HS2

November 2022

Construction Noise and Vibration Monthly Report – September 2022

Buckinghamshire

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List of tables

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 September 2022.

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 access road construction, topsoil stripping, compound maintenance works, drainage works, excavation and stockpiling were undertaken.
- Noise monitoring was undertaken in the vicinity of the School End (ref.: SE), Rosehill Farm (ref.: RF), and Hermitage Chetwode (ref.: HC) worksites where compound development works, bulk excavation, topsoil stripping, drainage works, vehicle movements and stockpiling were undertaken.
- Noise monitoring was undertaken in the vicinity of the Twyford worksite (ref.: TW) where access road maintenance works, haul road construction, drainage works, topsoil stripping, stockpiling and vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the West Street Overbridge worksite (ref.: WSO), where concrete pours, including formwork installation and reinforcement fixing, and utility diversion works were underway.
- Noise monitoring was undertaken in the vicinity of the Addison Road worksite (ref.: AR) where construction of embankments and walls, stone laying and compaction, drainage works, excavation, backfilling and compactions, and sheet piling were underway.
- Noise monitoring was undertaken in the vicinity of the School Hill Compound worksite (ref.: SHC) where construction of access ramps, demolition and operation of concrete batching plant were underway.
- Noise monitoring was undertaken in the vicinity of the Quainton worksite (ref.: QAR) where auger boring, backfilling, excavation, and sheet piling works were underway.
- Noise monitoring was undertaken in the vicinity of the FCC Sidings worksite reference (ref: FCC) where no work activities were undertaken during the reporting period.
- Noise monitoring was undertaken in the vicinity of the Meadoway and Glebe House worksite (ref: MW&GH) where access road construction, earthworks, stockpiling, piling platform construction, and haul road construction were underway.

- Noise monitoring was undertaken in the vicinity of Oat Close Worksite (ref: OC) where earthworks, stockpiling, haul road construction, piling works, overhead utility diversions, and rail deliveries were underway.
- Noise monitoring was undertaken in the vicinity of Nash Lee Lane Worksite (ref.: NLL) where plant crossing works, fencing works, construction of fuel storage area and plant laydown areas, access road asphalting, and traffic management works were underway.
- Noise monitoring was undertaken in the vicinity of Wendover Green Tunnel (ref.:WGT) worksite where embankment construction, excavation, concreting works, cable installation, security cabin installation, asphalting and water treatment works were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where fixed plant installation works, surface water management, installation of security plaza, fencing, excavations, compound installation and grassland maintenance were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where haul road works, earthworks (stockpile relocation), water utility diversion works and grassland maintenance works were underway.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref: SHCW) where earthworks, culvert installation and grassland maintenance works were undertaken.
- Noise monitoring was undertaken in the vicinity of North Portal Worksite (ref: NP) where temporary utility works, barrette piling, headwall construction, ground-treatment works, site operation and piling platform maintenance were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road Worksite (ref: CR) where site operation and maintenance, and shaft construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where site operation, basement construction, shaft base slab and collar construction were undertaken.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where site operation, waterproofing works, shaft collar construction and lining works, and basement construction works were undertaken.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where site operation, road maintenance works, concreting of walls and floors, stockpile removal and basement construction works were undertaken.

- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where site operation, road maintenance works, concrete reinforcement and basement construction works were underway.
- Noise monitoring was undertaken in the vicinity of the Colne Valley Viaduct - Load Test Pile 1 worksite (ref.: LTP #1), where piling works, construction of a cofferdam, girder and deck erection and installation, compound operation, satellite welfare operation, generator farm operation, utility diversions, environmental maintenance, pier construction, River Colne re-alignment and emergency maintenance, ground investigation works, pumped water management, maintenance of haul roads, fencing, concrete drilling, concrete base slab construction, intrusive vegetation removal, and gas crossing emergency dismantling 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 grass cutting was underway.
- Grovil Embankment – Westbury where excavations and construction of river crossing were underway.
- North of School End where excavations, vegetation clearance, stockpiling, drainage and pond backfilling were underway.
- Along the A422 where compound development works took place.
- Turweston South where piling works for the Turweston overbridge took place.
- East West Rail (EWR) interfaces where bridge and drainage works were underway.
- Charndon Lodge where bridge construction was underway.
- Infrastructure Maintenance Depot (IMD where drainage works were underway.
- Grendon Underwood Rail Overbridge where piling works were underway.
- Hills Farm where earthworks, including stone deliveries and stockpiling were underway.
- Edgcott Road Overbridge and Doddershall Culvert where earthworks and drainage works were undertaken.
- Along Marylebone to Claydon Junction Line where topsoil stripping, drainage installations and removal of embankment were underway.
- Aylesbury Golf Course where construction of site haul road, stockpiling, earthworks, compound setup and pond construction were underway.

- Thame Valley Viaduct Causeway where temporary bridge construction, piling, aggregate laying and compound setup were underway.
- Fleet Marston where earthworks, stockpiling, drainage works, habitat site maintenance works, pond construction were underway.
- Along A41 where batching works, geogrid installation, embankment works, stockpiling and earthworks were underway.
- Waddesdon Embankment and North Cutting where earthworks, stockpiling, compound setup, drainage works, and construction of site haul road were undertaken.
- Wendover Dean Viaduct Launch where piling 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 twice during the reporting period.

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

One (1) complaint was received within the Buckinghamshire area during the monitoring period. A description of complaints, the results of investigations and any action 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 may be undertaken for the following purposes:

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

1.1.2 Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the Buckinghamshire (BS) Local Authority area for the period 1st to 30th September 2022.

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

- A422 Turweston North worksite, reference A422 TN (see Plan 1 in Appendix A), where works activities included.
    - Access road construction.
    - Topsoil stripping.
    - Compound maintenance works.
    - Drainage works and installation of ponds.
    - Excavations.
    - Stockpiling.
- School End worksite reference SE (see Plan 2 in Appendix A), Rosehill Farm worksite reference RF (see Plan 2 in Appendix A), and Hermitage Chetwode Worksite reference – HC (see plan 2 in Appendix A), where works activities included:

    - Compound development works.
    - Bulk excavation.
    - Topsoil stripping.
    - Drainage works, including pond maintenance works.
    - Vehicle movements.
    - Stockpiling.
- Twyford worksite reference TW (see Plan 2 in Appendix A) where works activities included:
    - Access road maintenance works.
    - Haul road construction.
    - Drainage works.
    - Topsoil stripping.
    - Stockpiling.
    - Vehicle movements.
- West Street Overbridge worksite reference WSO (see Plan 3 in Appendix A), where works activities included:
    - Utility diversion works, including trenching, duct laying, construction of access chambers, backfilling and ground compacting.
    - Concrete pours, including rebar fixing and formwork installation.
- Addison Road worksite reference AR (see Plan 3 in Appendix A), where works activities included:
    - Construction of approach embankments and walls, including stone laying and compacting.
    - Drainage and pond installation.
    - Field trenching for cable / duct laying including backfilling and compacting.
    - Sheet piling of cofferdams for utility connections.
- School Hill Compound worksite reference SHC (see Plan 3 in Appendix A), where works activities included:
    - Construction of access ramps.
    - Demolition.

    - Operation of concrete batching plant.
- Quainton worksite, reference – QAR (see Plan 4 in Appendix A) where works activities included:
    - Auger boring.
    - Backfilling.
    - Field trenching for cable with duct laying.
    - Sheet piling.
- FCC Sidings worksite, reference – FCC (see Plan 3 in Appendix A) where no works activities were undertaken during the reporting period.
- Meadoway and Glebe House Worksite, reference – MW&GH (see Plan 5 in Appendix A), where works activities included:
    - Construction of compound access road.
    - Earthworks.
    - Stockpiling.
    - Construction of piling platform.
    - Haul road construction.
- Oat Close Worksite, reference – OC (see Plan 5 in Appendix A), where works activities included:
    - Earthworks.
    - Stockpiling.
    - Haul road construction.
    - Piling.
    - Overhead utility diversions.
    - Night rail deliveries.
- Nash Lee Lane Worksite, reference – NLL (see Plan 6 in Appendix A), where works activities included:
    - Plant crossing works,
    - Perimeter fencing.
    - Construction of fuel storage and plant laydown areas.
    - Asphalting of access road.

- Traffic management installation for drainage works.

- Wendover Green Tunnel Worksite, reference – WGT (see Plan 6 in Appendix A), where works activities included:
  - Construction of embankment.
  - Preparatory excavation for bridge construction works.
  - Concreting works.
  - Cable installation.
  - Installation of security cabin.
  - Asphalting of access road.
  - Wastewater treatment works, including excavations and lifting of treatment units.
- Rocky Lane Embankment Worksite, reference – RLE (see Plan 7 in Appendix A), where works activities included:
  - Bentonite plant installation works.
  - Installation of temporary surface water management plant.
  - Installation of security plaza.
  - Fencing
  - Culvert installation.
  - Compound installation.
  - Grassland maintenance.
- Leather Lane Worksite, reference – LL (see Plan 8 in Appendix A), where works activities included:
  - Haul road works.
  - Earthworks (stockpile relocation).
  - Water utility diversion works.
  - Grassland maintenance.
- South Heath Cutting Worksite, reference – SHCW (see Plan 8 in Appendix A), where works activities included:
  - Earthworks.
  - Culvert installation.

    - Grassland maintenance.
- North Portal Worksite, reference – NP (see Plan 8 in Appendix A), where works activities included:
    - Temporary utility works, including water and IT connection.
    - Barrette piling and headwall construction.
    - Pre-treatment groundworks, including drilling and grouting.
    - Site operation.
    - Piling platform reinstatement and maintenance works.
- Chesham Road Worksite reference – CR (see Plan 8 in Appendix A), where works activities included:
    - Site operation and maintenance.
    - Shaft construction, which included grouting, reinforced concrete works, backfilling and sheet pile demolition.
- Little Missenden Vent Shaft worksite reference LM (see Plan 9 in Appendix A), where works activities included:
    - Site operation.
    - Basement construction.
    - Shaft base slab construction.
    - Collar construction.
- Amersham Vent Shaft Worksite, reference – AM (see Plan 10 in Appendix A), where works activities included:
    - Site operation.
    - Waterproofing.
    - Collar construction.
    - Secondary lining works.
    - Small basement construction.
- Chalfont St Giles Vent Shaft Worksite, reference - CSG (see Plan 11 in Appendix A), where works activities included:
    - Site operation.
    - Road maintenance.

- Reinforced concrete.
- Basement construction, including excavation.
- Stockpile removal.

- Chalfont St Peter Vent Shaft Worksite, reference – CSP (see Plan 12 in Appendix A), where works activities included:
  - Site operation.
  - Road maintenance.
  - Concrete reinforcement.
  - Basement construction.
- Colne Valley Viaduct - Load Test Pile 1 Worksite, reference – CVV-LTP #1 (see Plan 13 in Appendix A), where works activities included:
  - Piling works, including bored piling, de-sanding, installation of reinforcement cage and concrete piling, break-out of bored pile, grout curtain construction around viaduct maintenance plant and clean up around piles.
  - Construction of a cofferdam, including piling, excavation, dewatering and operation of support plant.
  - Site operation.
  - Satellite welfare operation.
  - Generator farm operation.
  - Utility diversion.
  - Environmental maintenance.
  - Pier construction.
  - River Colne re-alignment, crossing and emergency maintenance works.
  - Ground investigation works.
  - Pump water management.
  - Maintenance of haul roads.
  - Fencing works.
  - Core drilling of concrete.
  - Base slab construction.
  - Gas crossing emergency dismantling works.

- Girder and deck erection and installation, including span segmental erection, grouting, and steel structure erection and dismantling.

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 grass cutting was underway.
- Grovil Embankment – Westbury where excavations and construction of river crossing were underway.
- North of School End where excavations, vegetation clearance, stockpiling, drainage and pond backfilling were underway.
- Along the A422 where compound development works took place.
- Turweston South where piling works for the Turweston overbridge took place.
- East West Rail (EWR) interfaces where bridge and drainage works were underway.
- Charndon Lodge where bridge construction was underway.
- Infrastructure Maintenance Depot (IMD where drainage works were underway.
- Grendon Underwood Rail Overbridge where piling works were underway.
- Hills Farm where earthworks, including stone deliveries and stockpiling were underway.
- Edgcott Road Overbridge and Doddershall Culvert where earthworks and drainage works were undertaken.
- Along Marylebone to Claydon Junction Line where topsoil stripping, drainage installations and removal of embankment were underway.
- Aylesbury Golf Course where construction of site haul road, stockpiling, earthworks, compound setup and pond construction were underway.
- Thame Valley Viaduct Causeway where temporary bridge construction, piling, aggregate laying and compound setup were underway.
- Fleet Marston where earthworks, stockpiling, drainage works, habitat site maintenance works, pond construction were underway.
- Along A41 where batching works, geogrid installation, embankment works, stockpiling and earthworks were underway.

- Waddesdon Embankment and North Cutting where earthworks, stockpiling, compound setup, drainage works, and construction of site haul road were undertaken.
- Wendover Dean Viaduct Launch where piling 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 Forty-two (42) noise and three (3) vibration monitoring installations were active in September in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in September 2022.

1.2.2 The noise monitor formally called WSO-NMP2 located in the vicinity of Twyford worksite (ref.:TW) has been renamed TW-NMP1.

1.2.3 The noise monitor MF-NMP1, located in the vicinity of Oat Close worksite (ref.:OC), is currently being repaired and therefore no noise data was recorded at this monitoring location during the reporting period.

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
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode
	RF-Vib1	Old Stable Cottage, Rosehill Farm, Chetwode
HC	HC-NMP1	Hermitage, Chetwode
TW	TW-NMP1	Twyford, Buckinghamshire
WSO	WSO-NMP1	West Street, Twyford
AR	AR-NMP1	Addison Road, Rosehill Farm
SHC	SHC-NMP1	School Hill Compound, Calvert

Worksite Reference	Measurement Reference	Address
QAR	QAR-NMP2	Station Rd, Quainton
FCC	FCC-NMP1	Calvert South
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
	MW-NMP1	Aylesbury, Buckinghamshire
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee
	NLL-NMP2	Nash Lee Lane, Nash Lee
WGT	ER-NMP1	Ellesborough Rd, Wendover
	ER-Vib1	Ellesborough Rd, Wendover
	BL-NMP1	Bacombe Lane, Wendover
	WT-NMP1	A413, Wendover
RLE	SDVC-NMP1	Rocky Lane, Wendover
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath
	GD-NMP1	Grimms Ditch, The Lee, South Heath
SHCW	PR-NMP1	Potters Row, South Heath
	SH-NMP1	Bury Farm, South Heath
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden
CR	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
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite, 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

Worksite Reference	Measurement Reference	Address
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite, Denham Water Ski Club
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham, Denham Garden Village
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge
CVV-MR*	CVV-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	48.8	51.1	47.8	46.2	45.6	47.2	48.1	48.7	47.4	44.9	47.5	46.1
				(52.3)	(56.4)	(50.9)	(49.8)	(55.0)	(49.1)	(49.8)	(50.4)	(52.4)	(46.0)	(50.8)	(52.9)
SE	SE-NMP1	School End, Chetwode	Free-field	48.4	59.6	45.8	41.1	40.5	45.3	49.6	49.6	43.3	39.3	43.3	41.9
				(56.1)	(63.2)	(51.1)	(51.8)	(50.9)	(50.0)	(56.8)	(62.7)	(49.9)	(41.0)	(49.1)	(52.9)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	47.0	51.1	47.7	45.1	44.4	46.6	48.0	48.0	46.6	44.2	46.5	46.1
				(53.2)	(54.9)	(53.9)	(52.3)	(55.4)	(47.6)	(49.1)	(50.2)	(49.5)	(47.6)	(49.6)	(57.6)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	44.3	53.6	43.8	40.4	39.3	42.9	46.9	46.5	43.6	38.9	45.1	41.8
				(48.5)	(58.8)	(56.1)	(56.0)	(50.4)	(44.8)	(50.4)	(48.7)	(49.1)	(44.1)	(51.6)	(55.0)
TW	TW-NMP1	Twyford	Free-field	45.3	56.1	45.2	43.9	44.0	44.4	47.6	47.9	44.7	42.8	48.7	50.1
				(46.3)	(68.4)	(51.8)	(51.3)	(53.8)	(44.4)	(49.4)	(48.1)	(47.7)	(44.6)	(62.5)	(65.7)
WSO	WSO-NMP1	West Street, Twyford	Free-field	46.5	54.8	45.8	42.1	38.5	45.6	47.0	44.1	44.4	37.7	44.9	41.5
				(50.9)	(59.9)	(51.8)	(61.6)	(49.3)	(47.0)	(49.6)	(44.8)	(48.0)	(44.9)	(51.9)	(62.3)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	56.1	56.7	55.9	52.0	46.1	51.4	53.9	54.6	53.1	43.5	52.4	45.3
				(60.1)	(61.1)	(67.9)	(66.5)	(57.8)	(54.0)	(55.1)	(55.7)	(58.6)	(50.3)	(58.7)	(54.7)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	49.9	52.1	49.5	45.0	41.3	45.1	48.5	47.6	47.1	39.5	46.4	43.6
				(56.5)	(56.5)	(55.2)	(57.5)	(52.5)	(47.0)	(52.0)	(50.0)	(52.0)	(44.0)	(53.8)	(61.0)

Worksite Reference	Measurement Reference	Site Address	Free-Field or Façade Measurement	Weekday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Saturday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)					Sunday / Public Holiday Average $L_{Aeq,T}$ (Highest Day $L_{Aeq,T}$)	
				0700 - 0800	0800 - 1800	1800 - 1900	1900 - 2200	2200 - 0700	0700 - 0800	0800 - 1300	1300 - 1400	1400 - 2200	2200 - 0700	0700 - 2200	2200 - 0700
QAR	QAR-NMP2	Station Rd, Quainton	Free-field	48.4 (55.3)	51.4 (58.9)	46.8 (58.5)	42.3 (63.4)	40.5 (62.3)	45.1 (46.0)	50.0 (53.9)	49.8 (53.9)	50.6 (64.0)	37.4 (42.8)	48.1 (57.2)	46.1 (65.1)
FCC	FCC-NMP1	Calvert South	Free-field	54.2 (62.2)	54.0 (57.9)	47.9 (51.5)	44.0 (55.5)	41.8 (53.3)	47.2 (50.0)	50.6 (59.5)	44.6 (48.9)	44.8 (50.7)	38.9 (46.4)	44.8 (51.0)	45.6 (58.2)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	53.5 (56.5)	54.4 (56.8)	54.3 (58.5)	52.1 (57.9)	48.5 (55.5)	52.6 (54.0)	54.0 (54.9)	54.1 (55.3)	53.6 (56.8)	47.3 (51.8)	52.1 (56.3)	48.0 (55.8)
	MW-NMP1	Aylesbury, Buckinghamshire	Free-field	62.6 (63.9)	62.2 (63.4)	62.0 (64.1)	59.2 (62.4)	56.1 (62.2)	60.5 (61.1)	62.0 (62.4)	62.1 (62.3)	60.8 (62.2)	54.3 (57.9)	60.4 (62.8)	55.4 (62.3)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	44.3 (47.9)	52.0 (59.5)	45.9 (58.5)	44.7 (58.0)	43.0 (53.3)	44.7 (47.9)	45.9 (46.4)	44.1 (46.3)	45.4 (50.6)	43.4 (49.6)	44.3 (54.5)	45.3 (55.5)
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Free-field	45.2 (48.0)	50.7 (60.8)	46.7 (55.9)	45.6 (56.5)	45.3 (58.6)	46.4 (48.0)	48.1 (49.6)	47.0 (53.3)	46.1 (49.6)	41.7 (50.0)	47.3 (55.4)	45.7 (54.6)
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Free-field	56.3 (59.7)	62.1 (69.2)	54.6 (60.2)	52.1 (59.1)	48.3 (59.6)	53.5 (55.1)	53.9 (54.8)	52.5 (53.5)	52.2 (54.7)	48.2 (50.9)	52.9 (56.3)	48.9 (56.2)
	NLL-NMP2	Nash Lee Lane, Nash Lee	Free-field	55.8 (59.4)	57.0 (65.3)	55.1 (62.3)	52.1 (60.0)	48.5 (59.9)	51.4 (52.7)	53.4 (57.8)	52.5 (54.7)	52.8 (57.8)	47.4 (50.9)	52.6 (56.5)	49.2 (58.0)
WGT	ER-NMP1	Ellesborough Rd, Wendover	Free-field	54.8 (56.9)	57.7 (62.4)	54.9 (58.4)	52.2 (60.4)	48.7 (64.3)	52.8 (53.6)	54.0 (54.9)	54.7 (56.1)	53.4 (56.3)	47.7 (52.7)	52.7 (55.7)	48.7 (58.7)

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
	BL-NMP1	Bacombe Lane, Wendover	Free-field	48.6	50.8	48.8	47.5	46.9	48.2	48.2	48.6	48.2	46.3	47.8	47.3
				(50.9)	(66.5)	(51.2)	(51.9)	(64.5)	(49.1)	(50.3)	(50.1)	(50.8)	(50.4)	(50.9)	(56.3)
	WT-NMP1	A413, Wendover	Free-field	66.1	66.0	66.4	62.7	58.8	63.6	65.1	66.3	63.8	55.6	63.6	58.7
				(67.6)	(67.7)	(71.6)	(75.9)	(66.3)	(63.9)	(65.5)	(68.0)	(67.4)	(60.3)	(68.0)	(66.4)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	63.2	66.1	63.3	60.1	57.3	61.8	64.0	63.0	62.8	53.9	61.3	57.3
				(65.5)	(69.7)	(65.5)	(63.0)	(68.9)	(62.2)	(65.6)	(63.5)	(73.1)	(59.0)	(63.8)	(65.1)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	48.0	50.3	47.4	44.6	42.3	48.3	47.1	46.8	47.0	41.3	46.6	44.9
				(52.0)	(55.7)	(54.5)	(54.0)	(64.9)	(52.9)	(48.0)	(50.5)	(56.5)	(46.5)	(50.8)	(56.1)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	55.7	55.8	55.3	52.1	49.0	52.6	54.8	54.3	55.6	47.2	53.9	49.7
				(59.3)	(61.9)	(58.4)	(55.5)	(65.0)	(53.4)	(55.4)	(54.6)	(71.4)	(50.3)	(56.9)	(56.5)
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	46.9	50.7	46.3	42.3	39.6	45.3	47.3	45.9	44.8	37.8	44.6	43.5
				(53.9)	(75.3)	(51.5)	(57.4)	(54.8)	(46.2)	(48.0)	(47.4)	(54.0)	(45.6)	(49.6)	(63.2)
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	50.1	50.5	49.1	48.3	48.9	48.6	47.8	49.2	47.2	47.0	47.9	51.1
				(55.9)	(56.4)	(59.9)	(60.6)	(60.8)	(50.9)	(48.9)	(54.1)	(51.0)	(57.6)	(55.5)	(66.2)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	48.2	51.9	46.6	44.9	43.5	46.1	47.3	46.3	51.8	42.3	46.7	47.8
				(53.3)	(55.8)	(55.3)	(55.5)	(55.8)	(48.5)	(48.7)	(48.8)	(72.1)	(48.4)	(55.6)	(69.8)
	SH-NMP1	Bury Farm, South Heath	Free-field	49.6	52.1	50.5	48.9	41.9	46.1	47.7	47.1	45.6	41.6	45.5	44.3
				(52.1)	(55.3)	(55.7)	(57.6)	(53.2)	(49.3)	(51.1)	(49.2)	(49.7)	(44.9)	(49.9)	(60.1)

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
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Free-field	54.6	57.3	55.8	54.0	45.3	52.3	54.1	54.0	50.0	42.8	49.0	46.9
				(57.5)	(59.8)	(61.4)	(60.7)	(61.4)	(54.4)	(56.4)	(59.3)	(54.5)	(46.9)	(53.6)	(63.6)
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Free-field	50.4	52.2	50.1	47.0	40.5	48.3	48.9	48.2	46.5	38.4	47.8	43.0
				(53.9)	(60.7)	(56.4)	(54.7)	(55.8)	(51.7)	(50.5)	(49.5)	(50.9)	(45.5)	(58.4)	(60.5)
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	56.1	56.7	55.5	52.3	46.5	53.6	55.2	55.8	53.7	44.3	55.4	46.7
				(58.2)	(58.5)	(58.9)	(57.7)	(58.0)	(56.8)	(56.3)	(56.7)	(58.8)	(51.0)	(74.2)	(59.8)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	61.5	62.8	60.3	57.6	54.3	58.6	60.4	59.9	58.7	53.3	58.8	53.8
				(62.6)	(67.0)	(67.9)	(63.4)	(60.5)	(59.6)	(61.2)	(60.2)	(60.9)	(58.5)	(65.1)	(59.7)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	59.5	59.5	59.7	56.0	51.4	56.6	57.6	57.8	56.9	49.2	56.9	50.8
				(62.1)	(61.1)	(62.4)	(60.4)	(59.3)	(57.5)	(57.8)	(58.3)	(58.3)	(55.2)	(59.1)	(59.6)
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Free-field	60.3	59.2	60.0	55.8	51.9	58.6	57.9	57.4	56.3	50.8	57.5	52.0
				(63.1)	(60.7)	(66.1)	(60.7)	(63.0)	(59.0)	(58.2)	(57.7)	(57.8)	(60.2)	(65.5)	(60.9)
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	45.3	49.6	45.7	42.2	40.2	44.9	49.2	49.7	45.2	39.0	46.1	41.9
				(50.9)	(52.4)	(53.2)	(56.7)	(57.4)	(48.4)	(50.4)	(51.7)	(50.8)	(46.1)	(55.6)	(59.6)
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	52.0	57.4	49.7	44.4	45.5	52.0	54.3	51.3	46.3	44.5	50.6	46.9
				(59.2)	(62.6)	(58.8)	(56.2)	(58.9)	(55.7)	(56.3)	(54.7)	(50.8)	(56.2)	(66.0)	(58.4)
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles, Buckinghamshire	Free-field	54.3	54.2	53.9	50.9	47.4	52.5	54.9	59.9	54.9	45.5	52.3	47.1
				(56.4)	(57.2)	(57.3)	(57.5)	(55.5)	(53.4)	(57.6)	(77.3)	(67.6)	(50.1)	(61.4)	(56.1)

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	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	57.0 (58.9)	56.7 (59.8)	55.6 (57.6)	52.2 (55.9)	46.7 (53.8)	53.6 (54.9)	55.3 (55.8)	55.4 (56.6)	53.2 (56.6)	45.2 (48.7)	53.8 (60.4)	47.0 (56.1)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite	Free-field	45.2 (49.1)	48.8 (50.5)	46.5 (51.9)	43.7 (51.4)	38.7 (50.8)	42.7 (44.3)	47.7 (49.5)	47.7 (50.7)	45.8 (50.6)	37.9 (44.1)	46.0 (50.8)	39.4 (51.8)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite	Free-field	57.1 (59.0)	56.4 (58.1)	56.5 (58.5)	53.7 (56.9)	49.2 (55.8)	53.8 (55.0)	56.3 (57.6)	56.3 (57.4)	55.1 (58.1)	48.6 (54.3)	55.1 (57.6)	48.5 (55.2)
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	61.6 (64.6)	61.5 (63.5)	61.4 (66.0)	59.7 (69.0)	55.7 (62.4)	58.7 (59.6)	60.9 (61.3)	61.2 (62.4)	59.9 (65.4)	54.4 (57.4)	58.2 (60.9)	54.1 (61.6)
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham	Free-field	57.6 (59.8)	57.7 (60.8)	57.5 (67.1)	53.2 (60.9)	49.4 (61.1)	55.8 (59.0)	57.2 (59.7)	57.6 (58.8)	54.4 (58.2)	46.2 (56.4)	54.9 (59.6)	50.0 (61.4)
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge	Free-field	47.3 (55.6)	49.4 (54.6)	50.0 (59.2)	46.9 (58.0)	44.2 (62.4)	45.4 (48.3)	49.6 (52.4)	50.8 (55.8)	49.9 (58.6)	42.0 (47.4)	48.0 (54.7)	45.4 (59.5)
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	47.7 (51.5)	49.5 (63.8)	47.6 (52.9)	45.3 (54.3)	42.5 (55.4)	47.1 (47.7)	47.1 (48.6)	47.5 (50.8)	45.6 (48.6)	40.9 (46.4)	45.6 (52.2)	43.9 (52.6)

Note: Monitor MF-NMP1 was not shown as no data was obtained in monitoring period.

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	0.57 (Y-axis)
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	1.32 (Z-axis)
WGT	ER-Vib 1	46, Ellesborough Rd, Wendover	3.02 (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
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, 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	Weekdays	0800-1800	1	1
WSO	WSO-NMP1	West Street, Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	Weekdays	0800-1800	1	No exceedance
SHC	SHC-NMP1*	School Hill Compound, Calvert	All days	All periods	No exceedance	No exceedance
QAR	QAR-NMP2	Station Rd, Quainton	Weekdays Saturdays	1800-2200 1400-2200	2 3	No exceedance No exceedance
FCC	FCC-NMP1	Calvert South	All days	All periods	No exceedance	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	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	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance
	WES-NMP1	Westfield, Stoke Mandeville, Aylesbury	Nights	2200-0700	15	No exceedance
NLL	NLL-NMP1	Nash Lee Lane, Nash Lee	Weekdays	0800-1800	3	No exceedance
	NLL-NMP2	Nash Lee Lane, Nash Lee	Weekdays	1800-1900	1	No exceedance
WGT	ER-NMP1	Ellesborough Rd, Wendover	All days	All periods	No exceedance	No exceedance
	BL-NMP1	Bacombe Lane, Wendover	Weekdays	0800-1800	1	No exceedance
	WT-NMP1	A413, Wendover	Weekdays Saturdays	0700-0800 0800-1800 1800-1900 1300-1400 1400-2200	20 3 22 3 1	No exceedance No exceedance 1 No exceedance No exceedance
RLE	SDVC-NMP1	Rocky Lane, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	Weekdays	0800-1800	1	1
	GD-NMP1	Grimms Ditch, The Lee, South Heath	All days	All periods	No exceedance	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	Saturdays	1400-2200	3	1
	SH-NMP1	Bury Farm, South Heath	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
NP	ORC-NMP1	Orchard Cottage, Ballinger Road, South Heath	Weekdays	1800-1900 1900-2200	1 1	No exceedance No exceedance
	BLH-NMP1	Bayleys Hatch, South Heat, Great Missinden	Weekdays	1900-2200	2	No exceedance
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekdays	0800-1800	1	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	Weekdays Saturdays	0700-0800 1800-1900 1900-2200 1400-2200	10 4 22 15	No exceedance No exceedance No exceedance No exceedance
CSG	CSG-NMP1*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	CSG-NMP2*	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	No exceedance
	PIC-NMP1	Bottom House Farm Lane, Chalfont St Giles	Weekdays	1900-2200	1	No exceedance
CSP	CSP-NMP1*	Chalfont St Peter Vent Shaft Worksite	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-LTP #1	CVV-LTP #1-NMP1*	Northern boundary, Load Test Pile 1 Worksite	All days	All periods	No exceedance	No exceedance
	CVV-WYC-NMP1**	Wyatt's Covert, Tilehouse Lane, Denham	Weekdays	0700-0800 1800-1900 1900-2200	9 5 9	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
			Saturdays Sundays Nights	0700-0800 1300-1400 1400-2200 0700-2200 2200-0700	1 1 9 24 49	No exceedance No exceedance No exceedance No exceedance No exceedance
	CVV-DFS-NMP1**	Denham Film Studio, Uxbridge	Weekdays Saturdays Sundays Nights	1800-1900 1900-2200 1400-2200 0700-2200 2200-0700	2 6 3 1 14	No exceedance No exceedance No exceedance No exceedance No exceedance
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Weekdays Nights	0700-0800 2200-0700	1 3	No exceedance No exceedance

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

** The ambient noise level is close to the LOAEL and measured LOAEL exceedances are considered to be due to ambient noise levels exceeding the LOAEL and not due to HS2 construction noise.

2.2.6 Exceedances of the LOAEL were recorded at nineteen (19) monitoring locations during the month of September 2022. LOAEL exceedances were recorded during weekdays, nights, Saturday and Sunday time periods.

2.2.7 For the purpose of assessing eligibility for noise insulation or temporary rehousing, 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 may 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
TW	TW-NMP1	Twyford	1
WGT	WT-NMP1	A413, Wendover	1
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	1
SHCW	PR-NMP1	Potters Row, South Heath	1

2.2.8 Four (4) SOAEL exceedances were recorded due to HS2 construction works during September 2022. These occurred at monitoring locations TW-NMP1 and HG-NMP1 during the weekday daytime period, at WT-NMP1 during the weekday evening period, and at PR-NMP1 during the Saturday afternoon period.

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
-	-	-	-	-	-

2.4 Complaints

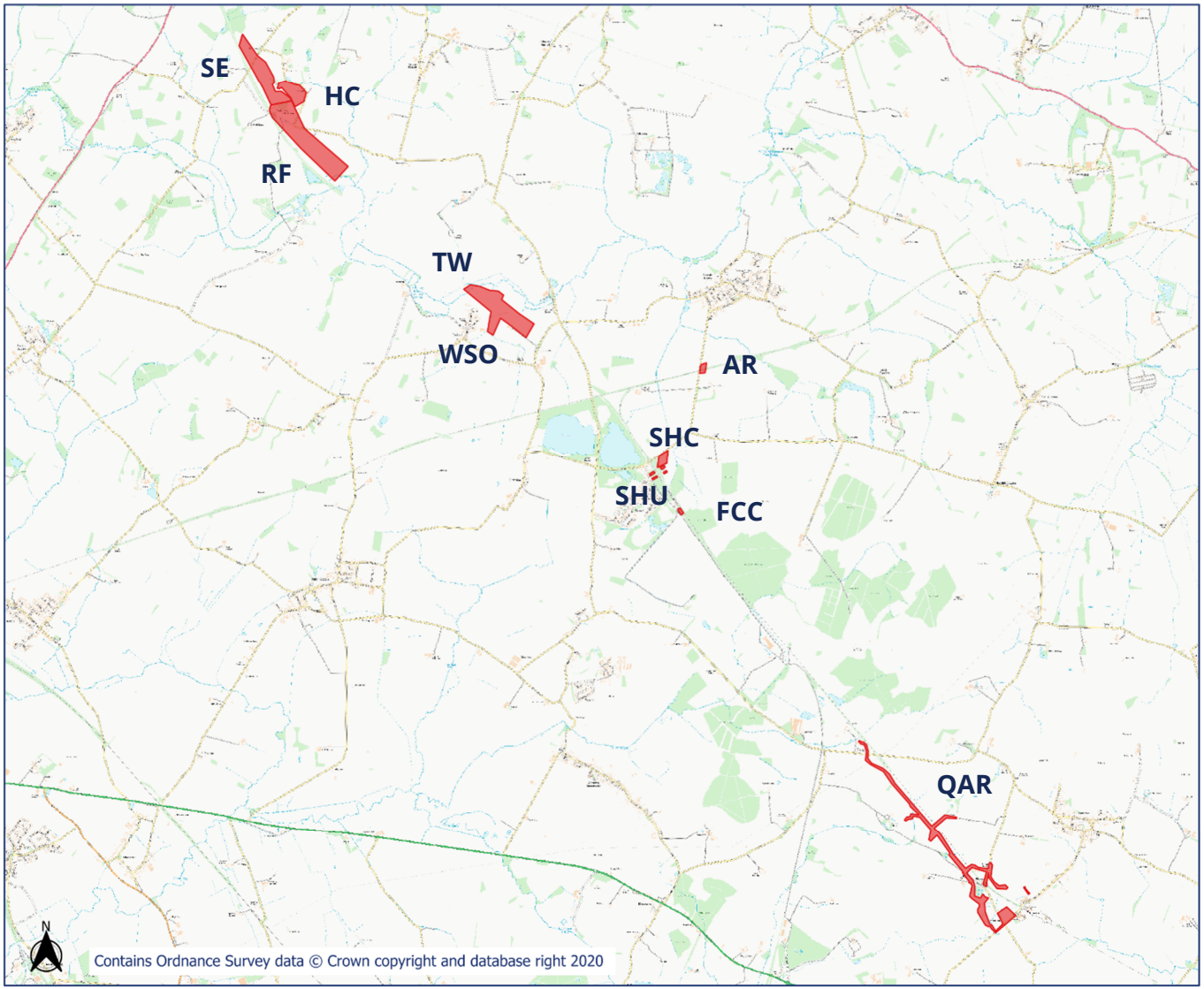
2.4.1 Table 8 provides a summary of complaint information related to noise and vibration received during the reporting period, along with the findings of any investigation.

Table 8: Summary of Complaints

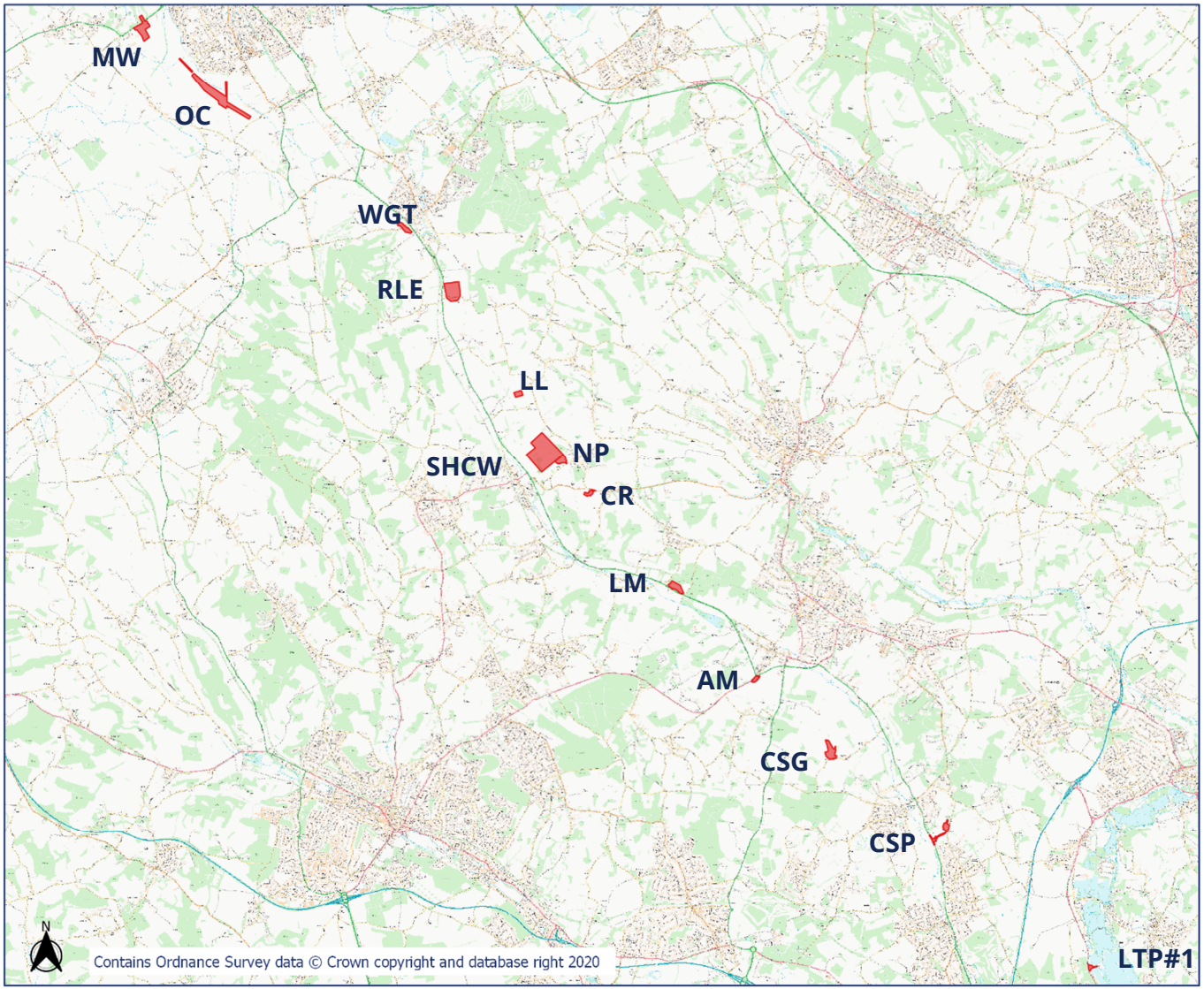
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43988-C	QAR	Disturbance due to vehicle alarm at 6:30am.	Delivery vehicles were in operation during time of disturbance.	Stakeholder was issued with an apology. Site staff and drivers were reminded to only use horn when absolutely necessary, especially outside normal working hours.

