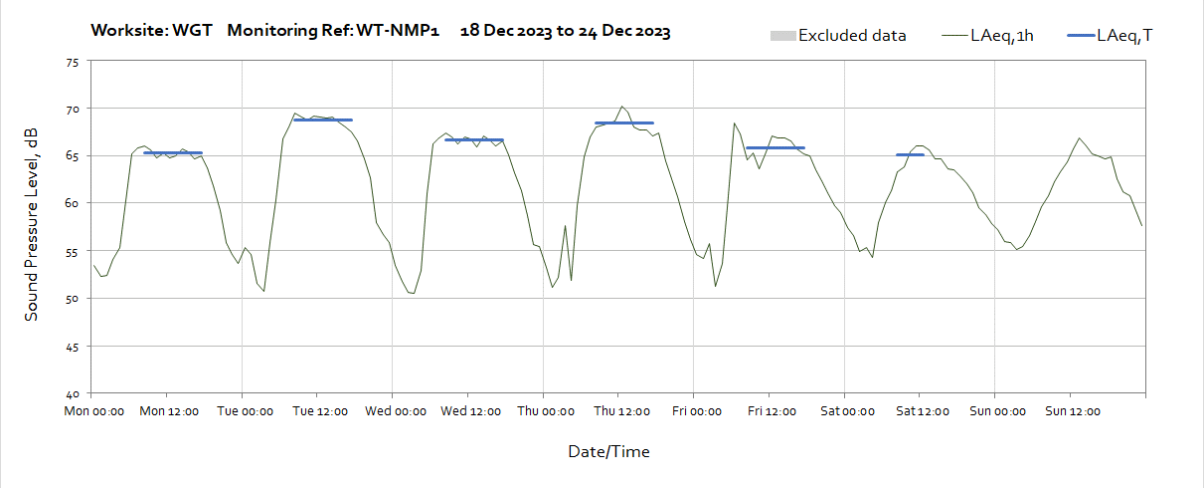
Worksite: WGT Monitoring Ref: WT-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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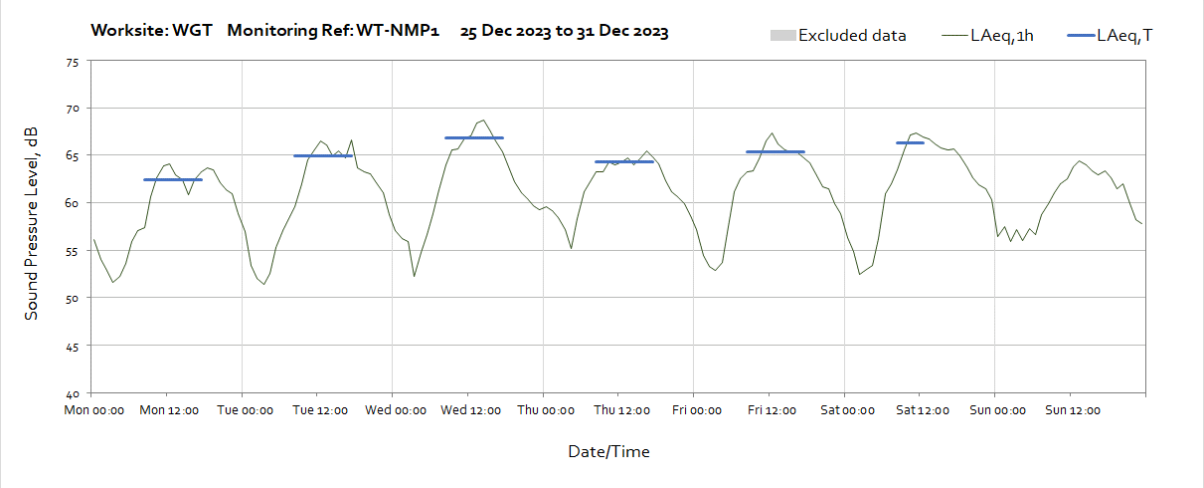
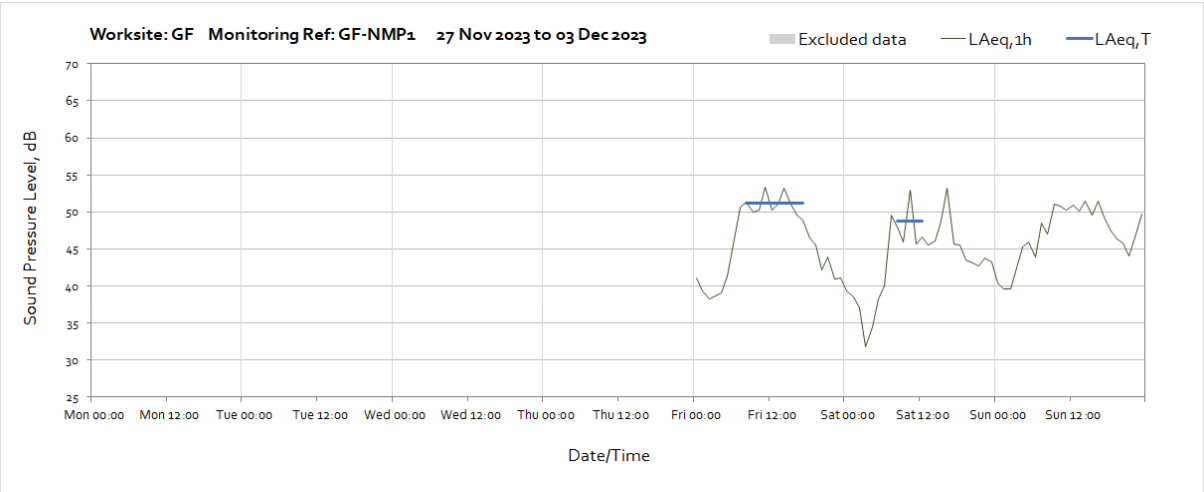
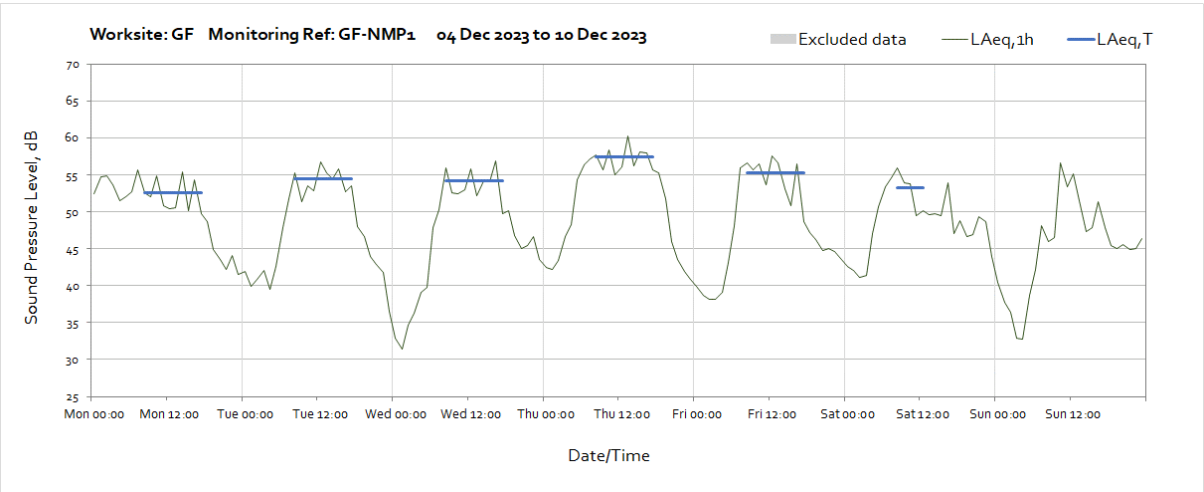
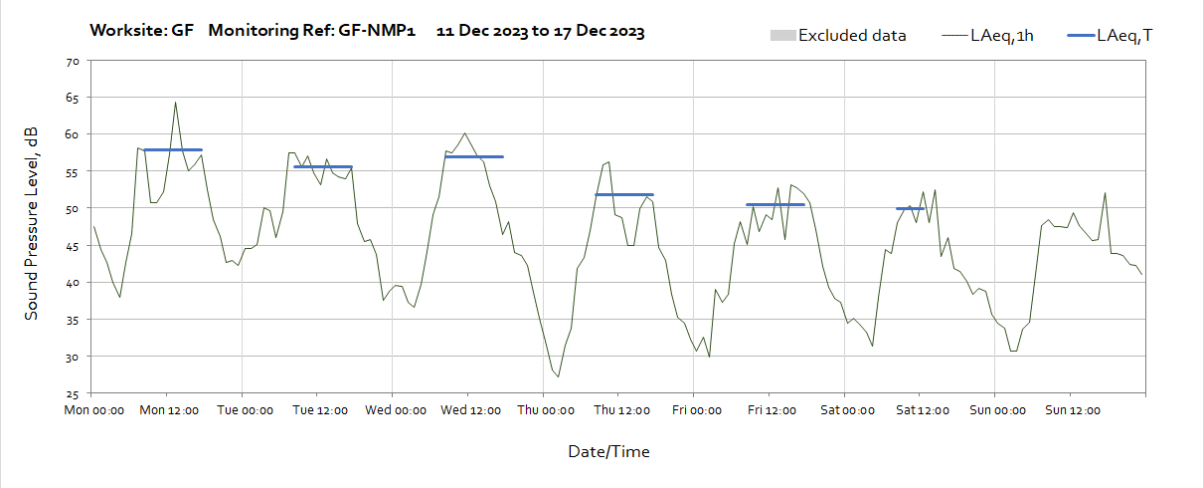


Worksite: GF – Monitoring Ref: GF-NMP1






Worksite: GF Monitoring Ref: GF-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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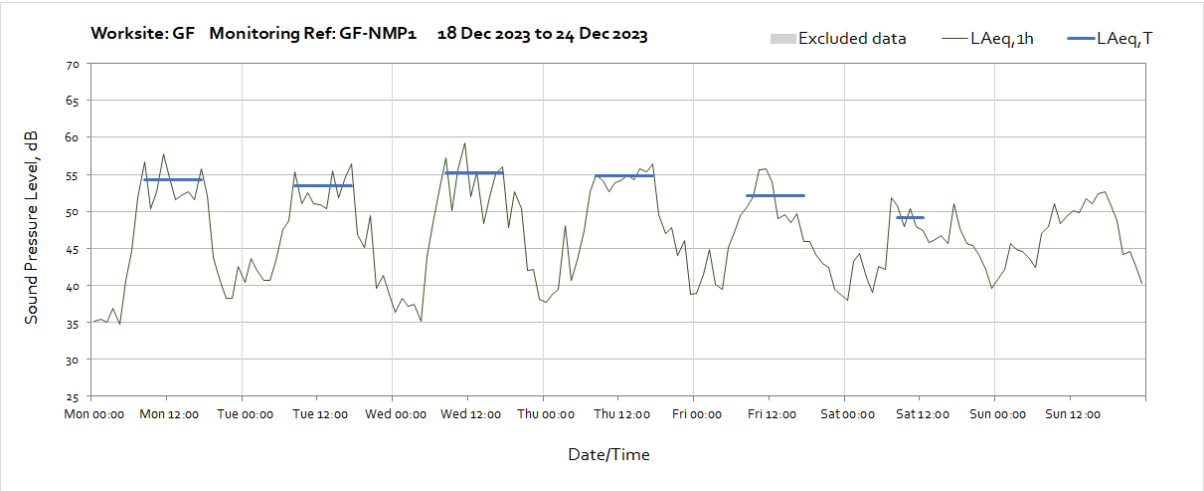
Worksite: GF Monitoring Ref: GF-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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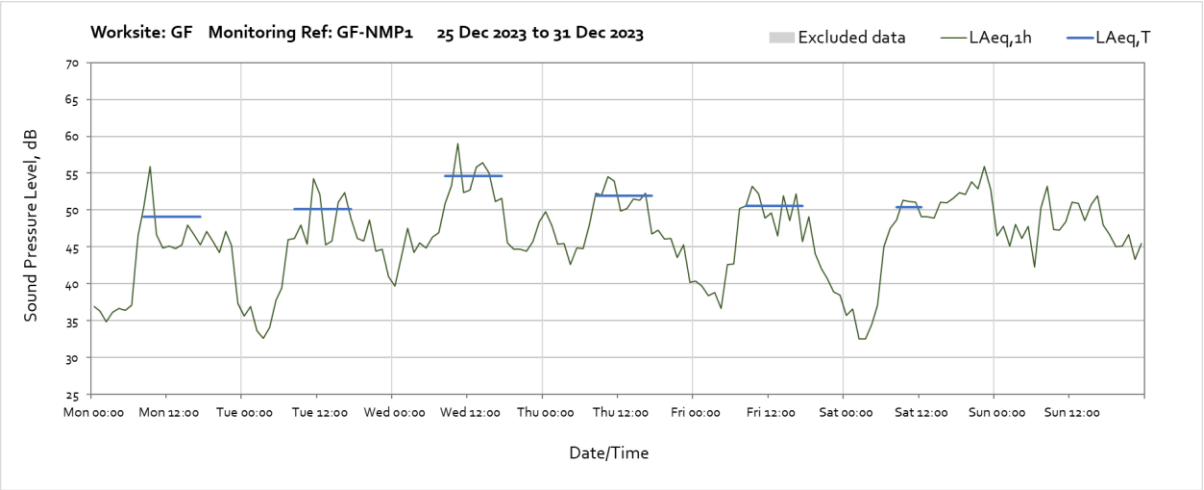
Worksite: GF Monitoring Ref: GF-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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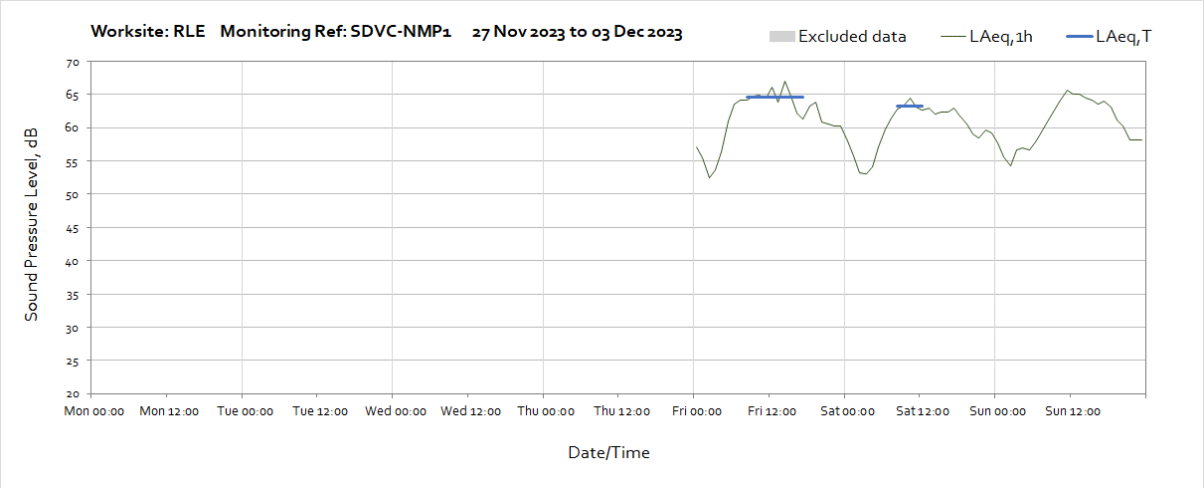
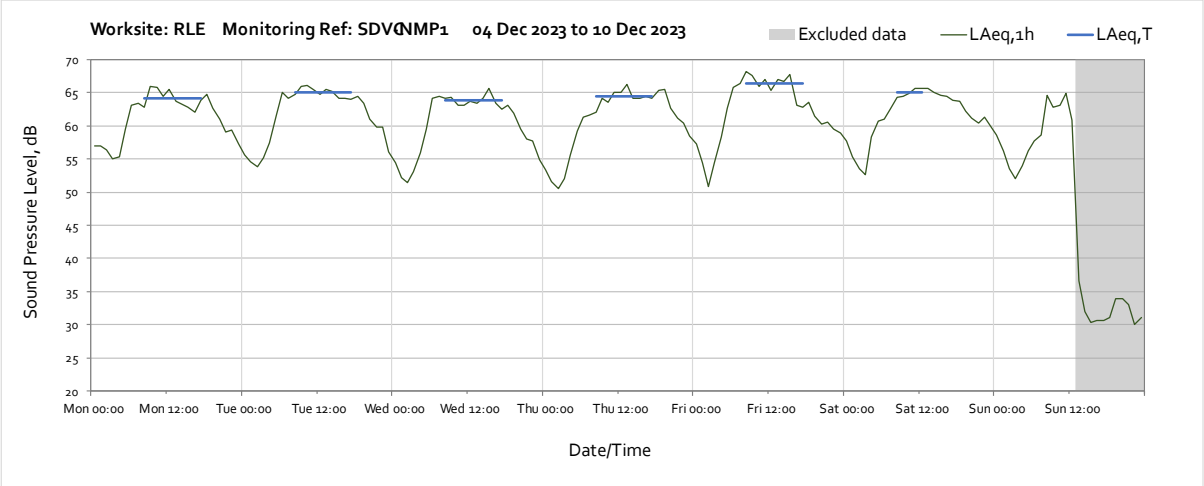
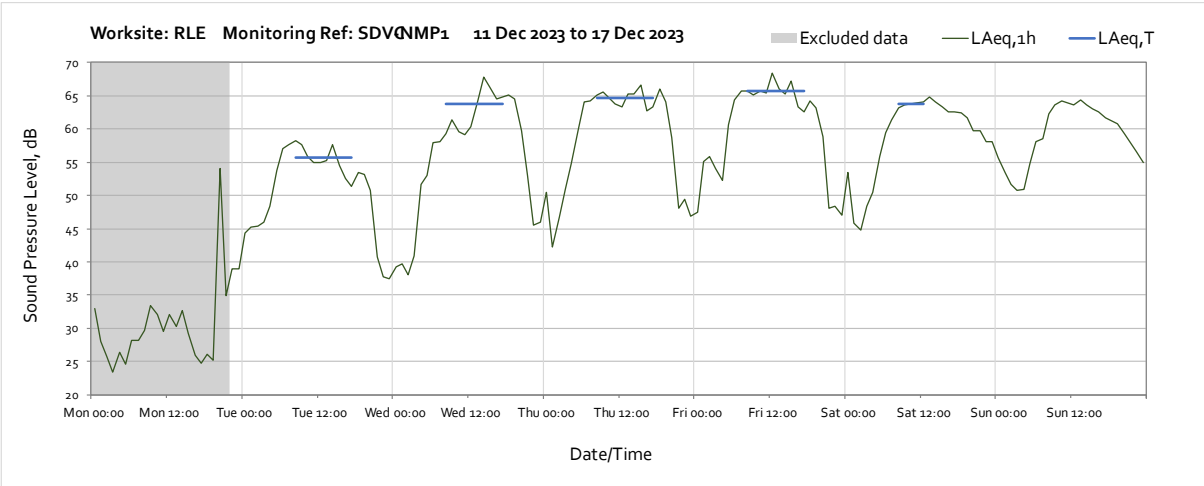
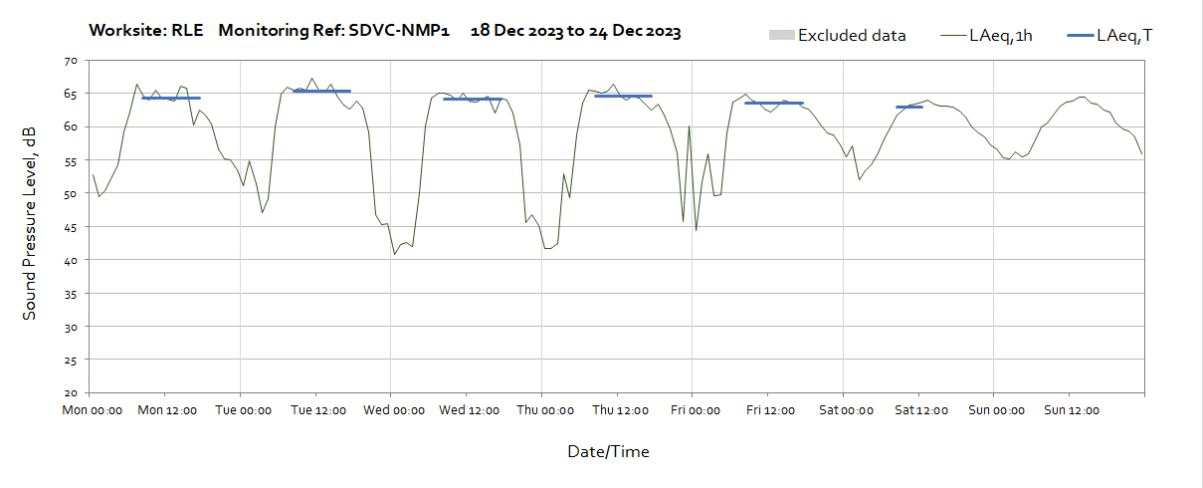
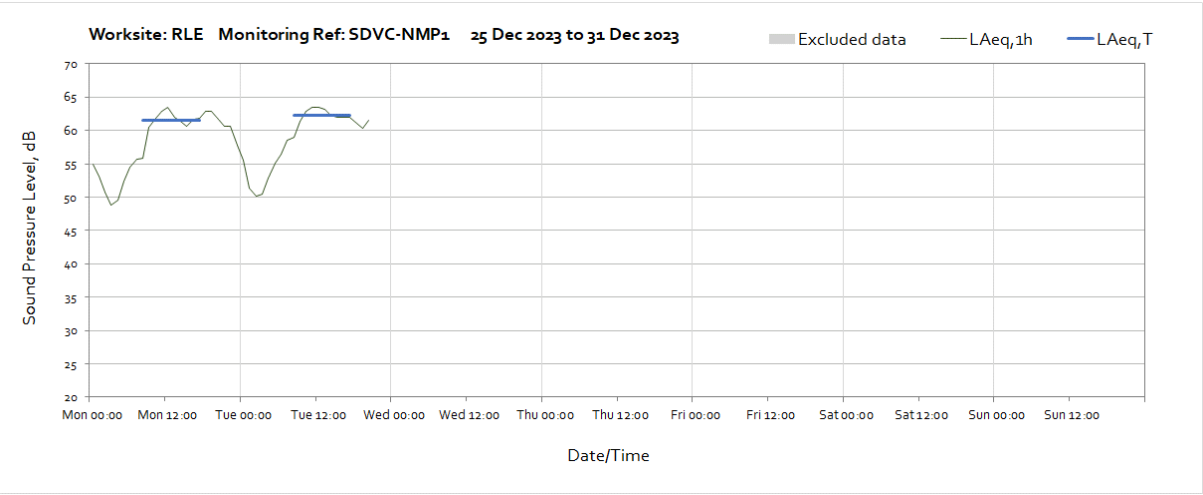
Worksite: RLE – Monitoring Ref: SDVC-NMP1





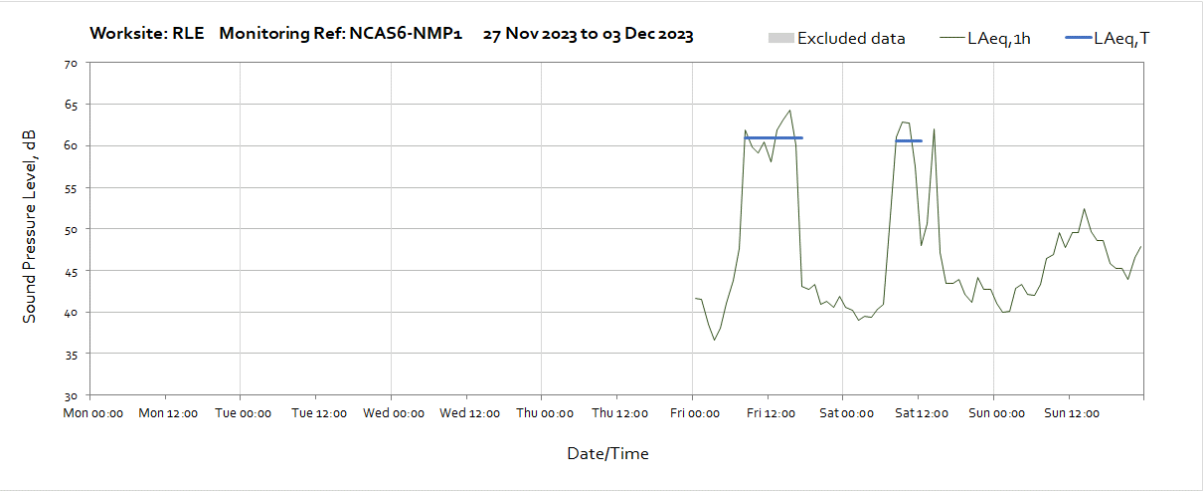


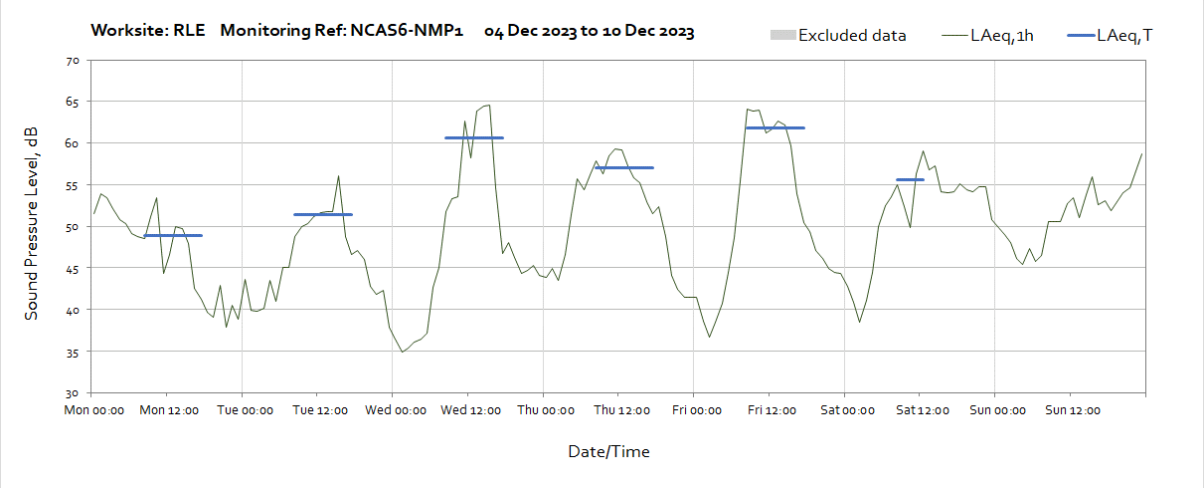




Note: Missing data from 21:00 on Tuesday 26th December until month end was due to a depleted battery.

Worksite: RLE – Monitoring Ref: NCAS6-NMP1




Worksite: RLE Monitoring Ref: NCAS6-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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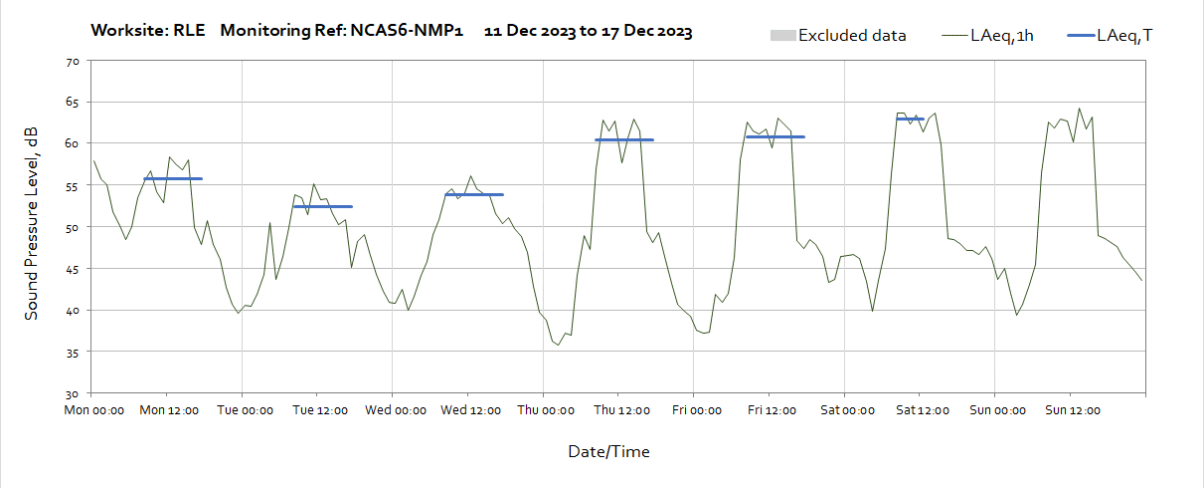
Date/Time


Worksite: RLE Monitoring Ref: NCAS6-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
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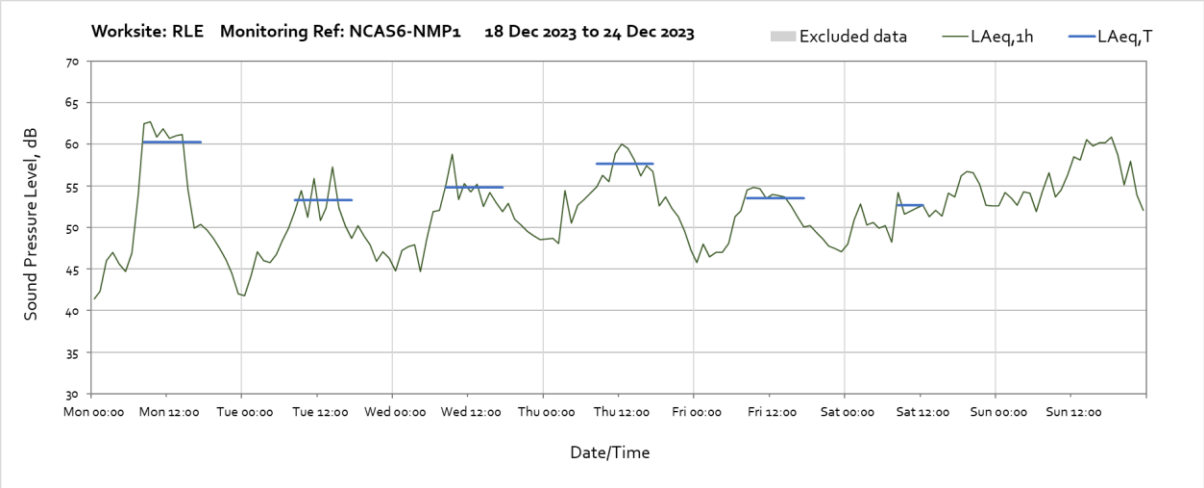
Date/Time


