

HS2

March 2022

Construction Noise and Vibration Monthly Report – January 2022

Buckinghamshire

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Non-Technical Summary

This Noise and Vibration Monitoring Report fulfils HS2 Limited's commitment detailed in the Environmental Minimum Requirements (EMRs), Annex 1, Code of Construction Practice, to present the results of noise monitoring carried out within Buckinghamshire (BS) during the month of January 2022.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of Turweston North worksite (ref.: TN) where compound setup, ditch excavation, drainage, stone deliveries, and farm access track were undertaken.
- Noise monitoring was undertaken in the vicinity of School End worksite (ref.: SE) where compound setup and stone deliveries were undertaken.
- Noise monitoring was undertaken in the vicinity of Rosehill Farm worksite (ref.: RF) where construction of concrete slabs was undertaken.
- Noise monitoring was undertaken in the vicinity of Hermitage Chetwode worksite (ref.: HC), where no works were undertaken in the month of January.
- Noise monitoring was undertaken in the vicinity of West Street Overbridge worksite (ref.: WSO) where piling, stone deliveries, construction of access roads and mass haul road were undertaken.
- Noise monitoring was undertaken in the vicinity of Addison Road worksite (ref.: AR) where excavation and filling works, and build-up of the piling mat were underway.
- Noise monitoring was undertaken in the vicinity of School Hill Compound worksite (ref.: SHC) where batching plant operation was undertaken.
- Noise monitoring was undertaken in the vicinity of the School Hill UTX worksite (ref.: SHU) where site establishment, horizontal directional drilling, reinstatement of utilities, and road works were underway.
- Noise monitoring was suspended in the vicinity of the FCC Sidings worksite reference (ref: FCC) where no works were undertaken during the monitoring period. Monitoring was suspended due to power supply issues (insufficient sunlight coverage) which have now been resolved.
- Noise monitoring was undertaken in the vicinity of Meadoway and Glebe House, Aylesbury worksite (ref: MW&GH) where compound construction, piling works and road tie-in with highway were undertaken.

- Noise monitoring was undertaken in the vicinity of Oat Close Worksite (ref: OC) where earthworks, construction of piling platform, rail deliveries and stockpile management were underway.
- Noise monitoring was undertaken in the vicinity of Rocky Lane Embankment worksite (ref: RLE) where compound setup, internal haul road construction, sheet piling, protester camp dismantling, road tie-in with highway and road crossing works were underway.
- Noise monitoring was undertaken in the vicinity of Leather Lane worksite (ref: LL) where construction of haul road and installation of attenuation pond were undertaken.
- Noise monitoring was undertaken in the vicinity of South Heath Cutting worksite (ref: SHCW) where construction of haul roads were undertaken.
- Noise monitoring was undertaken in the vicinity of North Portal Worksite (ref: NP) where construction of piling platform, wheel wash and installation of compound plant were undertaken.
- Noise monitoring was undertaken in the vicinity of Chesham Road Worksite (ref: CR) where operation of general plant, stockpile management and shaft construction were undertaken.
- Noise monitoring was undertaken in the vicinity of Little Missenden Vent Shaft worksite (ref.: LM) where operation of general plant, ground post treatment, including drilling and grouting works, dewatering works and piling works were underway.
- Noise monitoring was undertaken in the vicinity of Amersham Vent Shaft worksite (ref.: AM), where operation of general plant, earthworks, stockpile management, ground treatment works, dewatering works, ground monitoring, shaft excavation works and piling were underway.
- Noise monitoring was undertaken in the vicinity of Chalfont St Giles Vent Shaft worksite (ref.: CSG) where general plant operations, stockpile management, collar construction works, dewatering works and piling were underway.
- Noise monitoring was undertaken in the vicinity of Chalfont St Peter Vent Shaft worksite (ref.: CSP), where operation of general and auxiliary plant, piling works, road maintenance, secondary lining for concrete walls and floors, connection to tunnel and basement construction were underway.
- Noise monitoring was undertaken in the vicinity of Load Test Pile 1 worksite (ref.: LTP #1), where piling for the construction of the jetty, construction of a cofferdam, main piling works, fencing and finishing works along the site haul roads, construction and maintenance of haul roads; ground investigation works; compound operation, de-sanding, realignment of River Colne, installation of

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satellite welfares, construction of north abutment pile wall, core drilling for integrity test of concrete piles, pile trimming, stockpiling, pumping water management construction, diversion and installation of utilities, environmental maintenance, and maintenance for generator farms were underway.

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

- Amersham where water diversion works were underway;
- East West Rail Overbridge where waterproofing and backfilling of east foundation, and installation of abutment wall rebar were undertaken;
- Charndon Lodge Underbridge where waterproofing and backfilling of west foundation, and excavation works were undertaken;
- Perry Hill Overbridge where platform building and drainage works were underway;
- Oxford Line where earthworks and temporary drainage works were underway;
- Calvert cutting where vegetation clearance works were undertaken;
- Calvert South where excavation works, stone build up and temporary culverts snagging were underway;
- Station Road where compound operation, construction of laydown areas, culvert crossing, stone access road and platform, and utilities diversion were undertaken;
- Hills Farm where pond excavation works and stone build-up were underway;
- MCJ Line where vegetation clearance and removal of ballast were undertaken;
- Mulberry Park Hill near Great Missenden where landscaping works were underway;
- Bottom House Farm Lane where excavation works were undertaken;
- Hartwell where trial archaeological works were undertaken;
- Aylesbury Golf Course where maintenance and remedial fencing works were undertaken.
- A421 where stone deliveries, vegetation clearance, topsoil stripping and compound development works were undertaken.
- Vegetation clearance and grass cutting were undertaken throughout the HS2 route.

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

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

Seven (7) complaints were 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 7 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

Acronym/Term	Definition
$L_{Aeq,T}$	See equivalent continuous sound pressure level
Ambient sound	A description of the all-encompassing sound at a given location and time which will include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, $L_{pAeq,T}$
Decibel(s), or dB	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale called the decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement. Audibility of sound covers a range of approximately 0-140dB.
Decibel(s) A-weighted, or dB(A)	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and is written as 'dB(A)'.
Equivalent continuous sound pressure level, or $L_{Aeq,T}$	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value, typically expressed as a decibel level.
Exclusion of data	Measurement of noise levels can be affected by weather conditions such as prolonged periods of rain, wind 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} .

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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 31st January 2022.
- 1.1.3 Construction sites in the local authority area where monitoring was undertaken during this period include:
- Turweston North worksite reference TN (see Plan 1 in Appendix A), where works activities included:
 - compound setup;
 - ditch excavation;
 - drainage;
 - stone deliveries; and
 - farm access track.
 - School End worksite reference SE (see Plan 2 in Appendix A), where works activities included:
 - compound setup; and
 - stone deliveries;

- Rosehill Farm (see Plan 2 in Appendix A), where works activities included:
 - construction of concrete slabs;
- Hermitage Chetwode Worksite reference – HC (see plan 2 in Appendix A), where no works were undertaken in the month of January.
- West Street Overbridge (see Plan 2 in Appendix A), where works activities included:
 - causeway piling;
 - stone deliveries; and
 - construction of site access and mass haul roads;
- Addison Road worksite reference AR (see Plan 3 in Appendix A), where works activities included:
 - excavation and filling works; and
 - build-up of the piling mat.
- School Hill Compound worksite reference SHC (see Plan 3 in Appendix A), where works activities included:
 - batching plant operation.
- School Hill UTX worksite reference - SHU (see Plan 3 in Appendix A), where works activities included:
 - site establishment;
 - horizontal directional drilling;
 - reinstatement of utilities; and
 - road works.
- FCC Sidings worksite, reference – FCC (see Plan 3 in Appendix A) where noise monitoring was suspended and where no works were undertaken in the month of January.
- Meadoway and Glebe House, Aylesbury Worksit, reference – MW&GH (see Plan 4 in Appendix A), where works activities included:
 - construction of the A418 Oxford Road Main Compound;
 - piling works; and
 - road tie-in with highway.
- Oat Close Worksite, reference – OC (see Plan 4 in Appendix A), where works activities included:
 - earthworks;

- construction of piling platform;
 - rail deliveries; and
 - stockpile management.
- Rocky Lane Embankment Worksite, reference – RLE (see Plan 5 in Appendix A), where works activities included:
 - compound setup and internal haul road construction;
 - sheet piling;
 - protester camp dismantling;
 - road tie-in with highway;
 - roadworks, including form works, steel fixing and concrete pouring; and
 - enabling works for Rocky Lane Compound.
- Leather Lane Worksite, reference – LL (see Plan 6 in Appendix A), where works activities included:
 - construction of haul road; and
 - installation of attenuation pond.
- South Heath Cutting Worksite, reference – SHCW (see Plan 6 in Appendix A), where works activities included:
 - construction of haul road.
- North Portal Worksite, reference – NP (see Plan 6 in Appendix A), where works activities included:
 - construction of piling platform;
 - wheel wash; and
 - installation of compound plant.
- Chesham Road Worksite reference – CR (see Plan 6 in Appendix A), where works activities included:
 - operation of general plant;
 - stockpile management; and
 - shaft construction, which included setting up of cutting shoe, concrete pour of shaft walls and sinking of shaft to formation levels.
- Little Missenden Vent Shaft worksite reference LM (see Plan 7 in Appendix A), where works activities included:
 - operation of general plant;
 - ground post treatment, including drilling and grouting works;

- dewatering works; and
- secant piling works.
- Amersham Vent Shaft Worksite, reference – AM (see Plan 8 in Appendix A), where works activities included:
 - operation of general plant;
 - earthworks including stockpile management;
 - ground post treatment, including drilling and grouting works;
 - dewatering works;
 - ground monitoring;
 - shaft excavation works; and
 - secant piling works.
- Chalfont St Giles Vent Shaft Worksite, reference - CSG (see Plan 9 in Appendix A), where works activities included:
 - operation of general plant;
 - stockpile management;
 - collar construction works;
 - dewatering works; and
 - secant piling works.
- Chalfont St Peter Vent Shaft Worksite, reference – CSP (see Plan 10 in Appendix A), where works activities included:
 - operation of general and auxiliary plant on site;
 - basement secant piling works (including excavation and cutting of piles);
 - road maintenance works;
 - secondary lining for concrete walls and floors;
 - connections to tunnel (including demolition and reinforced concrete works); and
 - basement construction works (including reinforced concrete capping beam, ground beams, excavation of capping beam and basement, and waterproofing works).
- Colne Valley Viaduct - Load Test Pile 1 Worksite, reference – CVV-LTP #1 (see Plan 11 in Appendix A), where works activities included:
 - piling for the construction of the jetty;

- construction of a cofferdam (including piling, operation of support plant and excavation);
- main piling works including bored piling, de-sanding, installation of reinforcement cage and concrete piling, break-out of bored pile to prepare pile cap and installation of grout curtain around viaduct pile;
- fencing and finishing works of the site haul roads;
- construction and maintenance of haul roads;
- ground investigation works;
- Denham Water Ski Club and North Embankment compound operations and de-sanding;
- realignment of River Colne;
- installation of satellite welfares;
- construction of north abutment pile wall;
- core drilling for integrity test of concrete piles;
- pile trimming;
- stockpiling;
- pumping water management construction;
- diversion and installation of utilities;
- environmental maintenance; and
- maintenance for generator farms.