Appendix A Site Locations

HS2 Worksite Identification Plan - Overview 1

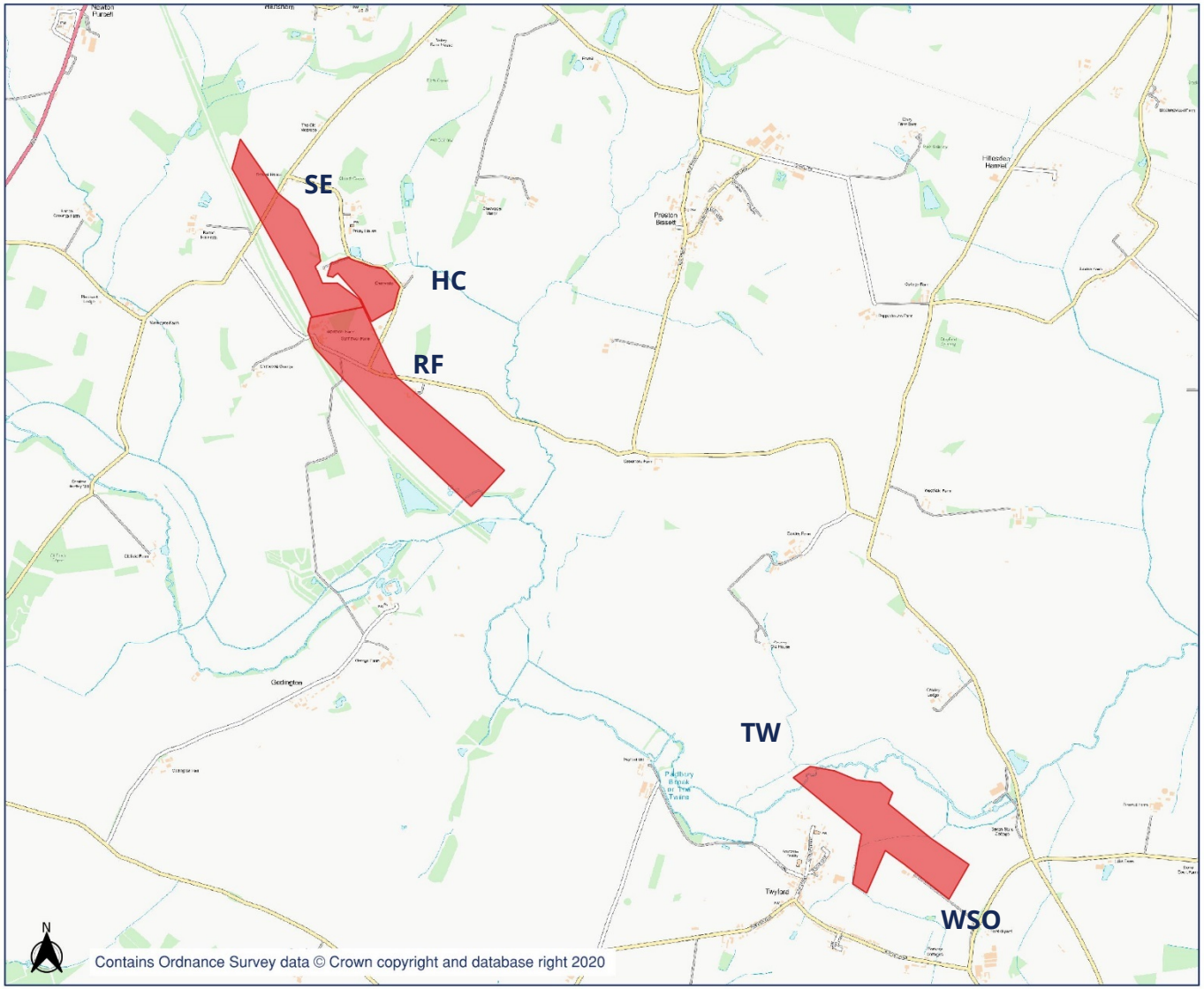


HS2 Worksite Identification Plan - Overview 2

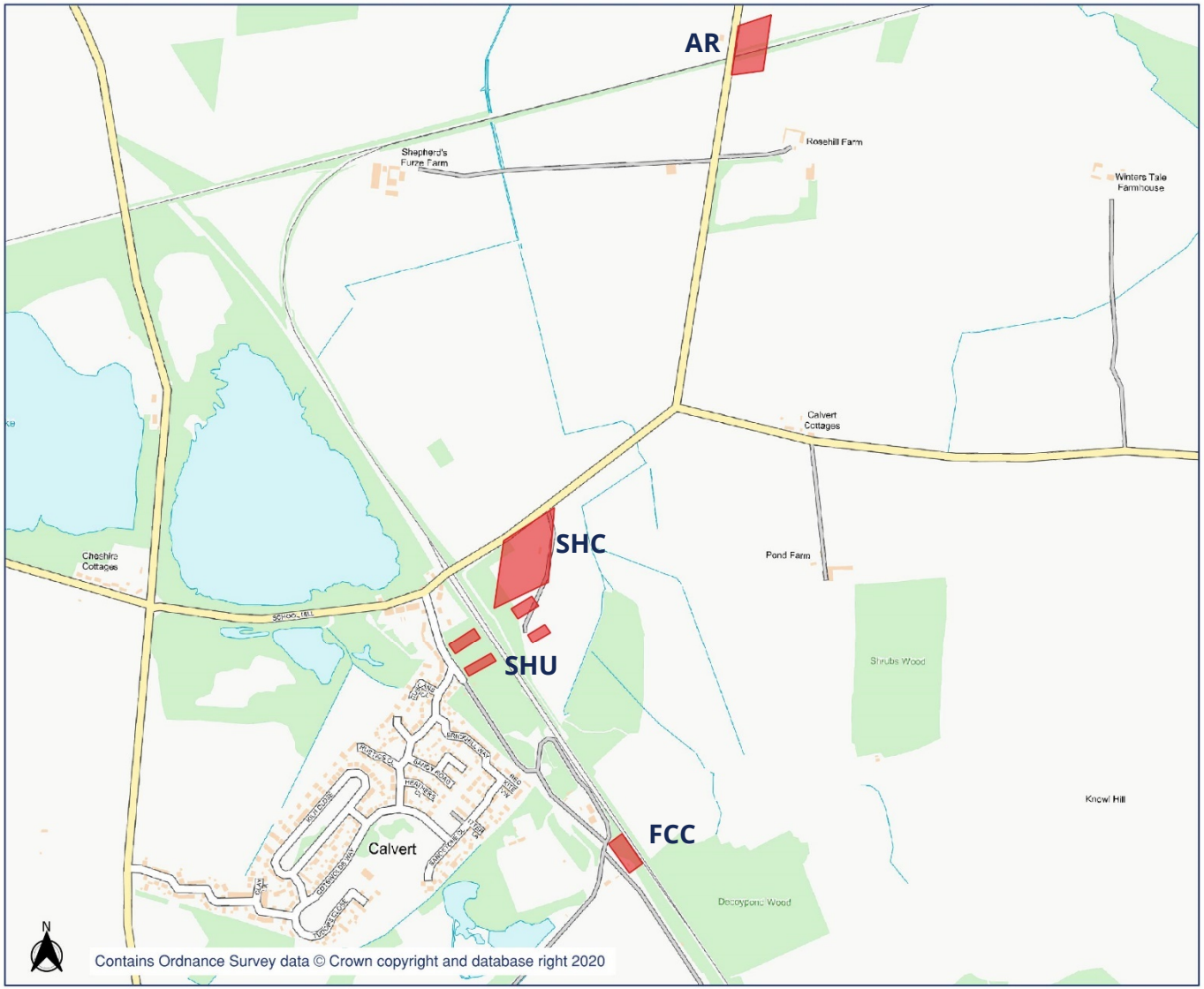


Worksite Identification Plan - 1

Worksite Identification Plan - 2



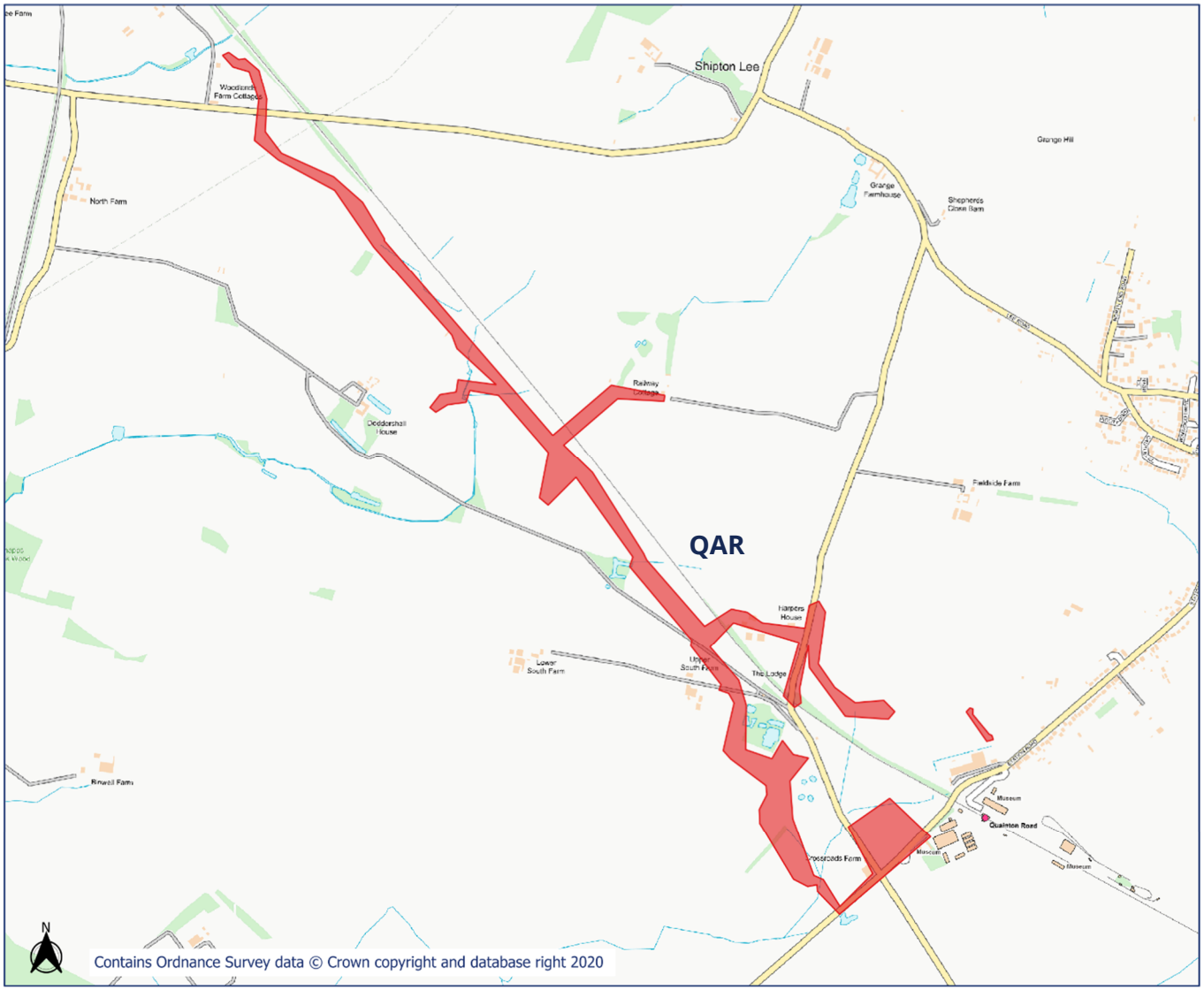
Worksite Identification Plan - 3



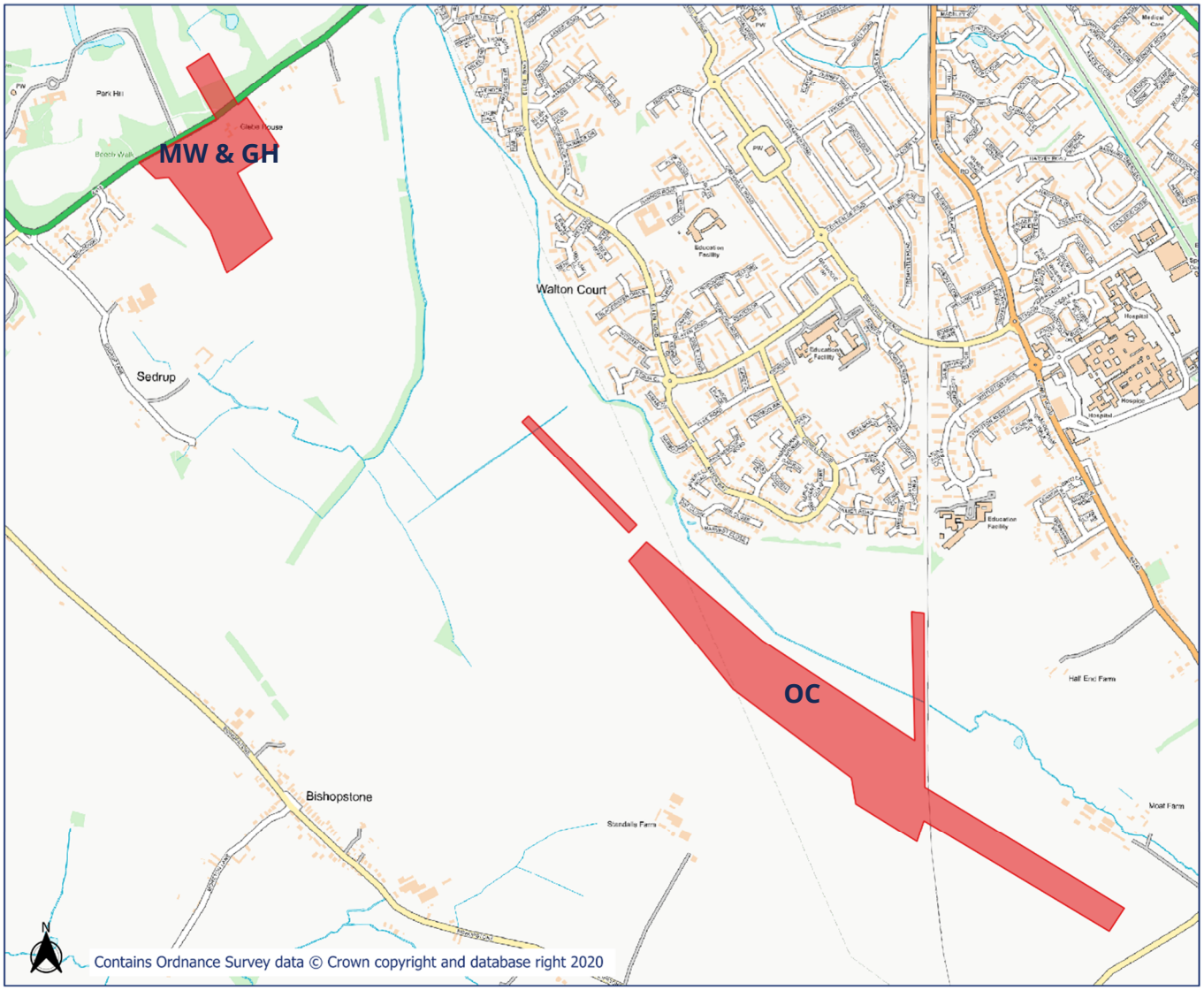
Legend

Active Worksites

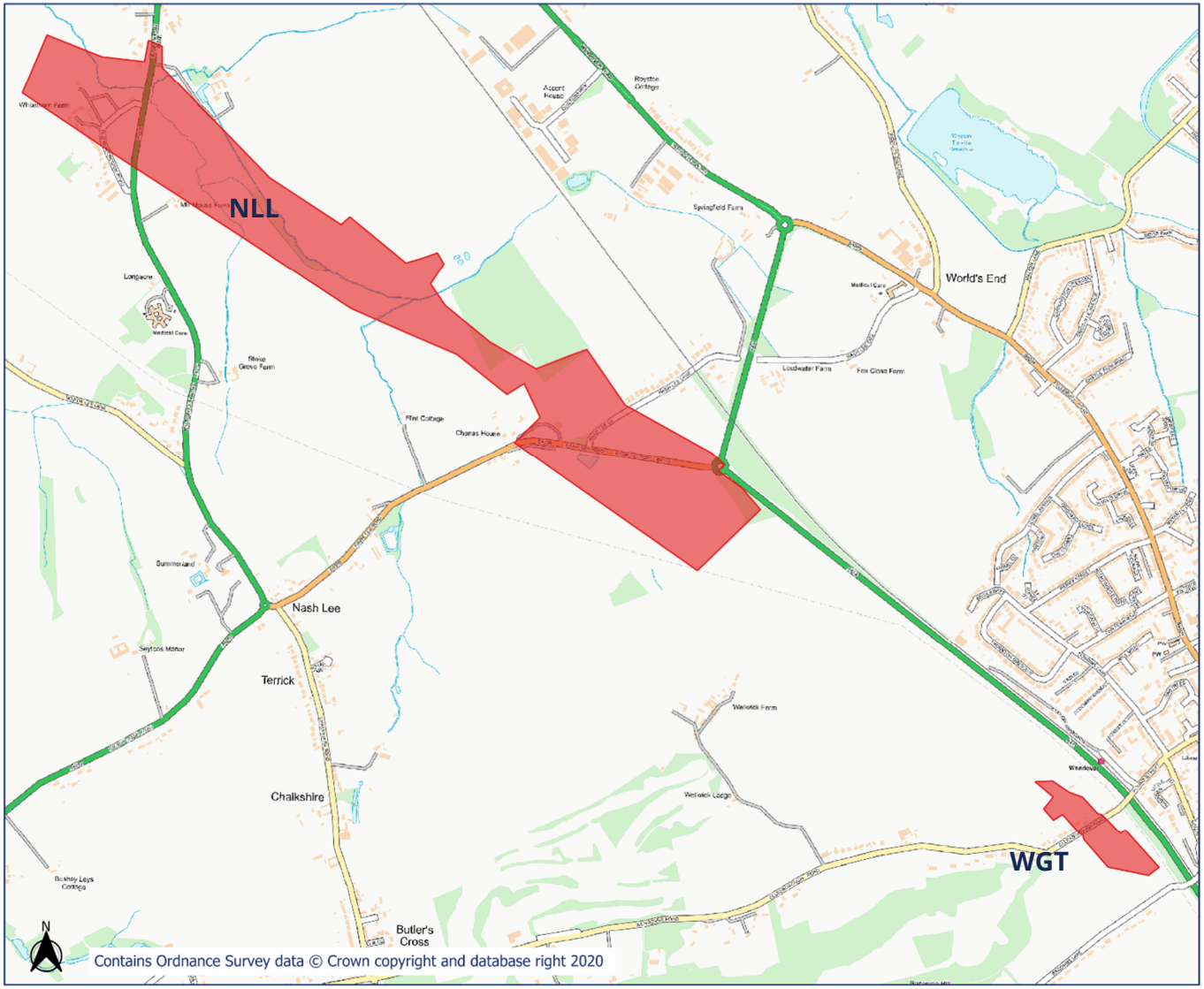
Worksite Identification Plan - 4



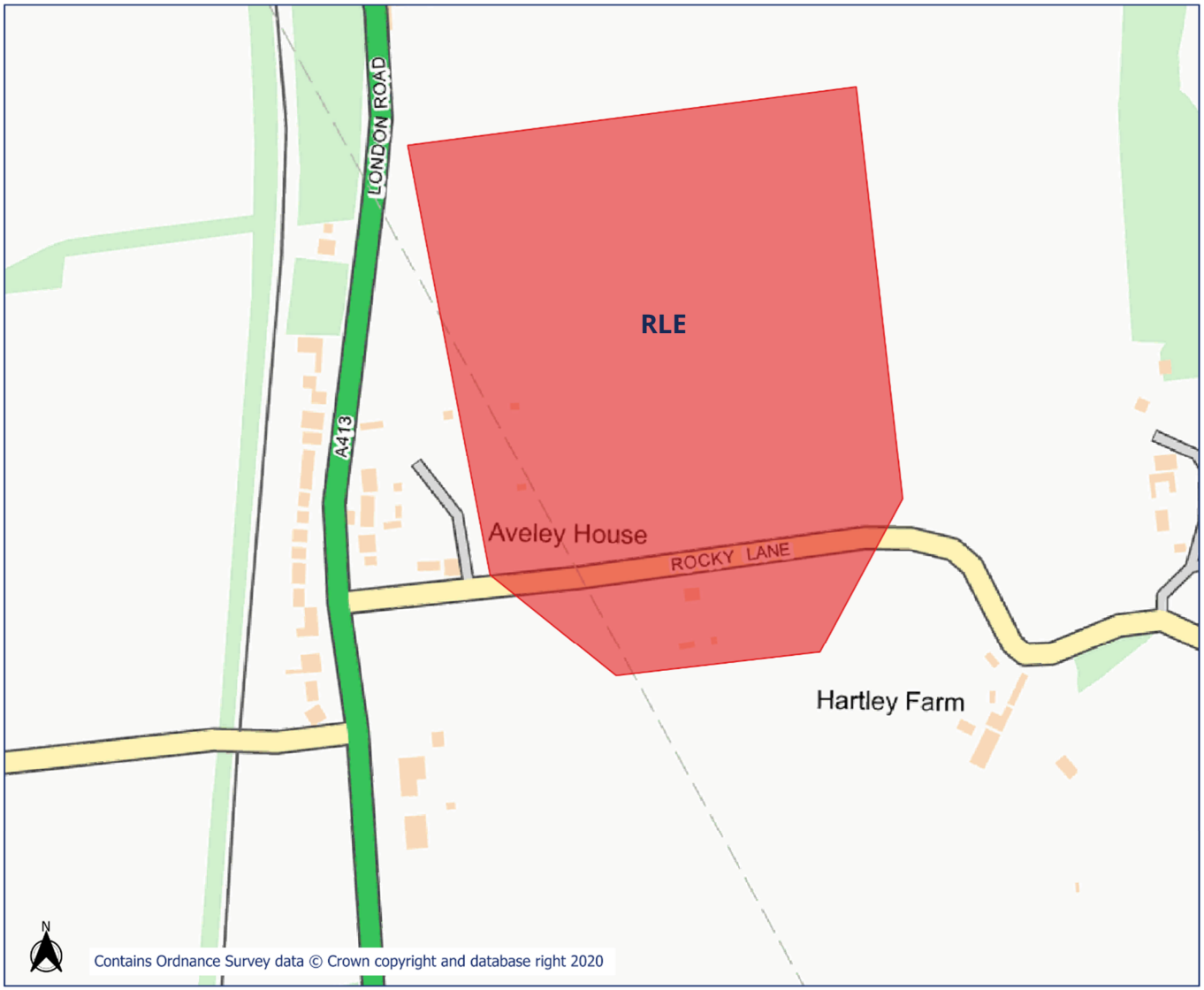
Worksite Identification Plan - 5



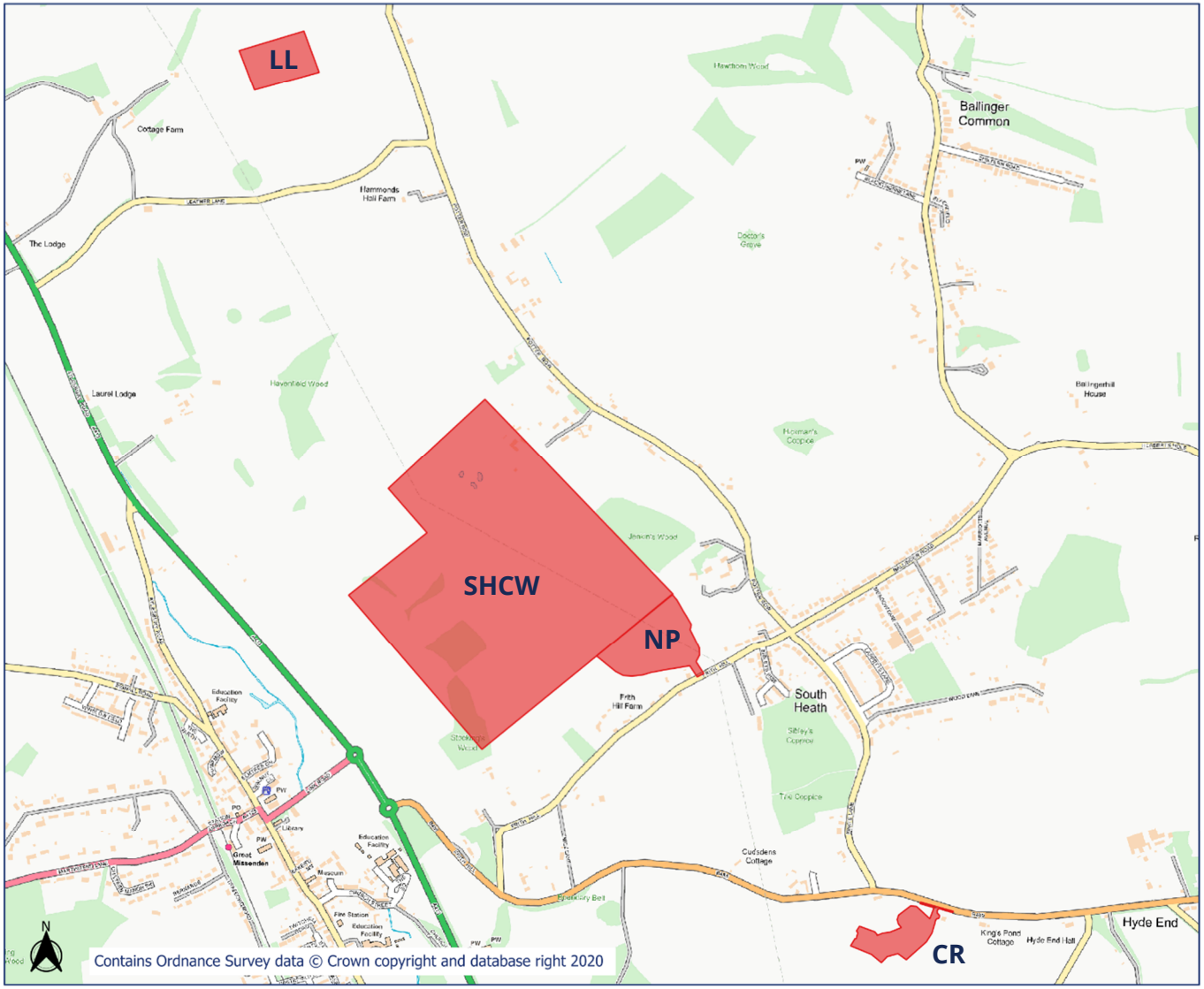
Worksite Identification Plan - 6



Worksite Identification Plan - 7



Worksite Identification Plan - 8

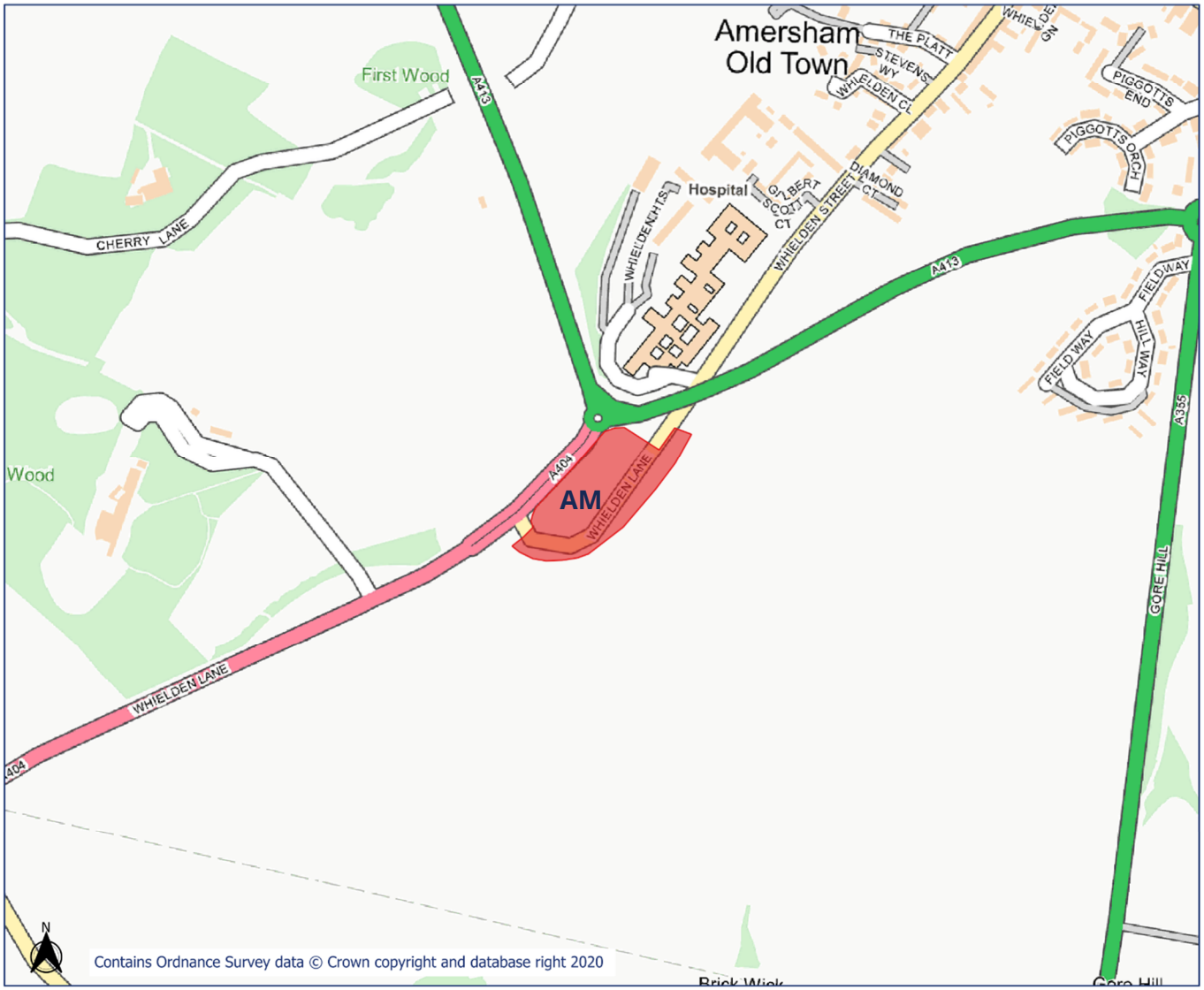


Legend

Active Worksites

Worksite Identification Plan - 9

Worksite Identification Plan - 10

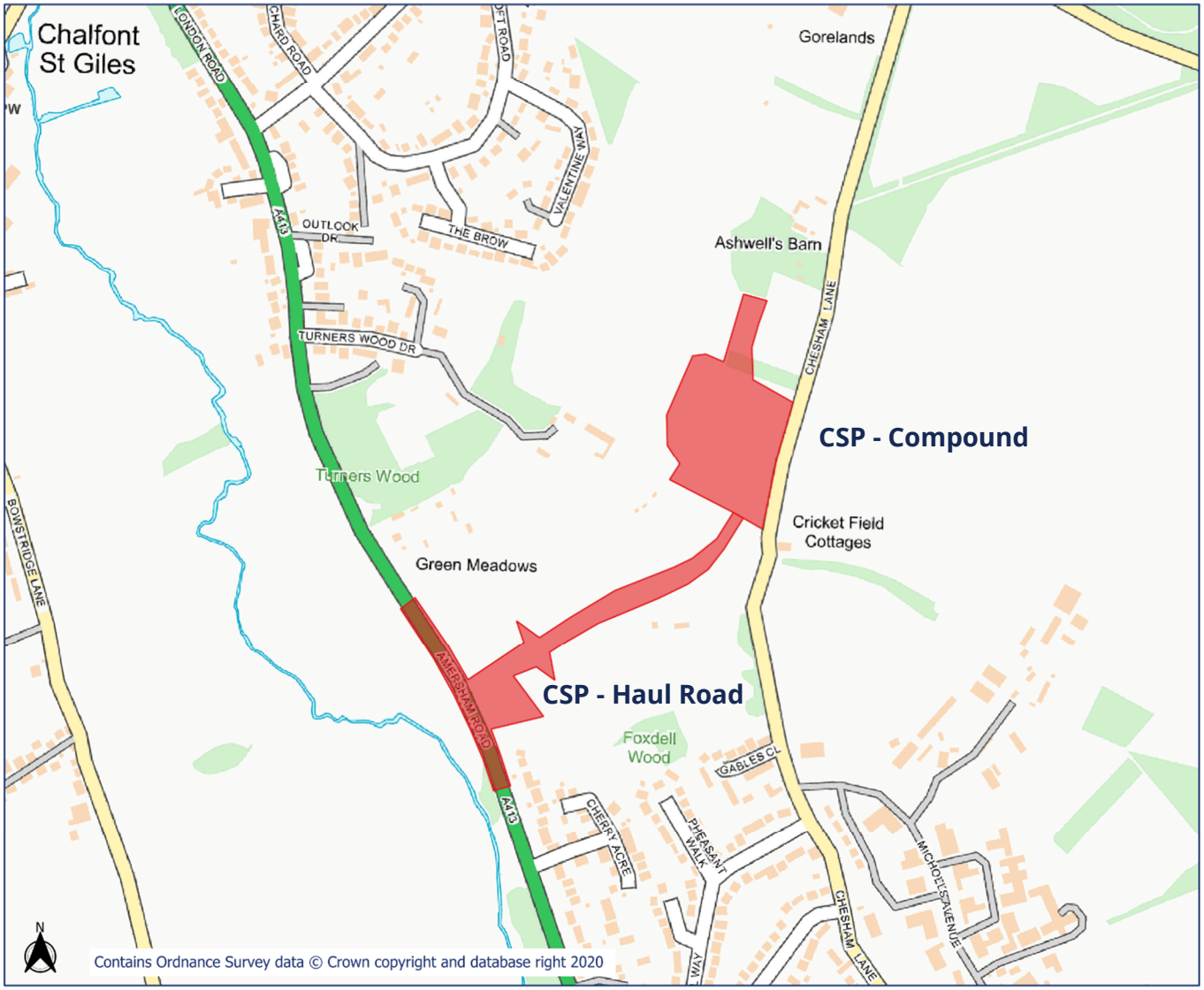


Legend

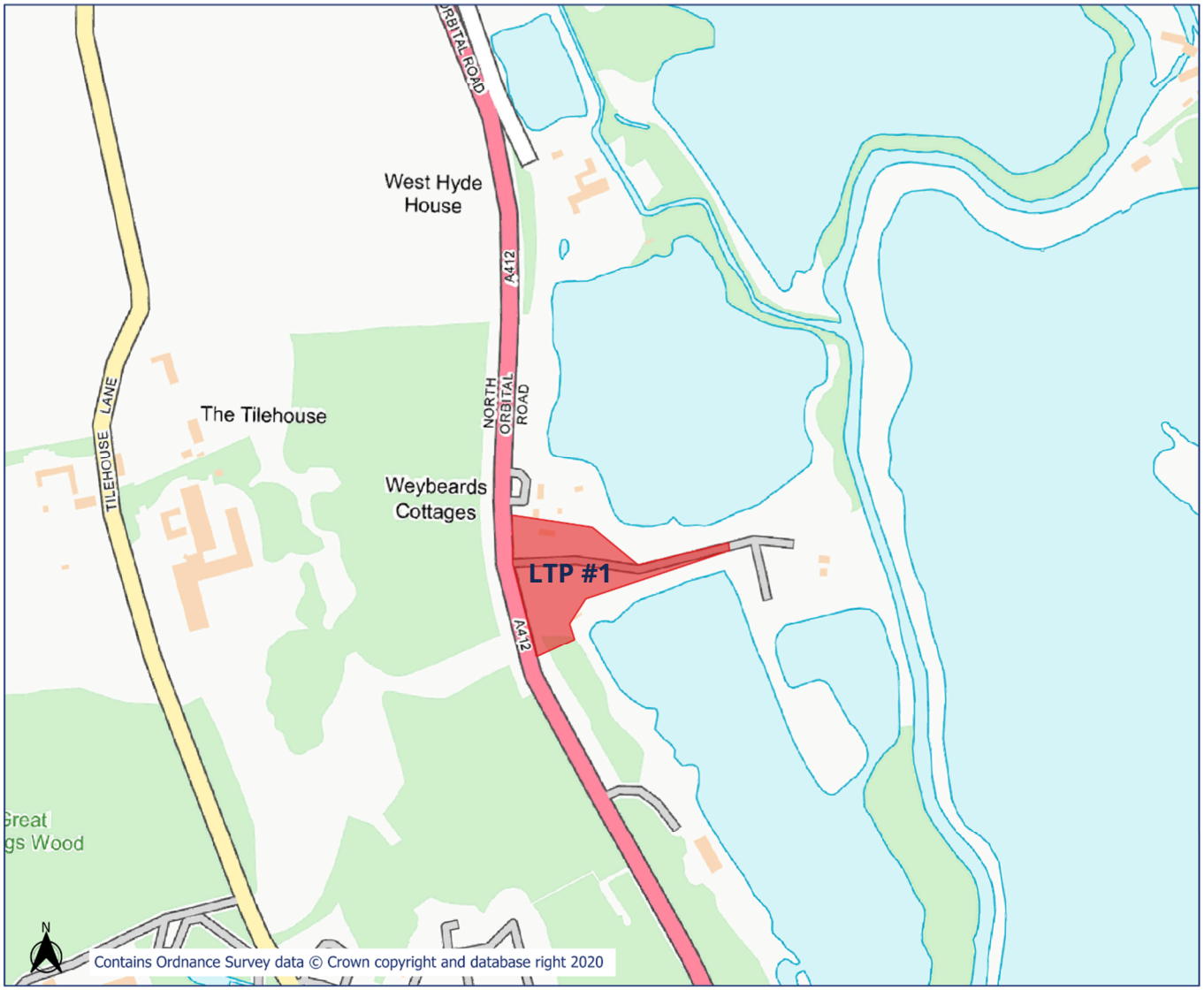
Active Worksites

Worksite Identification Plan - 11

Worksite Identification Plan - 12



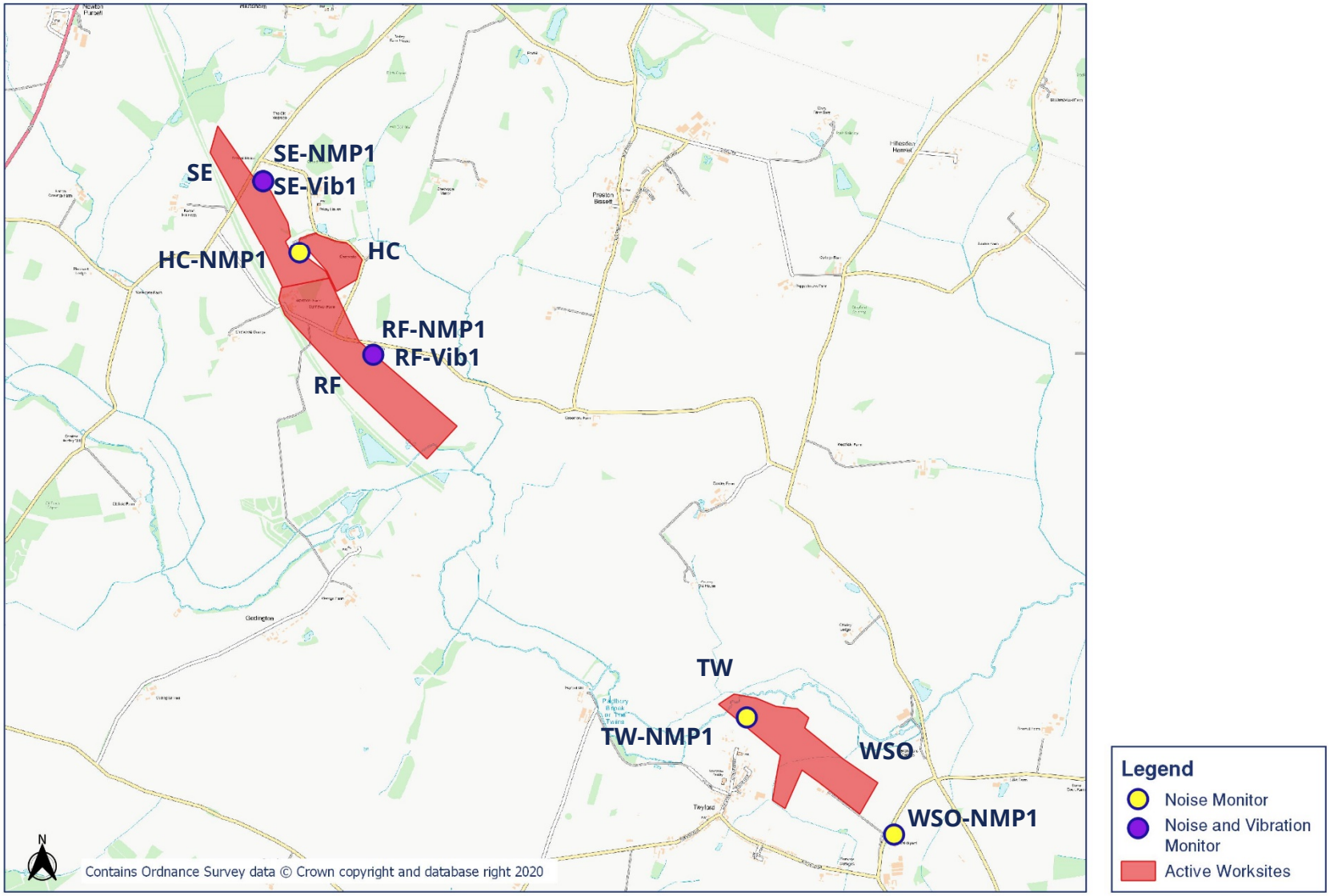
Worksite Identification Plan - 13



Appendix B Monitoring Locations

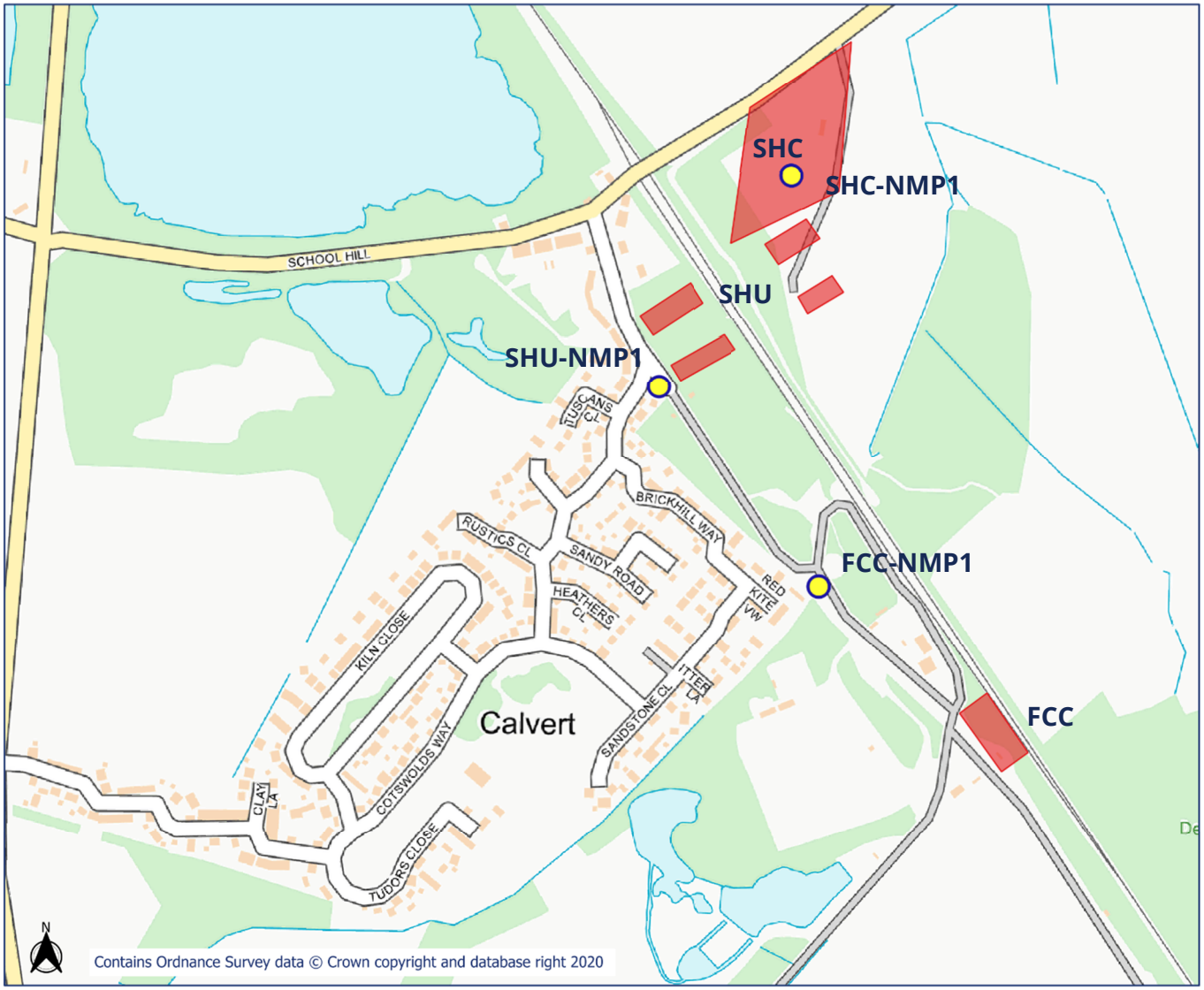
Noise and Vibration Monitoring Plan - 1

Noise and Vibration Monitoring Plan - 2



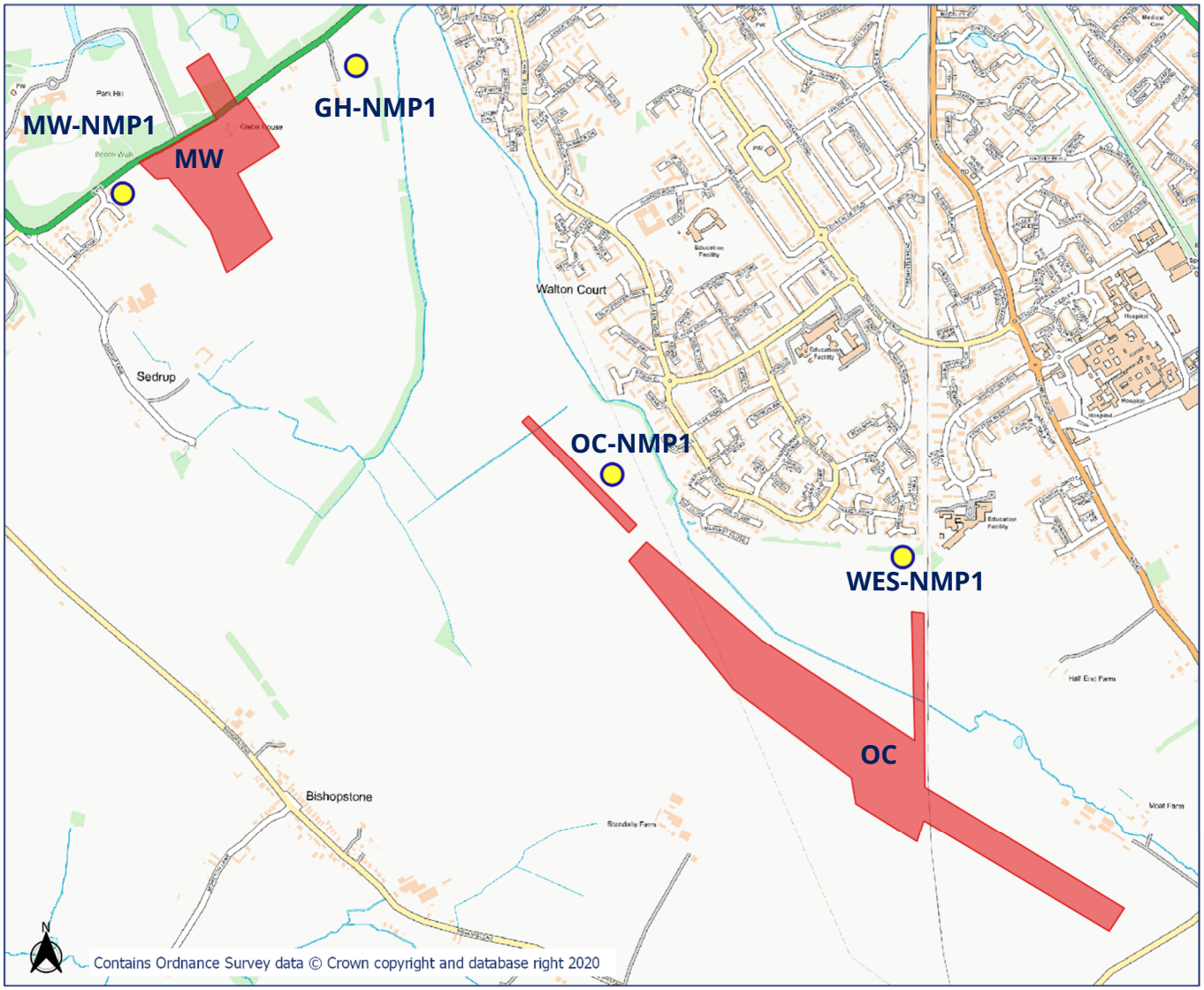
Noise and Vibration Monitoring Plan - 3

Noise and Vibration Monitoring Plan - 4

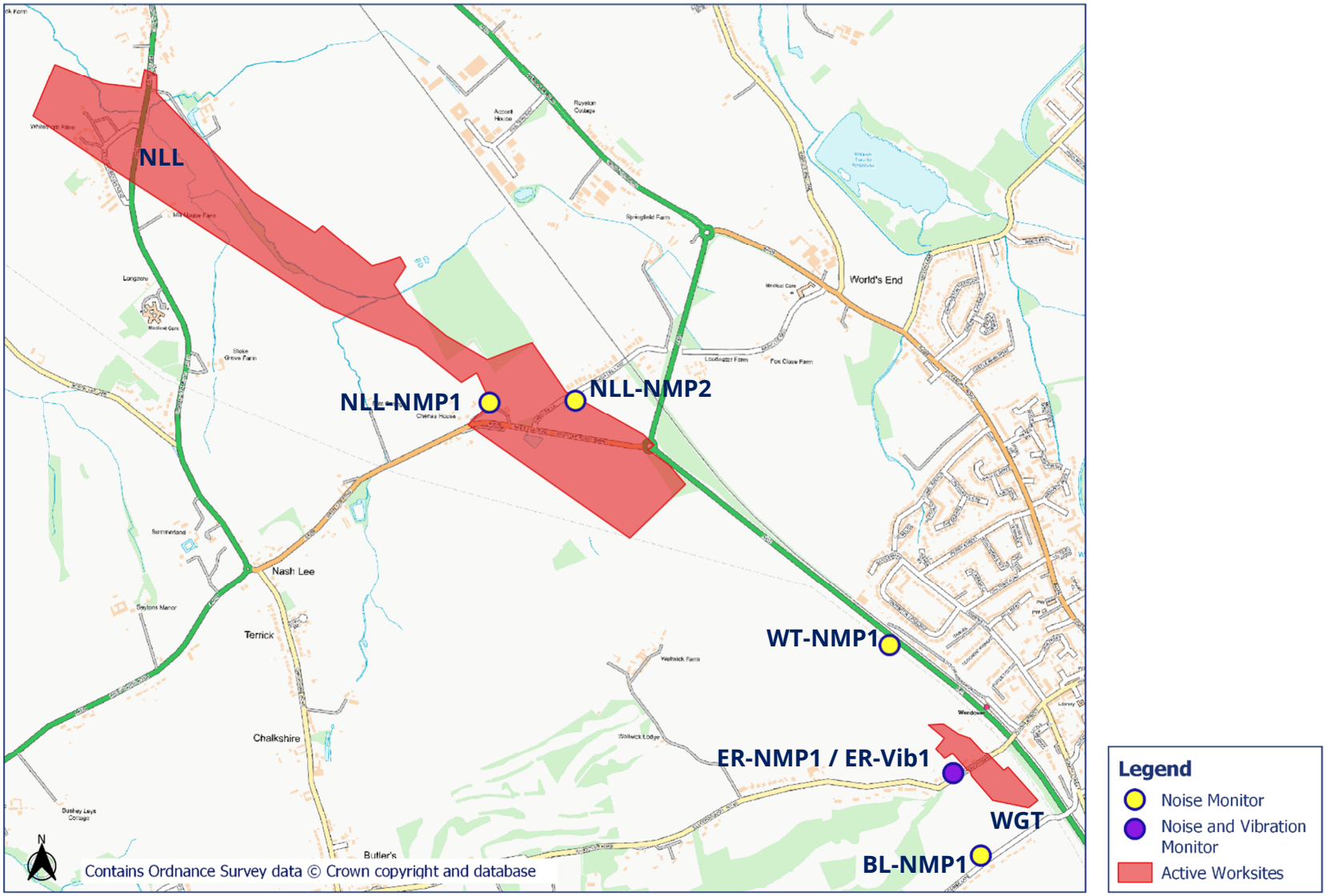


Noise and Vibration Monitoring Plan - 5

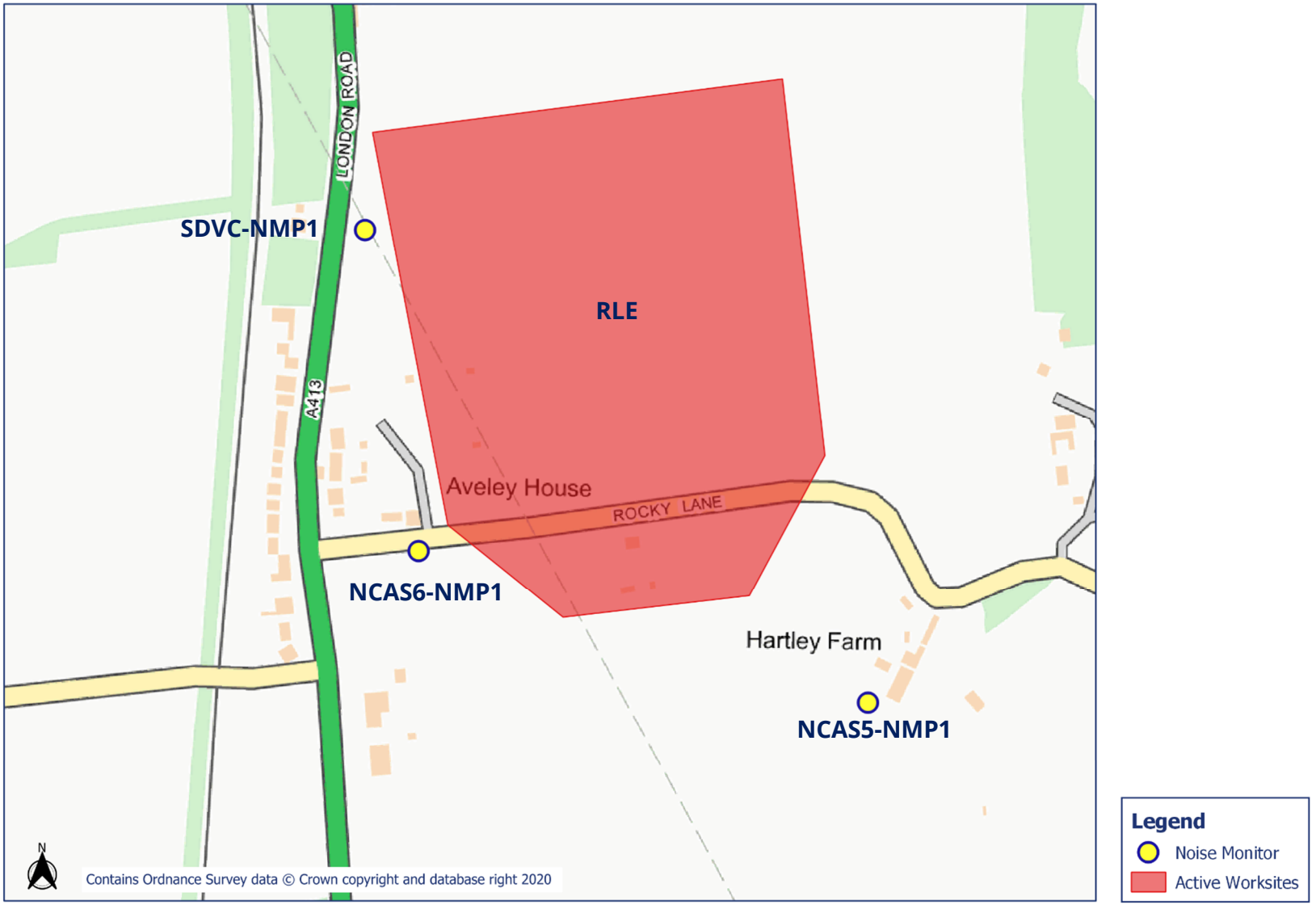
HS2 Noise and Vibration Monitoring Plan - 6



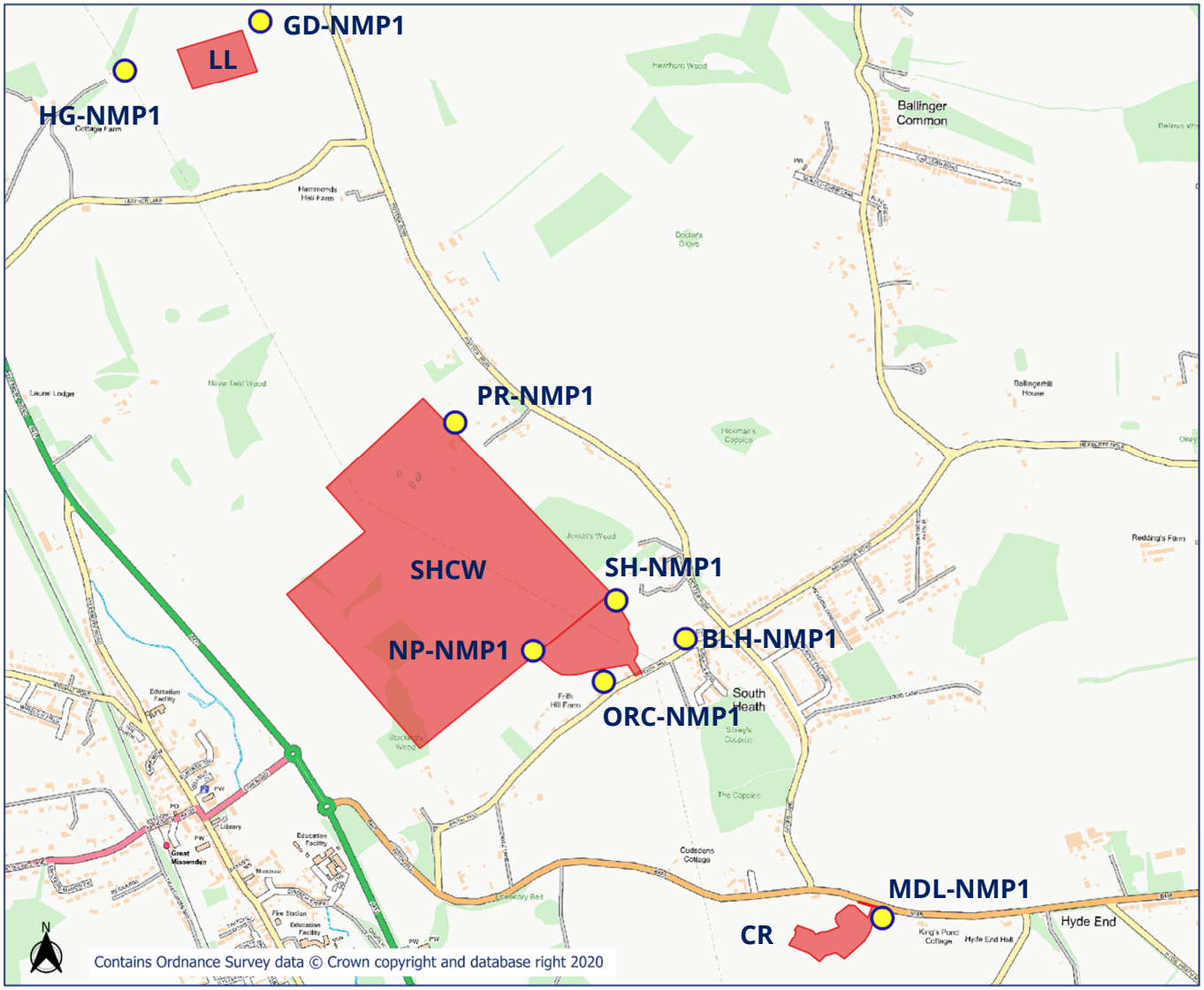
HS2 Noise and Vibration Monitoring Plan - 7



Noise and Vibration Monitoring Plan - 8

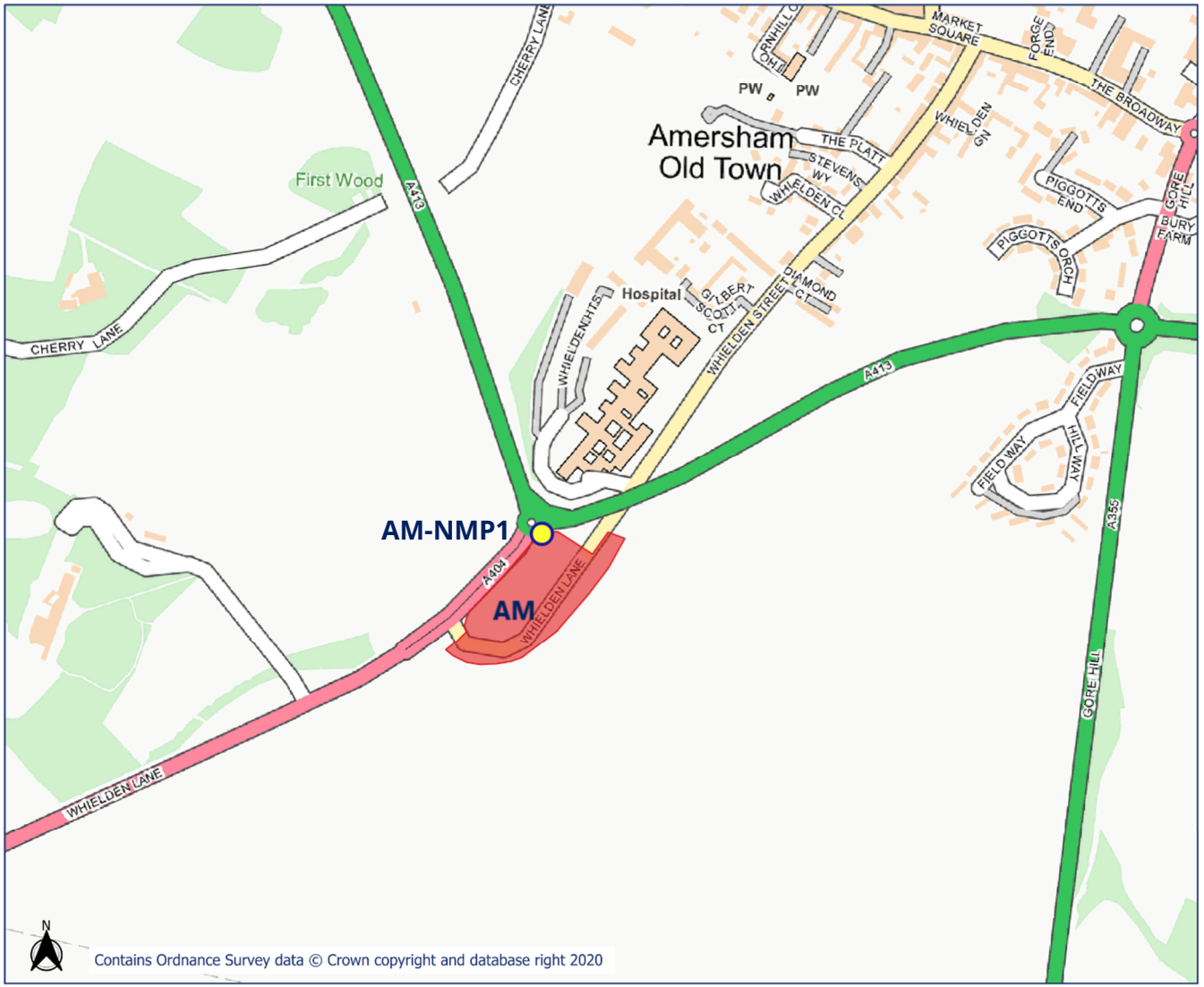


Noise and Vibration Monitoring Plan - 9

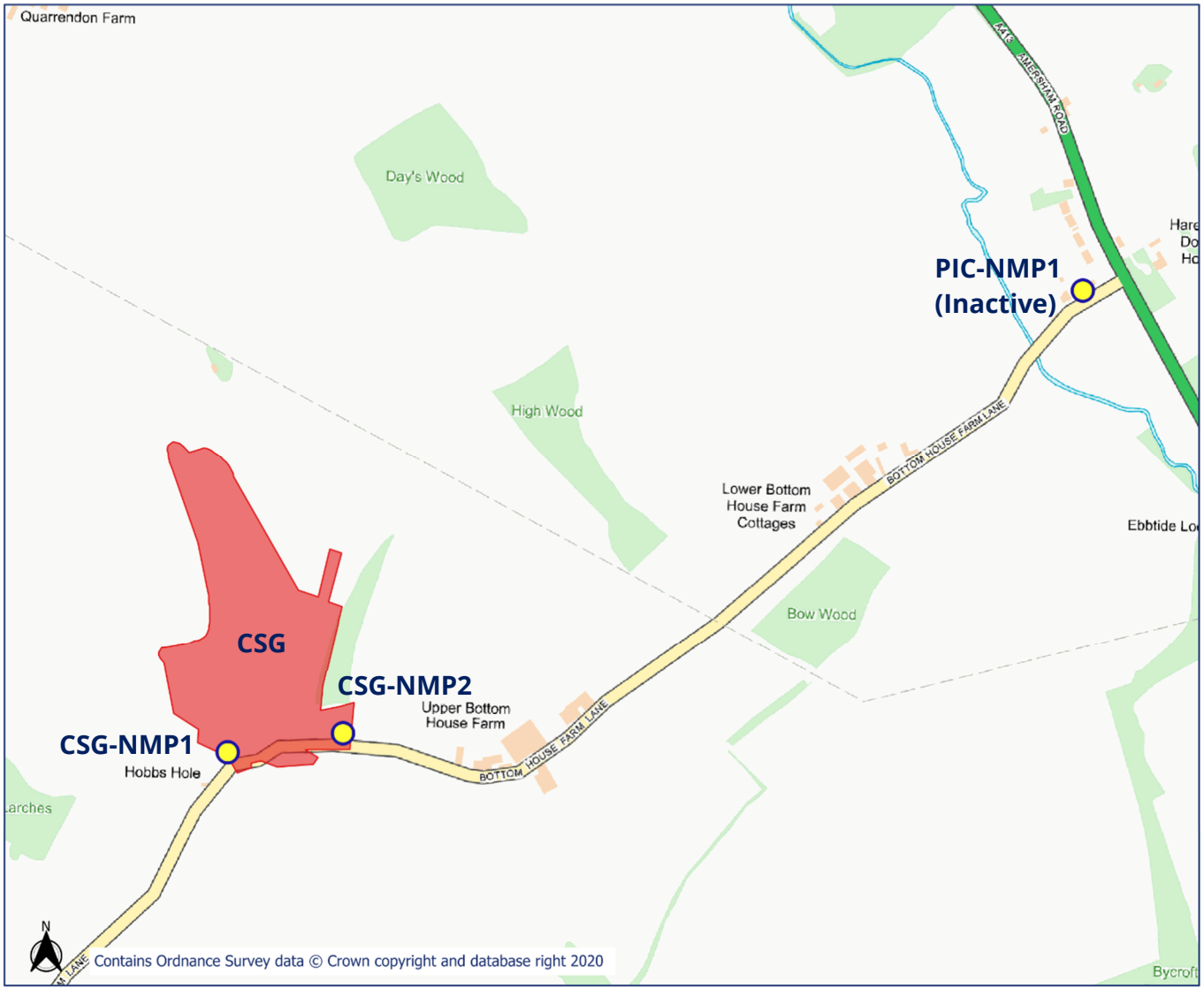


HS2 Noise and Vibration Monitoring Plan - 10

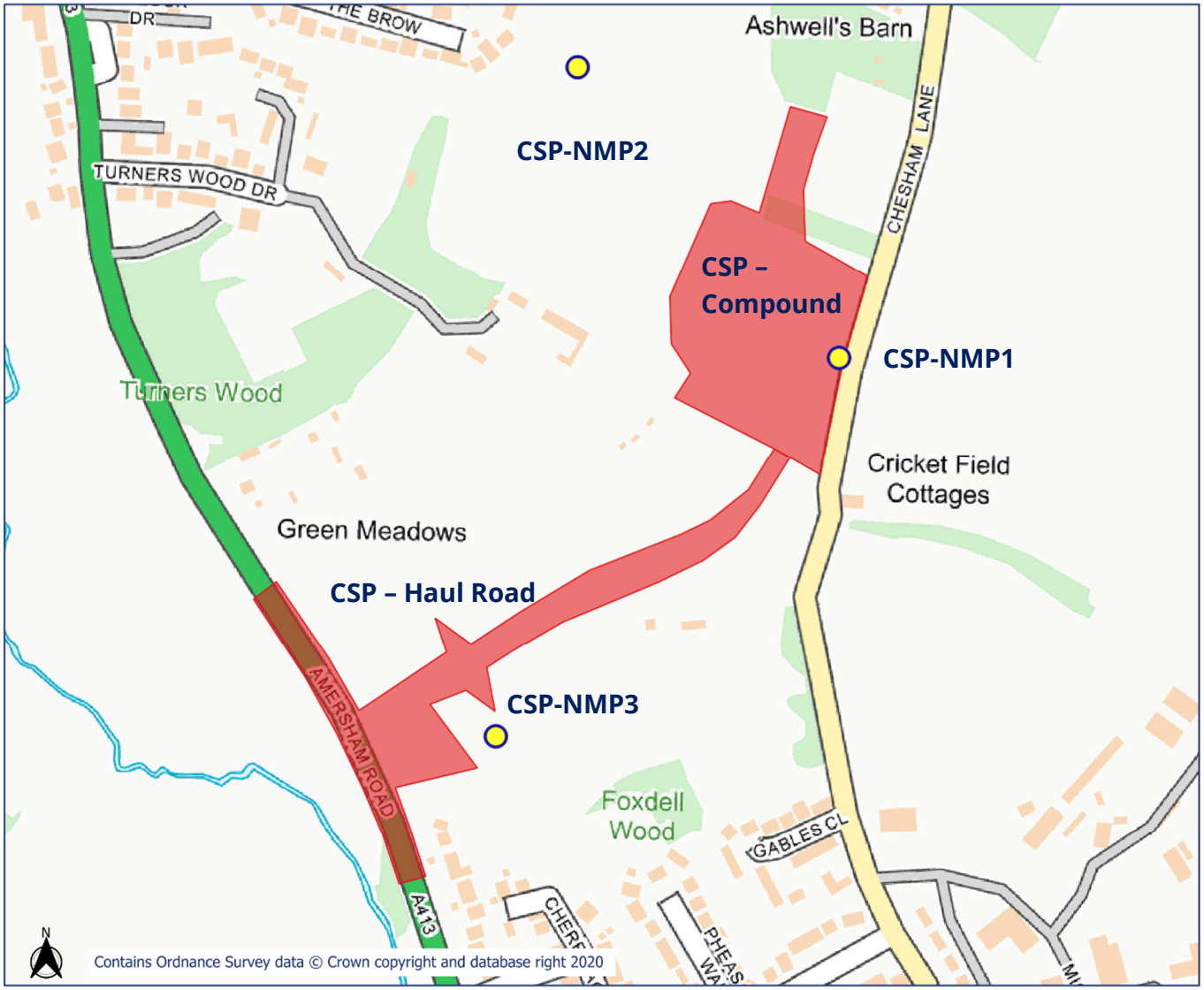
HS2 Noise and Vibration Monitoring Plan - 11



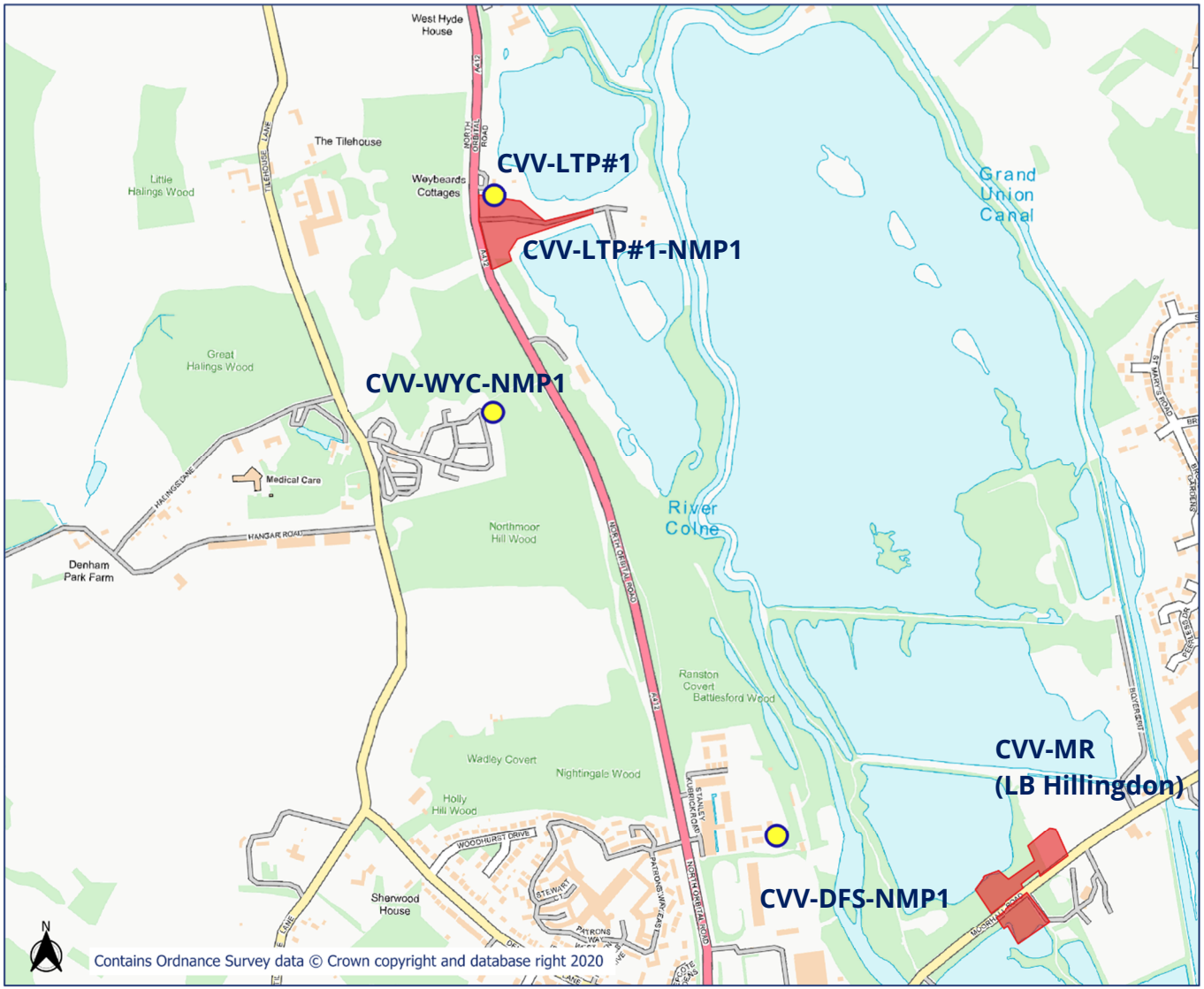
Noise and Vibration Monitoring Plan - 12



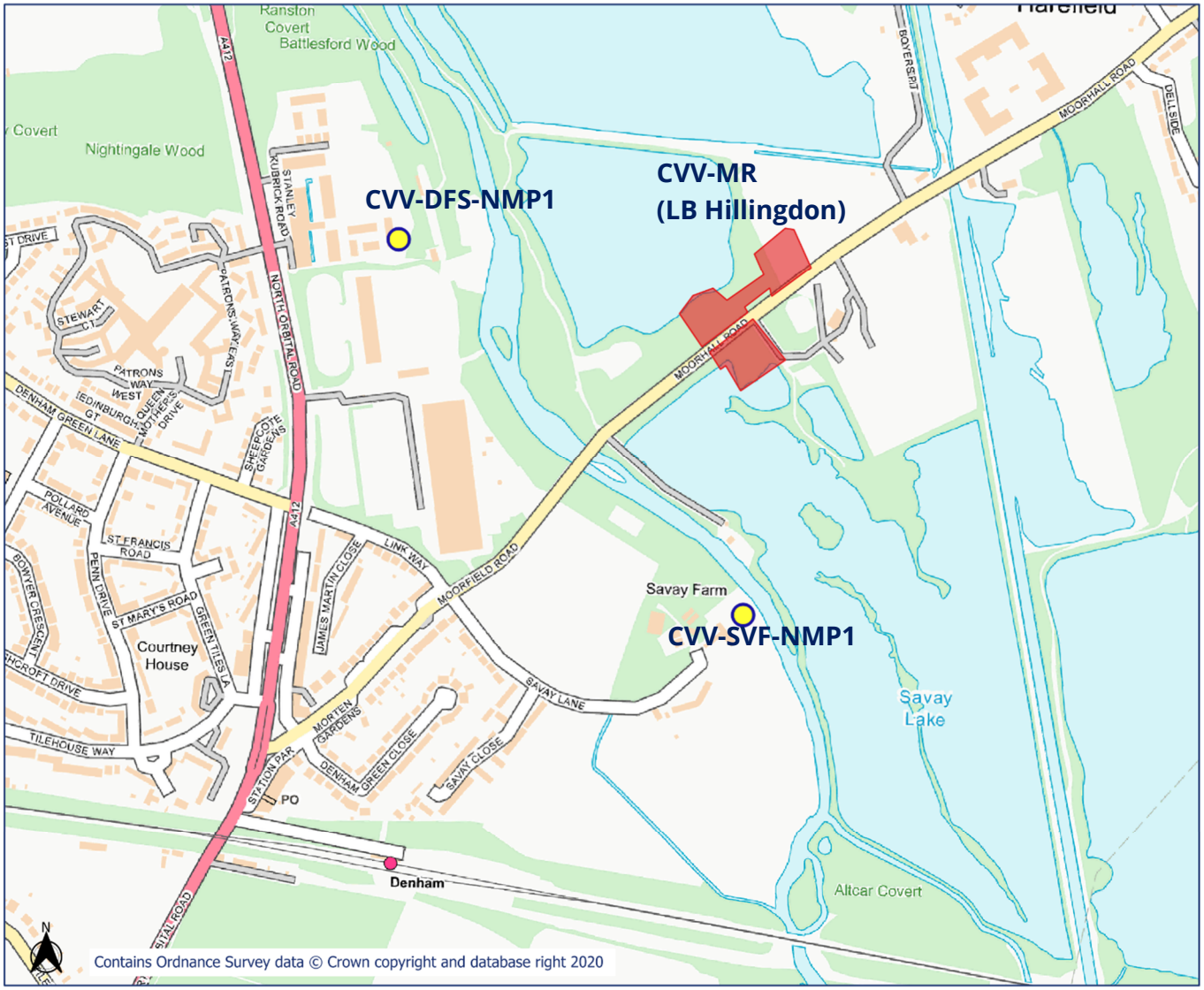
HS2 Noise and Vibration Monitoring Plan - 13



HS2 Noise and Vibration Monitoring Plan - 14



HS2 Noise and Vibration Monitoring Plan - 15

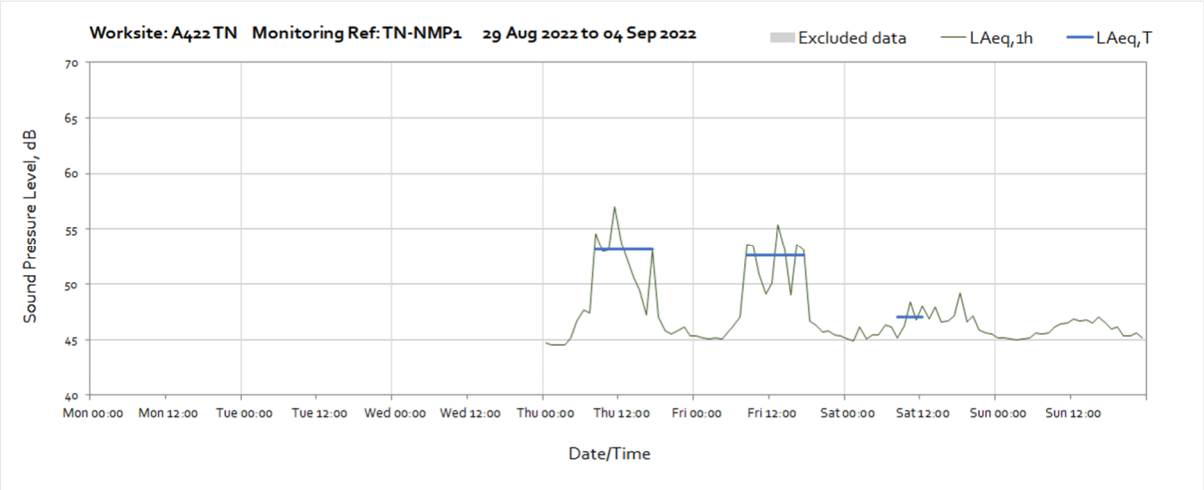


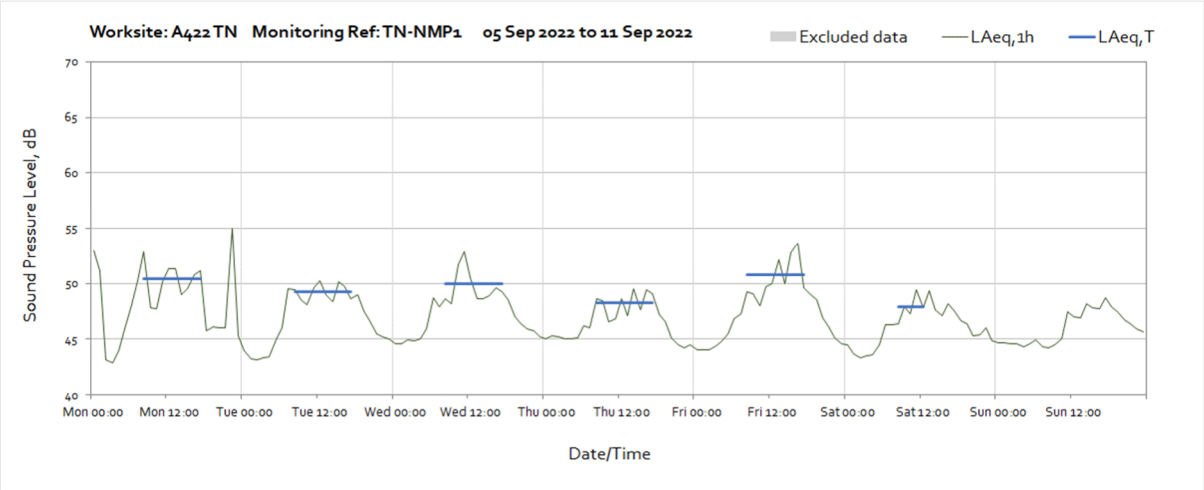
Appendix C Data

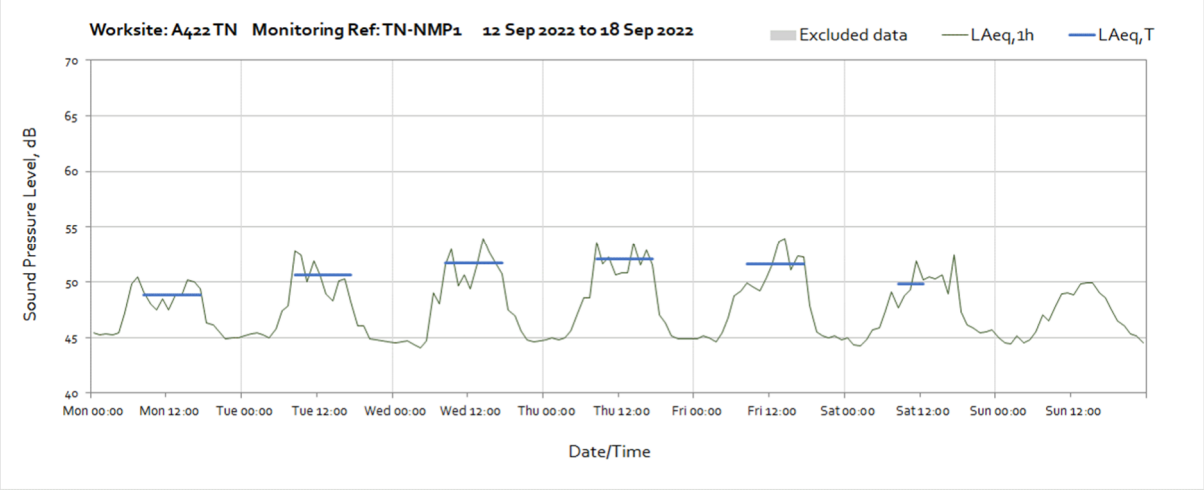
Noise

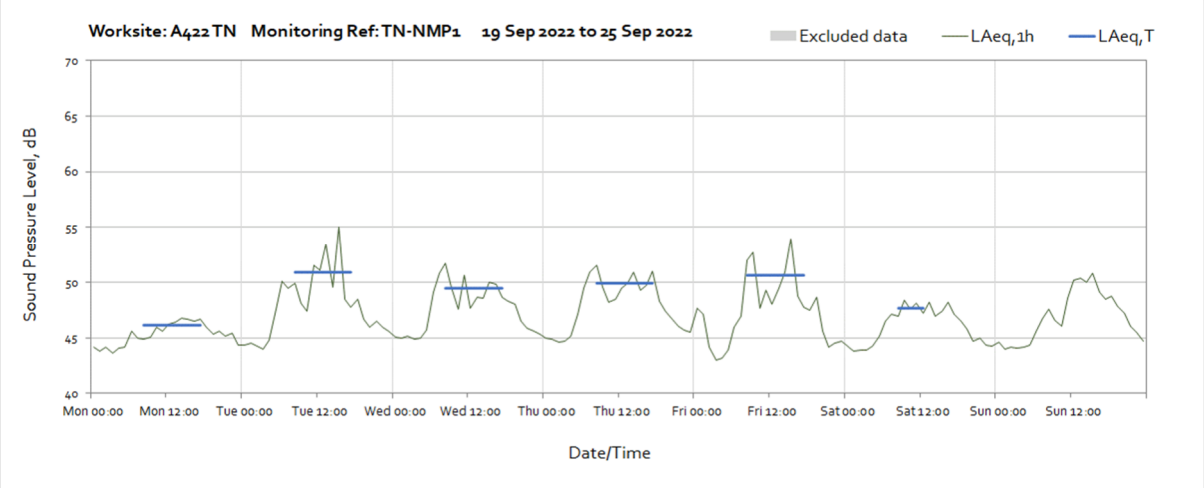
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have been excluded from the calculation of the $L_{Aeq,T}$ values in Table 3 of the main report.

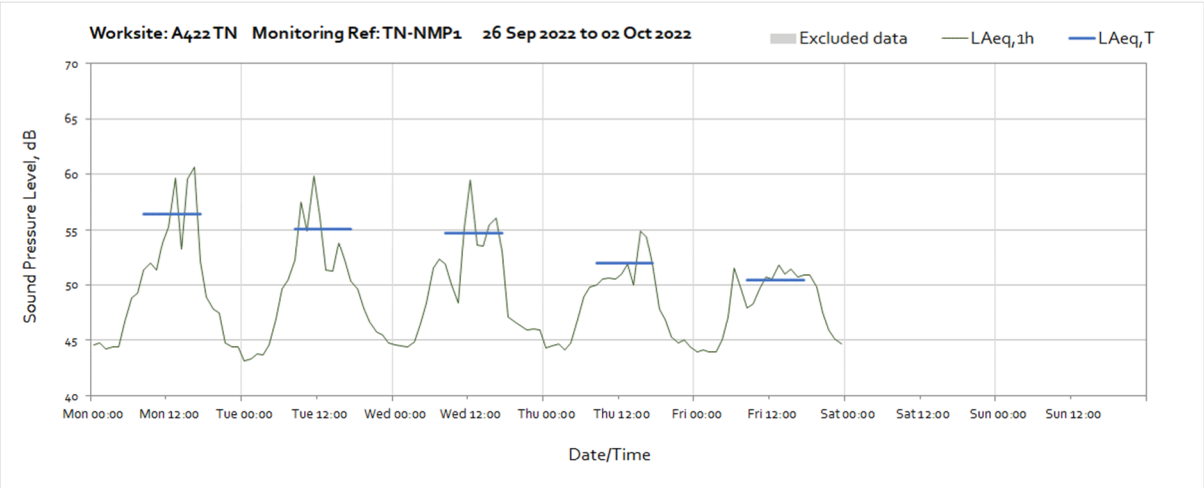
Worksite: A422 TN – Monitoring Ref: TN-NMP1



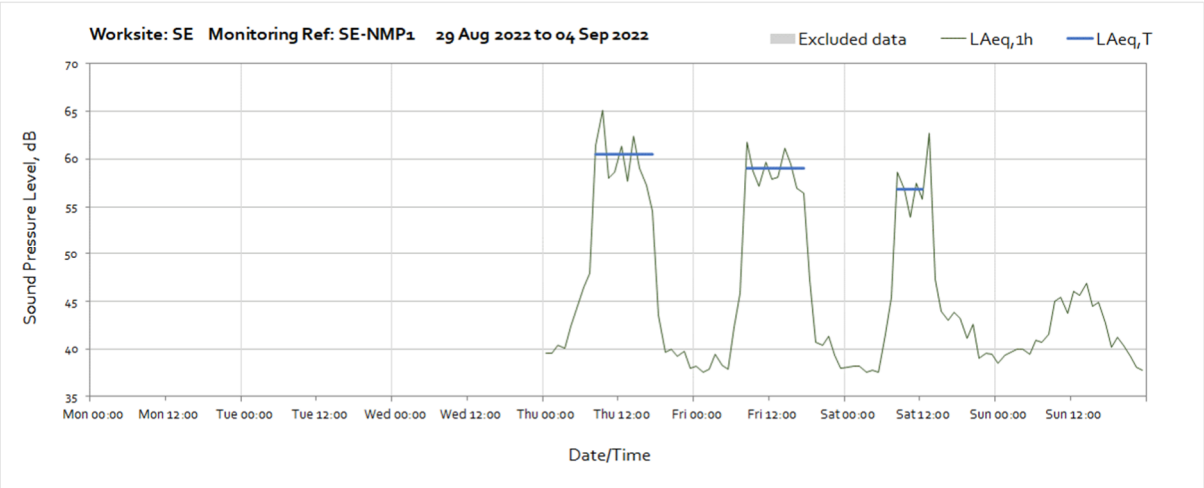


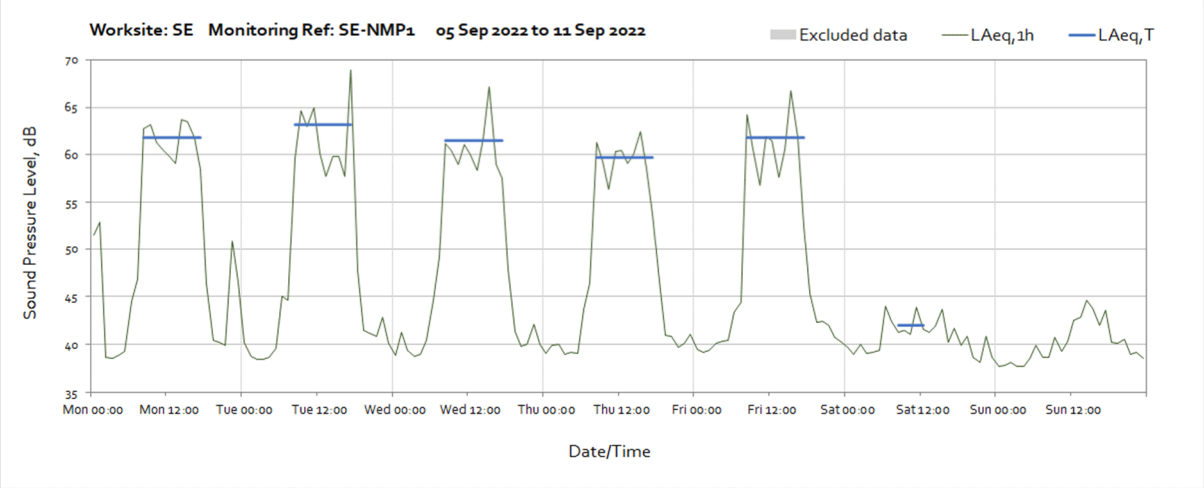


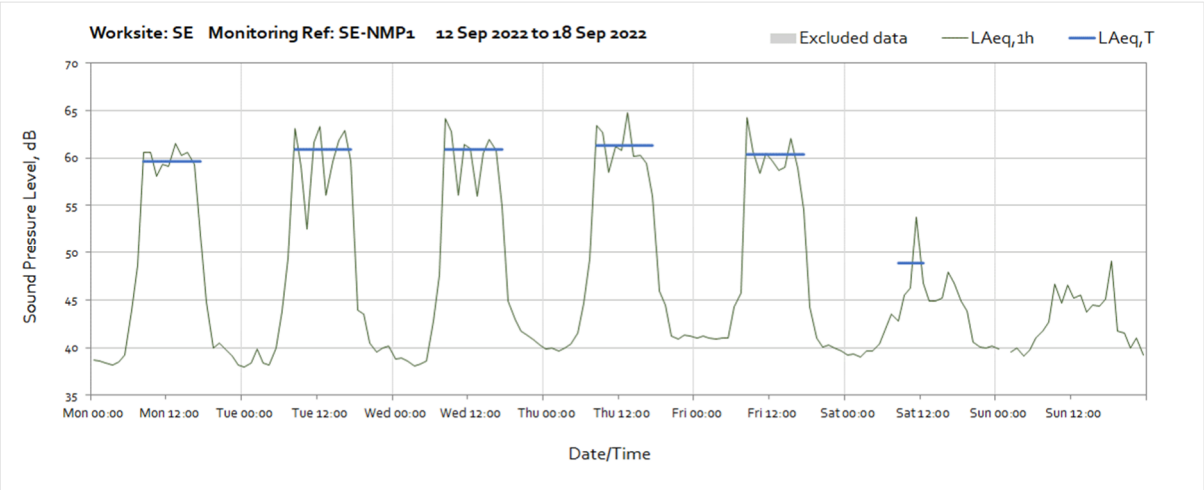




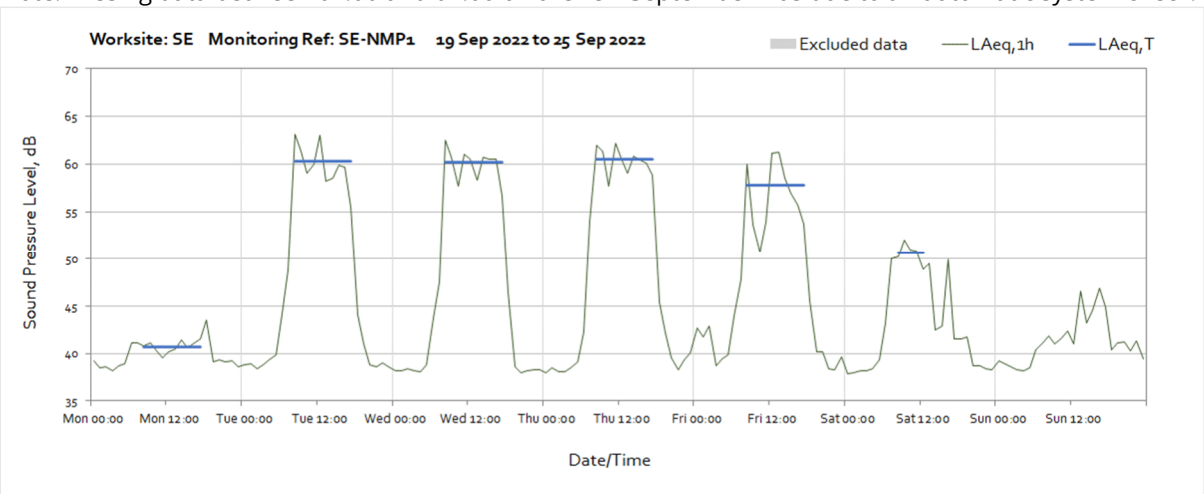
Worksite: SE – Monitoring Ref: SE-NMP1

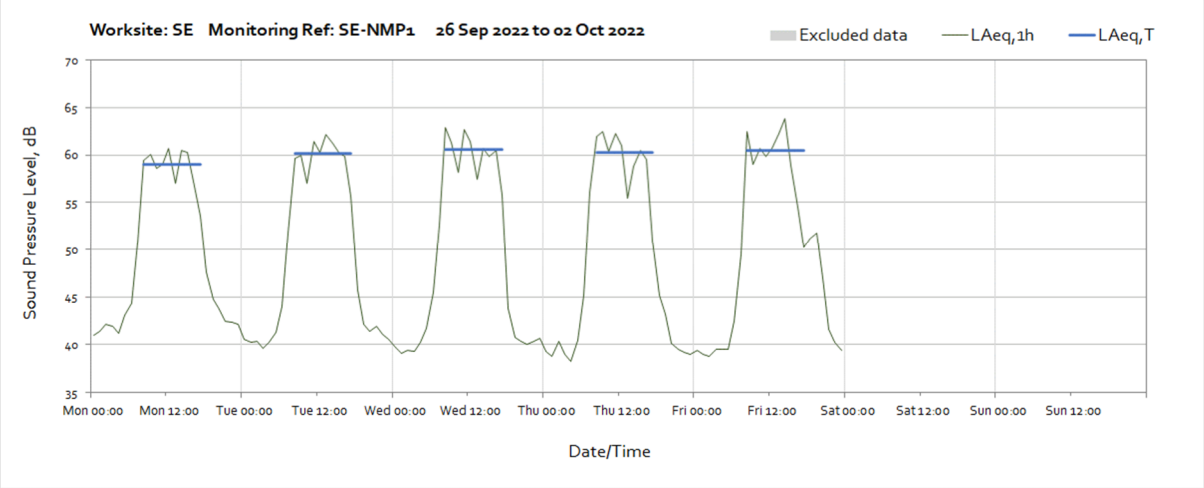




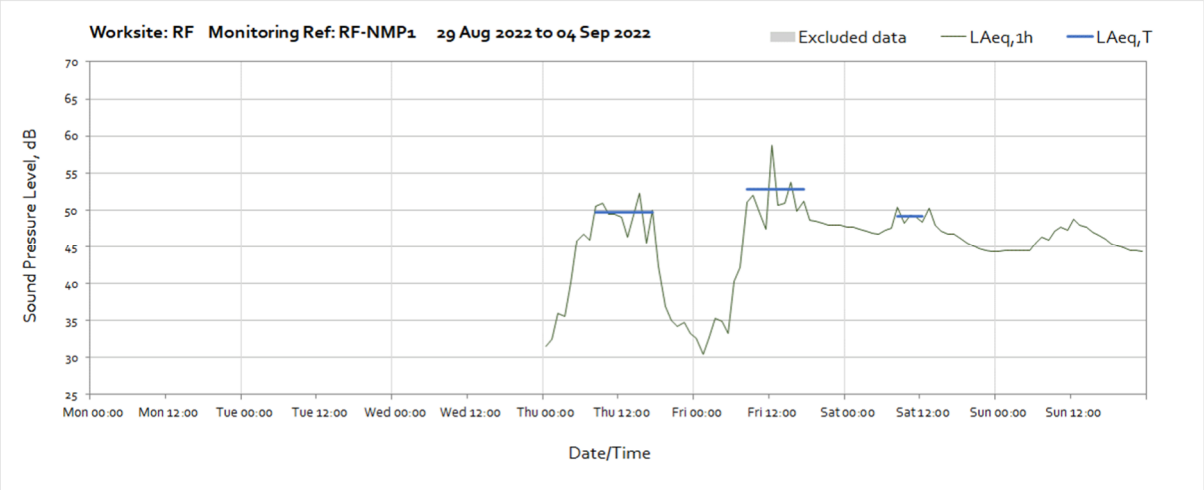


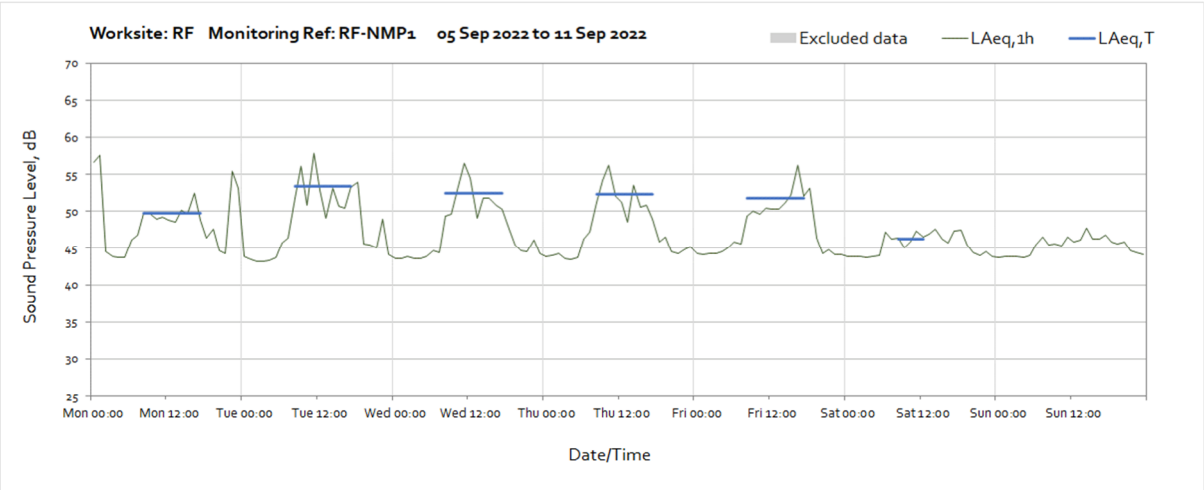
Note: Missing data between 01:00 and 02:00 on the 19th September was due to an automatic system check.