Worksite: RLE Monitoring Ref: NCAS6-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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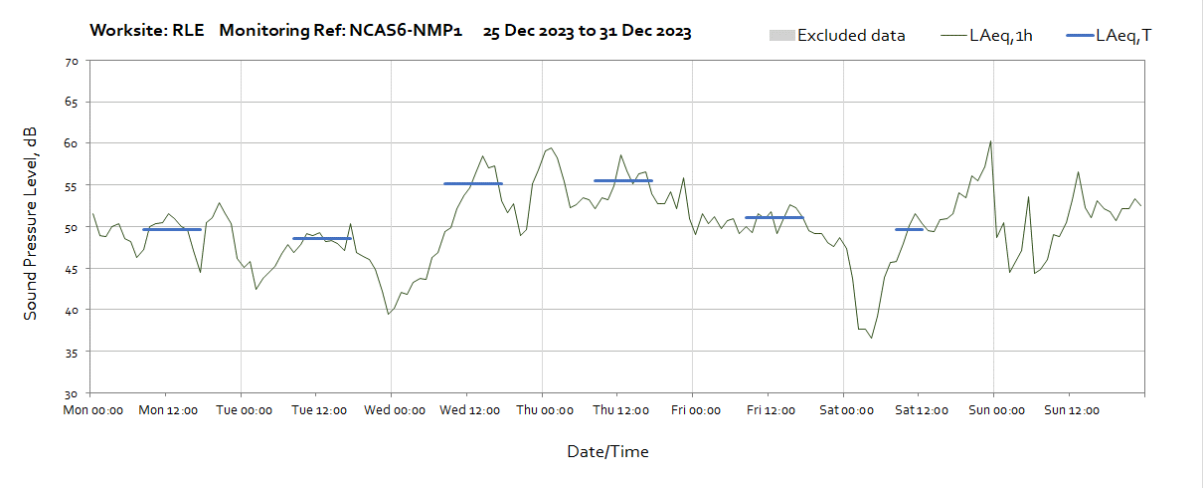
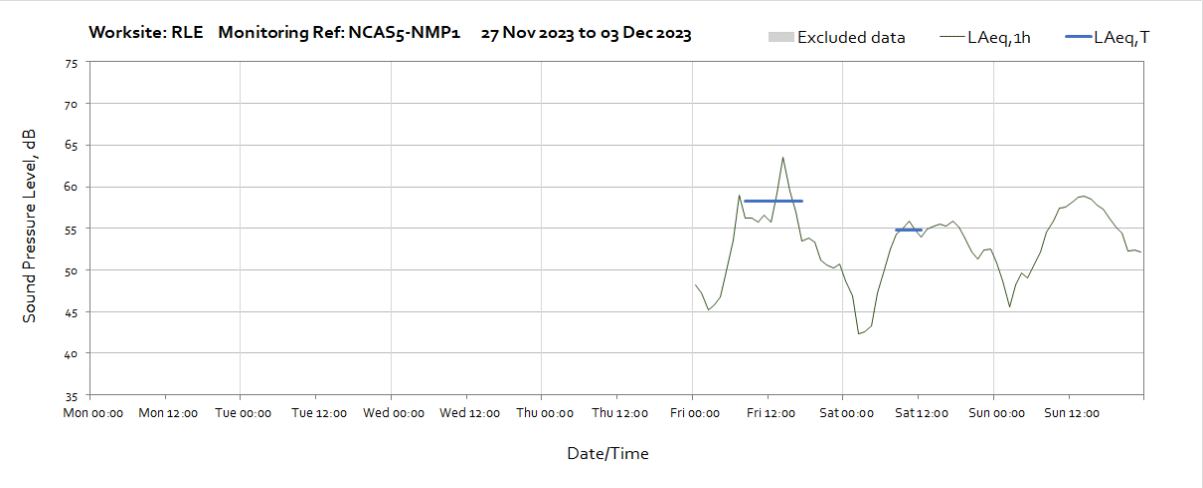
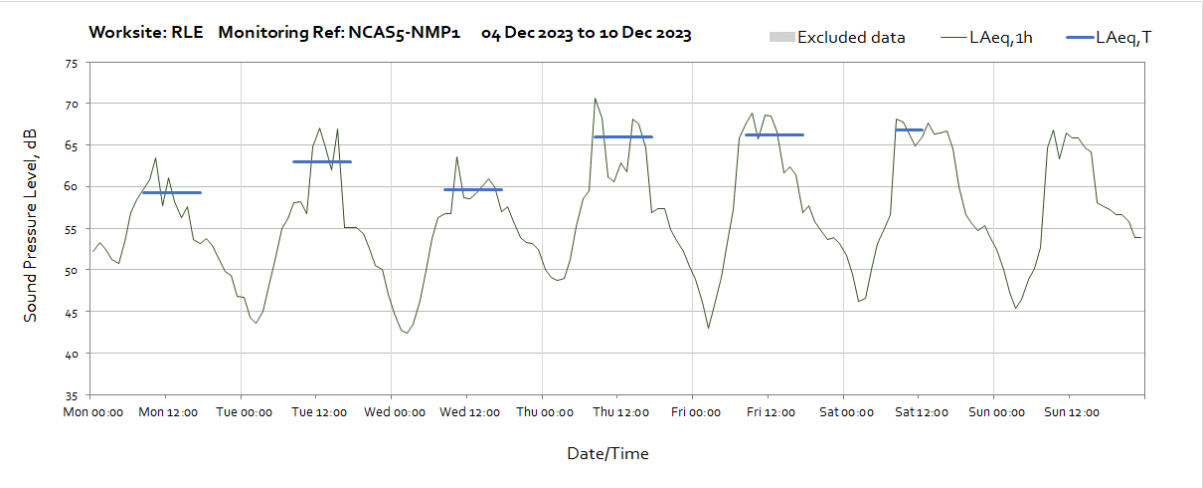
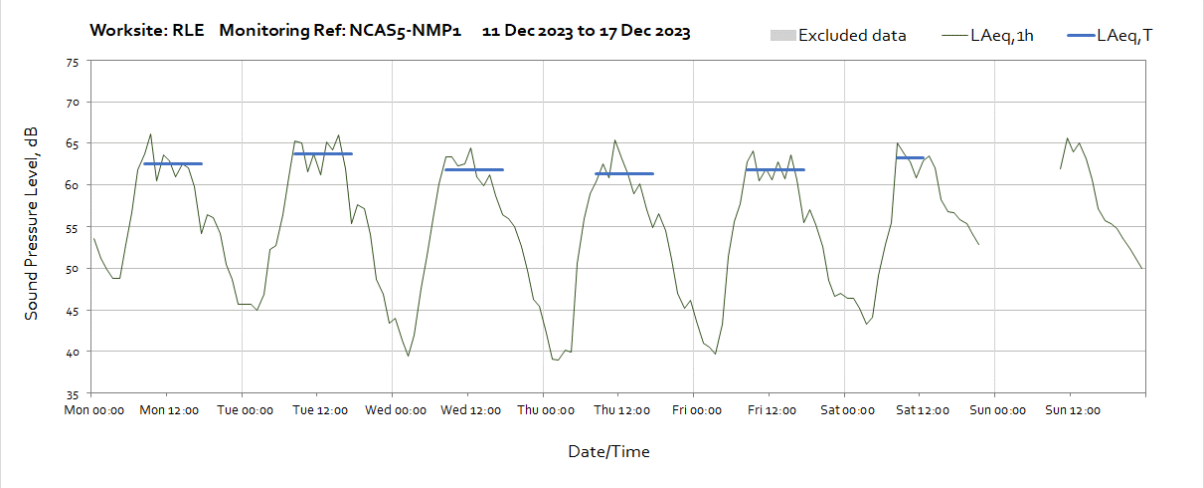


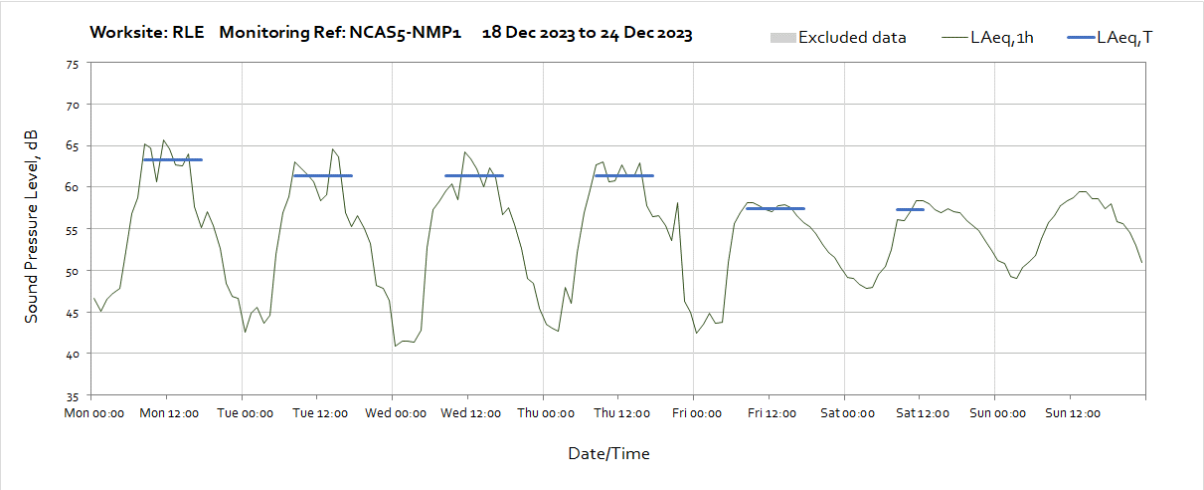
Worksite: RLE – Monitoring Ref: NCAS5-NMP1

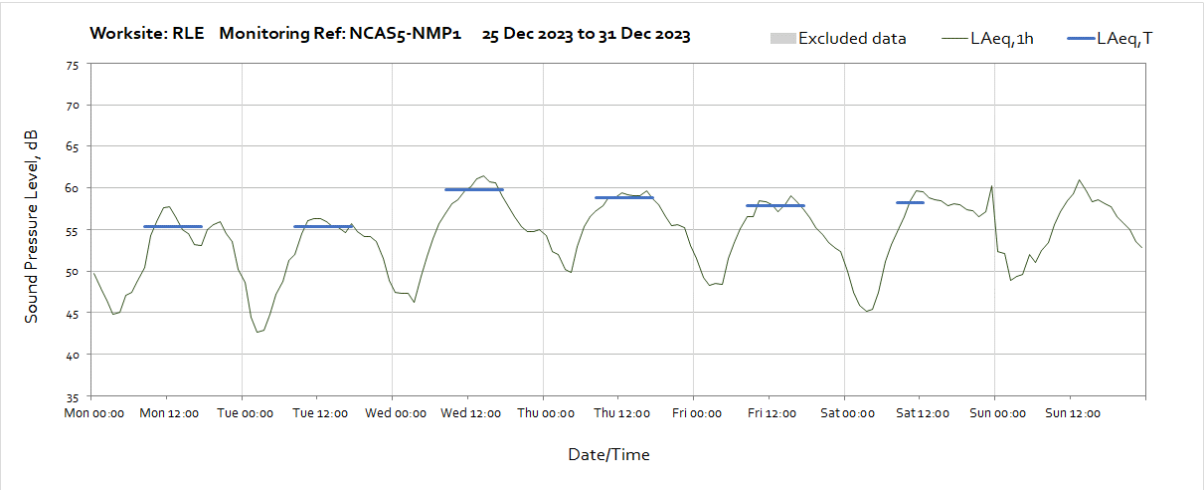




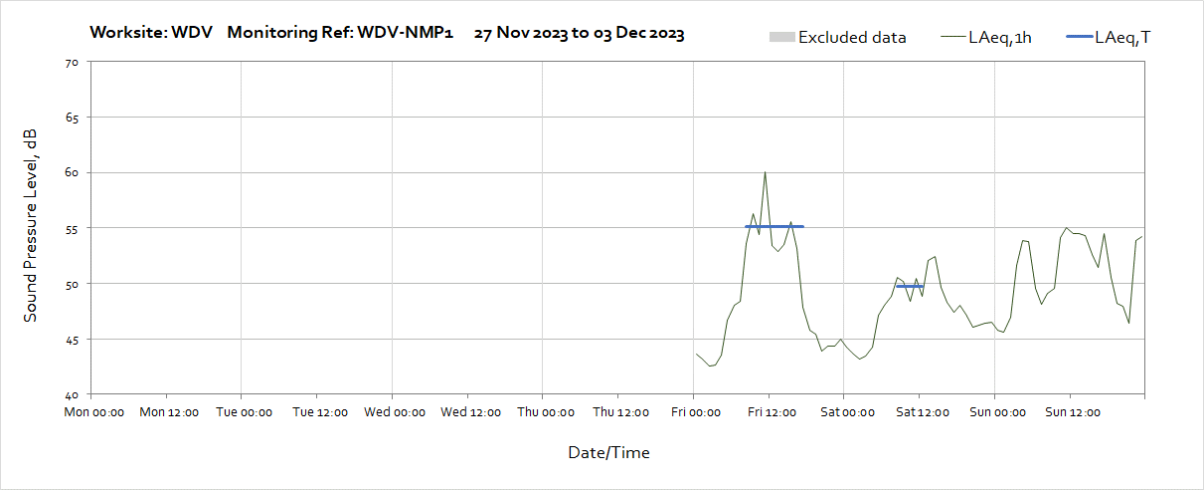


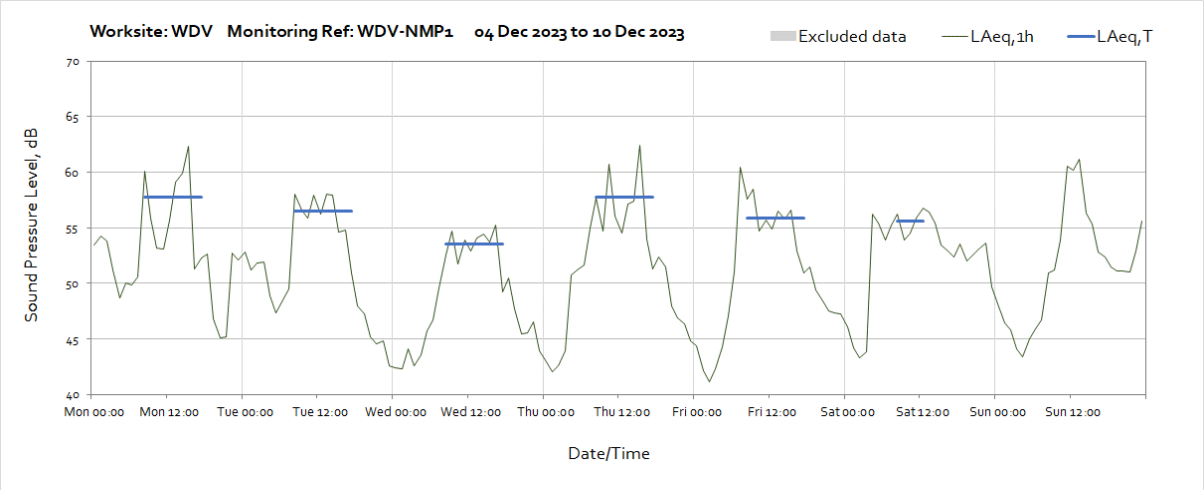
Note: Missing data between 22:00 on Saturday 16th December until 10:00 on Sunday 17th December was due to a depleted battery.

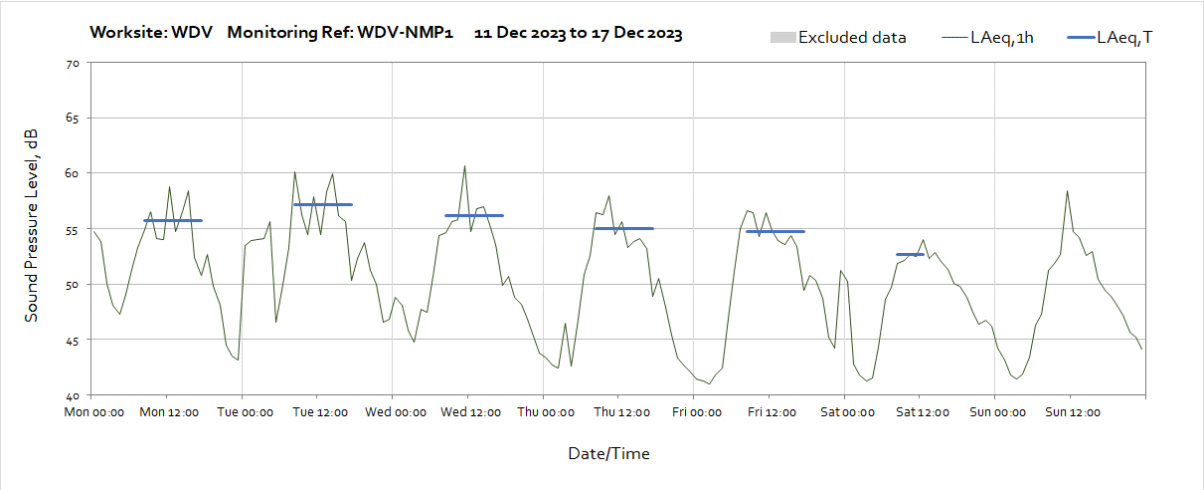


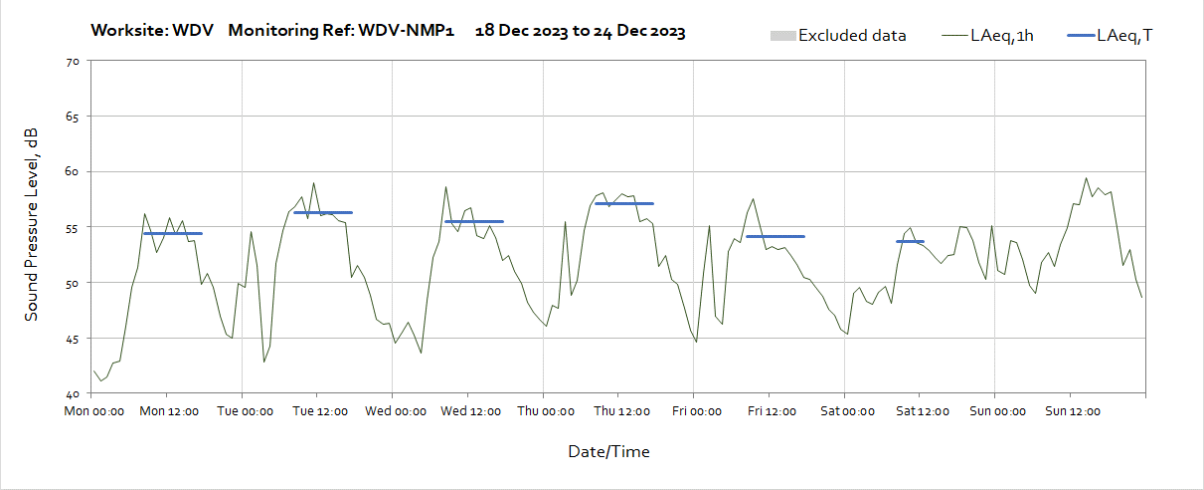


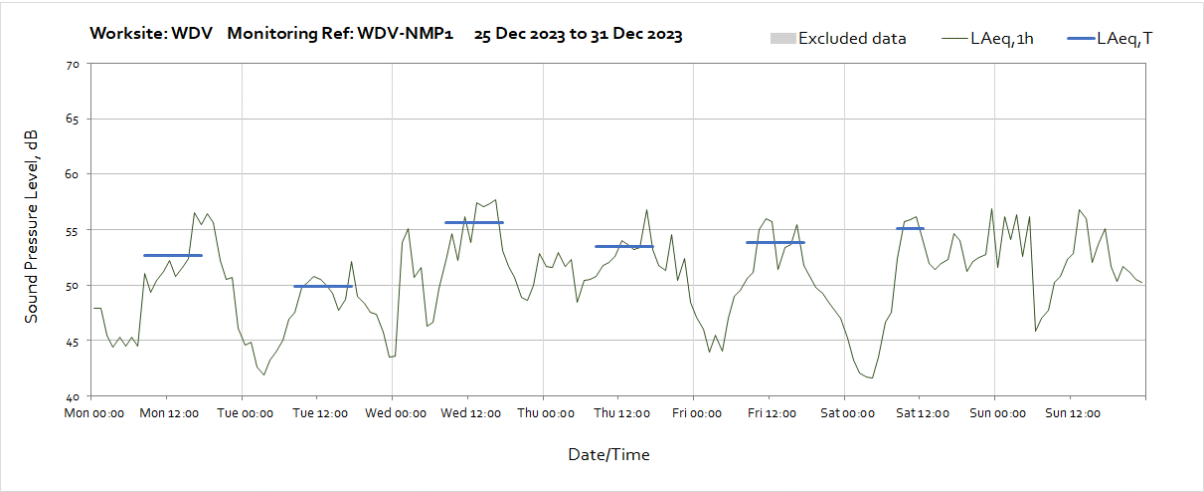
Worksite: WDV – Monitoring Ref: WDV-NMP1



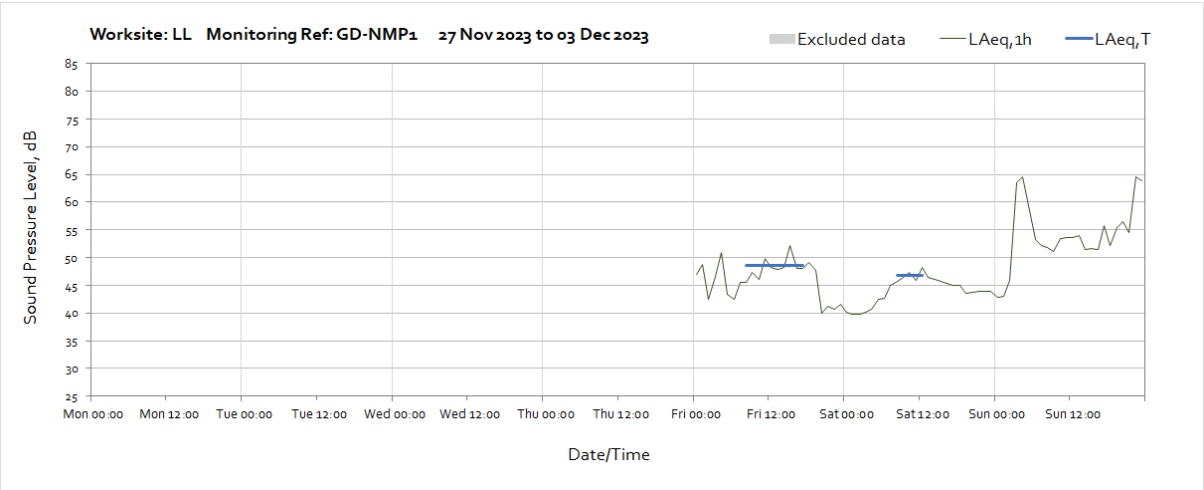


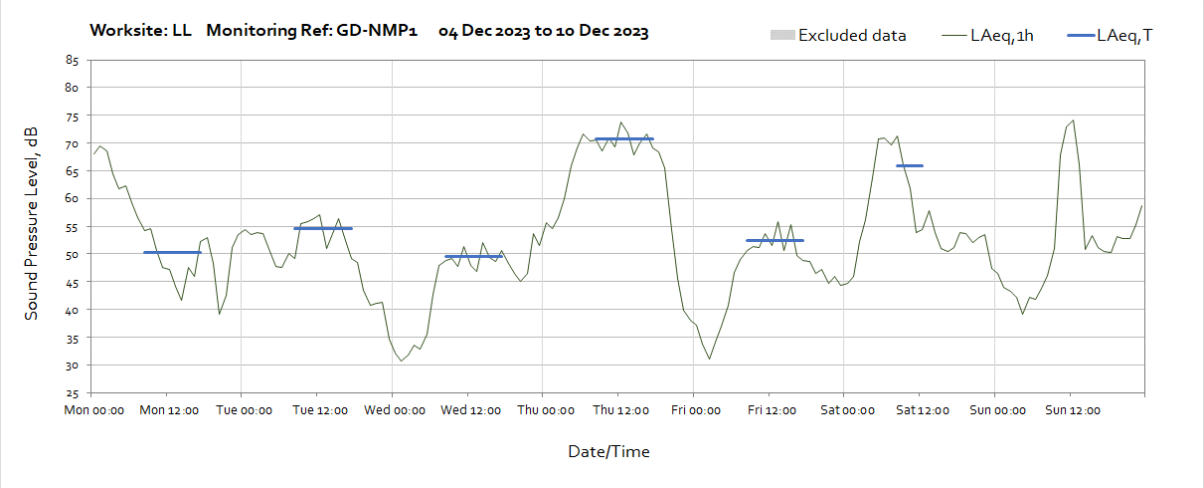


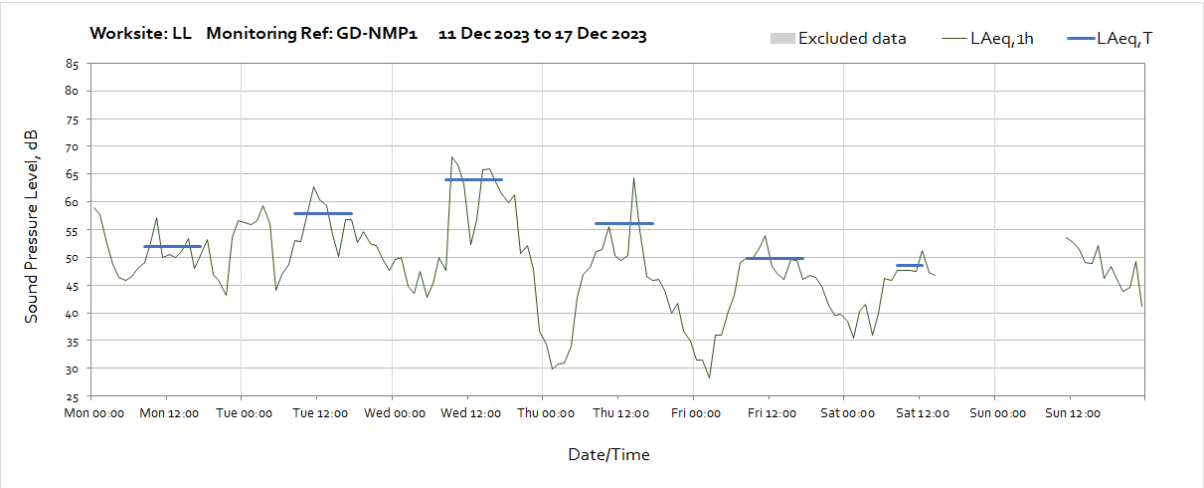




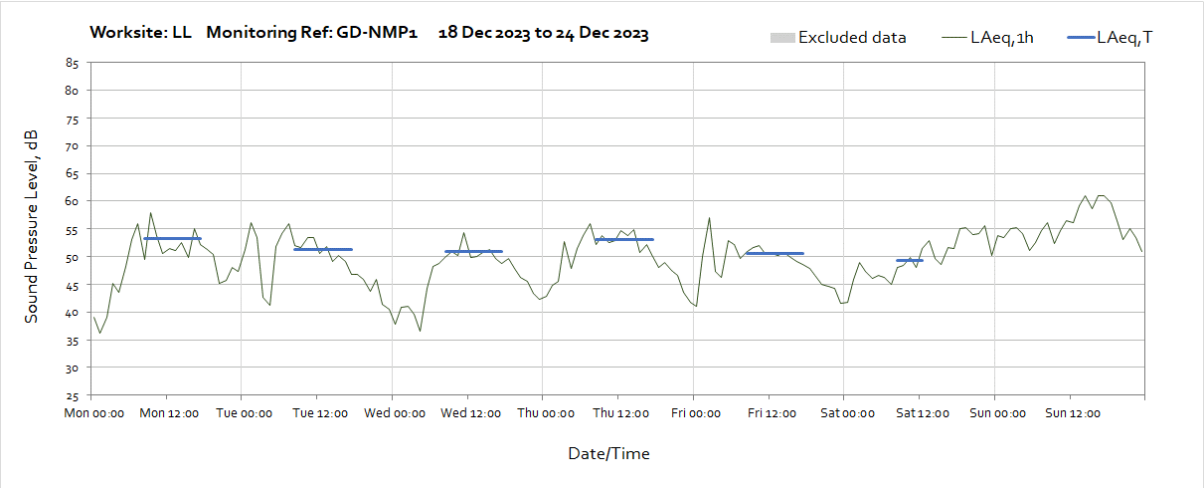
Worksite: LL – Monitoring Ref: GD-NMP1

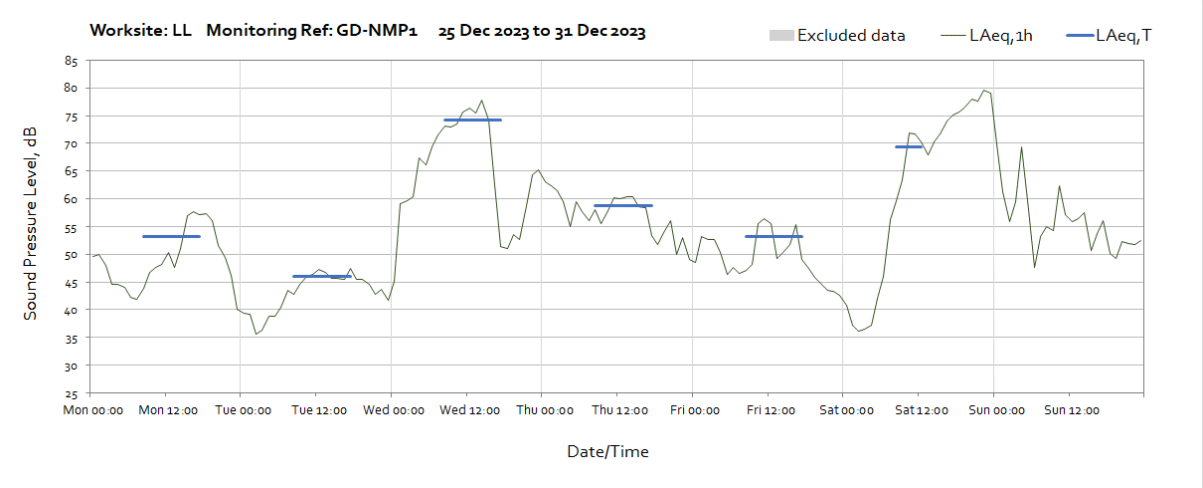




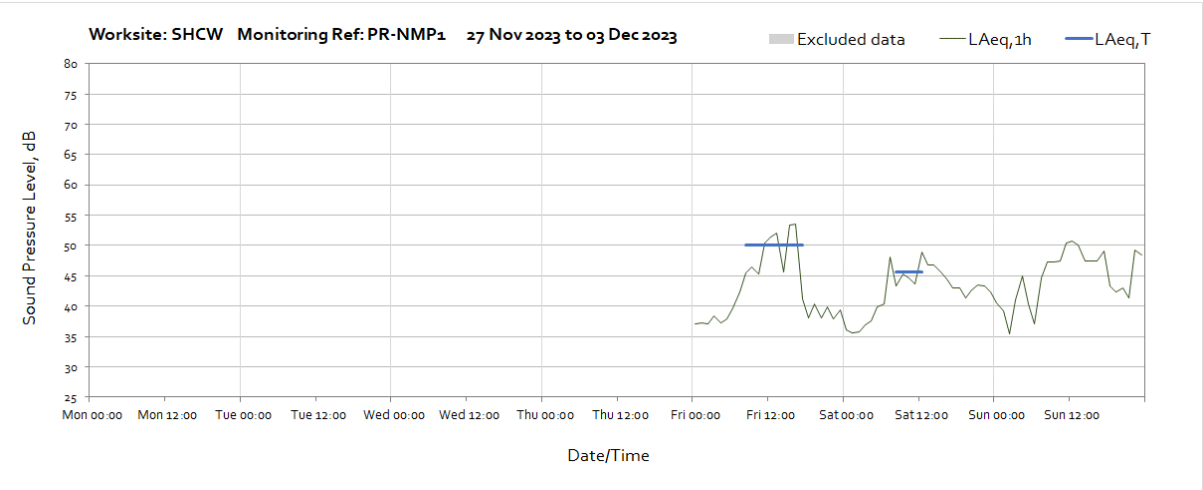


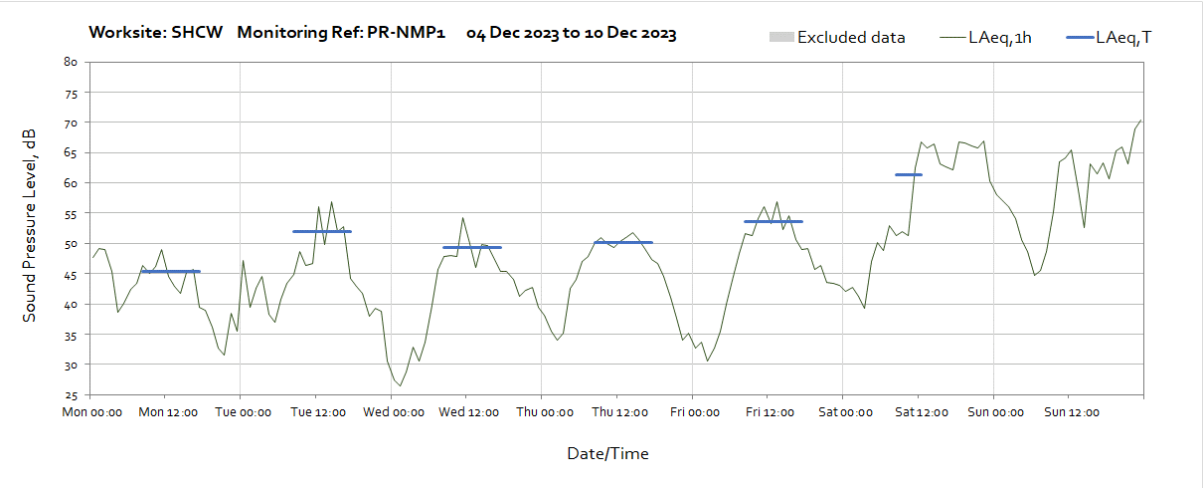
Note: Missing data between 15:00 on Saturday 16th December until 11:00 on Sunday 17th December was due to a depleted battery.