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

- Amersham where water diversion works were underway;
- East West Rail Overbridge where waterproofing and backfilling of east foundation, and installation of abutment wall rebar were undertaken;
- Charndon Lodge Underbridge where waterproofing and backfilling of west foundation, and excavation works were undertaken;
- Perry Hill Overbridge where platform building and drainage works were underway;
- Oxford Line where earthworks and temporary drainage works were underway;
- Calvert cutting where vegetation clearance works were undertaken;

- Calvert South where excavation works, stone build up and temporary culverts snagging were underway;
- Station Road where compound operation, construction of laydown areas, culvert crossing, stone access road and platform, and utilities diversion were undertaken;
- Hills Farm where pond excavation works and stone build-up were underway;
- MCJ Line where vegetation clearance and removal of ballast were undertaken;
- Mulberry Park Hill near Great Missenden where landscaping works were underway;
- Bottom House Farm Lane where excavation works were undertaken;
- Hartwell where trial archaeological works were undertaken;
- Aylesbury Golf Course where maintenance and remedial fencing works were undertaken.
- A421 where stone deliveries, vegetation clearance, topsoil stripping and compound development works were undertaken.
- Vegetation clearance and grass cutting were undertaken throughout the HS2 route.

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

1.2 Measurement Locations

- 1.2.1 Thirty-five (35) noise and two (2) vibration monitoring installations were active in January in the BS area. Table 2 summarises the positions of noise and vibration monitoring installations within the BS area in January 2022.
- 1.2.2 An additional noise monitor (ref.: A422N-NMP1) was active in January in the proximity of the Turweston North Worksite, ref.: TN.
- 1.2.3 An additional noise monitor (ref.: AR-NMP1) was active in January in the proximity of the Addison Road Worksite, ref.: AR.

- 1.2.4 An additional noise monitor (ref.: GH-NMP1) was active in January in the proximity of the Glebe House worksite, ref.: GH.
- 1.2.5 An additional noise monitor (ref.: MF-NMP1) was active in January in the proximity of the Oat Close worksite, ref.: OC.
- 1.2.6 Noise monitoring at monitor FCC-NMP1, installed in proximity of FCC Siding worksite (ref.: FCC), continued to be on hold during the monitoring period due to power supply issues. However, no works were being undertaken in at this worksite in January 2022.
- 1.2.7 Noise monitoring at monitors QAR-NMP1, HF-NMP1 and BHFL-NMP1 were discontinued due to completion of work, therefore is no longer included in the report.
- 1.2.8 Maps showing the positions of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
TN	A422N-NMP1	A422, Brackley Road, Westbury
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
WSO	WSO-NMP1	West Street, Twyford
	WSO-NMP2	Twyford
AR	AR-NMP1	Addison Road, Rosehill Farm
SHC	SHC-NMP1	School Hill Compound, Calvert
SHU	SHU-NMP1	70 Cotswold Way, Calvert
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury
	MW-NMP1	Aylesbury, Buckinghamshire
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury
	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville
RLE	SDVC-NMP1	Rocky Lane, Wendover
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover

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Worksite Reference	Measurement Reference	Address
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	NP-NMP1	North Portal worksite, Great Missenden
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
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
TN	A422N-NMP1	A422, Brackley Road, Westbury	Free-field	54.6 (55.6)	53.1 (54.3)	50.9 (52.7)	49.8 (52.8)	48.4 (54.3)	n/a* (n/a)*	n/a* (n/a)*	n/a* (n/a)*	n/a* (n/a)*	n/a* (n/a)*	n/a* (n/a)*	
SE	SE-NMP1	School End, Chetwode	Free-field	47.1 (50.6)	51.6 (62.5)	43.8 (52.8)	40.5 (45.8)	40.2 (47.6)	42.5 (43.6)	45.1 (50.1)	44.2 (50.6)	43.4 (52.4)	38.4 (49.6)	45.2 (57.1)	42.0 (51.9)
RF	RF-NMP1	Old Stable Cottage, Rosehill Farm, Chetwode	Free-field	46.6 (51.3)	48.1 (52.0)	43.6 (50.0)	43.8 (48.2)	42.7 (49.2)	47.0 (49.8)	48.2 (49.7)	46.4 (48.3)	46.1 (52.1)	42.8 (50.1)	46.8 (53.5)	43.6 (46.7)
HC	HC-NMP1	Hermitage, Chetwode	Free-field	43.6 (49.4)	51.1 (55.3)	40.8 (45.1)	38.7 (46.0)	37.5 (52.5)	41.7 (45.5)	44.2 (46.8)	44.8 (48.5)	40.9 (53.9)	34.5 (47.4)	43.0 (52.3)	40.1 (55.1)
WSO	WSO-NMP1	West Street, Twyford	Free-field	51.0 (53.8)	52.1 (58.2)	47.5 (54.2)	44.0 (48.4)	40.9 (53.6)	49.6 (53.7)	50.5 (52.5)	50.2 (52.4)	47.5 (49.6)	40.1 (57.4)	50.0 (55.1)	42.3
	WSO-NMP2	Twyford	Free-field	43.6 (50.0)	53.4 (58.7)	41.6 (50.5)	39.3 (45.5)	37.9 (44.3)	43.9 (46.3)	43.8 (48.9)	44.7 (47.4)	42.3 (49.5)	37.1 (48.8)	45.7 (57.1)	39.8 (56.6)
AR	AR-NMP1	Addison Road, Rosehill Farm	Free-field	44.9 (48.4)	46.9 (50.0)	39.1 (44.6)	37.9 (48.8)	33.4 (38.8)	48.5 (48.5)	48.2 (48.2)	42.7 (42.7)	45.2 (51.1)	31.6 (35.0)	44.0 (48.5)	46.9 (53.6)
SHC	SHC-NMP1	School Hill Compound, Calvert	Free-field	52.0 (68.6)	58.3 (71.1)	46.6 (53.7)	42.7 (51.6)	40.3 (56.1)	46.9 (55.1)	49.4 (62.5)	47.1 (53.2)	47.9 (70.5)	37.0 (44.5)	46.5 (61.0)	45.7 (71.7)

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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
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Free-field	53.7 (57.2)	60.3 (65.4)	47.9 (49.5)	44.9 (48.4)	41.0 (62.5)	51.2 (55.9)	51.9 (54.2)	50.1 (51.5)	48.7 (58.1)	38.6 (48.8)	50.0 (54.5)	41.7 (52.8)
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	Free-field	56.7 (60.2)	55.5 (58.1)	55.7 (58.4)	53.9 (57.3)	50.0 (56.9)	53.9 (54.6)	55.5 (57.4)	56.7 (58.1)	55.7 (59.5)	48.4 (52.9)	54.1 (57.4)	51.2 (60.1)
MW-NMP1		Aylesbury, Buckinghamshire	Free-field	63.9 (64.8)	62.4 (63.8)	62.7 (63.4)	60.7 (62.0)	56.8 (62.9)	60.5 (60.6)	61.5 (63.4)	63.5 (63.7)	62.1 (64.3)	54.5 (58.0)	61.8 (63.8)	56.5 (62.4)
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	Free-field	46.7 (53.4)	48.5 (52.8)	46.4 (54.2)	44.7 (50.5)	43.6 (68.1)	48.1 (55.8)	49.7 (54.9)	49.9 (53.5)	46.4 (53.7)	39.4 (55.9)	45.6 (53.0)	43.7 (56.8)
MF	MF-NMP1	Moat Farm, Marsh Lane, Stoke Mandeville	Free-field	45.1 (51.1)	49.5 (53.9)	43.8 (47.6)	41.5 (45.3)	44.9 (55.0)	43.2 (43.3)	45.6 (48.5)	43.9 (47.0)	42.9 (50.2)	37.1 (42.0)	42.7 (50.2)	44.9 (56.6)
RLE	SDVC-NMP1	Rocky Lane, Wendover	Free-field	63.8 (65.6)	63.4 (65.6)	62.6 (63.8)	59.3 (62.5)	56.2 (64.6)	57.7 (61.1)	63.4 (68.2)	63.9 (67.8)	61.2 (69.0)	52.1 (58.4)	61.3 (69.1)	56.3 (64.1)
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	Free-field	52.0 (56.5)	54.1 (58.0)	49.9 (55.2)	46.8 (51.2)	44.7 (62.7)	48.5 (51.7)	50.2 (53.8)	51.2 (56.0)	50.1 (57.4)	42.8 (50.1)	49.2 (53.4)	44.4 (57.4)
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Free-field	58.0 (60.4)	61.2 (64.8)	56.5 (59.1)	53.2 (56.7)	50.3 (59.9)	53.7 (56.3)	56.4 (58.7)	56.6 (59.2)	54.8 (58.6)	47.8 (52.6)	55.2 (60.3)	49.6 (58.4)
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee	Free-field	48.5 (56.9)	50.8 (54.2)	46.8 (53.6)	44.7 (57.2)	43.4 (57.1)	47.9 (53.6)	51.5 (57.3)	50.2 (52.8)	46.8 (54.4)	42.1 (54.5)	47.5 (59.0)	43.9 (56.6)

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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
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Free-field	44.7 (55.5)	52.4 (60.3)	46.5 (49.7)	45.4 (50.4)	42.3 (56.1)	43.9 (50.9)	52.0 (63.8)	50.3 (58.2)	48.8 (56.3)	45.1 (49.3)	47.5 (52.9)	42.6 (60.1)
SHCW	PR-NMP1	Potters Row, South Heath	Free-field	50.2 (56.0)	57.1 (62.6)	48.2 (56.5)	47.6 (56.8)	45.8 (56.9)	48.4 (53.7)	57.7 (65.1)	51.3 (58.2)	50.1 (58.8)	42.9 (54.1)	49.4 (55.6)	45.4 (59.1)
	SH-NMP1	Bury Farm, South Heath	Free-field	44.6 (49.7)	52.9 (60.4)	43.1 (47.8)	41.6 (46.3)	38.8 (49.3)	43.2 (48.5)	52.2 (56.0)	48.2 (54.1)	43.9 (52.5)	37.4 (45.3)	45.8 (52.7)	39.4 (52.4)
NP	NP-NMP1	North Portal worksite, Great Missenden	Free-field	51.4 (62.5)	61.5 (64.8)	47.0 (50.4)	44.4 (48.7)	41.7 (48.2)	47.4 (50.8)	61.1 (67.1)	50.2 (54.6)	48.4 (60.5)	40.6 (45.2)	46.5 (53.5)	44.4 (66.1)
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Free-field	59.1 (61.5)	61.8 (69.6)	56.2 (57.8)	53.7 (62.1)	48.2 (55.4)	54.4 (57.8)	57.6 (60.3)	57.6 (58.6)	55.4 (59.7)	47.2 (53.6)	56.3 (67.3)	48.2 (59.6)
AM	AM-NMP1	Whielden Lane, Amersham	Free-field	64.3 (68.8)	66.7 (69.2)	64.1 (69.9)	59.2 (66.1)	53.6 (60.9)	59.5 (67.2)	63.0 (66.4)	60.8 (61.9)	58.9 (62.1)	51.9 (56.1)	58.9 (62.4)	53.0 (61.0)
LM	LM-NMP1	Little Missenden, A413, Amersham	Free-field	60.4 (62.0)	60.5 (61.6)	60.0 (63.1)	56.7 (61.2)	51.7 (58.6)	55.8 (57.6)	59.2 (61.9)	60.2 (62.5)	57.9 (61.5)	50.4 (55.4)	58.0 (62.2)	51.2 (59.3)
	PWC-NMP1	Patricia Holmes, Little Missenden Vent Shaft Worksite, Amersham	Free-field	60.3 (62.8)	59.9 (63.2)	59.1 (60.8)	55.7 (59.5)	50.9 (58.3)	56.7 (59.2)	59.0 (60.9)	59.9 (61.5)	57.5 (60.5)	49.8 (54.0)	57.8 (64.3)	50.7 (59.9)
CSG	CSG-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	48.5 (55.8)	54.0 (62.6)	43.2 (52.6)	41.6 (57.1)	41.9 (53.1)	46.4 (46.9)	48.2 (52.9)	48.1 (49.8)	44.0 (51.2)	42.5 (47.8)	46.8 (55.2)	44.1 (54.0)