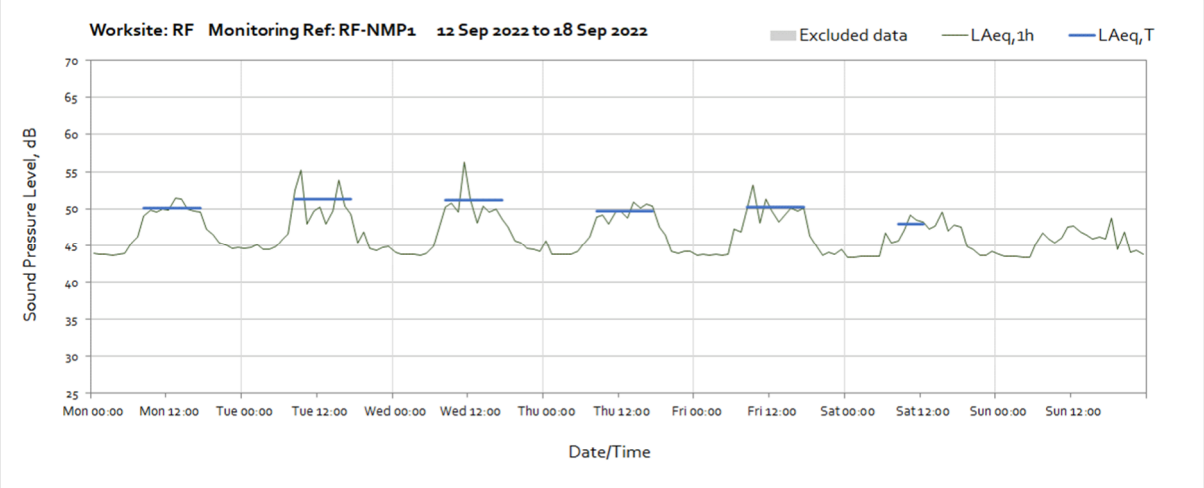


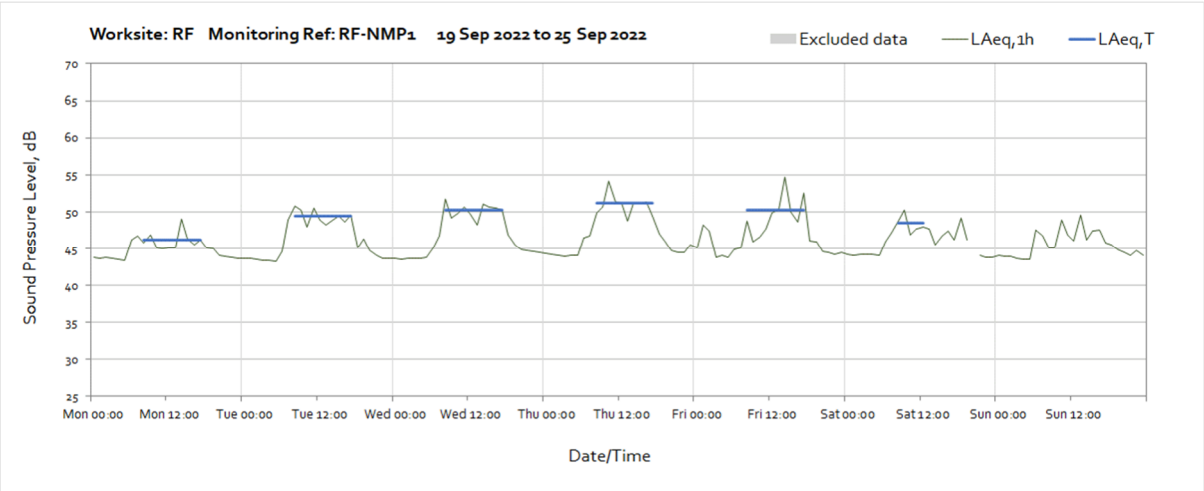


Worksite: RF – Monitoring Ref: RF-NMP1

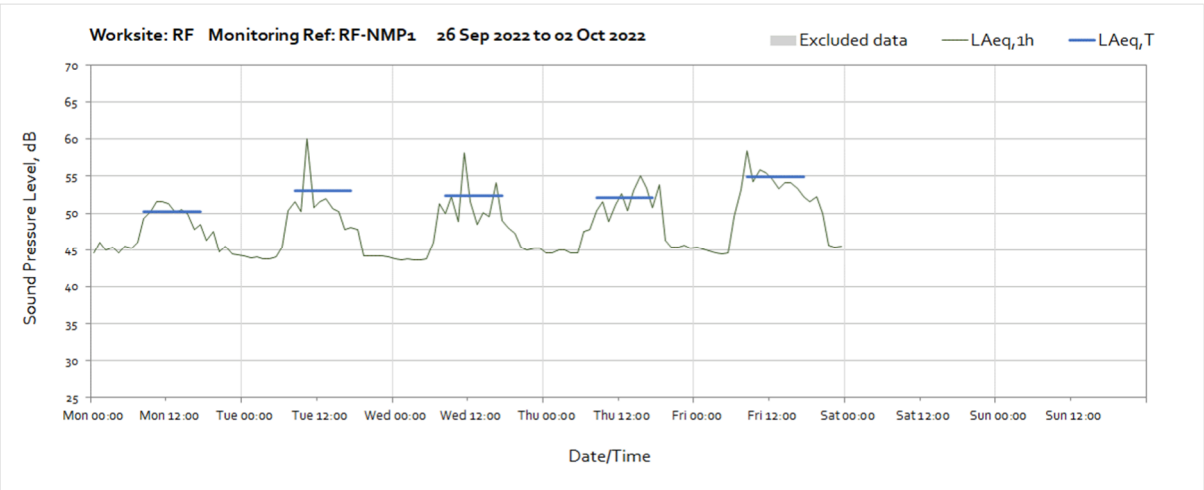




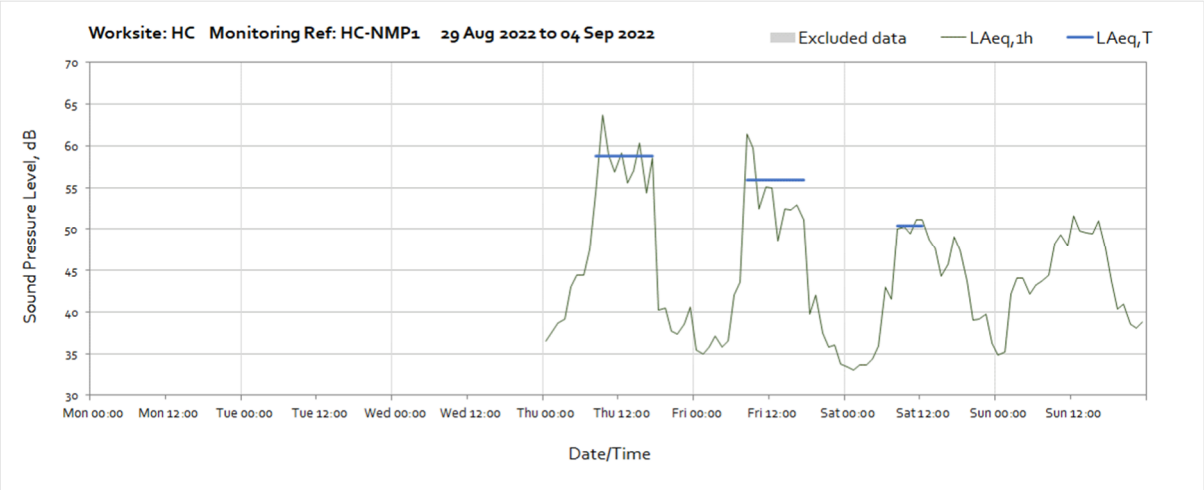


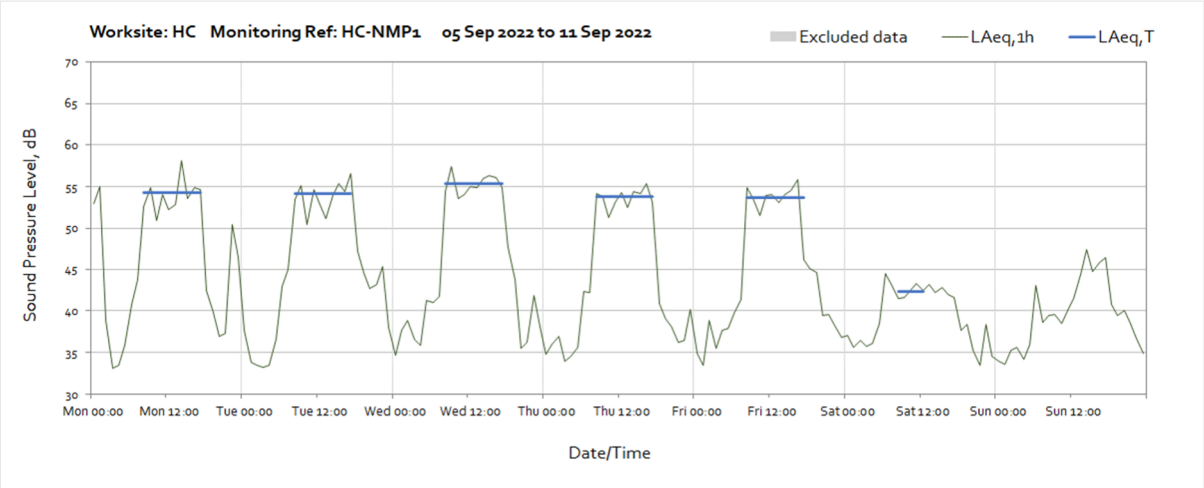


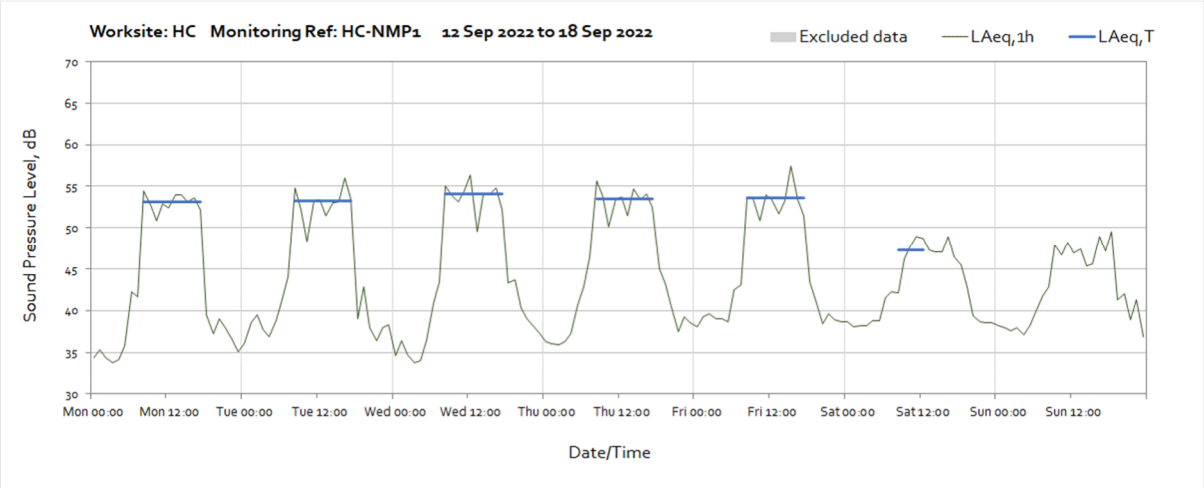
Note: Missing data between 20:00 and 21:00 on the 24th September was due to a signal communication fault.

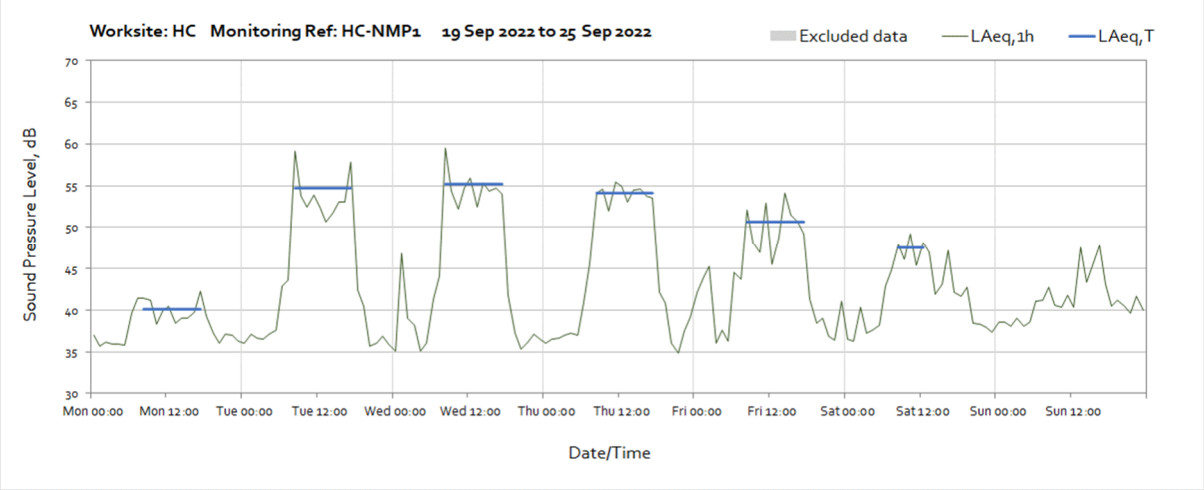


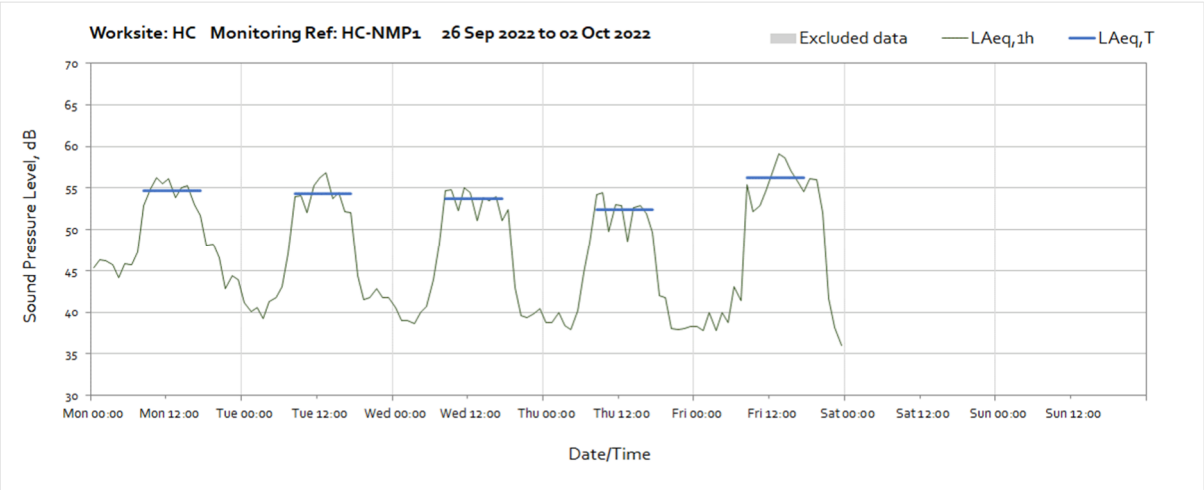
Worksite: HC – Monitoring Ref: HC-NMP1











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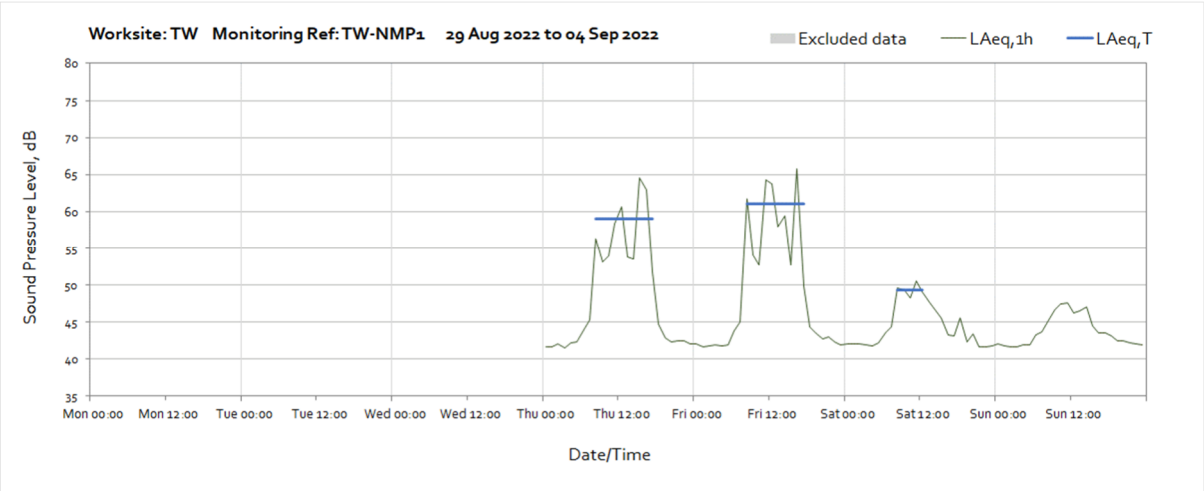
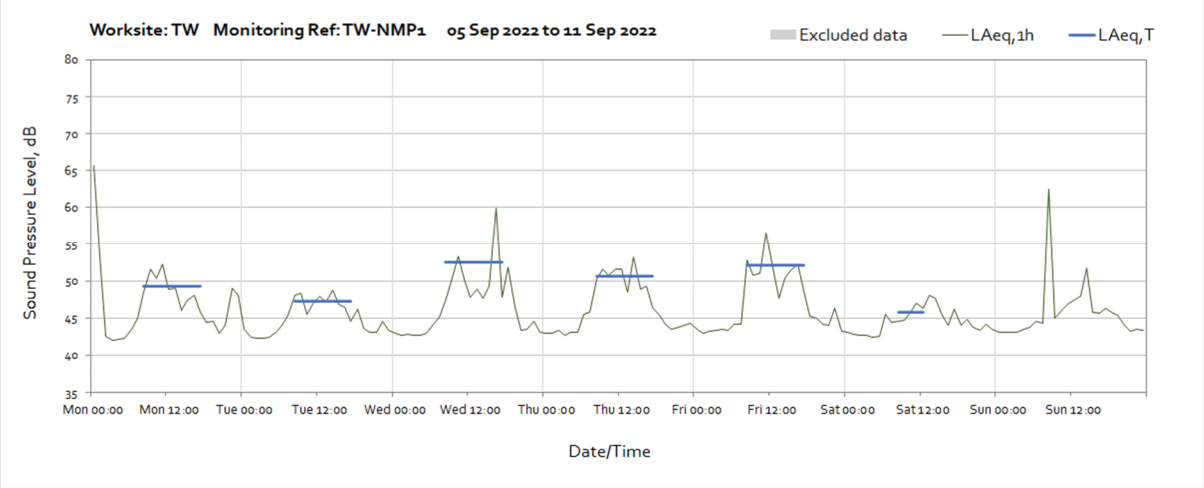
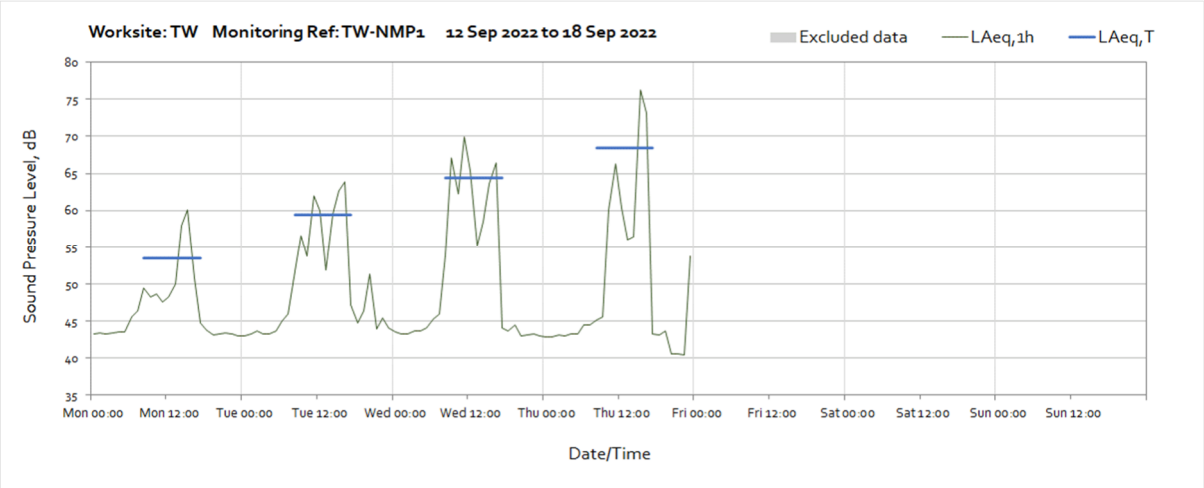
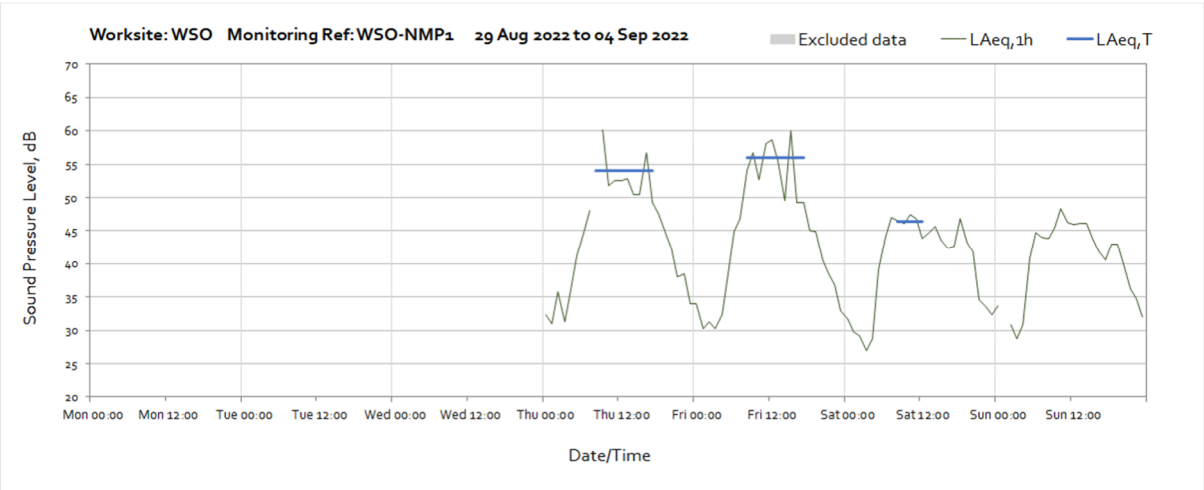




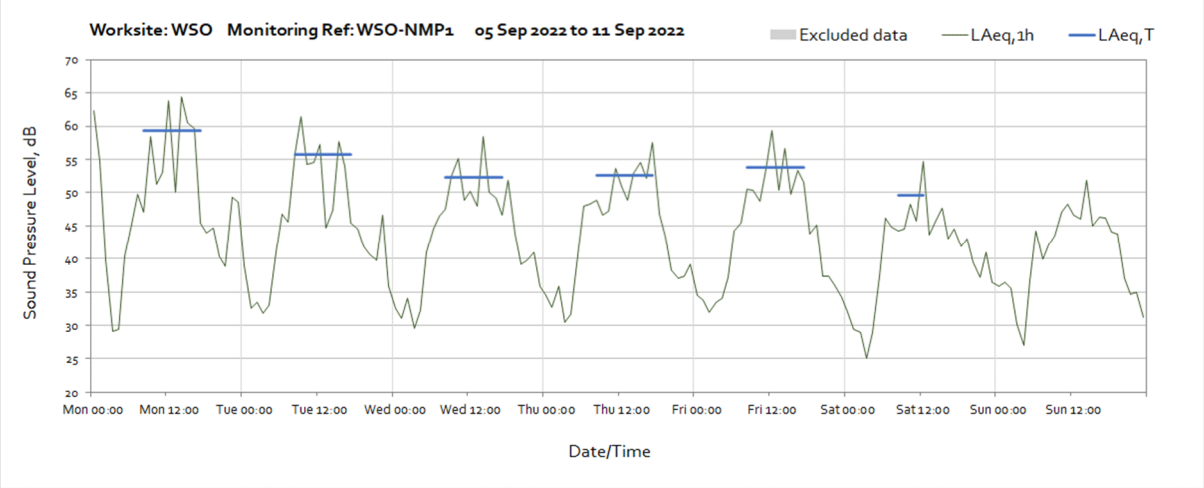


Note: Missing data from 00:00 on the 24th September till month end was due to a signal communication fault which is currently under investigation by supplier.

Worksite: WSO – Monitoring Ref: WSO-NMP1



Note: Missing data between 08:00 and 09:00 on the 1st September was due to monitor maintenance. Missing data between 01:00 and 02:00 on the 4th September was due to an automatic system check.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LAeq,T
Sound Pressure Level, dB
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30
25
20
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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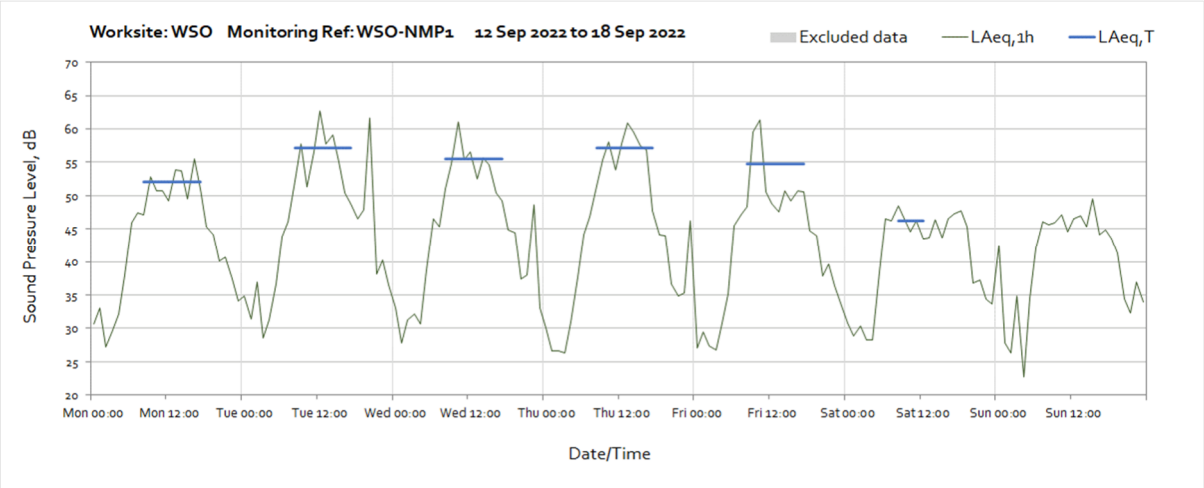
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
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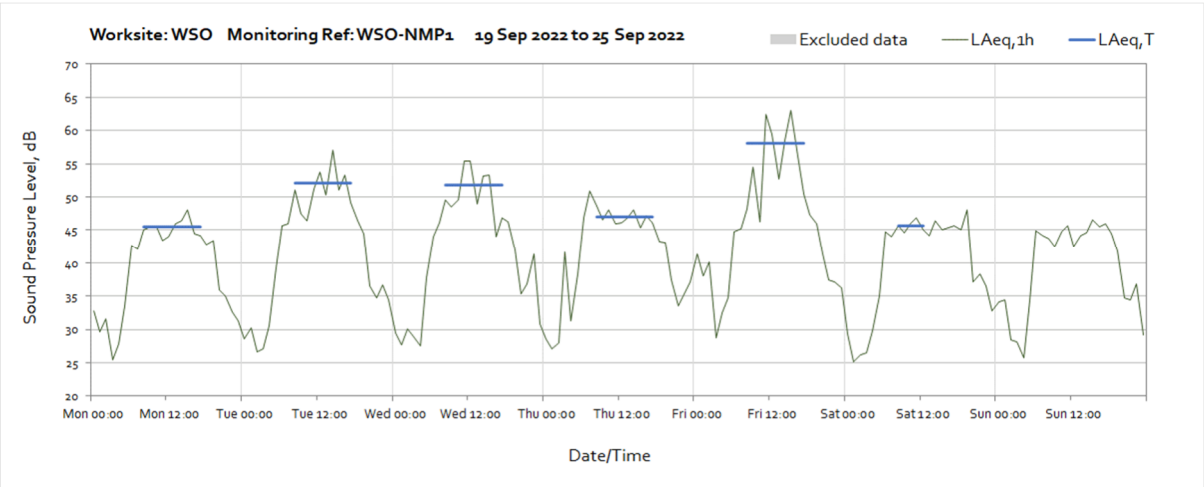
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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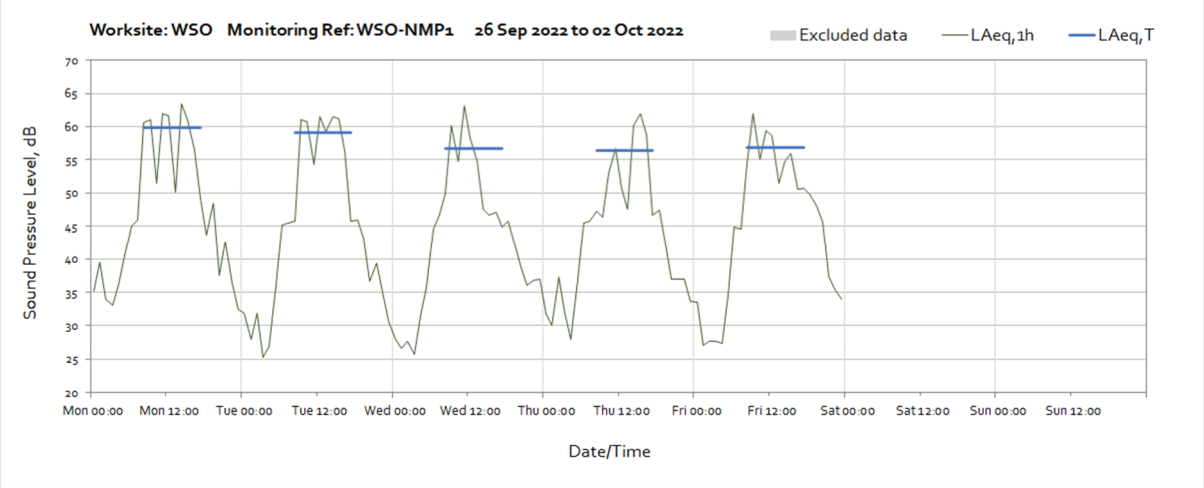
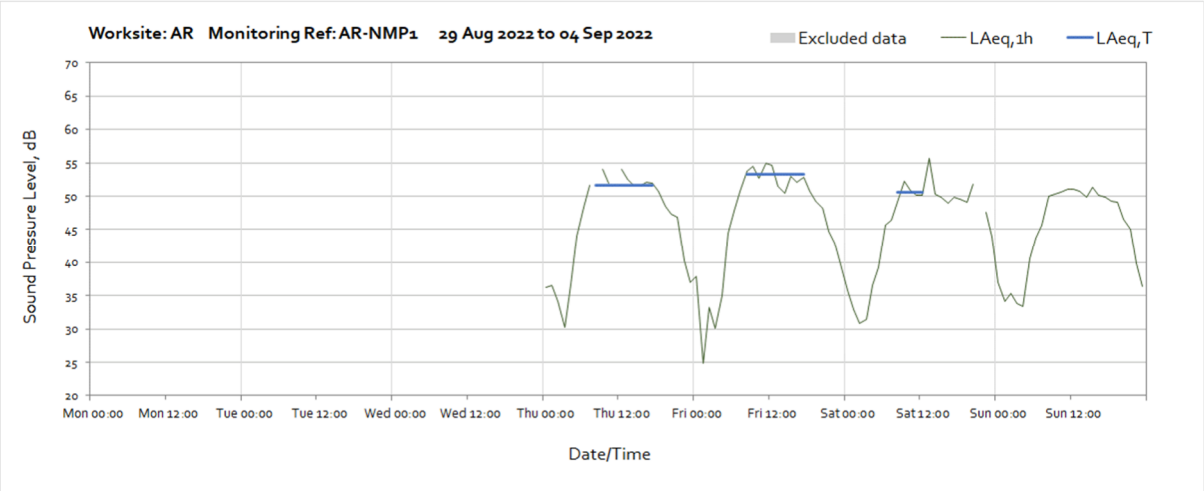
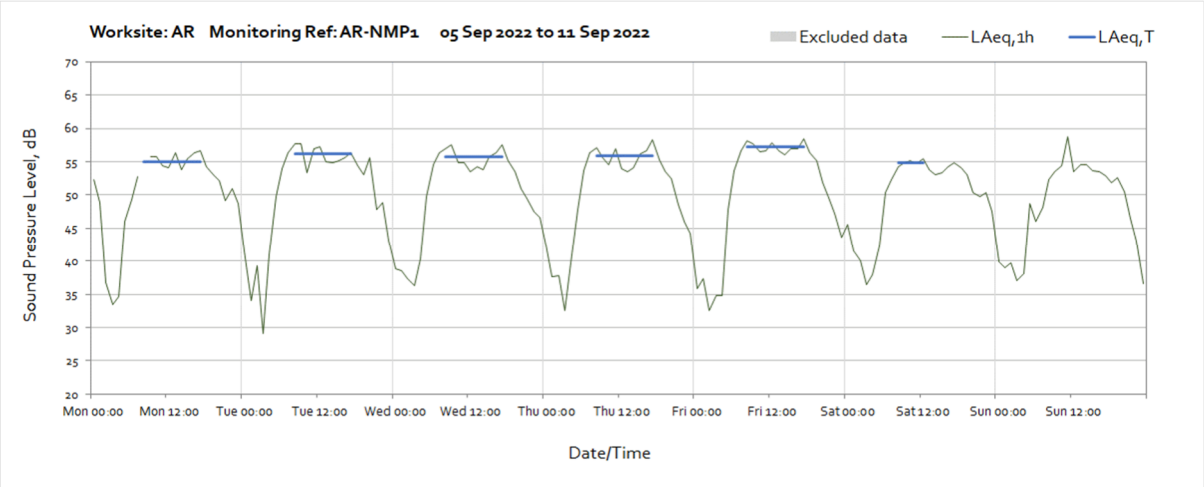
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



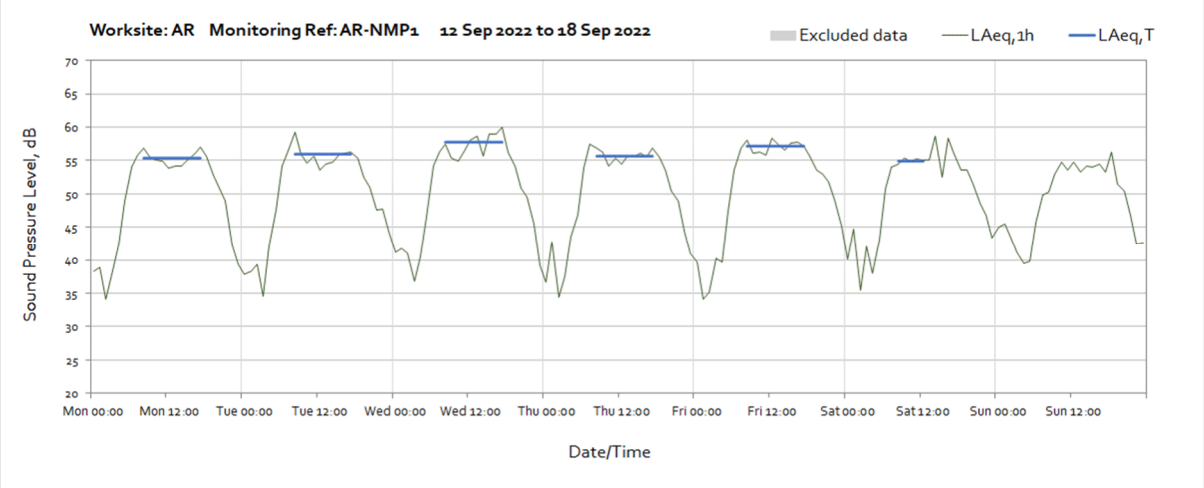
Worksite: AR – Monitoring Ref: AR-NMP1



Note: Missing data between 08:00 and 09:00 and 11:00 and 12:00 on the 1st September was due to monitor maintenance. Missing data between 21:00 and 22:00 on the 3rd September was due to loss of signal from monitor.



Note: Missing data between 08:00 and 09:00 on the 5th September was due to monitor maintenance.


Worksite: AR Monitoring Ref: AR-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
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Mon 00:00
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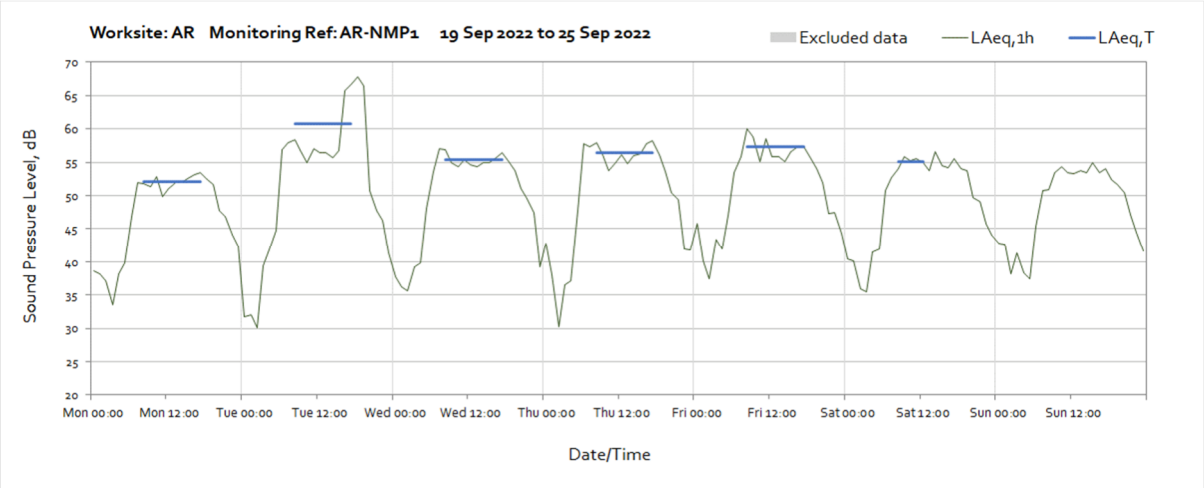
Date/Time


Worksite: AR Monitoring Ref: AR-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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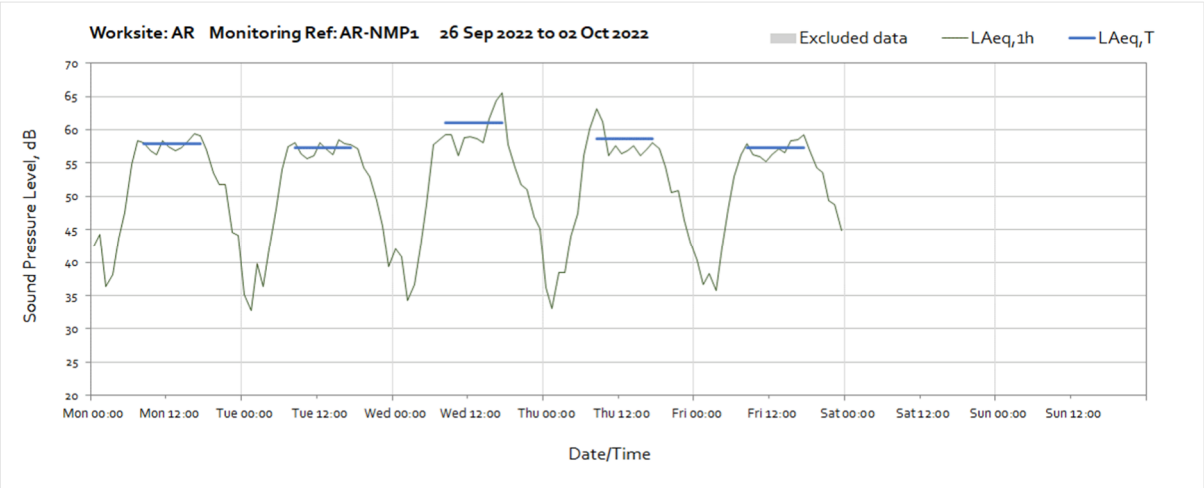
Date/Time


Worksite: AR Monitoring Ref: AR-NMP1 26 Sep 2022 to 02 Oct 2022
Excluded data
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Sound Pressure Level, dB
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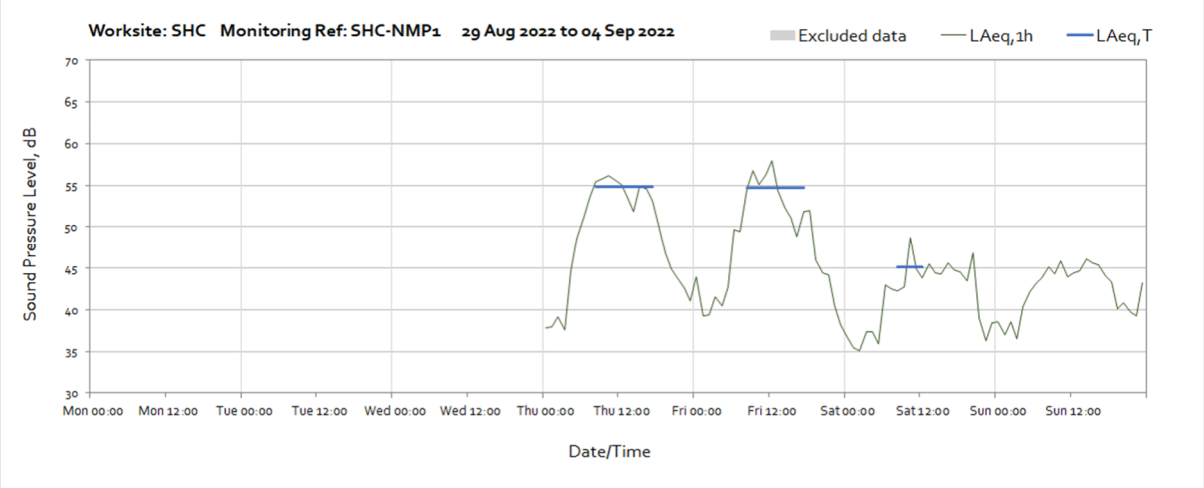
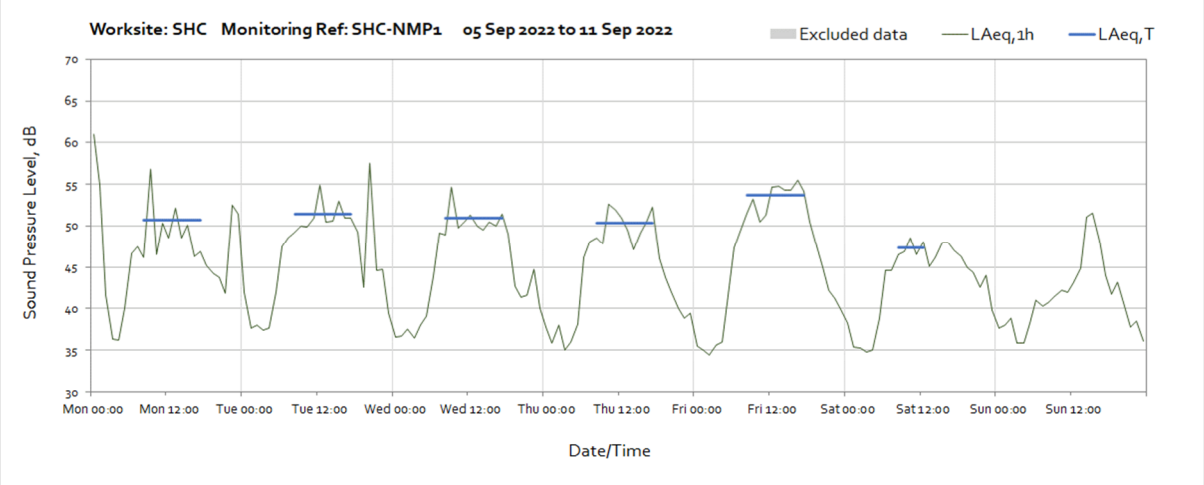
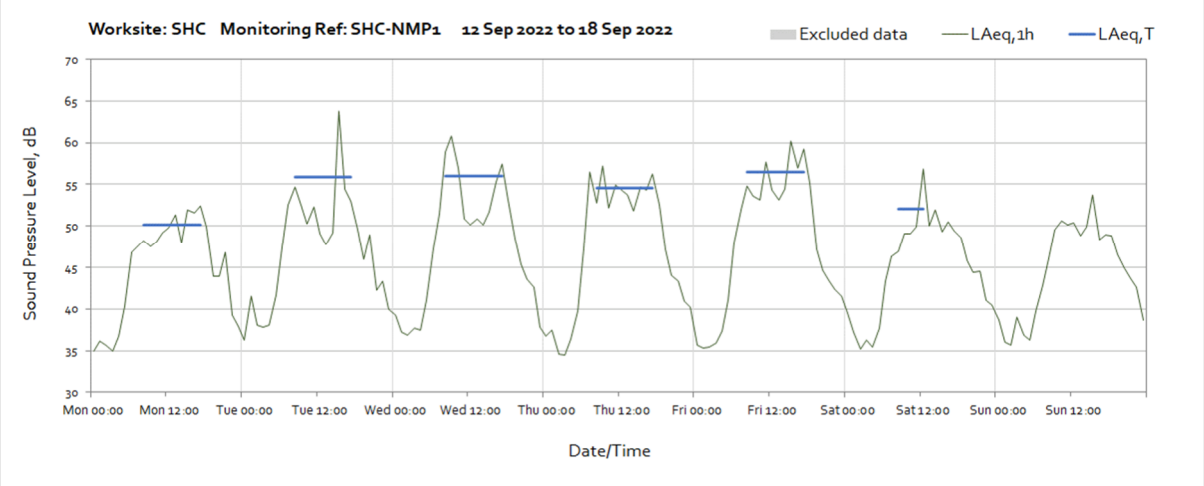
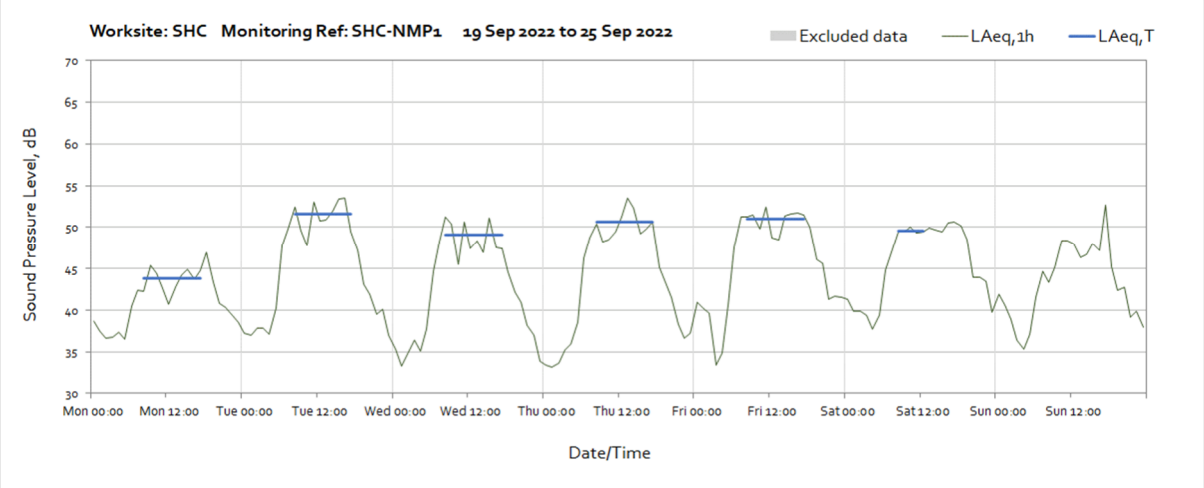
Date/Time

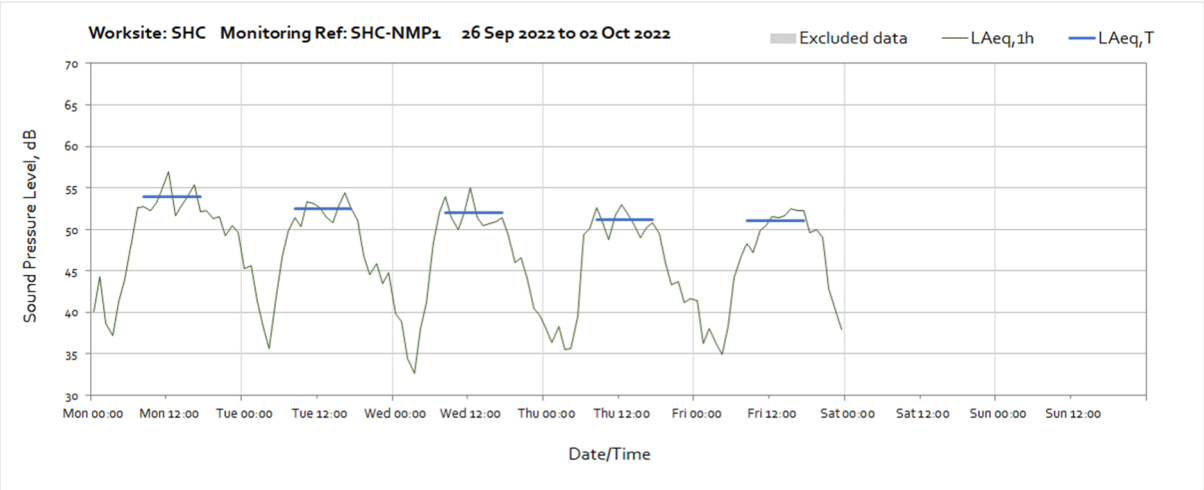
Worksite: SHC – Monitoring Ref: SHC-NMP1



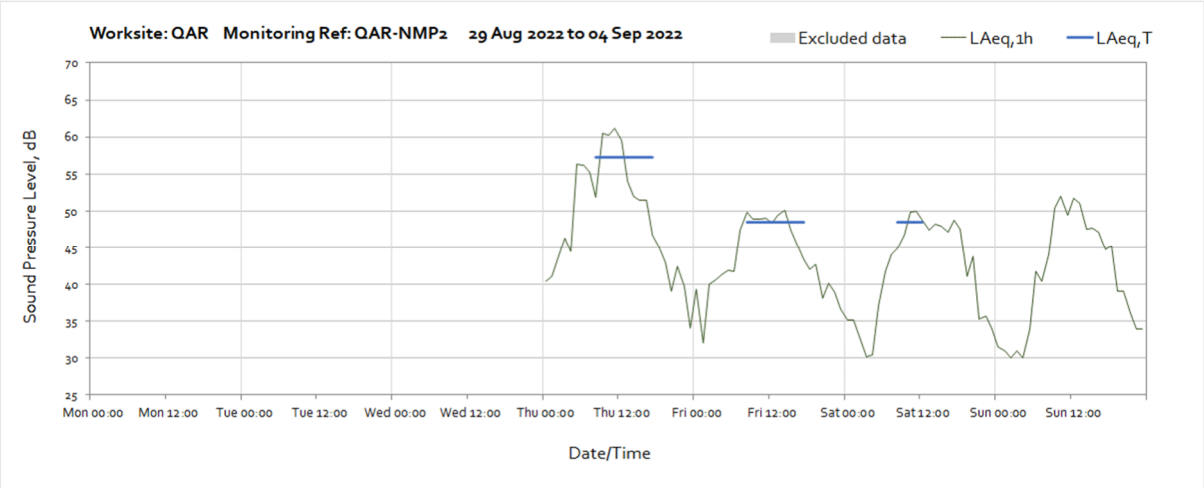


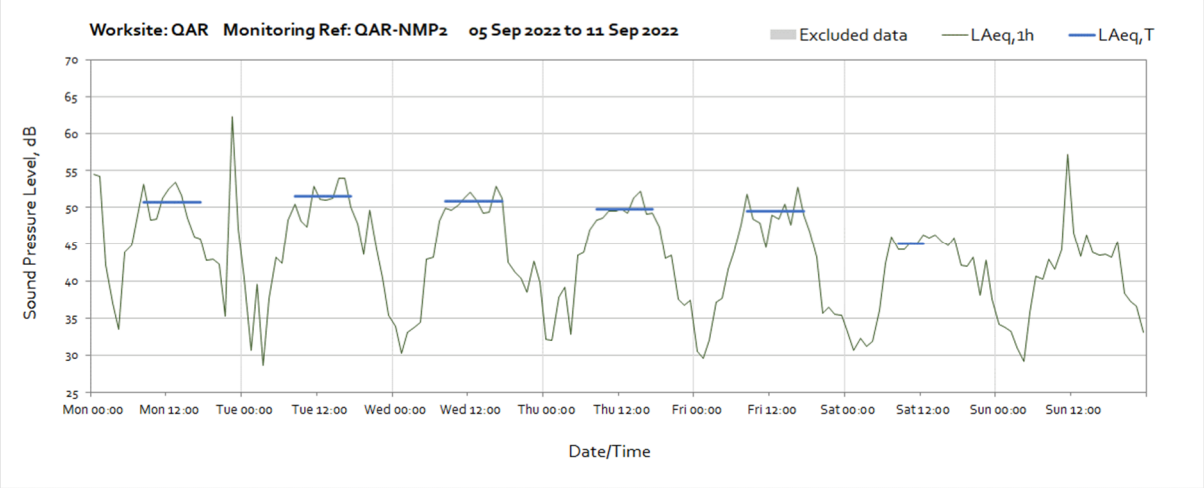






Worksite: QAR – Monitoring Ref: QAR-NMP2




Worksite: QAR Monitoring Ref: QAR-NMP2 05 Sep 2022 to 11 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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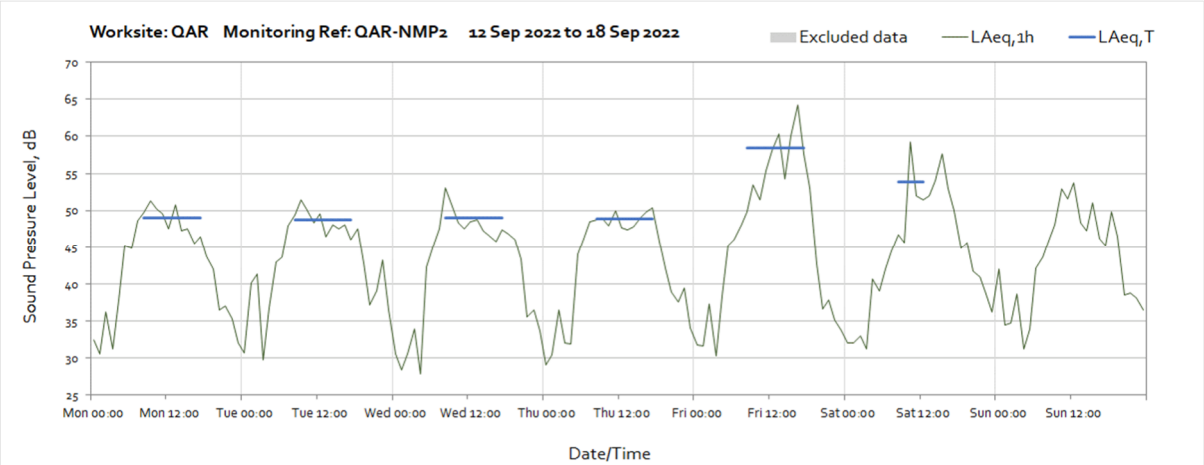
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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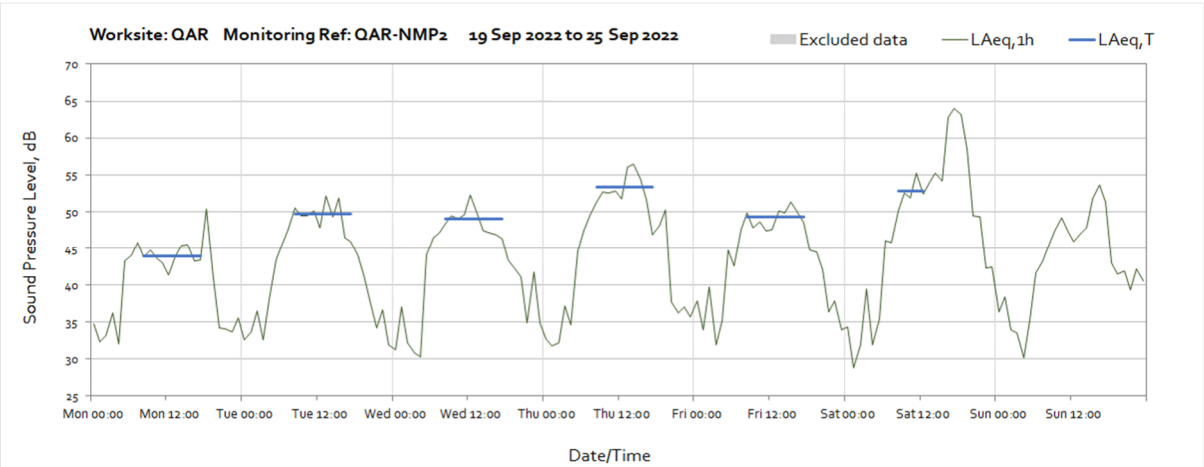
Date/Time


Worksite: QAR Monitoring Ref: QAR-NMP2 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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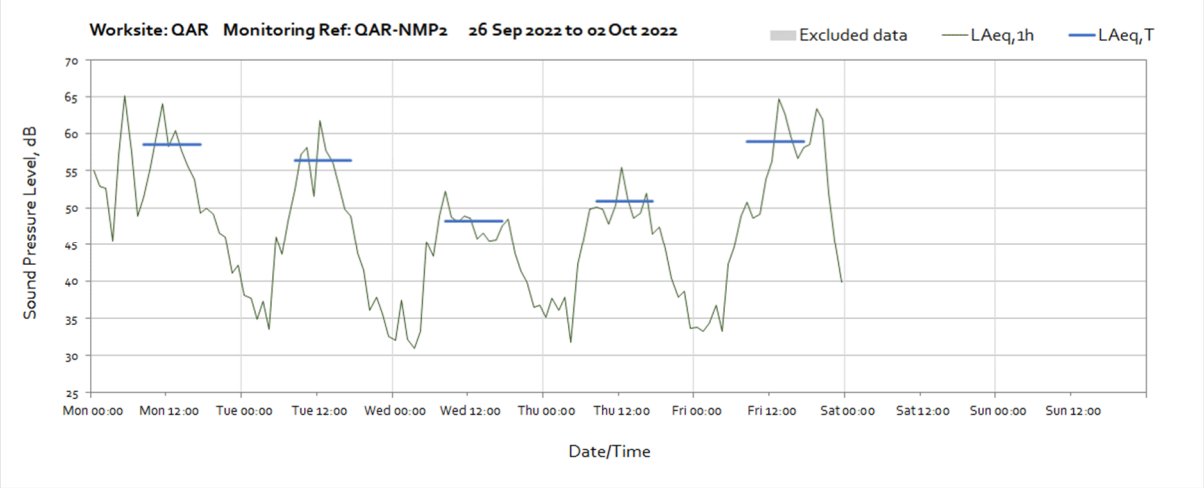
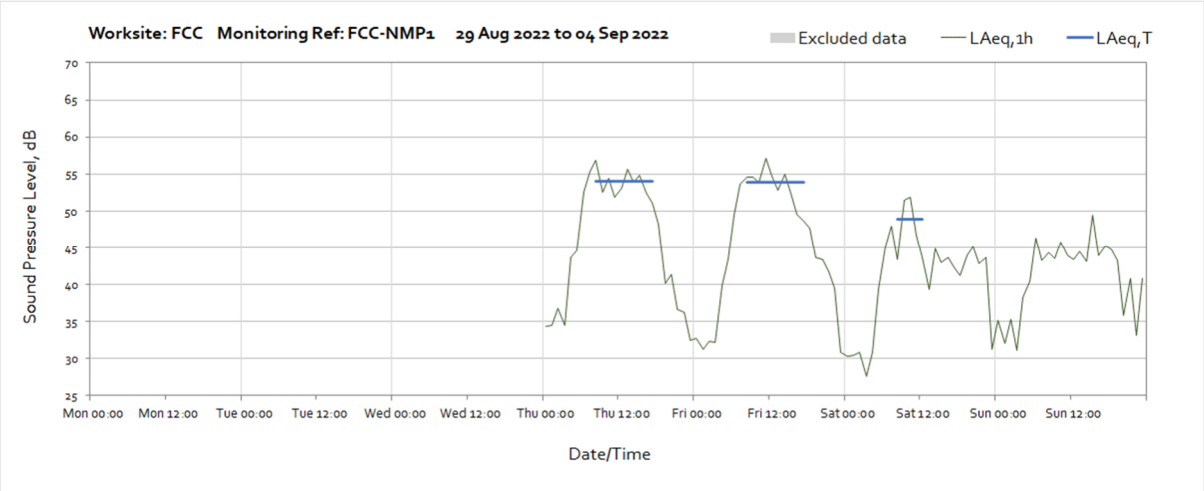
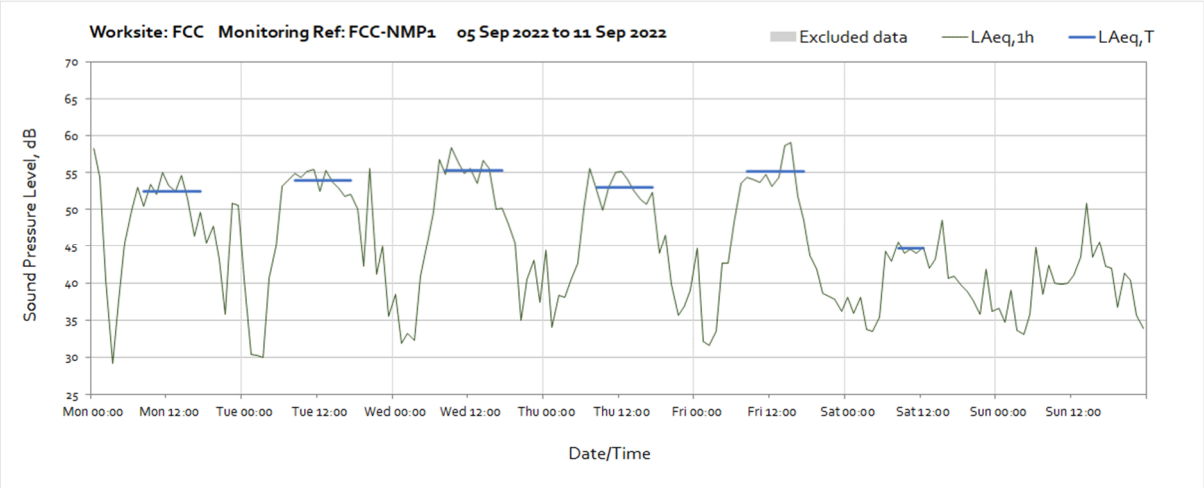
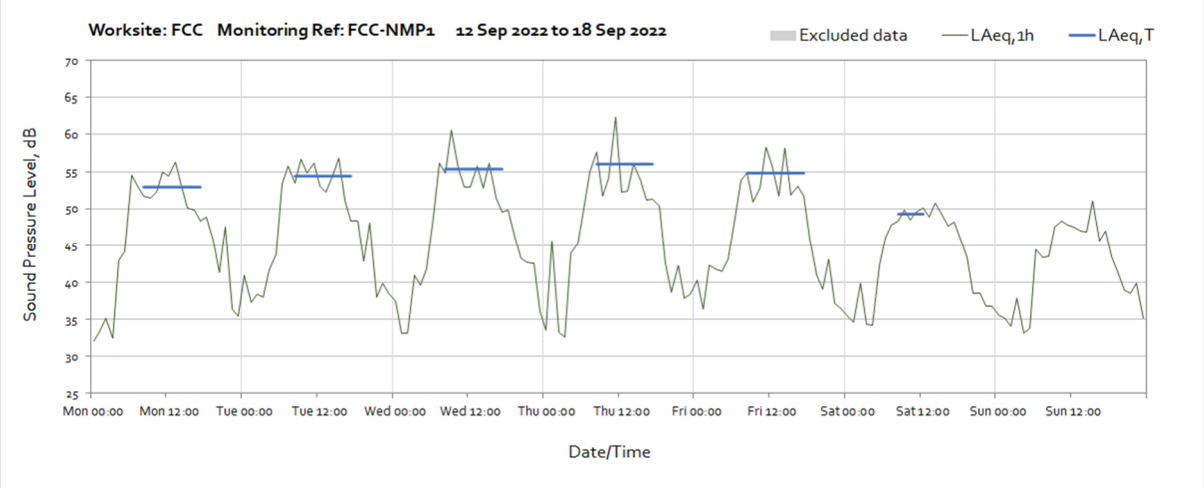
Date/Time