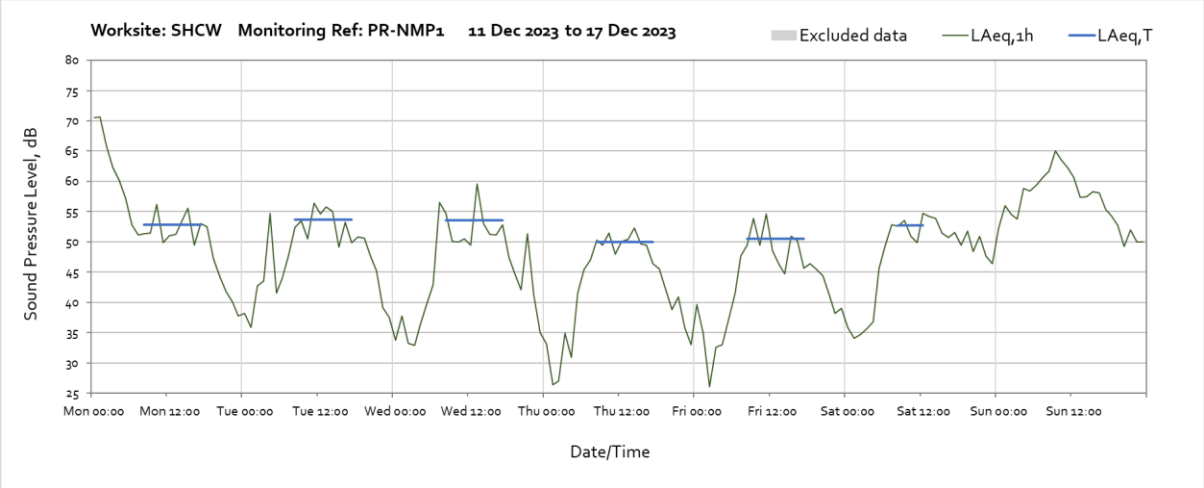




Worksite: SHCW – Monitoring Ref: PR-NMP1






Worksite: SHCW Monitoring Ref: PR-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
75
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
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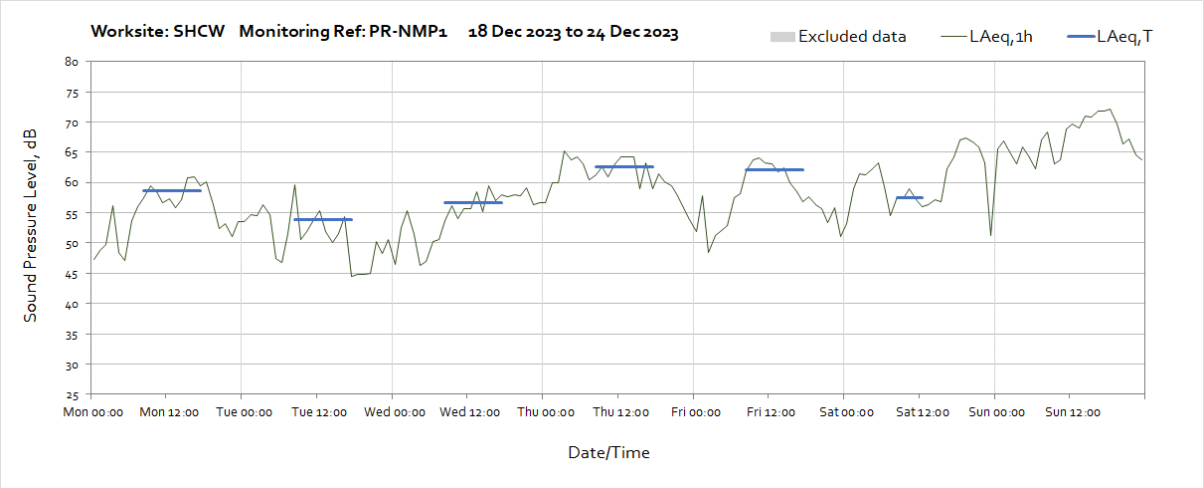
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHCW Monitoring Ref: PR-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
75
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
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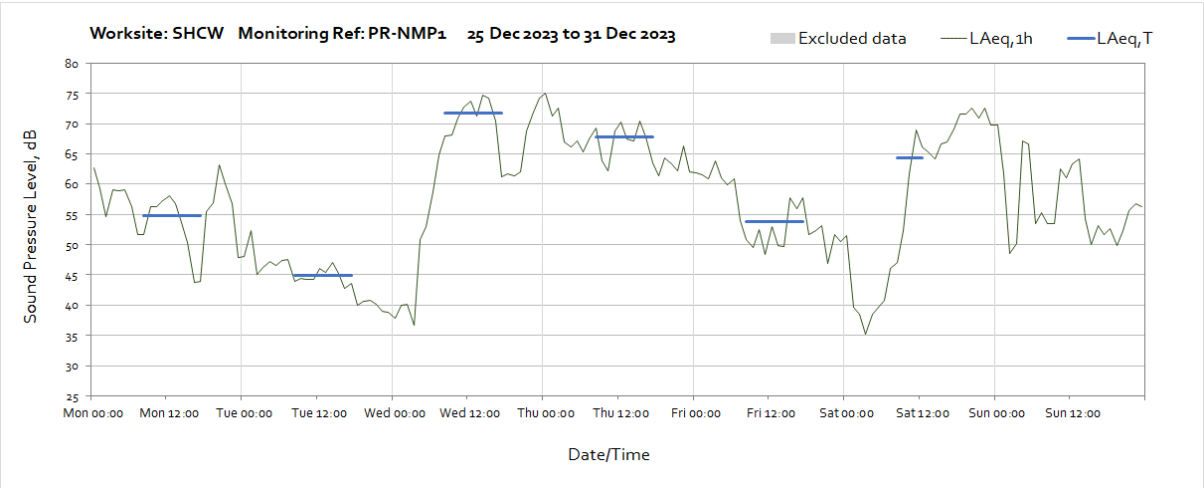
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHCW Monitoring Ref: PR-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
80
75
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
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Tue 12:00
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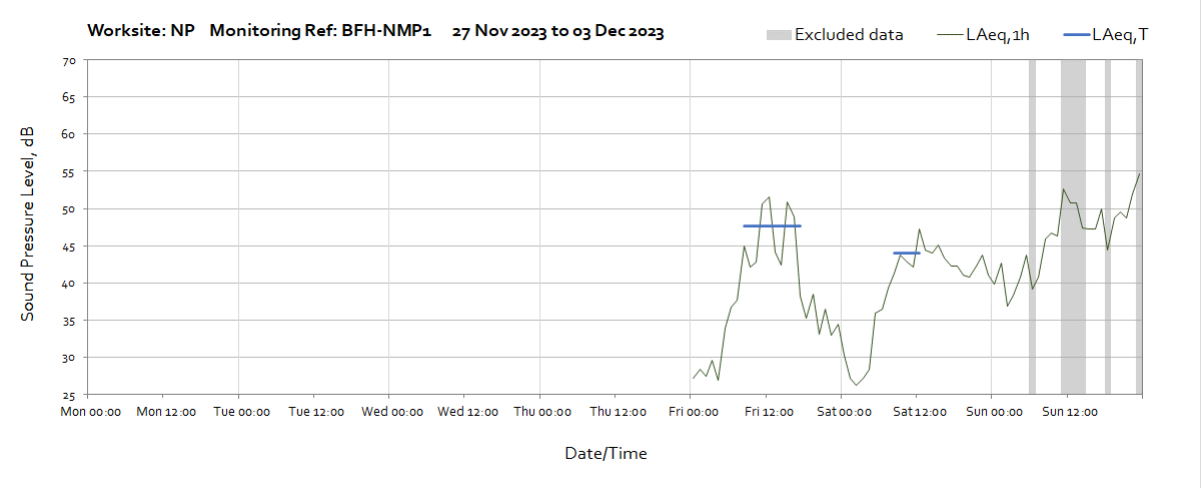
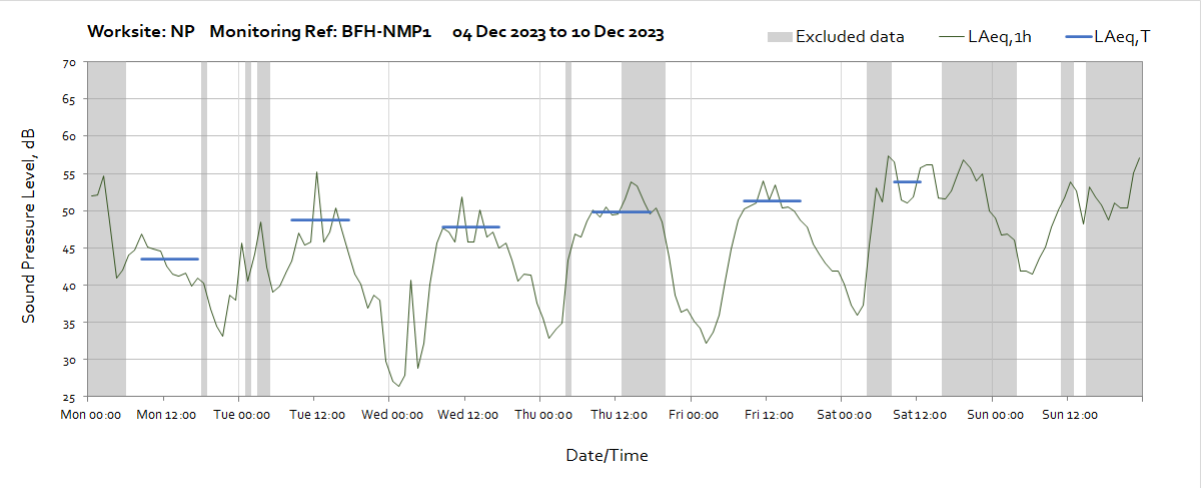
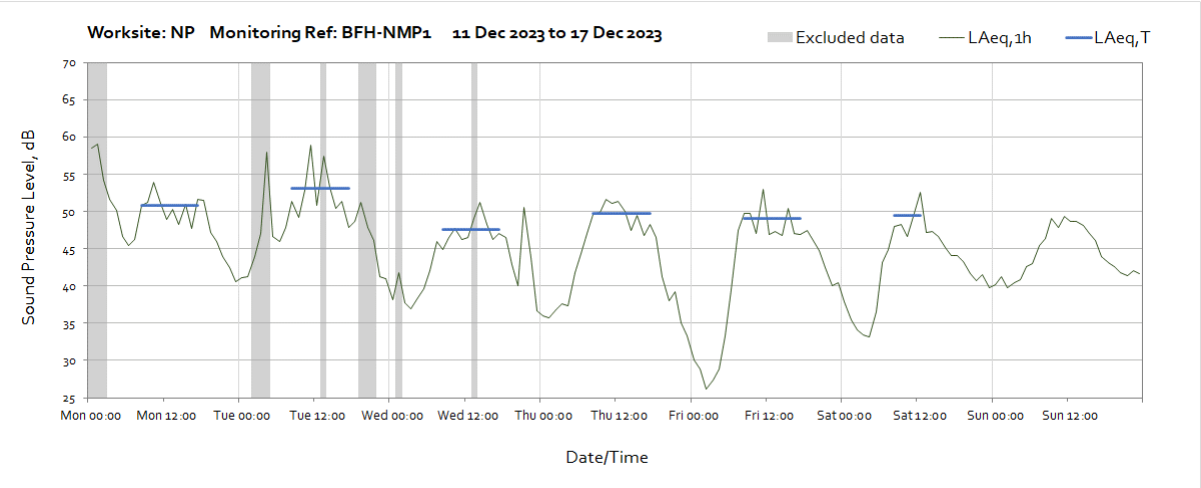
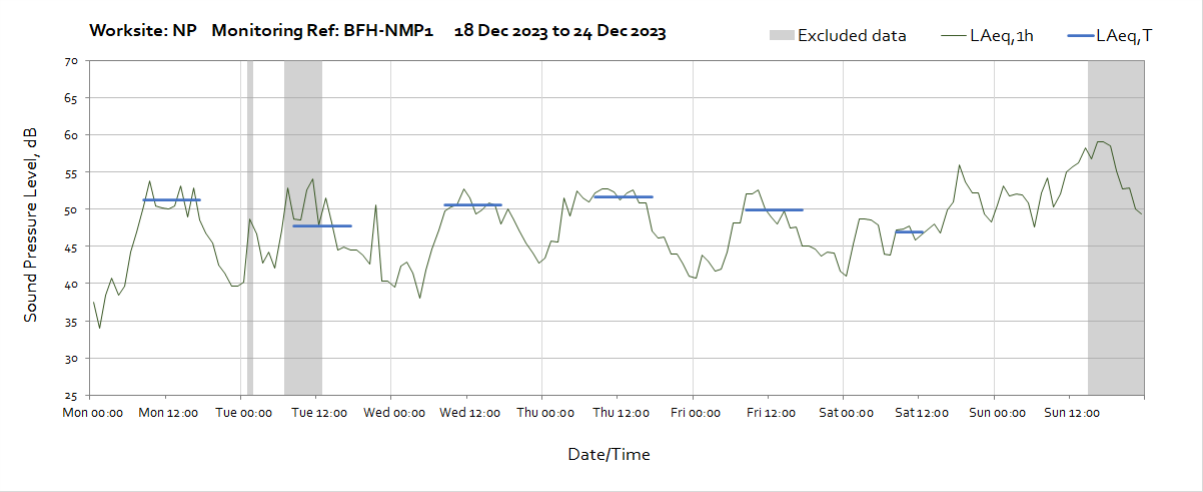
Sun 12:00
Date/Time

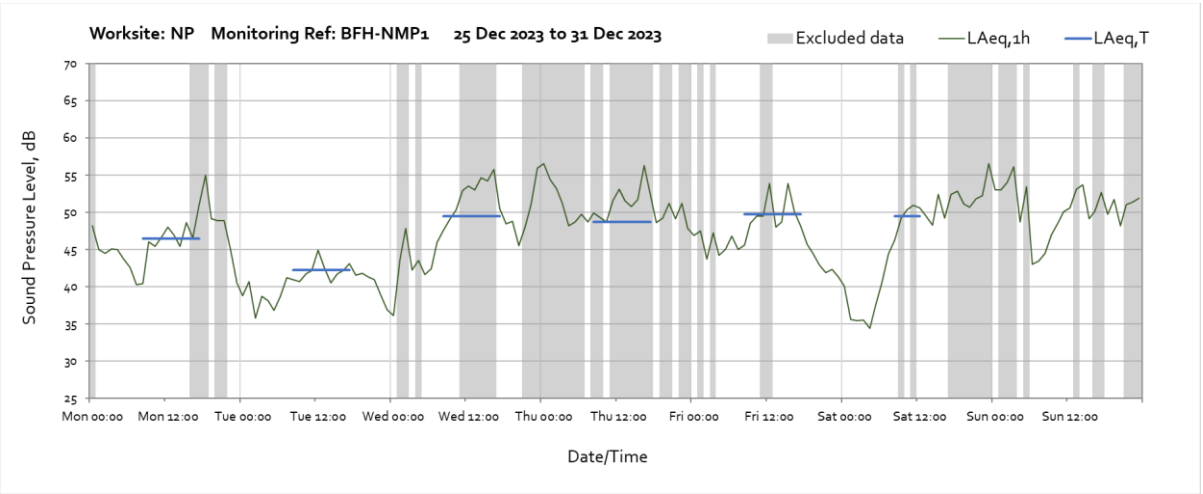
Worksite: NP – Monitoring Ref: BFH-NMP1



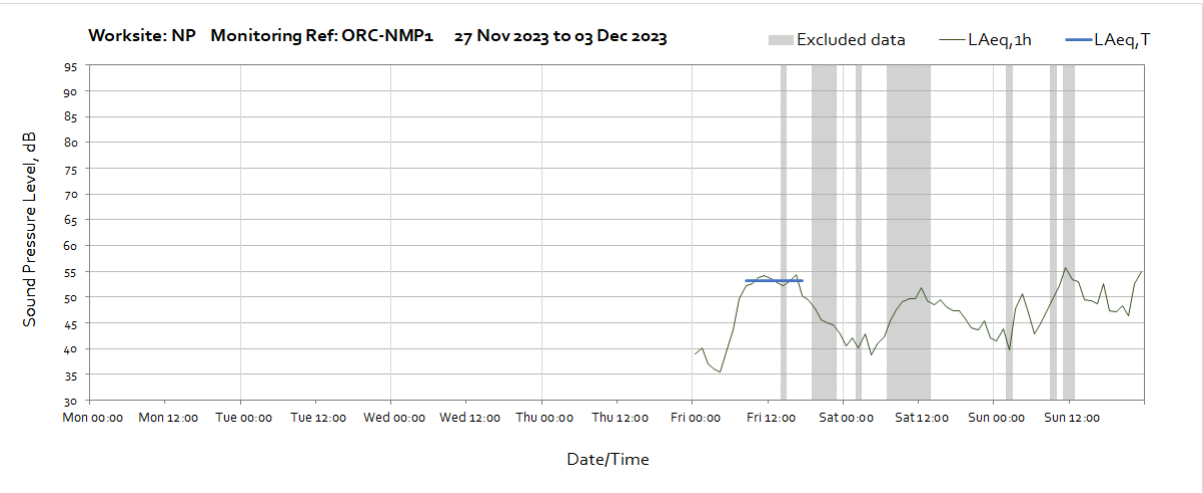


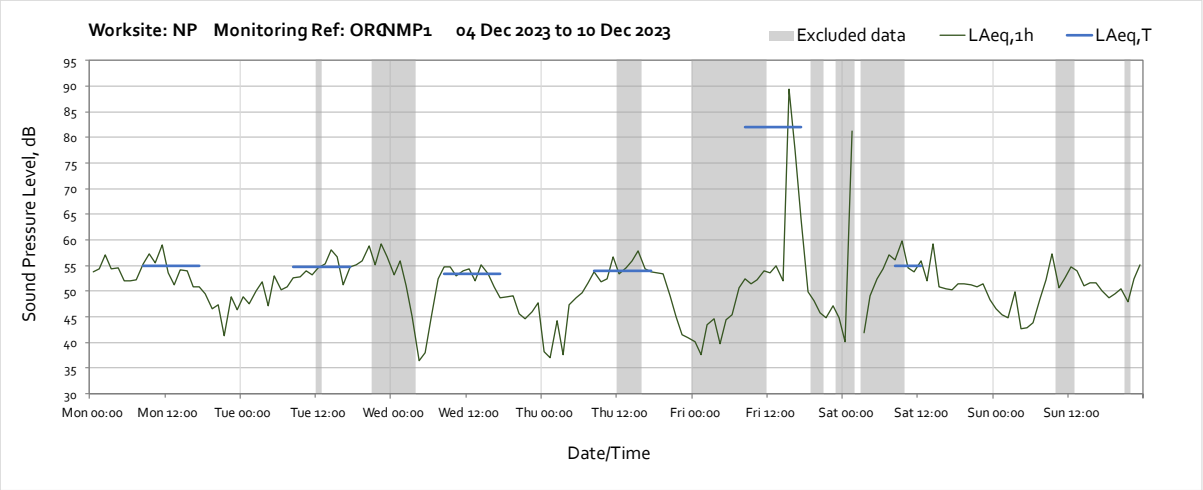




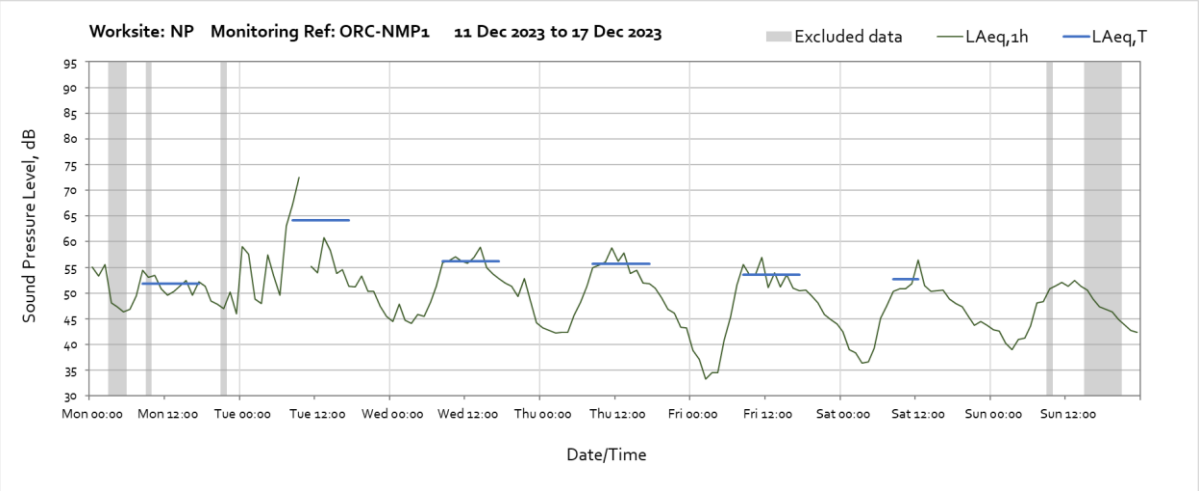


Worksite: NP – Monitoring Ref: ORC-NMP1

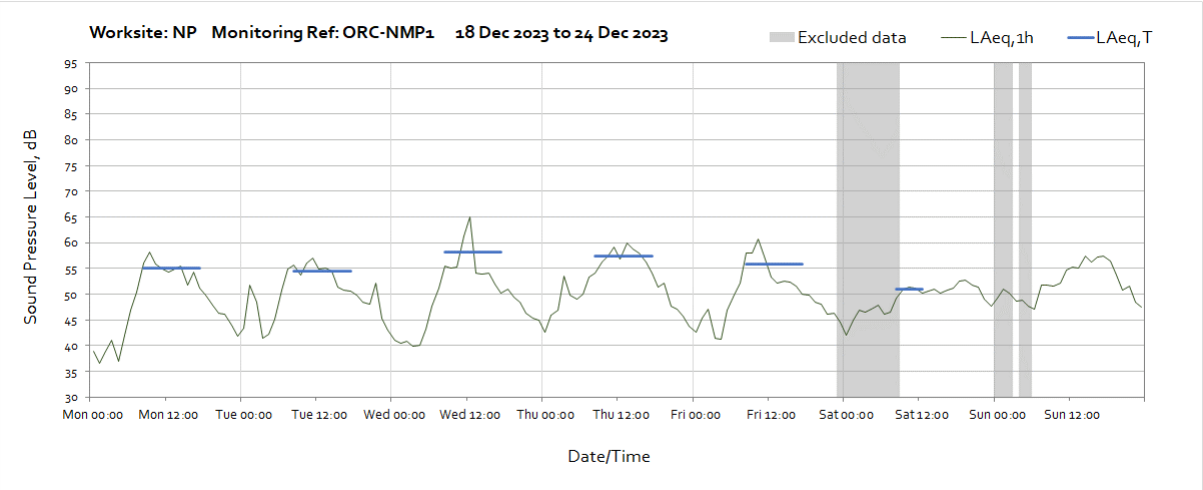


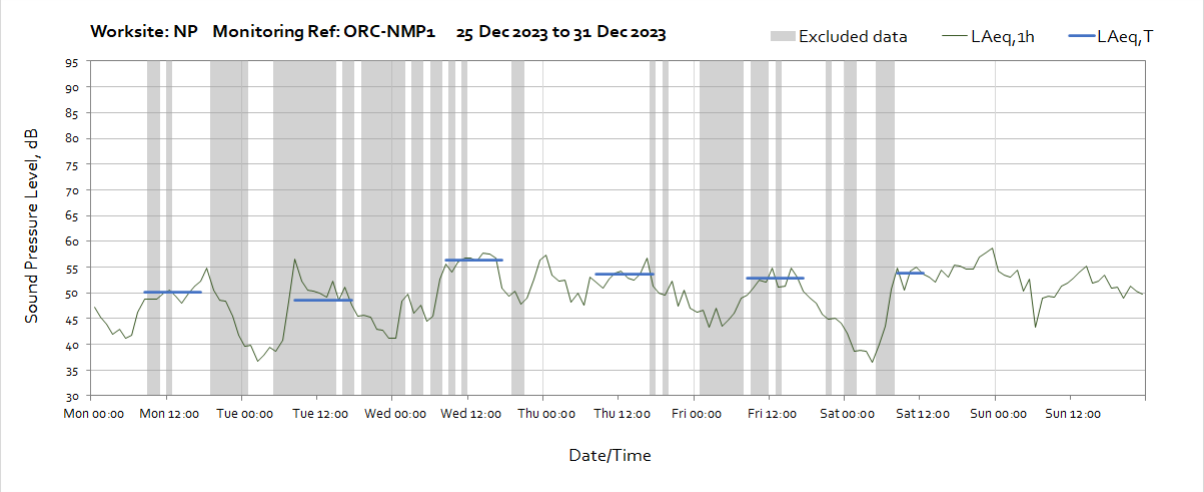


Note: Missing data between 02:00 and 03:00 on Saturday 9th December was due to a communication error between the monitor and server.

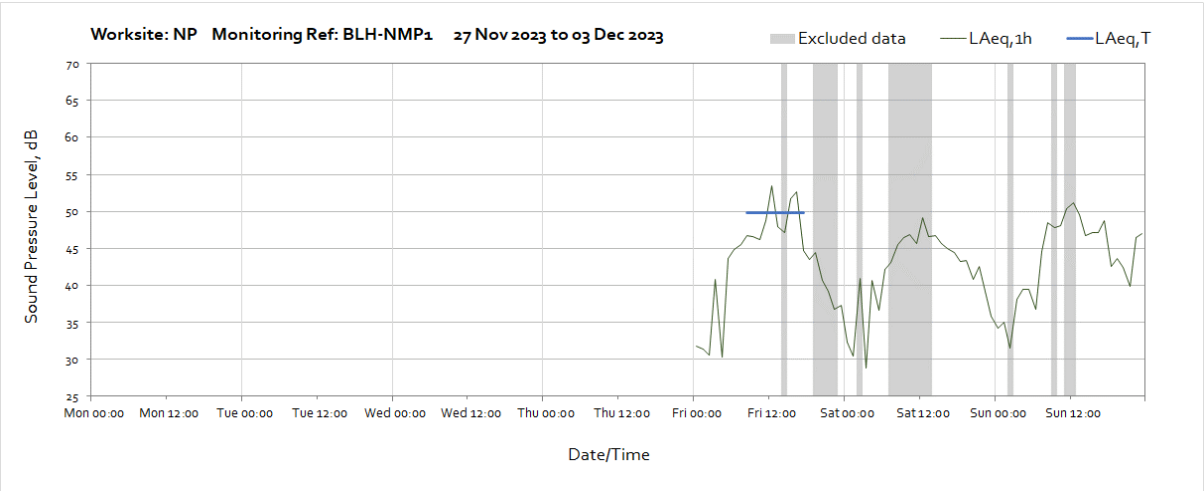


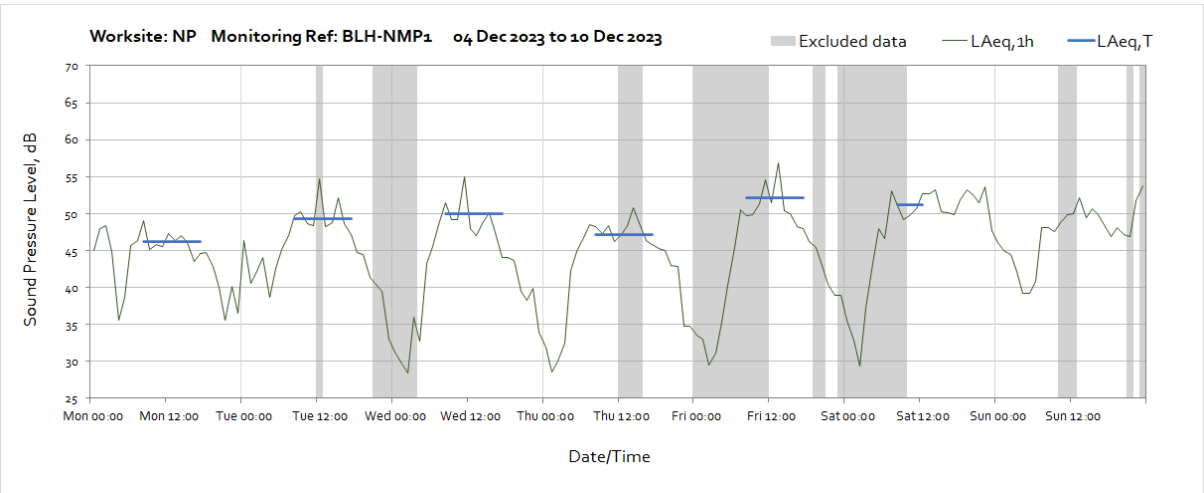
Note: Missing data between 10:00 and 11:00 on Tuesday 12th December was due to a communication error between the monitor and server.

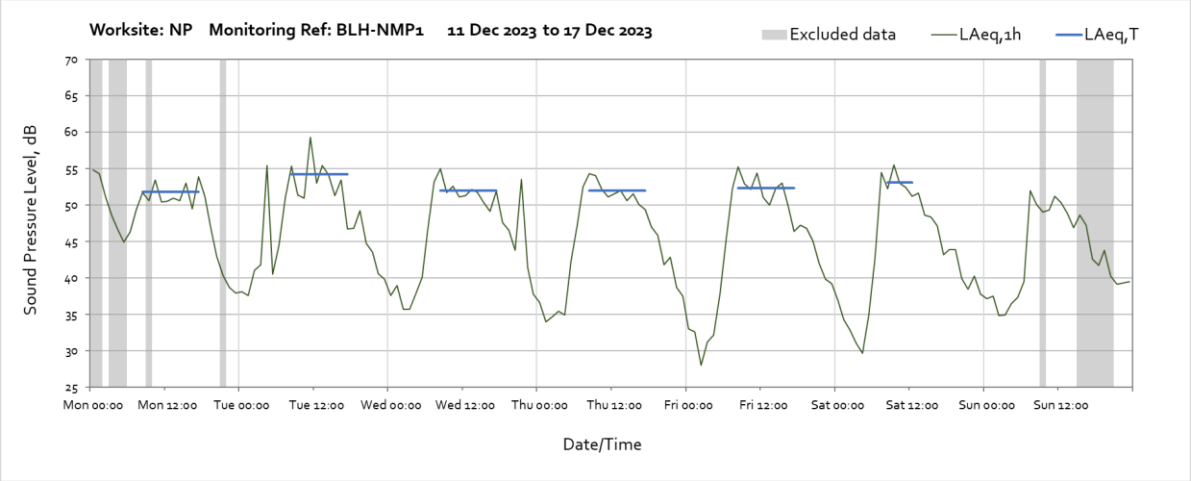




Worksite: NP – Monitoring Ref: BLH-NMP1






Worksite: NP Monitoring Ref: BLH-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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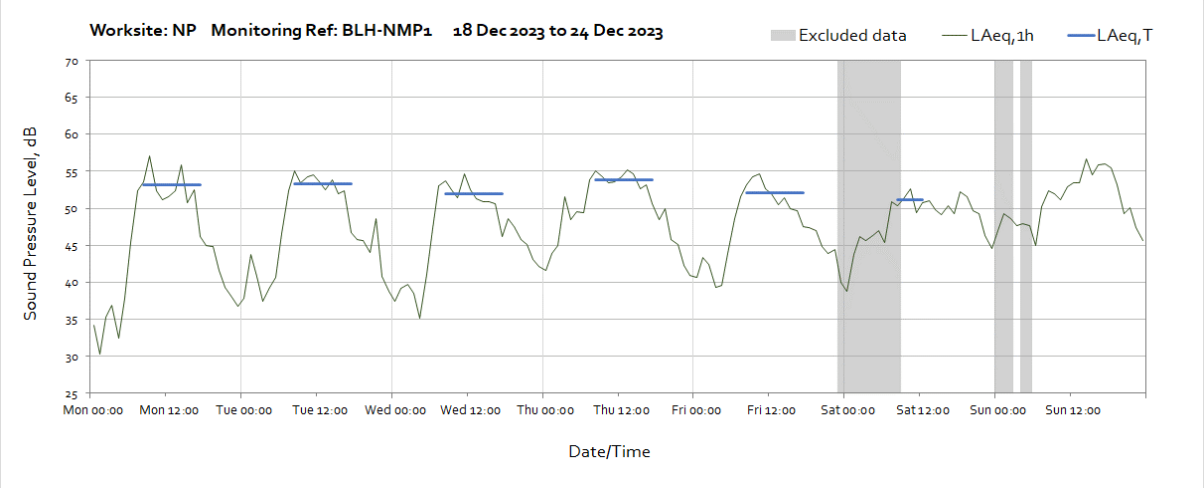
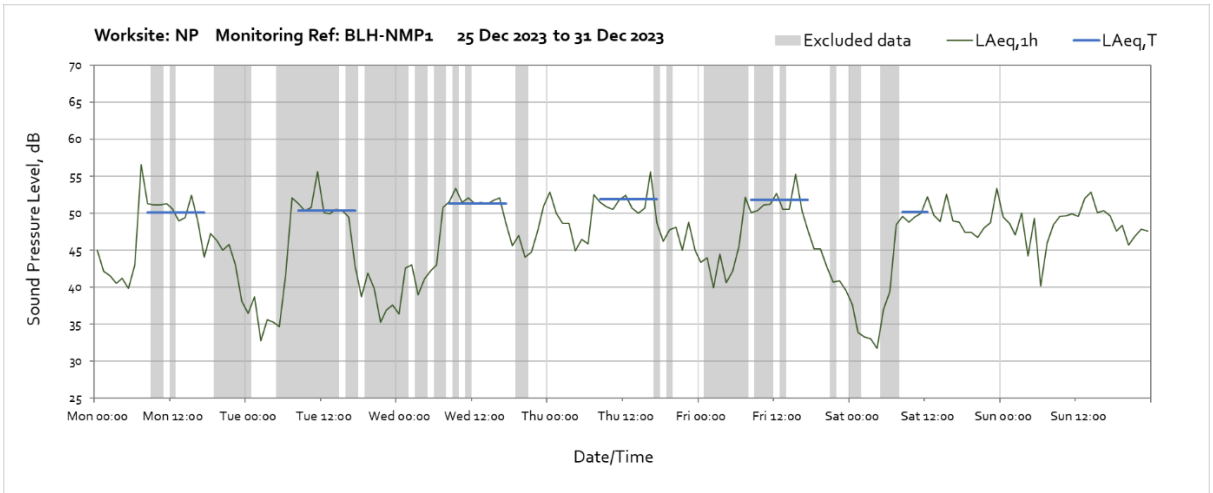
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: NP Monitoring Ref: BLH-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: NP Monitoring Ref: BLH-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Fri 12:00
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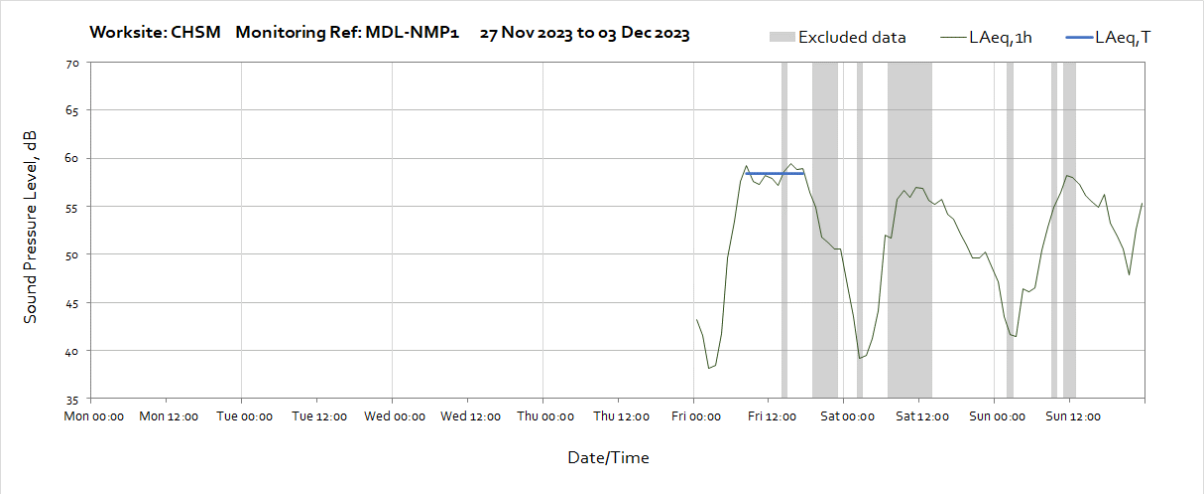
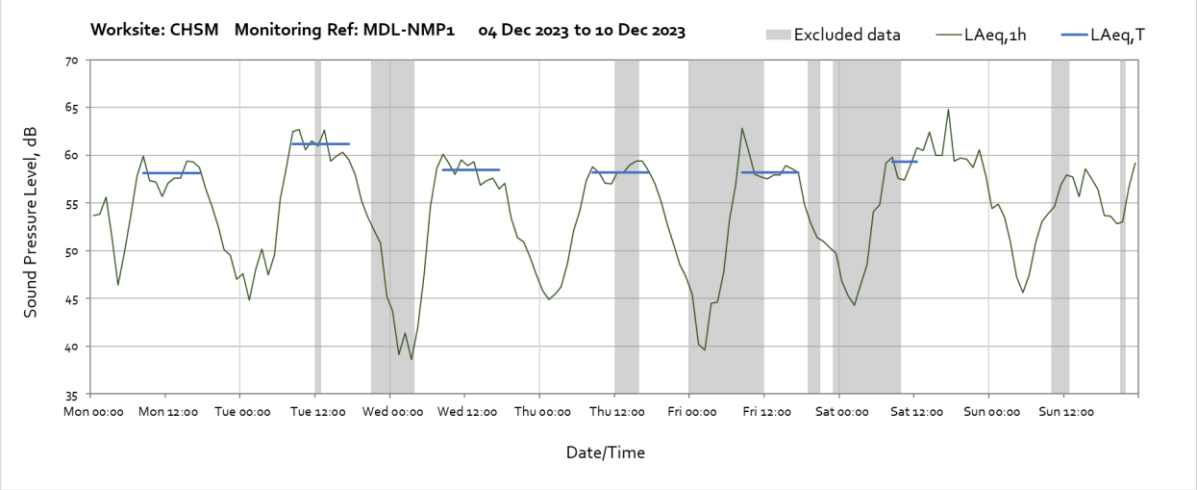
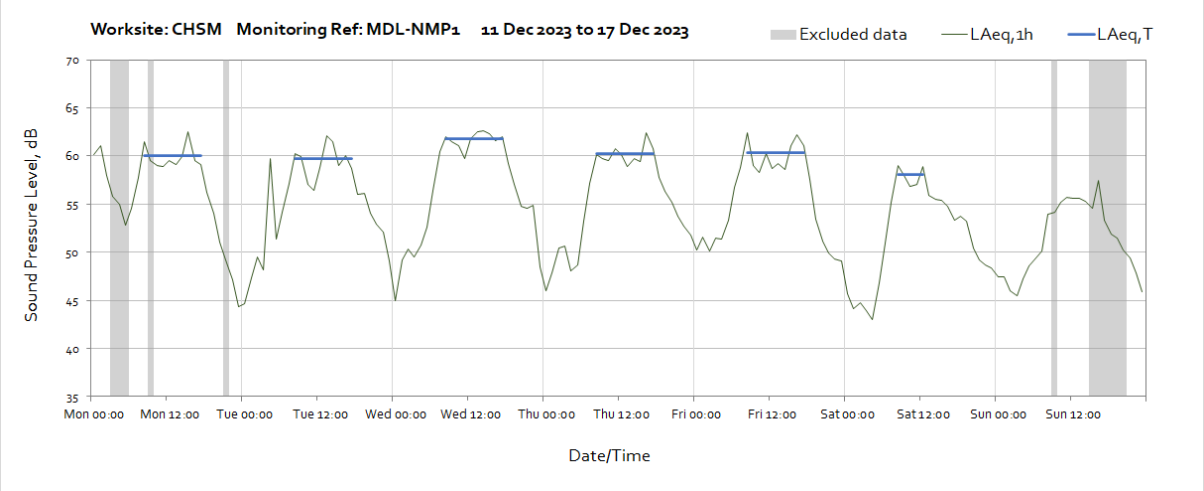
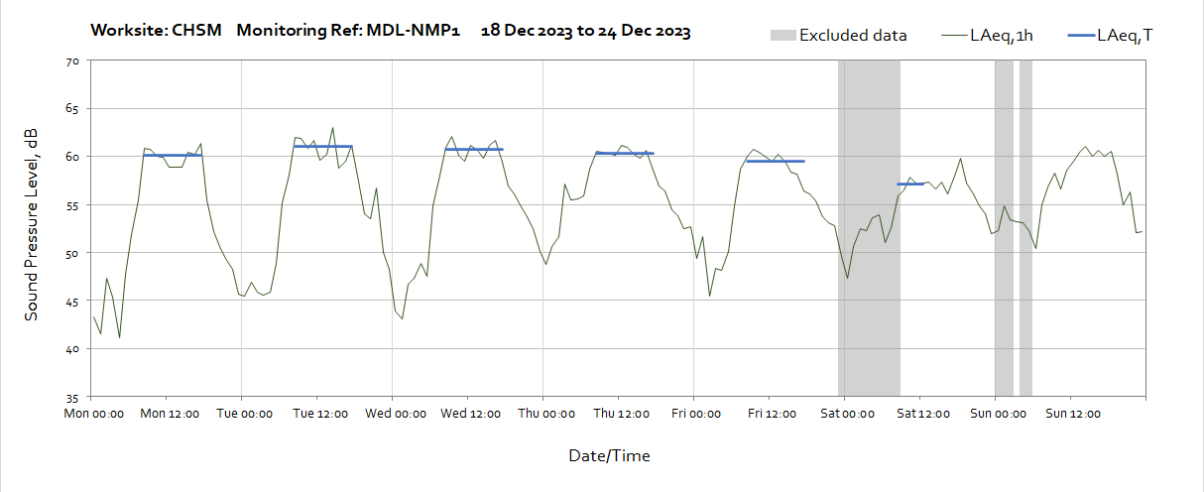
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