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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
	CSG-NMP2	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane	Free-field	51.9 (57.9)	55.7 (62.5)	47.5 (55.3)	44.5 (55.0)	45.5 (57.7)	50.5 (54.5)	51.3 (58.8)	47.1 (51.9)	45.7 (51.9)	43.3 (51.0)	48.4 (59.3)	46.2 (58.4)
	PIC-NMP1	Chalfont St Giles Vent Shaft Worksite, Bottom House Farm Lane		54.1 (55.0)	55.1 (56.5)	54.6 (55.7)	50.8 (53.9)	46.7 (53.9)	52.8 (52.8)	53.0 (53.0)	52.8 (52.8)	51.3 (54.1)	44.6 (47.8)	55.7 (64.8)	45.2 (47.5)
CSP	CSP-NMP1	Chalfont St Peter Vent Shaft Worksite	Free-field	58.2 (66.0)	59.0 (63.1)	55.3 (58.1)	52.6 (56.2)	48.6 (56.7)	52.8 (57.2)	56.5 (59.9)	56.0 (60.2)	54.1 (59.1)	47.0 (55.0)	54.4 (59.8)	48.2 (55.4)
	CSP-NMP2	Chalfont St Peter Vent Shaft Worksite		47.8 (54.0)	50.8 (57.5)	46.0 (51.5)	44.5 (48.9)	41.1 (52.4)	44.0 (47.5)	47.9 (50.2)	47.8 (51.0)	47.1 (53.6)	38.2 (44.9)	47.8 (52.8)	41.0 (49.9)
	CSP-NMP3	Chalfont St Peter Vent Shaft Worksite		58.6 (61.7)	58.5 (60.2)	57.5 (59.7)	55.1 (58.0)	50.8 (57.1)	54.0 (56.2)	59.6 (61.9)	58.7 (60.1)	56.8 (59.6)	49.2 (55.3)	56.7 (59.4)	50.5 (58.5)
CVV-LTP #1	CVV-LTP #1-NMP1	Northern boundary, Load Test Pile 1 Worksite	Free-field	62.9 (64.6)	62.4 (64.2)	60.7 (62.4)	57.5 (60.1)	55.4 (63.5)	59.2 (61.6)	62.0 (64.7)	61.4 (63.0)	59.9 (65.0)	52.7 (57.3)	59.4 (64.4)	54.8 (62.7)
	CVV-WYC-NMP1	Wyatt's Covert, Tilehouse Lane, Denham		53.5 (56.7)	55.4 (65.4)	51.1 (52.6)	49.4 (54.3)	46.9 (62.7)	50.2 (51.9)	52.2 (53.2)	51.4 (52.5)	50.3 (54.2)	44.5 (48.0)	50.3 (55.6)	46.0 (54.4)
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge		51.1 (59.4)	57.3 (70.7)	48.8 (58.8)	46.0 (57.4)	43.0 (64.6)	51.2 (55.9)	50.8 (53.7)	48.2 (52.6)	48.7 (57.2)	41.6 (53.2)	48.1 (55.2)	43.2 (54.4)
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Free-field	51.4 (54.4)	51.4 (55.4)	47.0 (51.1)	45.8 (51.2)	43.6 (60.9)	49.6 (51.6)	48.7 (50.2)	47.7 (50.0)	46.5 (50.6)	41.1 (48.3)	47.0 (51.0)	42.9 (51.9)

*No weekend data available.

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- 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-Vib 1	School End, Chetwode	0.96 (X-axis)
RF	RF-Vib 1	Old Stable Cottage, Rosehill Farm, Chetwode	2.36 (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

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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
TN	A422N-NMP1	A422, Brackley Road, Westbury	All days	All periods	No exceedance	No exceedance
SE	SE-NMP1	School End, Chetwode	Weekday	08:00-18:00	1	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
WSO	WSO-NMP1	West Street, Twyford	All days	All periods	No exceedance	No exceedance
	WSO-NMP2	Twyford	All days	All periods	No exceedance	No exceedance
AR	AR-NMP1	Addison Road, Rosehill Farm	All days	All periods	No exceedance	No exceedance
SHC	SHC-NMP1*	School Hill Compound, Calvert	Weekday Saturday	08:00-18:00 08:00-13:00	5 1	No exceedance
SHU	SHU-NMP1	70 Cotswold Way, Calvert	Weekday	08:00-18:00	6	No exceedance
MW&GH	GH-NMP1	Glebe House, A418, Aylesbury	All days	All periods	No exceedance	No exceedance
	MW-NMP1	Aylesbury, Buckinghamshire	Weekday Saturday	08:00-18:00 08:00-13:00	12 1	No exceedance
OC	OC-NMP1	Oat Close, Bishopstone, Aylesbury	All days	All periods	No exceedance	No exceedance
	MF-NMP1*	Moat Farm, Marsh Lane, Stoke Mandeville	All days	Night	25	No exceedance
RLE	SDVC-NMP1	Rocky Lane, Wendover	Weekday Saturday	08:00-18:00 08:00-13:00	20 3	No exceedance No exceedance

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Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
	NCAS6-NMP1	Chesham Lane, The Lee, Wendover	All days	All periods	No exceedance	No exceedance
	NCAS5-NMP1	Chesham Lane, The Lee, Wendover	Weekday	08:00-18:00	7	No exceedance
LL	HG-NMP1	Hunts Green, Leather Lane, The Lee, South Heath	All days	All periods	No exceedance	No exceedance
	GD-NMP1	Grimms Ditch, The Lee, South Heath	Saturday	08:00-13:00	1	No exceedance
SHCW	PR-NMP1	Potters Row, South Heath	Weekday Saturday	08:00-18:00 08:00-13:00	1 2	No exceedance
	SH-NMP1	Bury Farm, South Heath	All days	All periods	No exceedance	No exceedance
NP	NP-NMP1	North Portal worksite, Great Missenden	Weekday Saturday	08:00-18:00 08:00-13:00	3 2	No exceedance No exceedance
CR	MDL-NMP1	Meadow Leigh Cottage, Firth Hill, South Heath	Weekday	08:00-18:00	9	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	Weekday Weekday	18:00-19:00 19:00-22:00	3 19	No exceedance No exceedance

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Worksite Reference	Measurement Reference	Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of LOAEL	Number of exceedances of SOAEL
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	Chalfont St Giles Vent Shaft	All days	All periods	No exceedance	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	Weekday Sunday Night	08:00-18:00 07:00-22:00 22:00-07:00	2 1 54	No exceedance No exceedance No exceedance
	CVV-DFS-NMP1	Denham Film Studio, Uxbridge	Weekday Weekday Weekday Weekday Saturday Sunday Night	07:00-08:00 08:00-18:00 18:00-19:00 19:00-22:00 14:00-22:00 07:00-22:00 22:00-07:00	1 7 2 2 4 8 20	No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance No exceedance
CVV-MR	CVV-SVF-NMP1	Savay Farm, Denham Garden Village, Denham, Buckinghamshire	Night	22:00-07:00	38	No exceedance

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

2.2.6 Exceedances of the LOAEL were recorded at 15 monitoring locations during January 2022. No exceedance of SOAEL was recorded due to HS2 construction works during the month of January.

2.3 Exceedances of Trigger Level

2.3.1 Table 6 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 6: Summary of Exceedances of Trigger Levels

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

2.4 Complaints

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

Table 7: Summary of Complaints

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-22-43124-C	OC	Noise and light disturbance from works overnight at stakeholders' property.	Consents given for out of hours work by Local Authority. Notification of the works provided to local communities via mailing list. Also communicated via Parish Councils and letter drop undertaken.	Noise consultant visited the site and advised the noise levels were within the consented level. Details of noise mitigation measures were provided to stakeholder.
HS2-22-43128-C	OC	Noise disturbance at night from works at HS2 site. Information sought on relevant permissions.	Consents given for out of hours work by Local Authority. Notification of the works provided to local communities via mailing list. Also communicated via Parish Councils and letter drop undertaken.	Noise consultant visited the site and advised the noise levels were within the consented level. Details of noise mitigation measures and advanced works notification were provided to stakeholder.
HS2-22-43139-C	CVV-MR	Noise disturbance due to the constant loud banging from construction works.	Noise due to ongoing piling works.	Explanation of works, methods & timetable provided. Piling may produce intermittent noise/vibration during core hours. Special cases