Worksite: FCC – Monitoring Ref: FCC-NMP1






Worksite: FCC Monitoring Ref: FCC-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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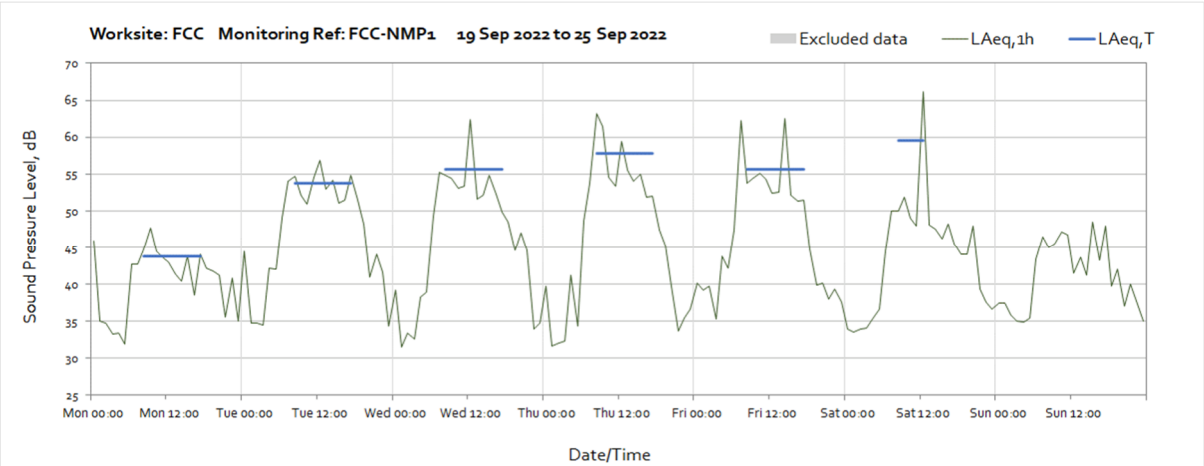
Worksite: FCC Monitoring Ref: FCC-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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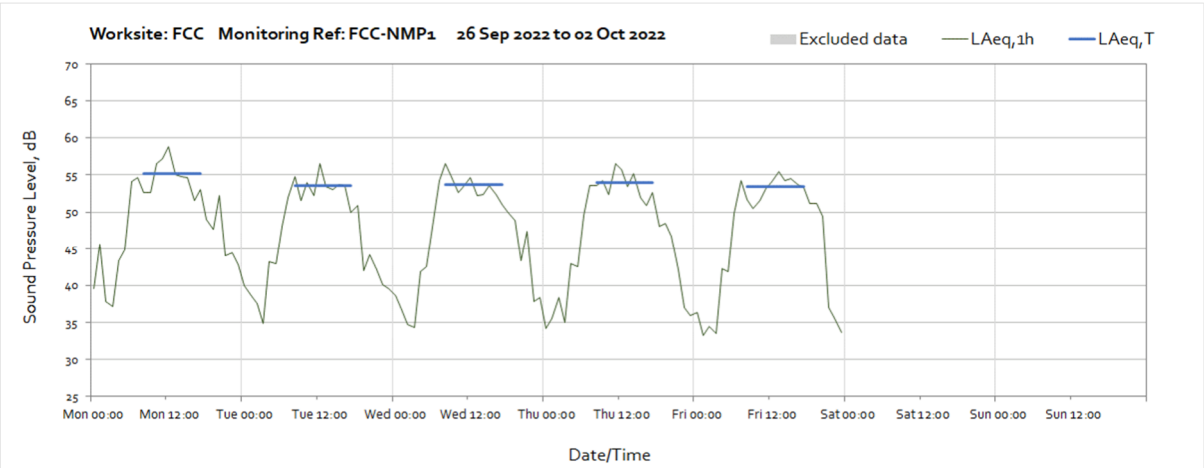
Worksite: FCC Monitoring Ref: FCC-NMP1 26 Sep 2022 to 02 Oct 2022
Excluded data
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Sound Pressure Level, dB
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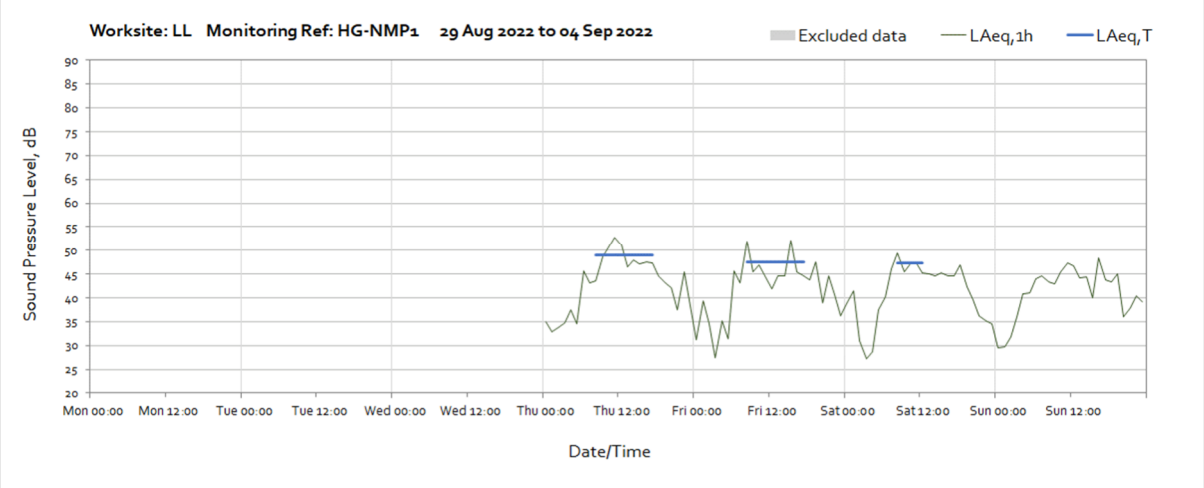
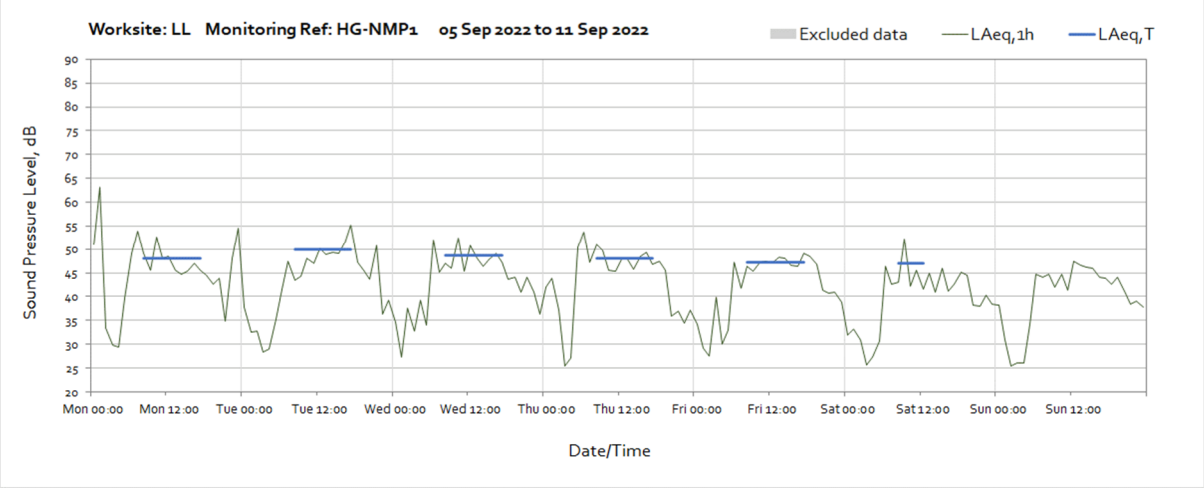
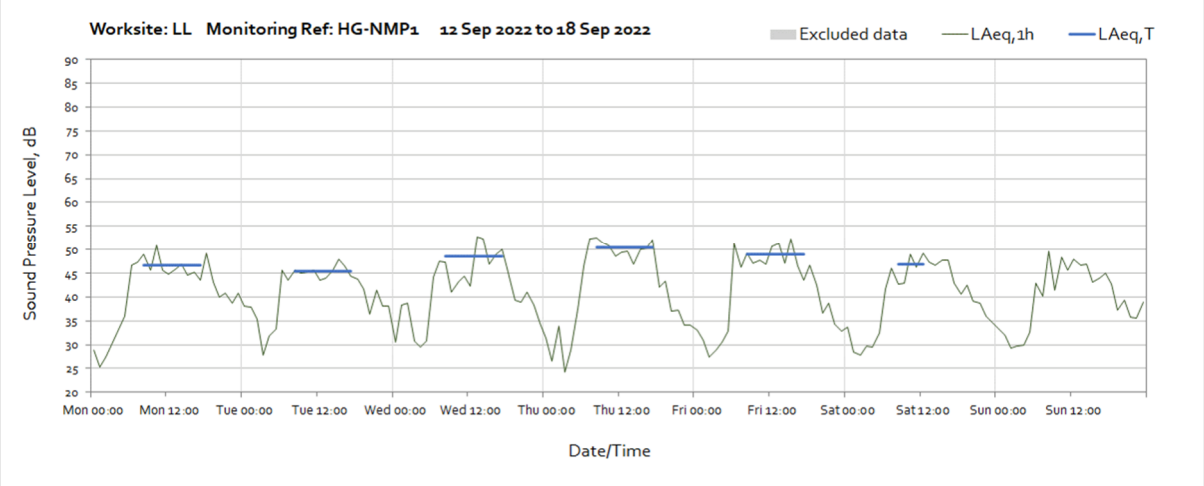
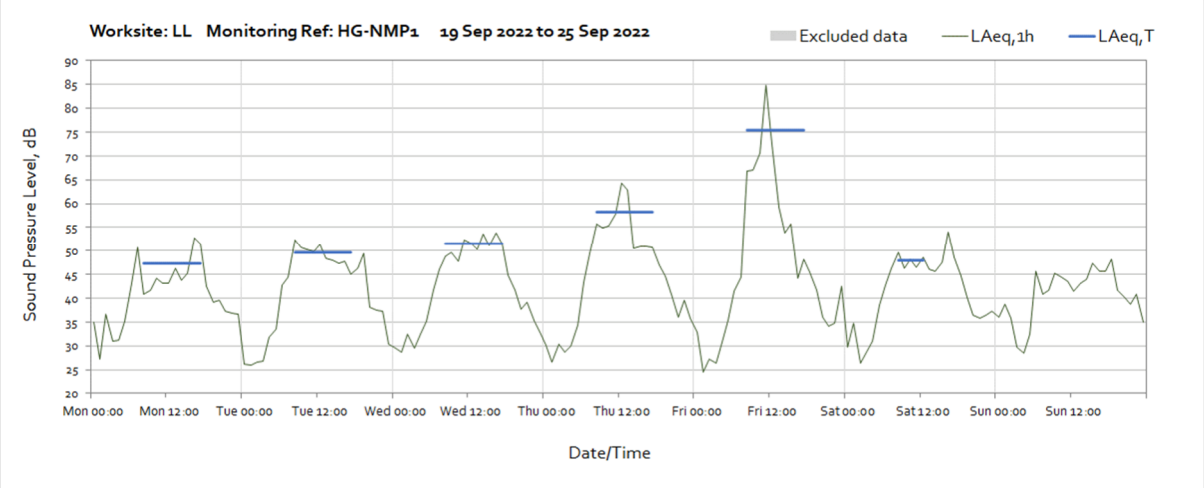
Date/Time

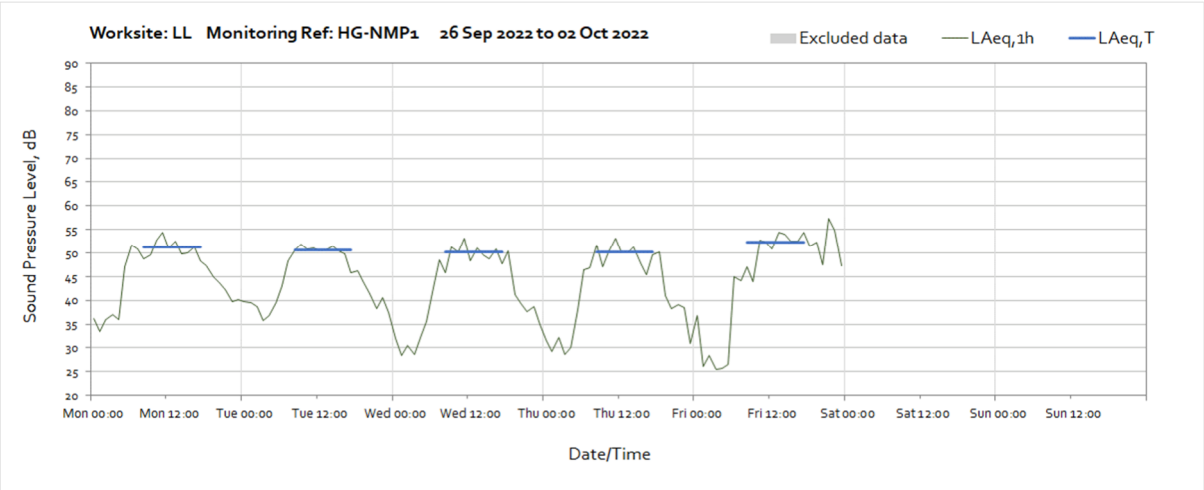
Worksite: LL – Monitoring Ref: HG-NMP1



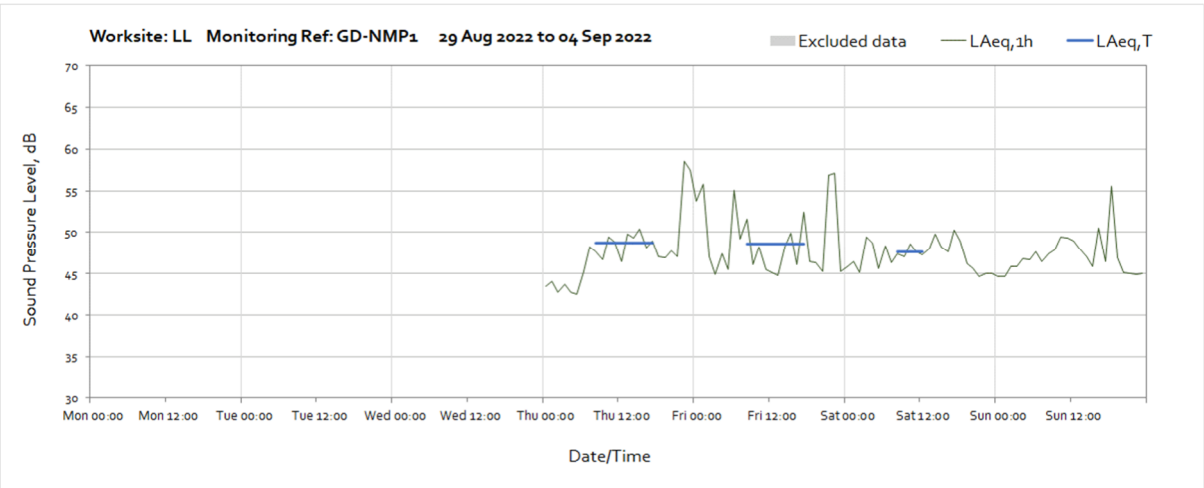


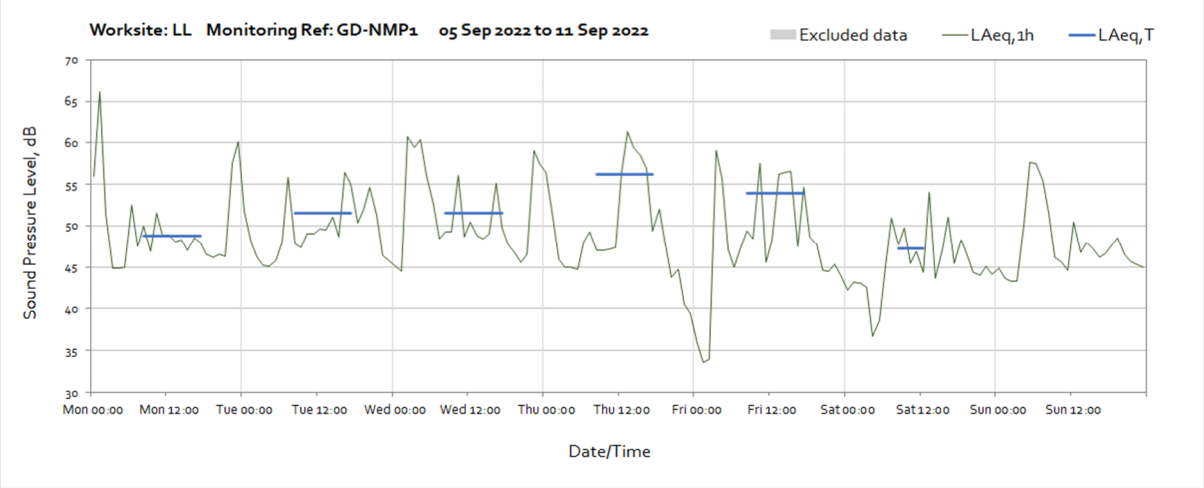






Worksite: LL – Monitoring Ref: GD-NMP1




Worksite: LL Monitoring Ref: GD-NMP1 05 Sep 2022 to 11 Sep 2022
Excluded data
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Sound Pressure Level, dB
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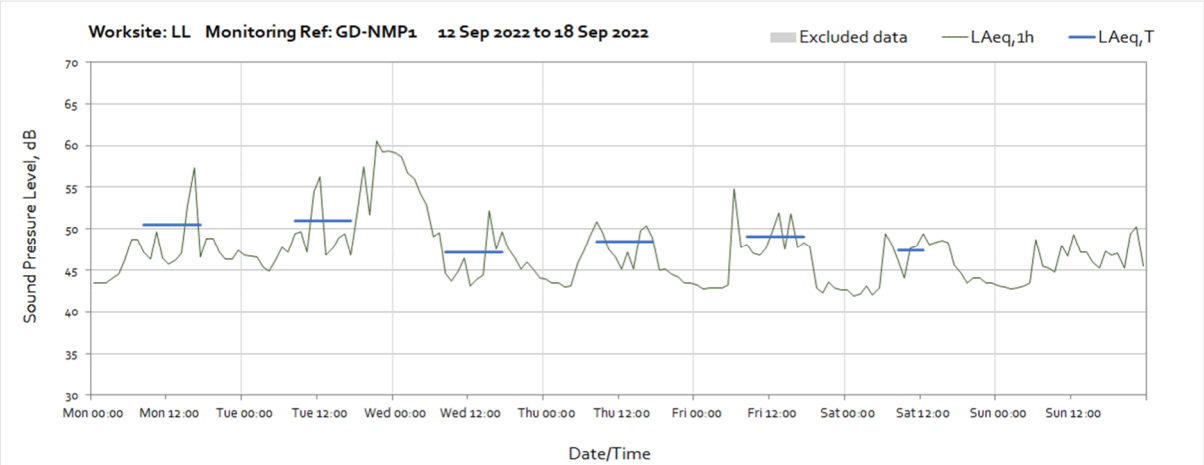
Date/Time


Worksite: LL Monitoring Ref: GD-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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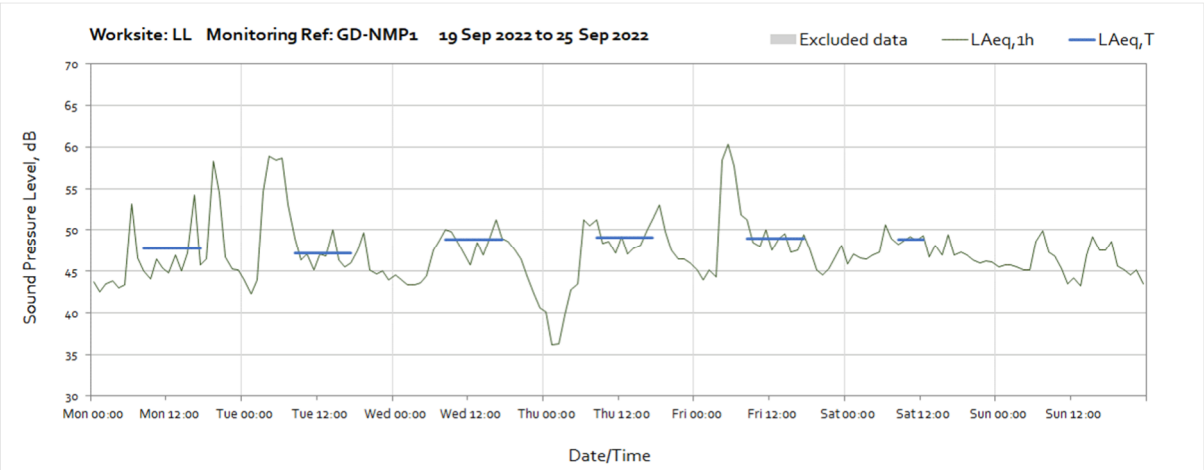
Date/Time


Worksite: LL Monitoring Ref: GD-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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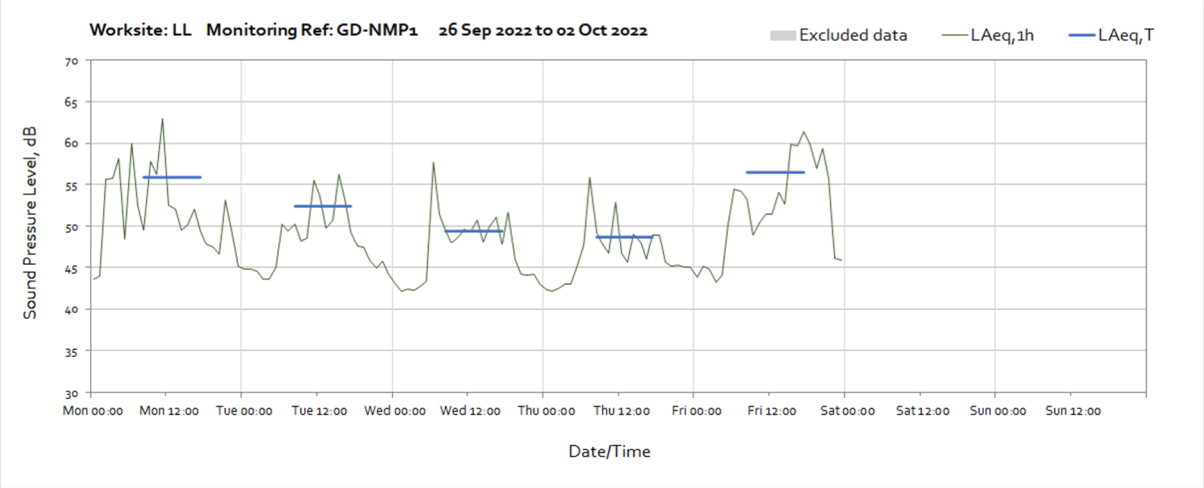
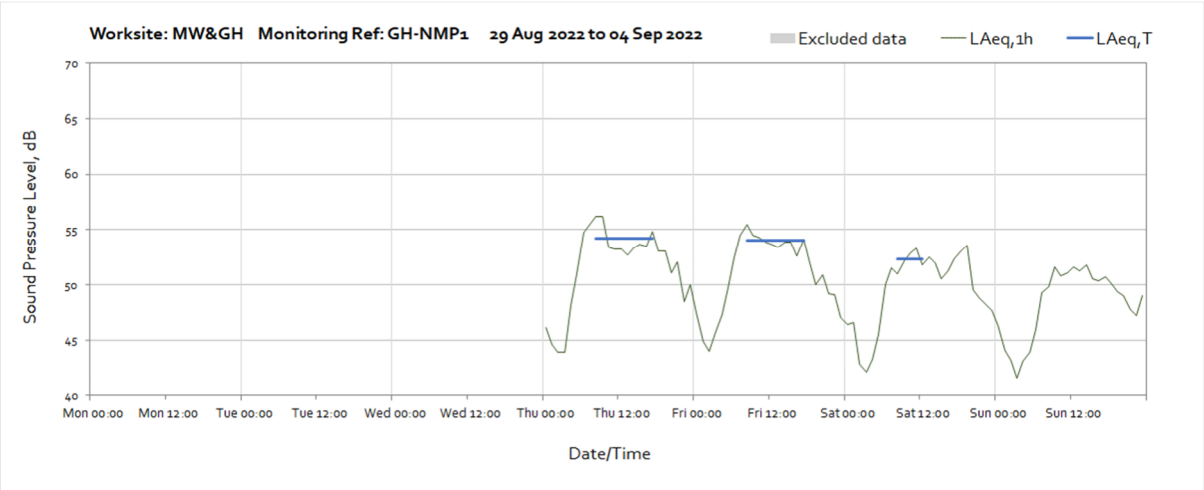
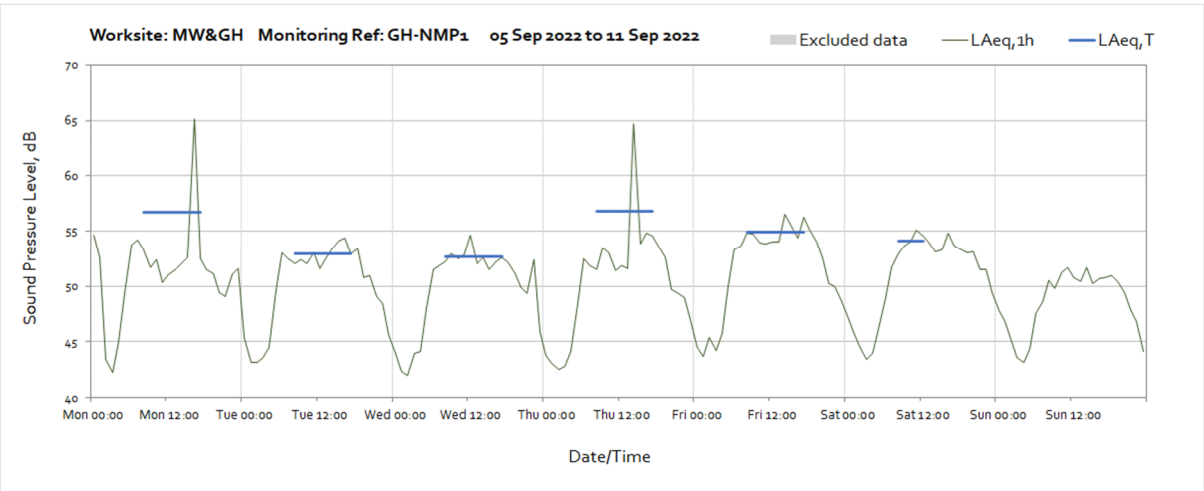
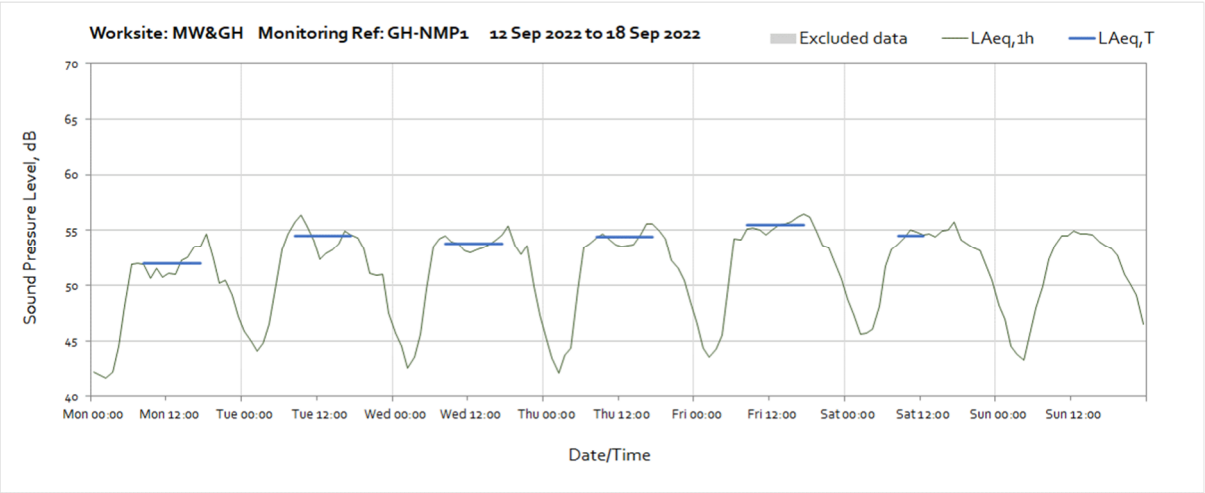


Worksite: MW&GH – Monitoring Ref: GH-NMP1






Worksite: MW&GH Monitoring Ref: GH-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
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Sound Pressure Level, dB
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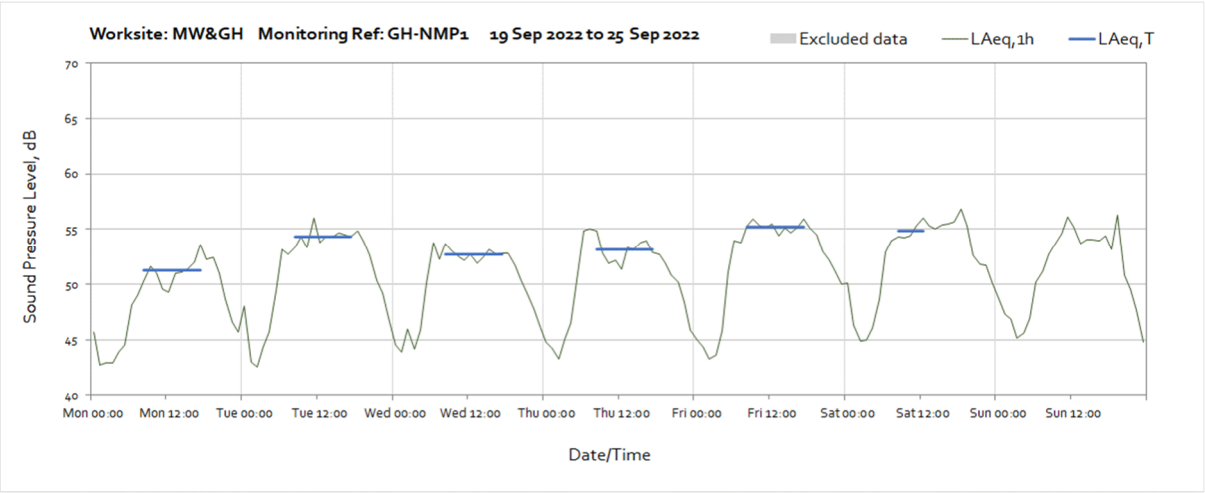
Date/Time


Worksite: MW&GH Monitoring Ref: GH-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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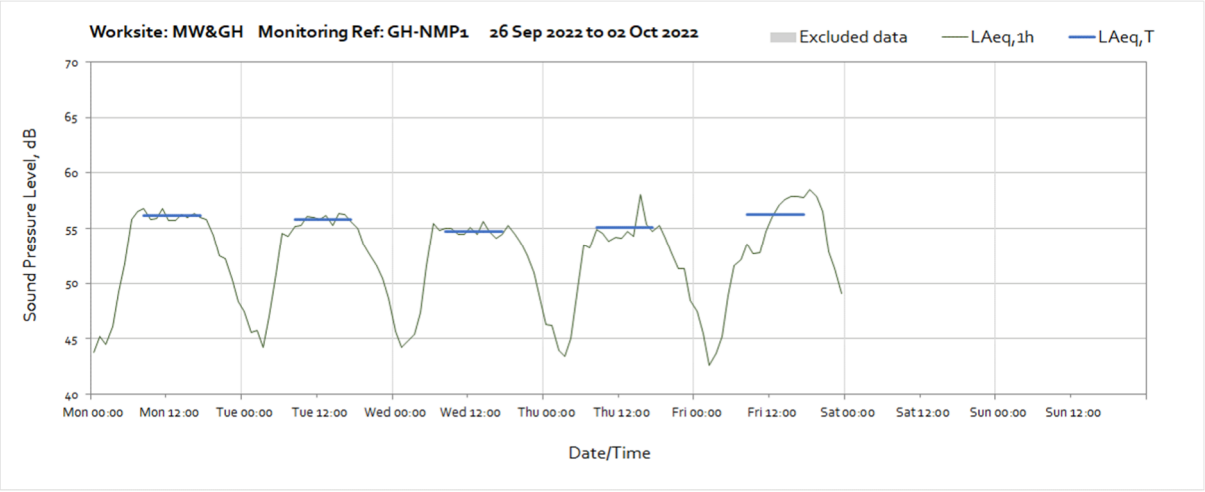
Worksite: MW&GH Monitoring Ref: GH-NMP1 26 Sep 2022 to 02 Oct 2022
Excluded data
LAeq,1h
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Sound Pressure Level, dB
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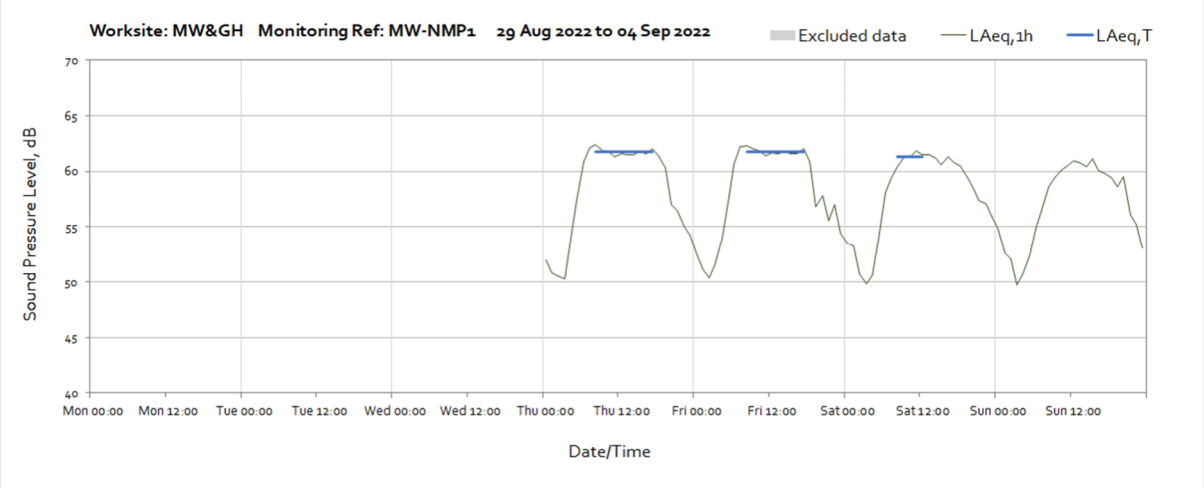
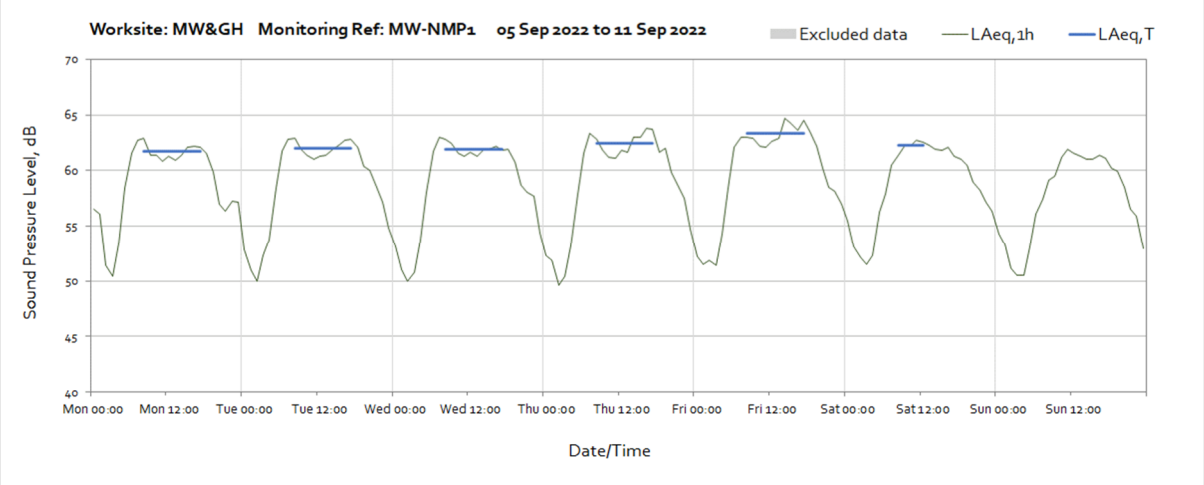
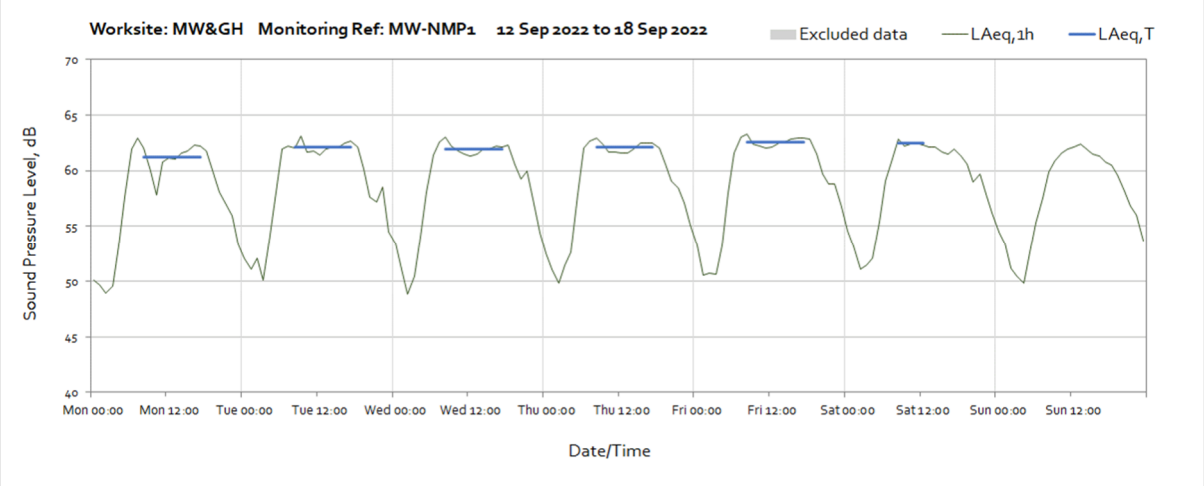
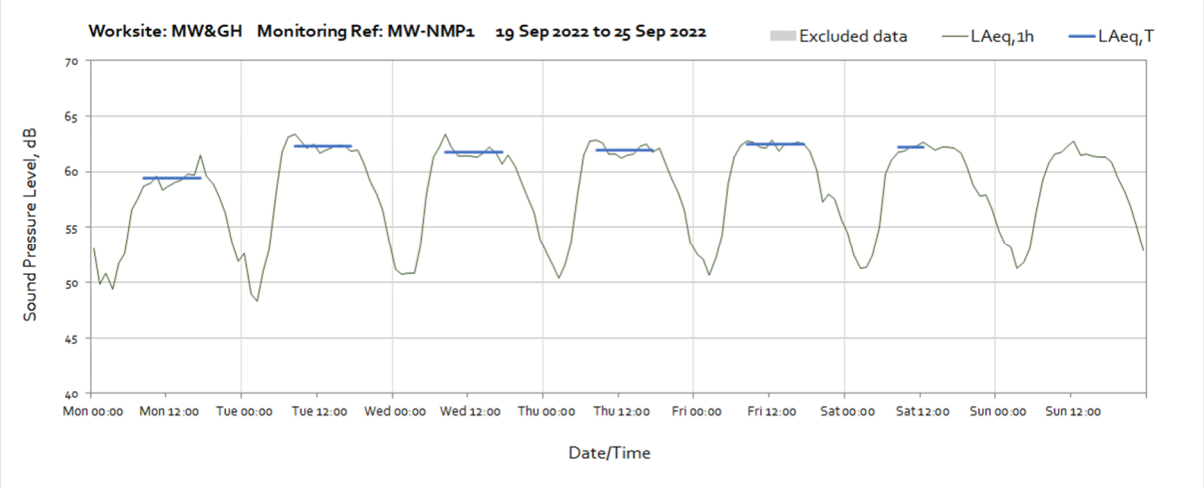
Date/Time

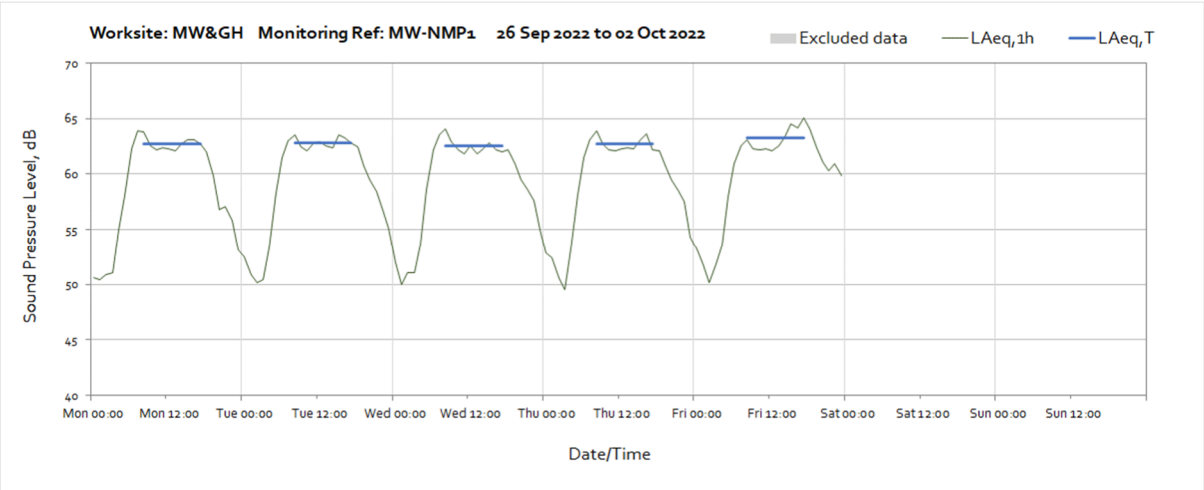
Worksite: MW&GH – Monitoring Ref: MW-NMP1



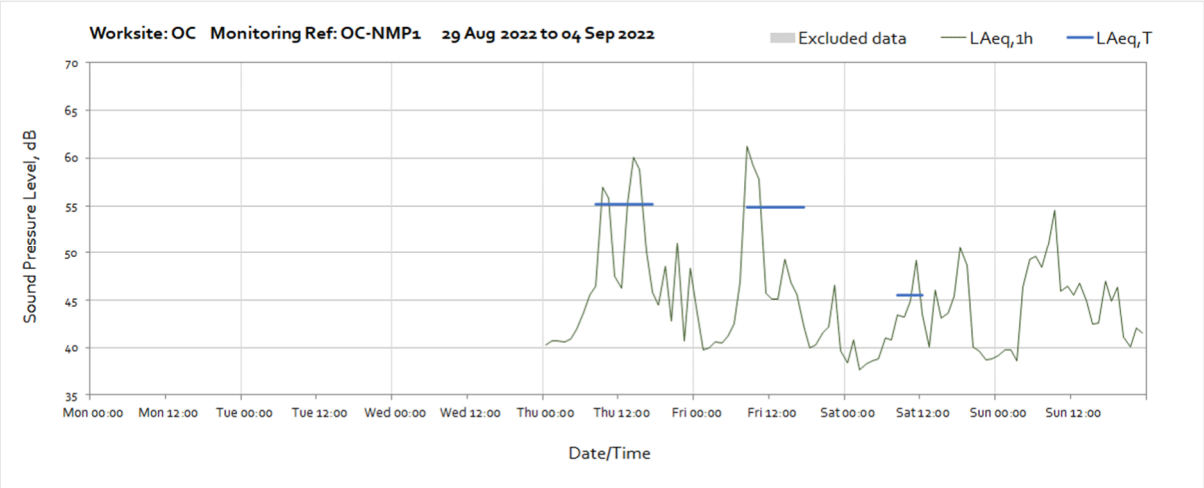


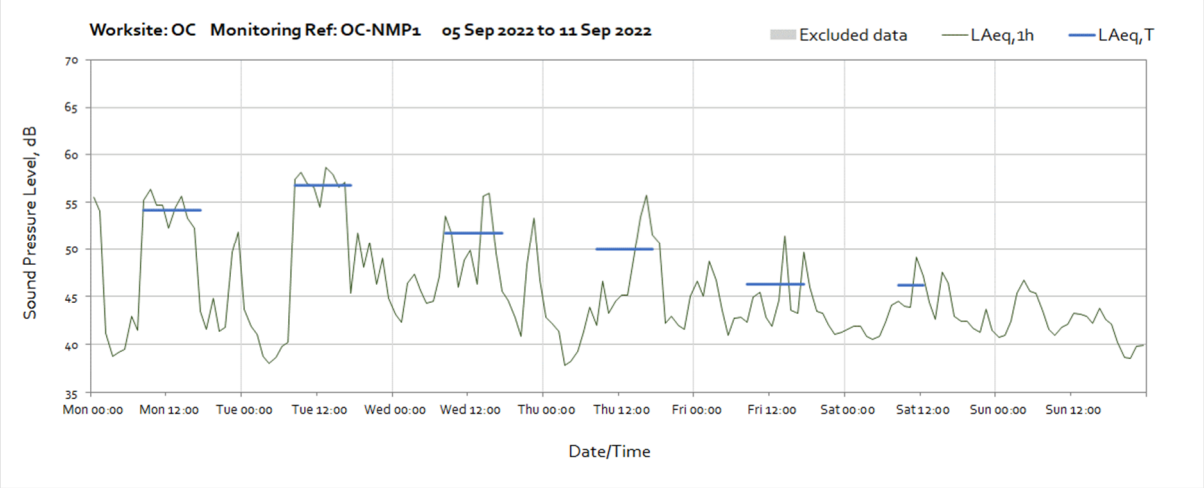






Worksite: OC – Monitoring Ref: OC-NMP1




Worksite: OC Monitoring Ref: OC-NMP1 05 Sep 2022 to 11 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
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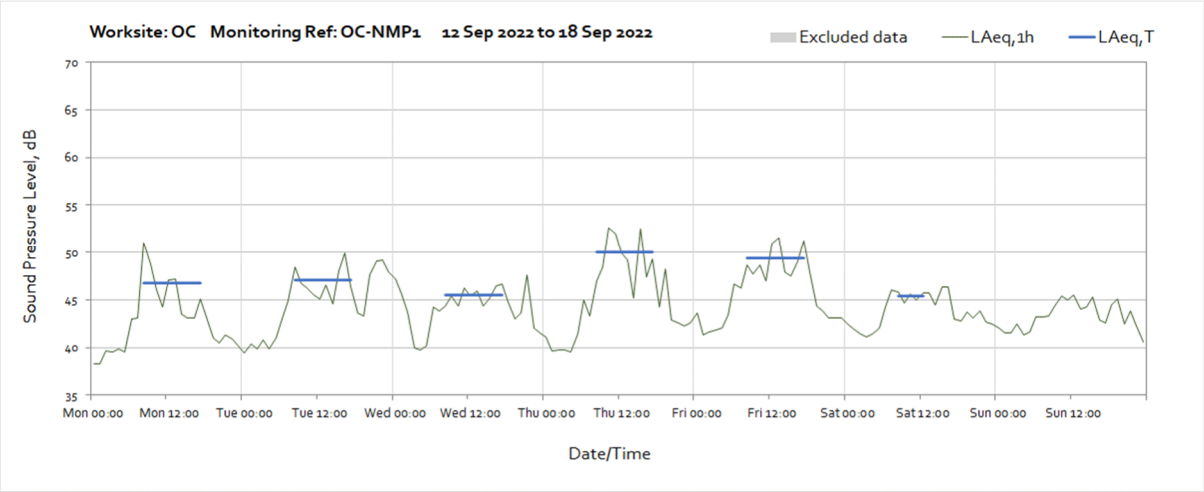
Date/Time


Worksite: OC Monitoring Ref: OC-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 00:00
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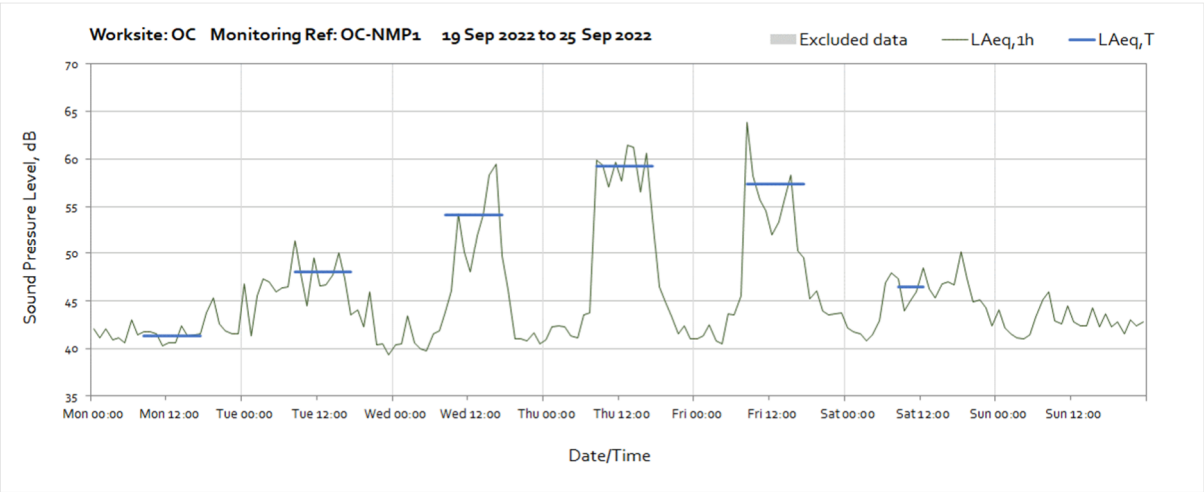
Date/Time


Worksite: OC Monitoring Ref: OC-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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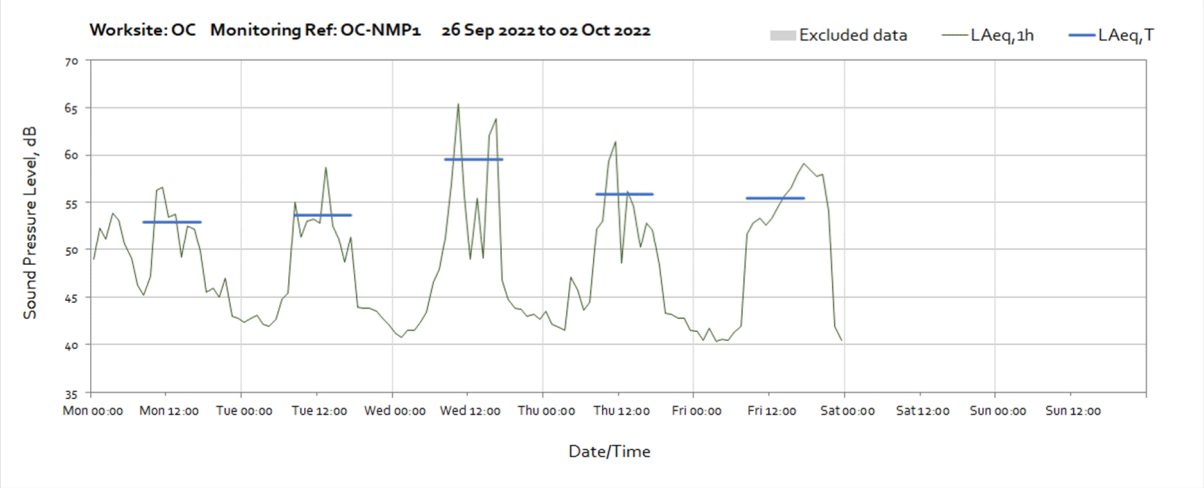
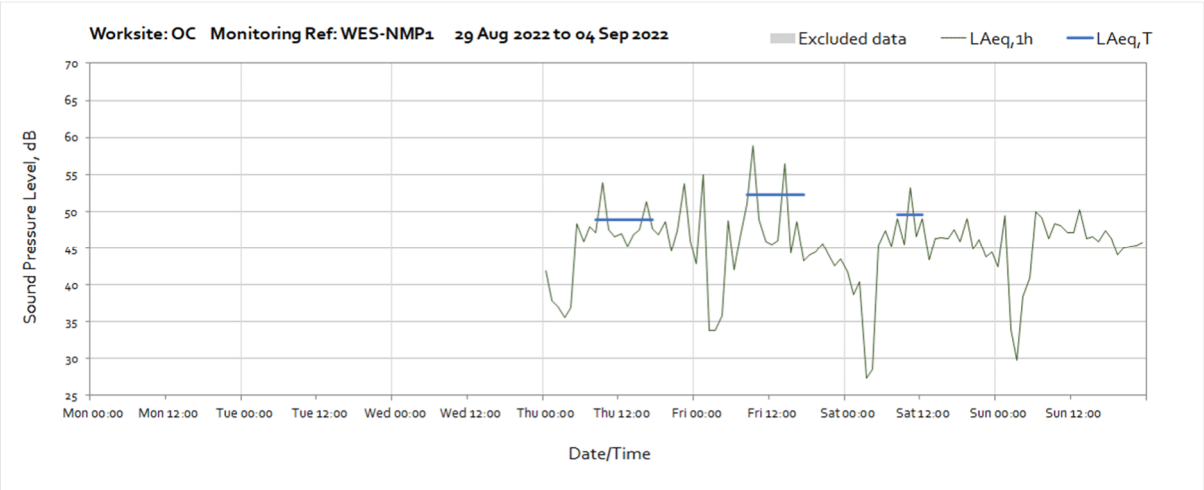
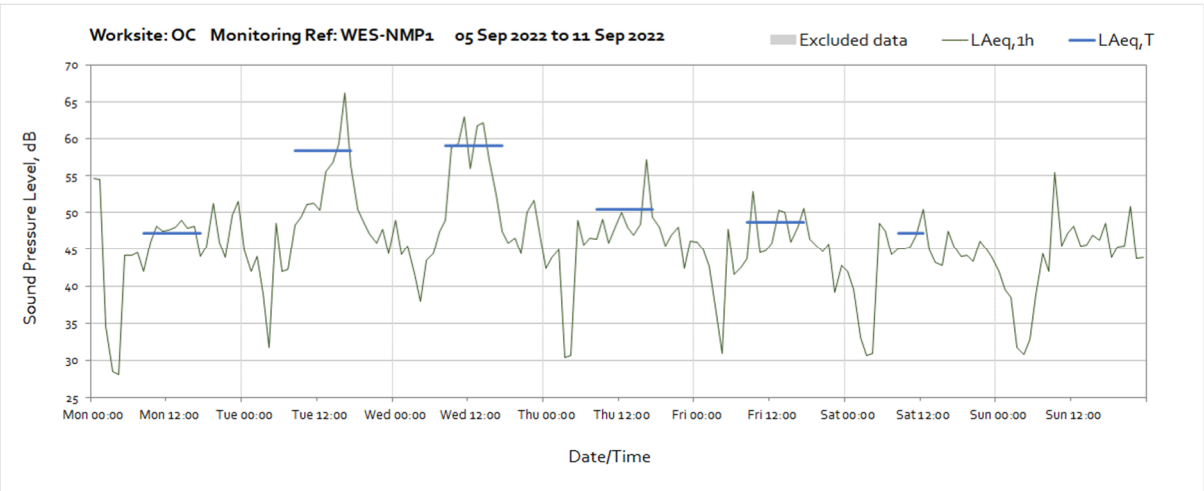
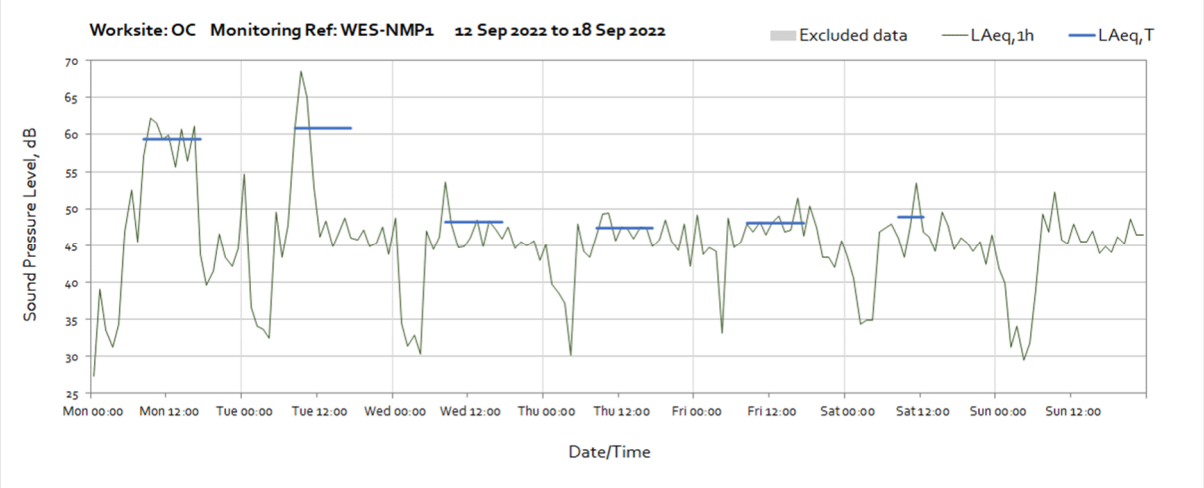
Date/Time



Worksite: OC – Monitoring Ref: WES-NMP1






Worksite: OC Monitoring Ref: WES-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 12:00
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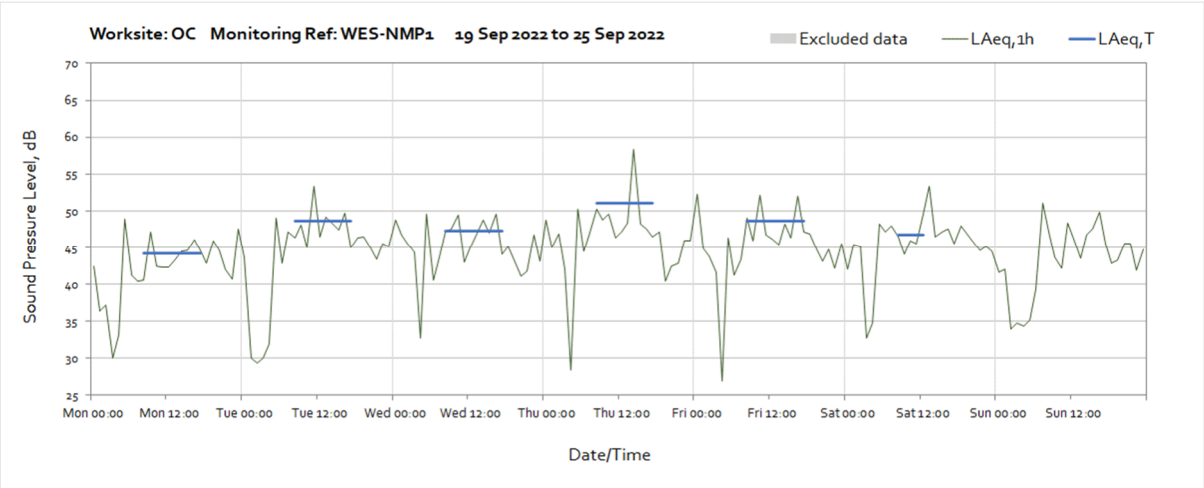
Date/Time


Worksite: OC Monitoring Ref: WES-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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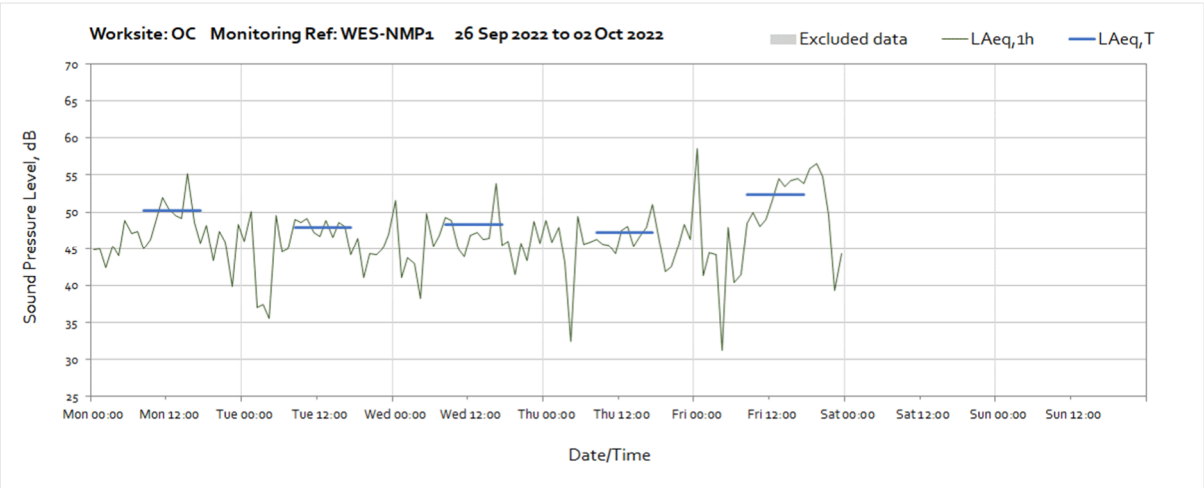
Date/Time


Worksite: OC Monitoring Ref: WES-NMP1 26 Sep 2022 to 02 Oct 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 12:00
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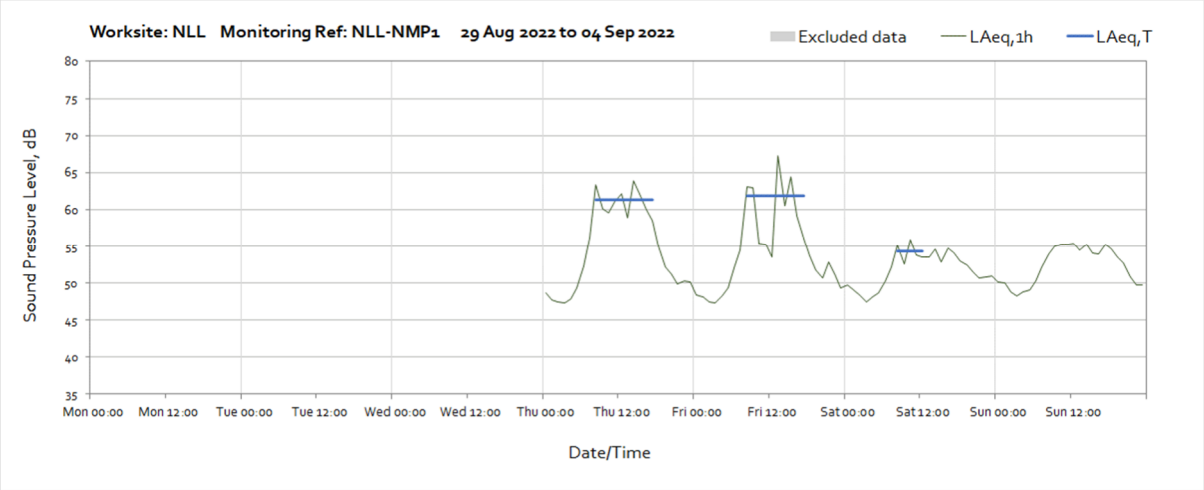
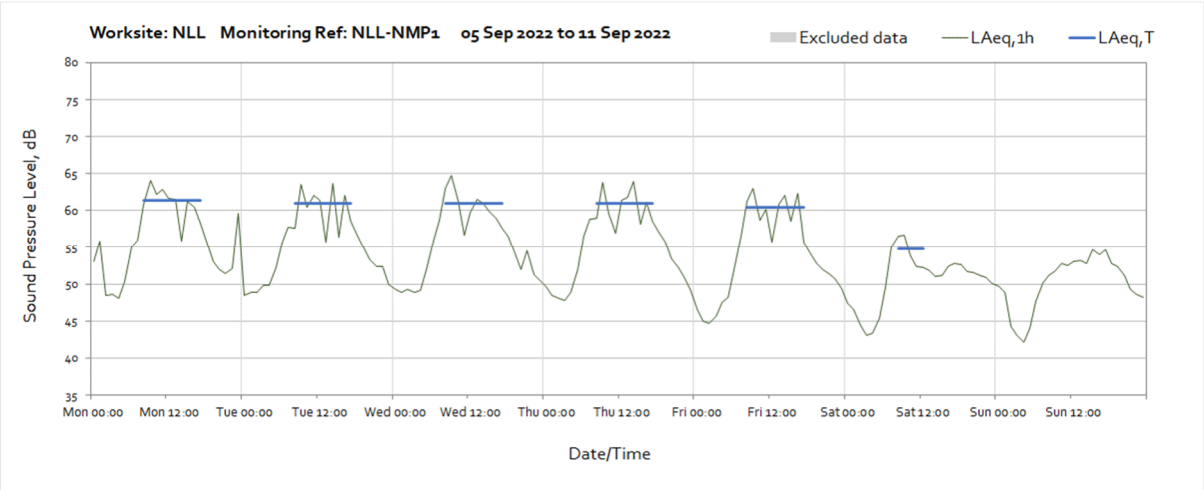
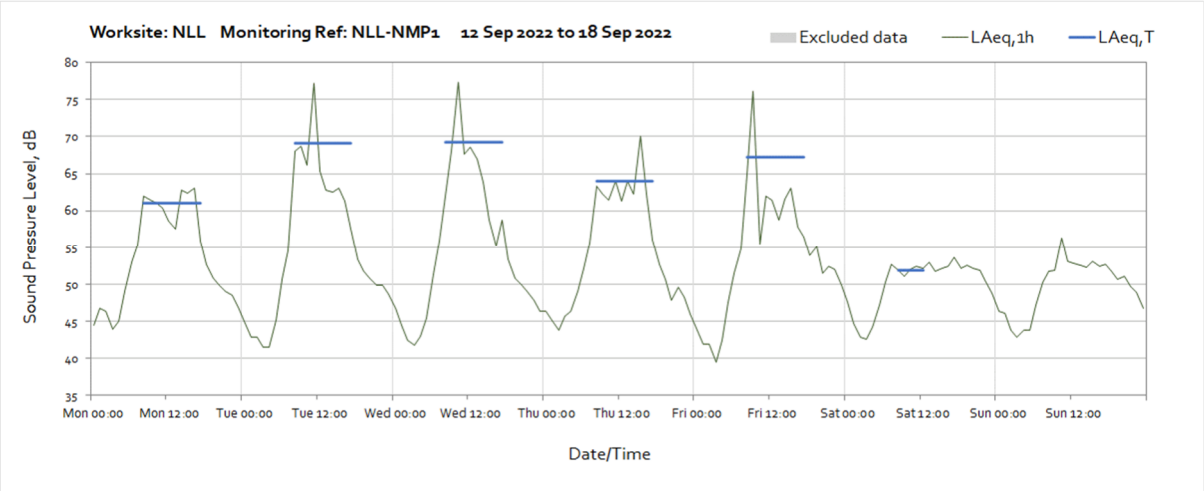
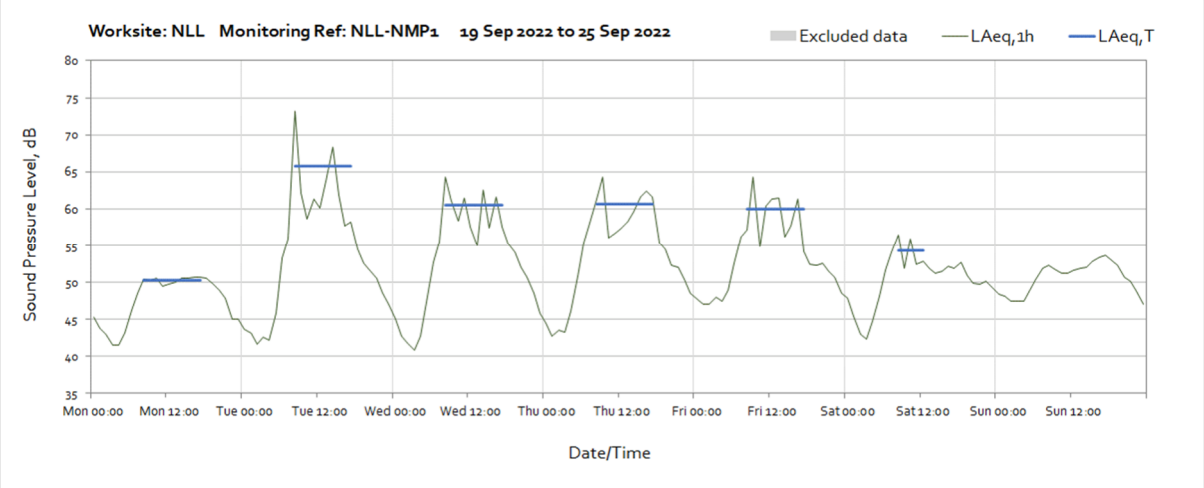
Date/Time