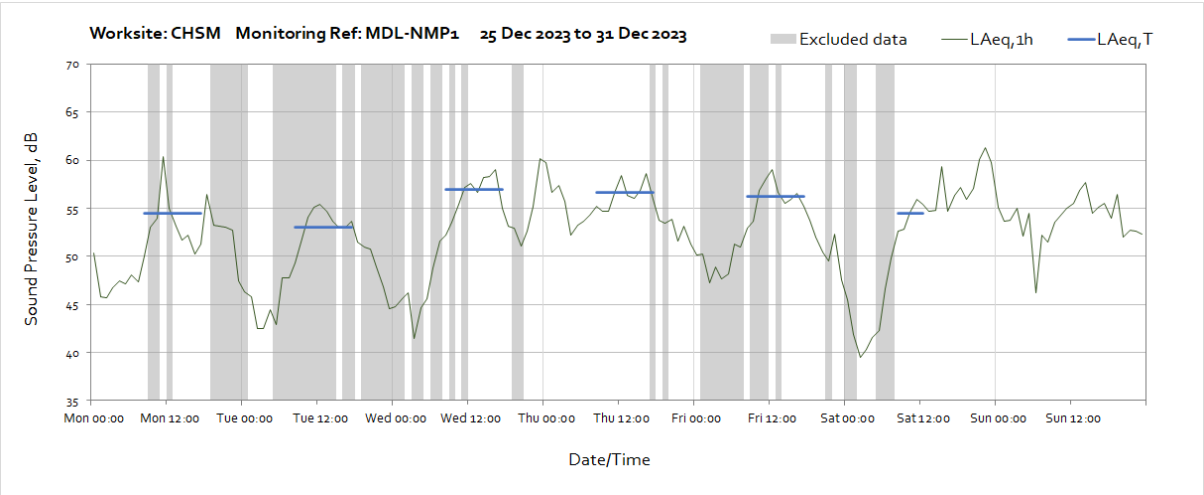
Worksite: CHSM – Monitoring Ref: MDL-NMP1



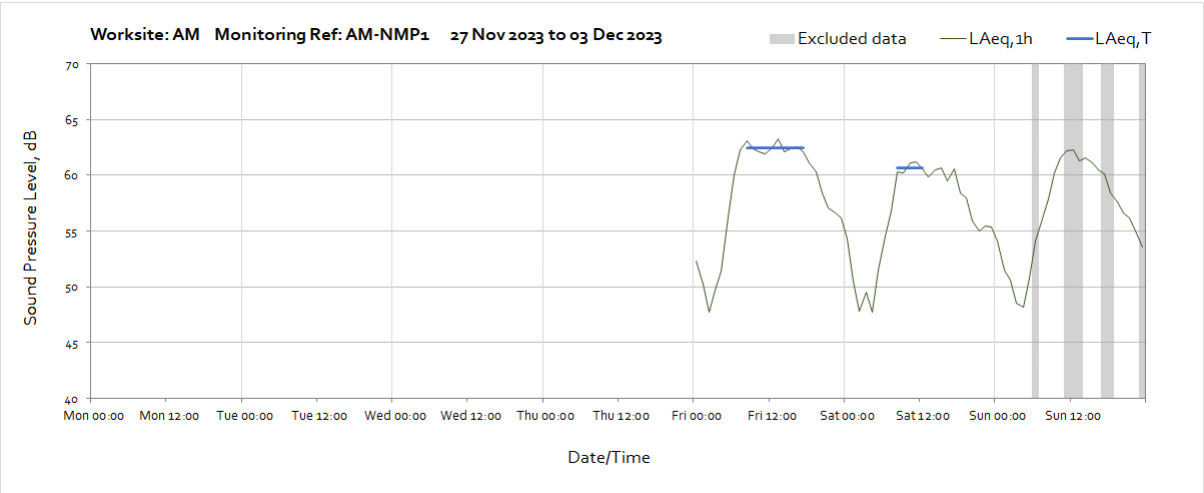


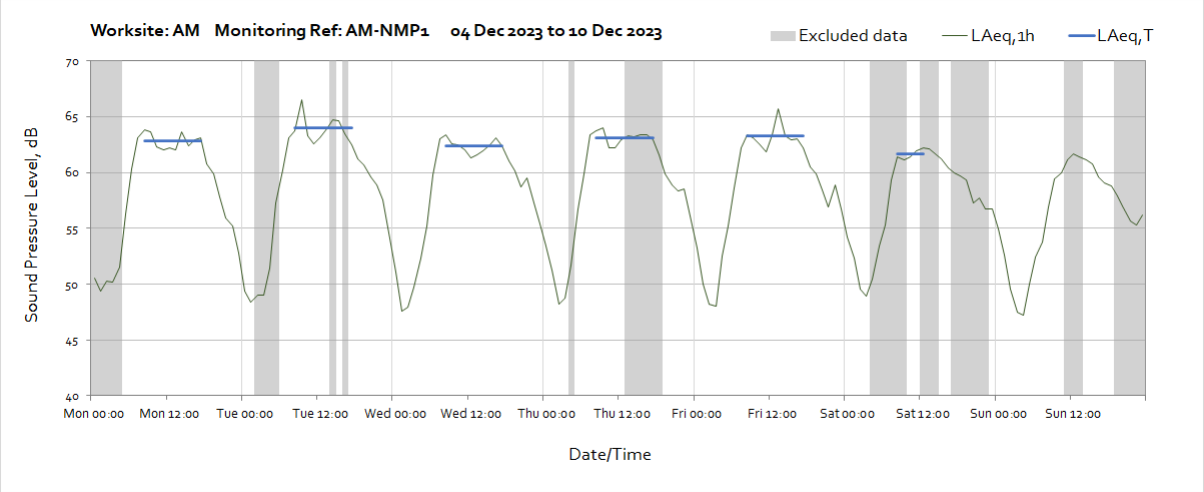


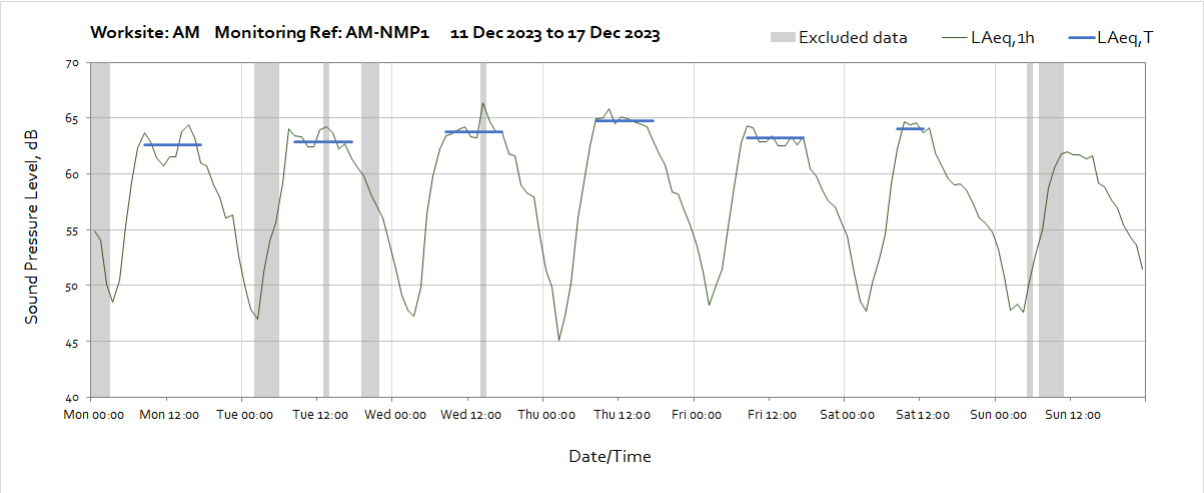




Worksite: AM – Monitoring Ref: AM-NMP1




Worksite: AM Monitoring Ref: AM-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: AM Monitoring Ref: AM-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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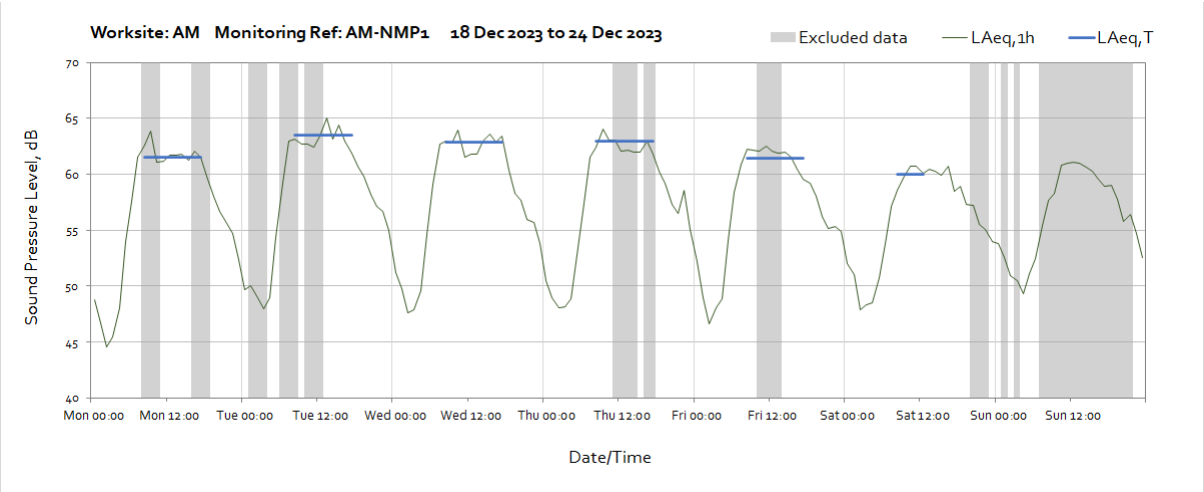
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: AM Monitoring Ref: AM-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
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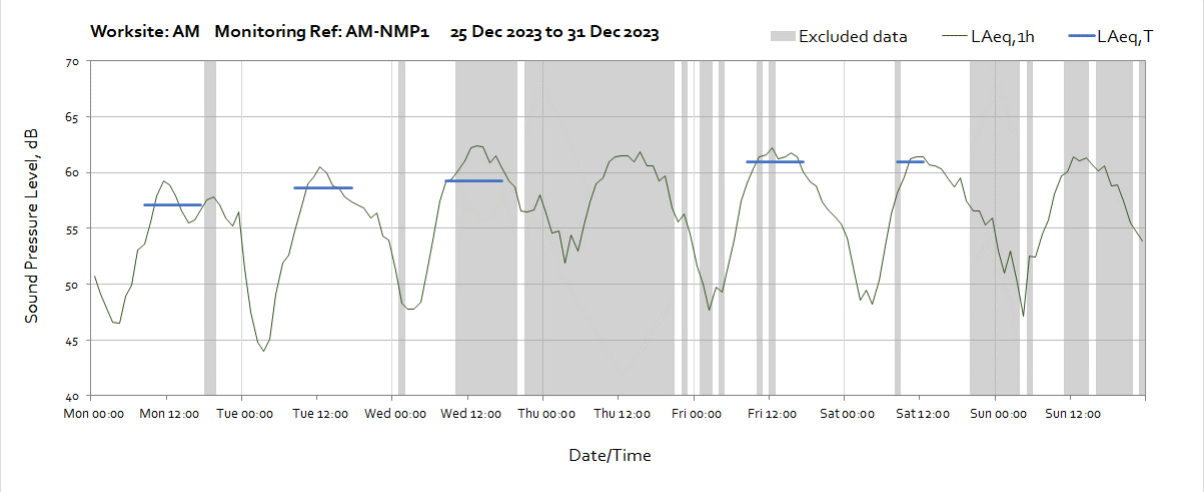
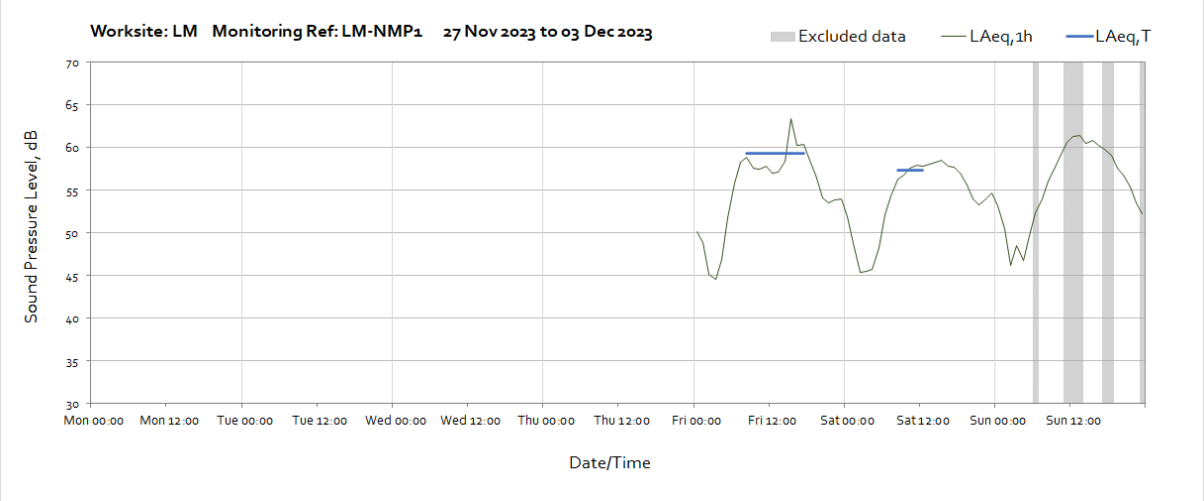
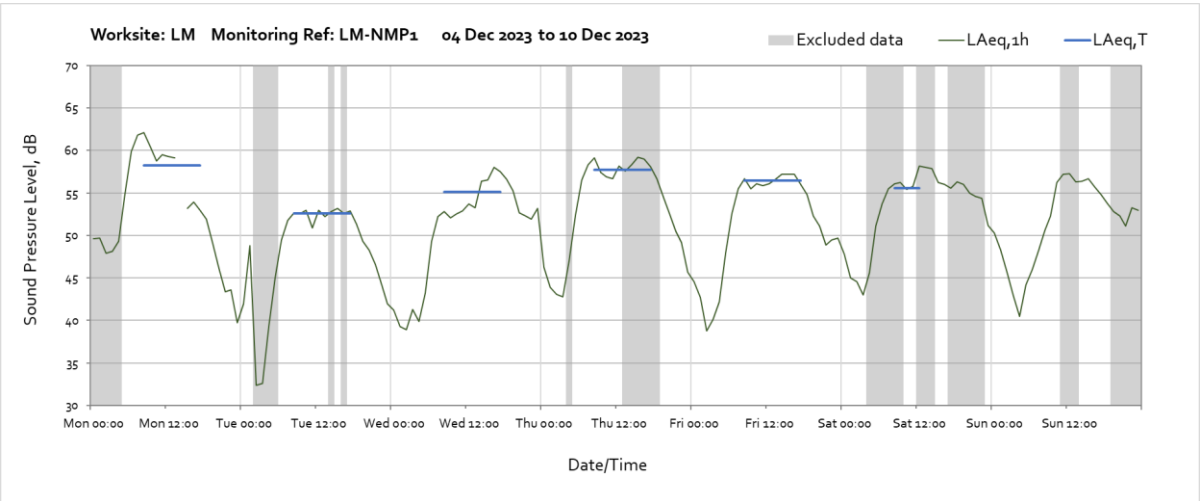
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

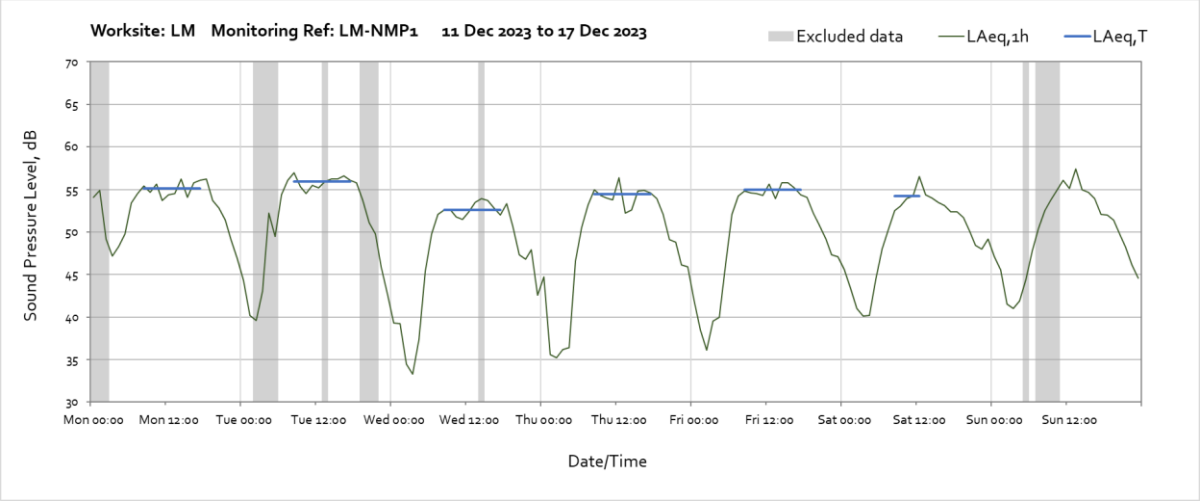


Worksite: LM – Monitoring Ref: LM-NMP1





Note: Missing data between 14:00 and 15:00 on Monday 4th December was due to monitor field calibration.


Worksite: LM Monitoring Ref: LM-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Fri 12:00
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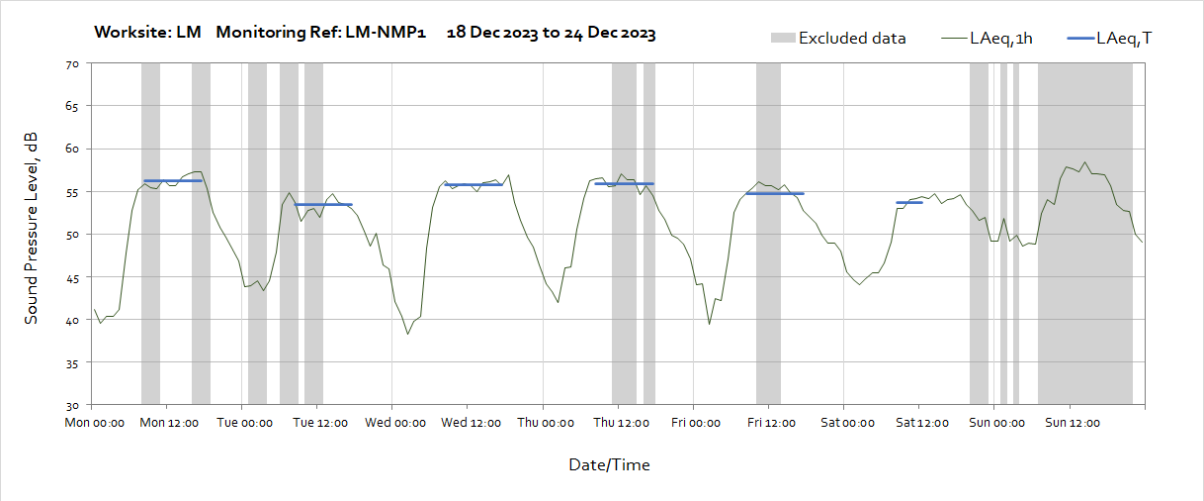
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: LM Monitoring Ref: LM-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
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Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
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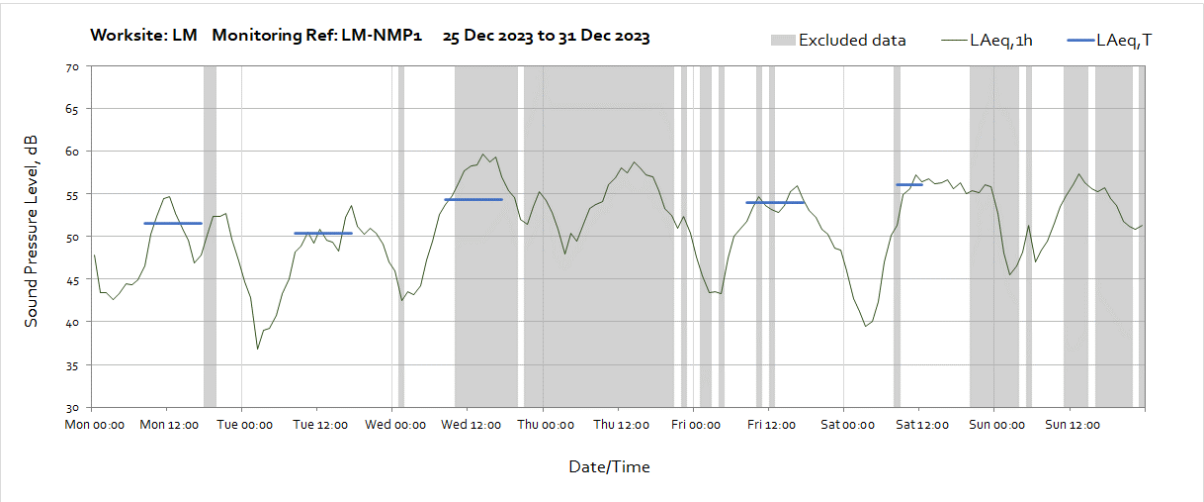
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: LM Monitoring Ref: LM-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
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45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
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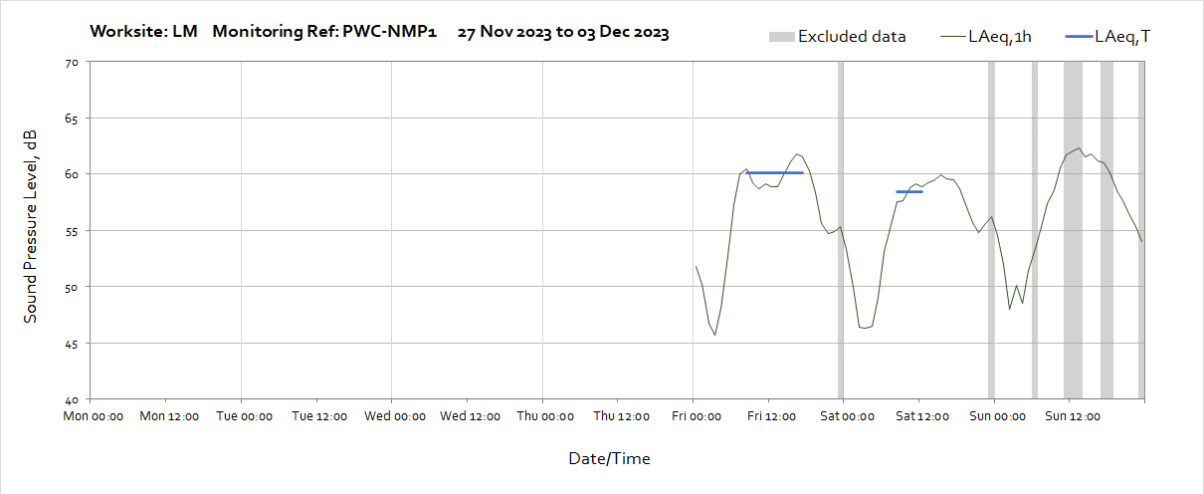
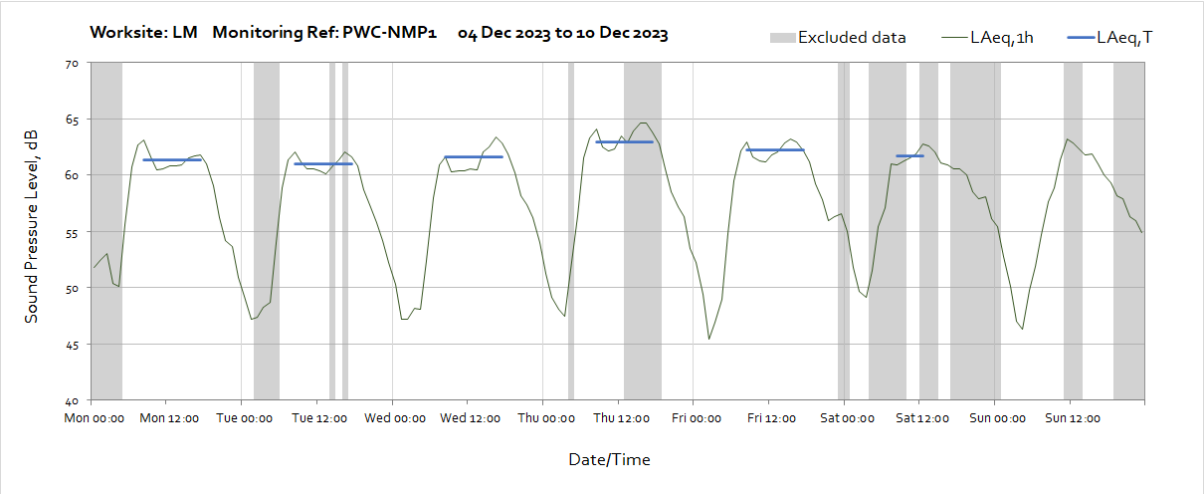
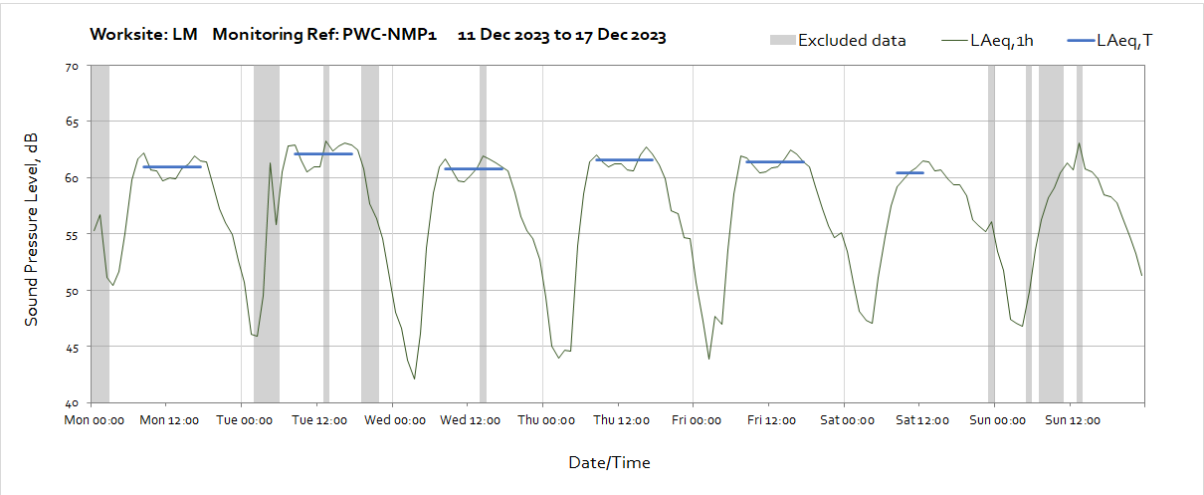
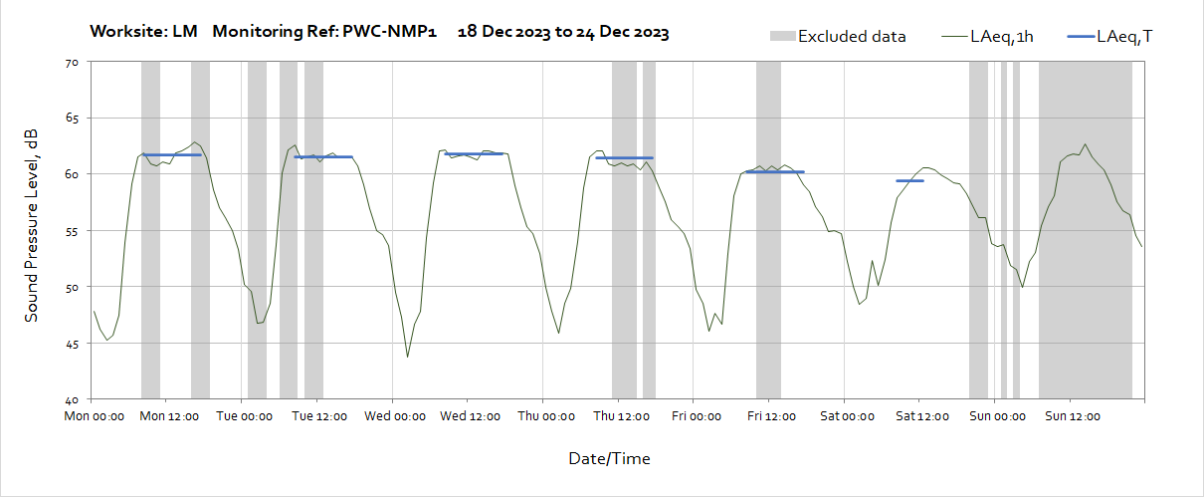
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