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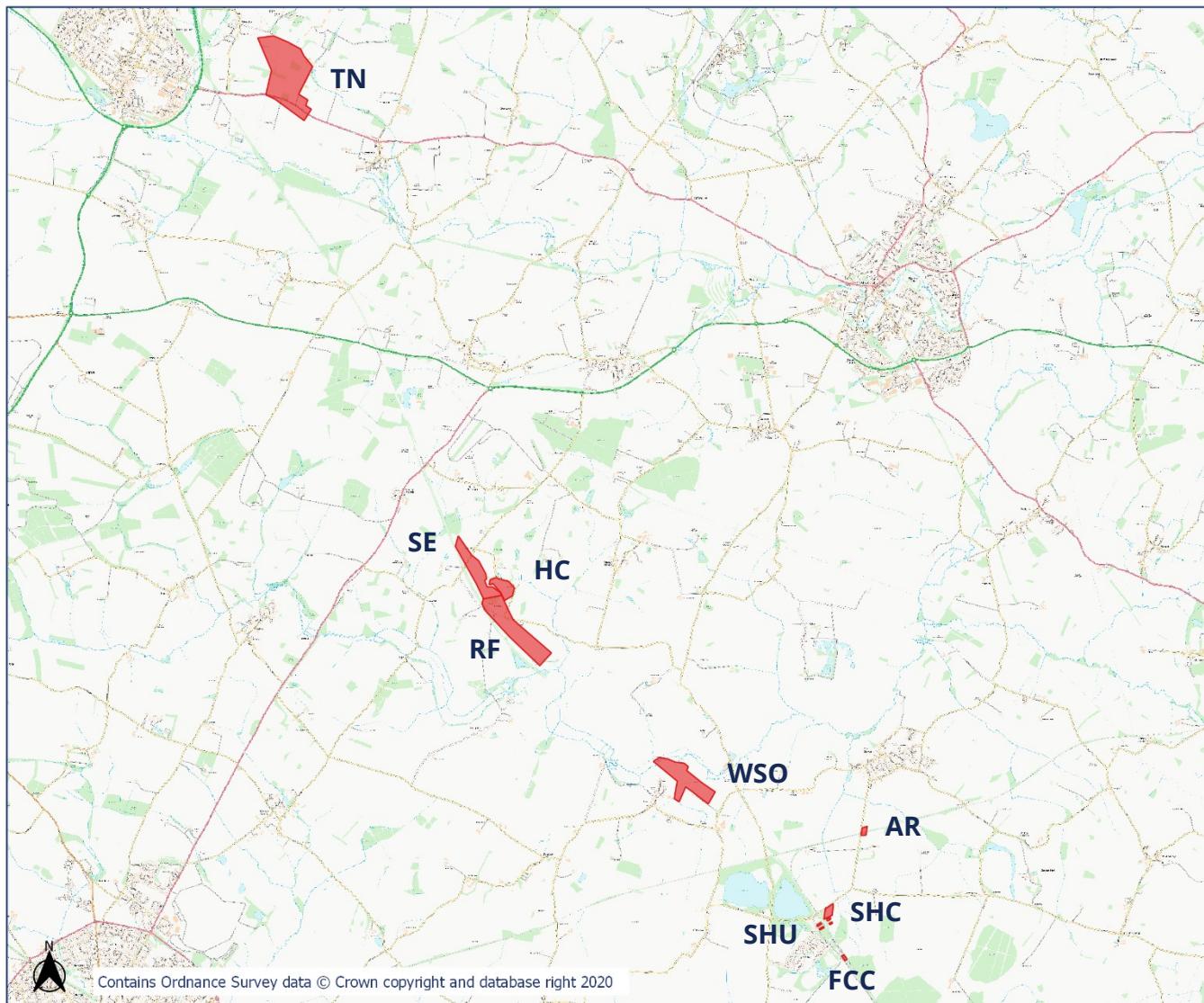
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
				information provided to the stakeholder.
HS2-22-43143-C	OC	Noise disturbance from night-time works. Site lighting shining into the stakeholder's home.	Notification of the works provided to local communities via mailing list. Out of hours works will take place from Sunday to Thursday until summer 2022.	Noise consultant visited the site and advised the noise levels were within the consented level. Details of noise mitigation measures were provided to stakeholder.
HS2-22-43146-C	OC	Noise disturbance from night-time works undertaken without prior notice.	Consents given for out of hours work by local authority. Notification of the works provided to local communities via mailing list. Also communicated via Parish Councils and letter drop undertaken.	Noise consultant visited the site and advised the noise levels were within the consented level. Details of noise mitigation measures and advanced works notification were provided to stakeholder.
HS2-22-43149-C	OC	Noise and light disturbance from night-time works which are outside of approved hours.	Consents given for out of hours work by local authority. Notification of the works provided to local communities via mailing list. Also communicated via Parish Councils and letter drop undertaken.	Noise consultant visited the site and advised the noise levels were within the consented level. Details of noise mitigation measures and advanced works notification were provided to stakeholder.
HS2-22-43163-C	OC	Noise disturbance due to train carrying gravel and two train parked close to stakeholder property.	Investigation reveals the noise disturbance were caused from stationary trains due to National Rail timetable. Engines automatically start to prevent frost damage while standing.	Start/stop technology has been implemented to reduce stationary train noise.

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Appendix A Site Locations

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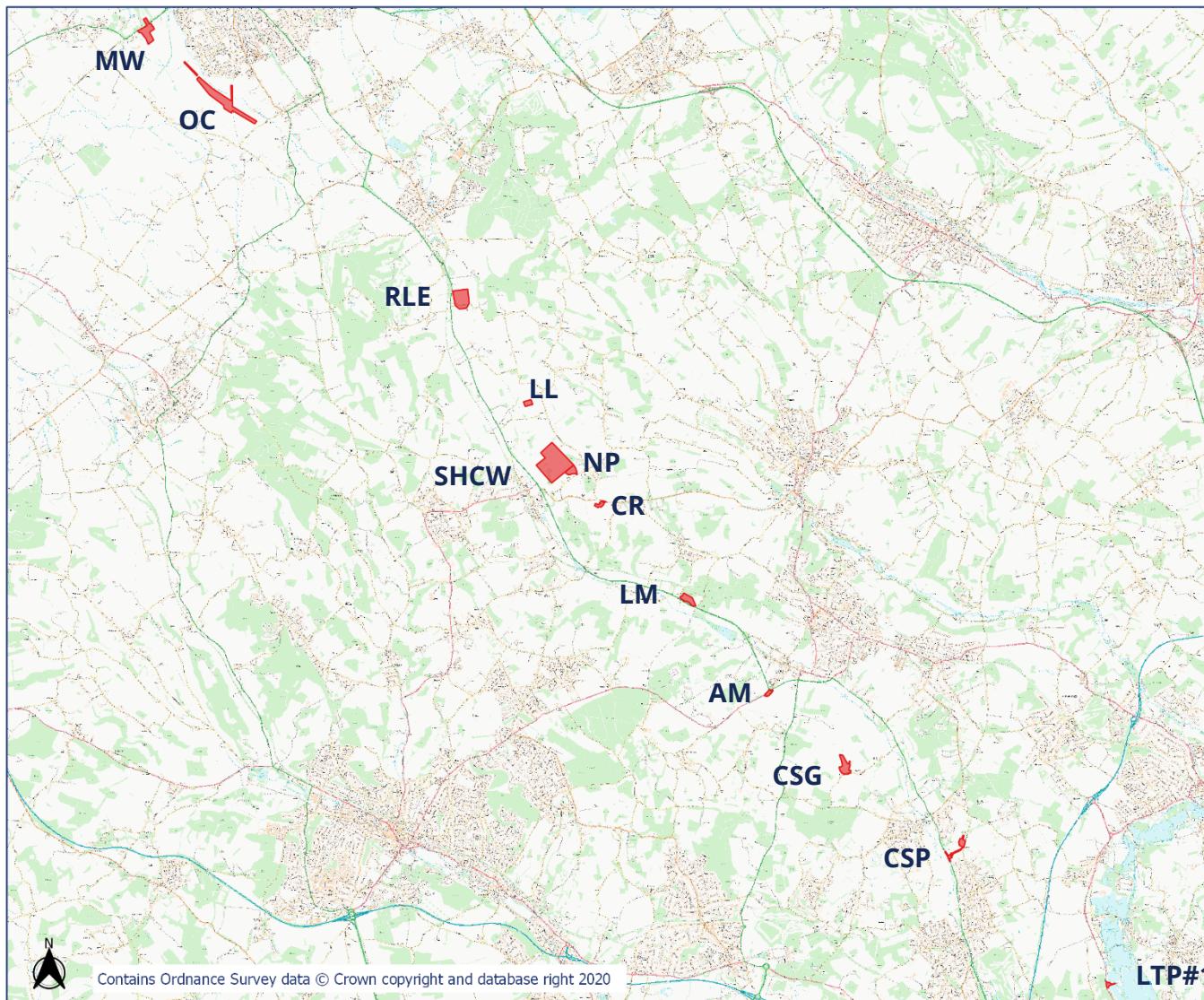
HS2 Worksite Identification Plan - Overview 1



Legend
■ Active Worksites

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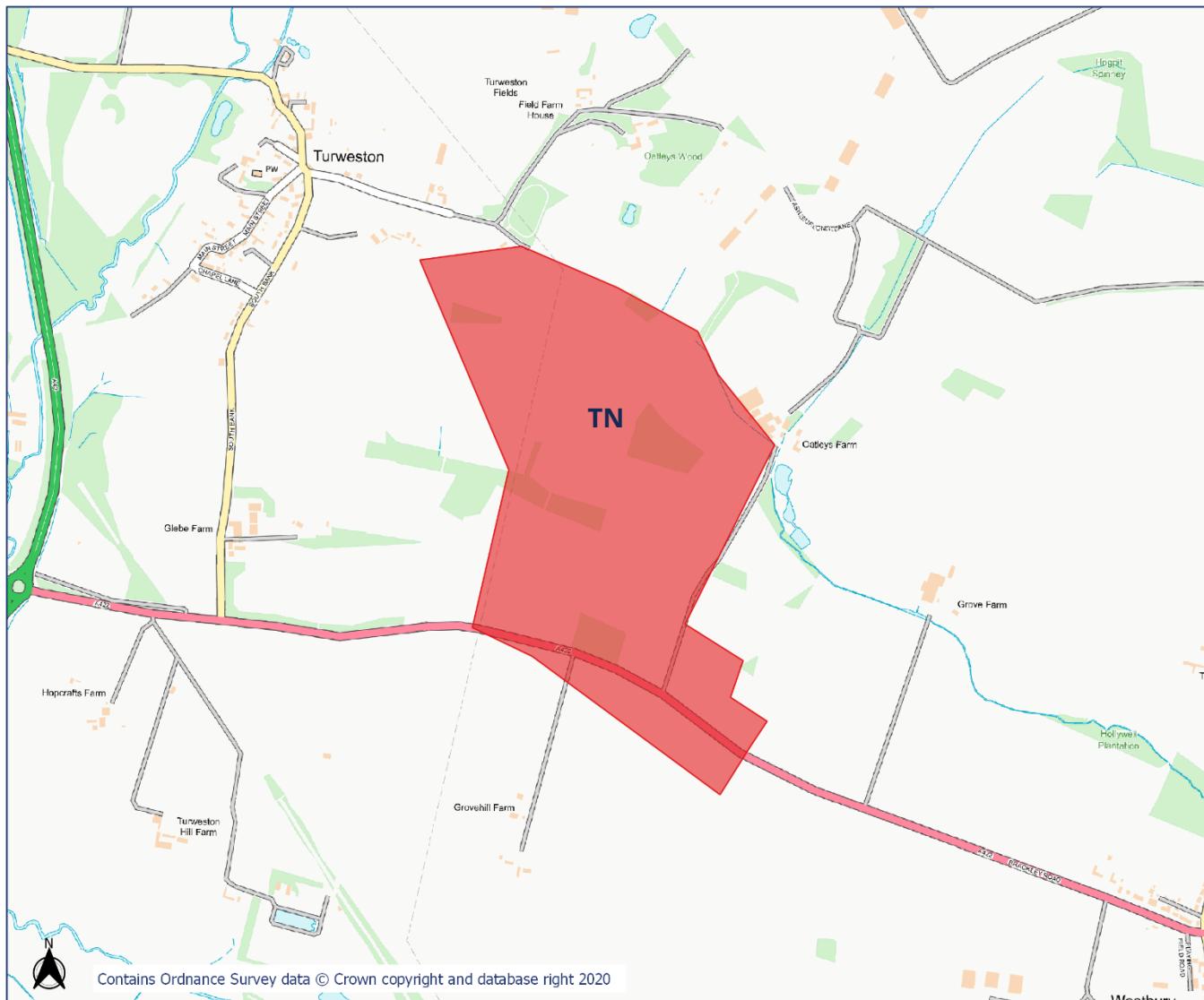
HS2 Worksite Identification Plan - Overview 2