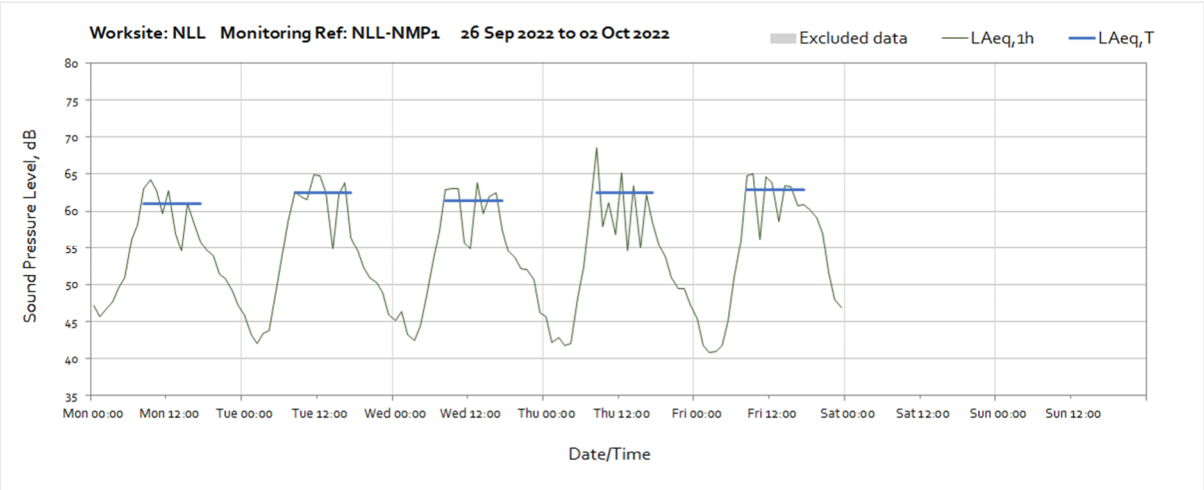
Worksite: NLL – Monitoring Ref: NLL-NMP1



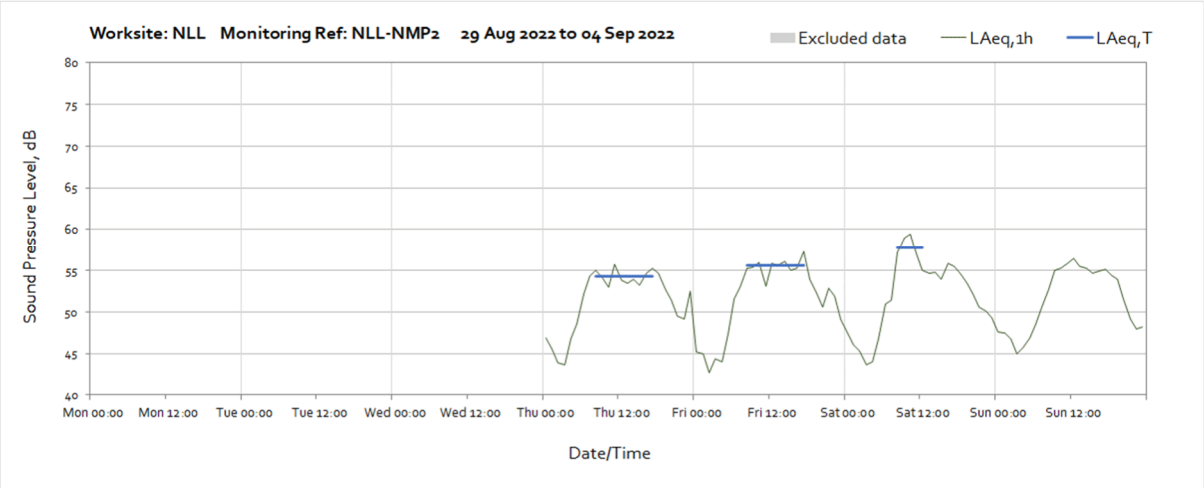


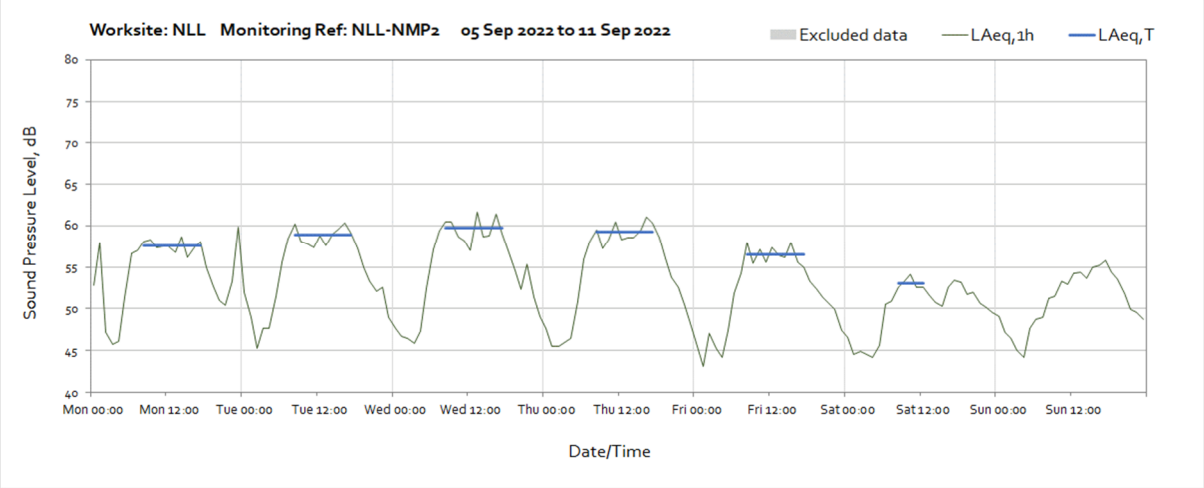






Worksite: NLL – Monitoring Ref: NLL-NMP2




Worksite: NLL Monitoring Ref: NLL-NMP2 05 Sep 2022 to 11 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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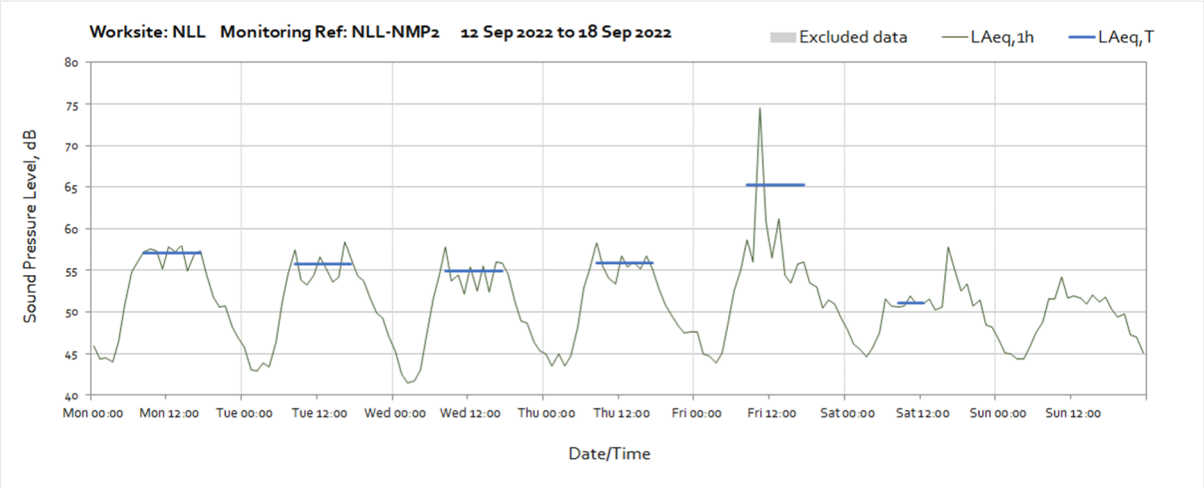
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP2 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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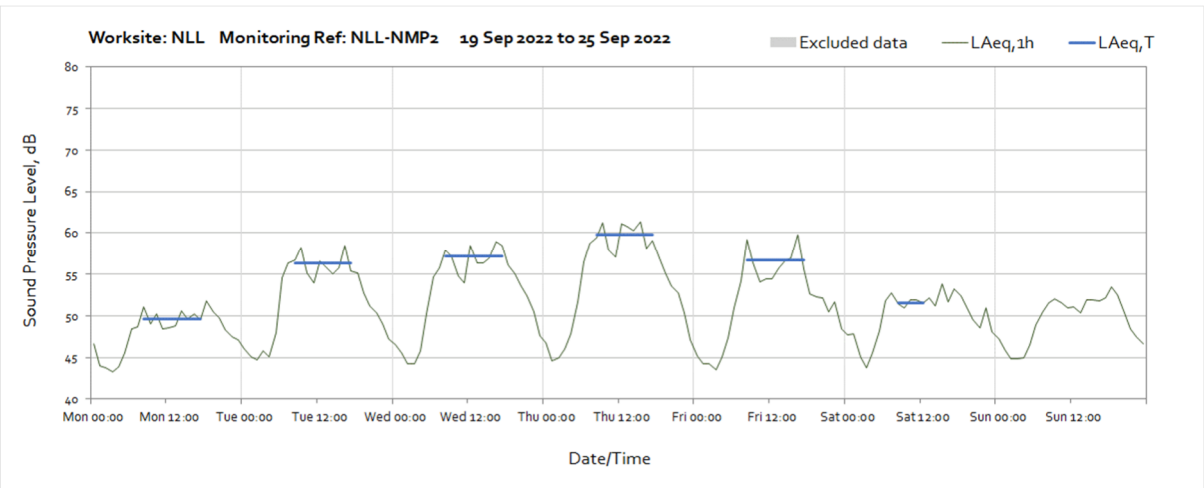
Date/Time


Worksite: NLL Monitoring Ref: NLL-NMP2 19 Sep 2022 to 25 Sep 2022
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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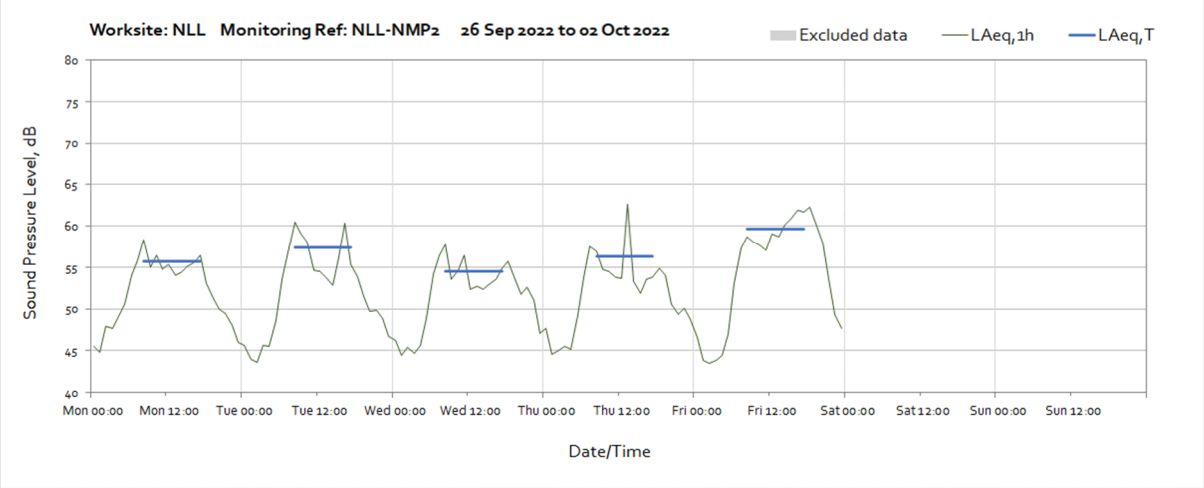
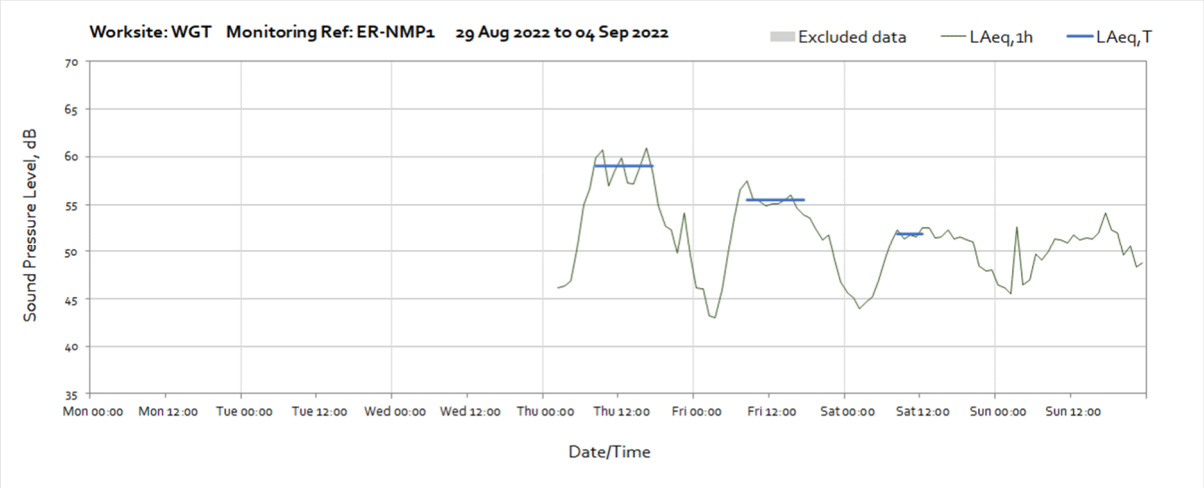
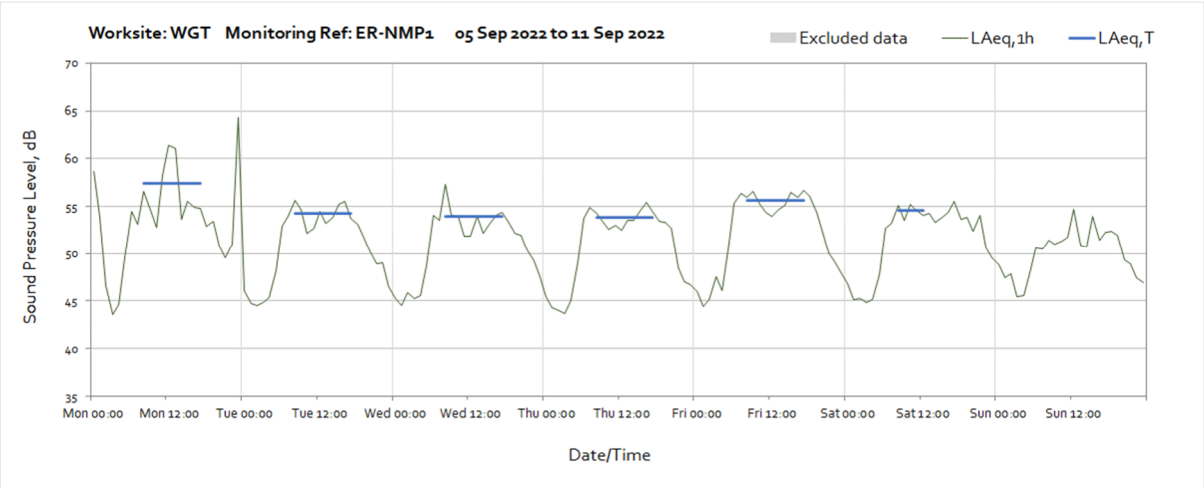
Date/Time

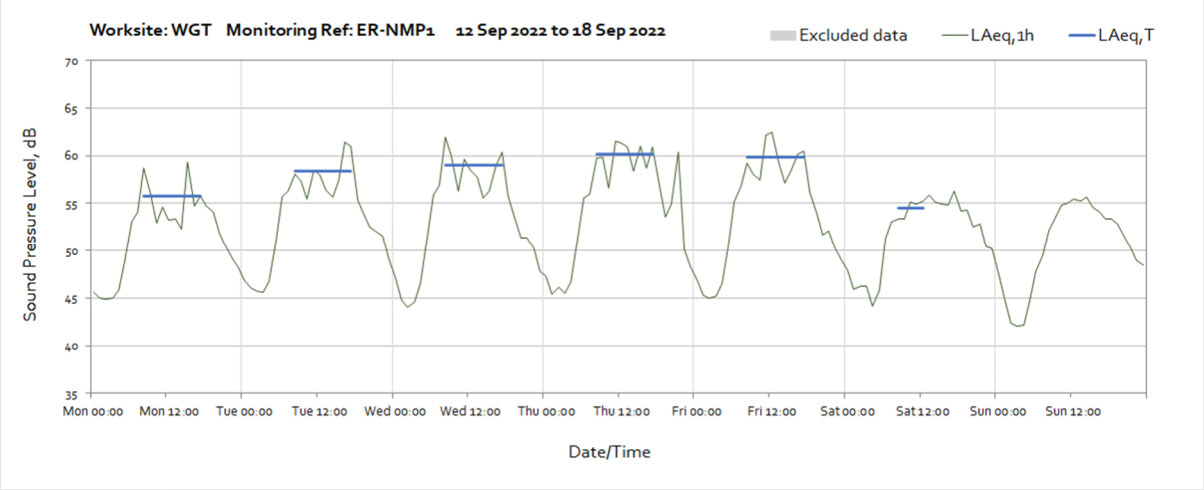


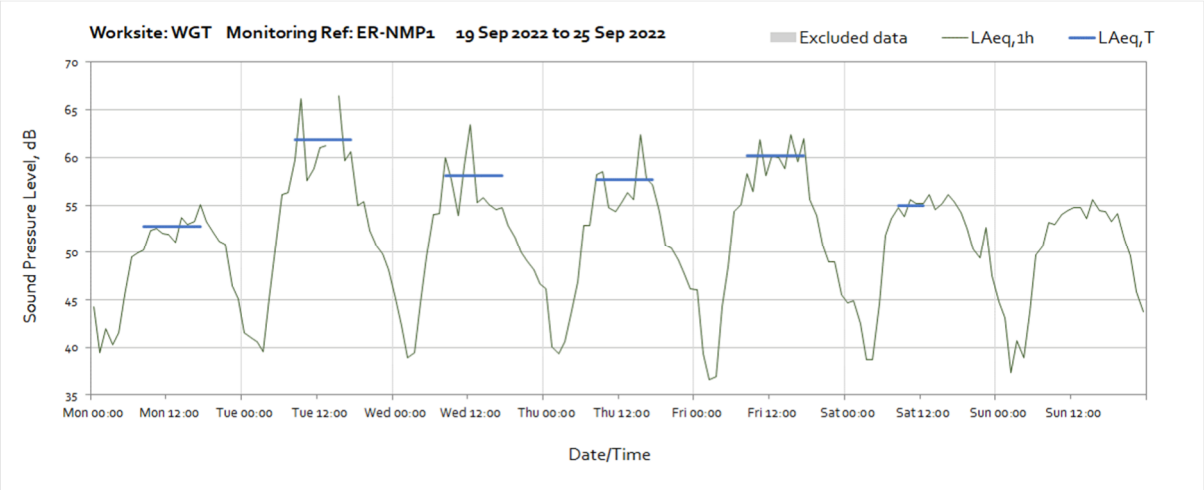
Worksite: WGT – Monitoring Ref: ER-NMP1



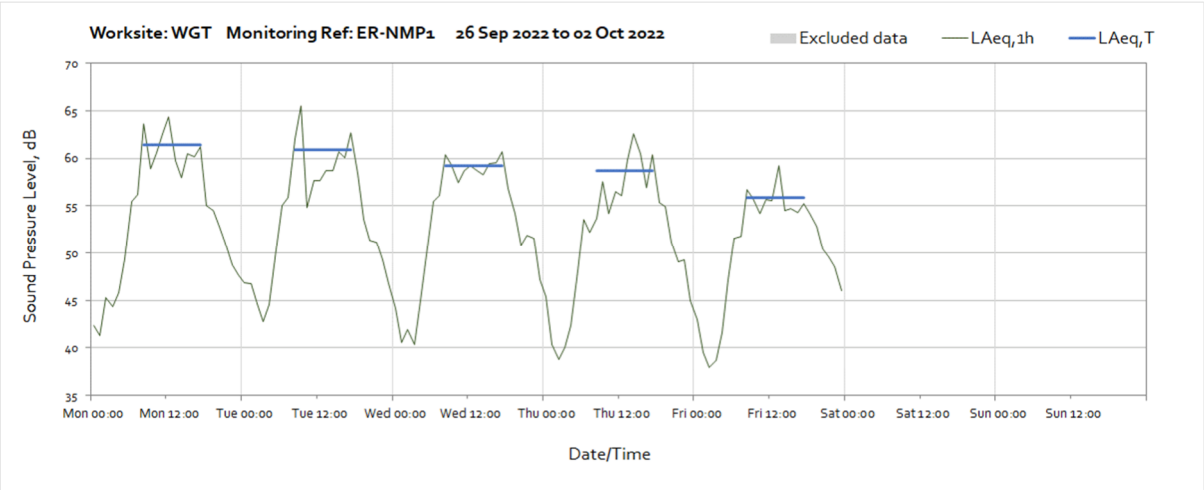
Note: Missing data between 01:00 and 02:00 on the 1st September was due to an automatic system check.



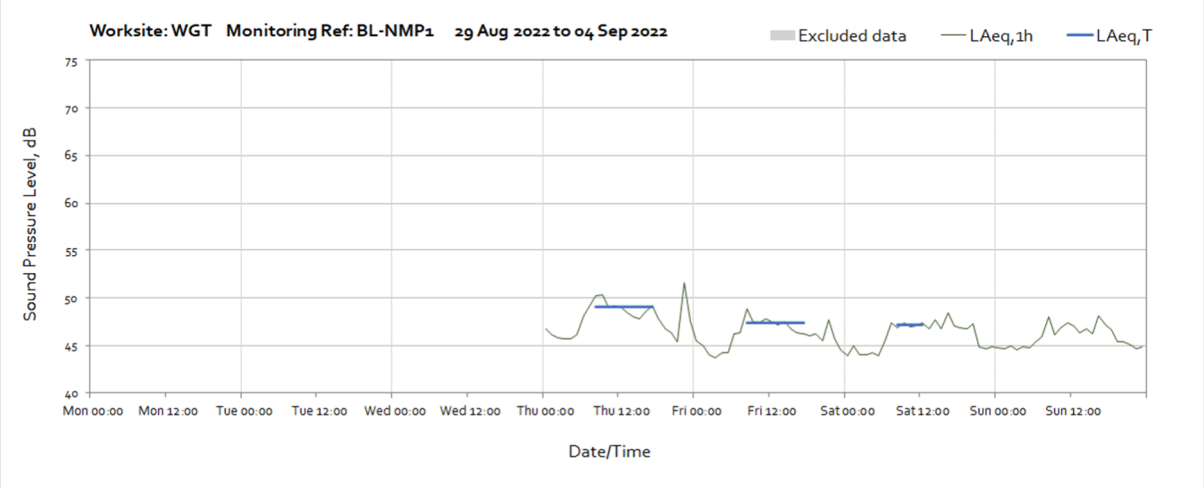


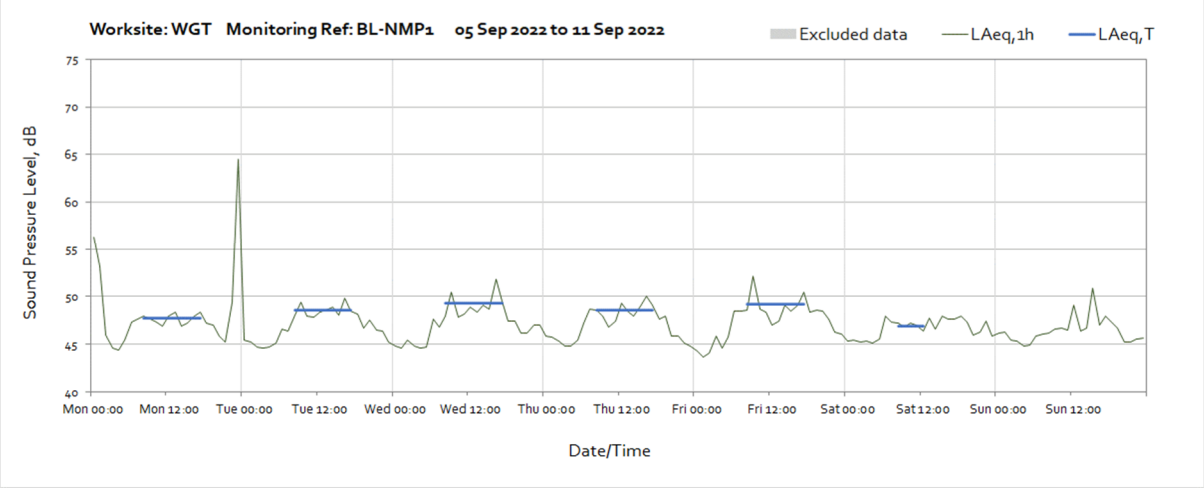


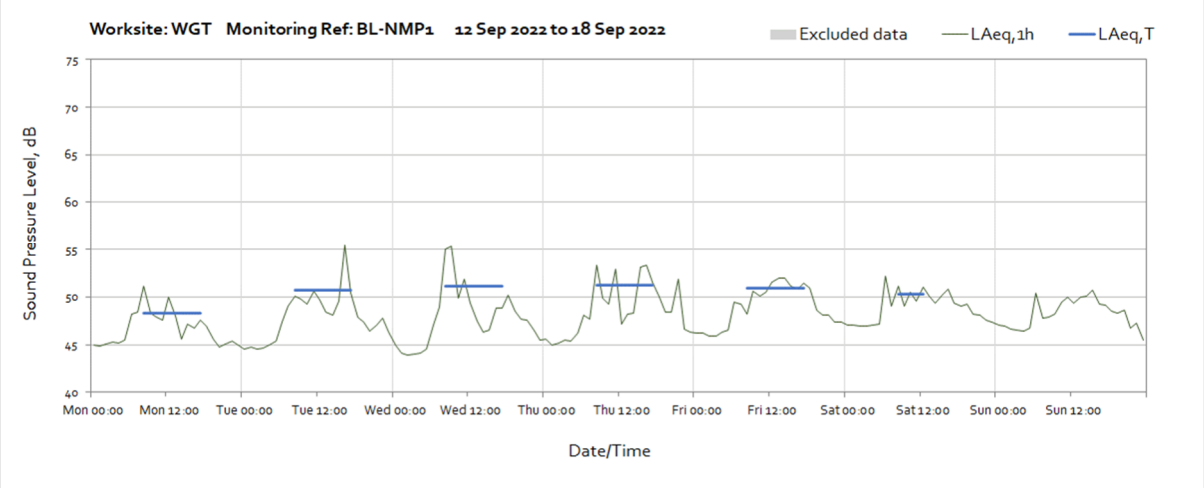
Note: Missing data between 14:00 and 15:00 on the 20th September was due to monitor maintenance.

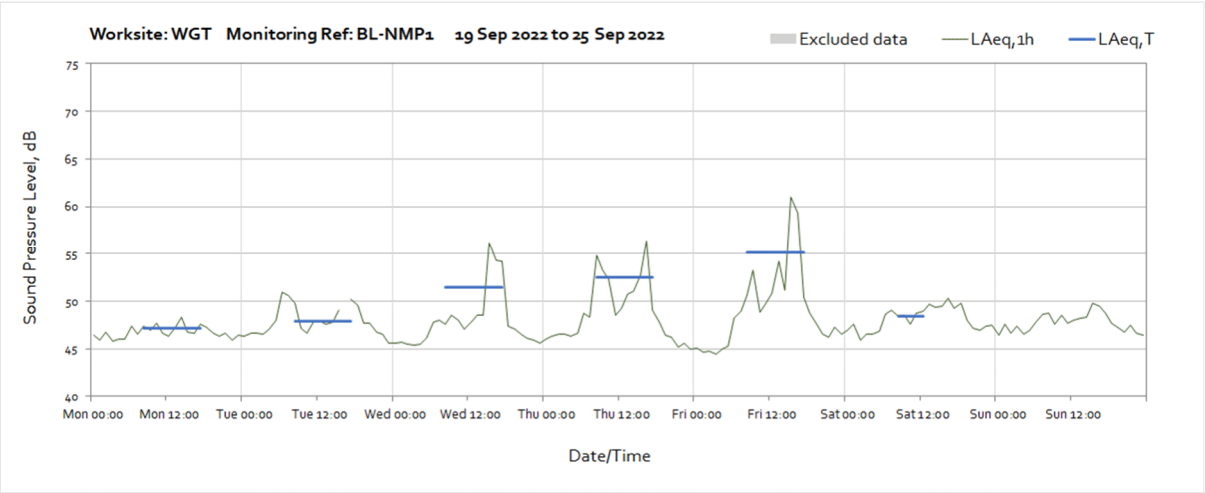


Worksite: WGT – Monitoring Ref: BL-NMP1

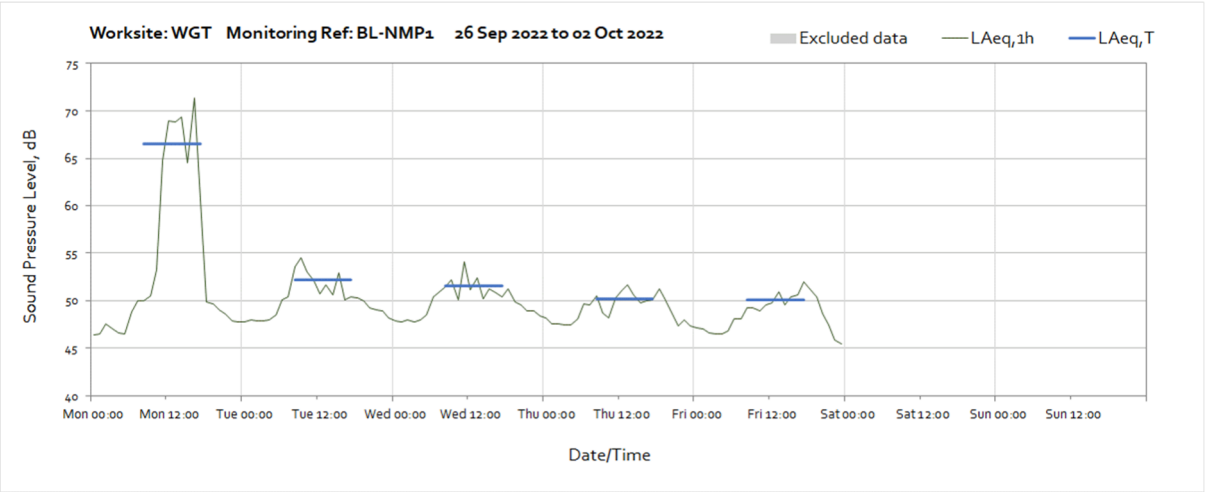




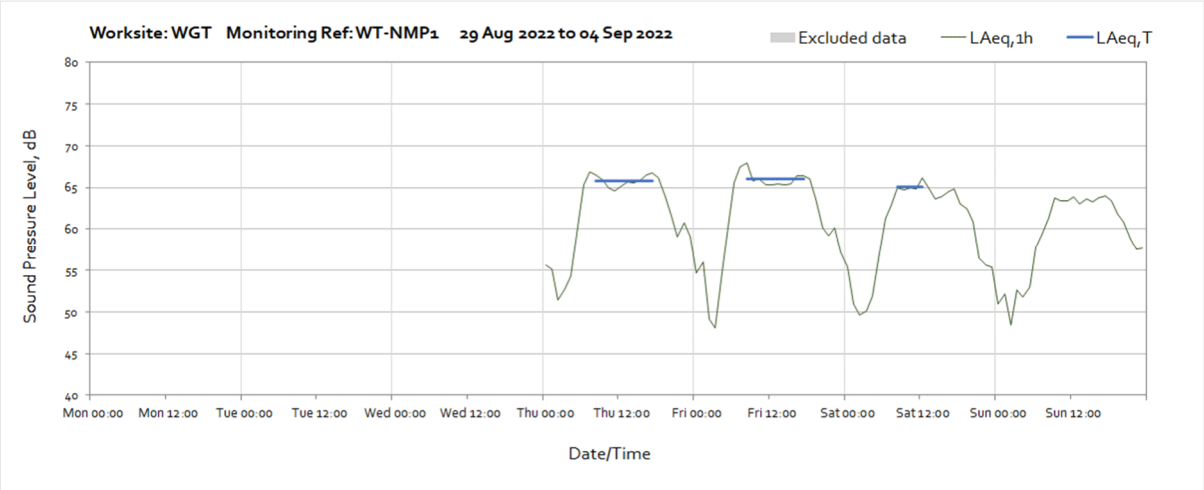


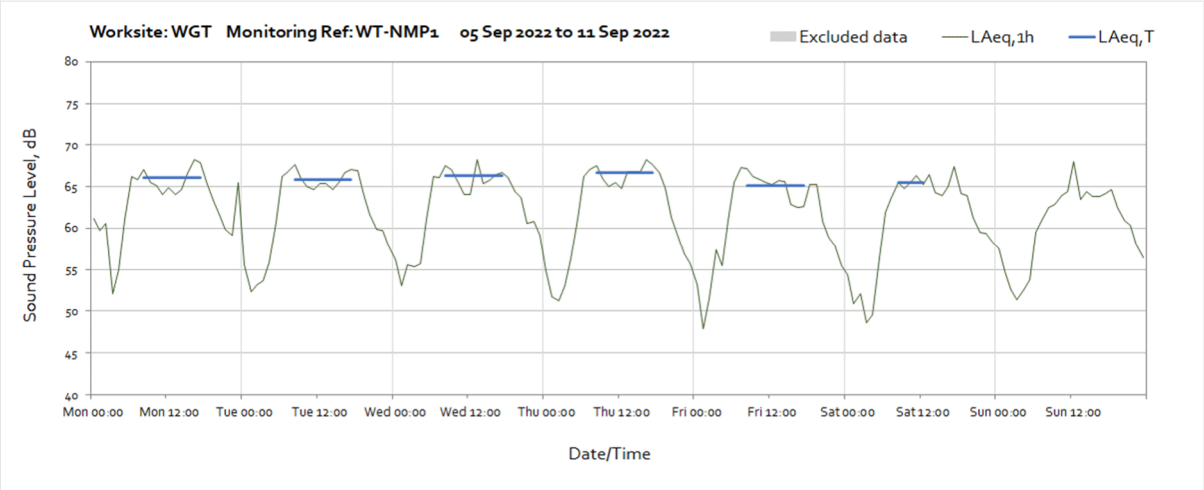


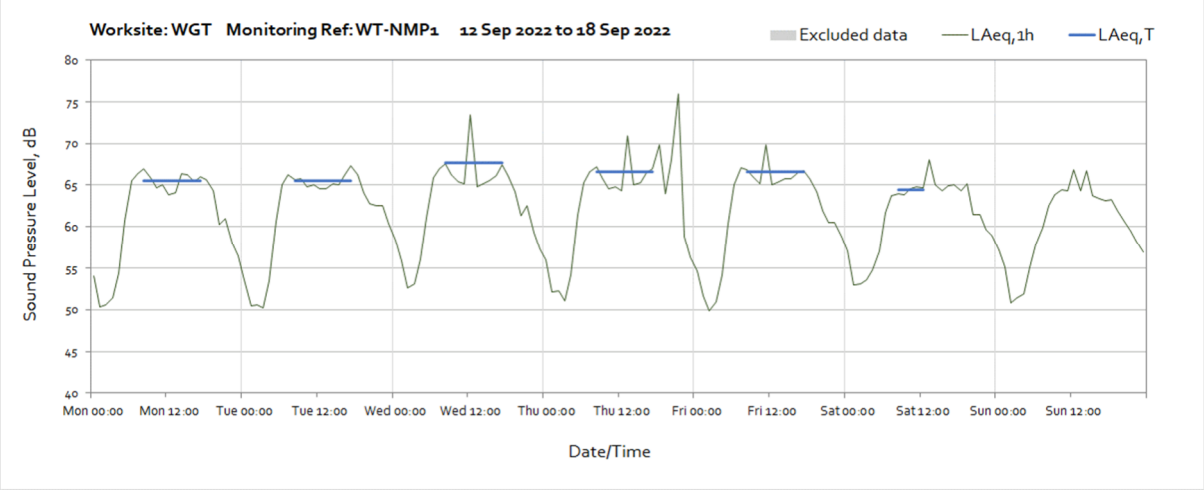
Note: Missing data between 16:00 and 17:00 on the 20th September was due to monitor maintenance.

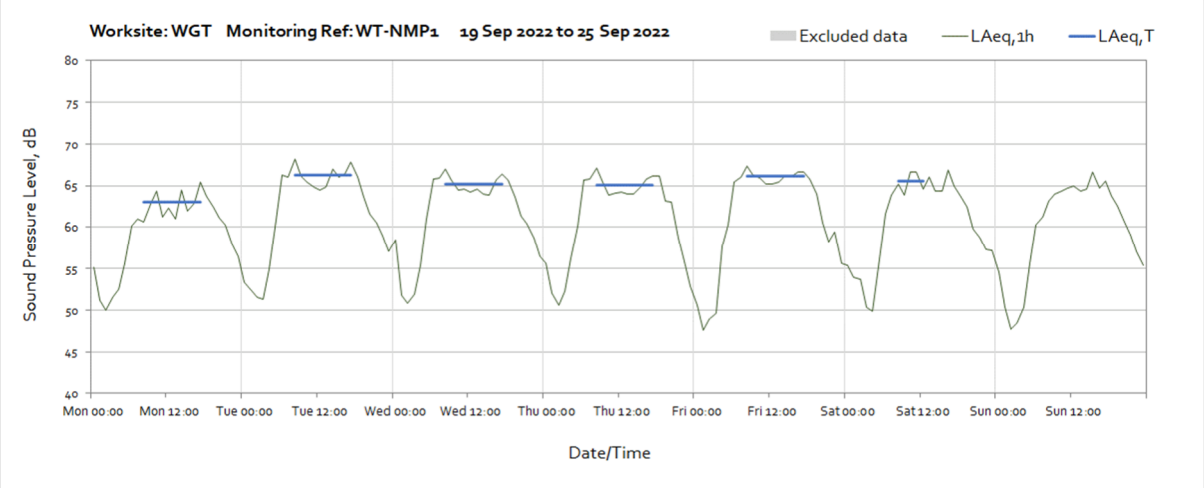


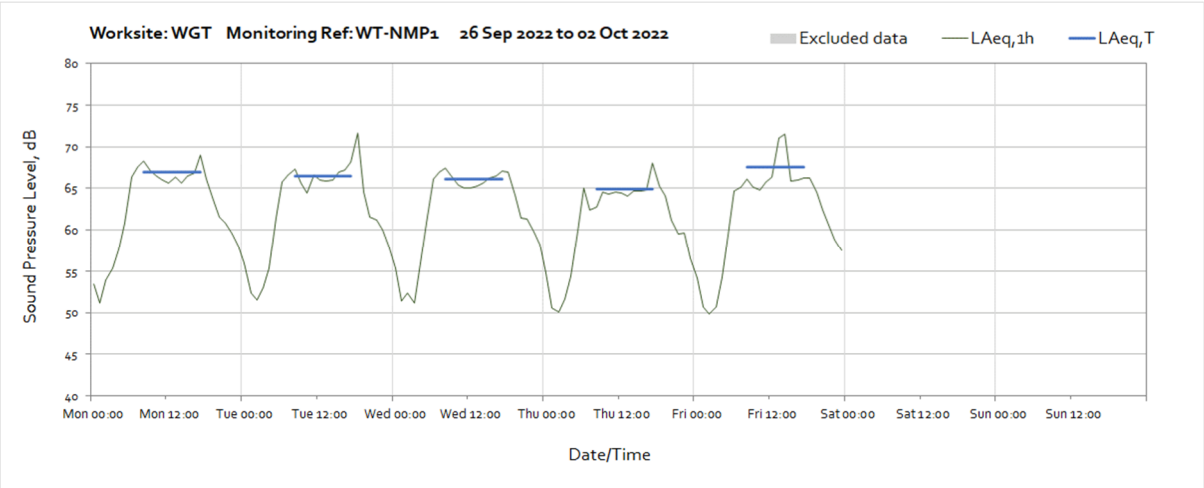
Worksite: WGT – Monitoring Ref: WT-NMP1



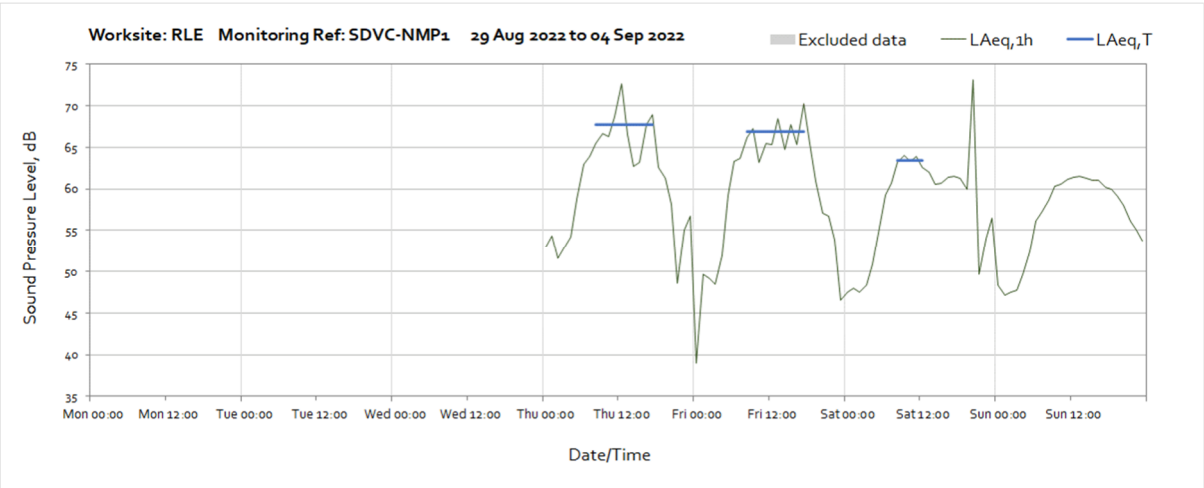


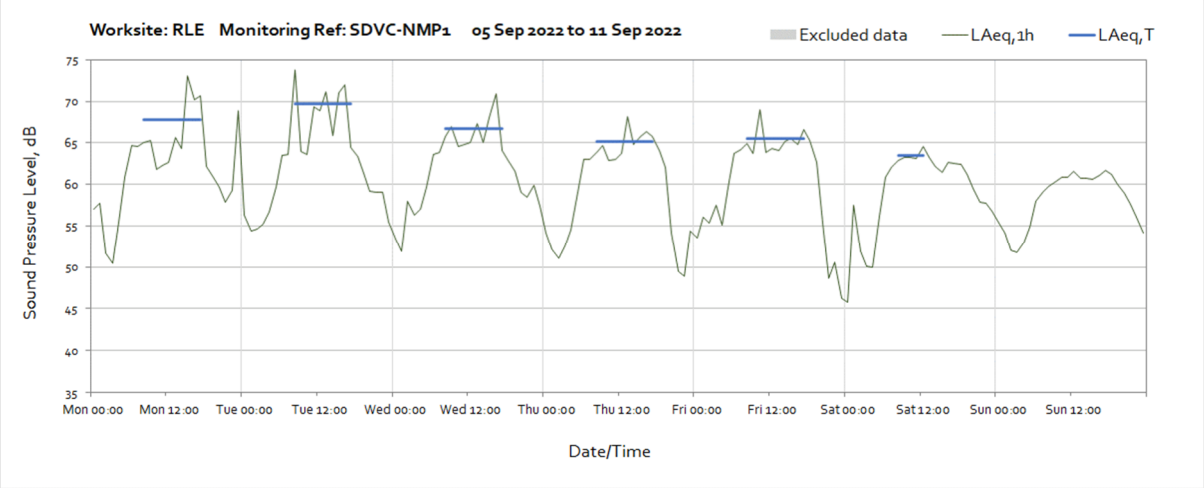






Worksite: RLE – Monitoring Ref: SDVC-NMP1




Worksite: RLE Monitoring Ref: SDVC-NMP1 05 Sep 2022 to 11 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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70
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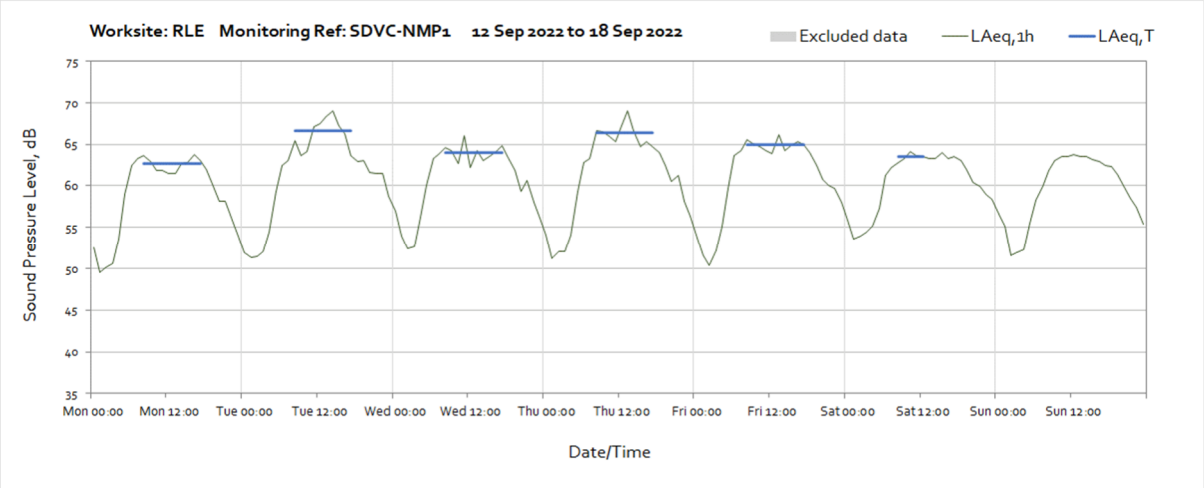
Date/Time


Worksite: RLE Monitoring Ref: SDVC-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
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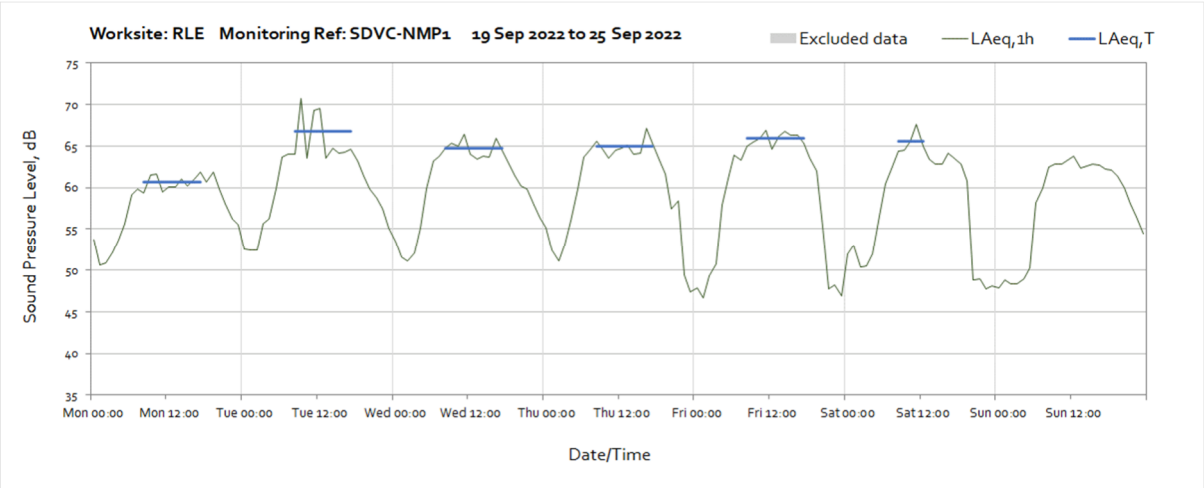
Date/Time


Worksite: RLE Monitoring Ref: SDVC-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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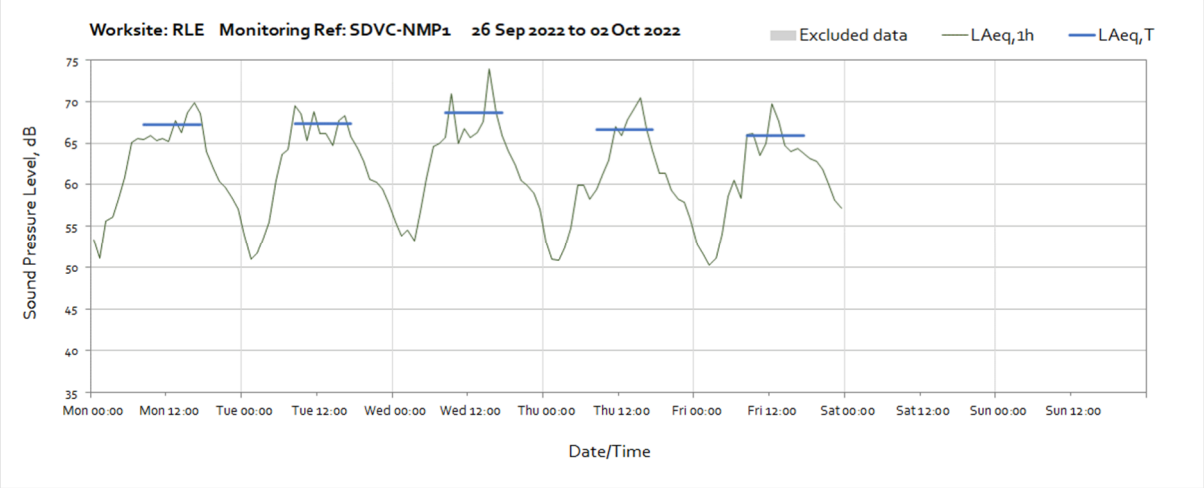
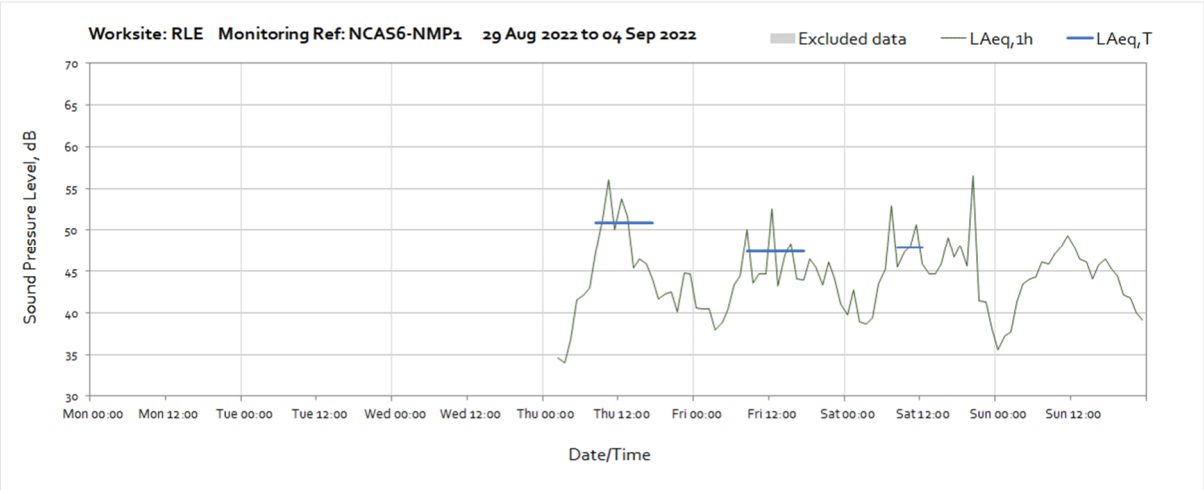
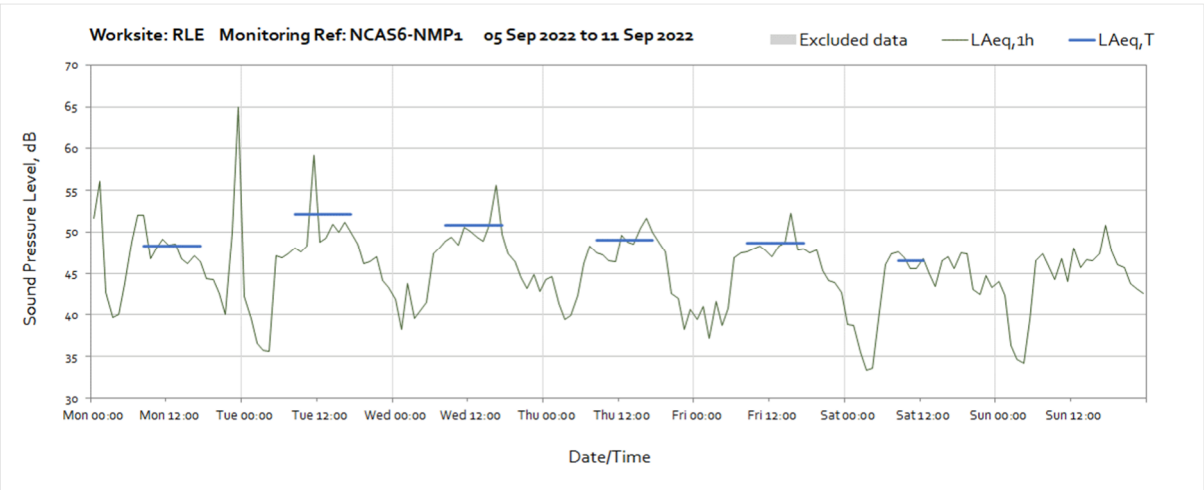
Date/Time

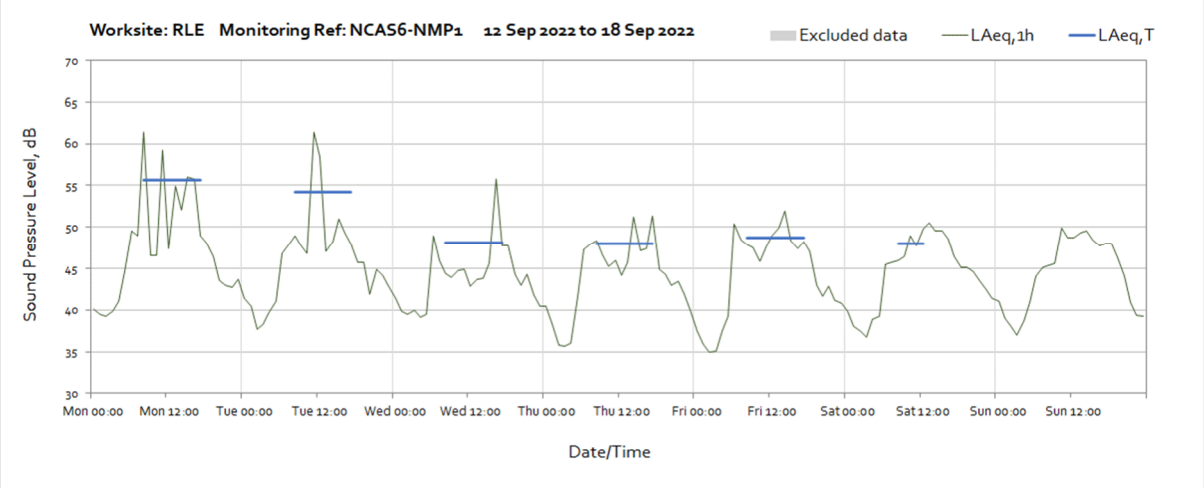


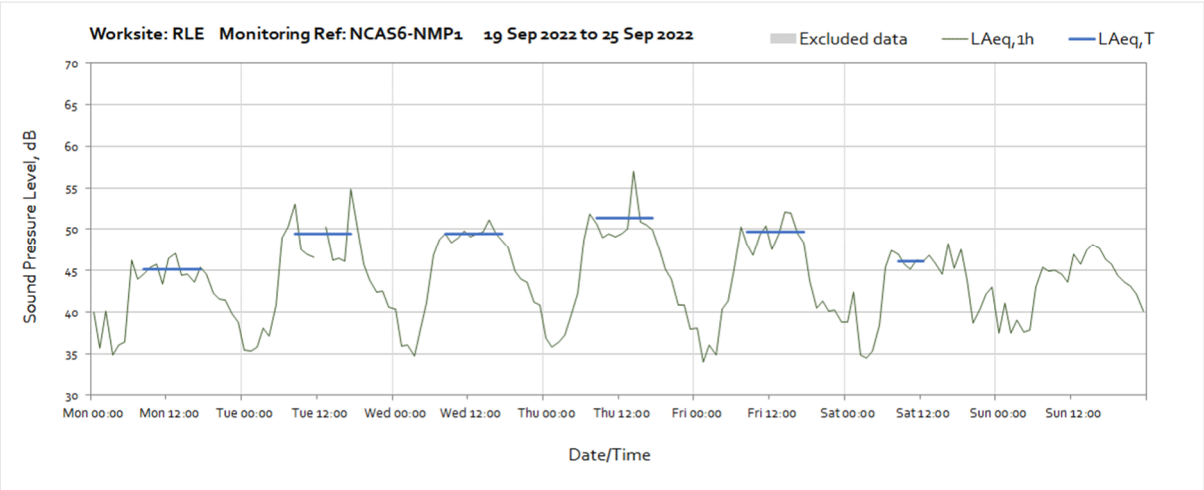
Worksite: RLE – Monitoring Ref: NCAS6-NMP1



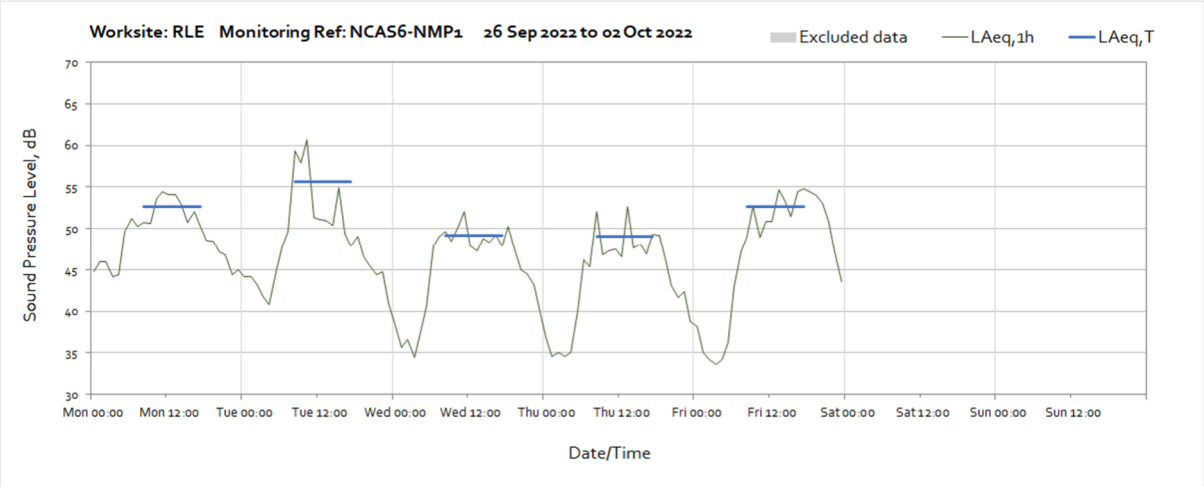
Note: Missing data between 01:00 and 02:00 on the 1st September was due to an automatic system check.



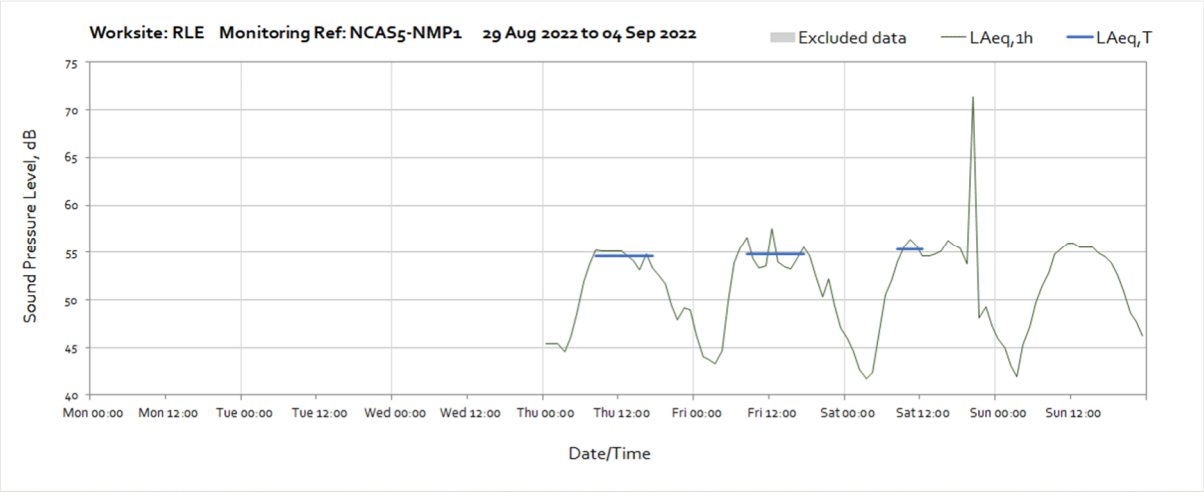


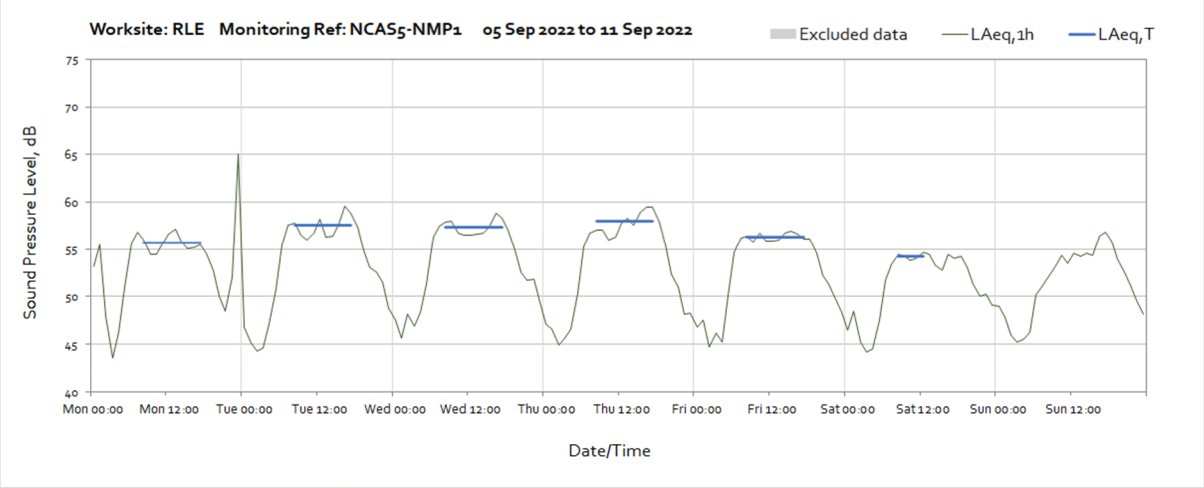


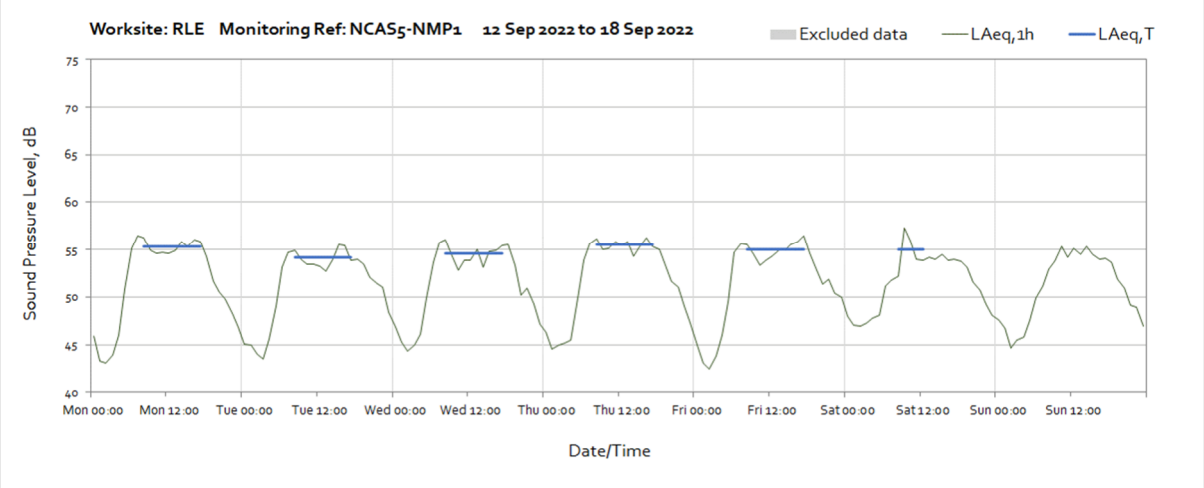
Note: Missing data between 14:00 and 15:00 on the 20th September was due to monitor maintenance.