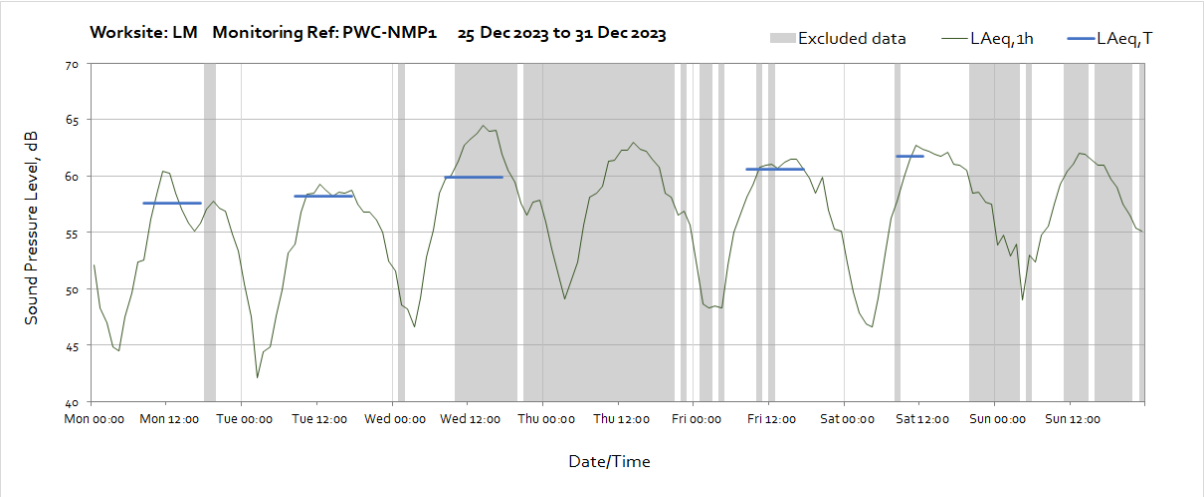
Worksite: LM – Monitoring Ref: PWC-NMP1



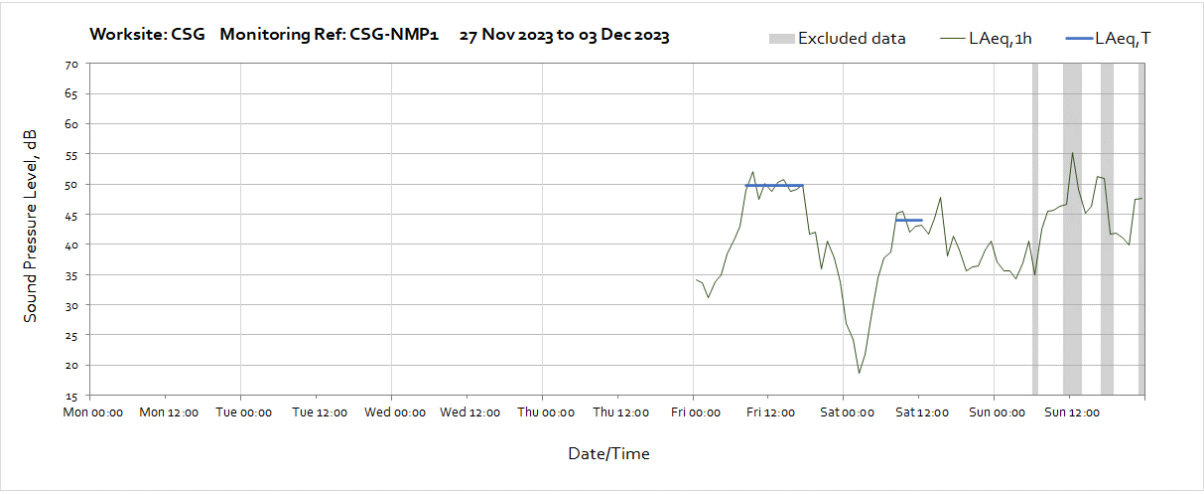


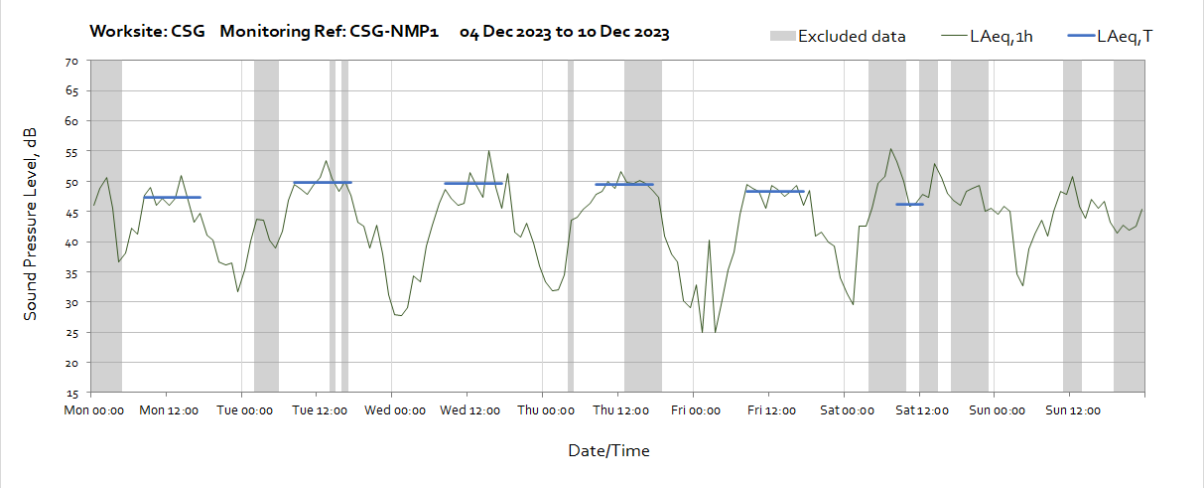






Worksite: CSG – Monitoring Ref: CSG-NMP1




Worksite: CSG Monitoring Ref: CSG-NMP1 04 Dec 2023 to 10 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
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25
20
15
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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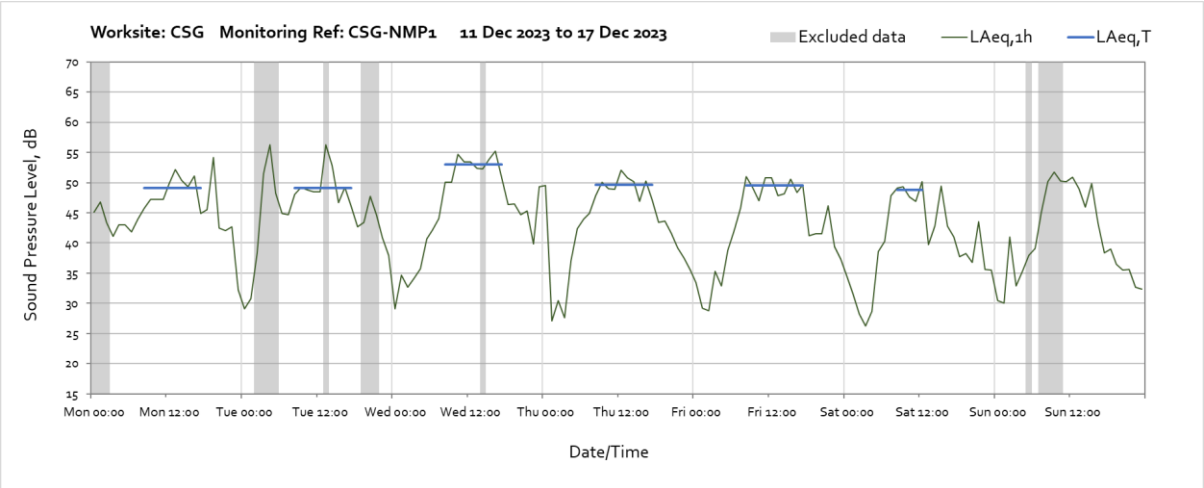
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CSG Monitoring Ref: CSG-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
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25
20
15
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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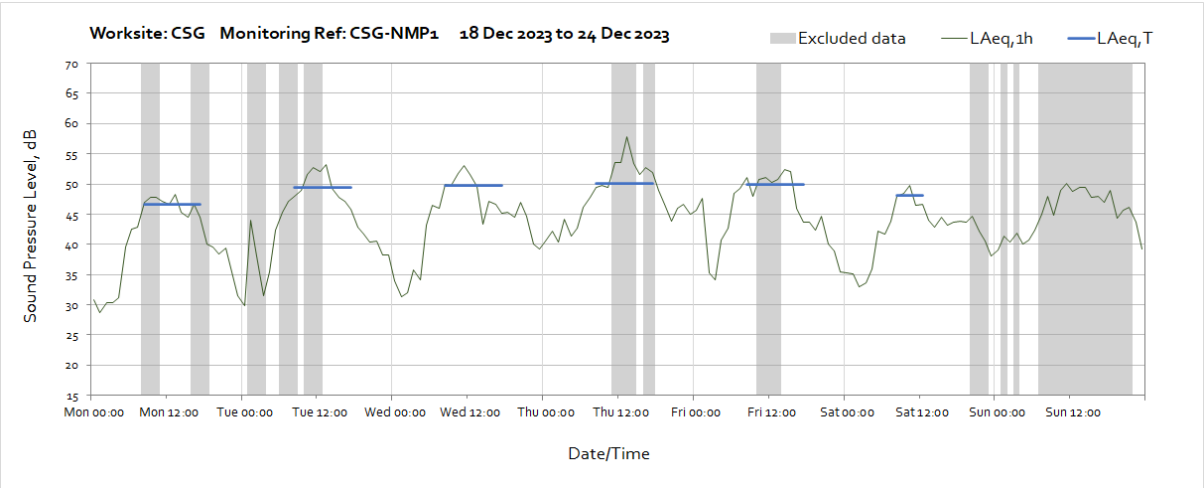
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CSG Monitoring Ref: CSG-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
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55
50
45
40
35
30
25
20
15
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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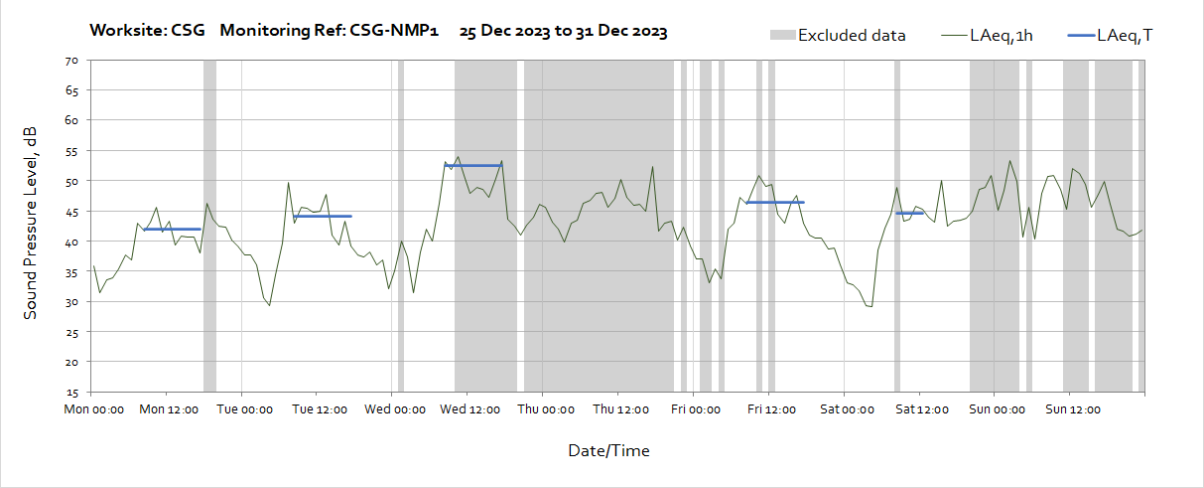
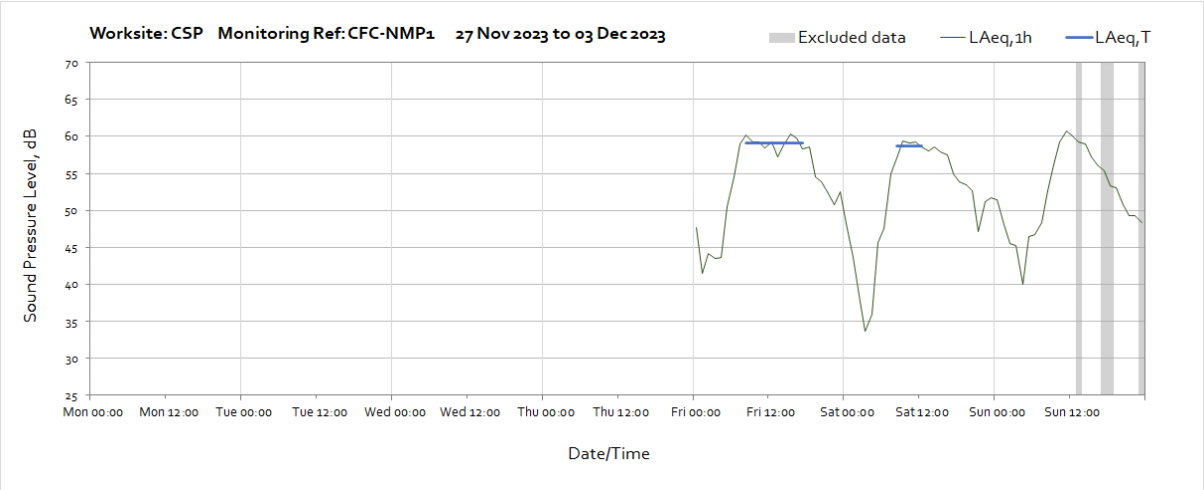
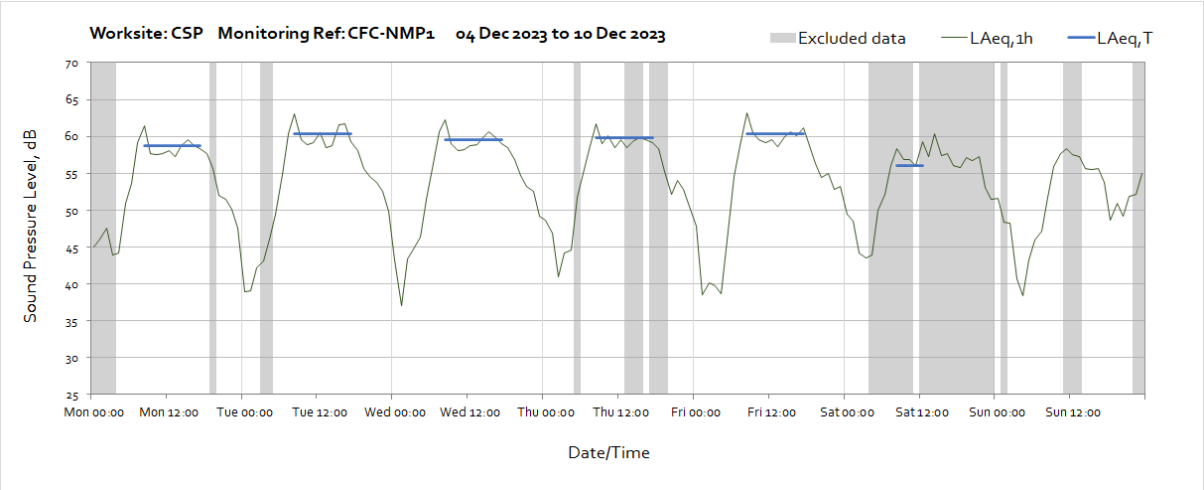
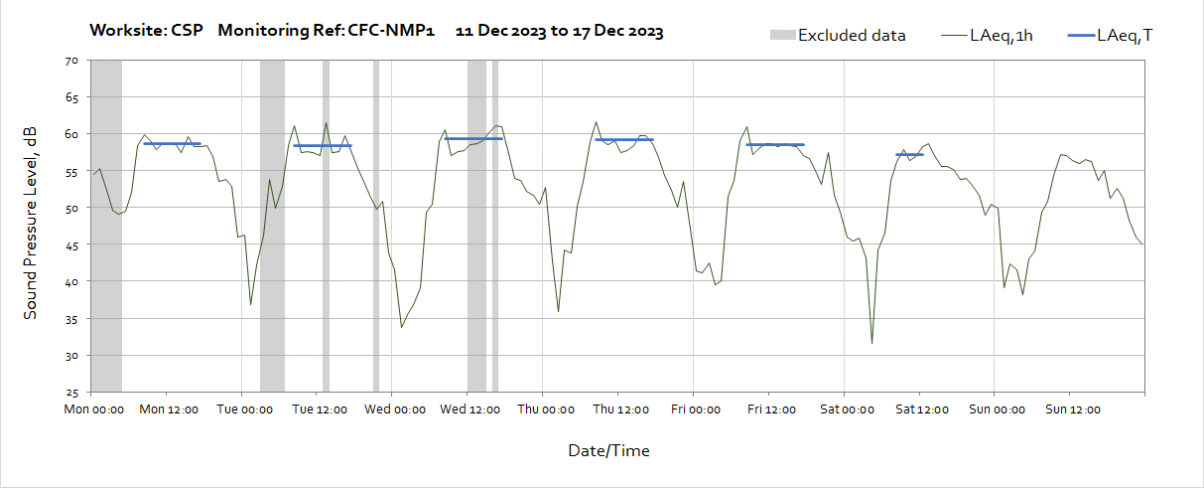
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

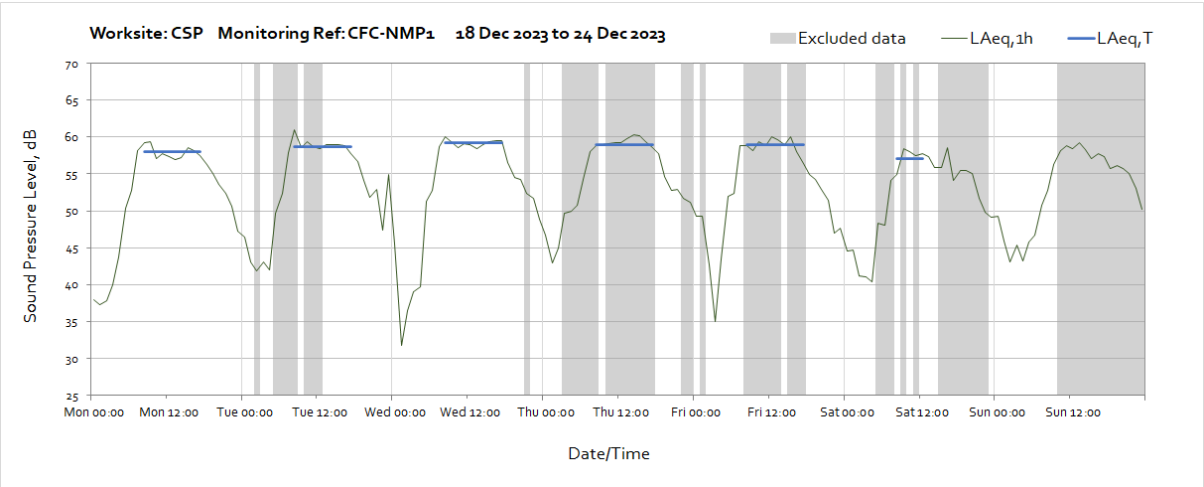


Worksite: CSP – Monitoring Ref: CFC-NMP1






Worksite: CSP Monitoring Ref: CFC-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CSP Monitoring Ref: CFC-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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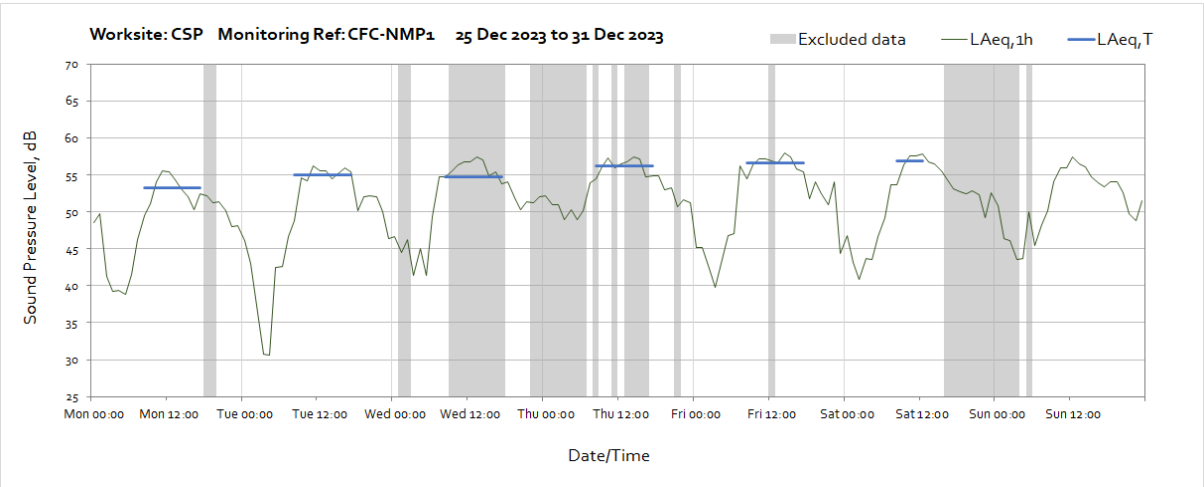
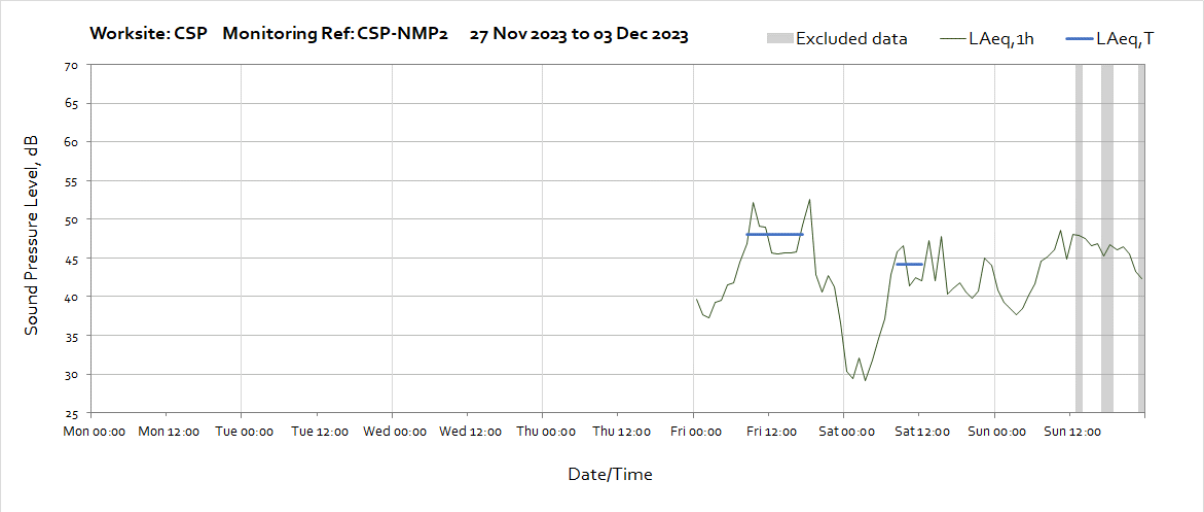
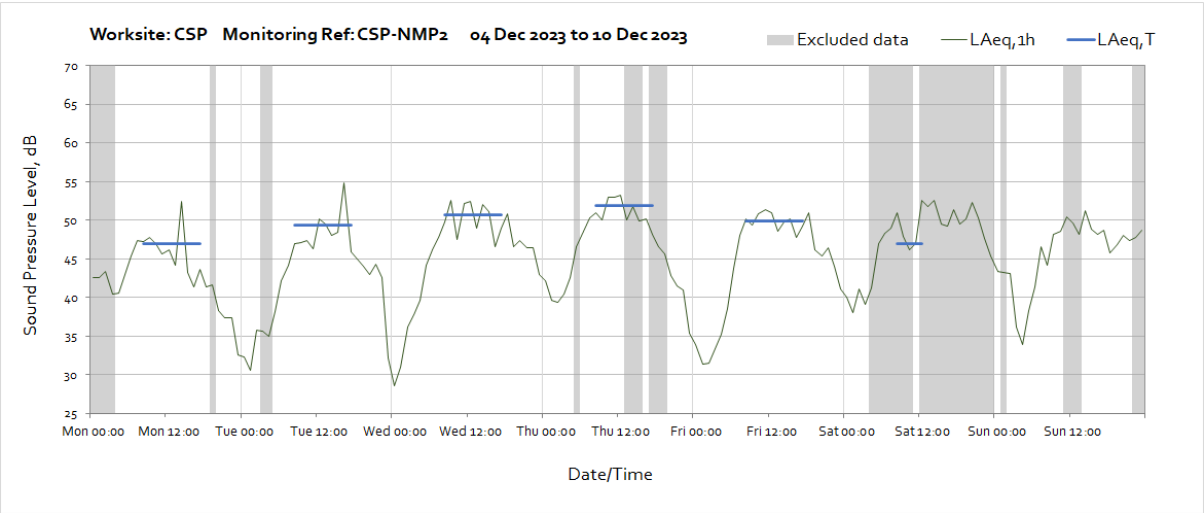
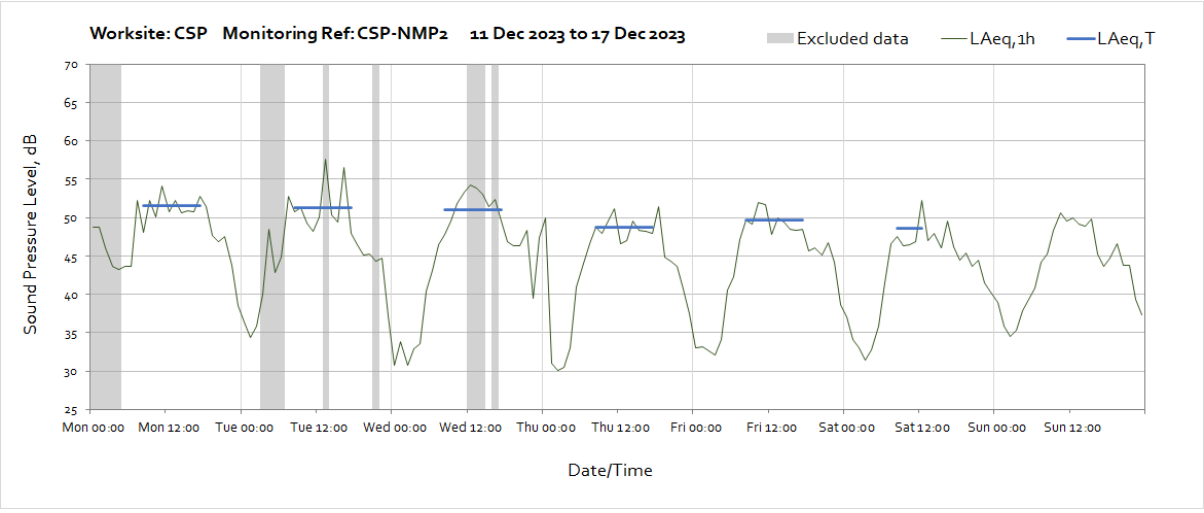
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

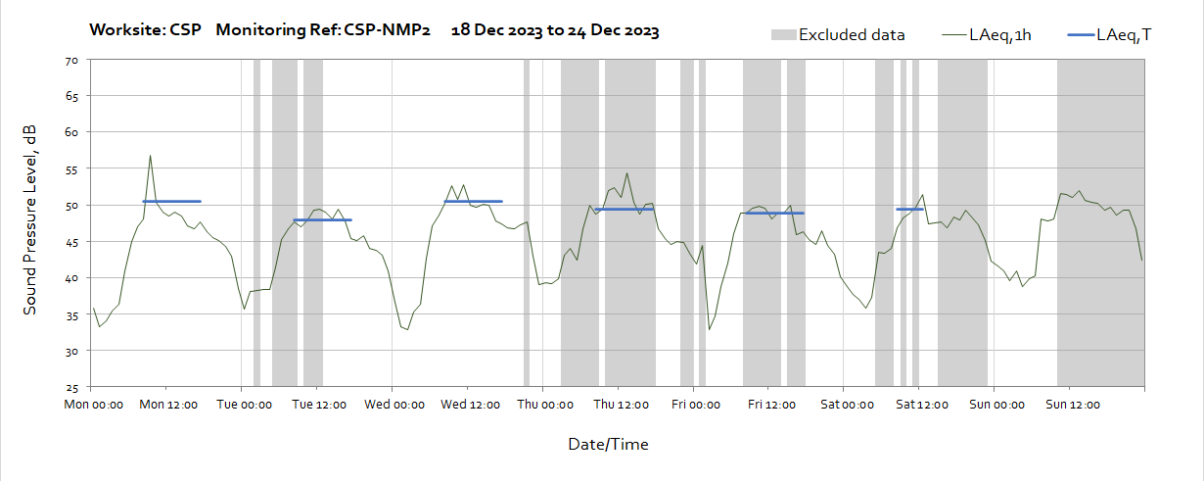

Worksite: CSP Monitoring Ref: CFC-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

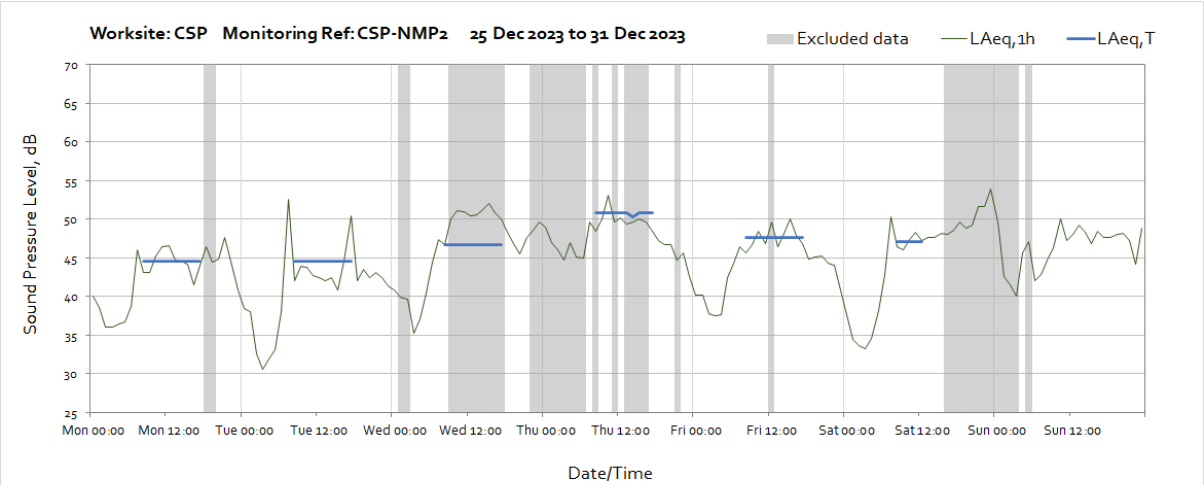
Worksite: CSP – Monitoring Ref: CSP-NMP2



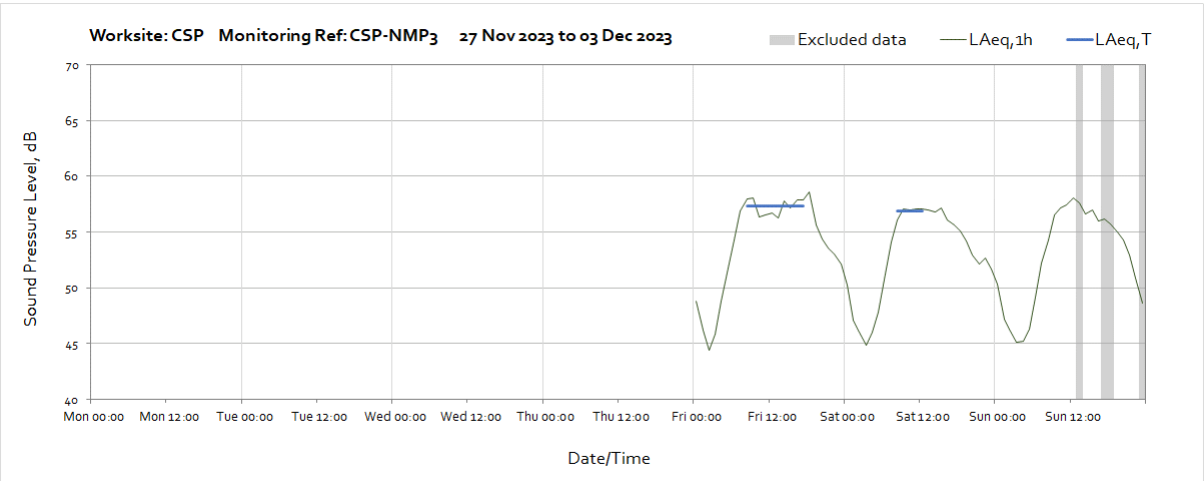


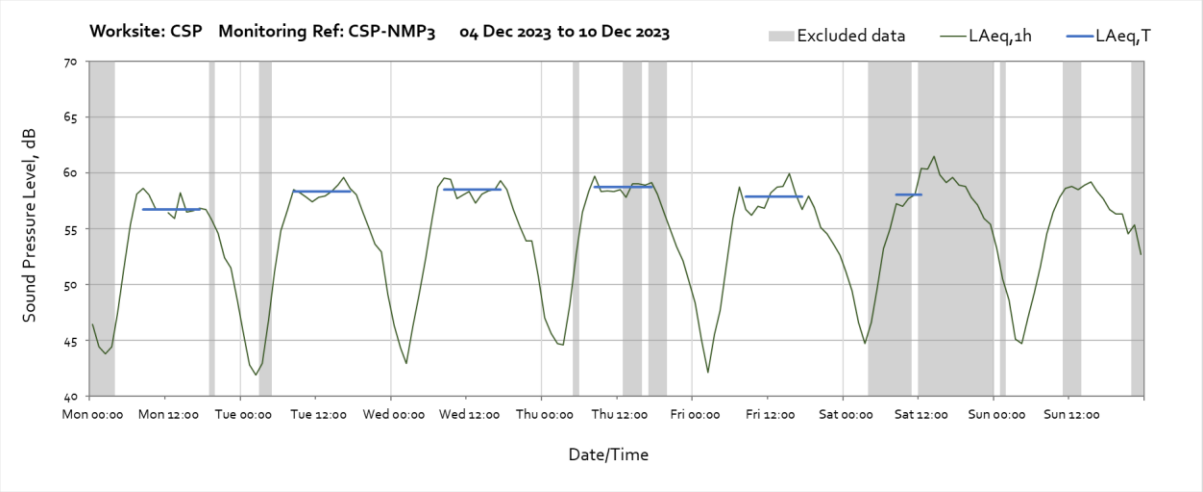




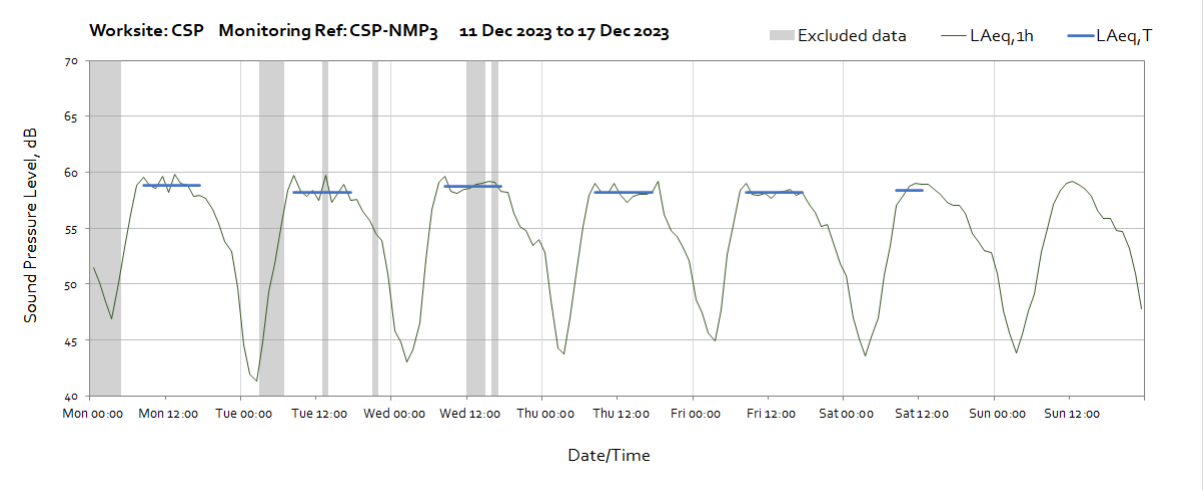


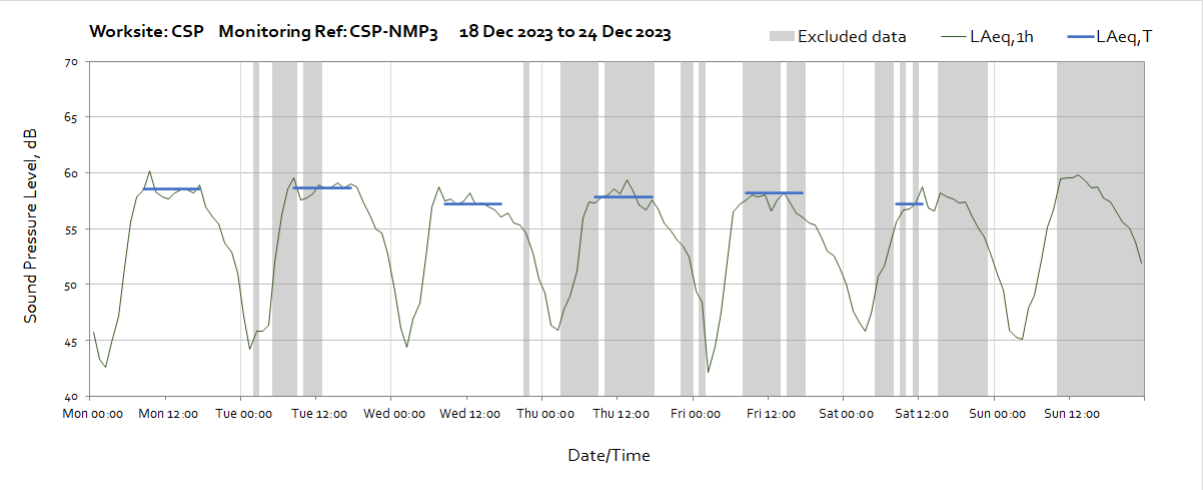
Worksite: CSP – Monitoring Ref: CSP-NMP3