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HS2

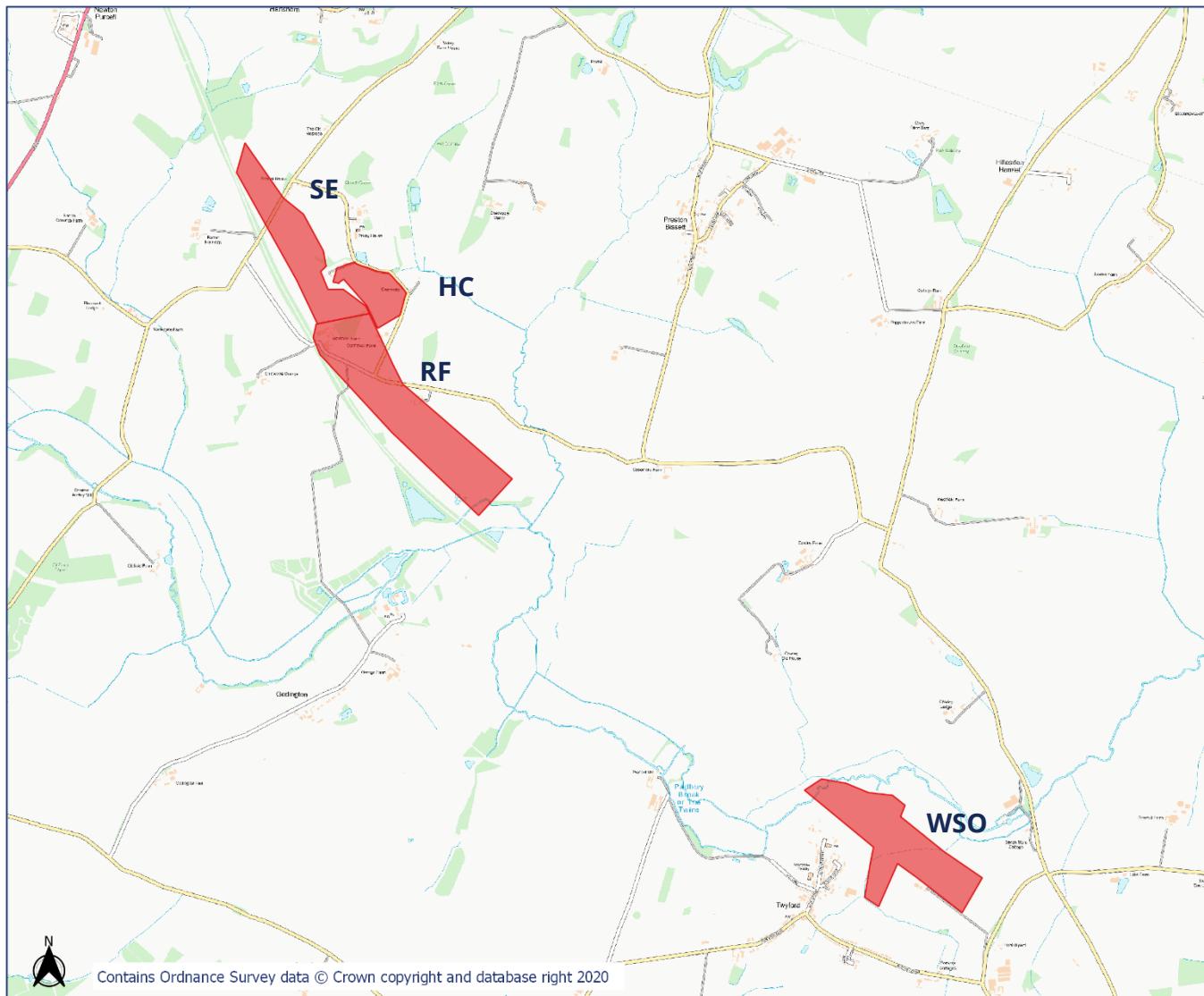
Worksite Identification Plan - 1



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Worksite Identification Plan - 2

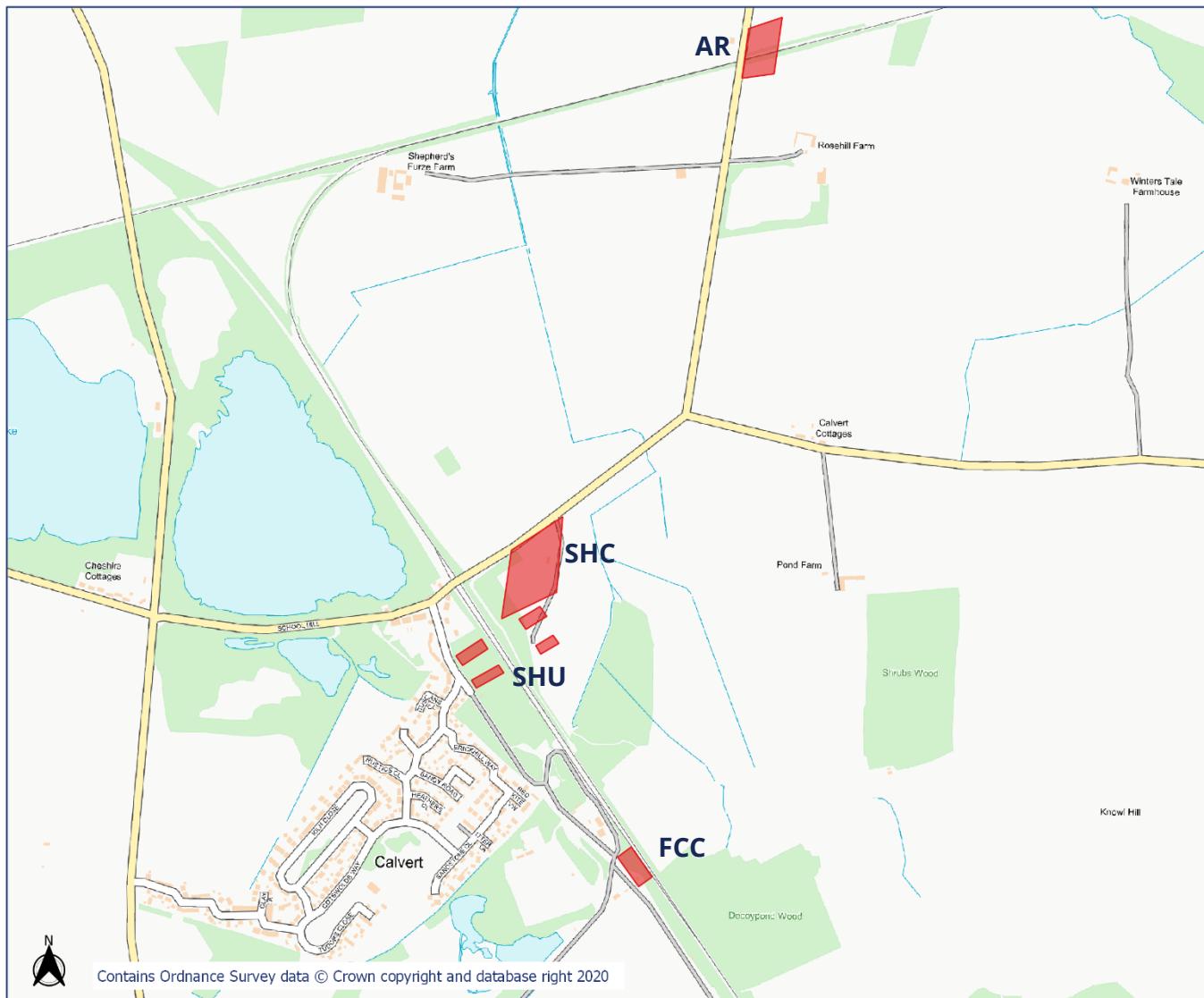


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■ Active Worksites

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Worksite Identification Plan - 3

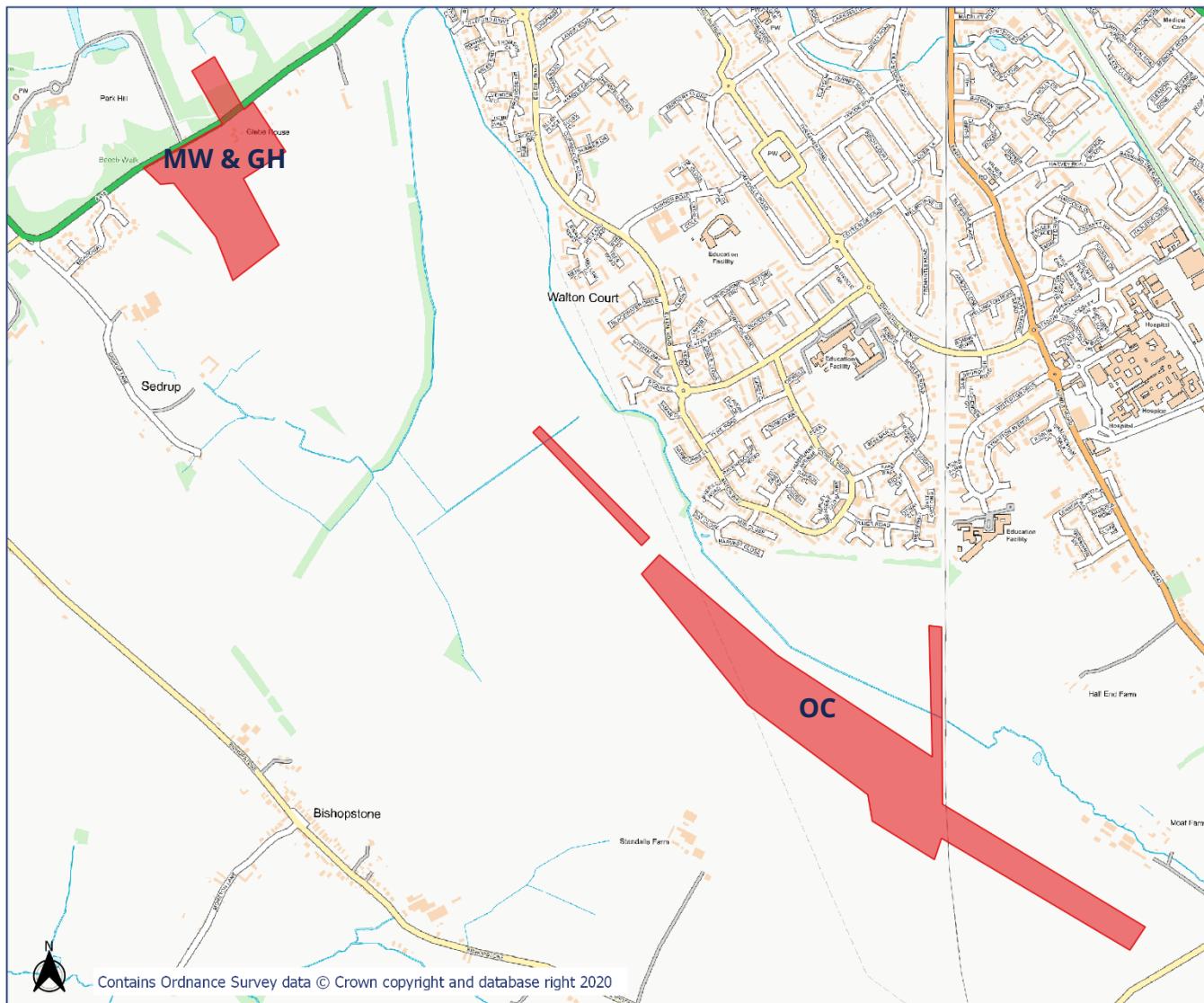


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■ Active Worksites

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Worksite Identification Plan - 4