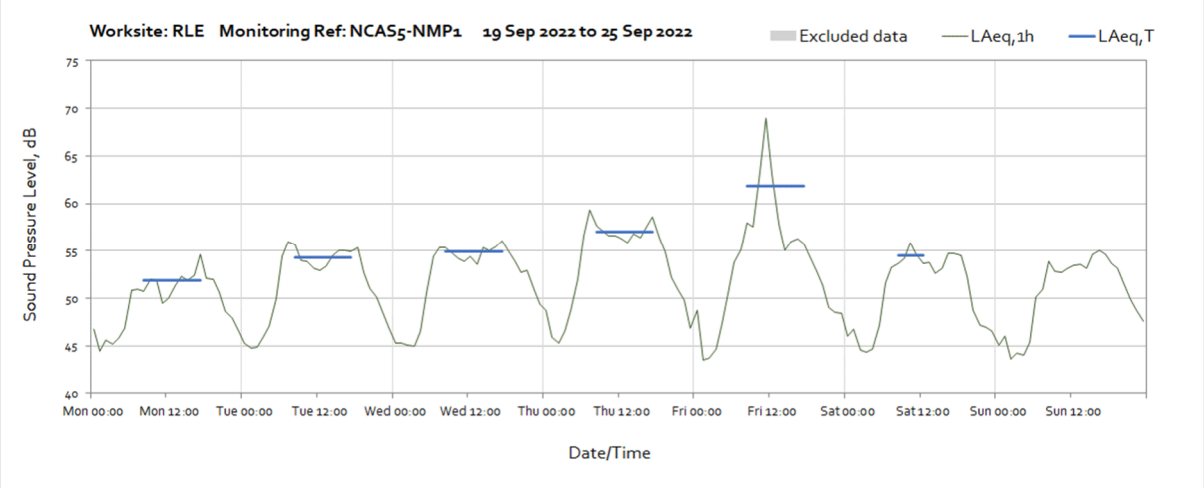


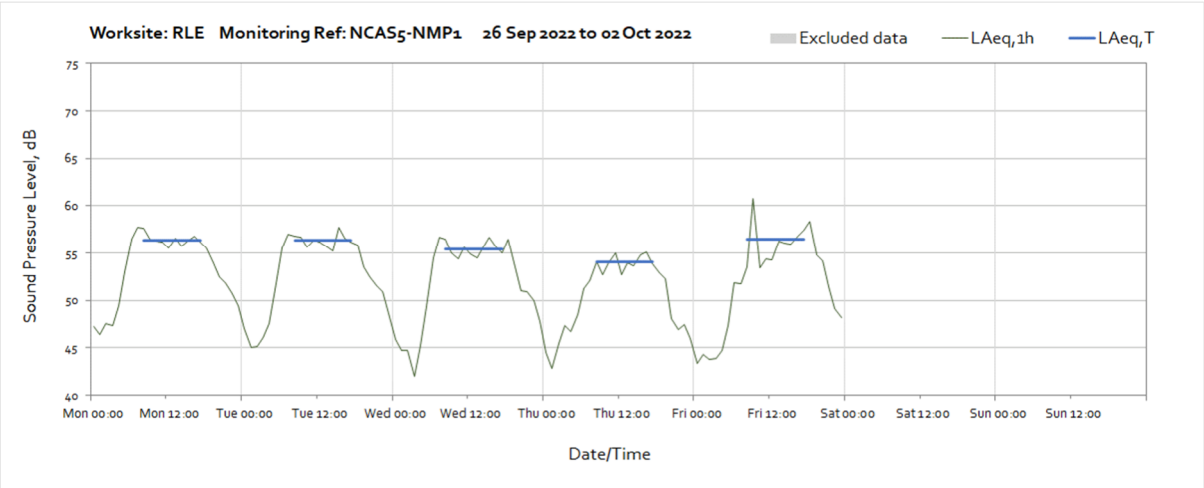
Worksite: RLE – Monitoring Ref: NCAS5-NMP1



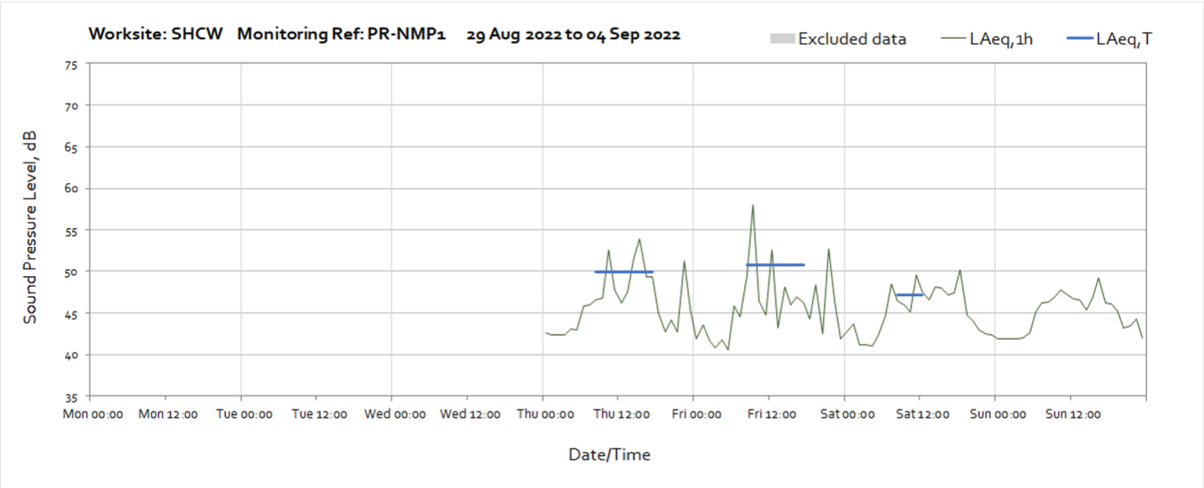


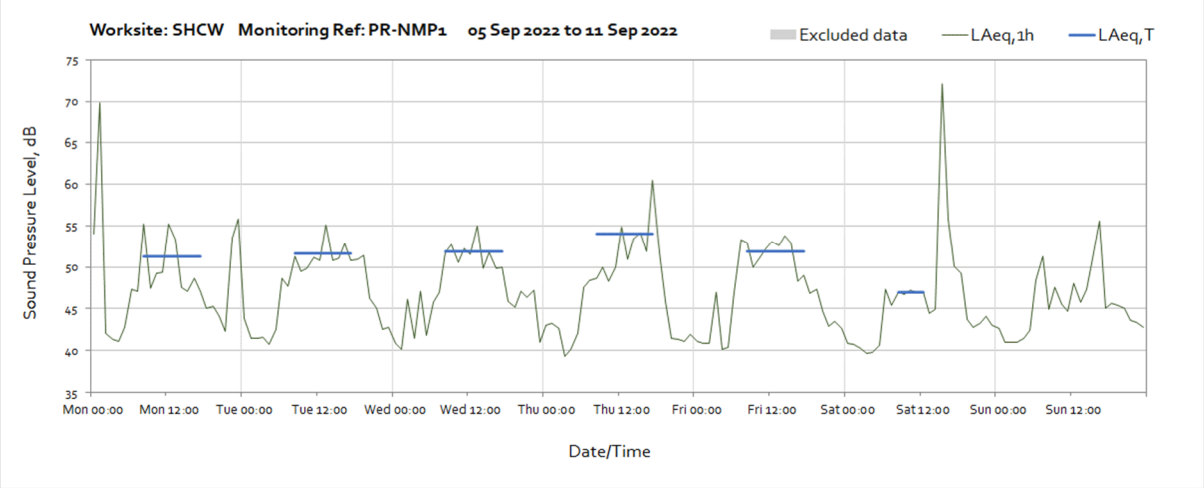


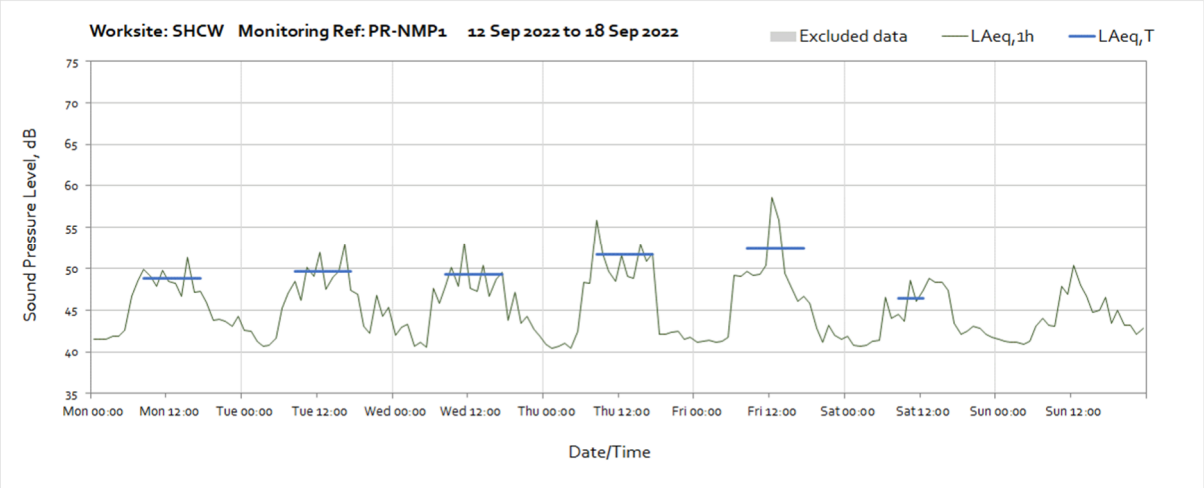


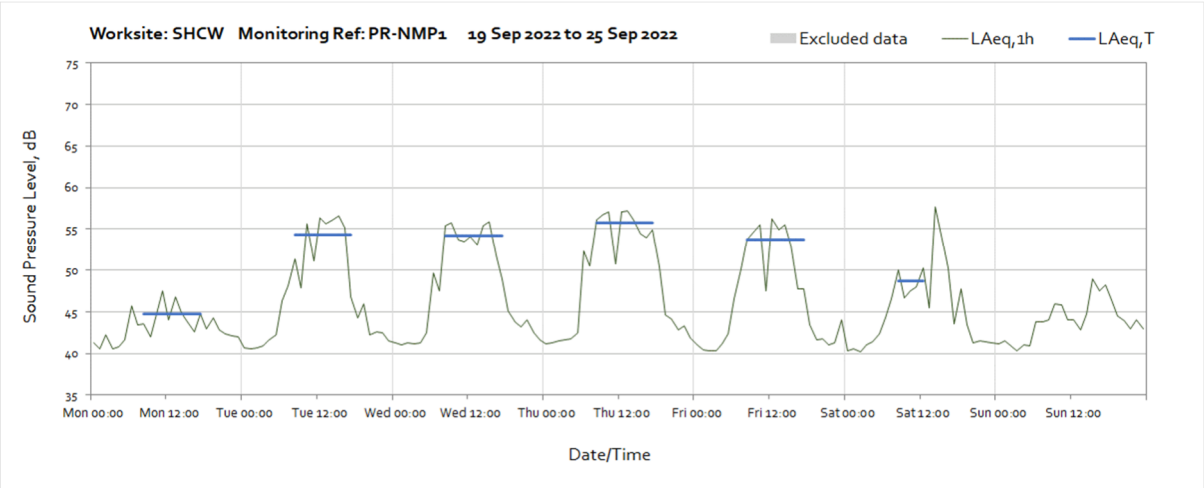


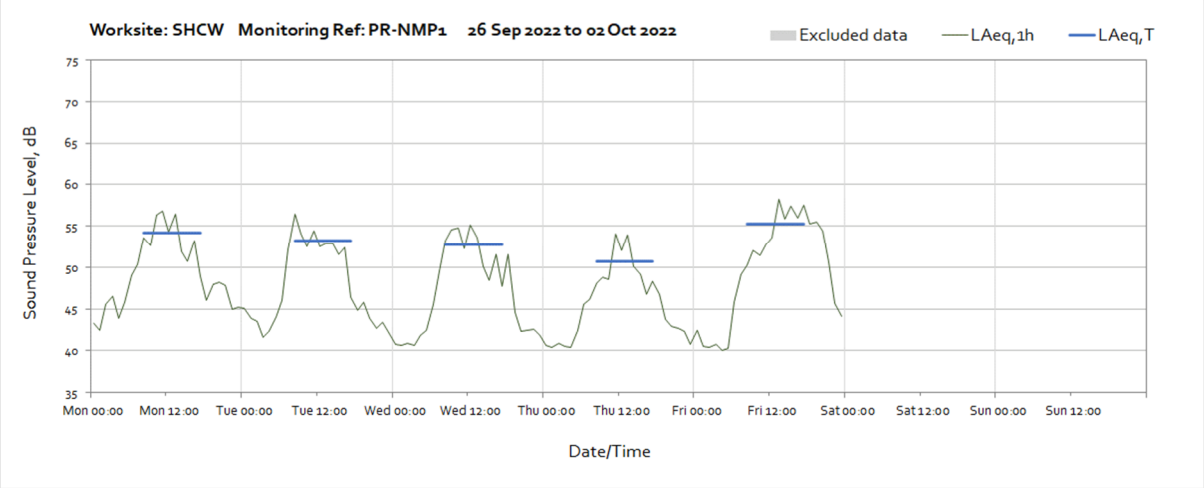
Worksite: SHCW – Monitoring Ref: PR-NMP1



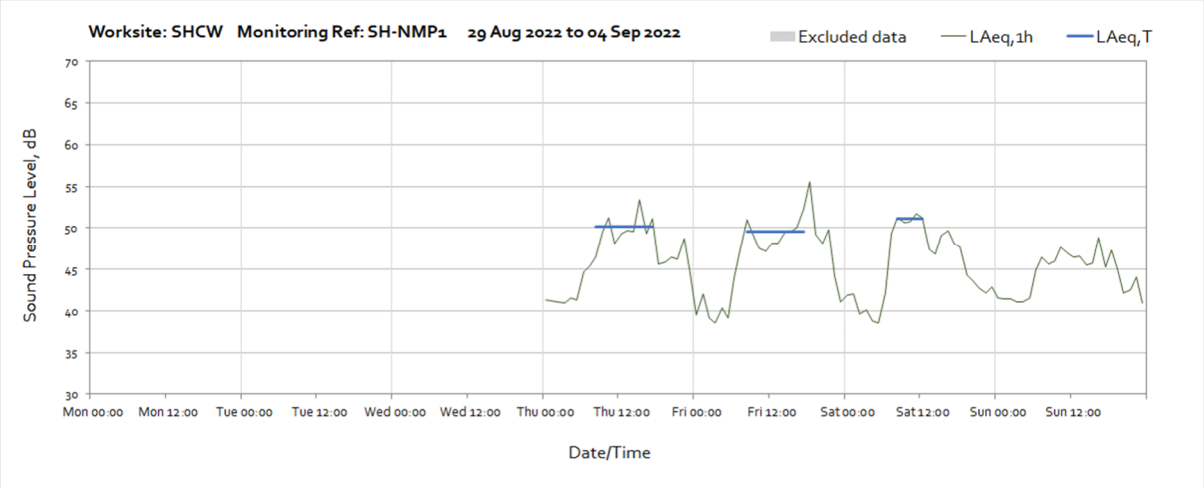

Worksite: SHCW Monitoring Ref: PR-NMP1 05 Sep 2022 to 11 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

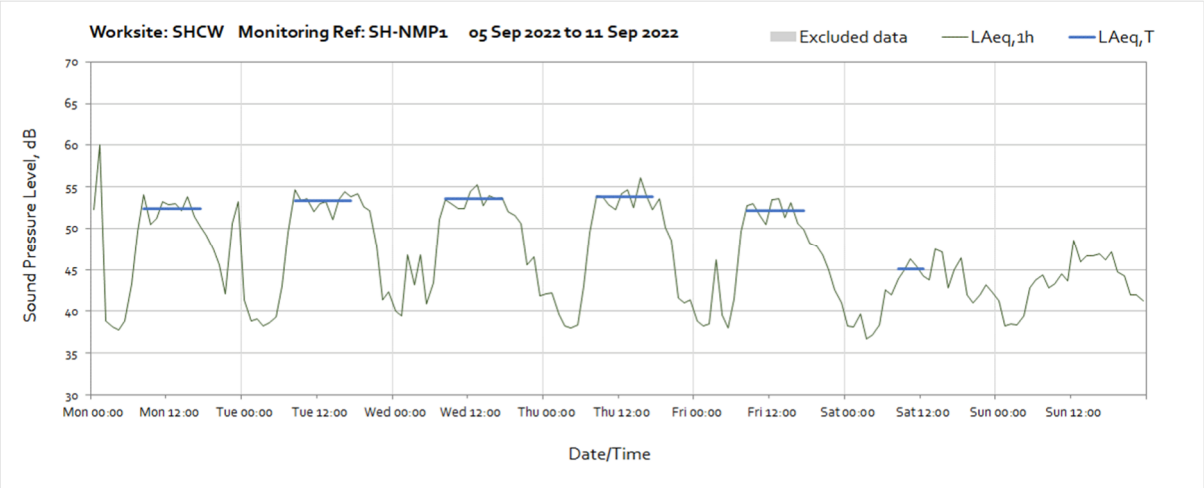

Worksite: SHCW Monitoring Ref: PR-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

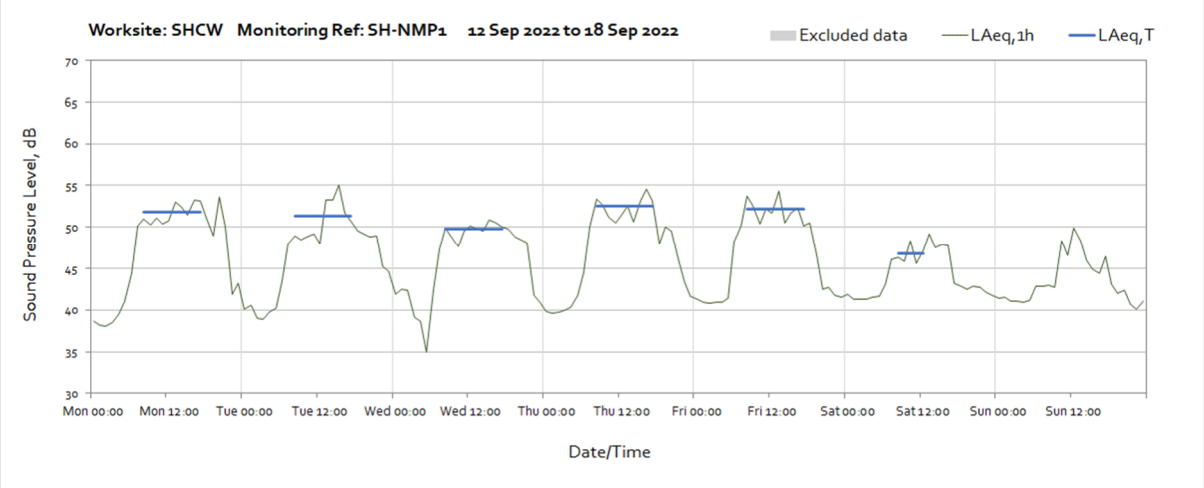

Worksite: SHCW Monitoring Ref: PR-NMP1 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
75
70
65
60
55
50
45
40
35
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

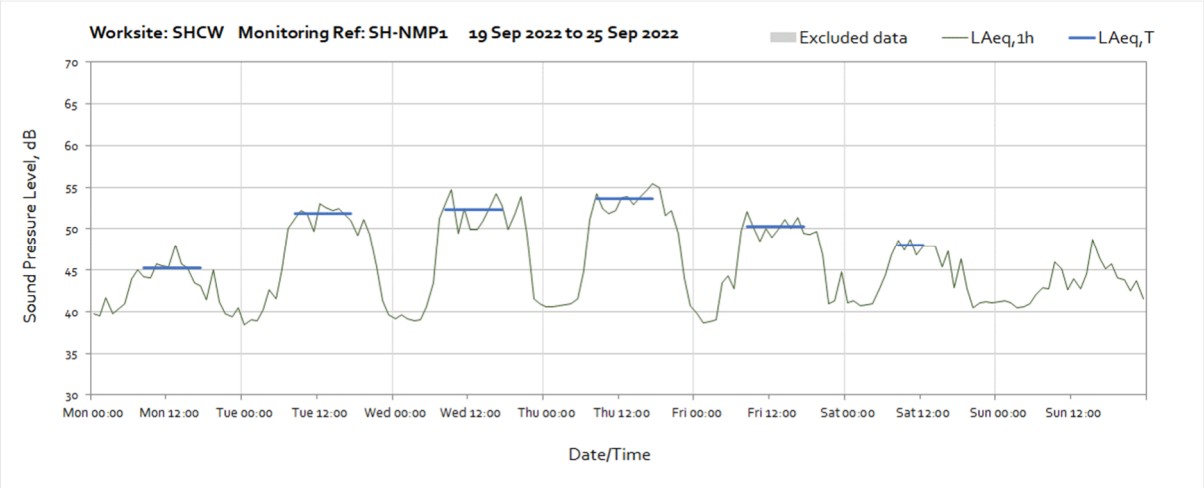


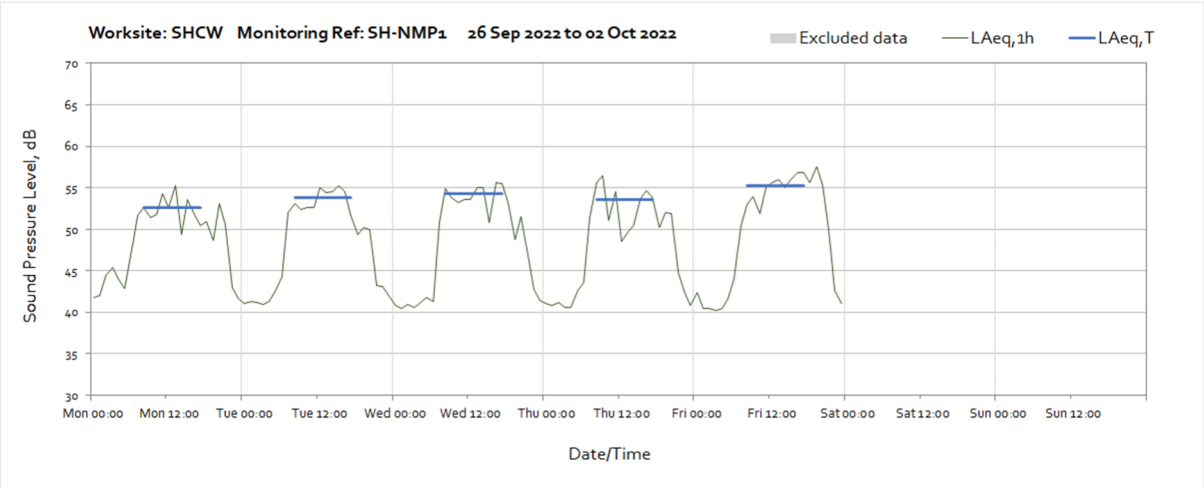
Worksite: SHCW – Monitoring Ref: SH-NMP1



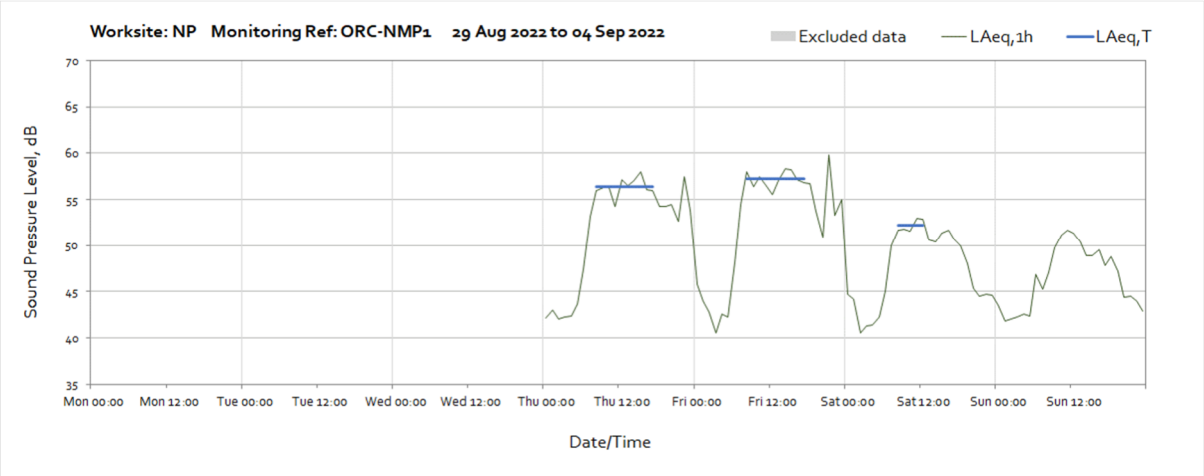


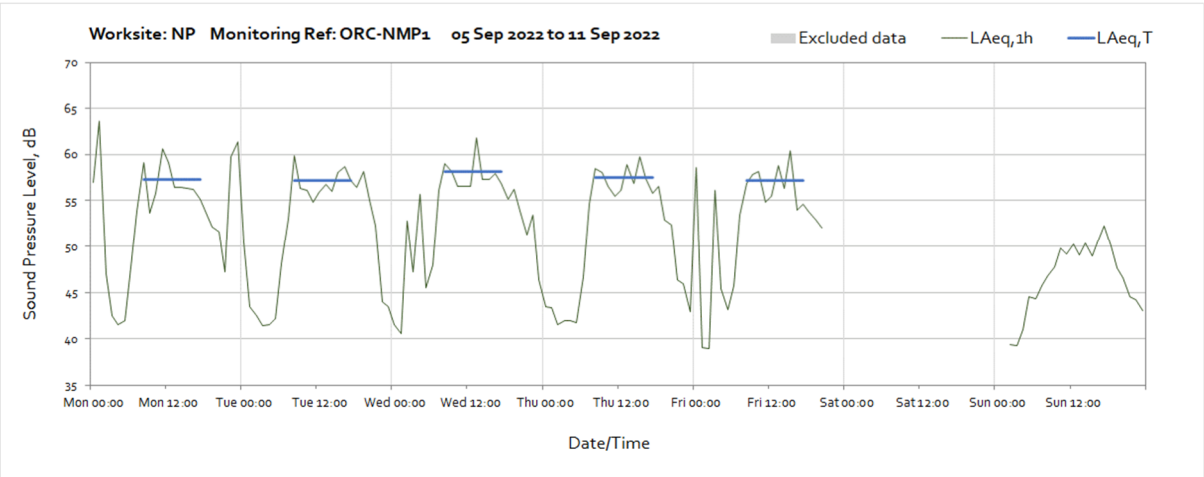

Worksite: SHCW Monitoring Ref: SH-NMP1 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: SHCW Monitoring Ref: SH-NMP1 19 Sep 2022 to 25 Sep 2022
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
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

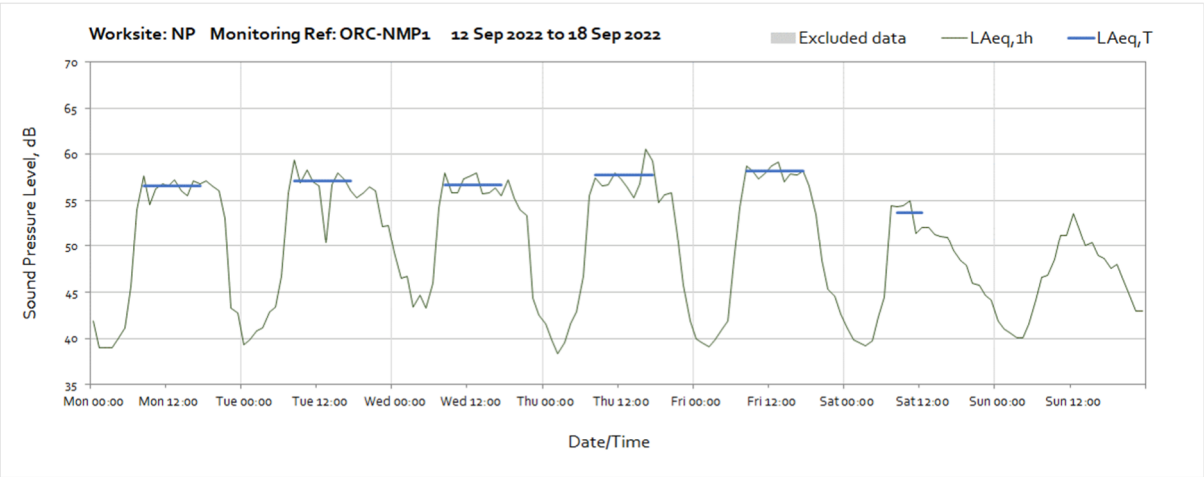

Worksite: SHCW Monitoring Ref: SH-NMP1 26 Sep 2022 to 02 Oct 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

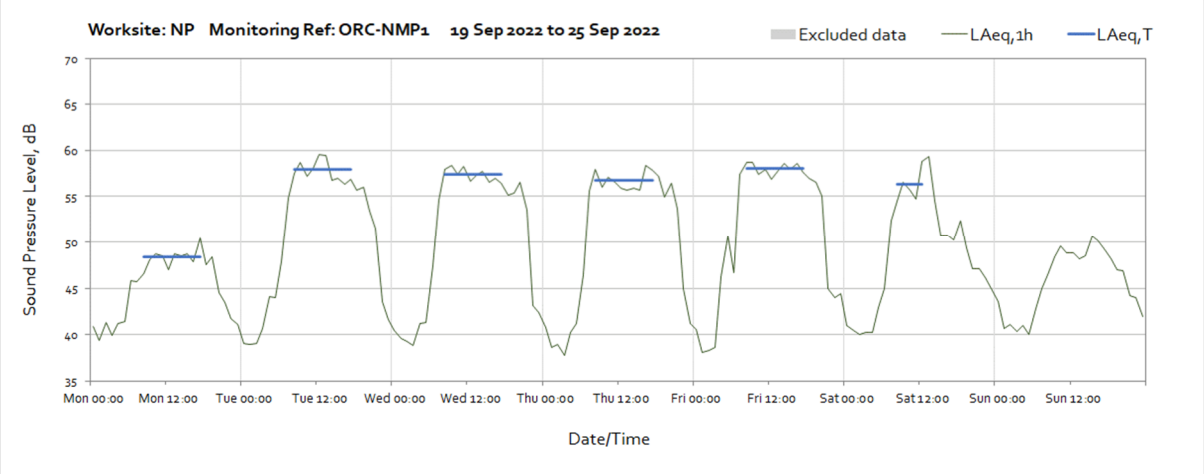
Worksite: NP – Monitoring Ref: ORC-NMP1

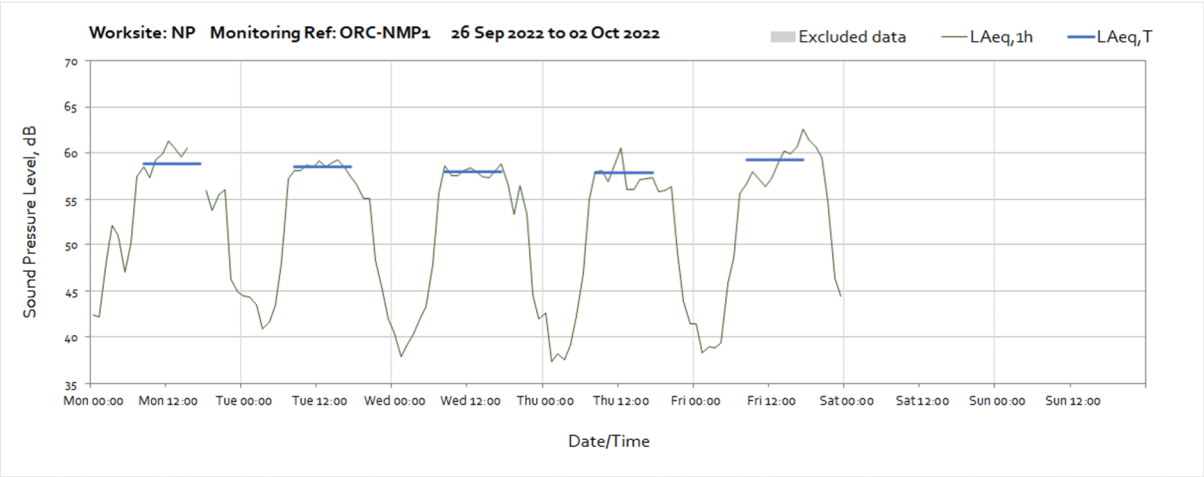




Note: Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.

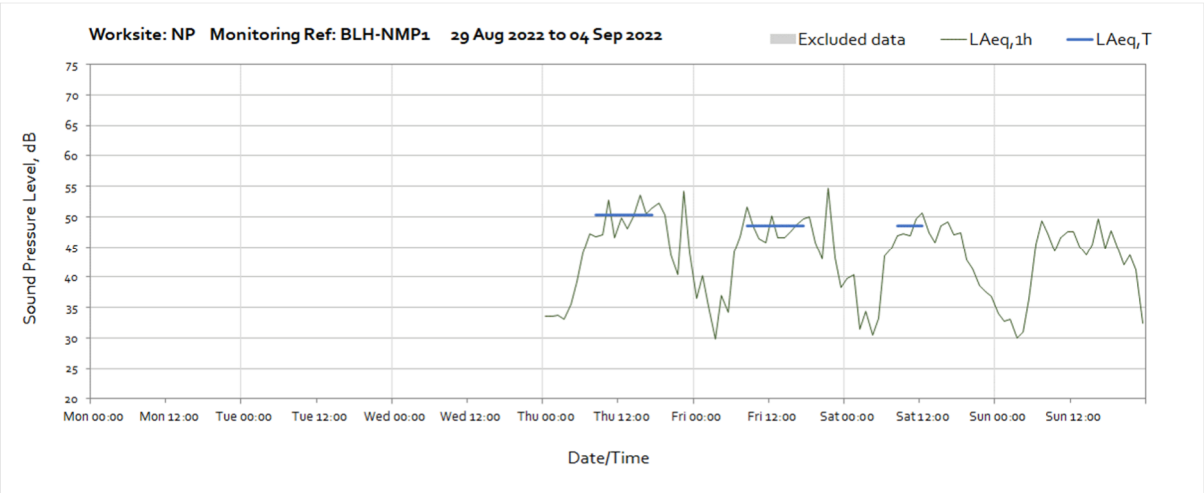


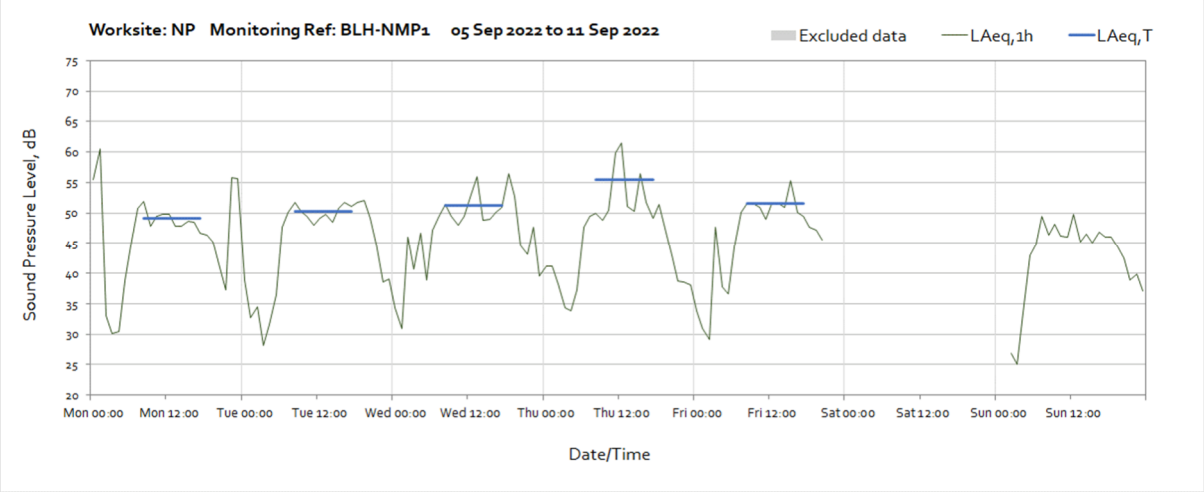




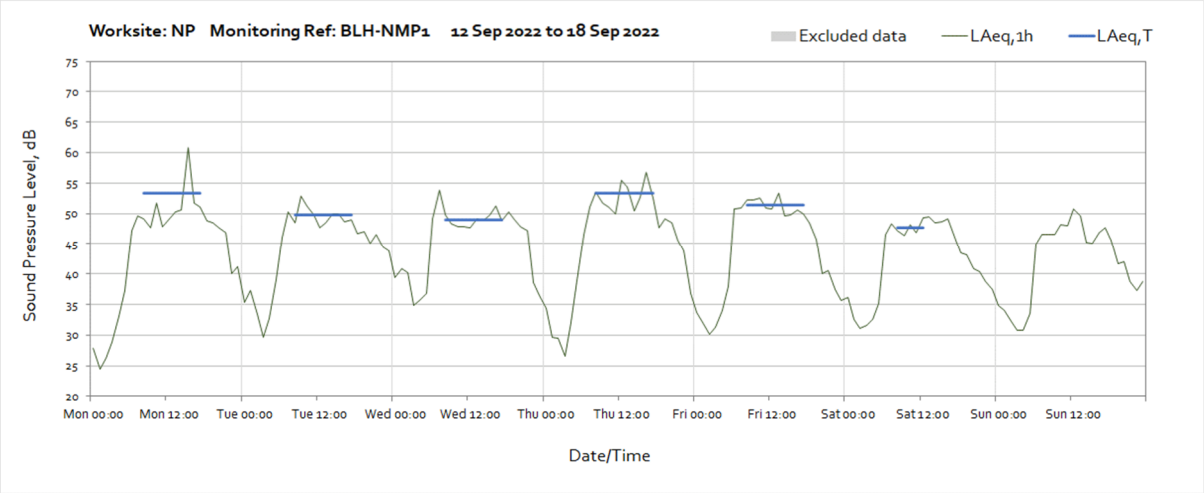
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

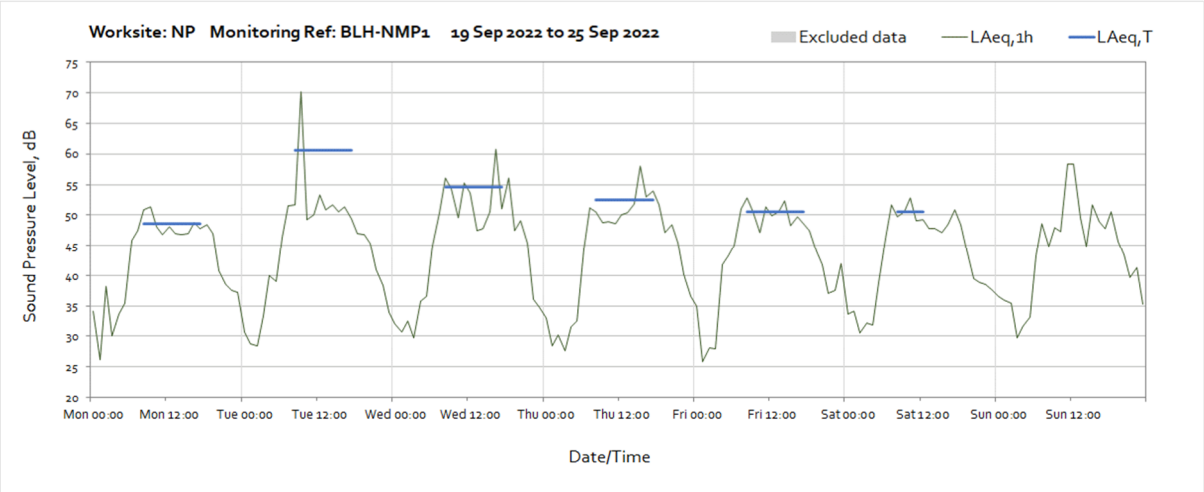
Worksite: NP – Monitoring Ref: BLH-NMP1

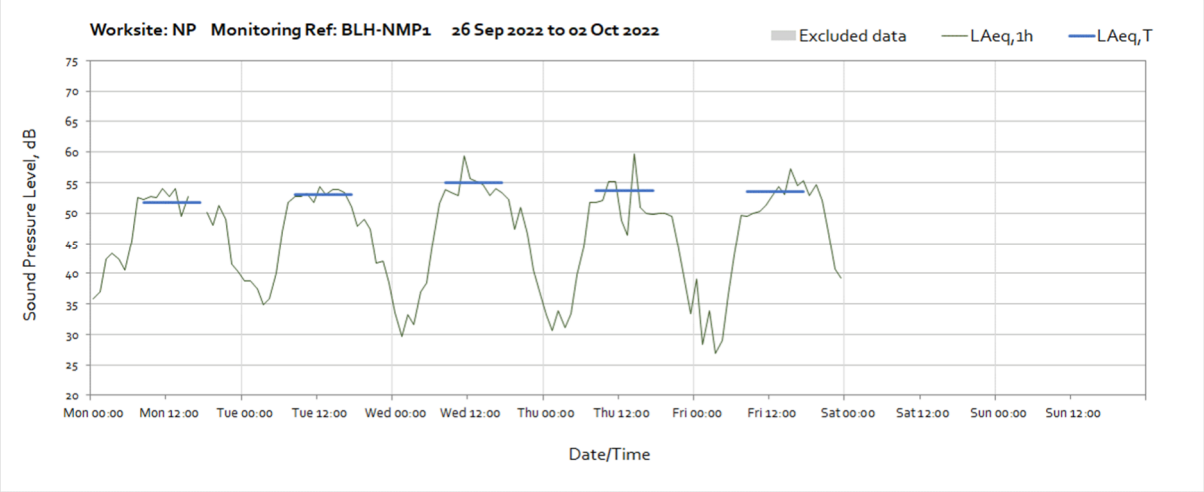




Note: Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.

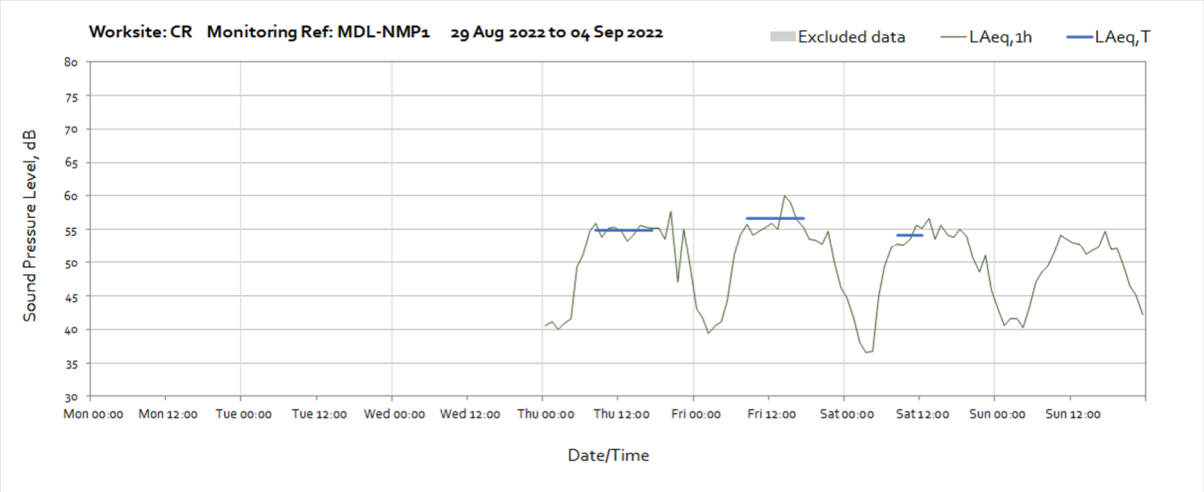


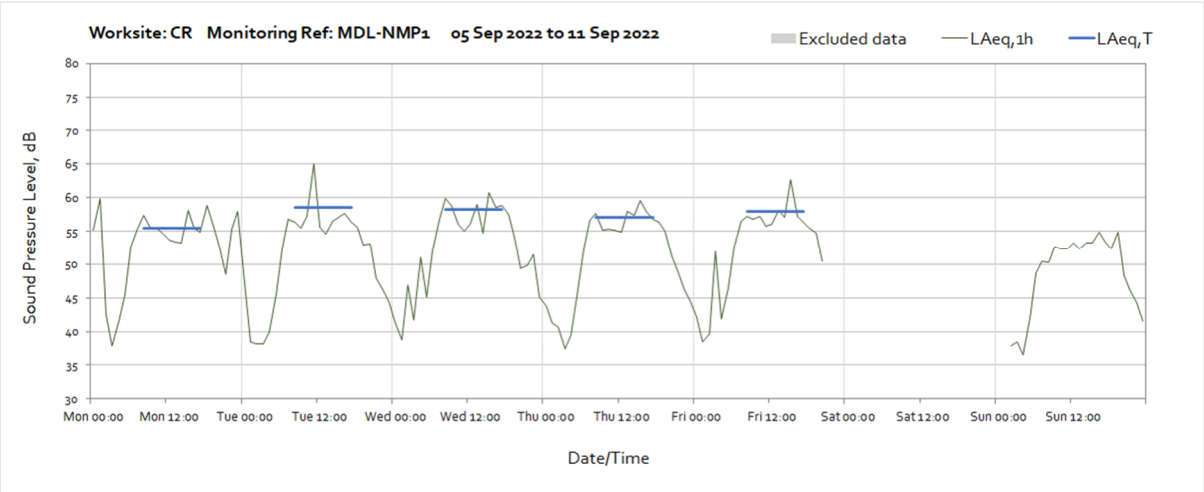




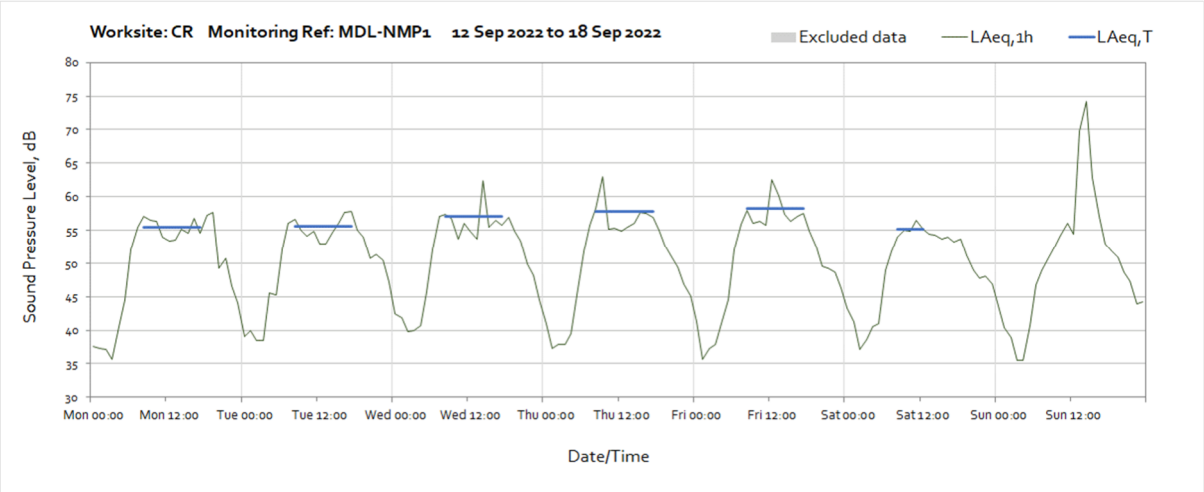
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

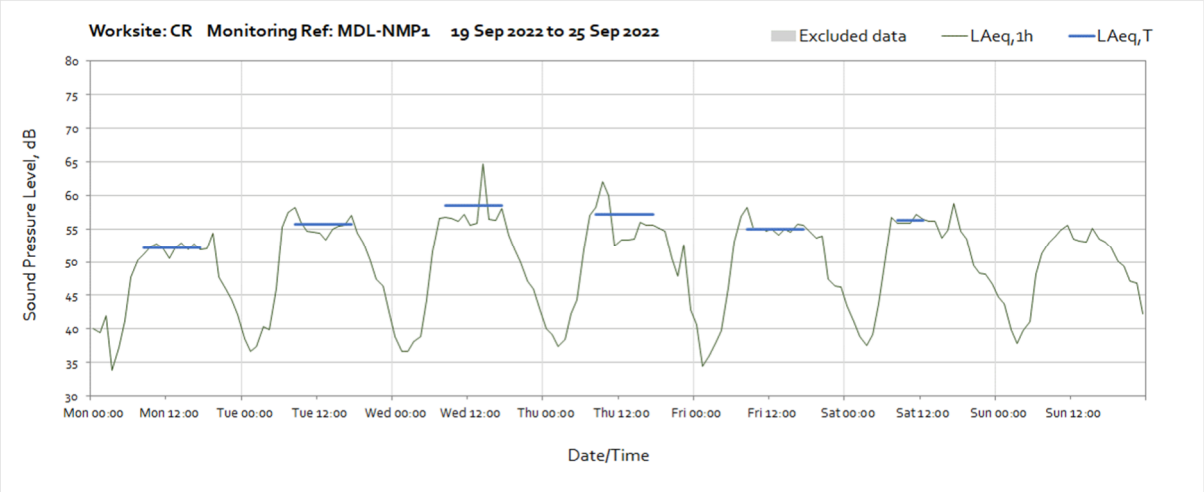
Worksite: CR – Monitoring Ref: MDL-NMP1



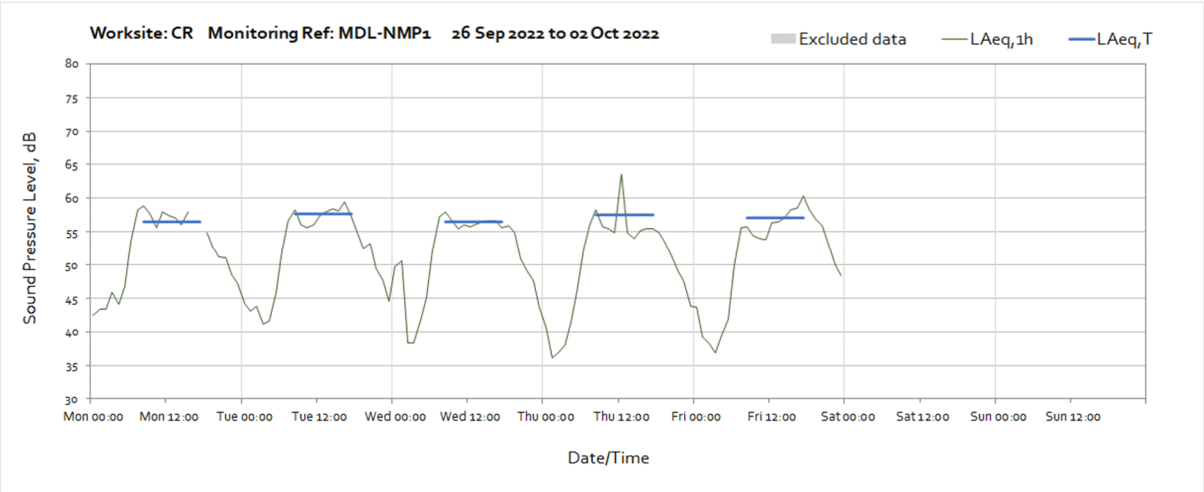


Note: Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.



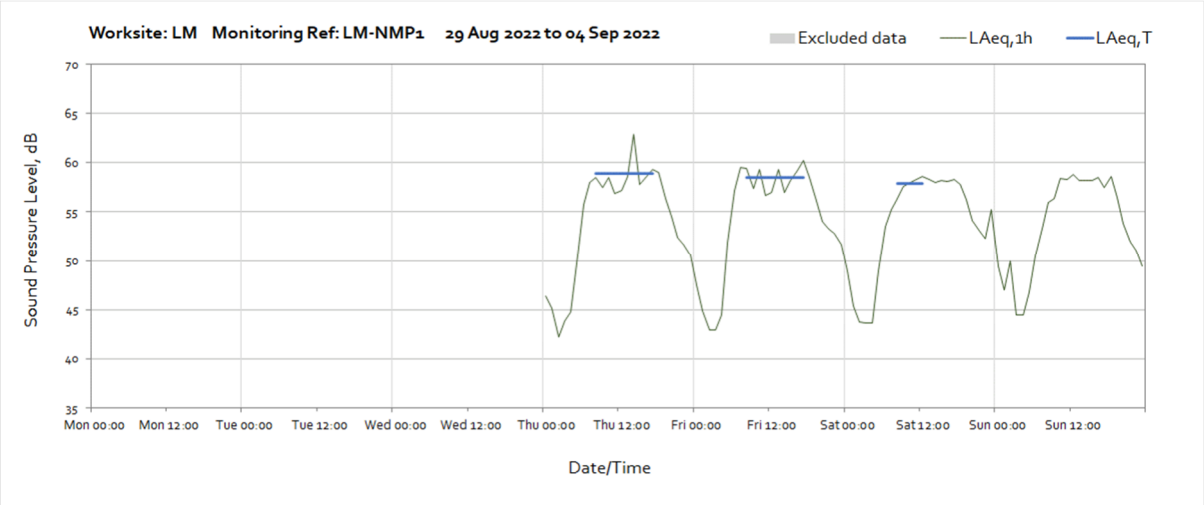


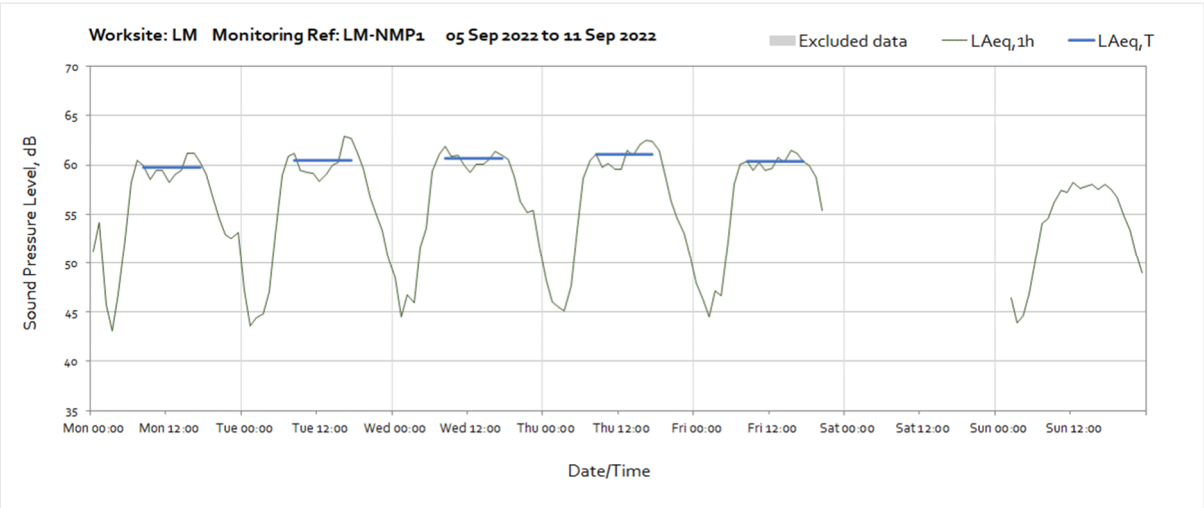
Note: Missing data between 10:00 and 11:00 on the 23rd September was due to monitor field calibration.



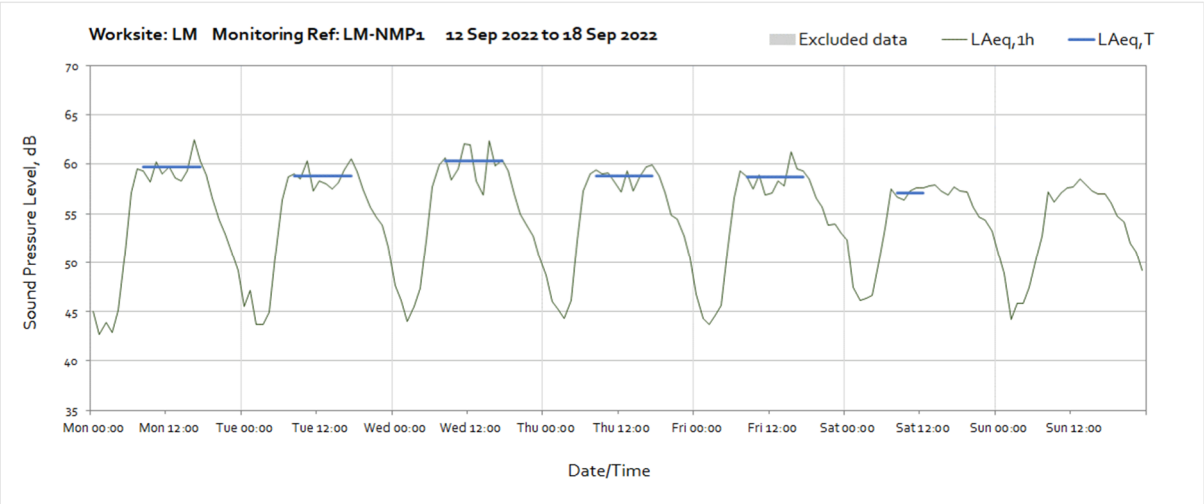
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

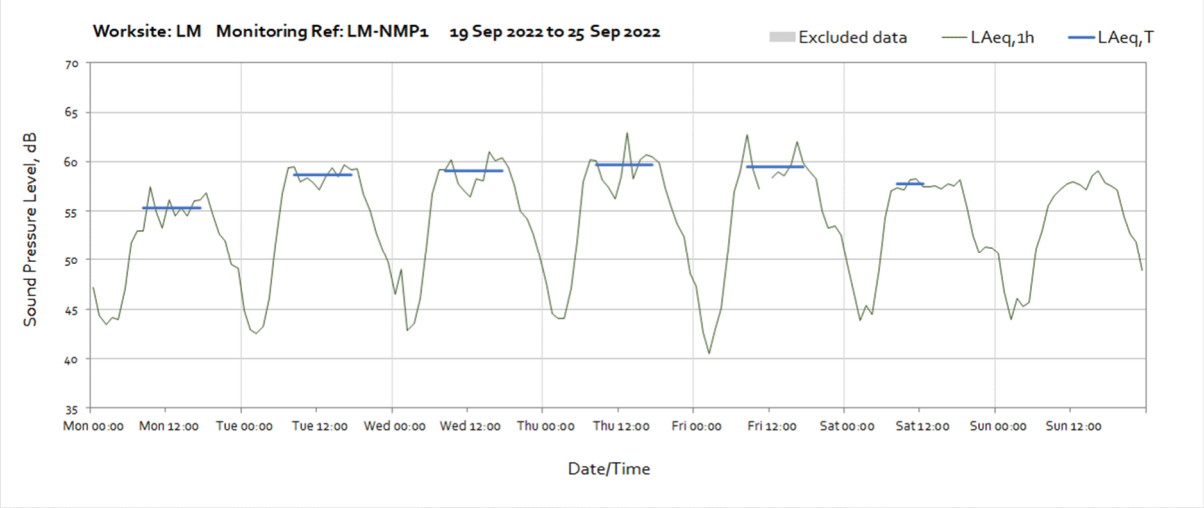
Worksite: LM – Monitoring Ref: LM-NMP1



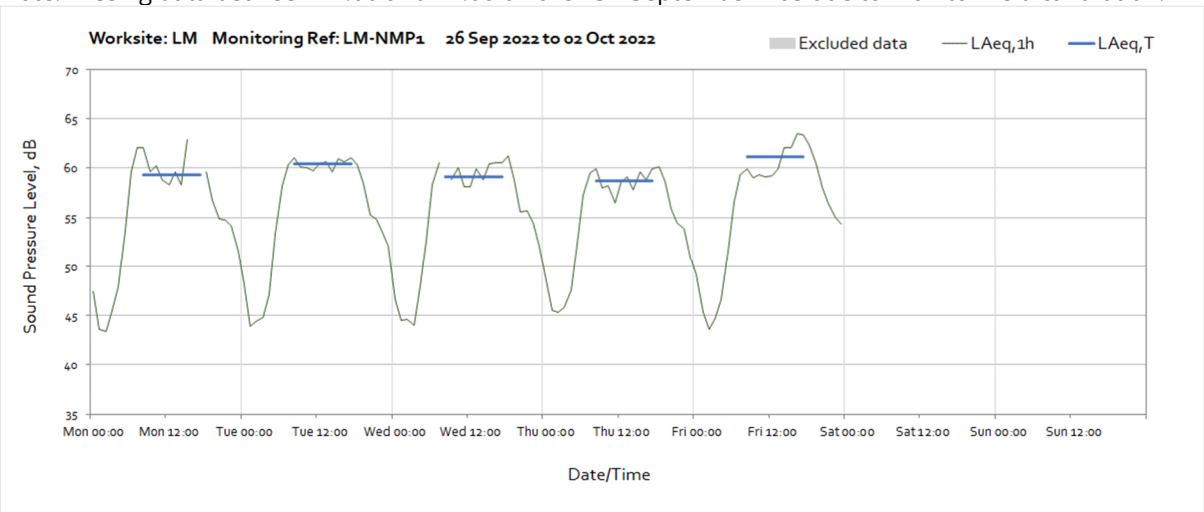


Note: Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.



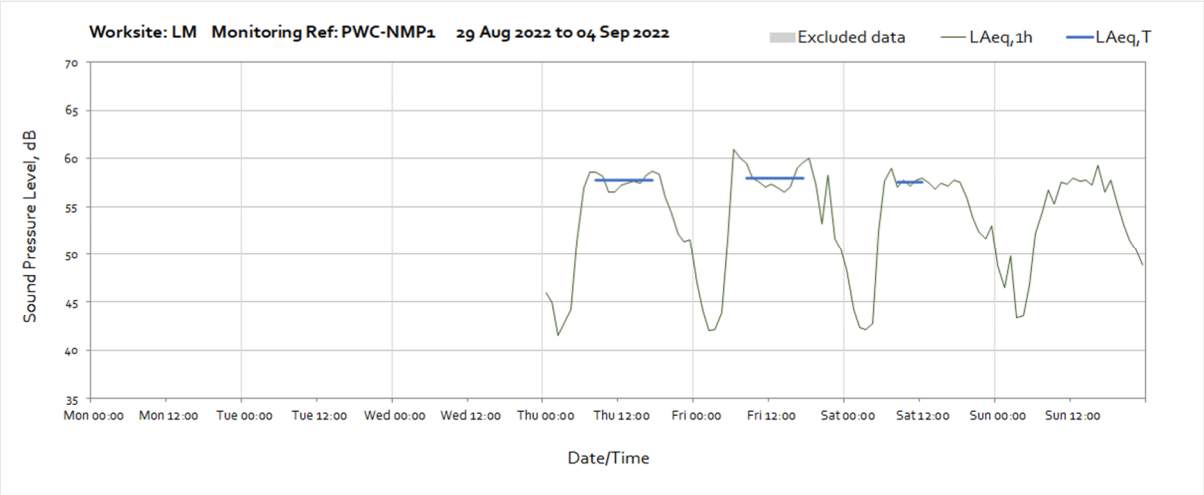


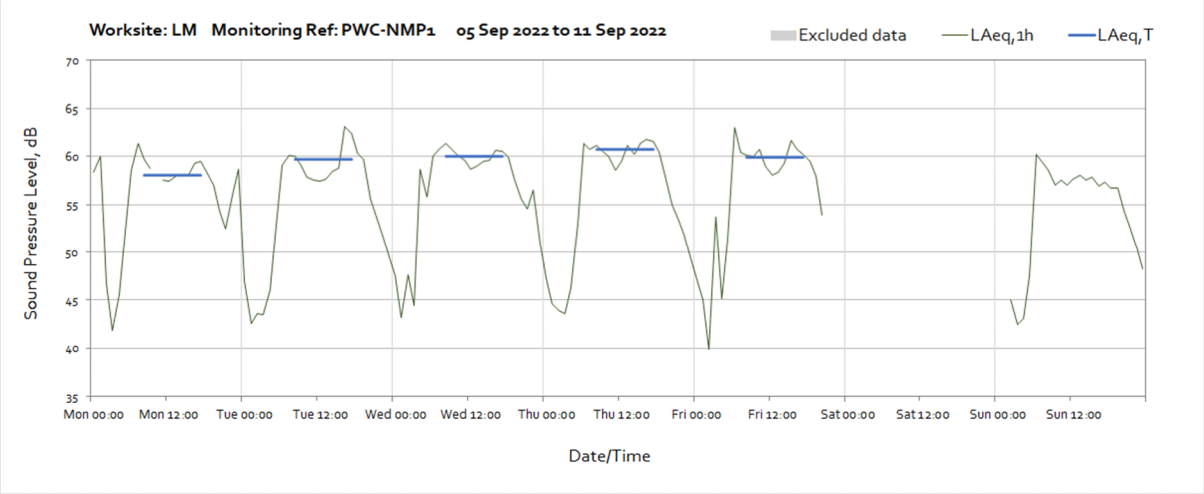
Note: Missing data between 11:00 and 12:00 on the 23rd September was due to monitor field calibration.



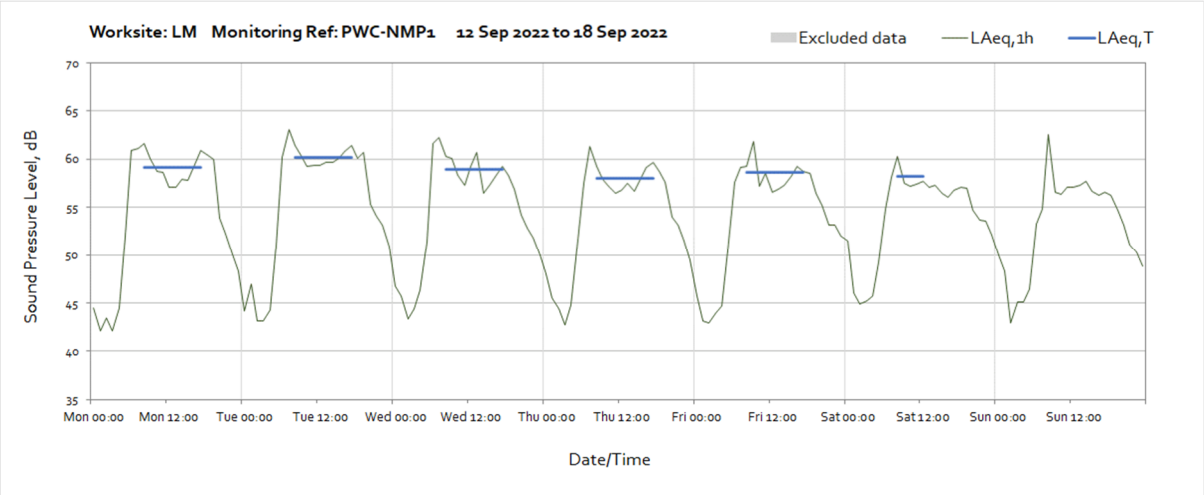
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

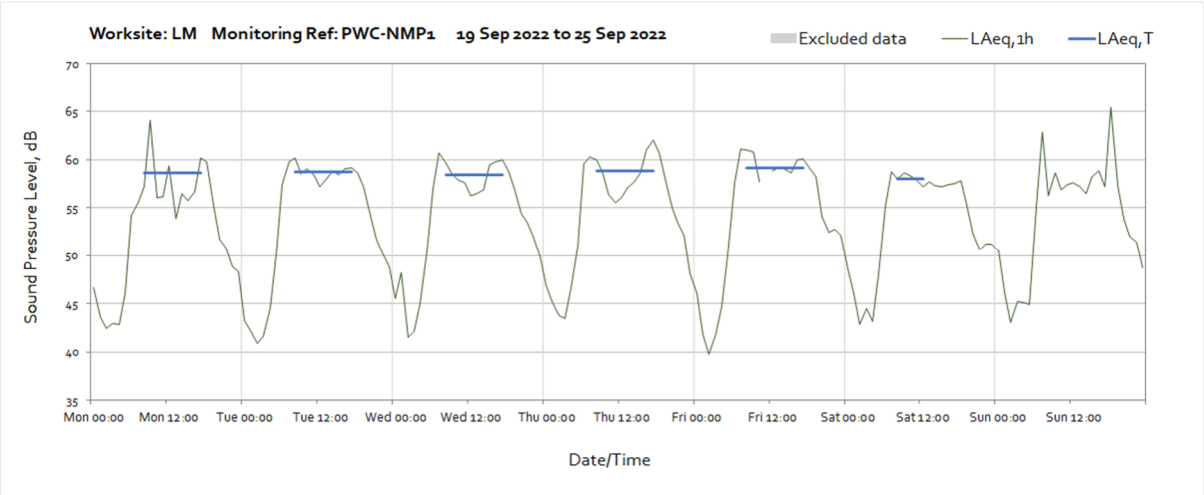
Worksite: LM – Monitoring Ref: PWC-NMP1



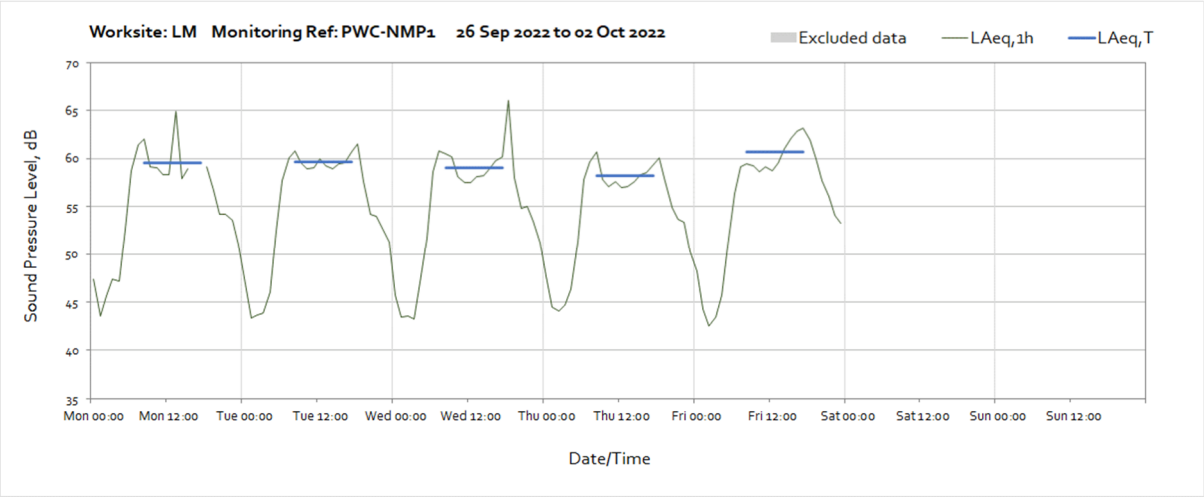


Note: Missing data between 10:00 and 11:00 on the 5th September was due to a monitor settings update. Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.