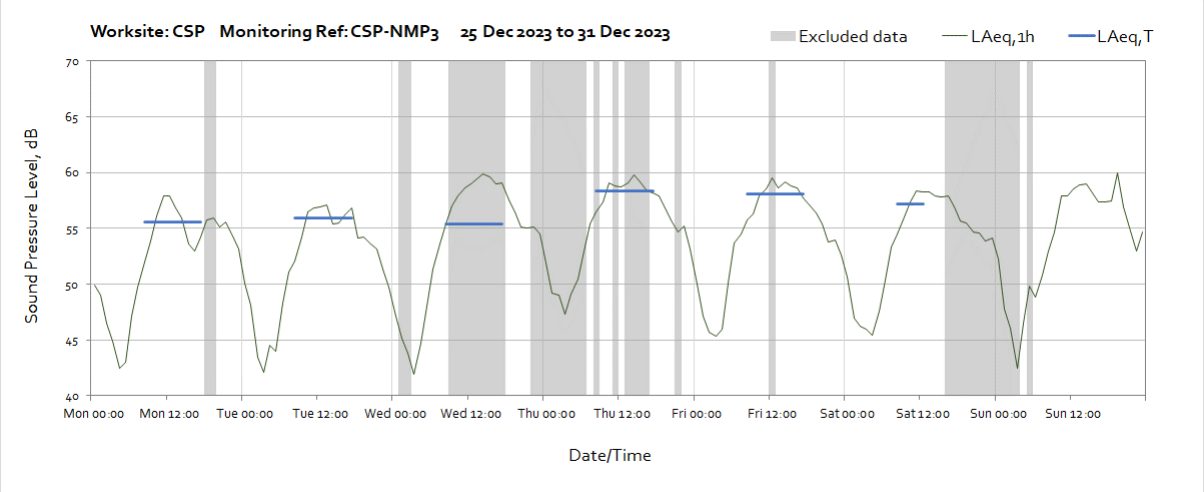




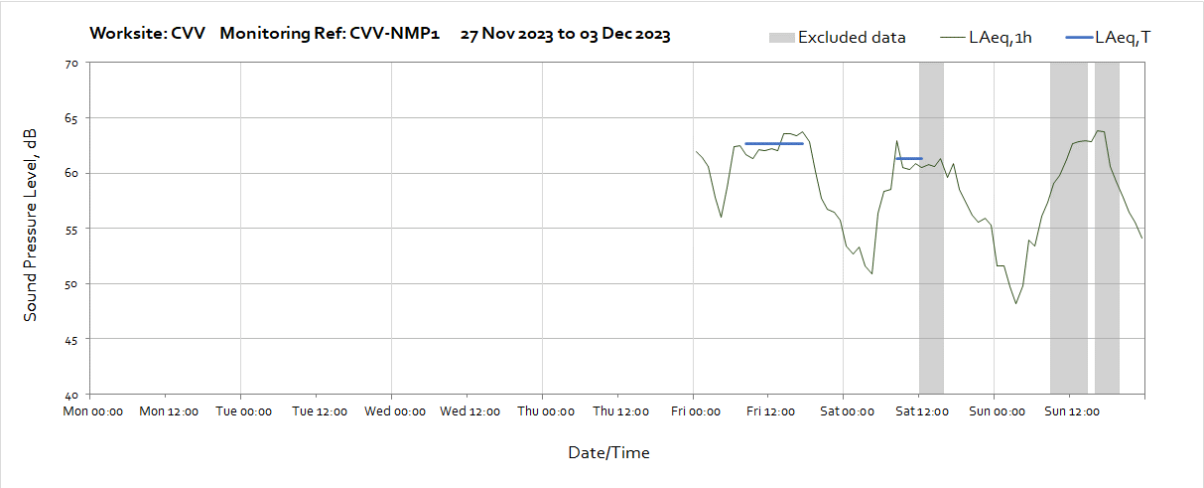
Note: Missing data between 11:00 and 12:00 on Monday 4th December was due to monitor field calibration.

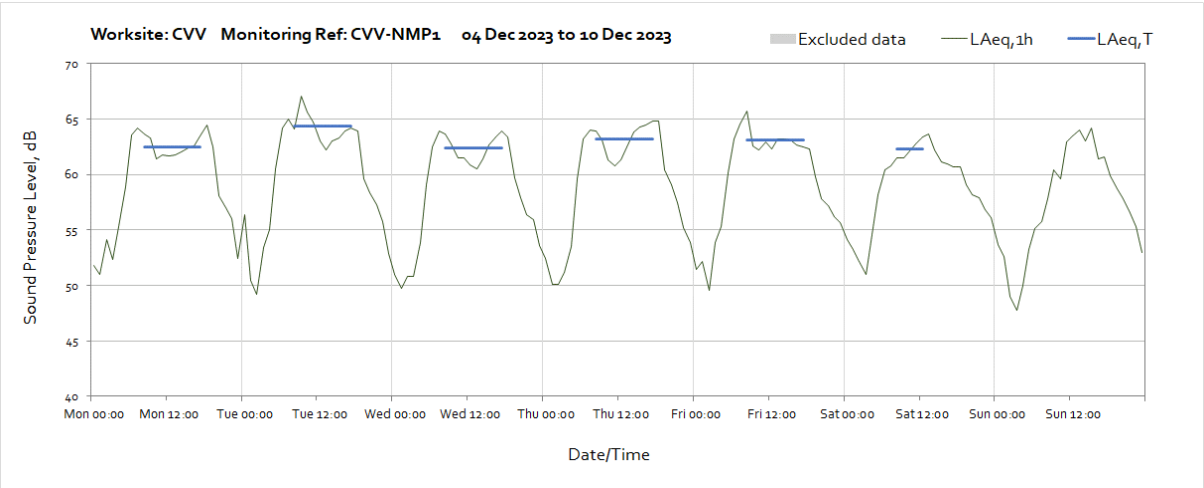


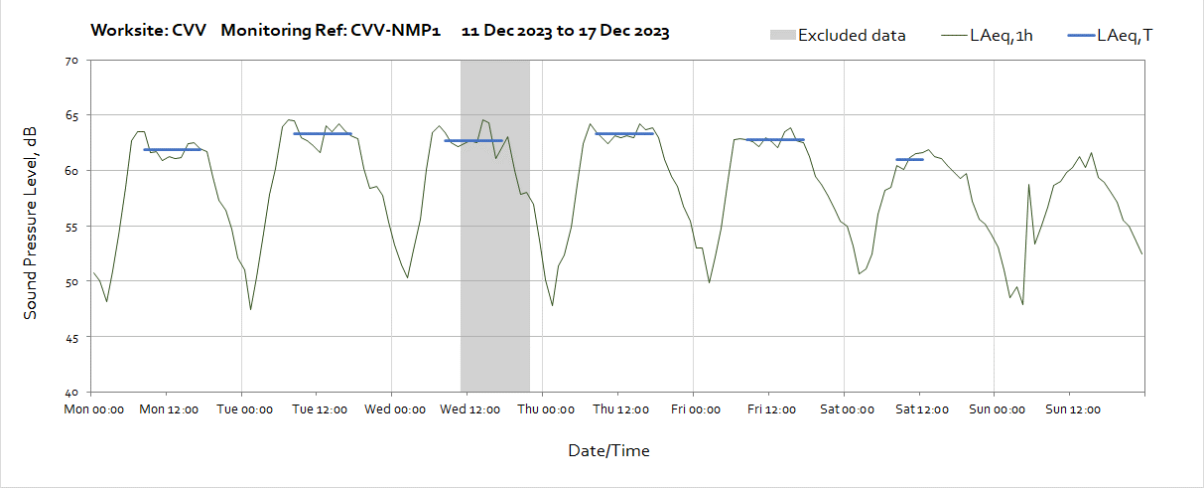


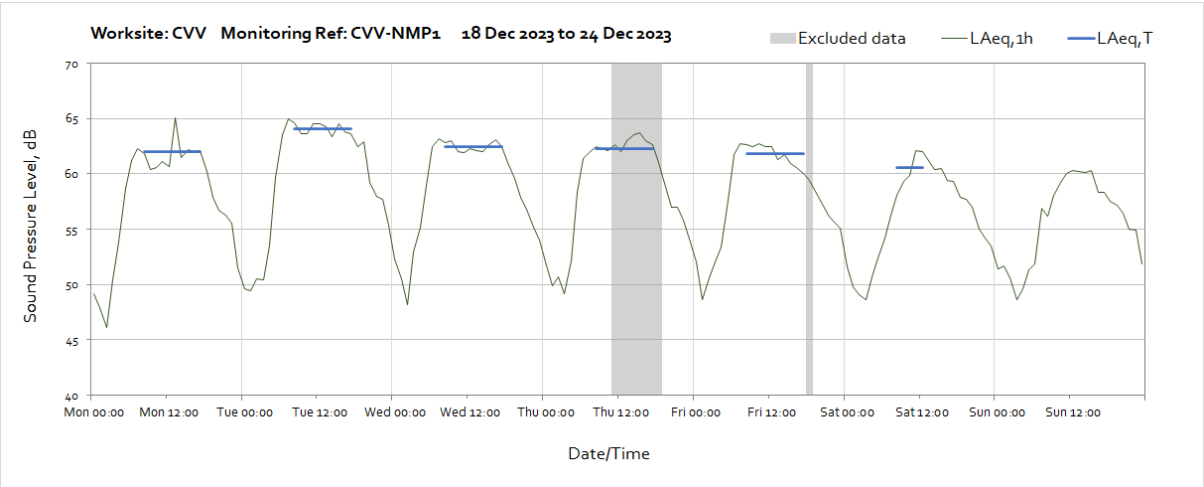


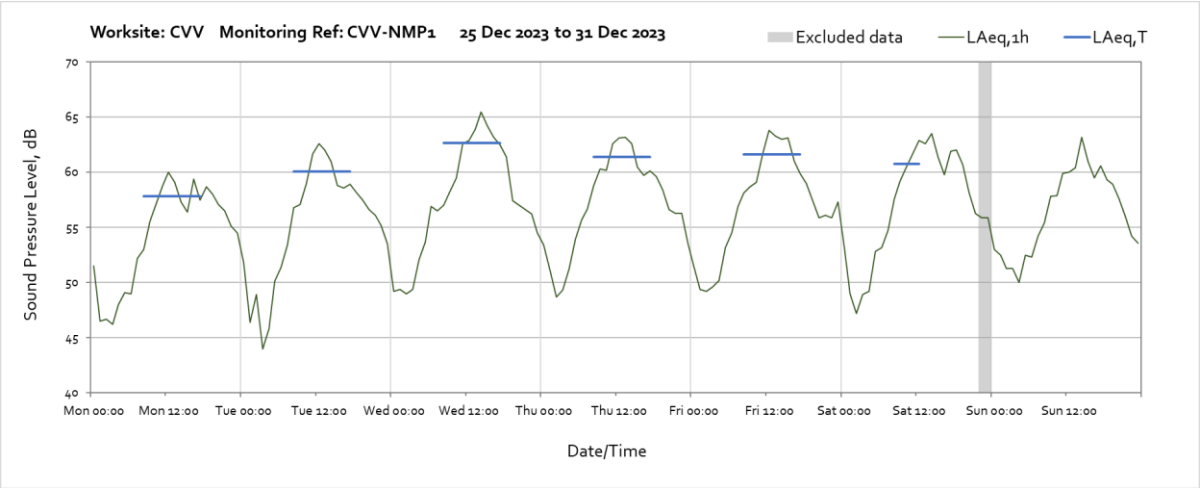
Worksite: CVV– Monitoring Ref: CVV-NMP1



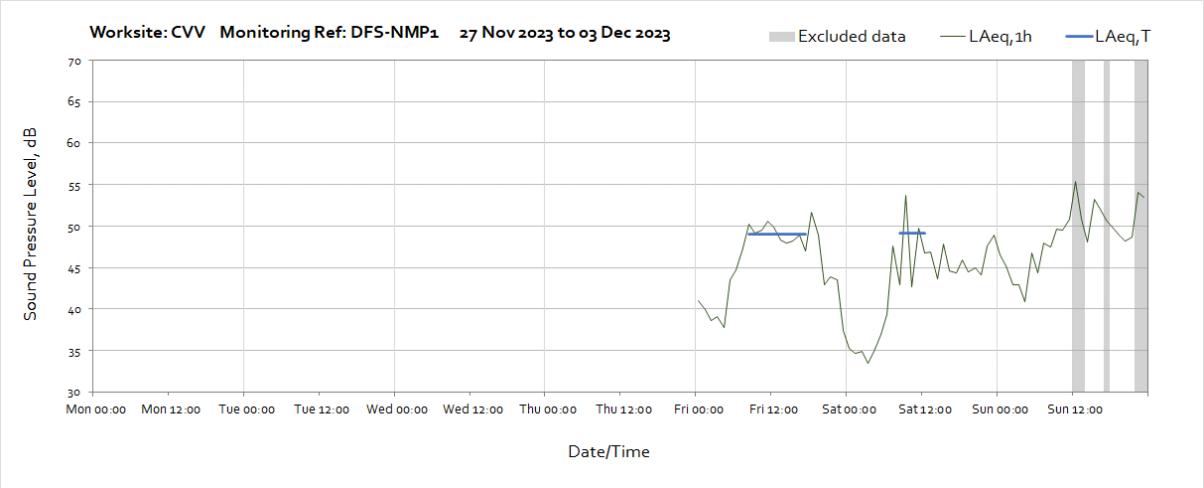


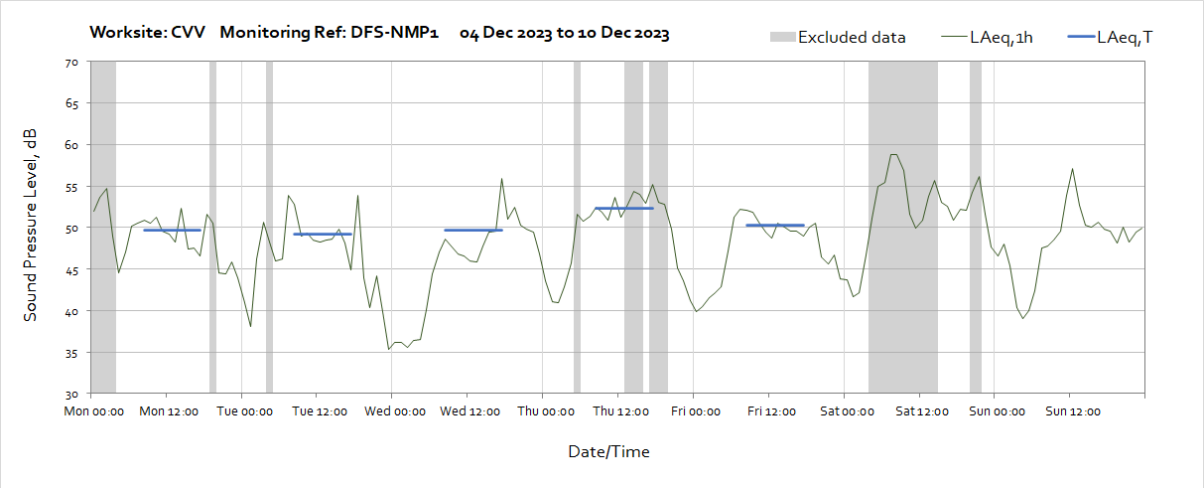

Worksite: CVV Monitoring Ref: CVV-NMP1 11 Dec 2023 to 17 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

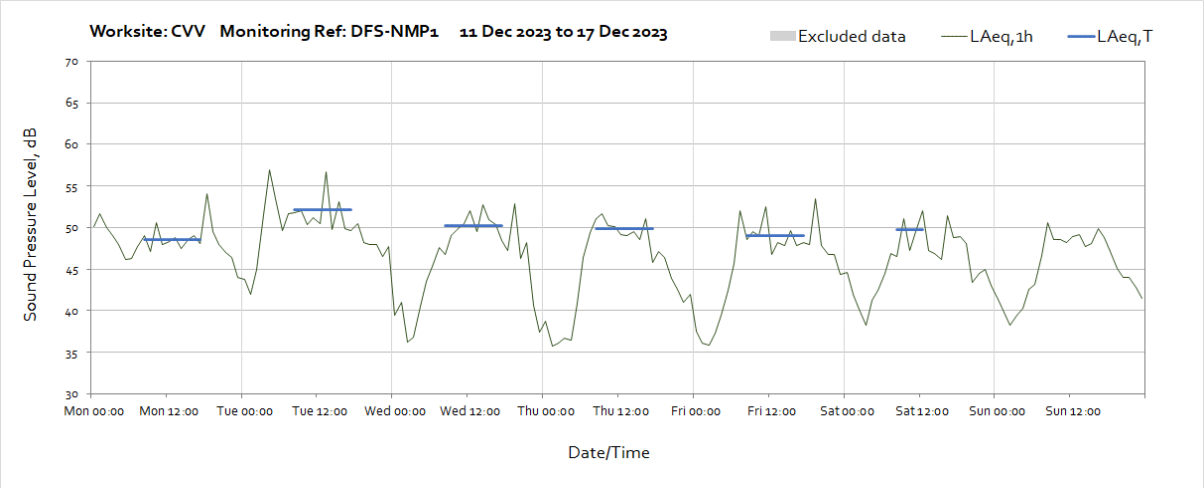

Worksite: CVV Monitoring Ref: CVV-NMP1 18 Dec 2023 to 24 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

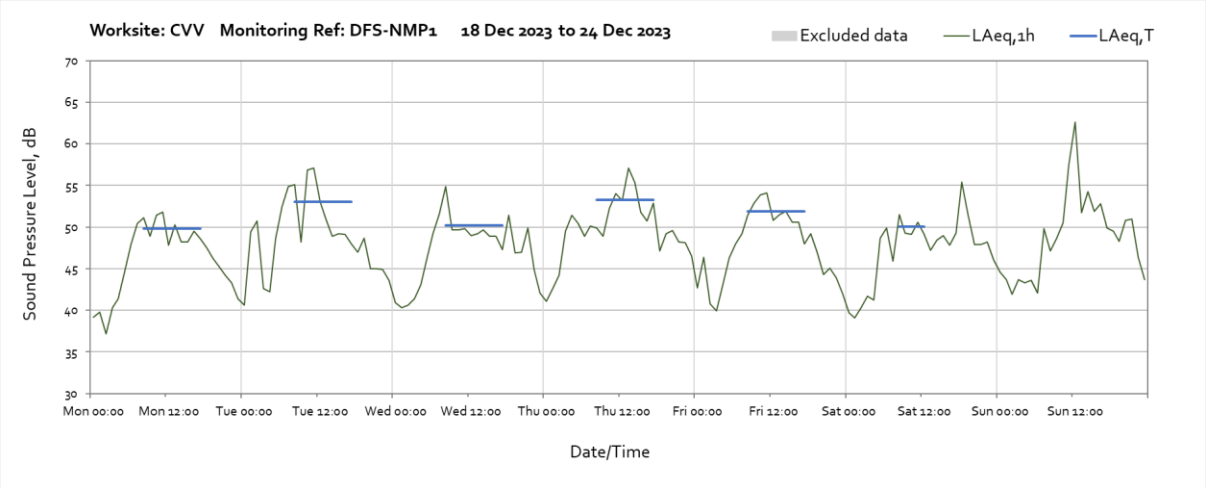

Worksite: CVV Monitoring Ref: CVV-NMP1 25 Dec 2023 to 31 Dec 2023
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

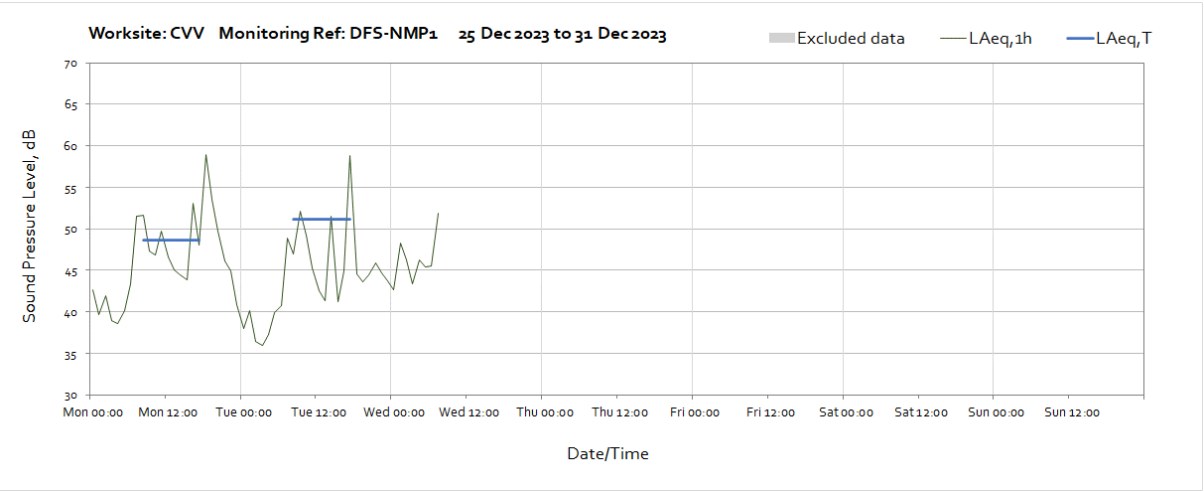
Worksite: CVV – Monitoring Ref: DFS-NMP1





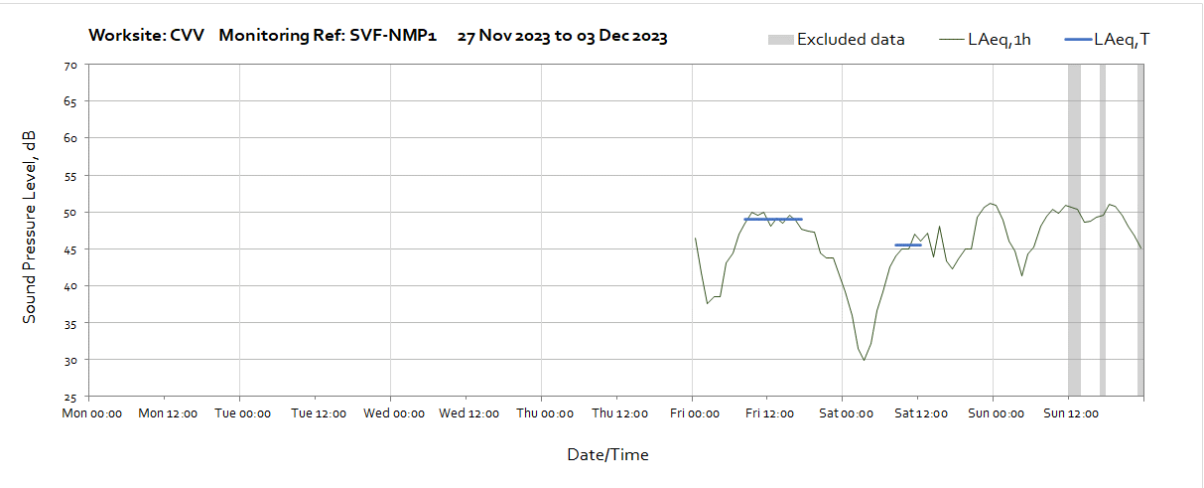


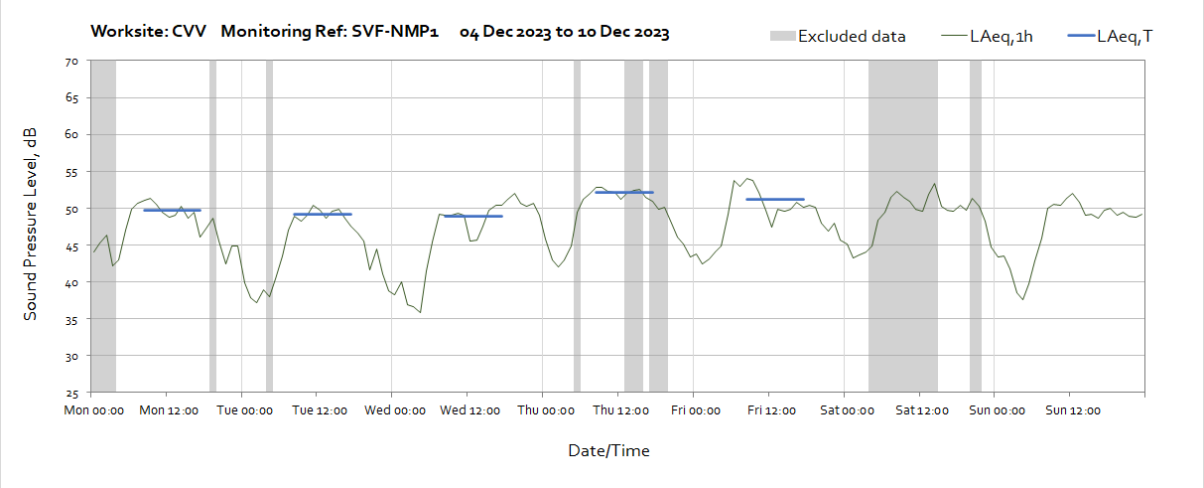


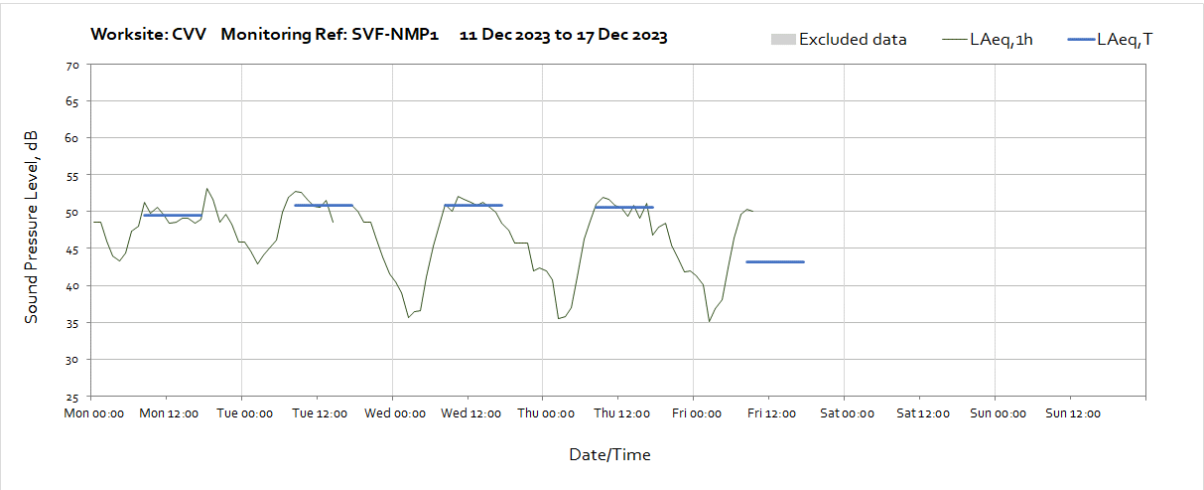


Note: Missing data from 08:00 on Wednesday 27th December until month end was due to depleted monitor batteries.

Worksite: CVV – Monitoring Ref: SVF-NMP1





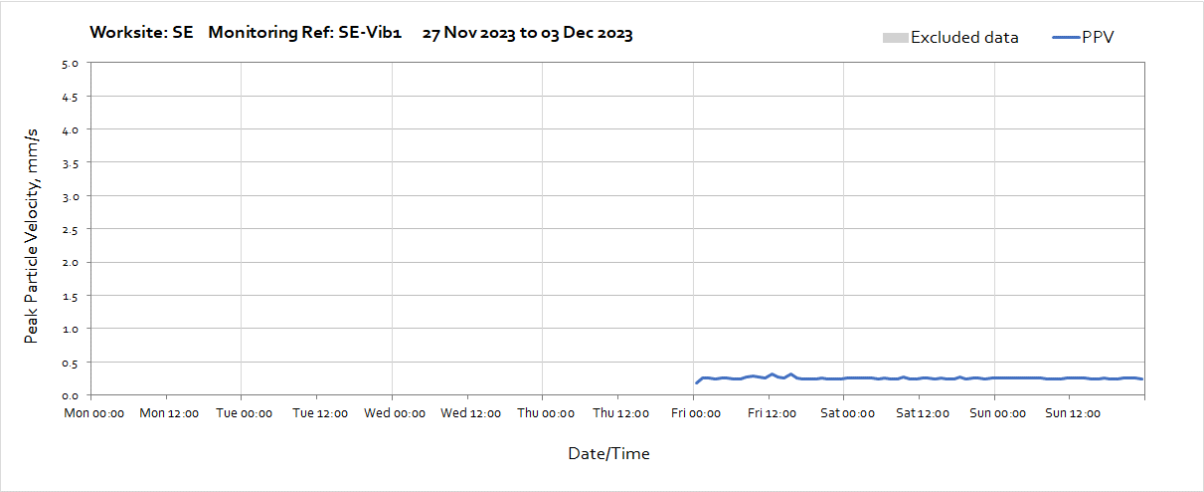


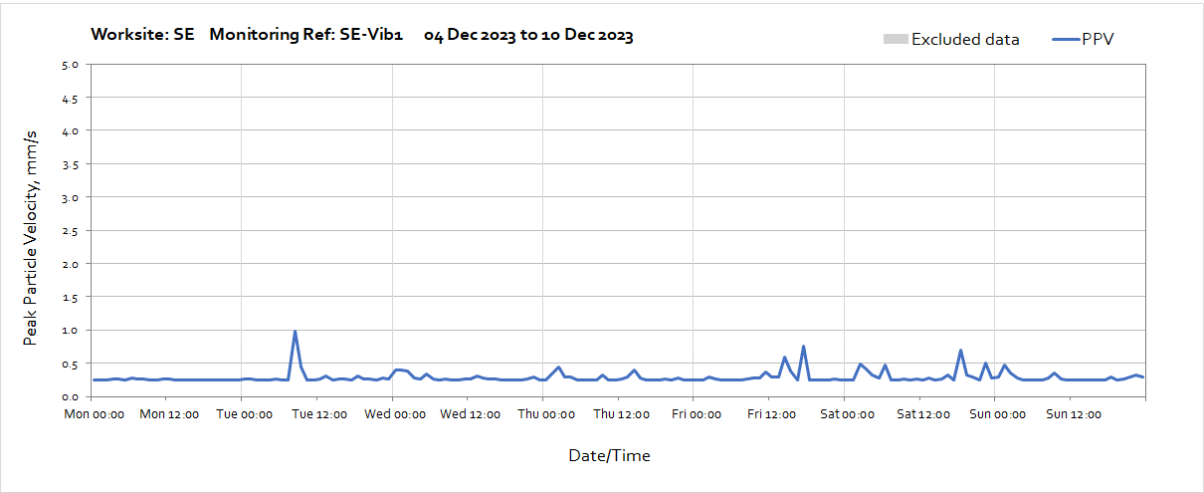
Note: Missing data between 15:00 and 16:00 on Tuesday 12th December was due to a communication error between the monitoring station and server. Monitor was decommissioned at 10:00 on Friday 15th December.