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■ Active Worksites

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Worksite Identification Plan - 5

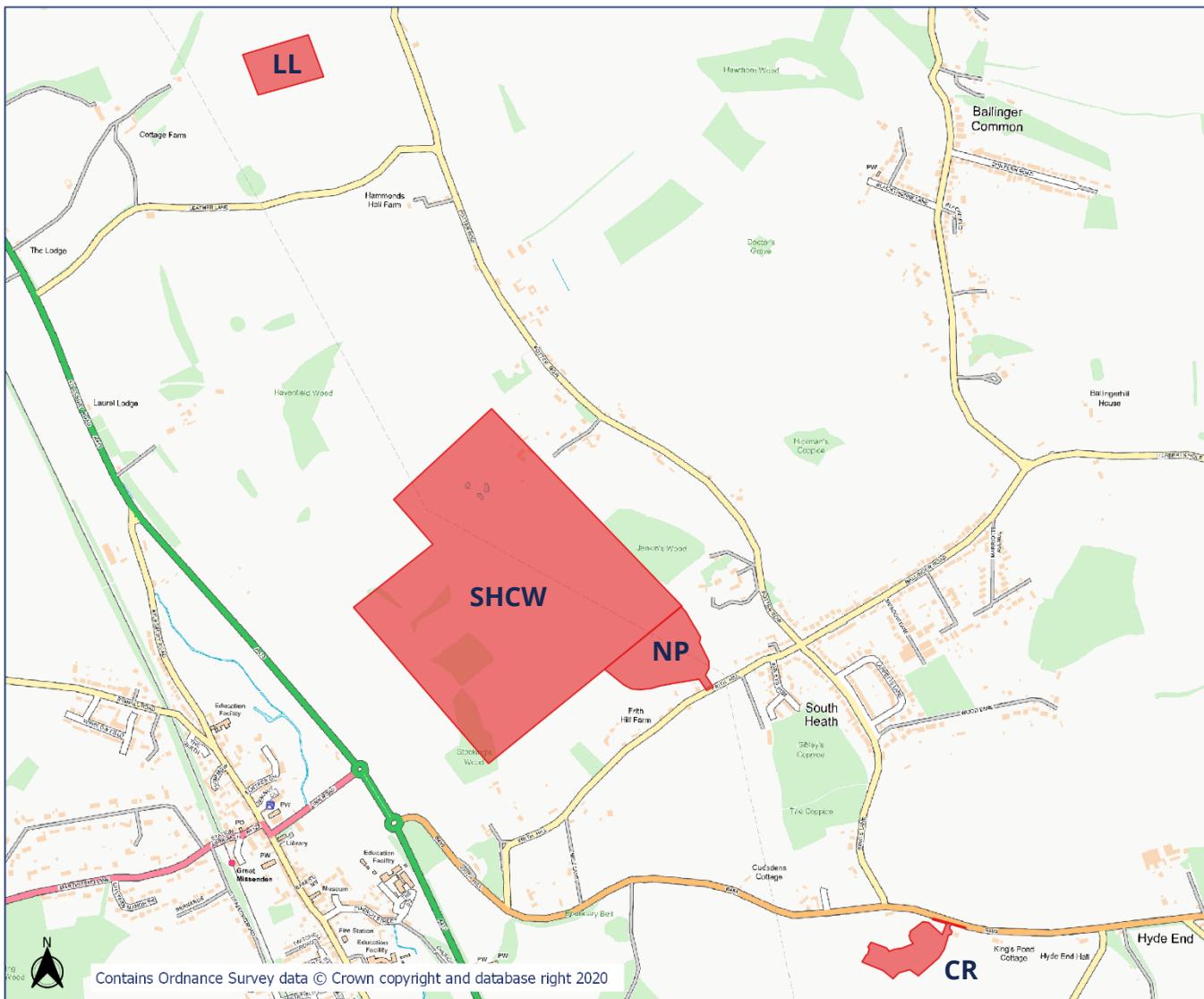


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■ Active Worksites

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Worksite Identification Plan - 6



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■ Active Worksites

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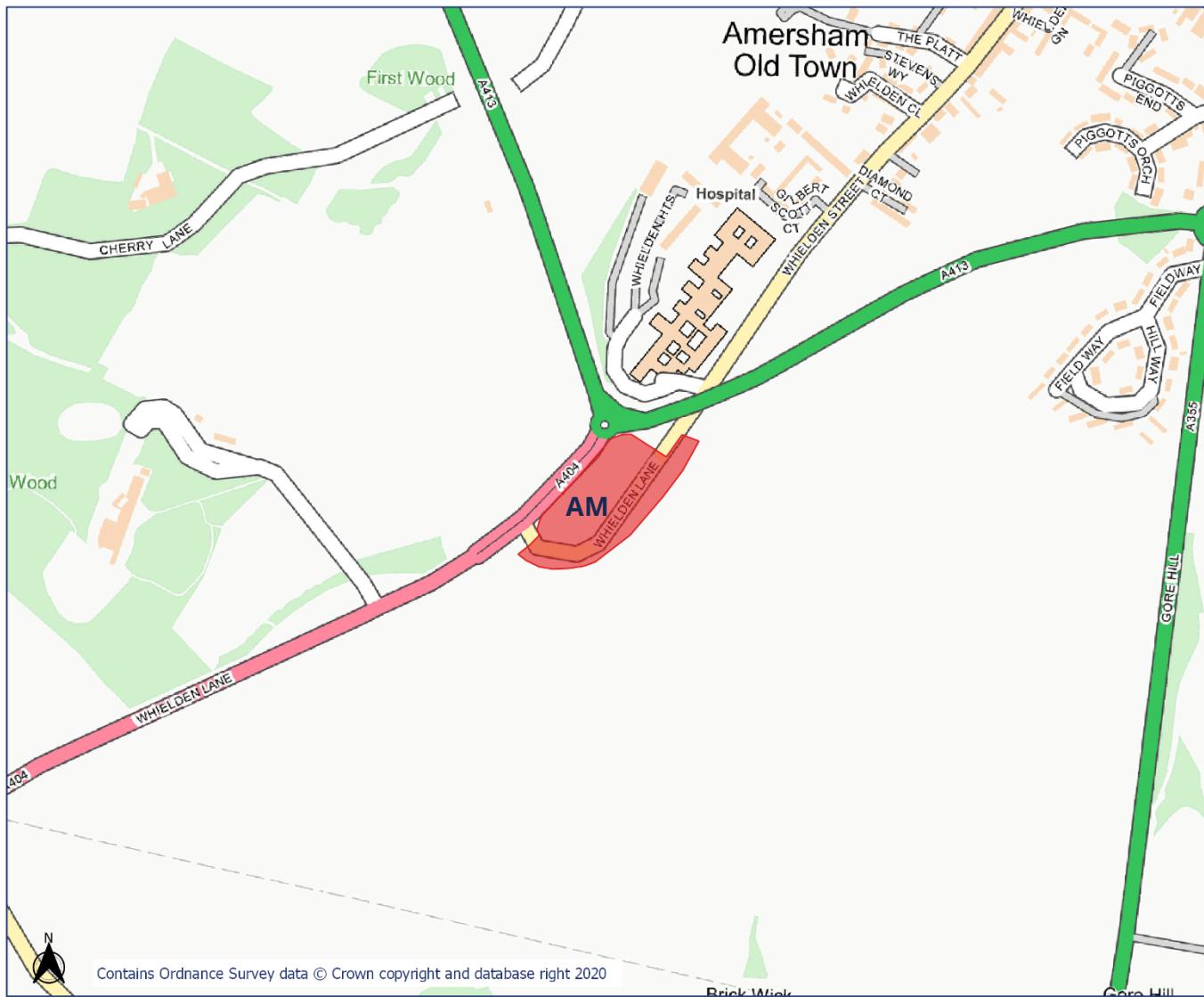
Worksite Identification Plan - 7



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Worksite Identification Plan - 8



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Worksite Identification Plan - 9



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Worksite Identification Plan - 10



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■ Active Worksites

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Worksite Identification Plan - 11