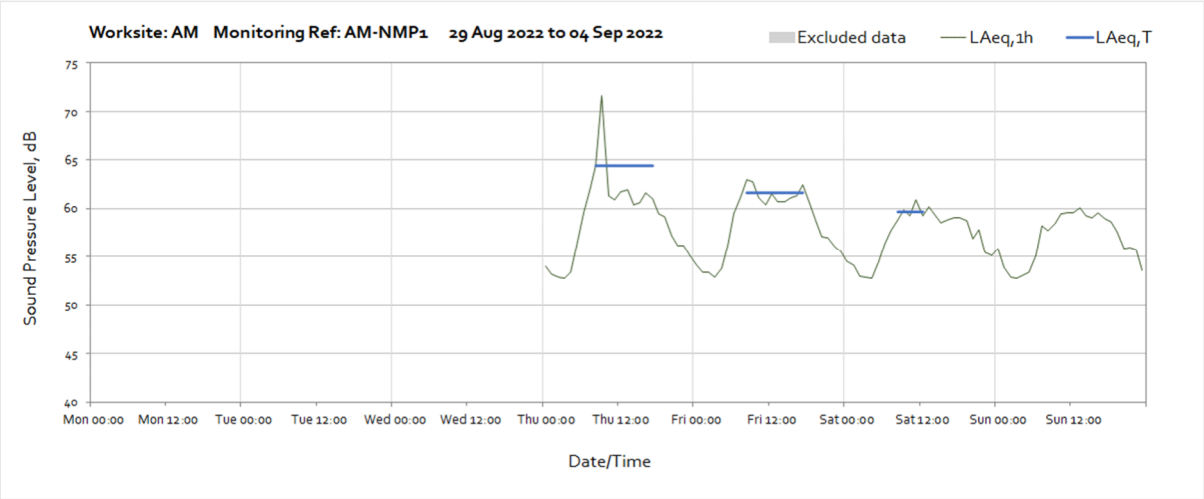


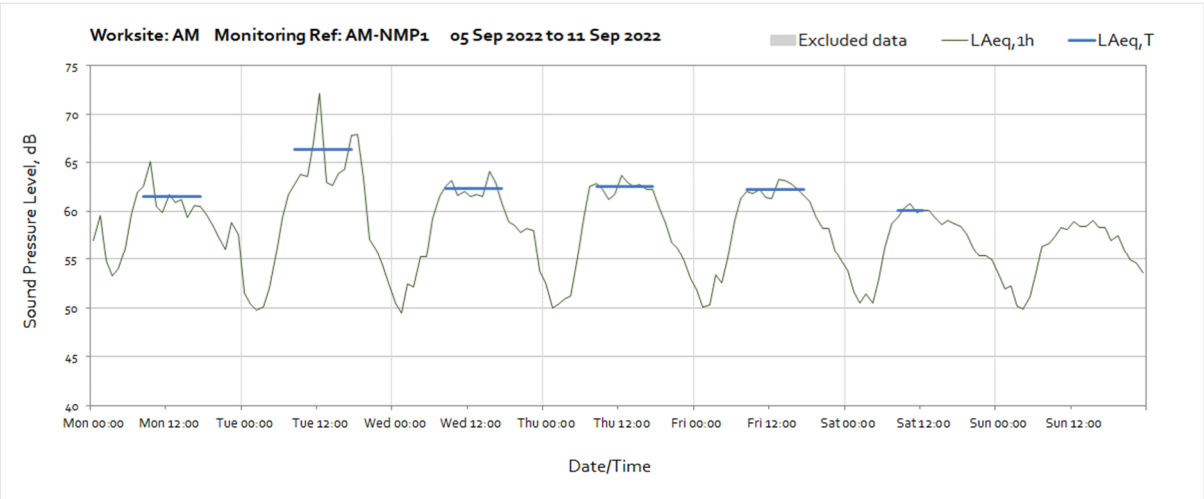
Note: Missing data between 10:00 and 11:00 on the 23rd September was due to monitor field calibration.

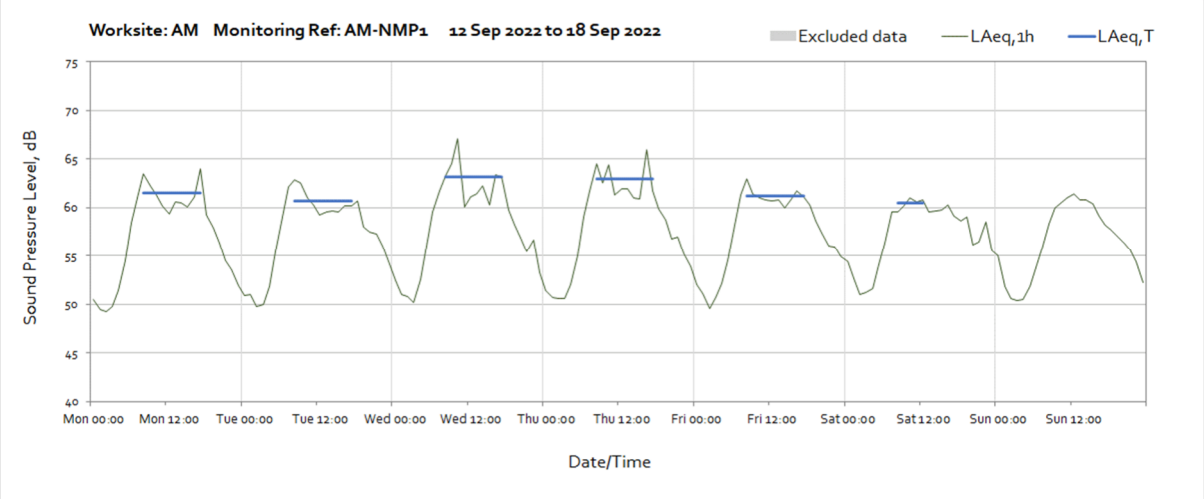


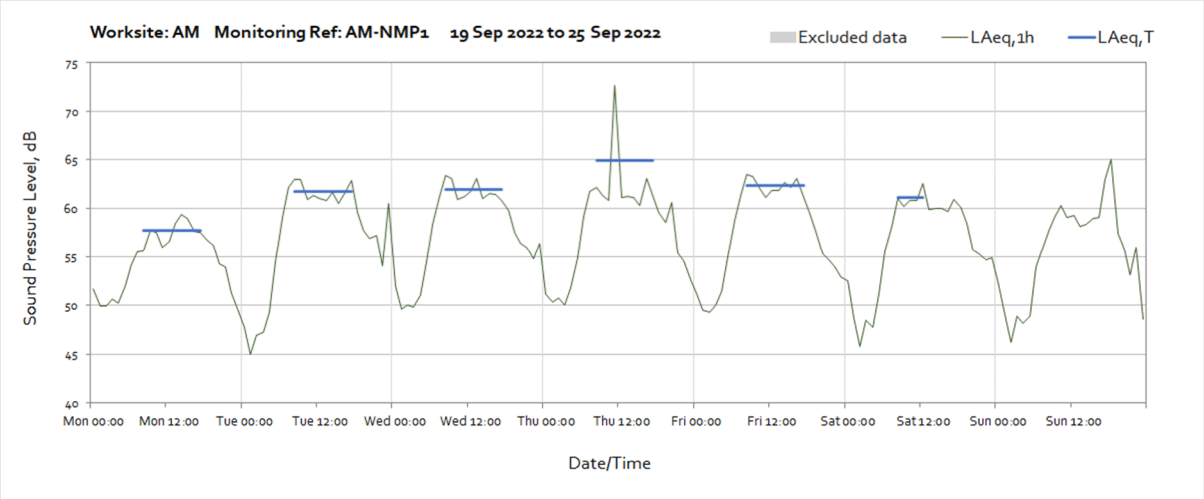
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

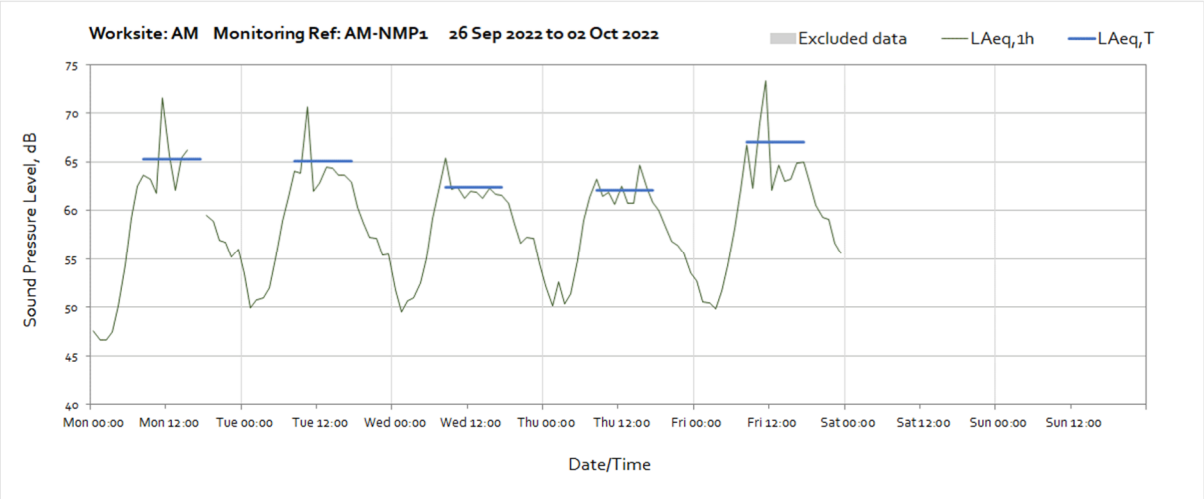
Worksite: AM – Monitoring Ref: AM-NMP1





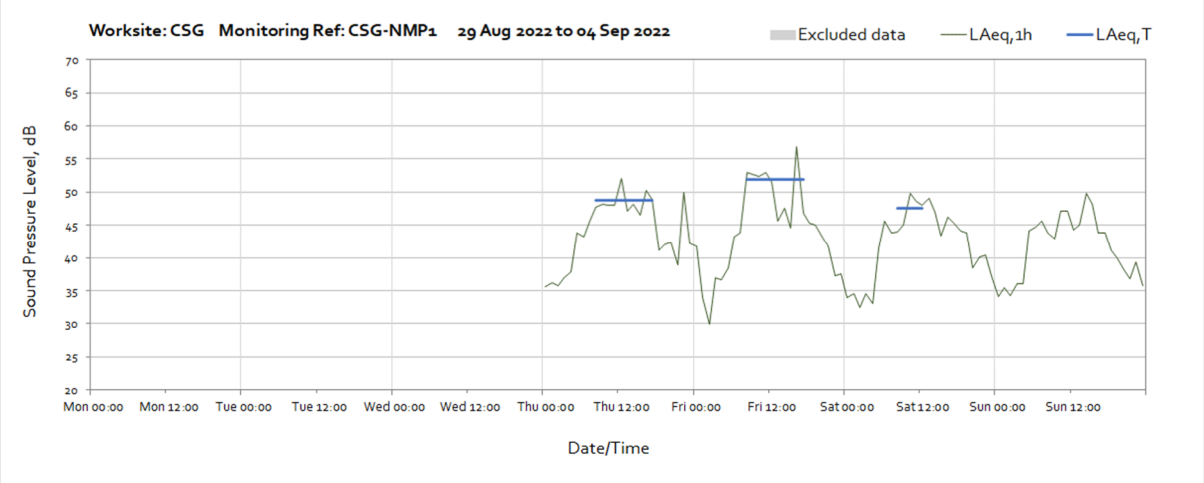


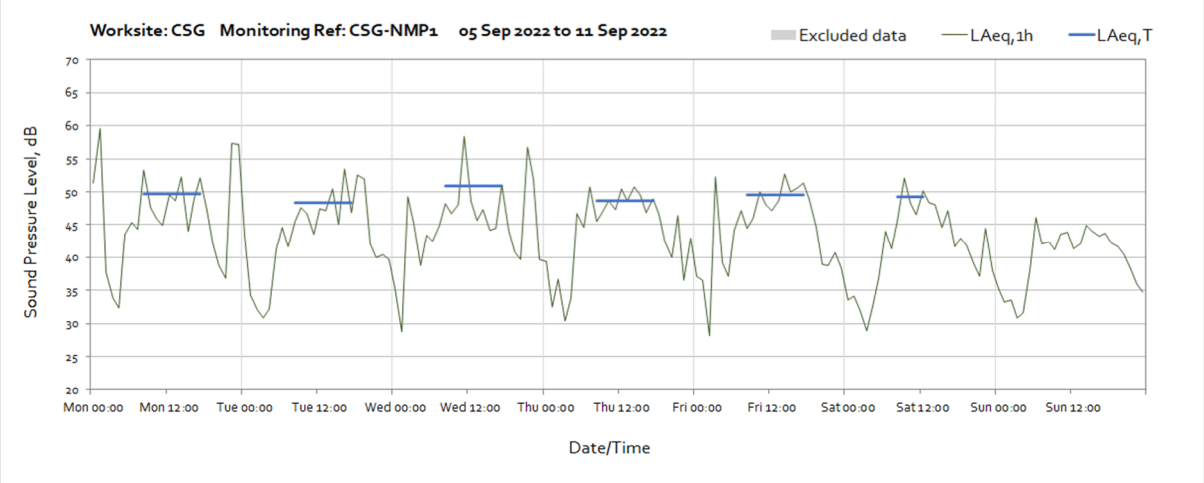


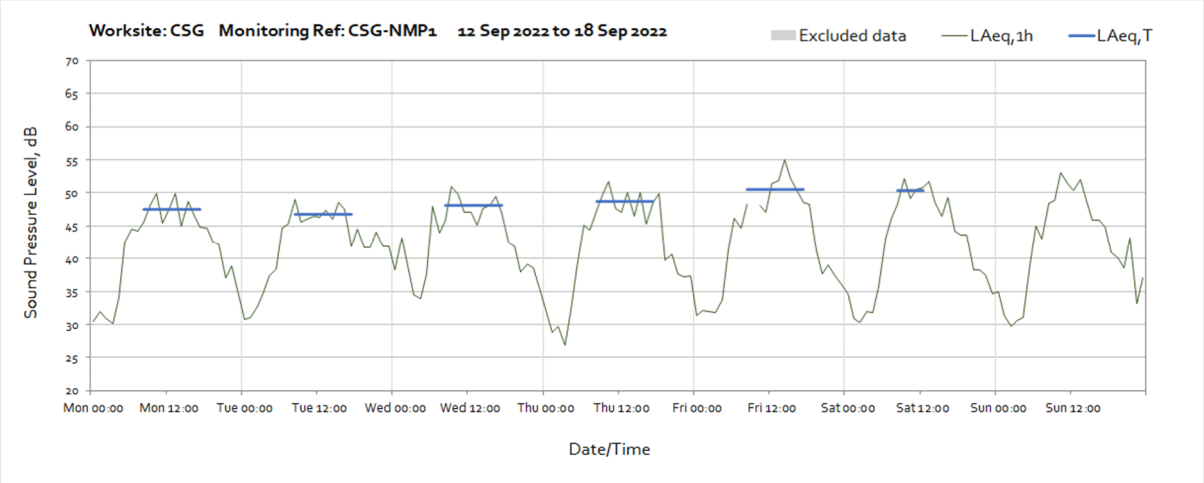


Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

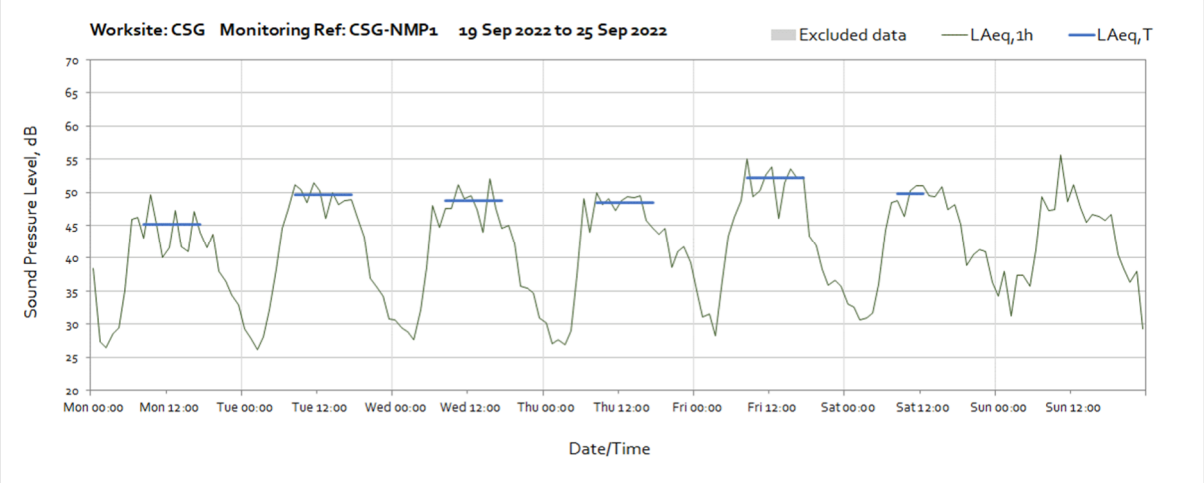
Worksite: CSG – Monitoring Ref: CSG-NMP1

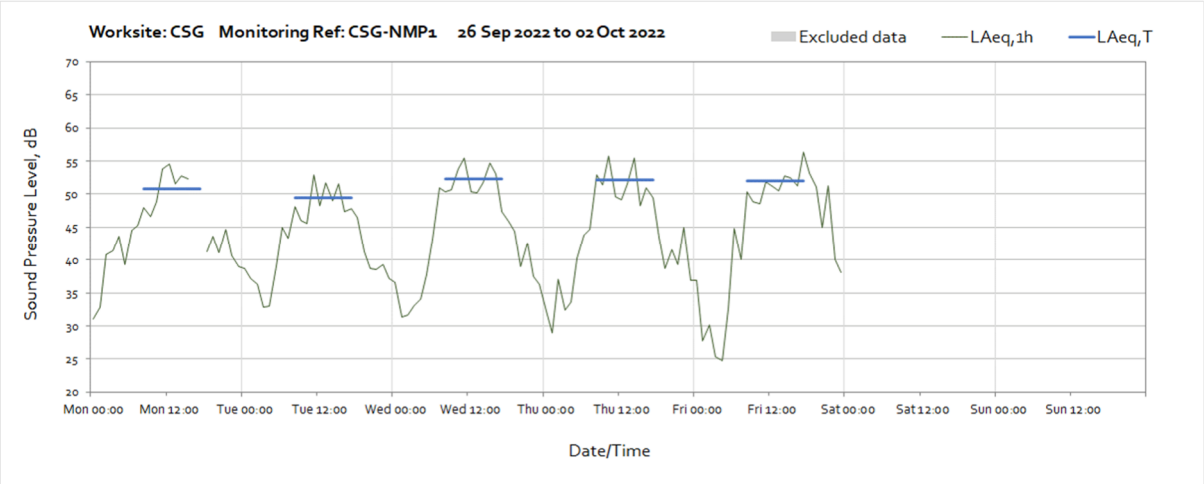






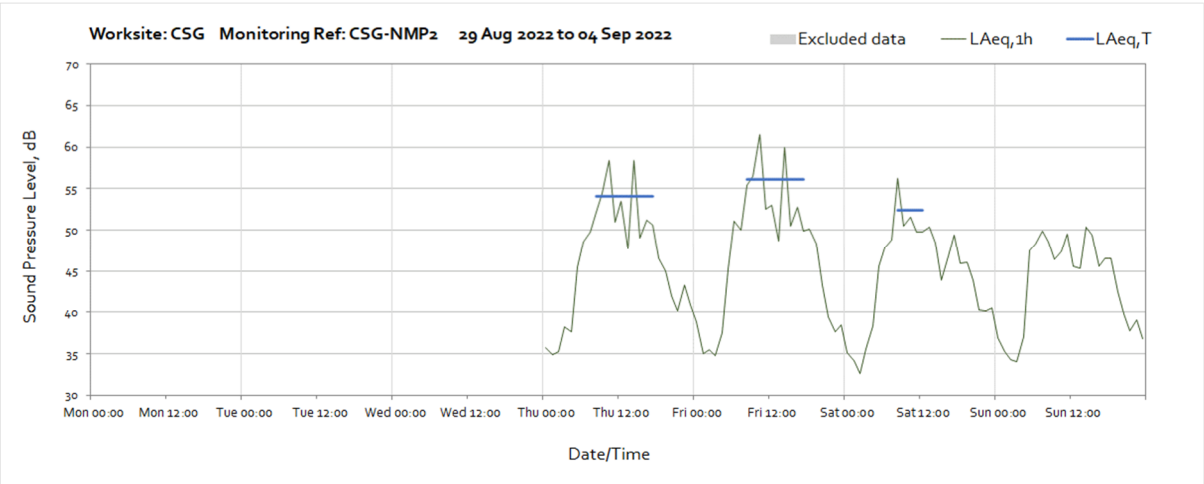
Note: Missing data between 09:00 and 10:00 on the 16th September was due to communication error.

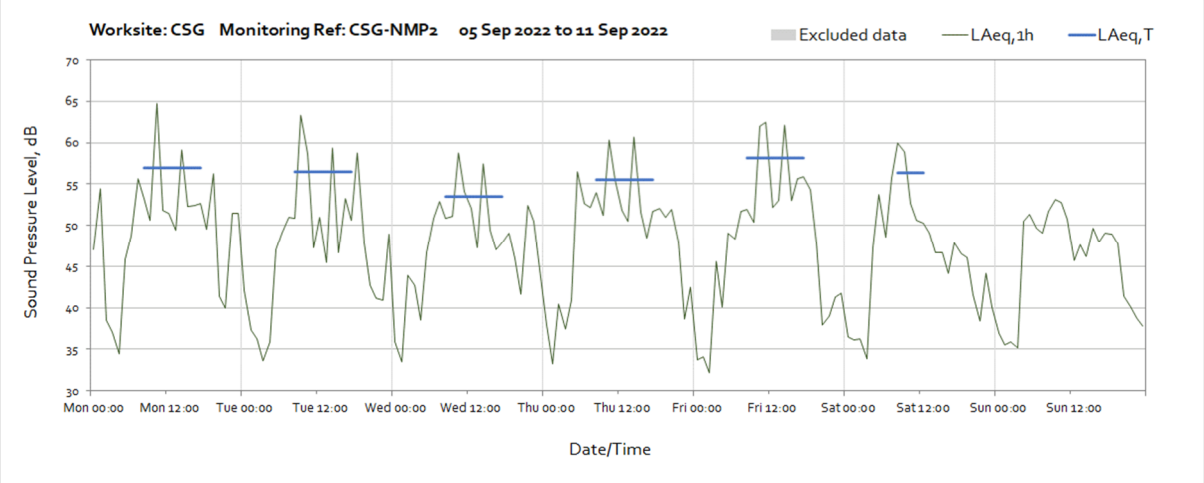


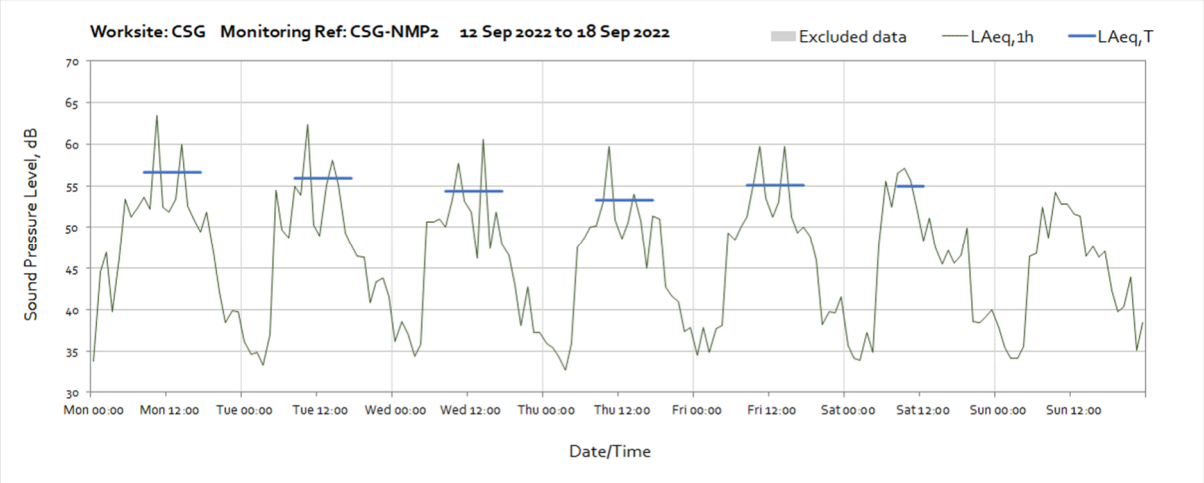


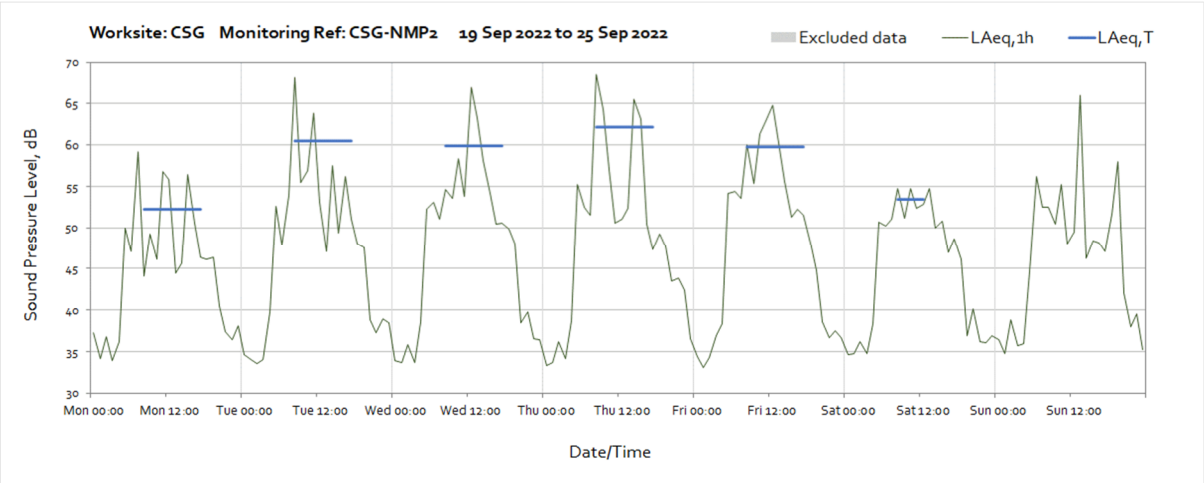
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

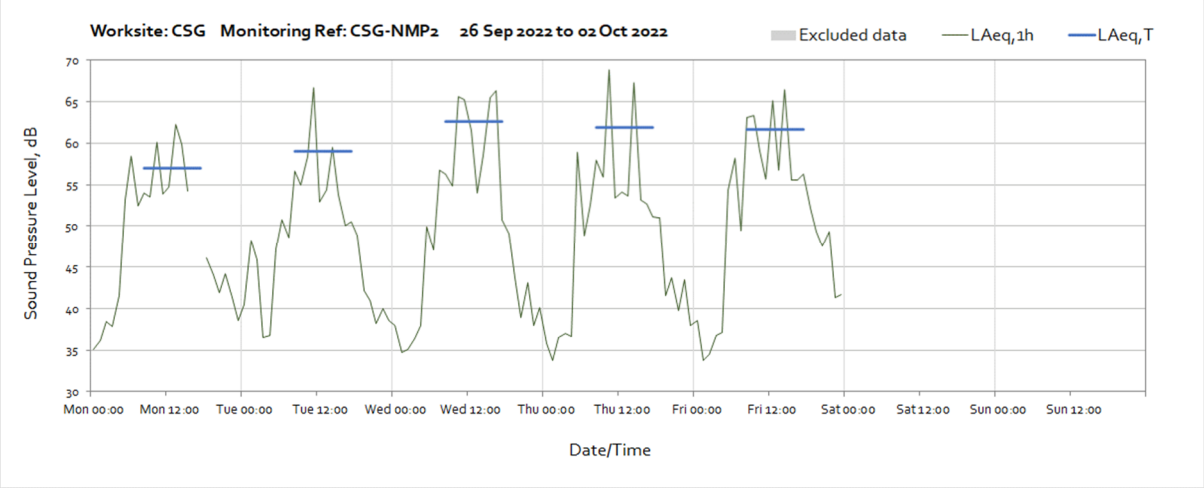
Worksite: CSG – Monitoring Ref: CSG-NMP2




Worksite: CSG Monitoring Ref: CSG-NMP2 05 Sep 2022 to 11 Sep 2022
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
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

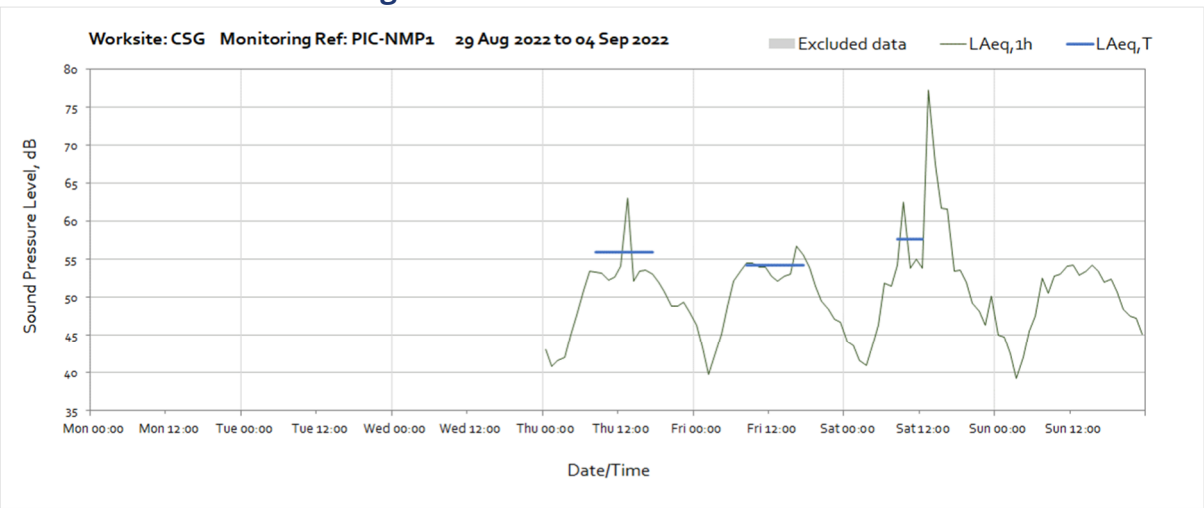

Worksite: CSG Monitoring Ref: CSG-NMP2 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

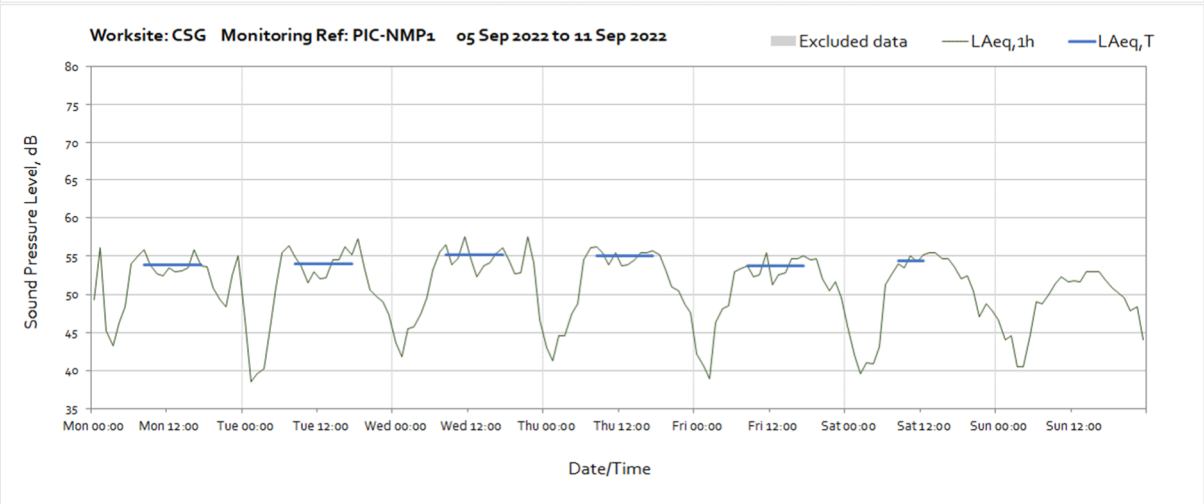

Worksite: CSG Monitoring Ref: CSG-NMP2 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

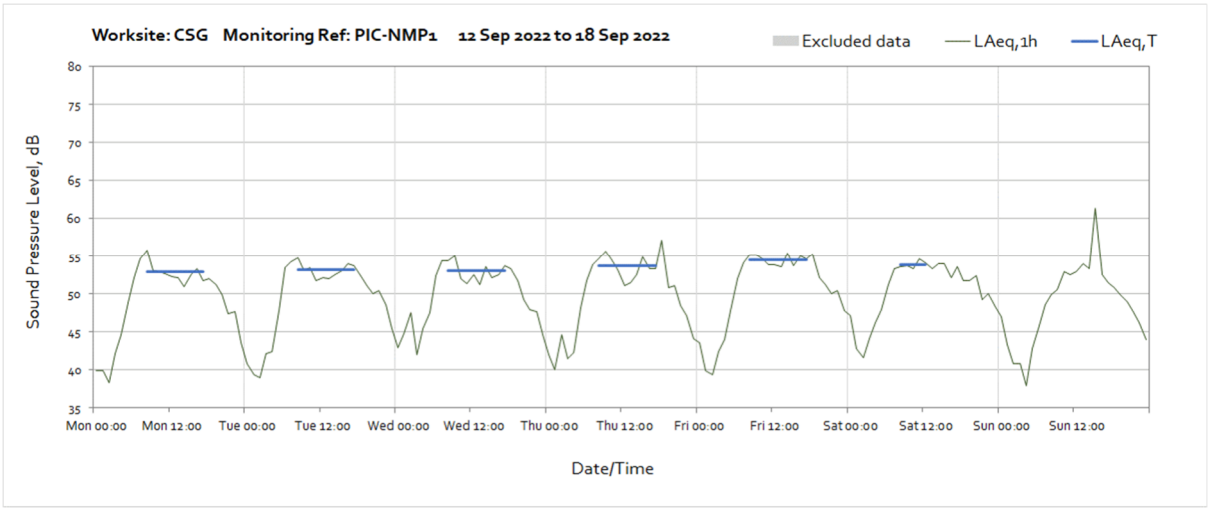


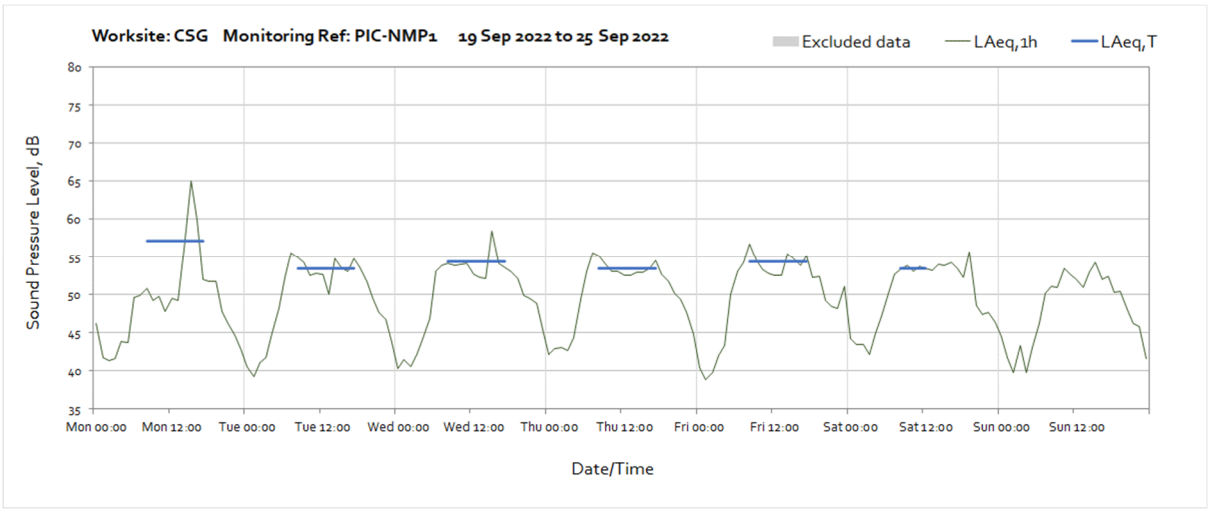
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

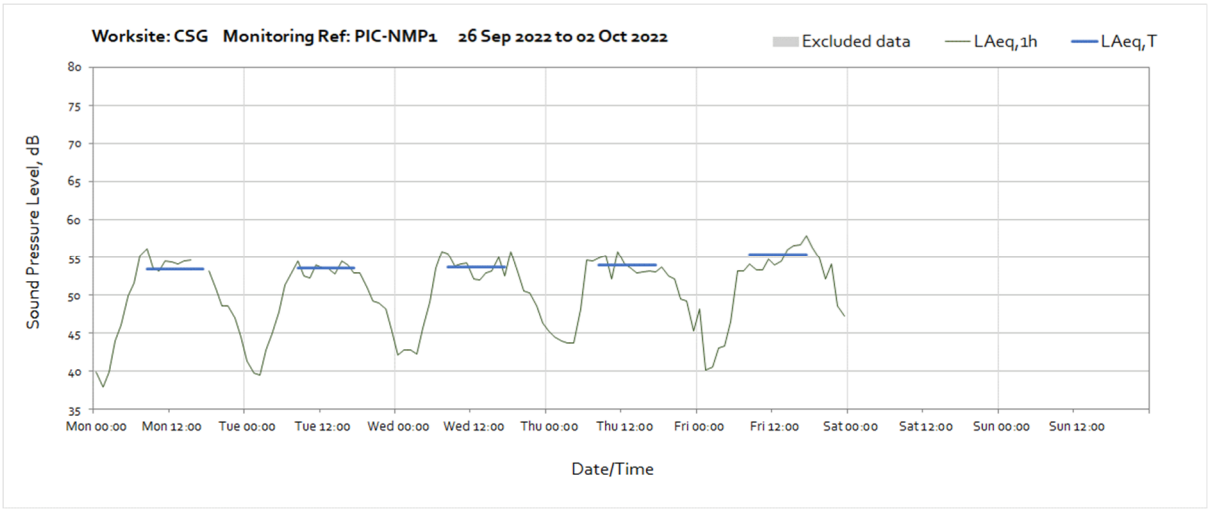
Worksite: CSG – Monitoring Ref: PIC-NMP1





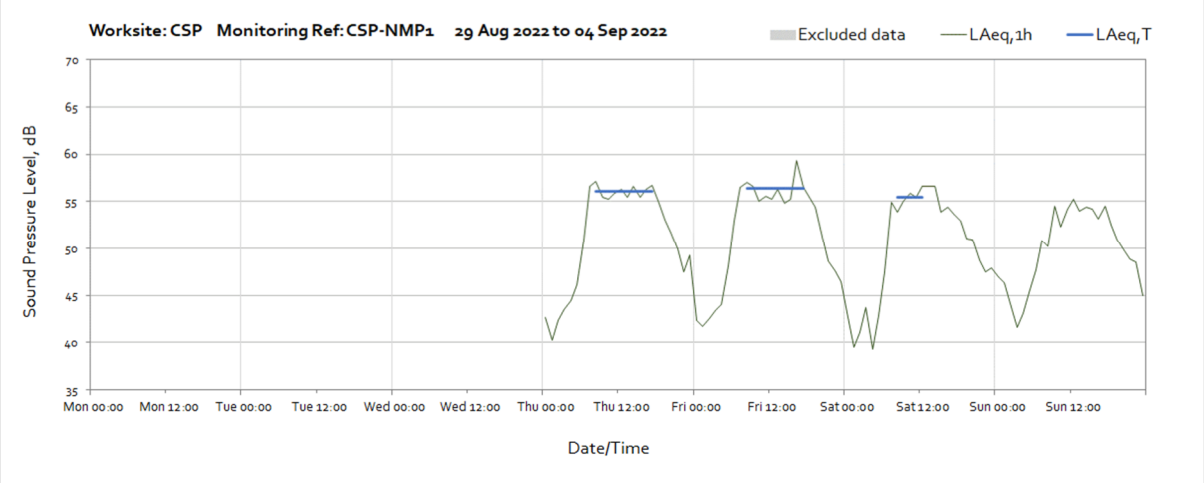


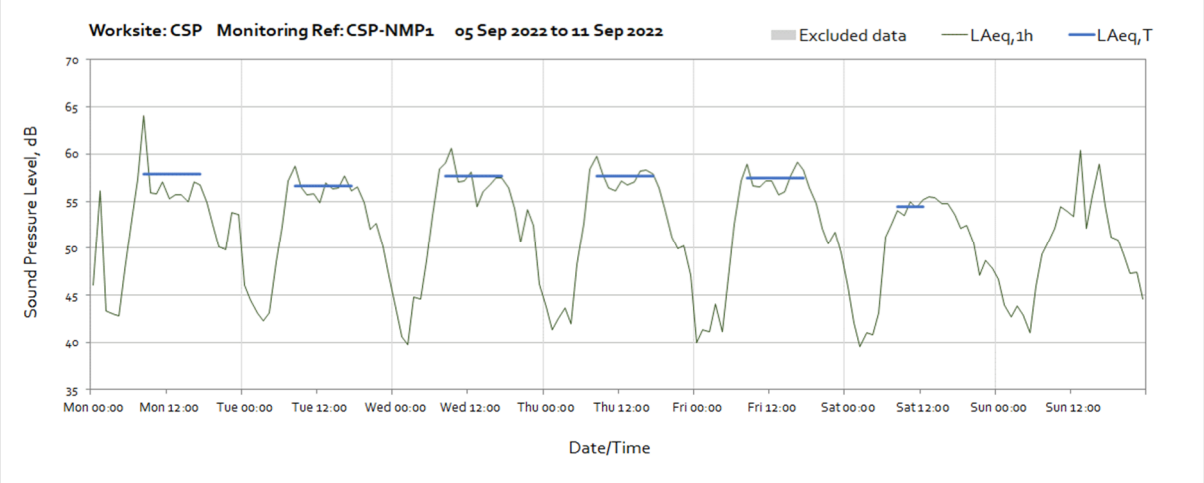


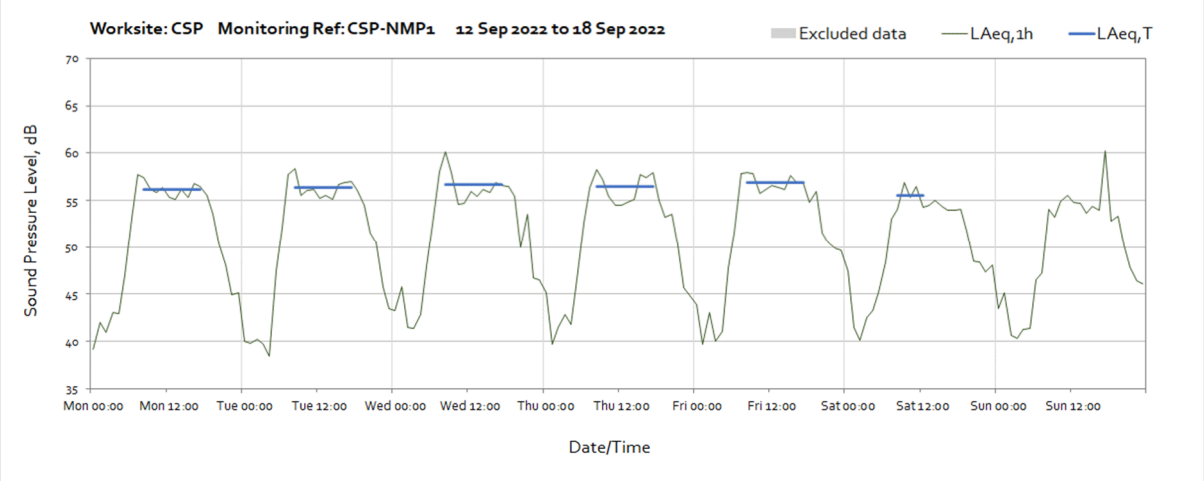


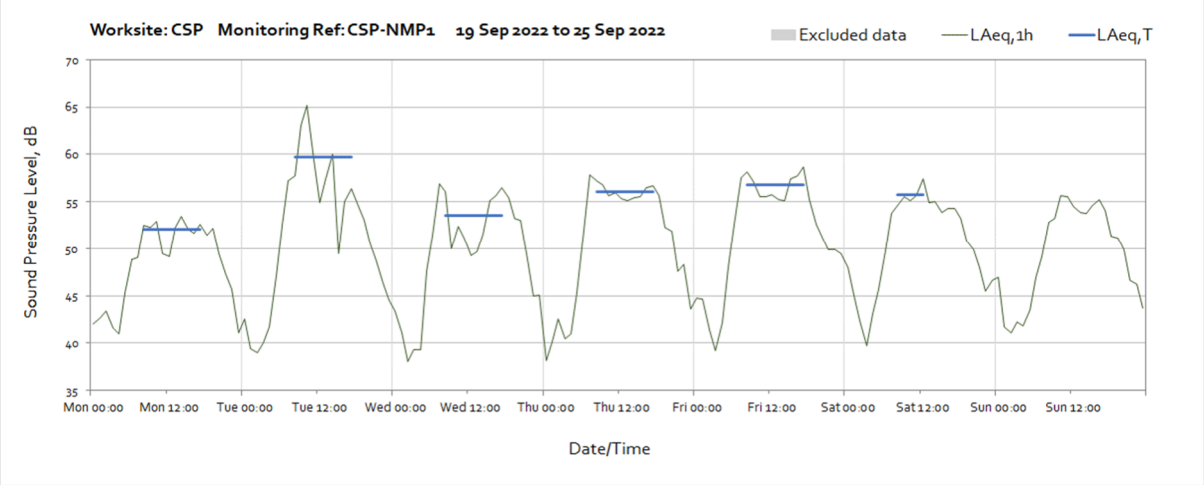
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

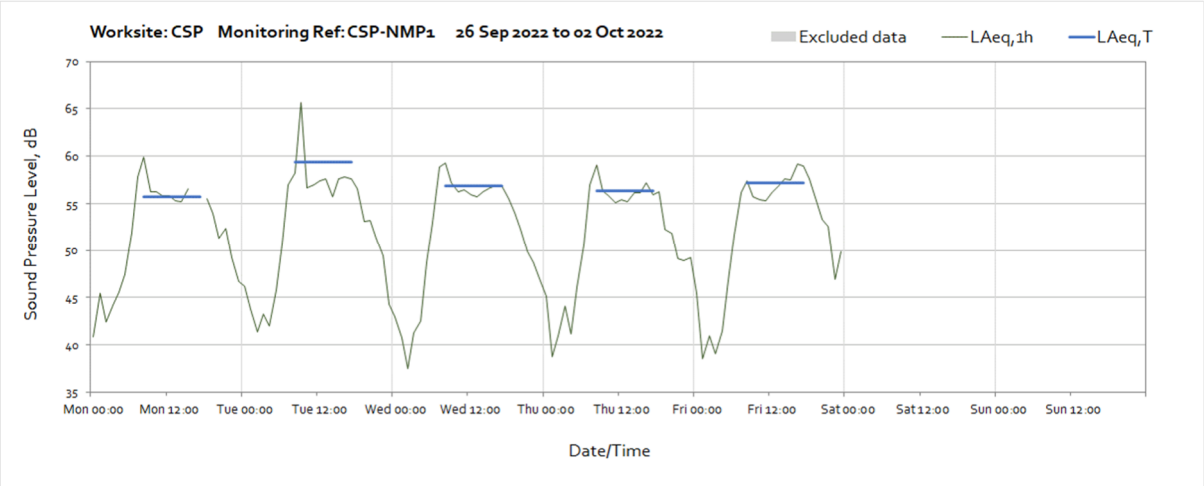
Worksite: CSP – Monitoring Ref: CSP-NMP1





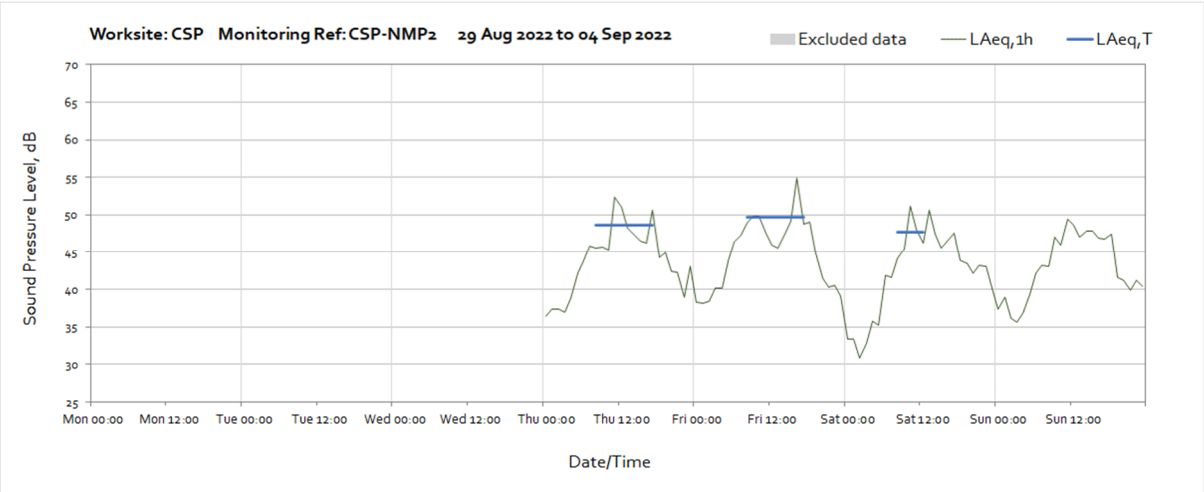


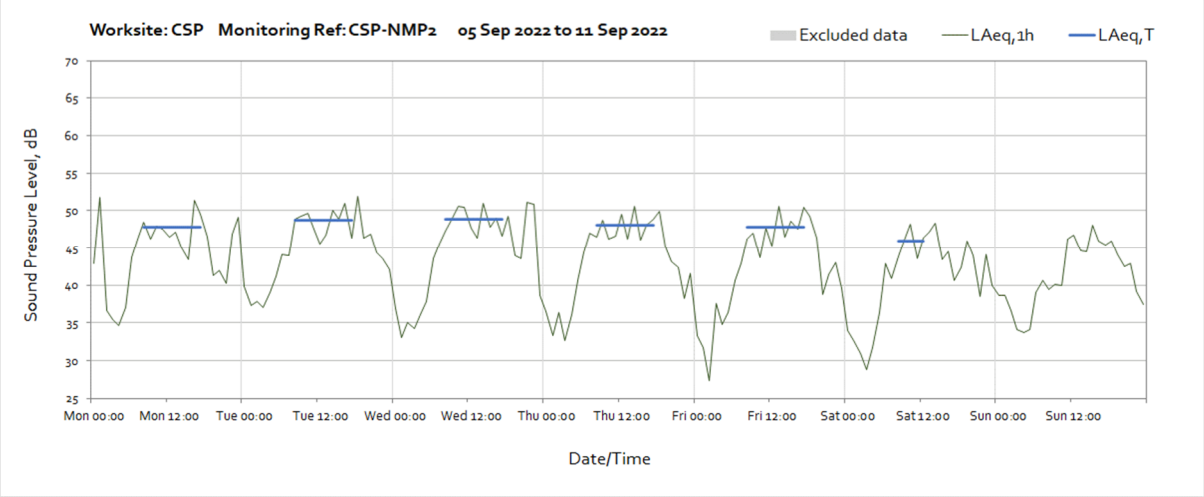


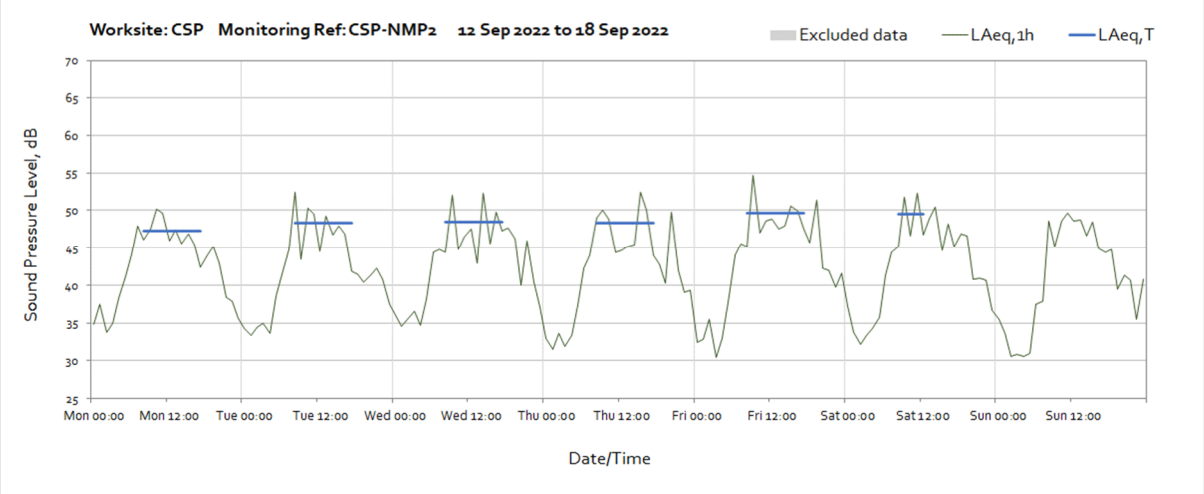


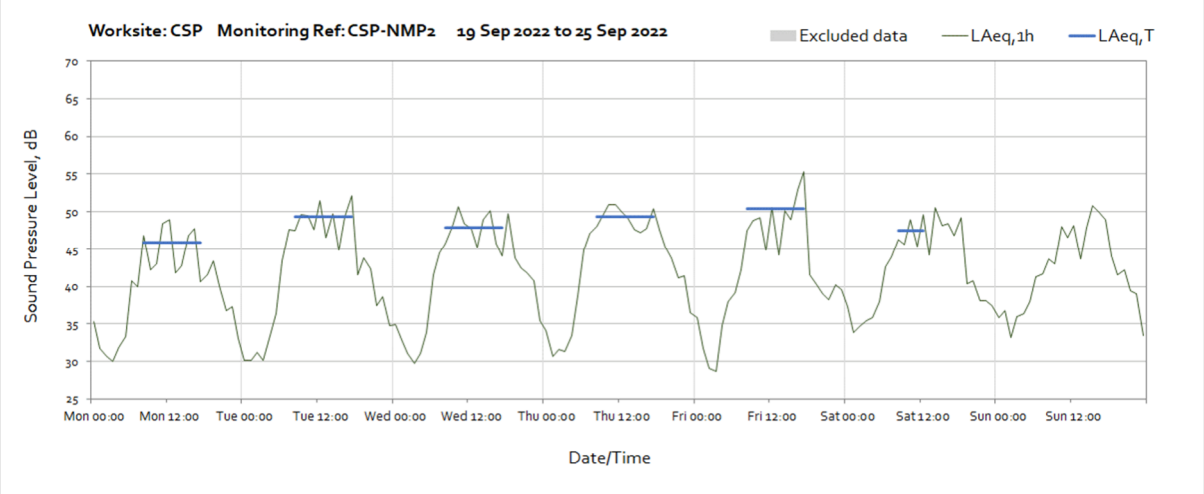
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

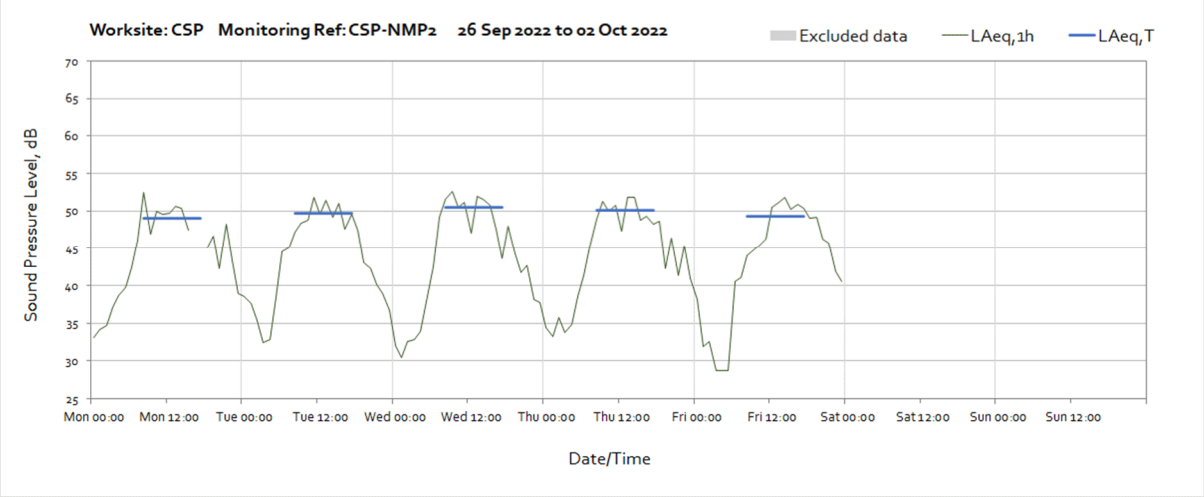
Worksite: CSP – Monitoring Ref: CSP-NMP2




Worksite: CSP Monitoring Ref: CSP-NMP2 05 Sep 2022 to 11 Sep 2022
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

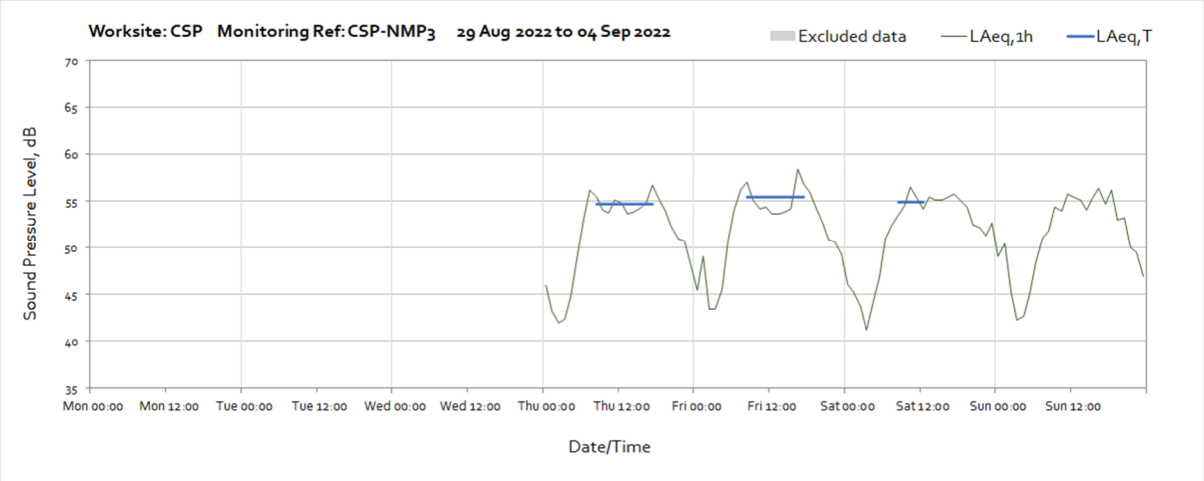

Worksite: CSP Monitoring Ref: CSP-NMP2 12 Sep 2022 to 18 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

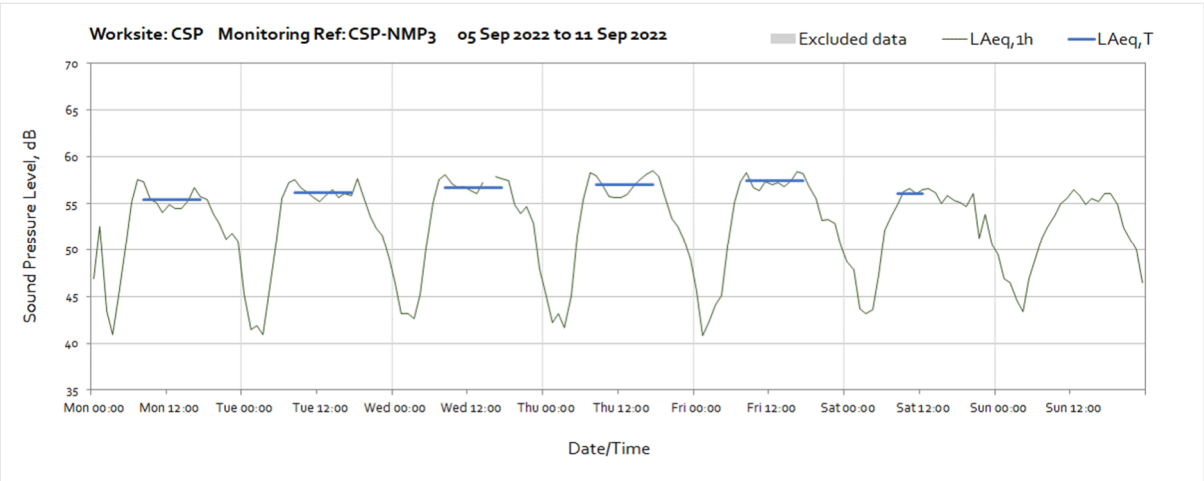

Worksite: CSP Monitoring Ref: CSP-NMP2 19 Sep 2022 to 25 Sep 2022
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
70
65
60
55
50
45
40
35
30
25
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



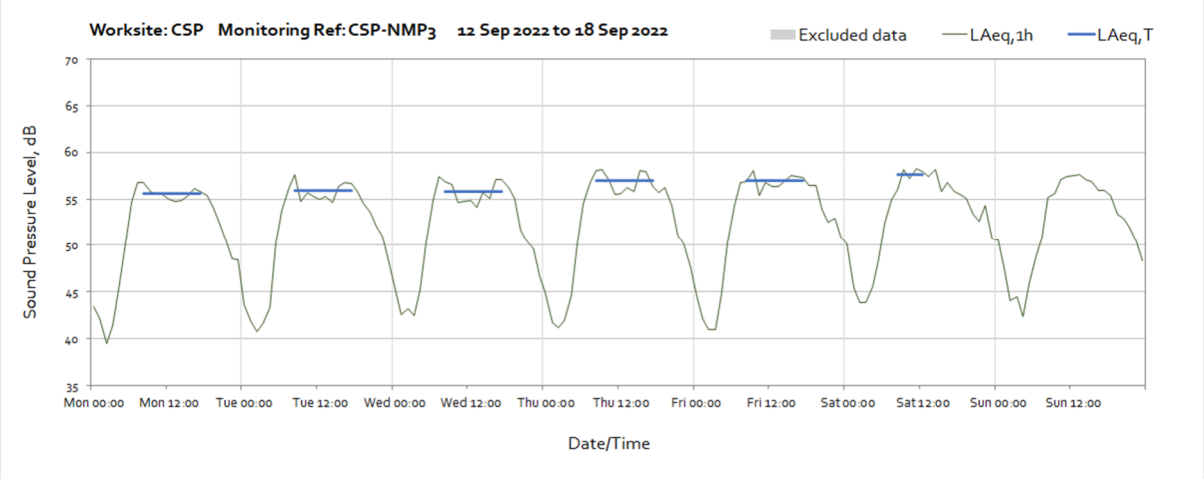
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

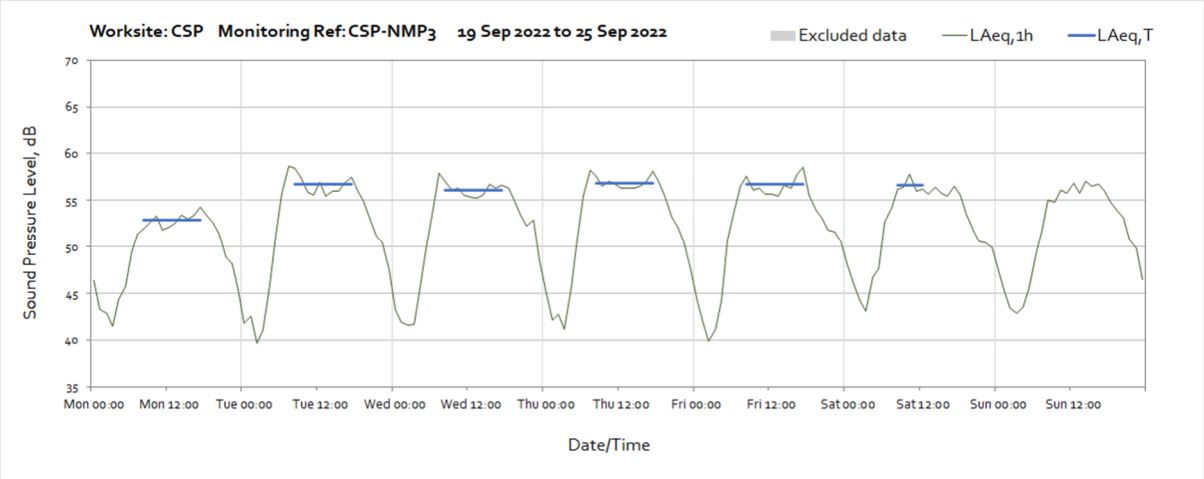
Worksite: CSP – Monitoring Ref: CSP-NMP3

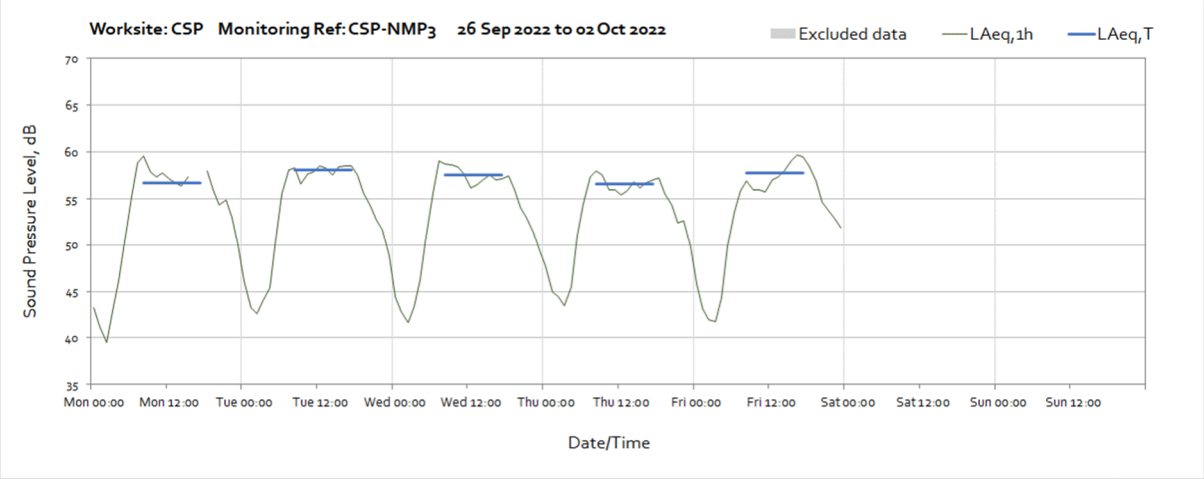




Note: Missing data between 15:00 and 16:00 on the 7th September was due to monitor maintenance.