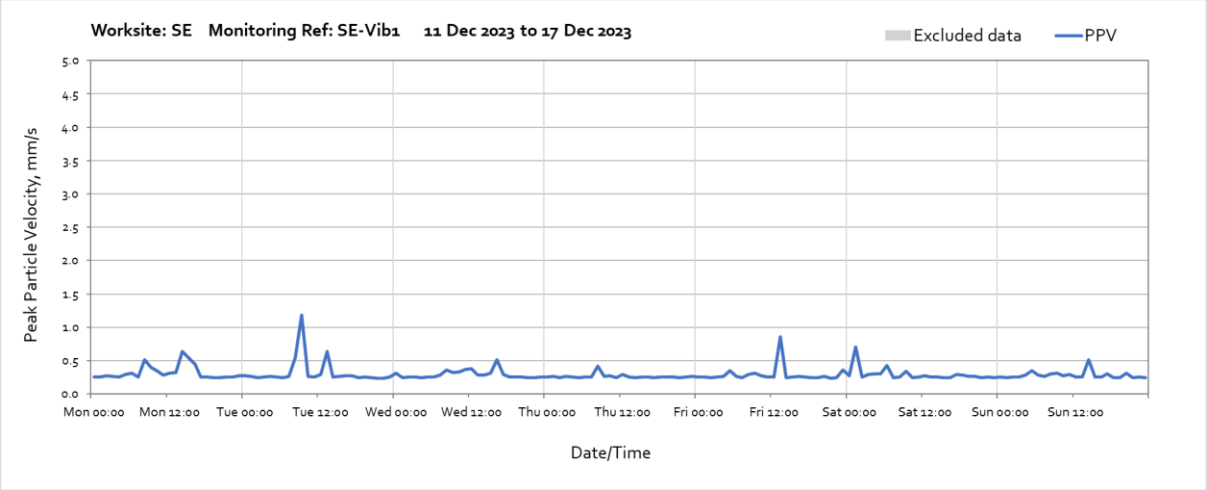
Vibration

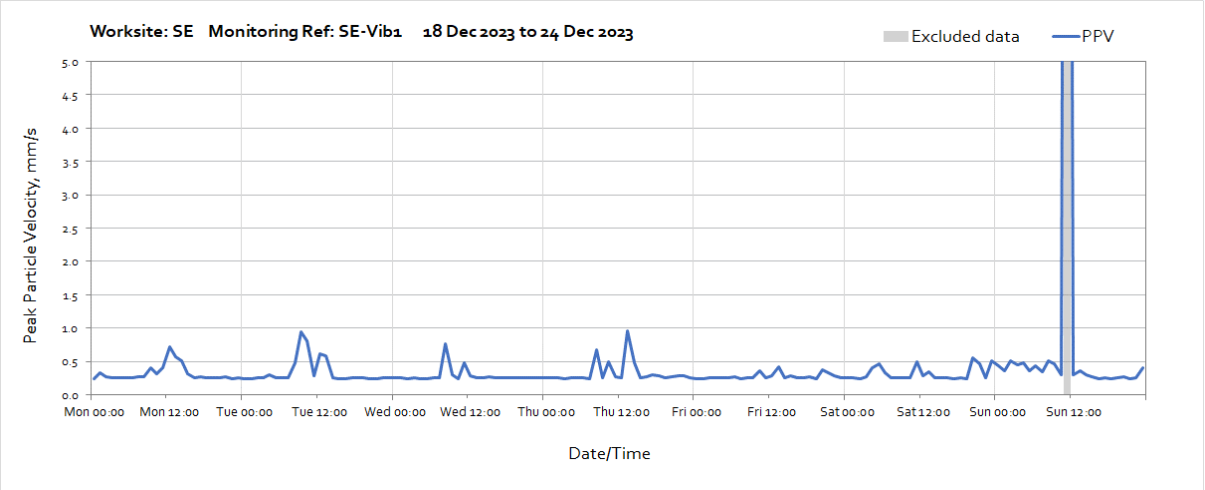
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Periods where PPV values have been affected by local interference with the vibration monitor or only measured for part 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.

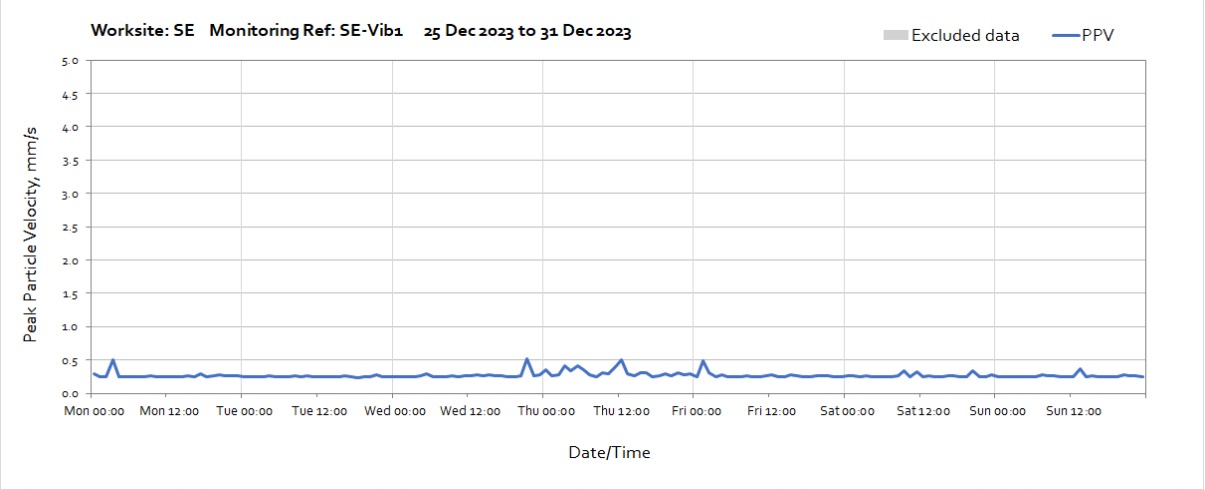
Worksite: SE – Monitoring Ref: SE-Vib 1



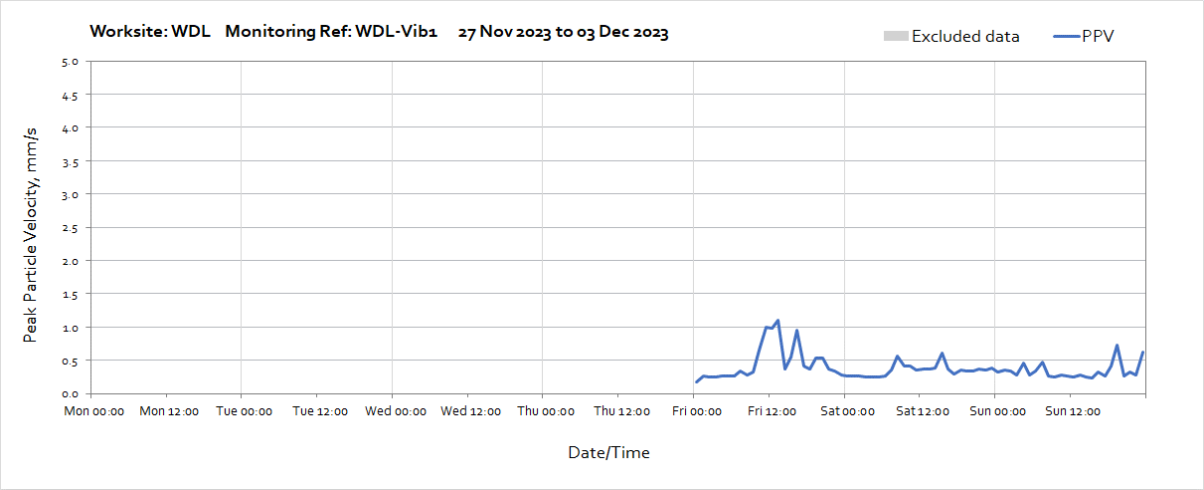


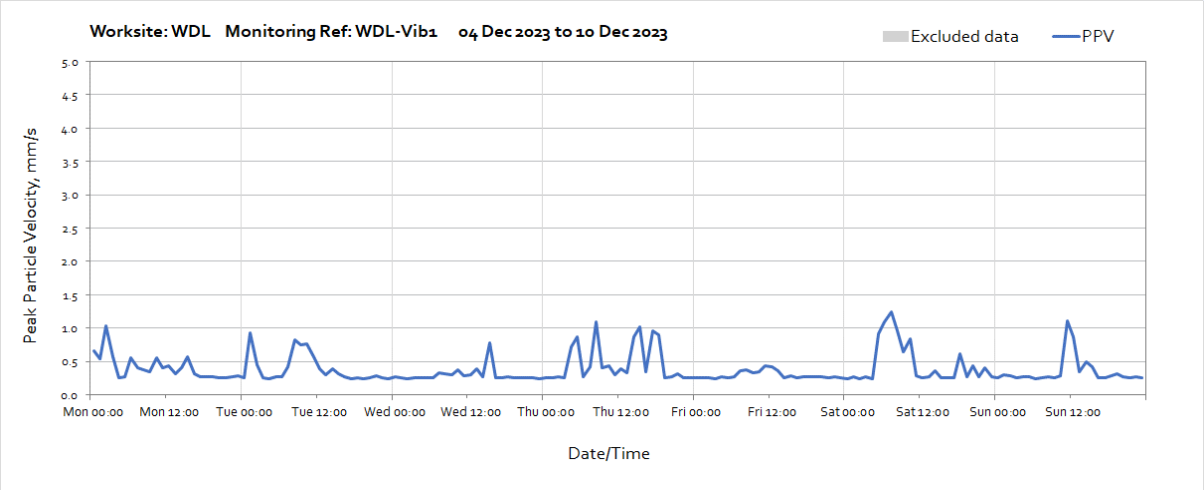

Worksite: SE Monitoring Ref: SE-Vib1 11 Dec 2023 to 17 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

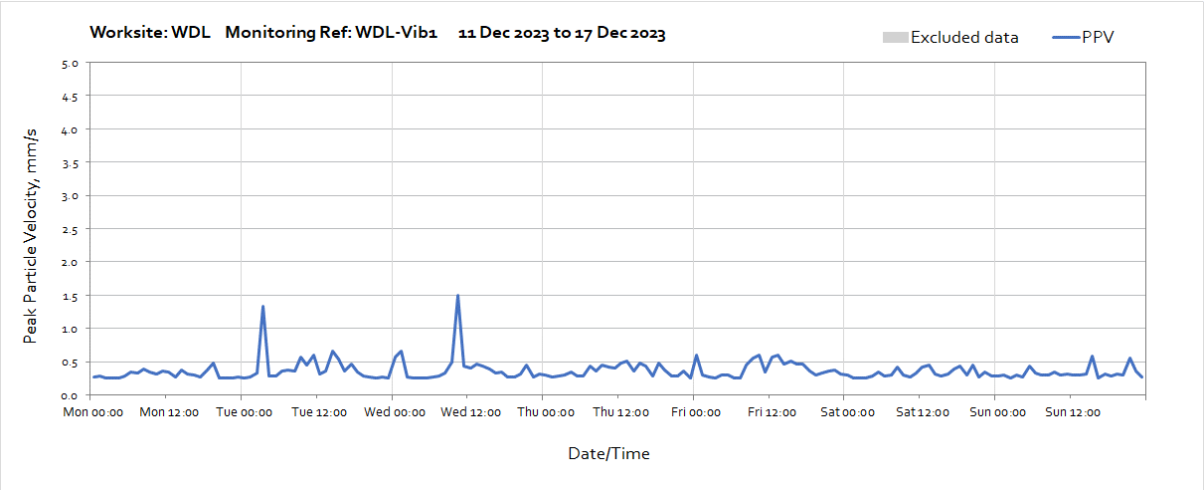

Worksite: SE Monitoring Ref: SE-Vib1 18 Dec 2023 to 24 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

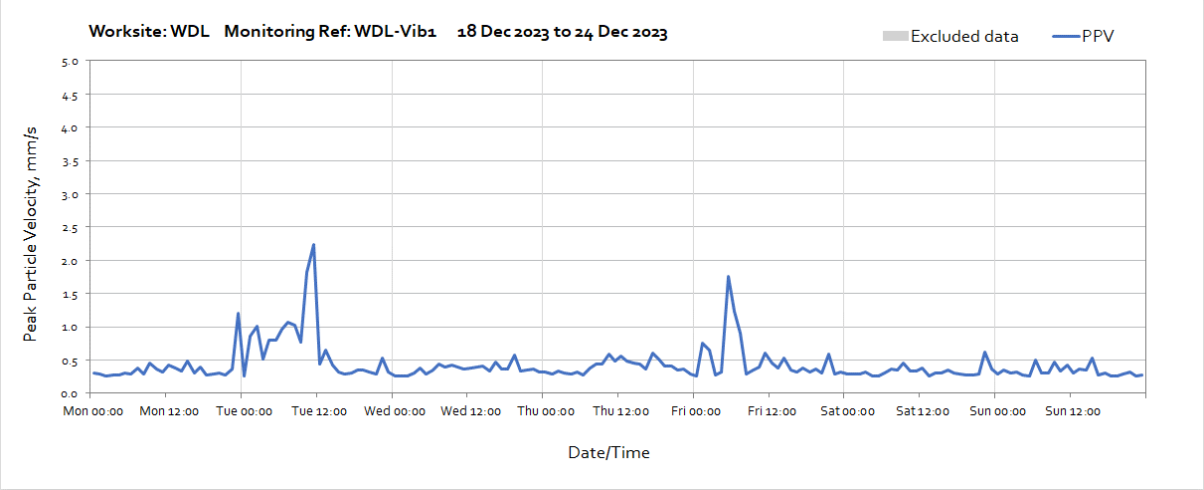

Worksite: SE Monitoring Ref: SE-Vib1 25 Dec 2023 to 31 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

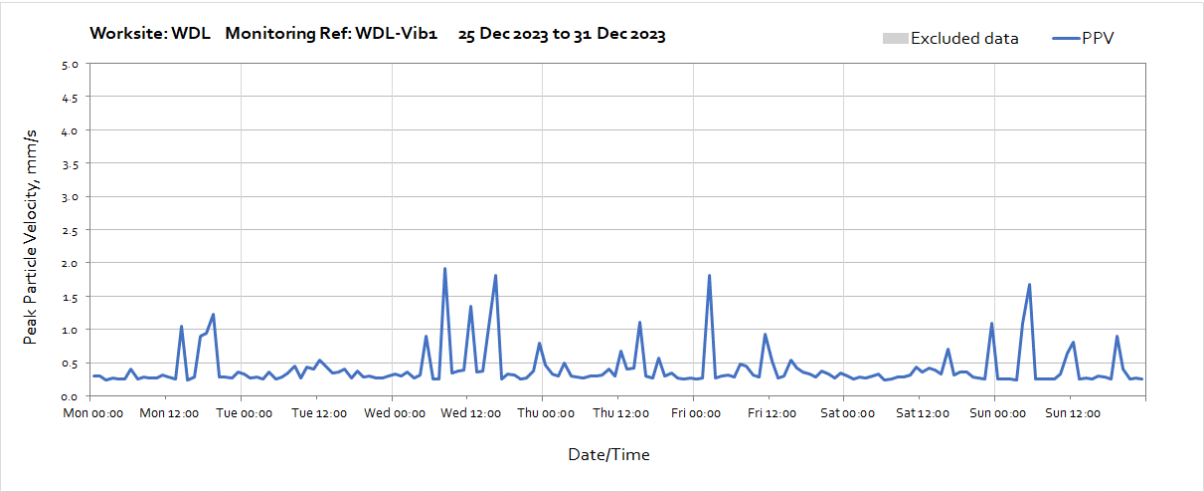
Worksite: WDL – Monitoring Ref: WDL-Vib 1



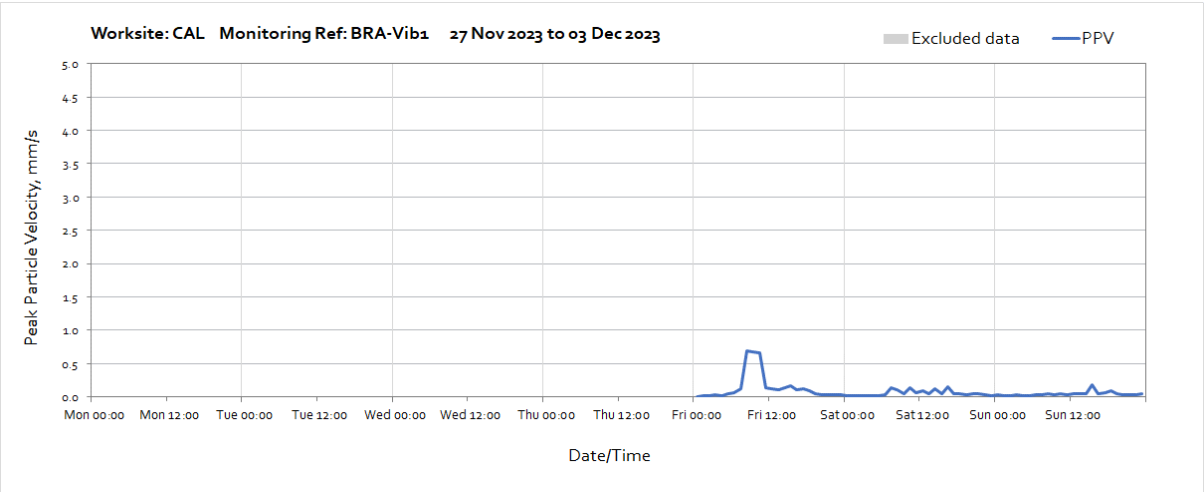


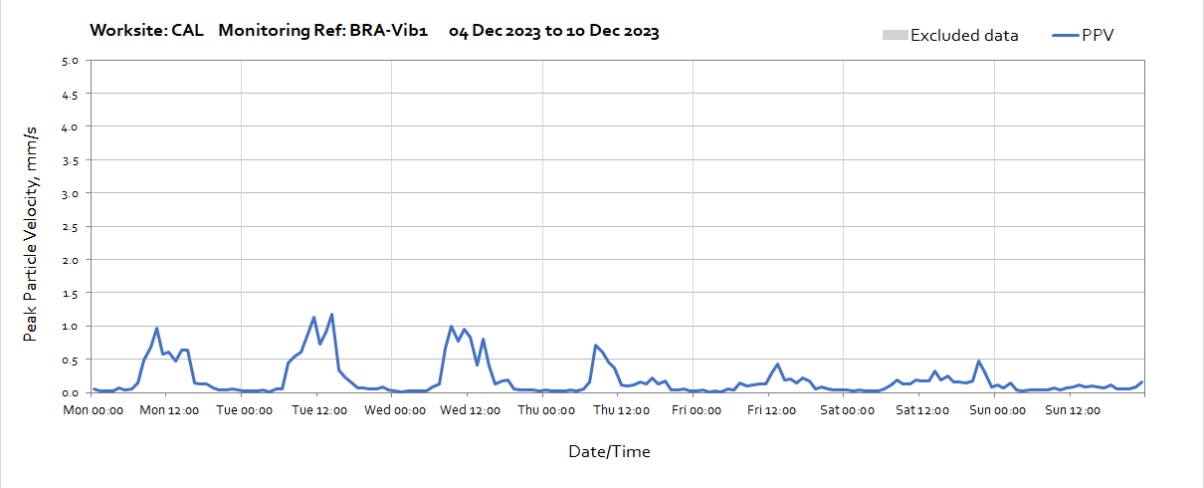






Worksite: CAL – Monitoring Ref: BRA-Vib1




Worksite: CAL Monitoring Ref: BRA-Vib1 04 Dec 2023 to 10 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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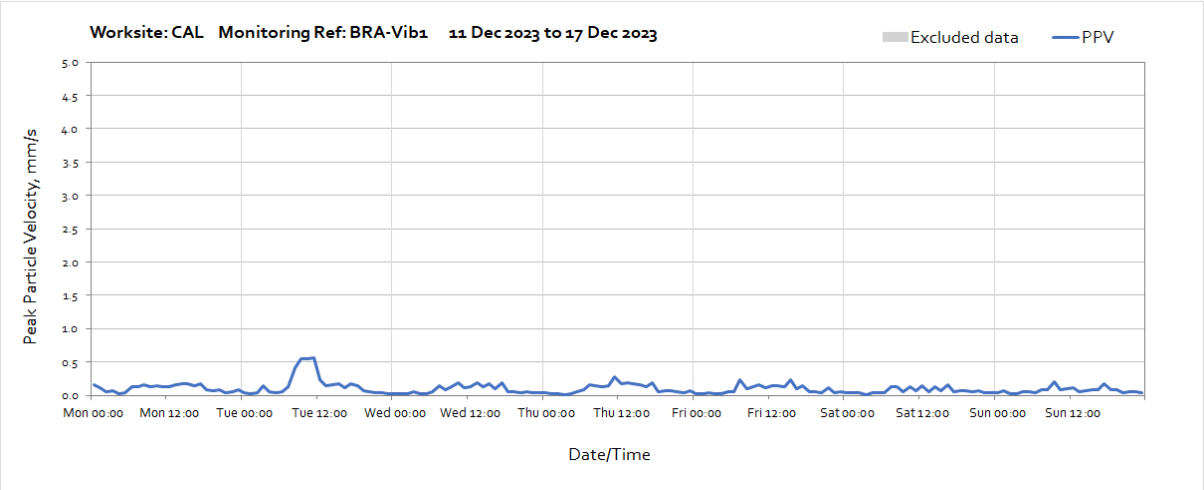
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CAL Monitoring Ref: BRA-Vib1 11 Dec 2023 to 17 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
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4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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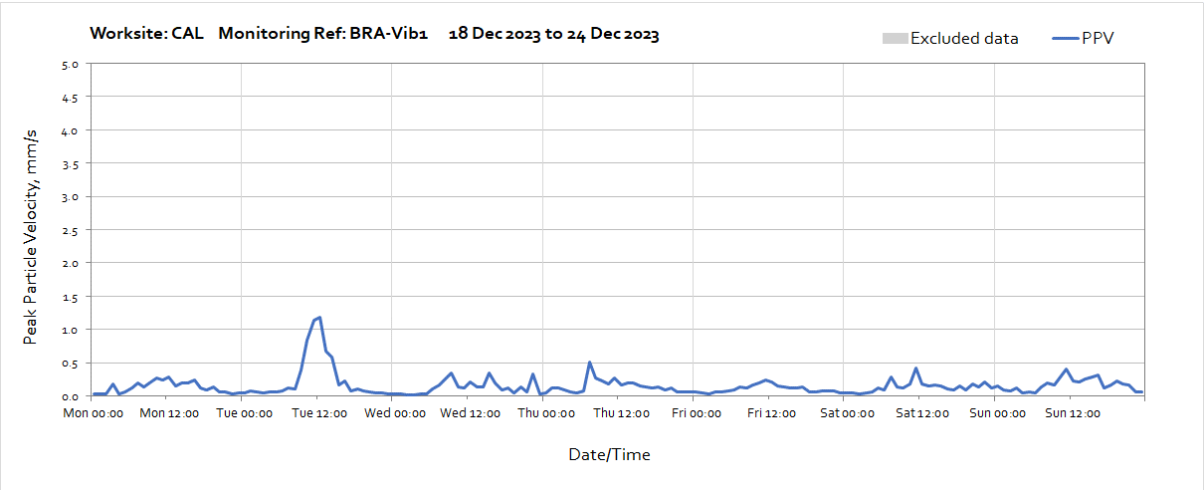
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: CAL Monitoring Ref: BRA-Vib1 18 Dec 2023 to 24 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
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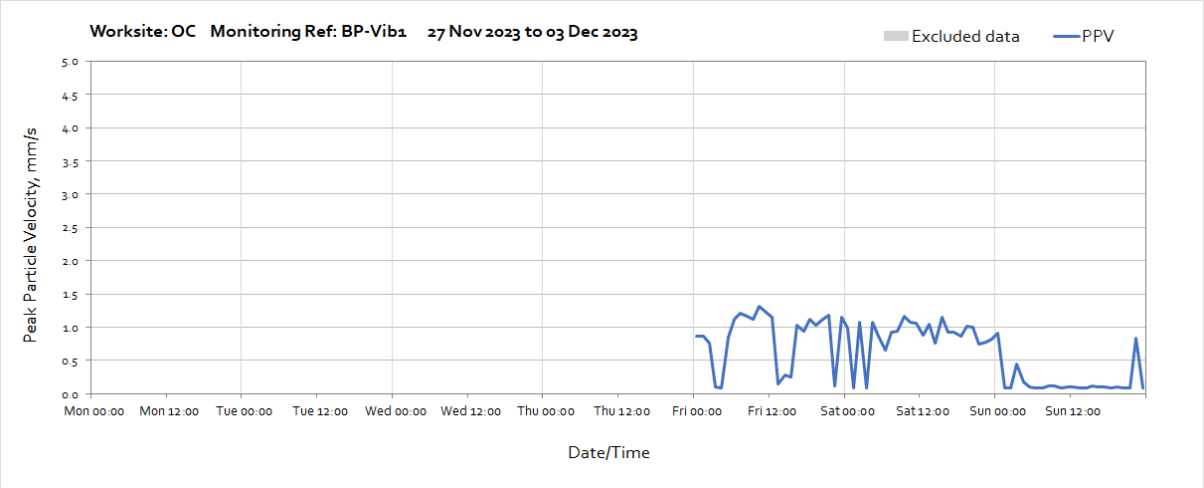
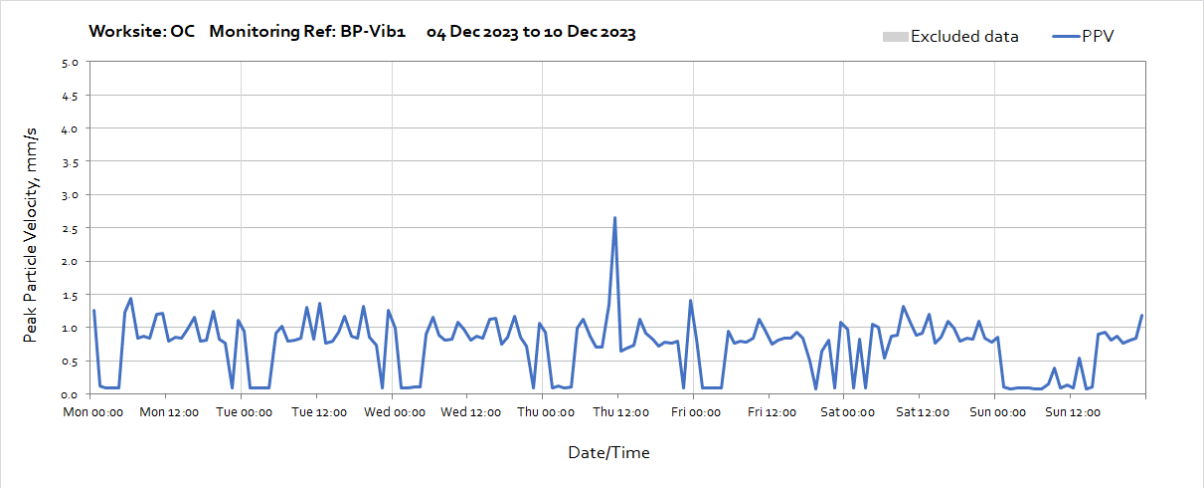
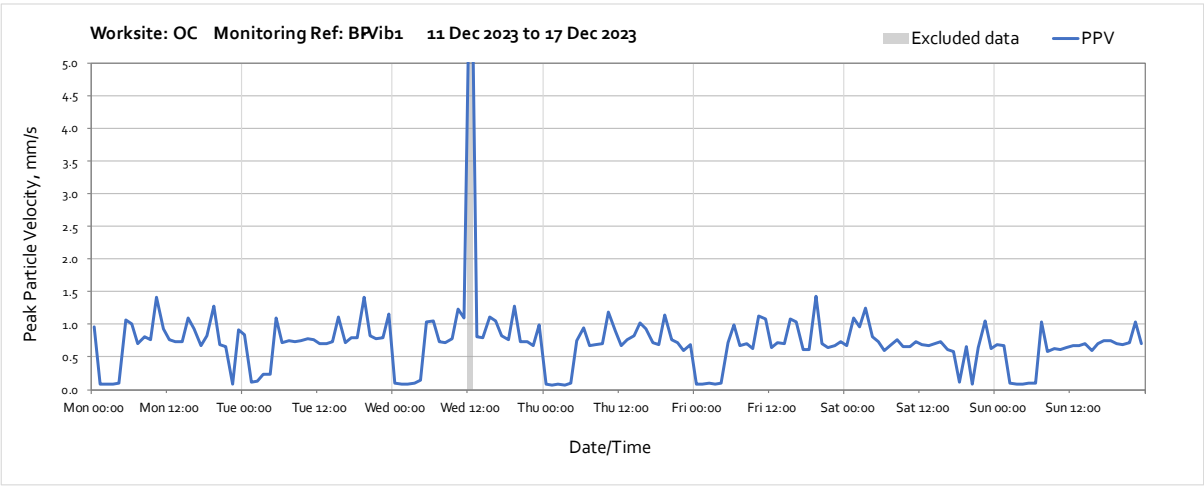
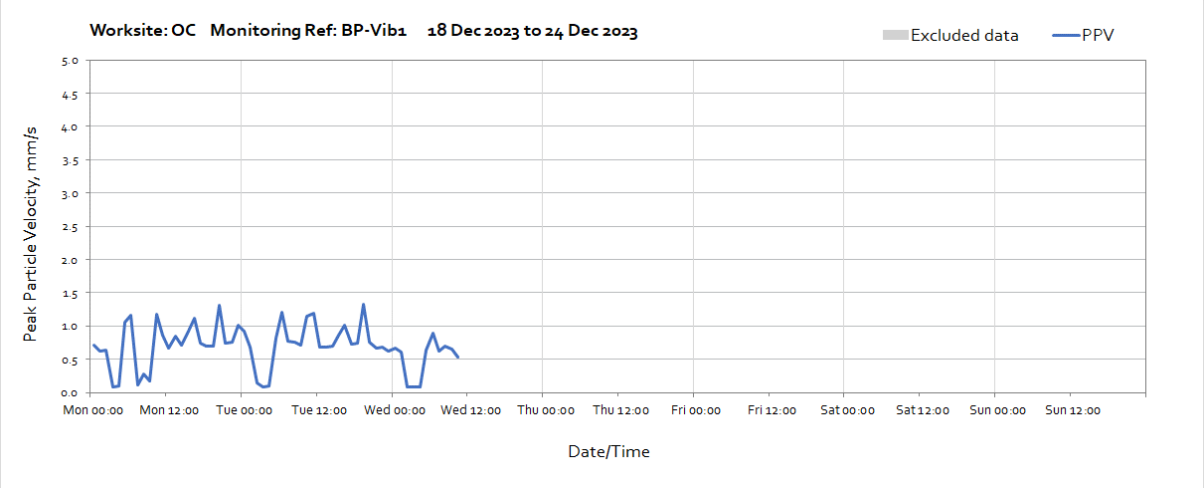
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: OC – Monitoring Ref: BP-Vib1



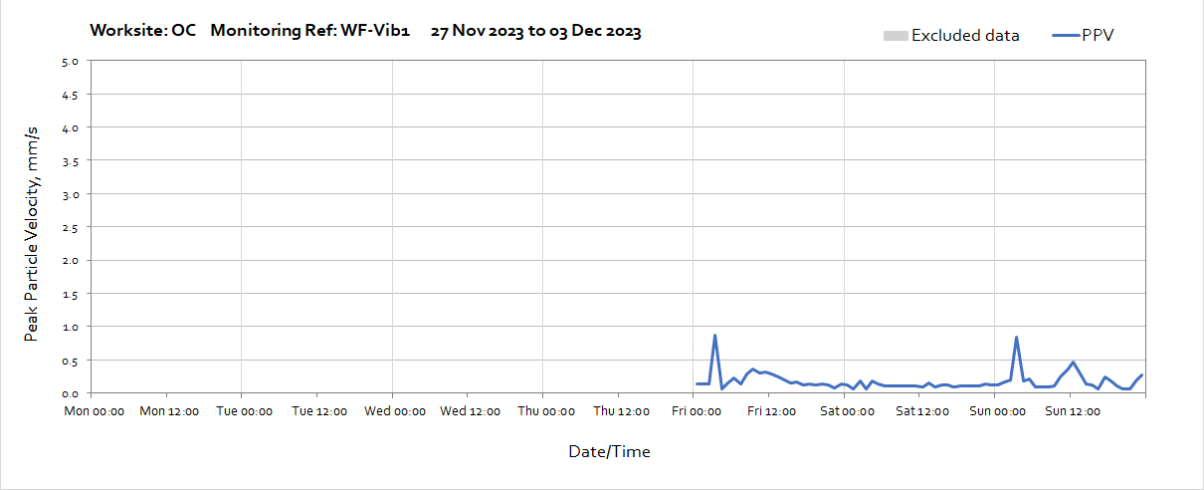


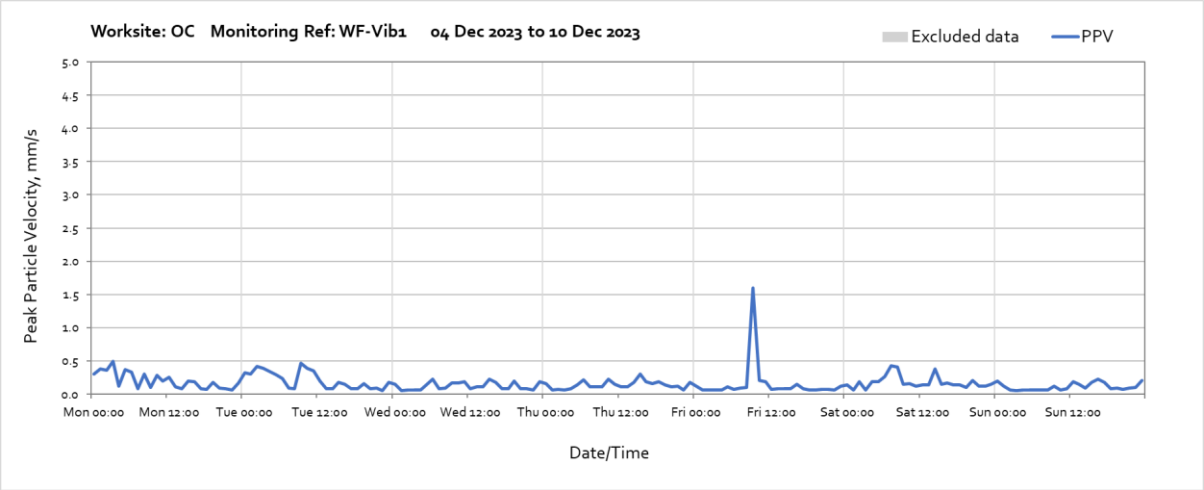


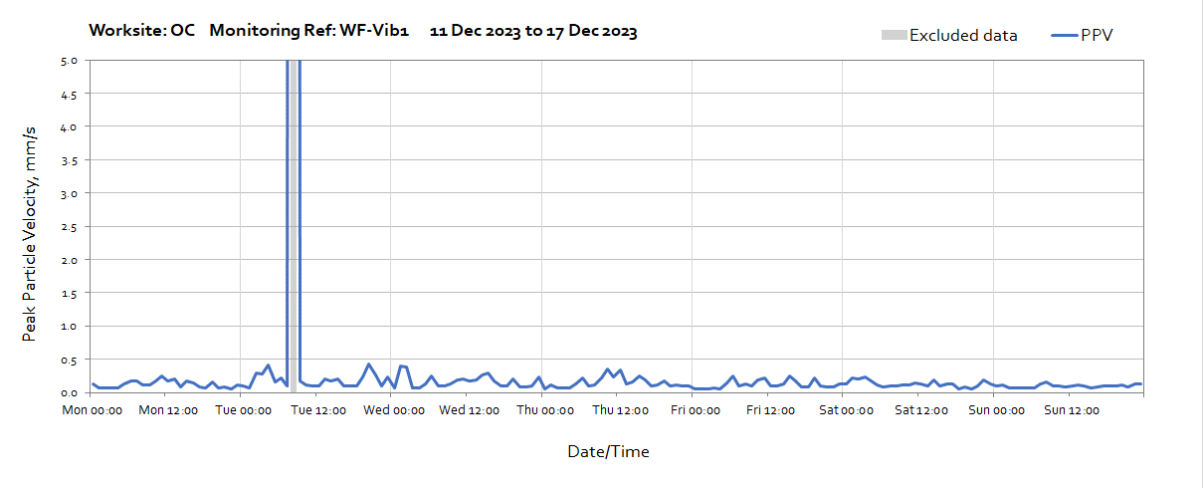


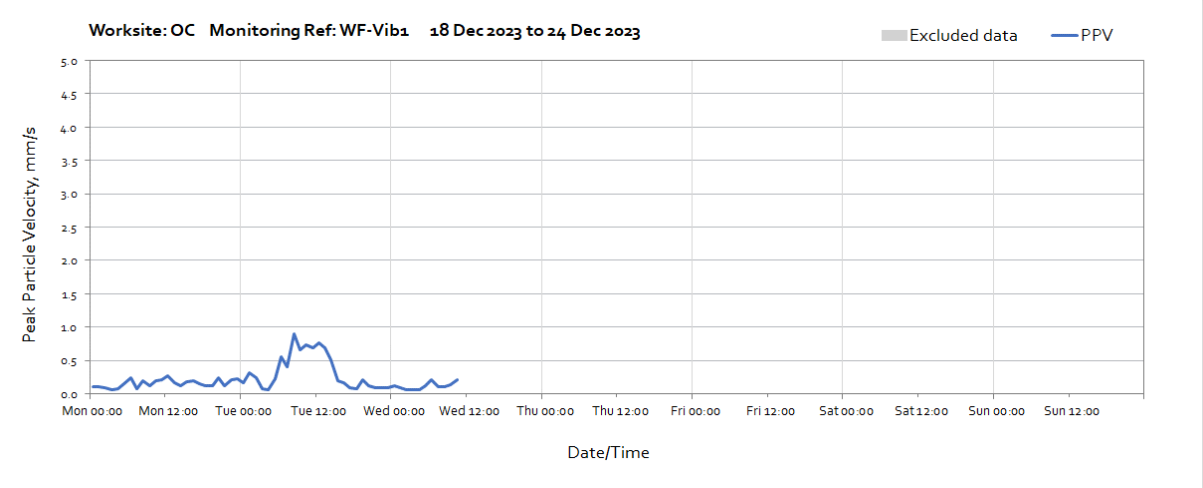
Note: Monitor was retrieved at 11:00 on Wednesday 20th December.