Legend
■ Active Worksites

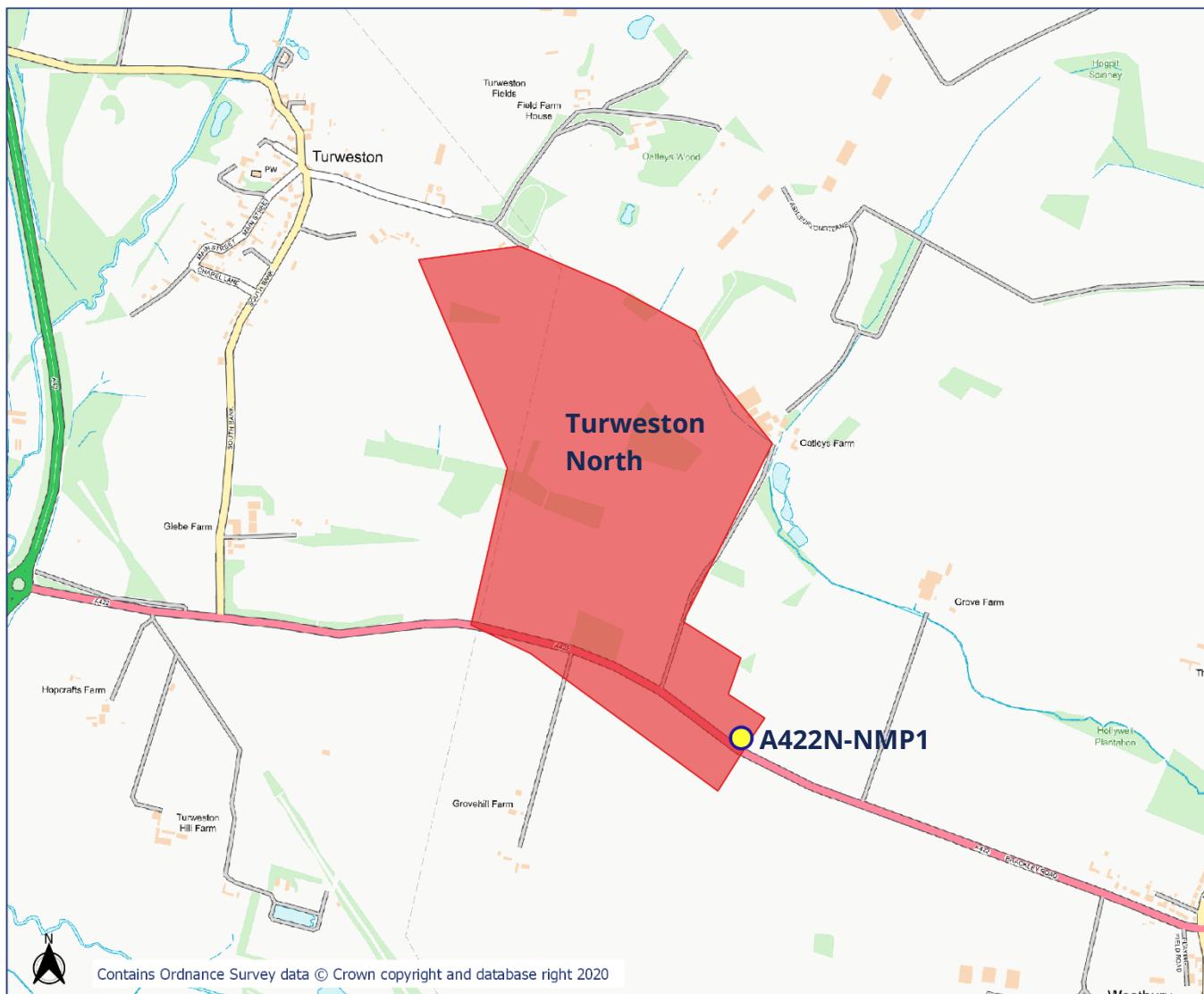
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Appendix B Monitoring Locations

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Noise and Vibration Monitoring Plan - 1

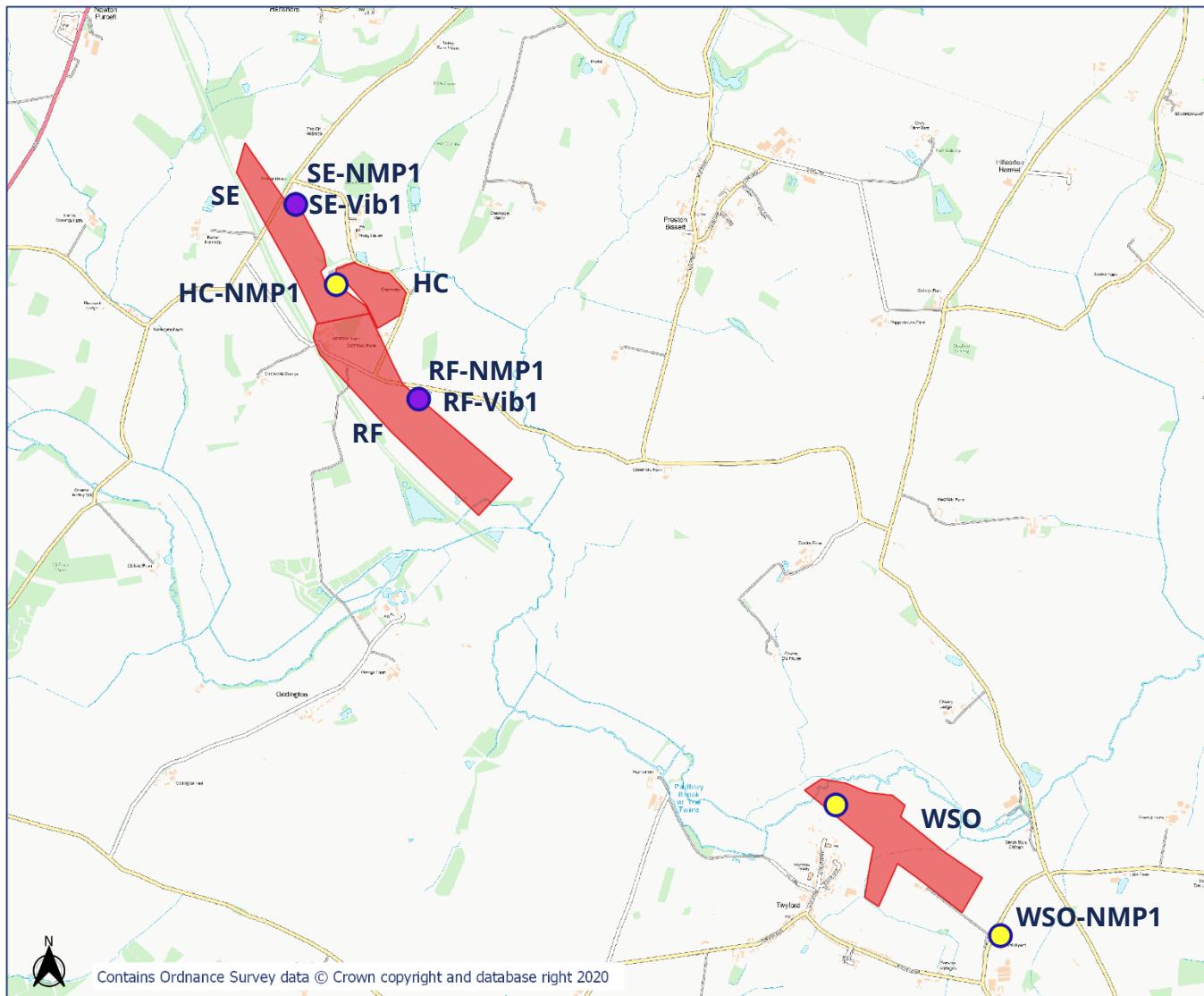


Legend
■ Active Worksites

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Noise and Vibration Monitoring Plan - 2



Legend		
(Yellow circle)	Noise Monitor	
(Purple circle)	Noise and Vibration Monitor	
(Red shape)	Active Worksites	