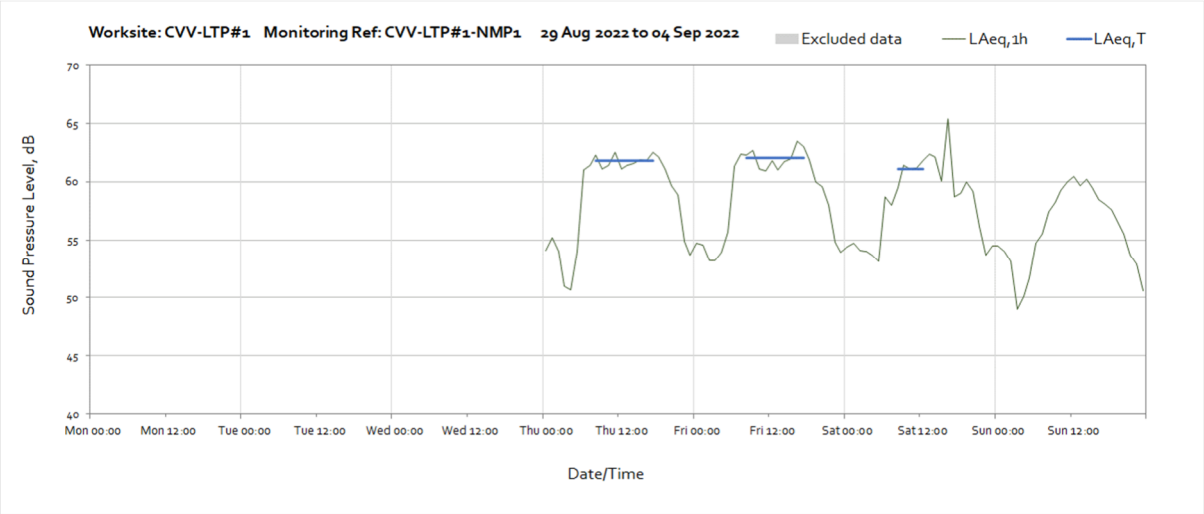


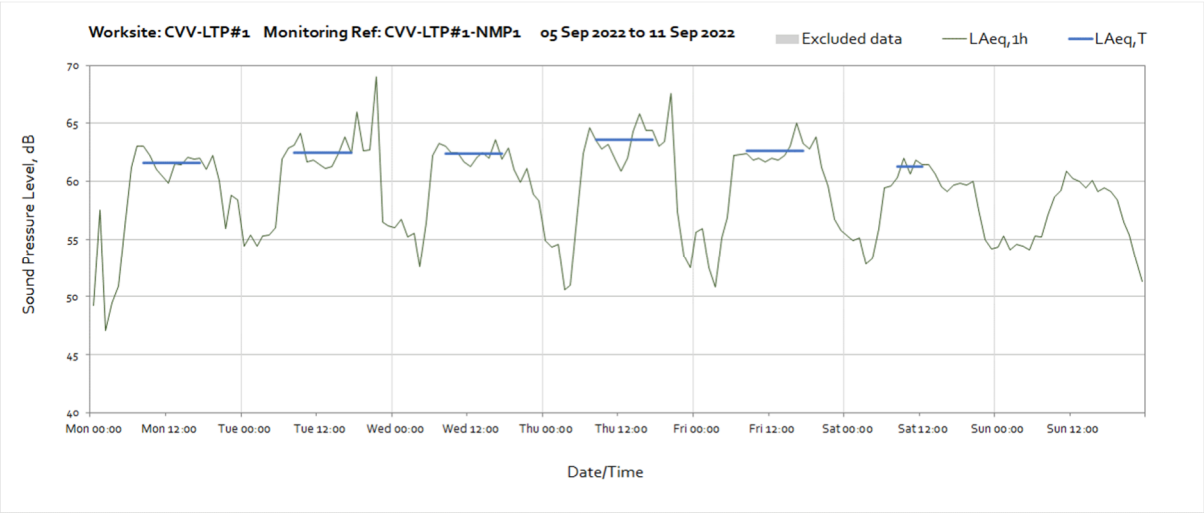


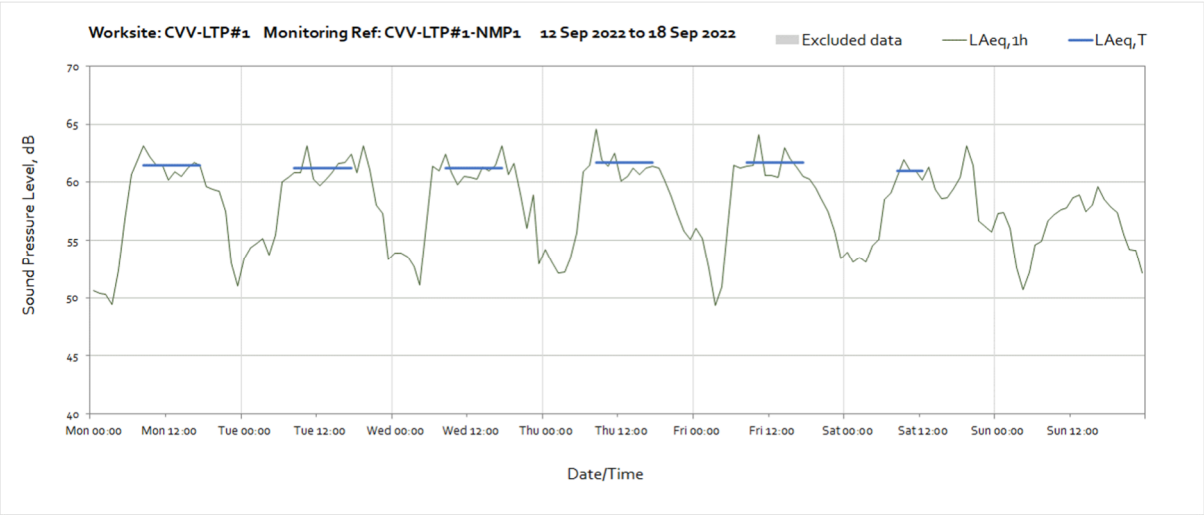


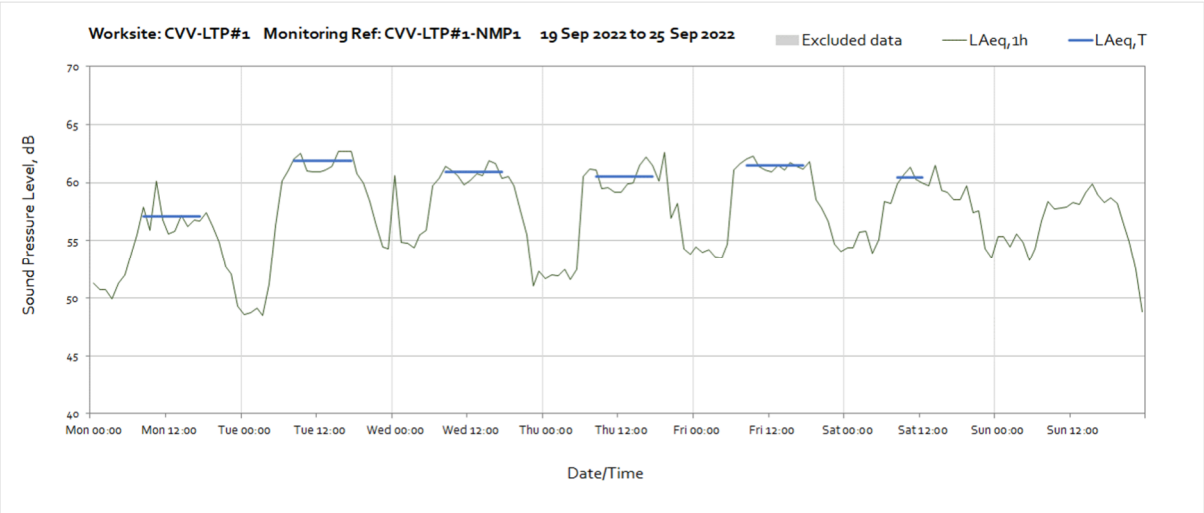
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

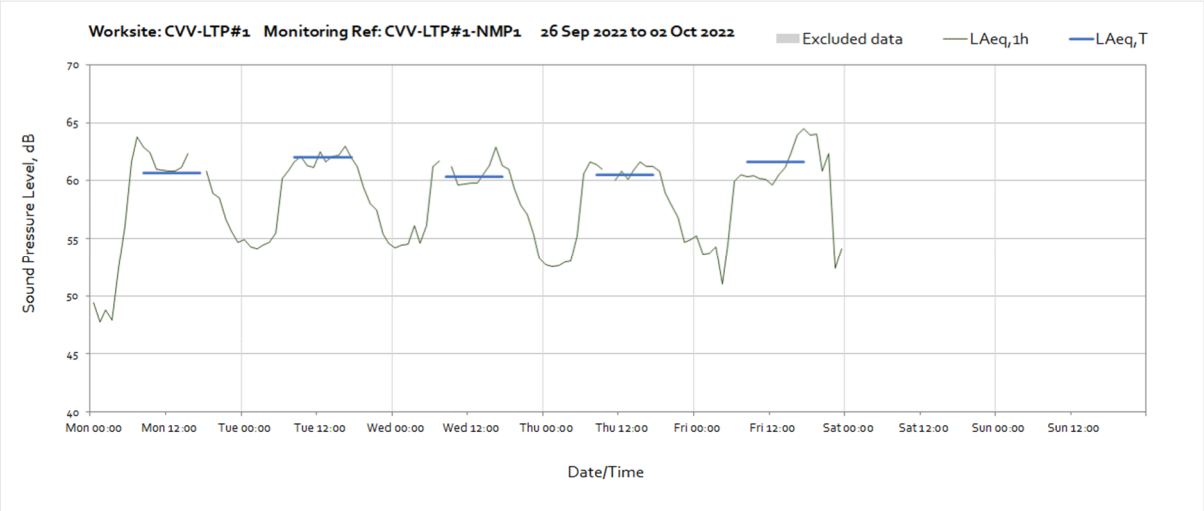
Worksite: CVV-LPT#1 – Monitoring Ref: CVV-LPT#1-NMP1





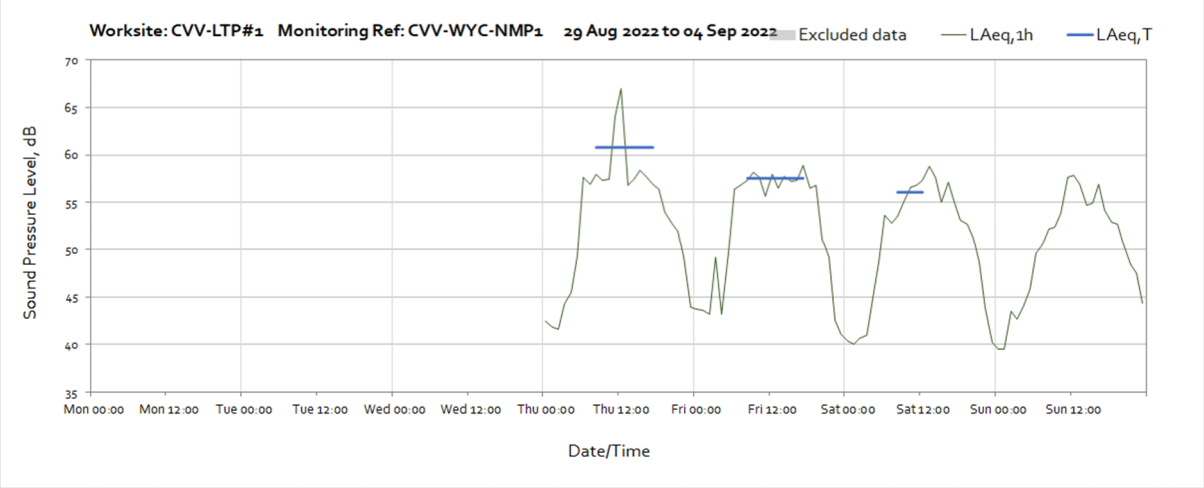


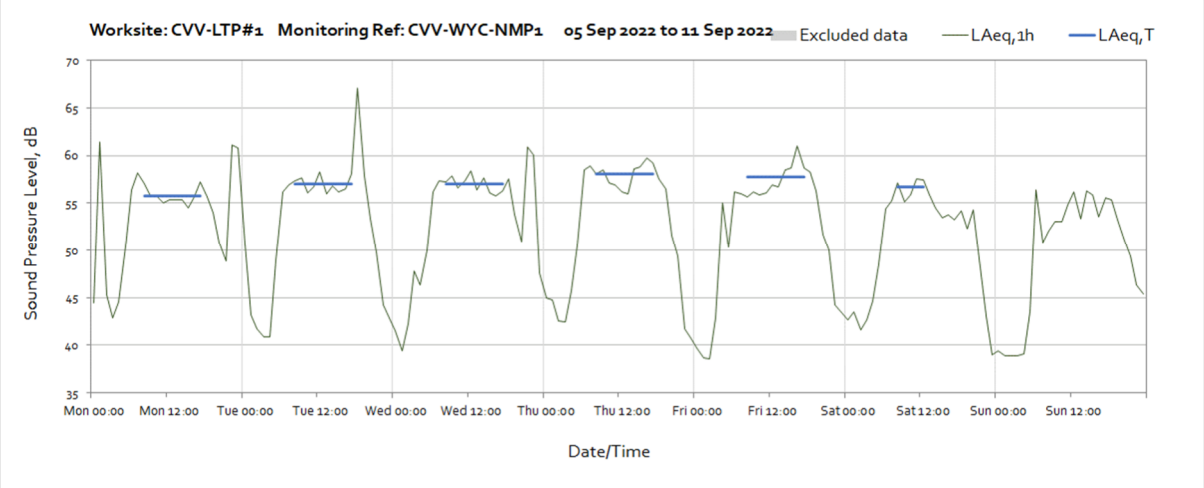


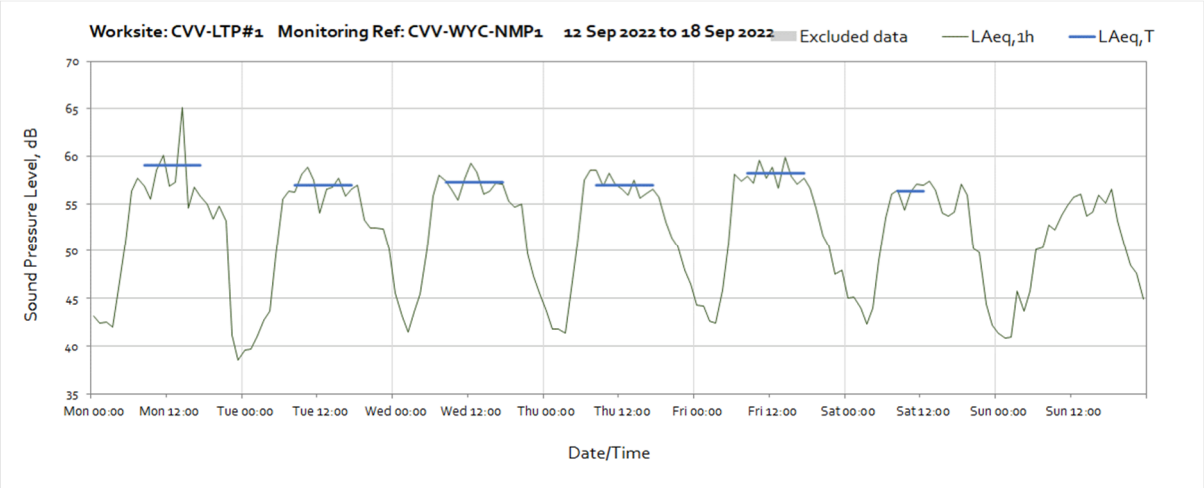


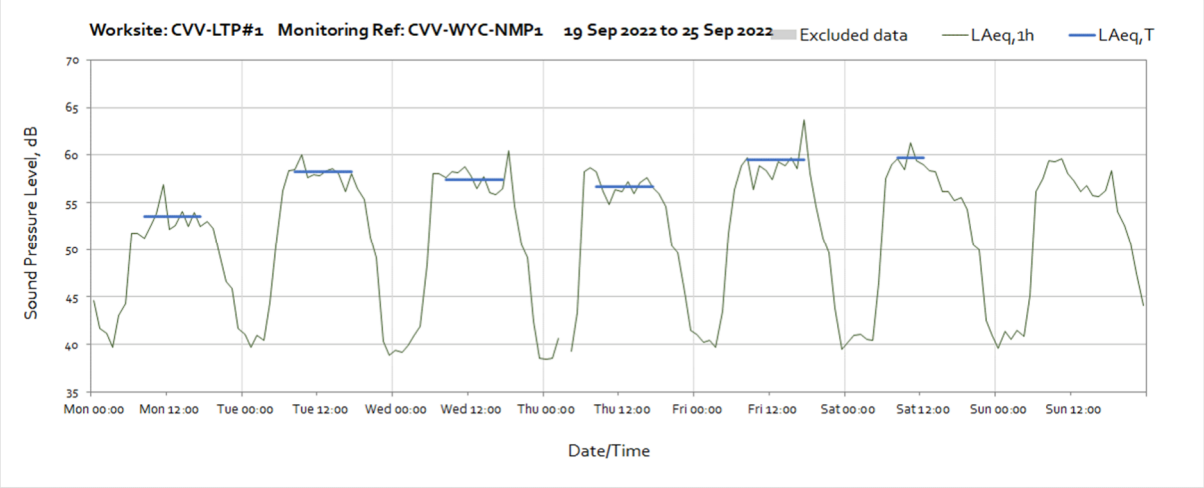
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update. Missing data between 08:00 and 09:00 on the 28th September was due to monitor communication error. Missing data between 10:00 and 11:00 on the 29th September was due to monitor field calibration.

Worksite: CVV-LPT#1 – Monitoring Ref: CVV-WYC-NMP1

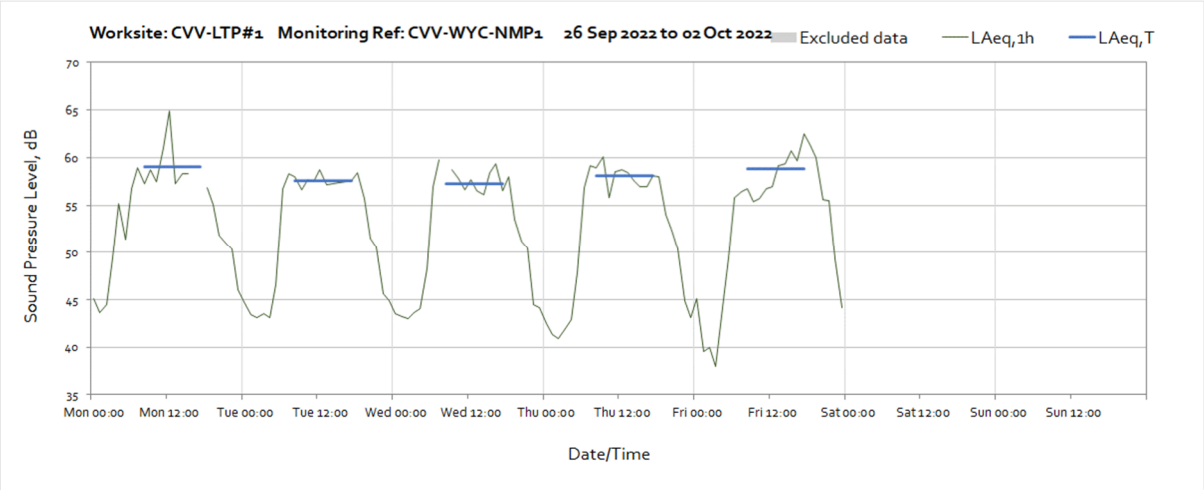






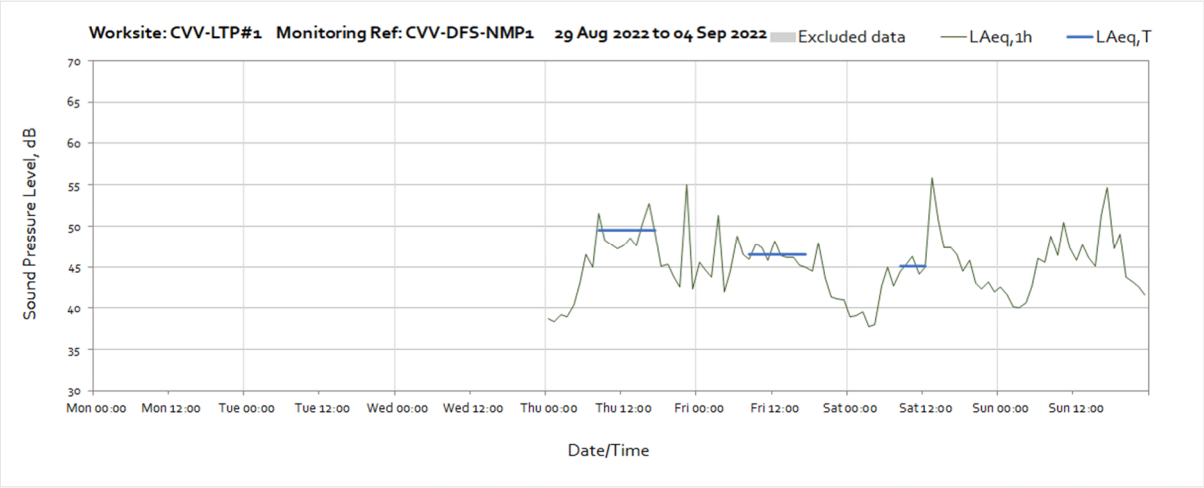


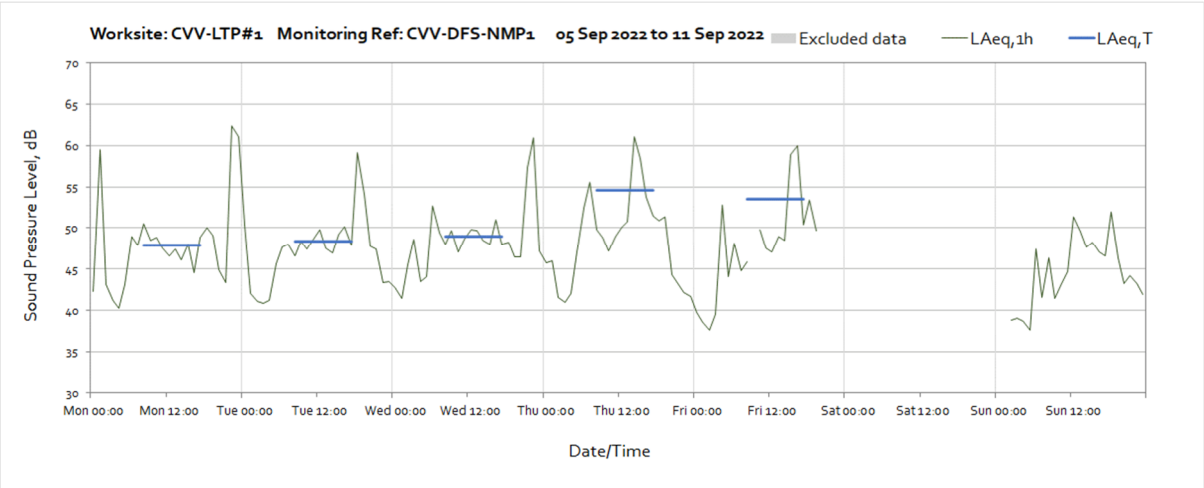
Note: Missing data between 03:00 and 04:00 on the 22nd September was due to a monitor settings update.



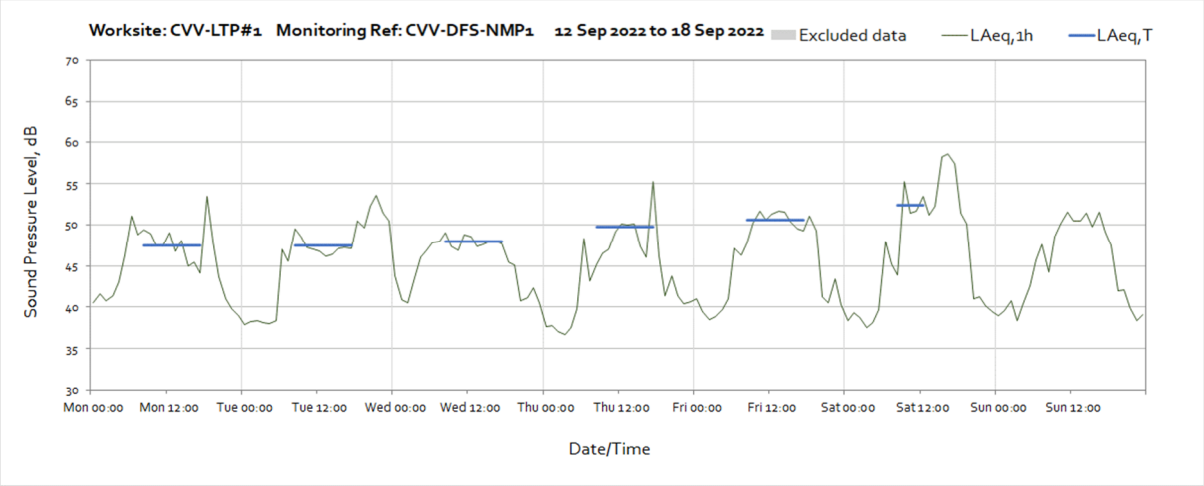
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.
Missing data between 08:00 and 09:00 on the 28th September was due to a communication error.

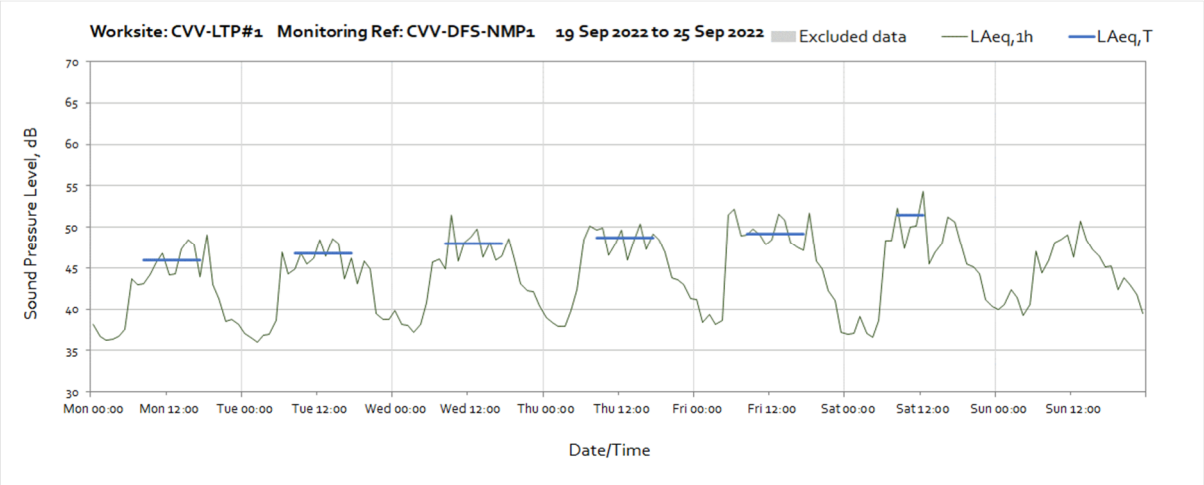
Worksite: CVV-LTP#1 – Monitoring Ref: CVV-DFS-NMP1

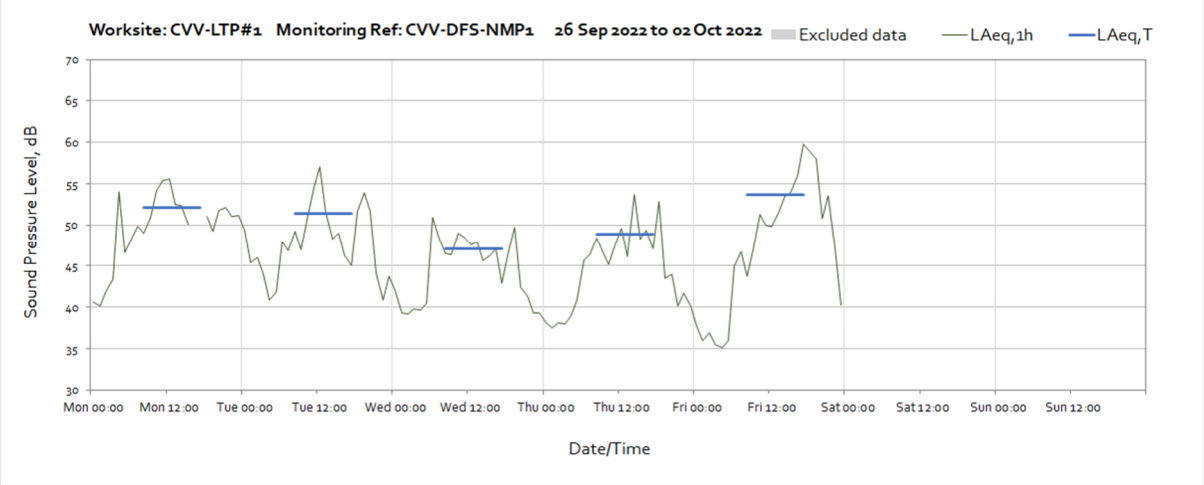




Note: Missing data between 09:00 and 10:00 on the 9th September was due to monitor maintenance. Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.

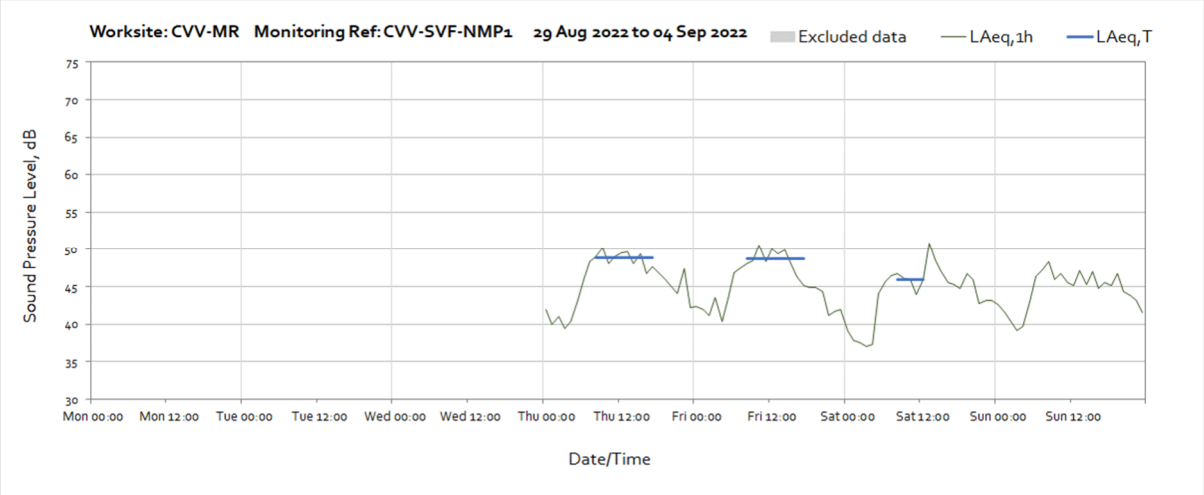


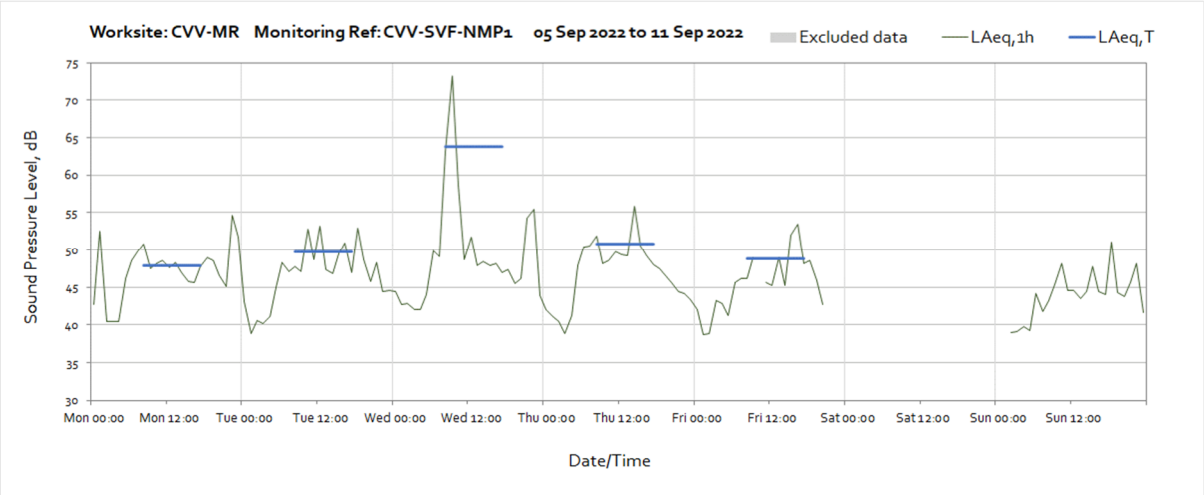




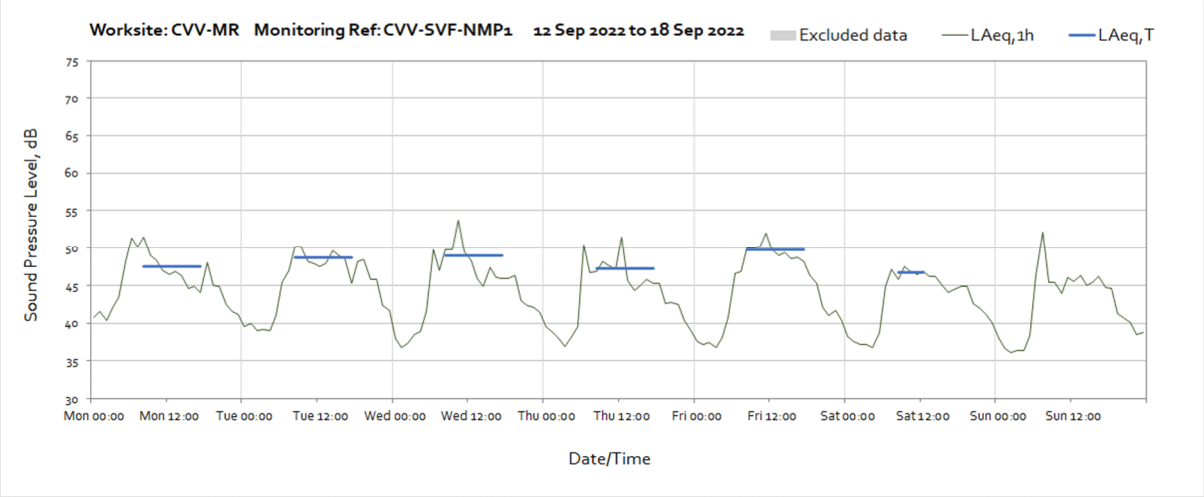
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

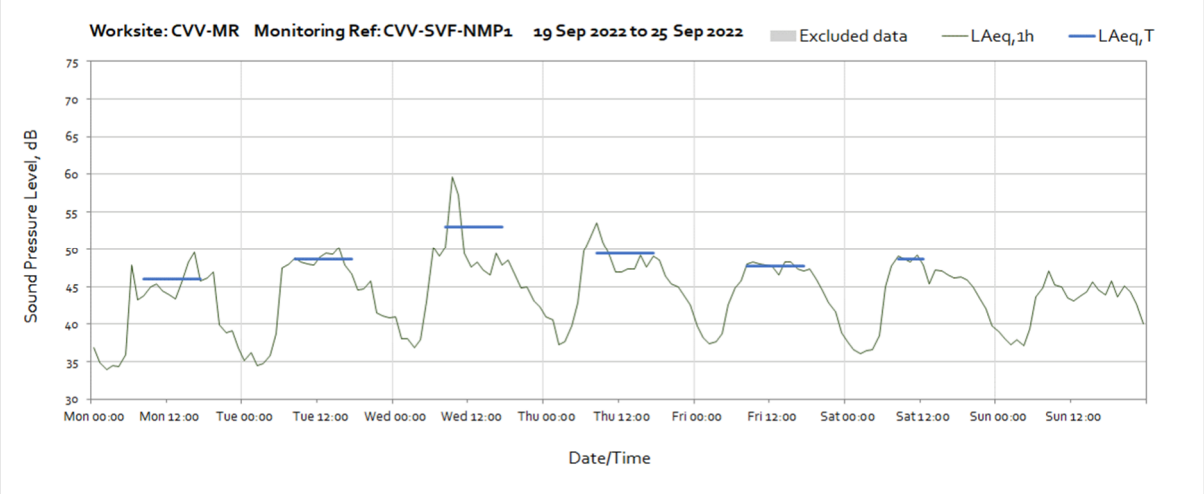
Worksite: CVV-MR – Monitoring Ref: CVV-SVF-NMP1

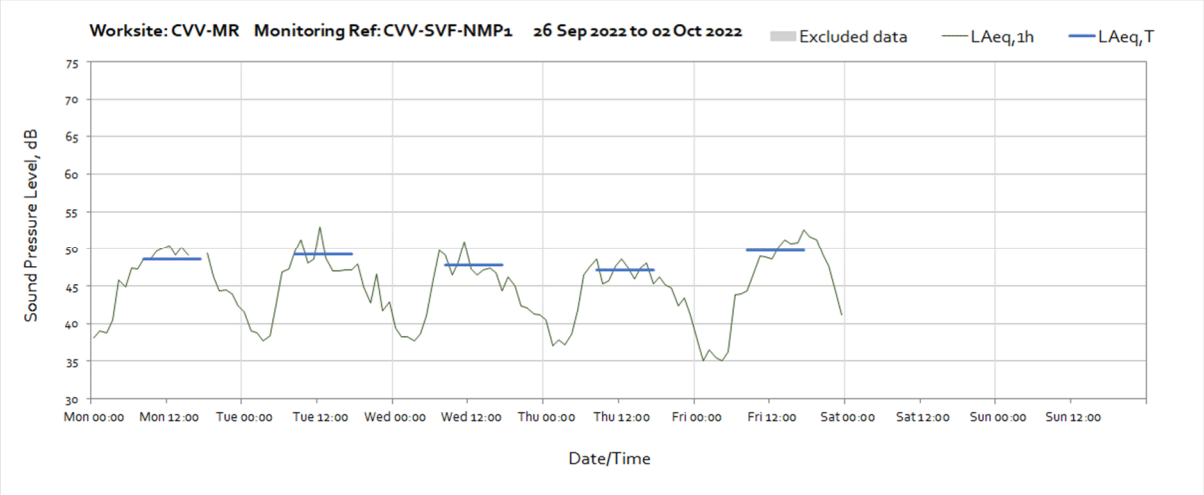




Note: Missing data between 10:00 and 11:00 on the 9th September was due to a server connection issue. Missing data between 21:00 on the 9th September and 02:00 on the 11th September was due to a server communication issue.





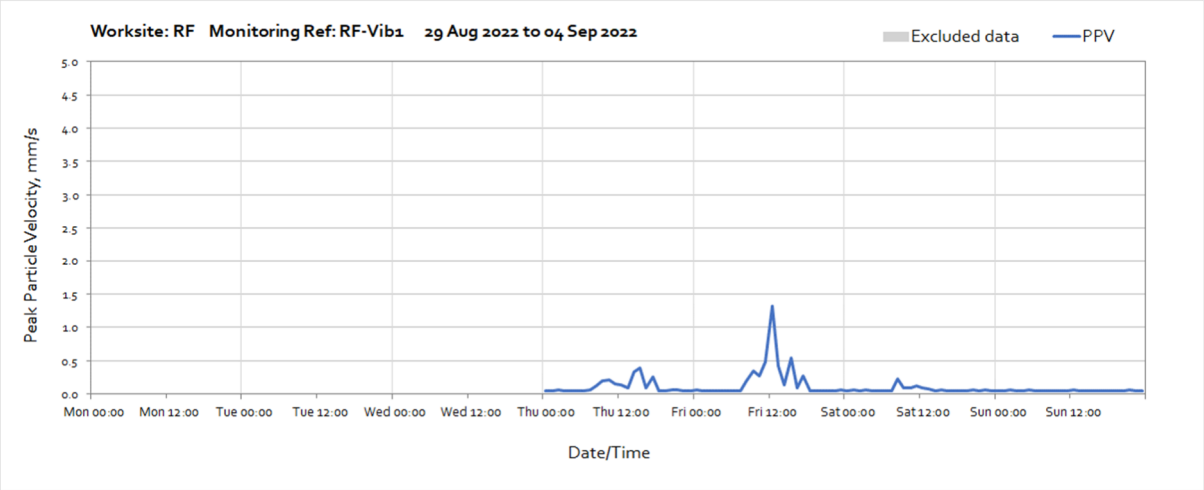


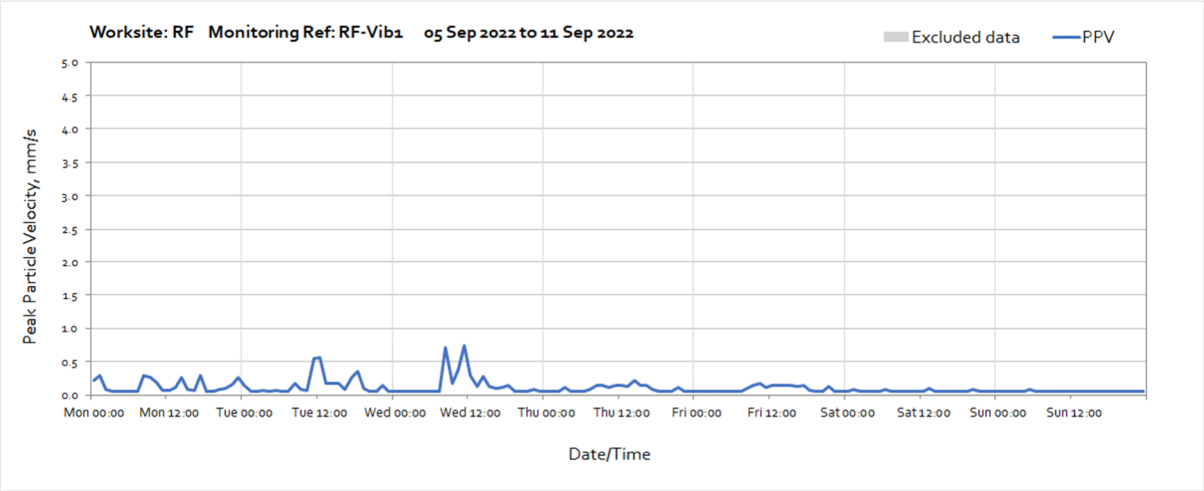
Note: Missing data between 1600 and 1800 on the 26th September was due to monitor settings update.

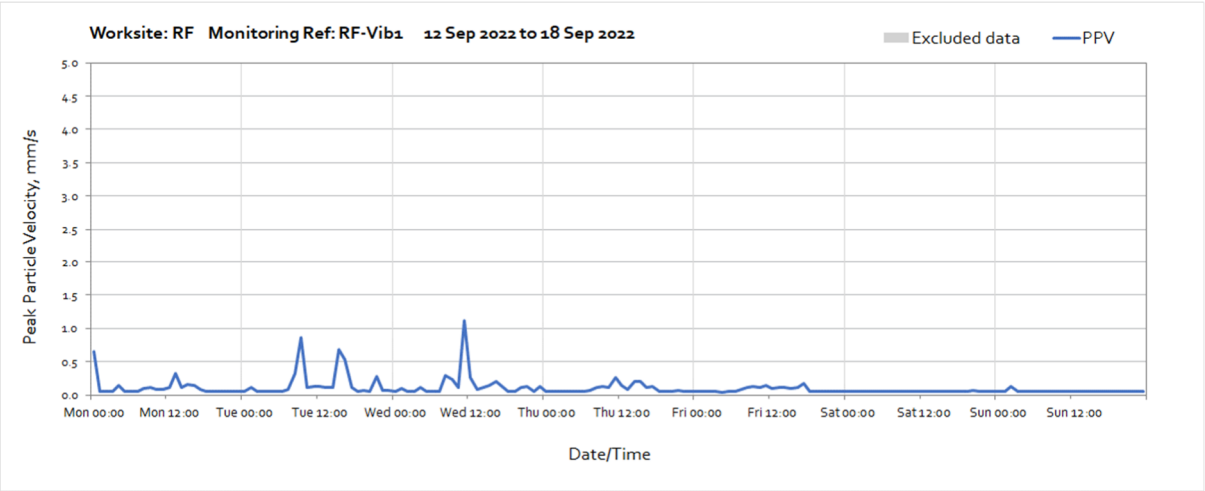
Vibration

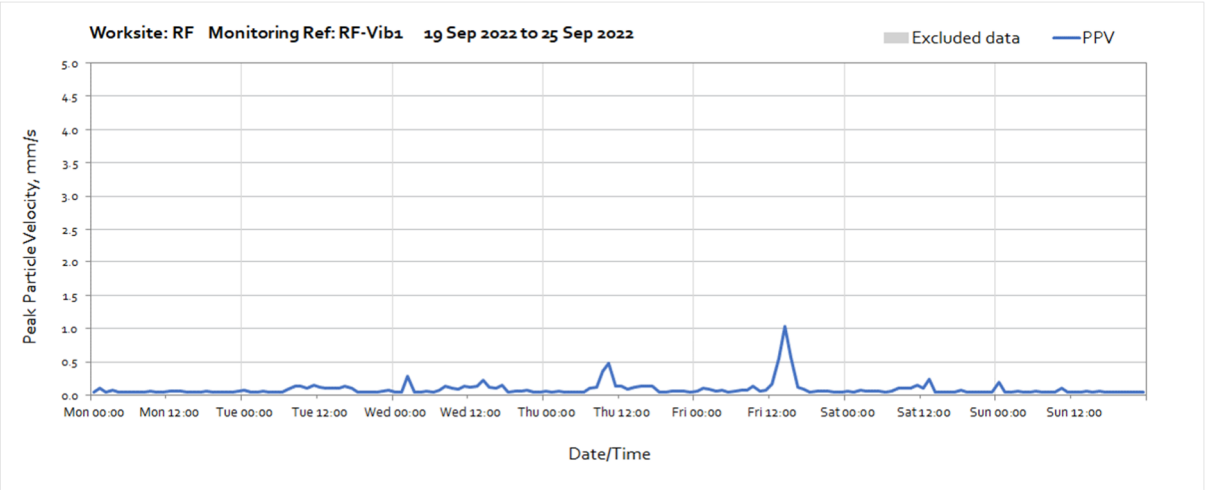
The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the highest PPV of the three orthogonal axes x, y and z. Where high values of PPV were caused by local interference with the vibration monitor, which are not representative of HS2 construction works, these values have been greyed out in the following charts and have been excluded to calculate values in Table 4 of the main report.

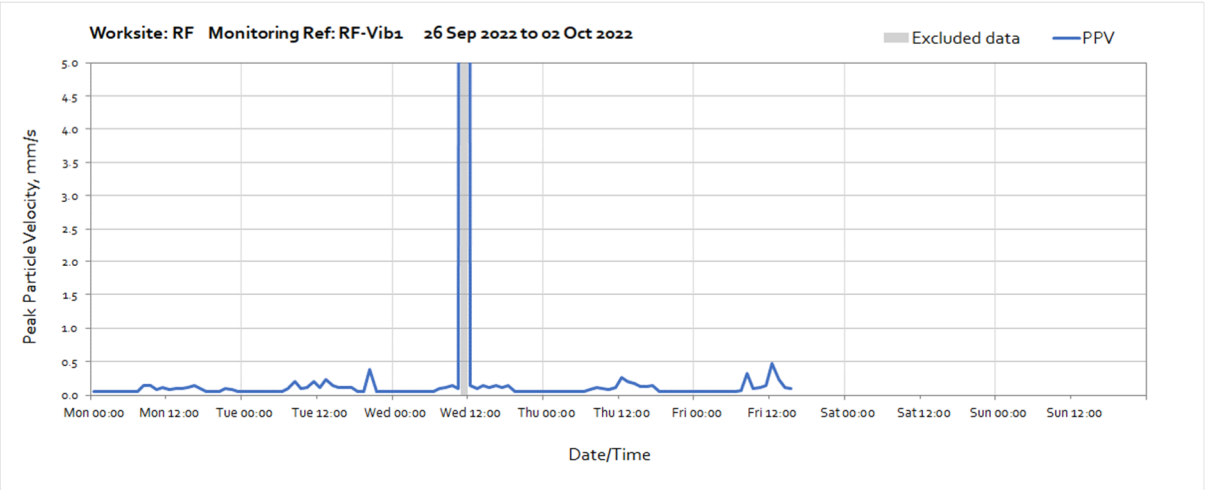
Worksite: RF – Monitoring Ref: RF-Vib 1





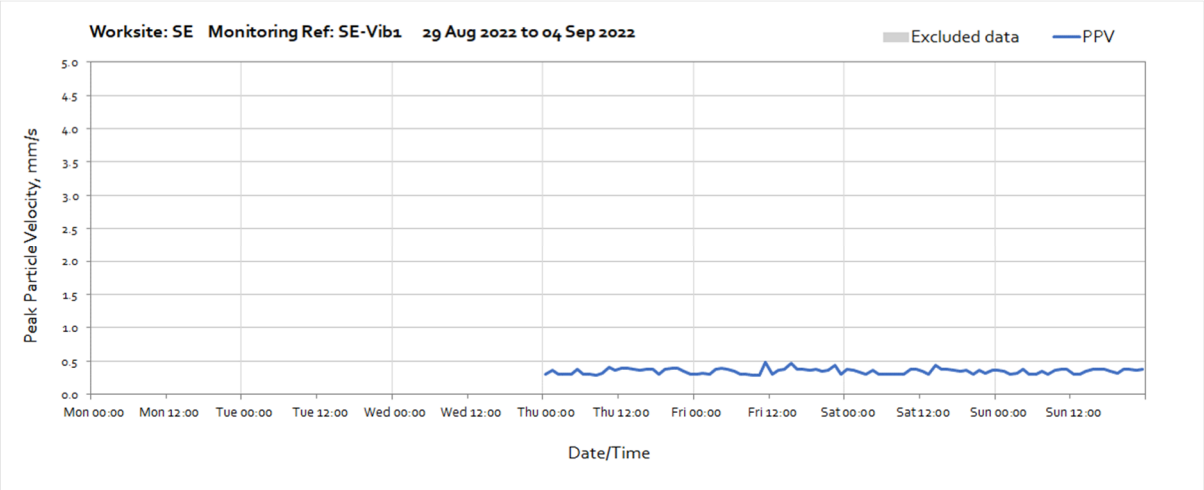




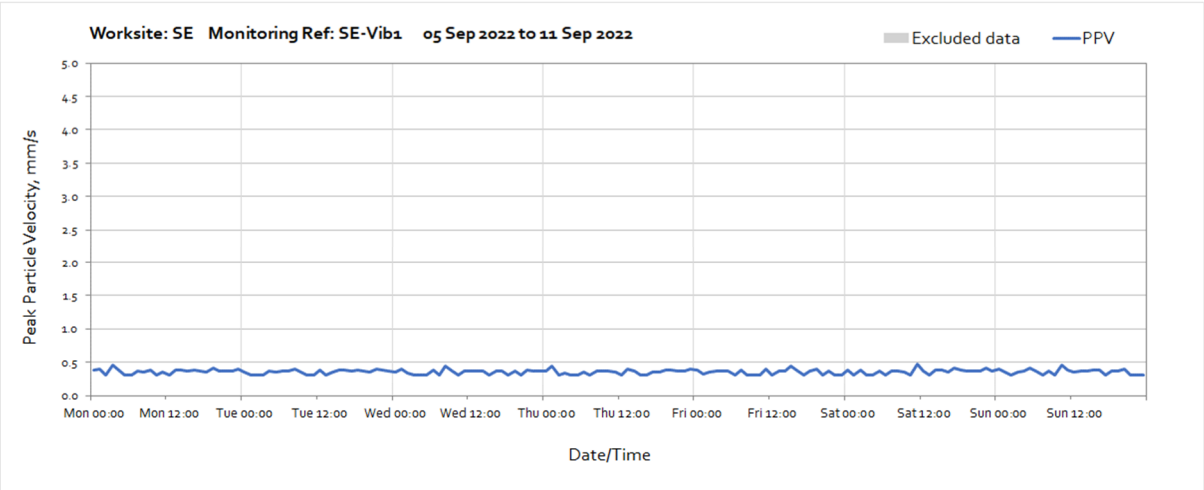


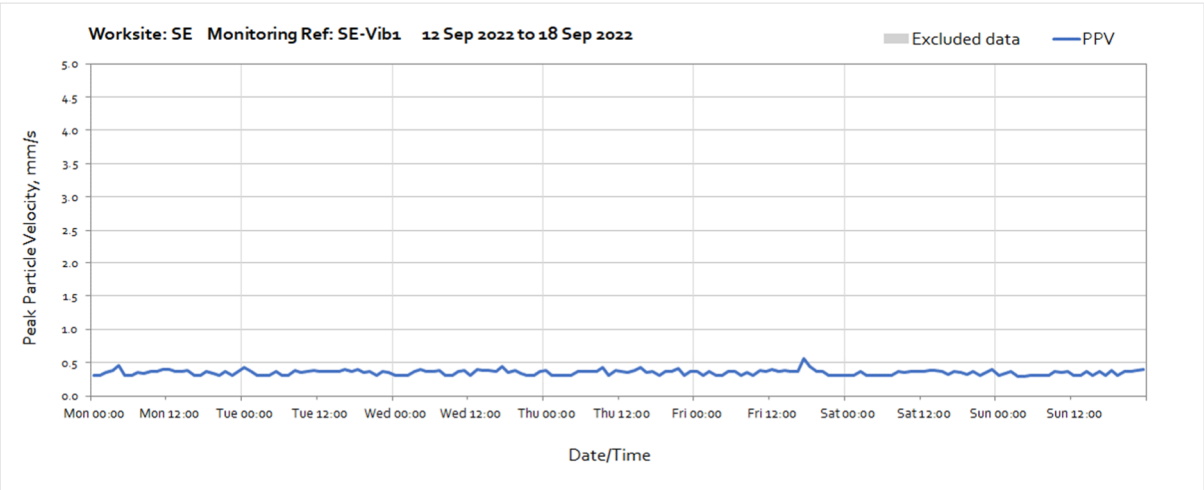
Note: Missing data from 16:00 on the 30th September till month end was due to a monitor fault which is currently under investigation.

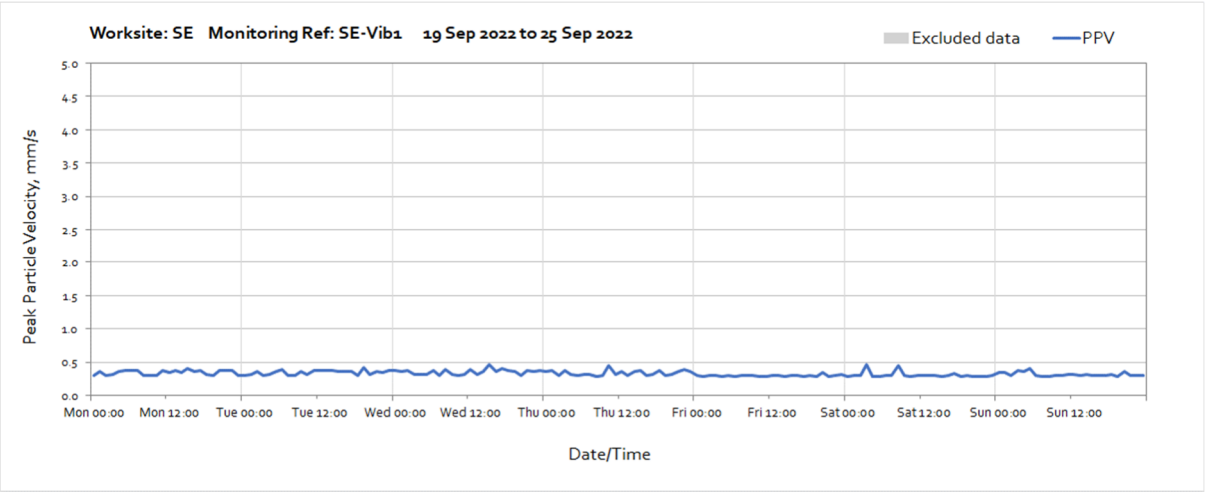
Worksite: SE – Monitoring Ref: SE-Vib 1

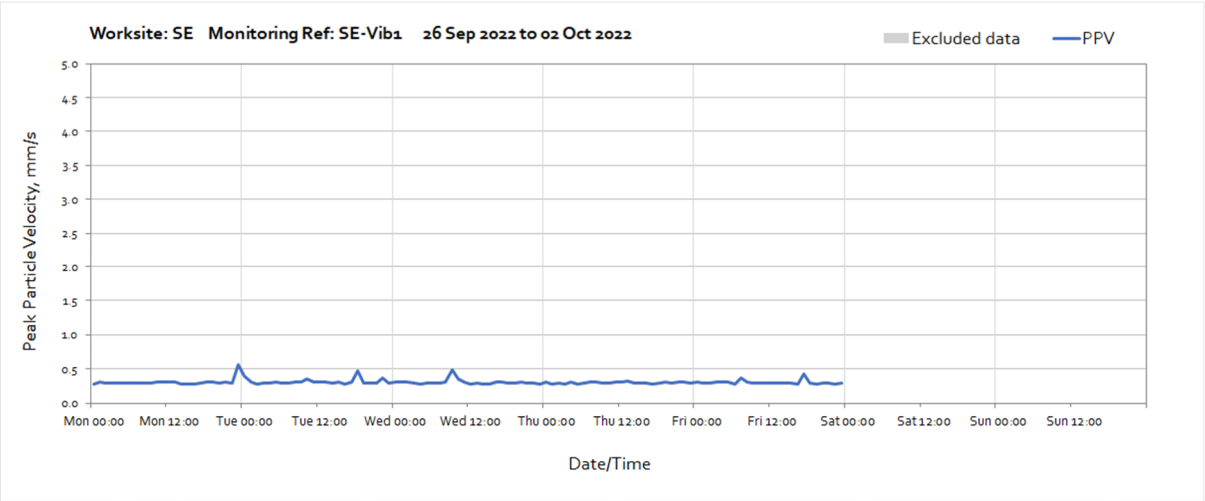


Note: Missing data between 00:00 on the 1st September until 12:00 on the 2nd September was due to loss of power from monitor battery, a result of lack of sunlight to charge the solar powered battery.

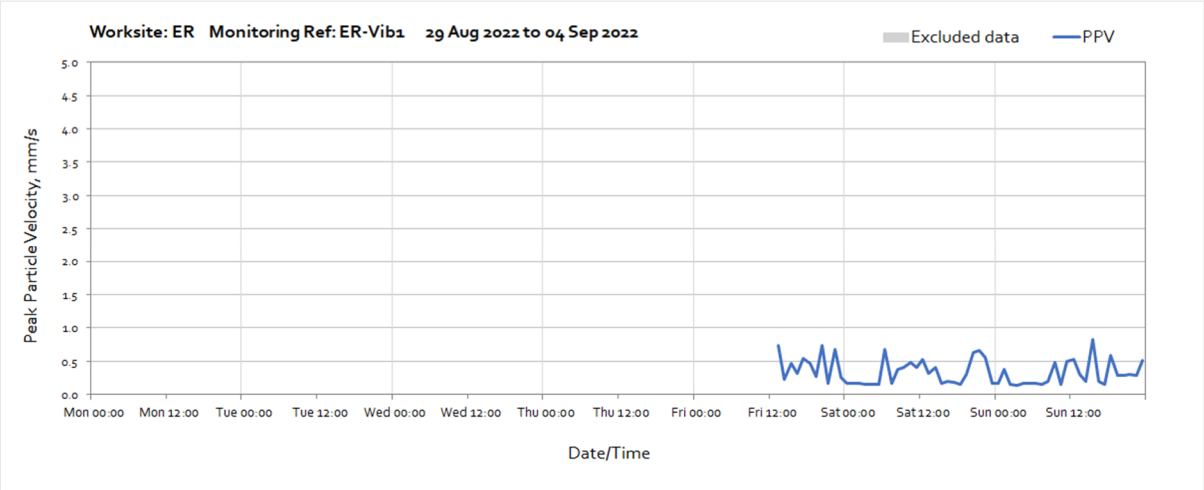




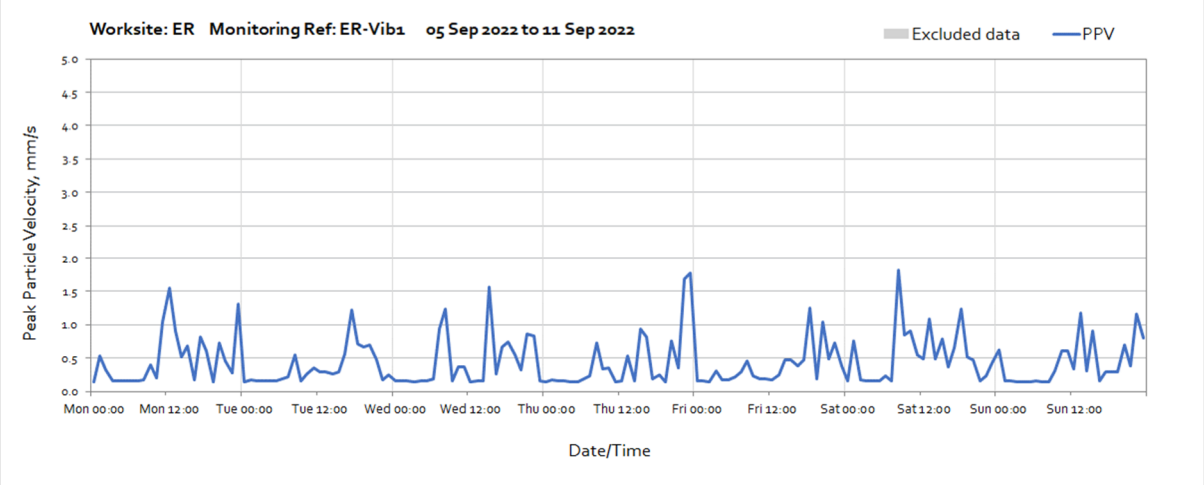

Worksite: SE Monitoring Ref: SE-Vib1 19 Sep 2022 to 25 Sep 2022
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

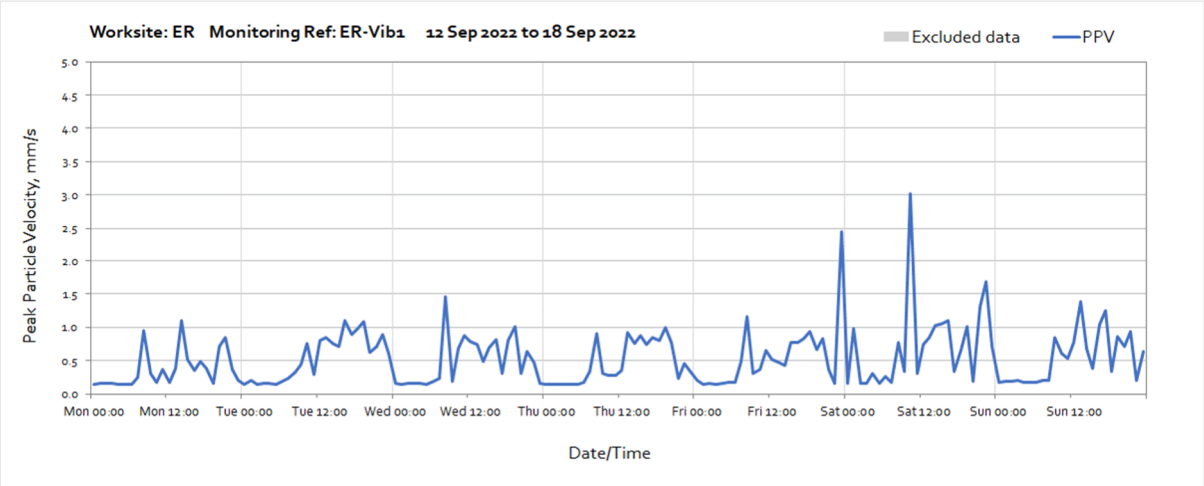

Worksite: SE Monitoring Ref: SE-Vib1 26 Sep 2022 to 02 Oct 2022
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

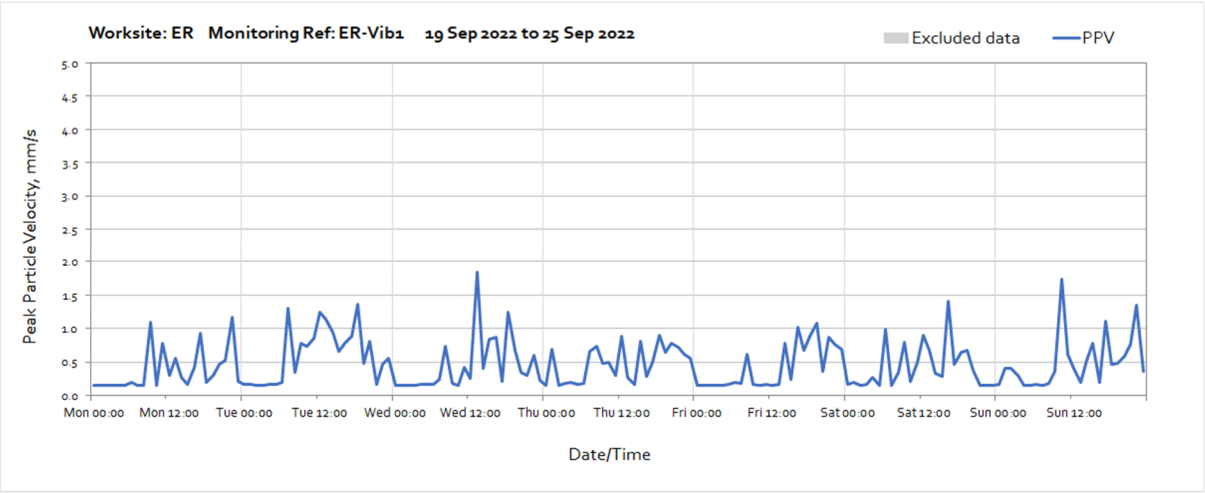
Worksite: WGT – Monitoring Ref: ER-Vib 1

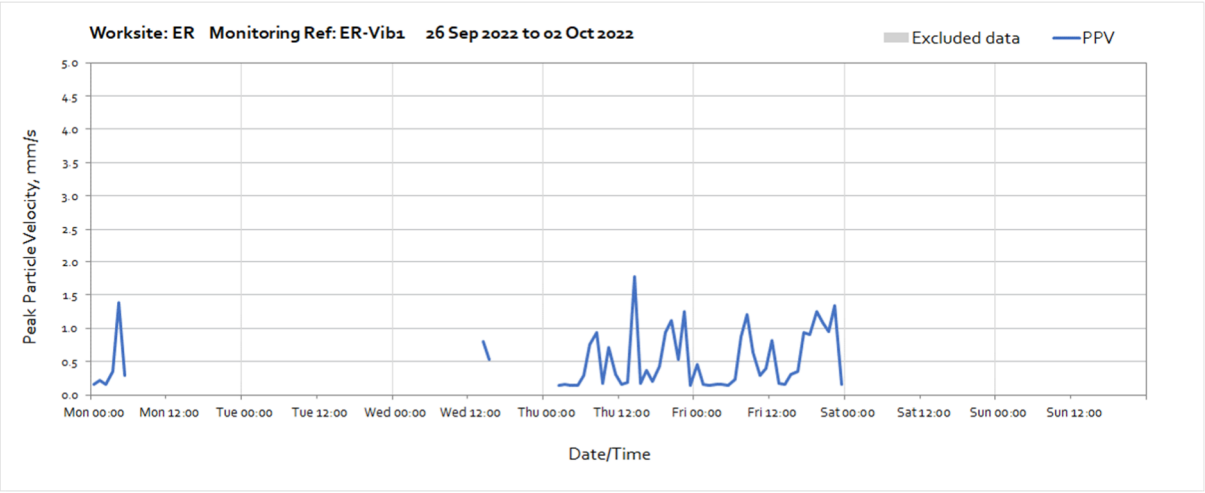


Note: Missing data from 00:00 on the 1st of September to 12:00 on the 2nd of September was due to a depleted battery.









Note: Missing data from 06:00 on the 26th of September to 14:00 on the 28th of September was due to a depleted battery. Missing data from 16:00 on the 28th September to 02:00 on the 29th September was due to a communication error to the monitor the cause of which is currently under investigation.