Worksite: OC – Monitoring Ref: WF-Vib1



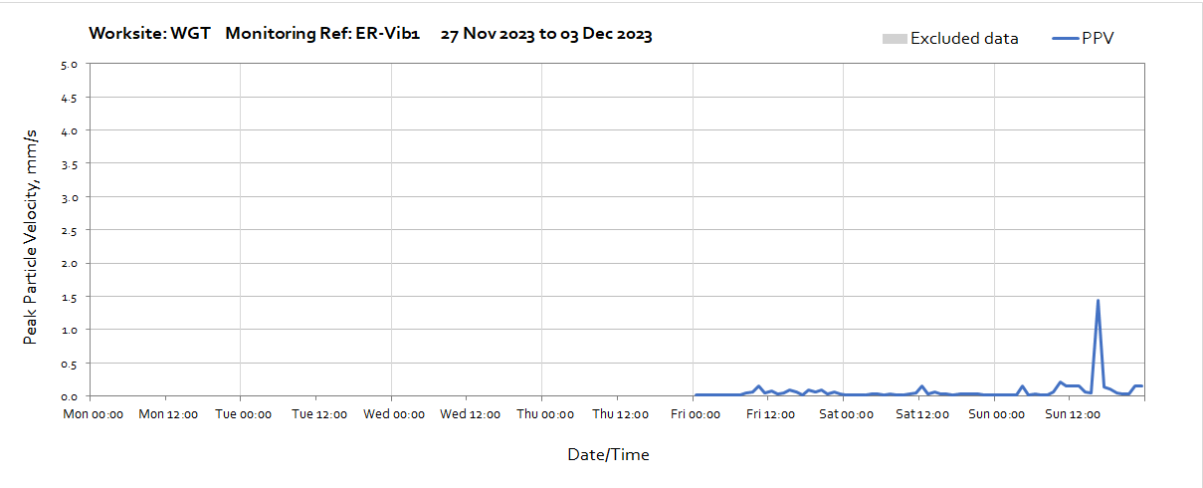


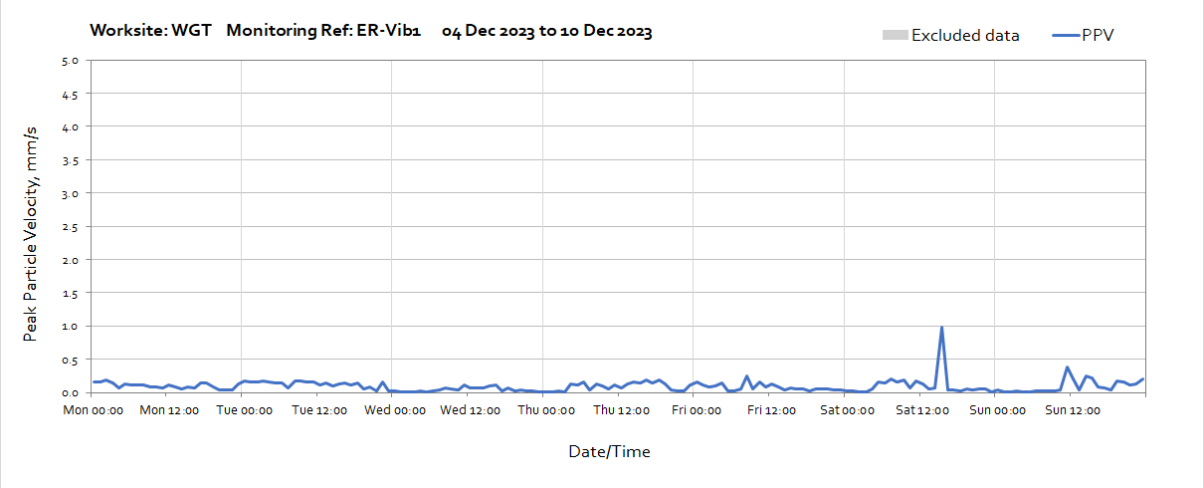




Note: Monitor was retrieved at 11:00 on Wednesday 20th December.

Worksite: WGT – Monitoring Ref: ER-Vib 1




Worksite: WGT Monitoring Ref: ER-Vib1 04 Dec 2023 to 10 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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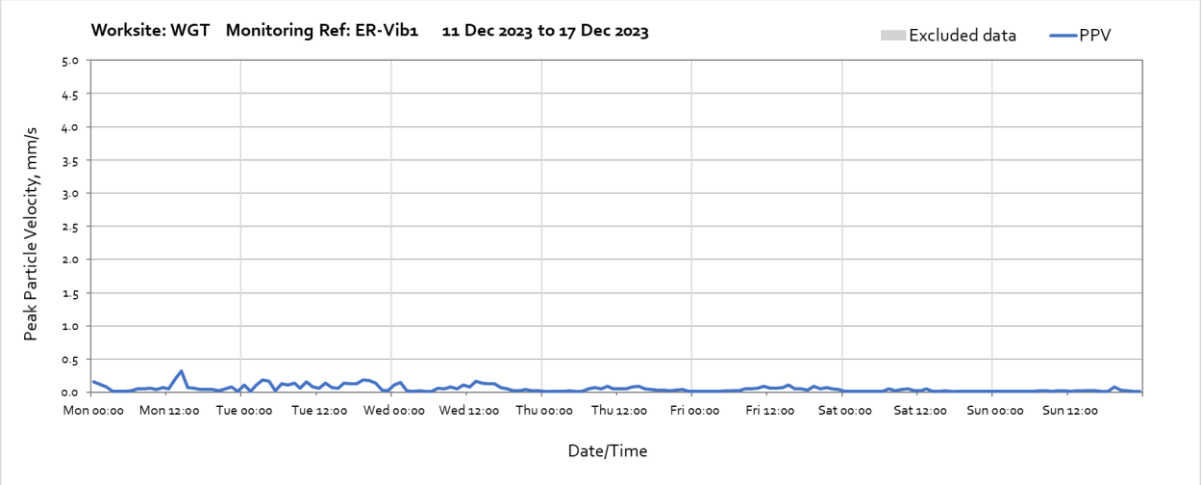
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: WGT Monitoring Ref: ER-Vib1 11 Dec 2023 to 17 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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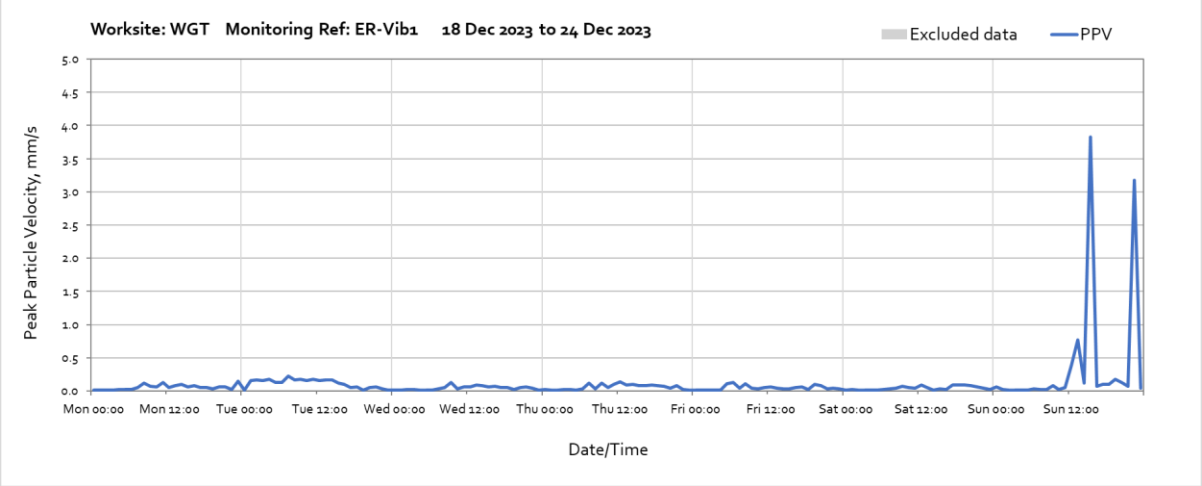
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: WGT Monitoring Ref: ER-Vib1 18 Dec 2023 to 24 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
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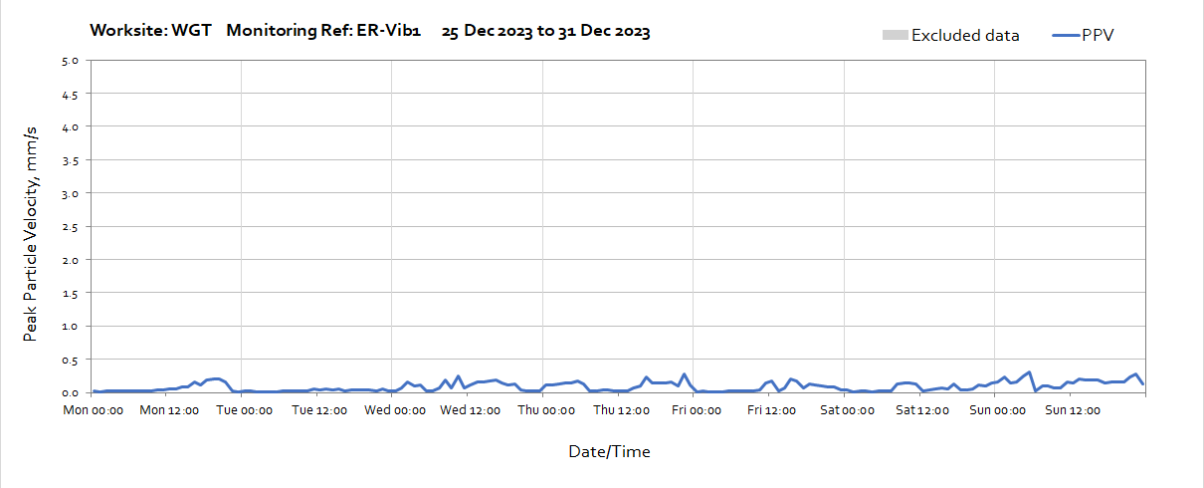
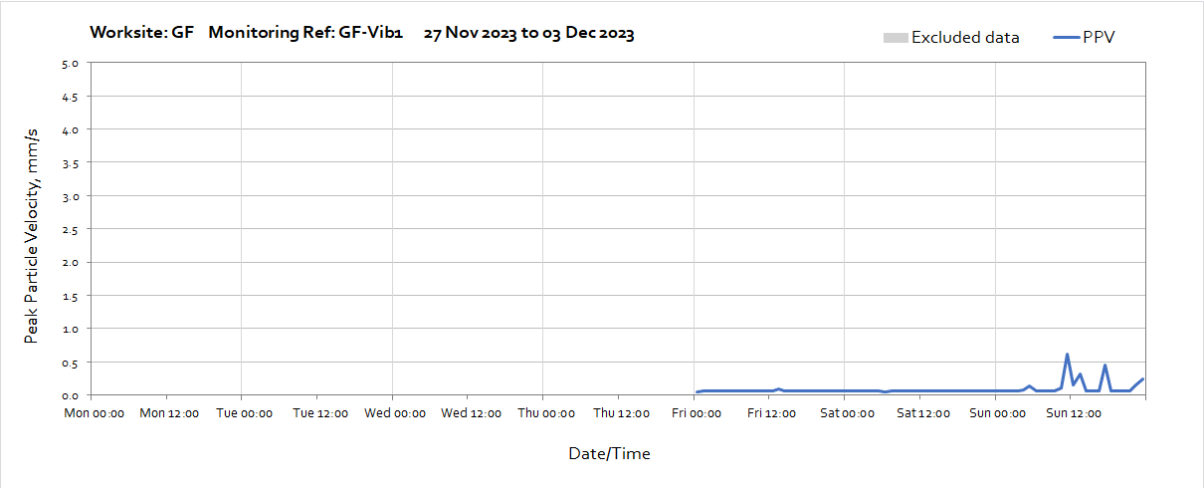
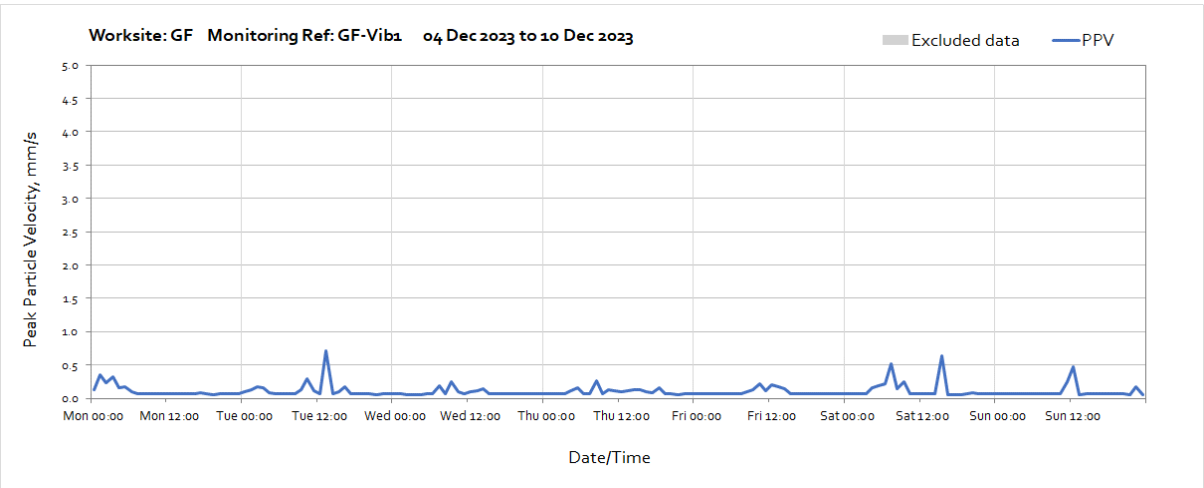
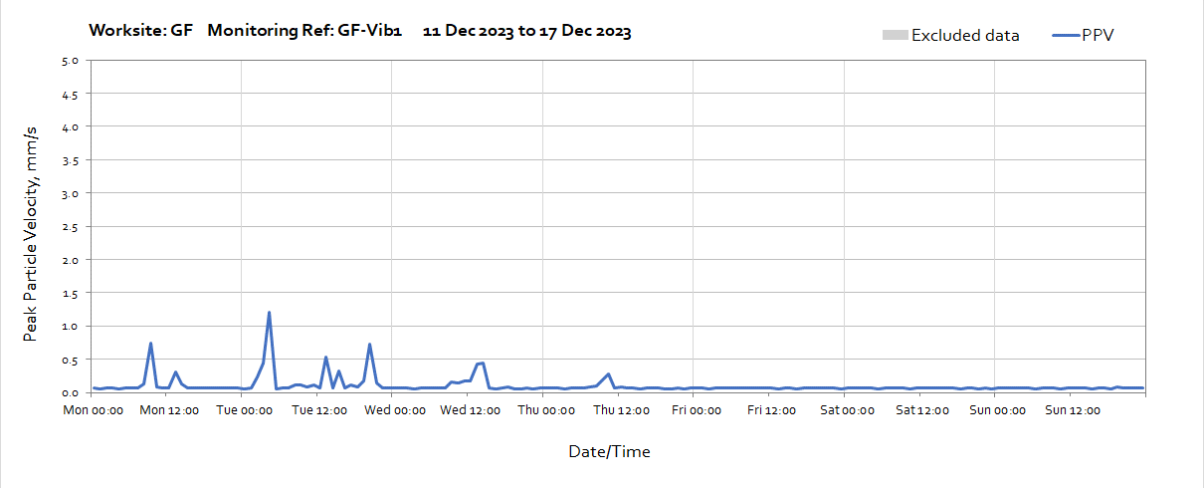
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Worksite: GF – Monitoring Ref: GF-Vib1






Worksite: GF Monitoring Ref: GF-Vib1 11 Dec 2023 to 17 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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Fri 12:00
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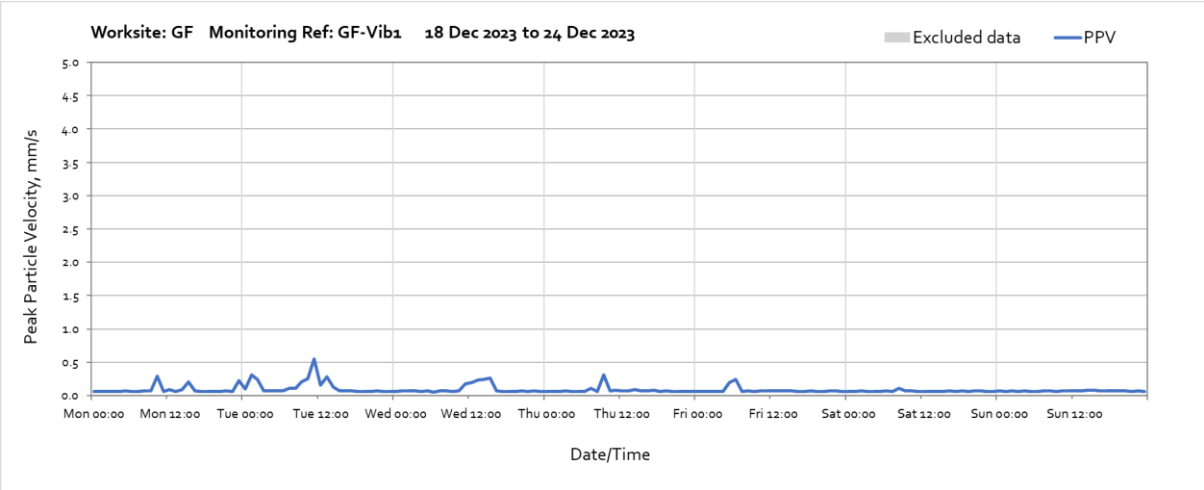
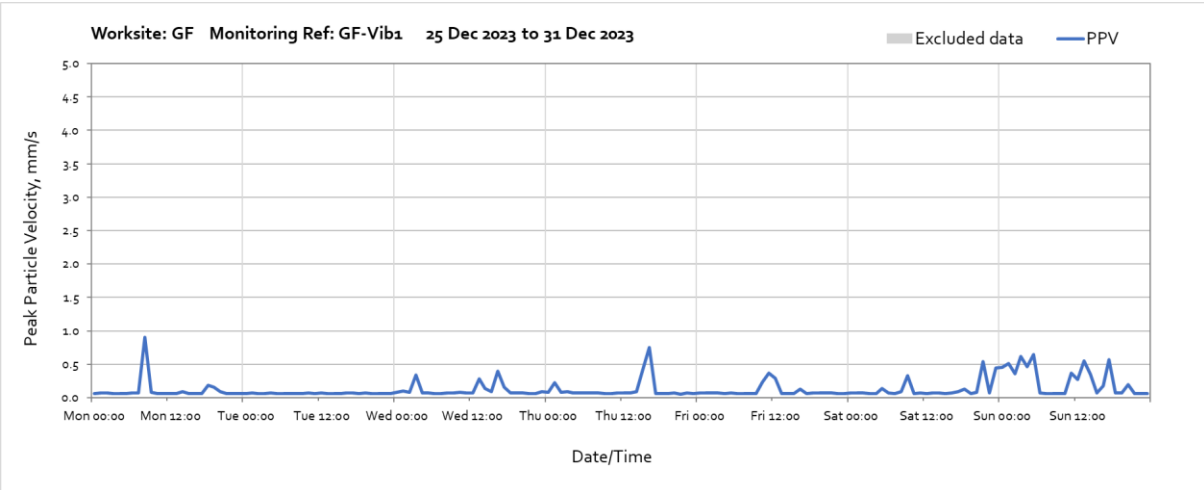
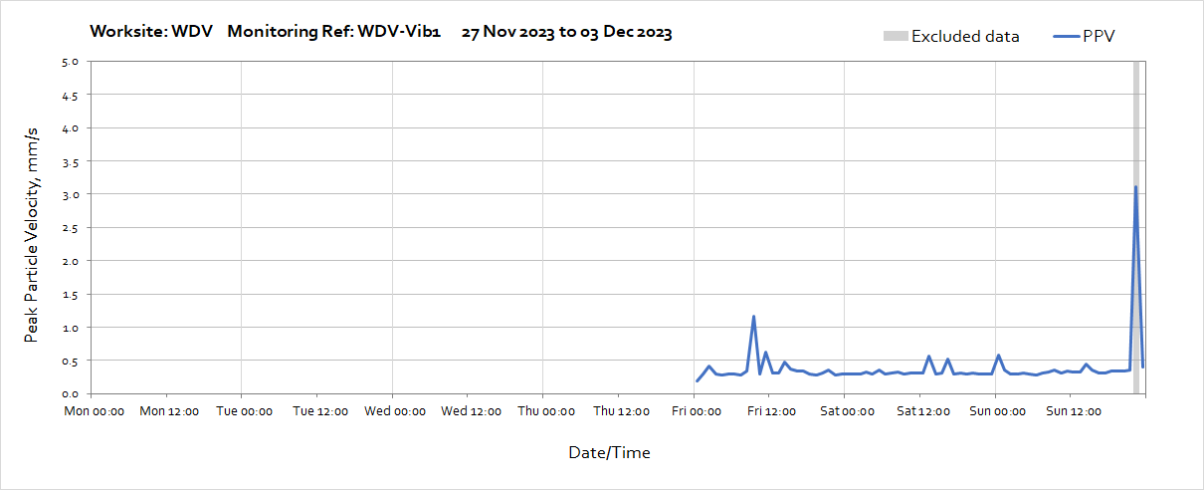
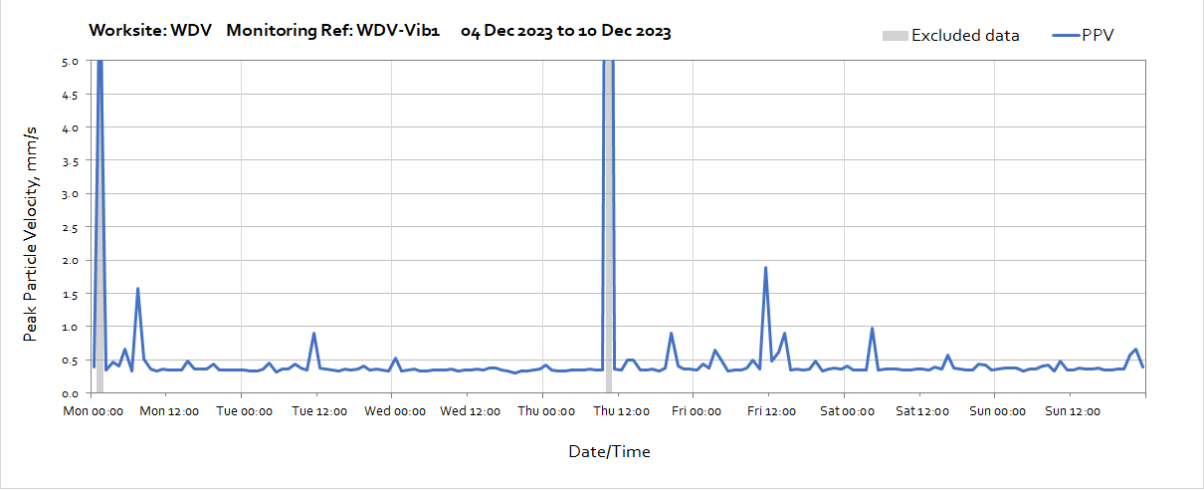
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

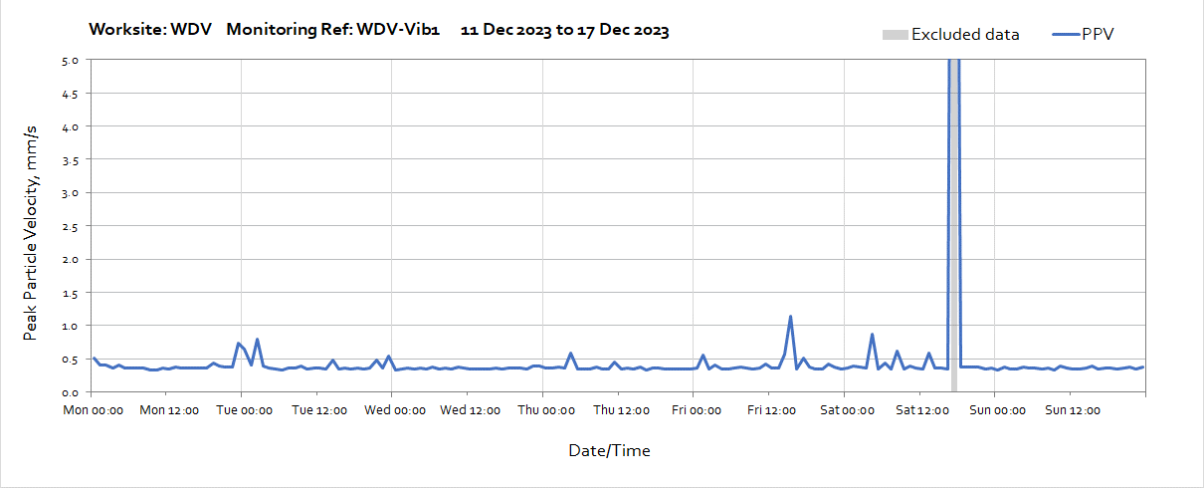

Worksite: GF Monitoring Ref: GF-Vib1 18 Dec 2023 to 24 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

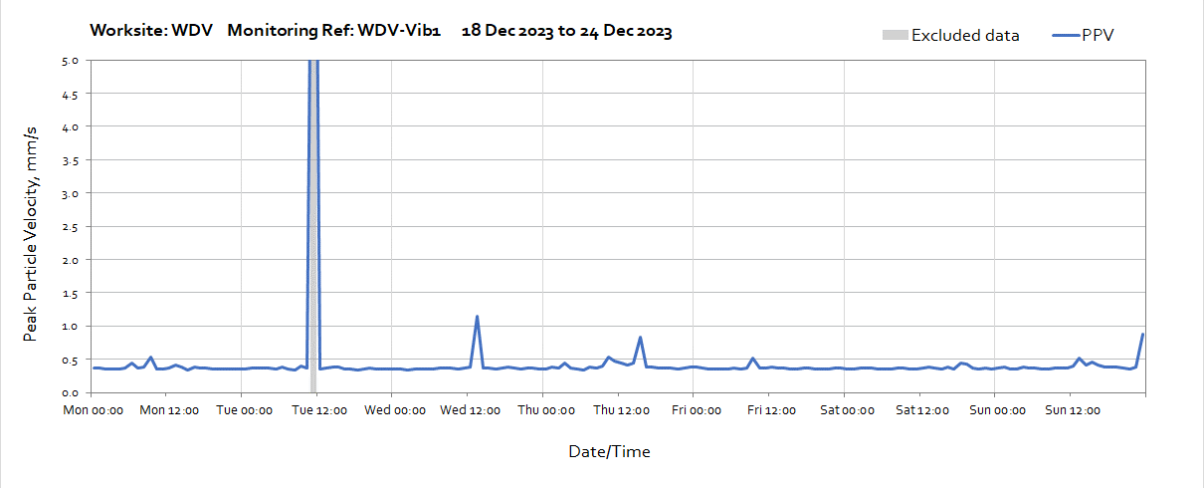

Worksite: GF Monitoring Ref: GF-Vib1 25 Dec 2023 to 31 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: WDV – Monitoring Ref: WDV-Vib 1








Worksite: WDV Monitoring Ref: WDV-Vib1 18 Dec 2023 to 24 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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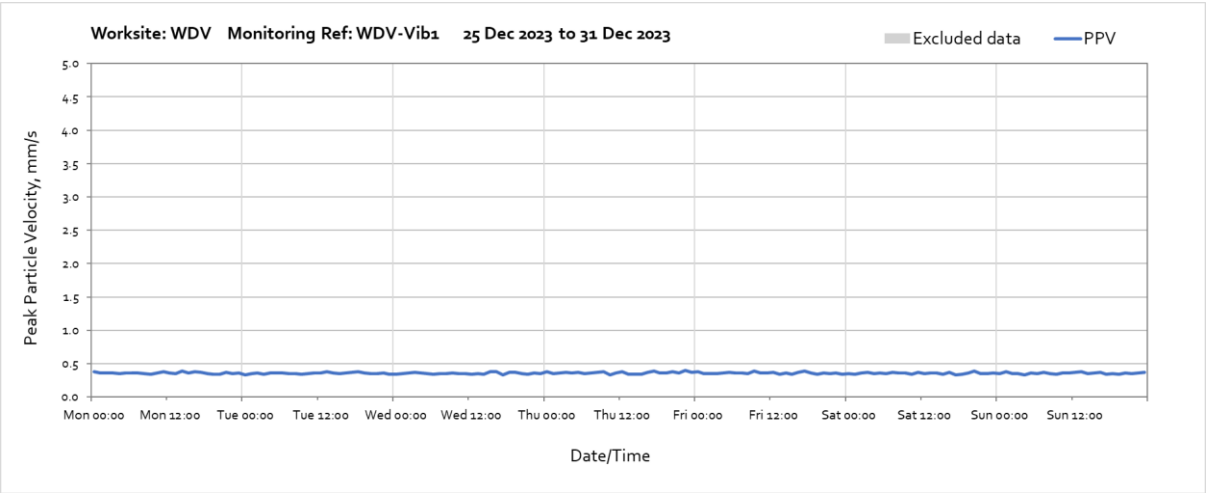
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: WDV Monitoring Ref: WDV-Vib1 25 Dec 2023 to 31 Dec 2023
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
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Fri 00:00
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Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time