OFFICIAL

HS2

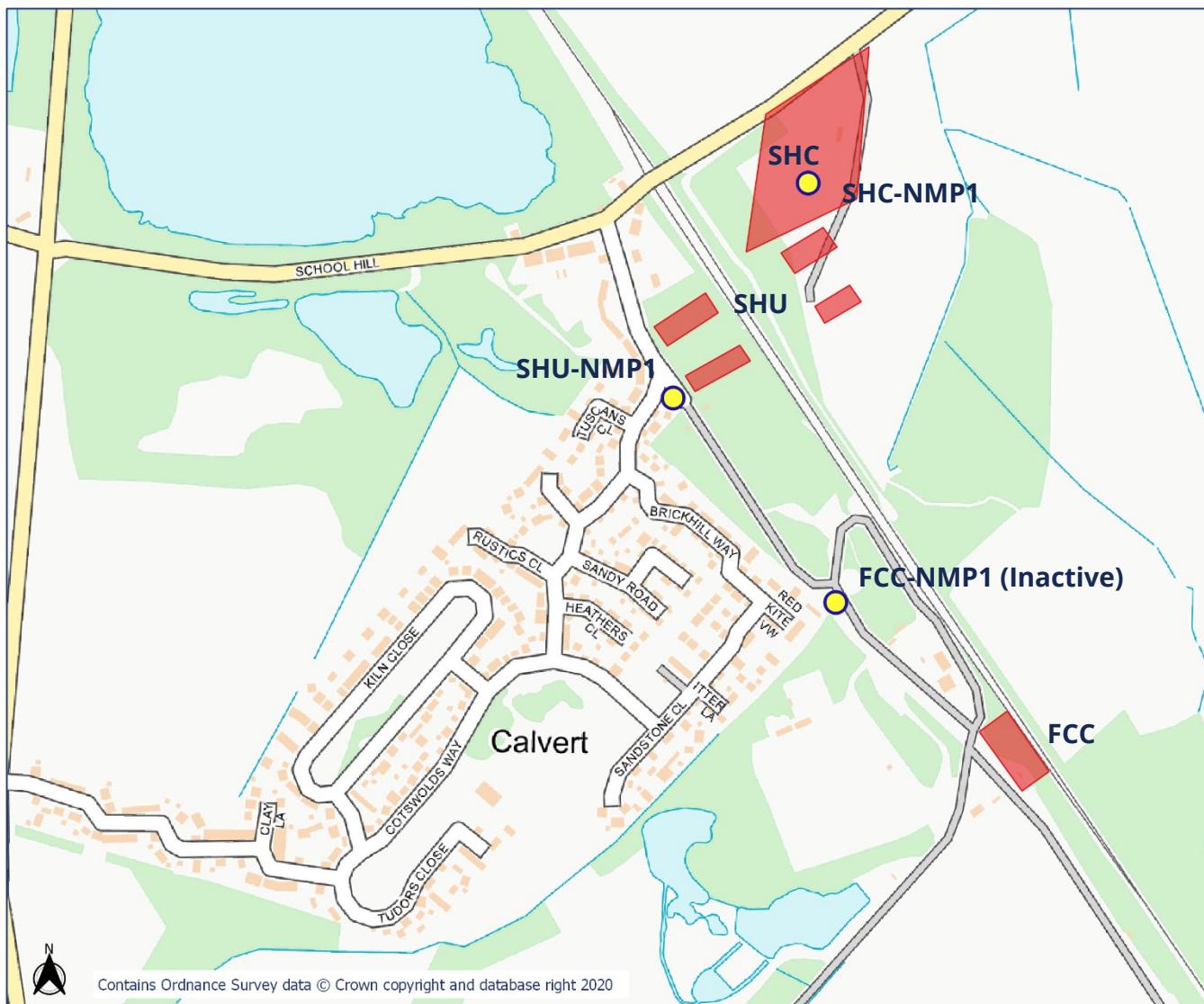
Noise and Vibration Monitoring Plan - 3



OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 4



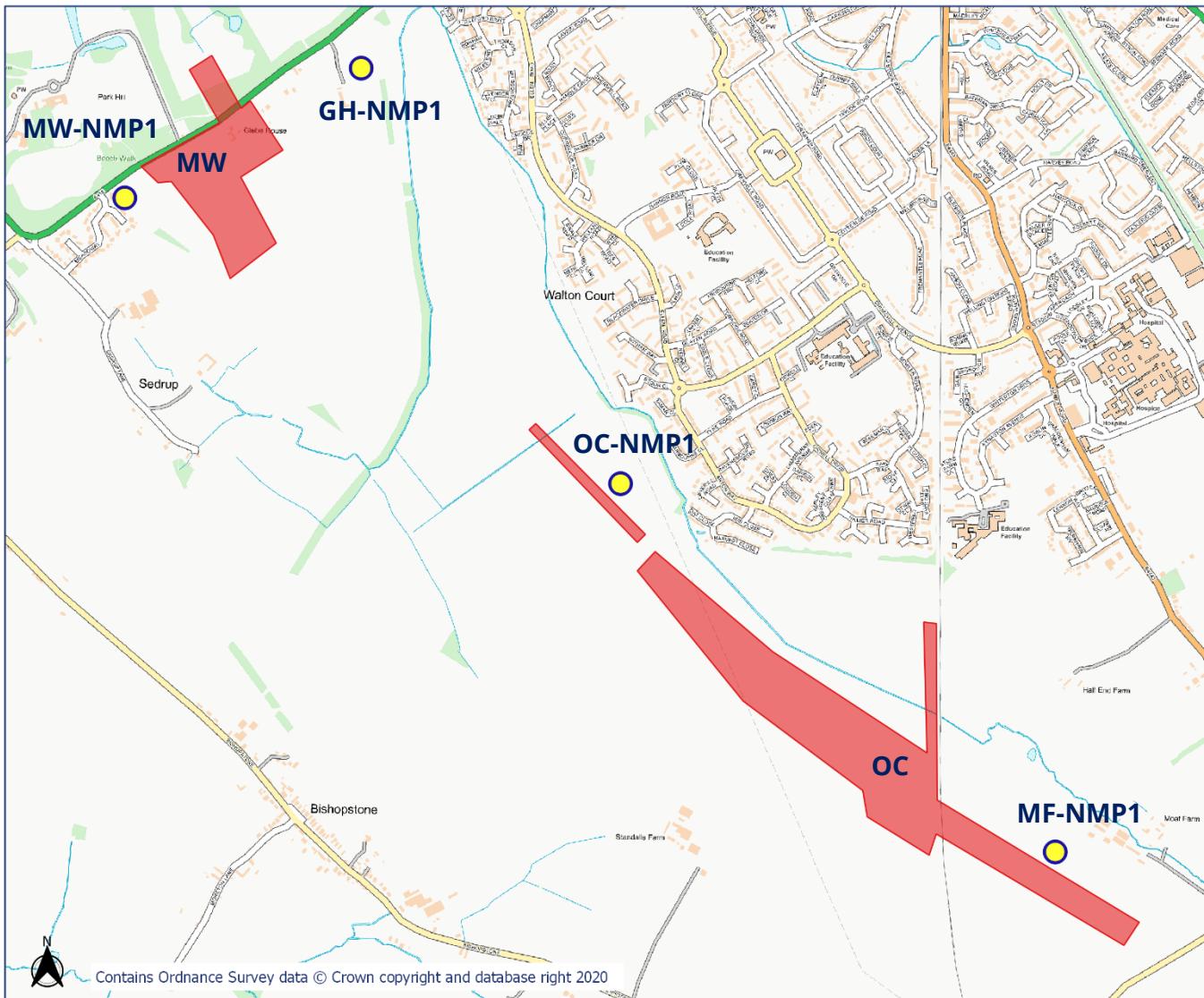
Legend

- Yellow circle: Noise Monitor
- Red rectangle: Active Worksites

OFFICIAL

HS2

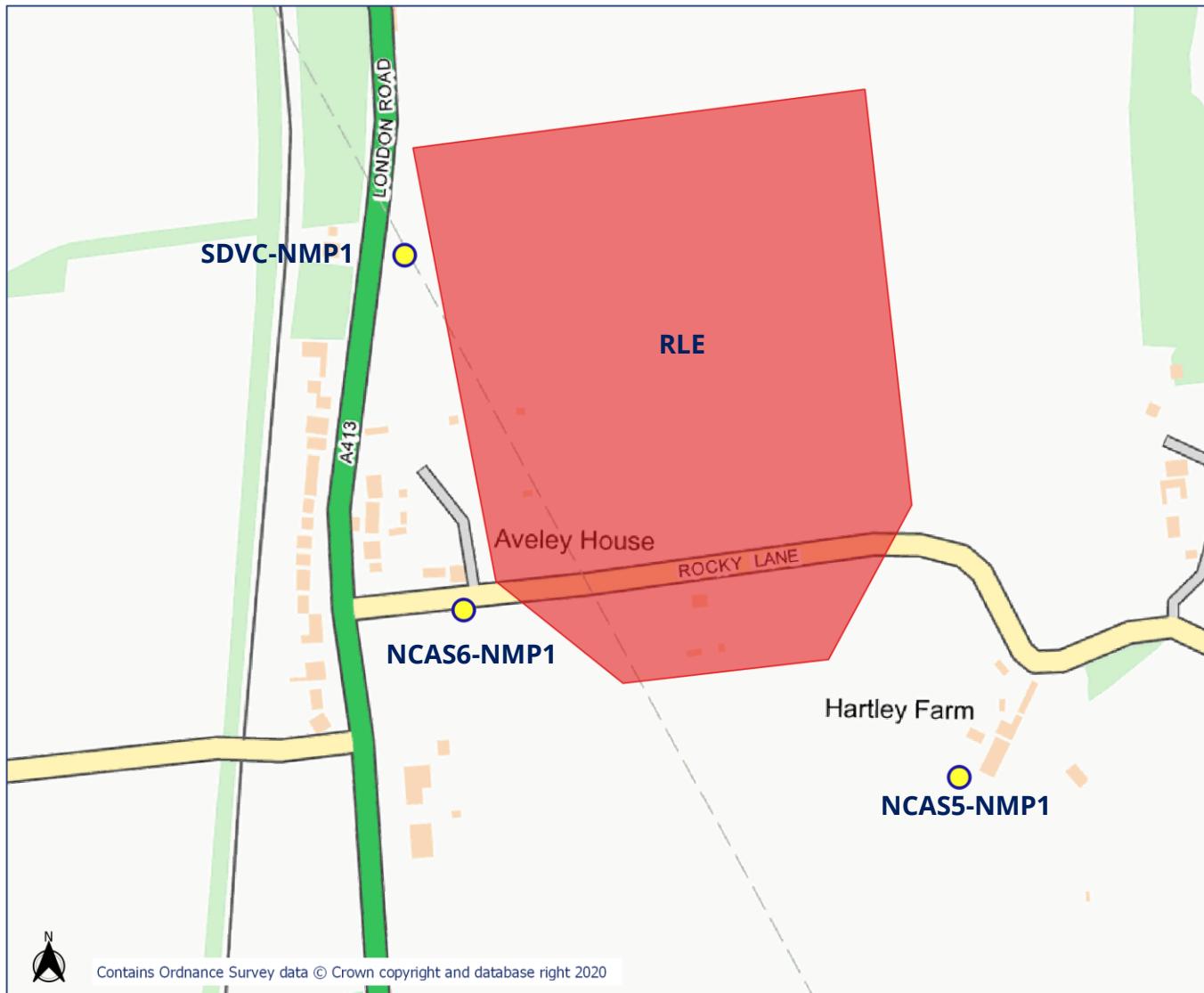
Noise and Vibration Monitoring Plan - 5



OFFICIAL

HS2

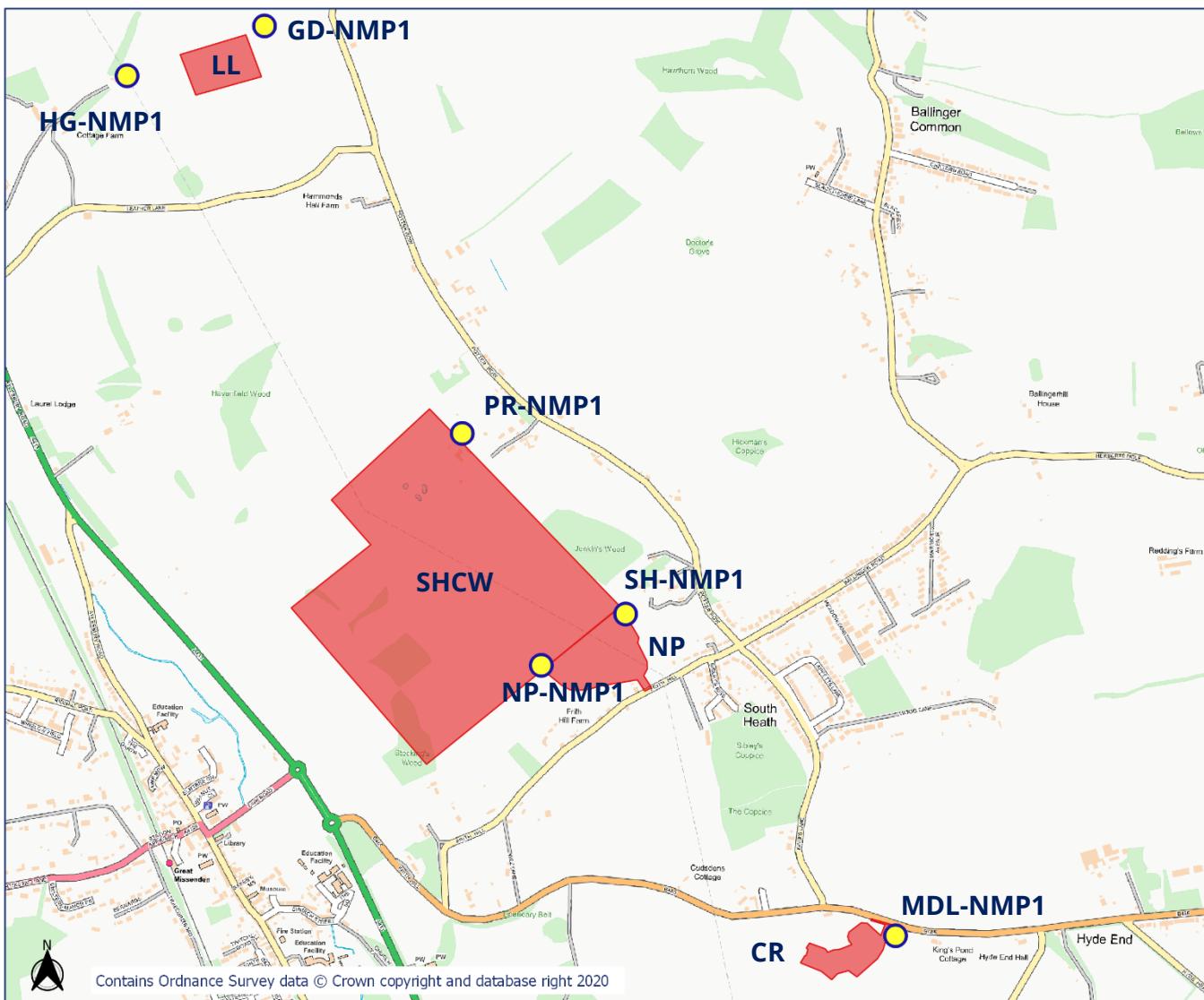
Noise and Vibration Monitoring Plan - 6



OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 7



Legend

- Yellow circle: Noise Monitor
- Red square: Active Worksites

OFFICIAL

HS2

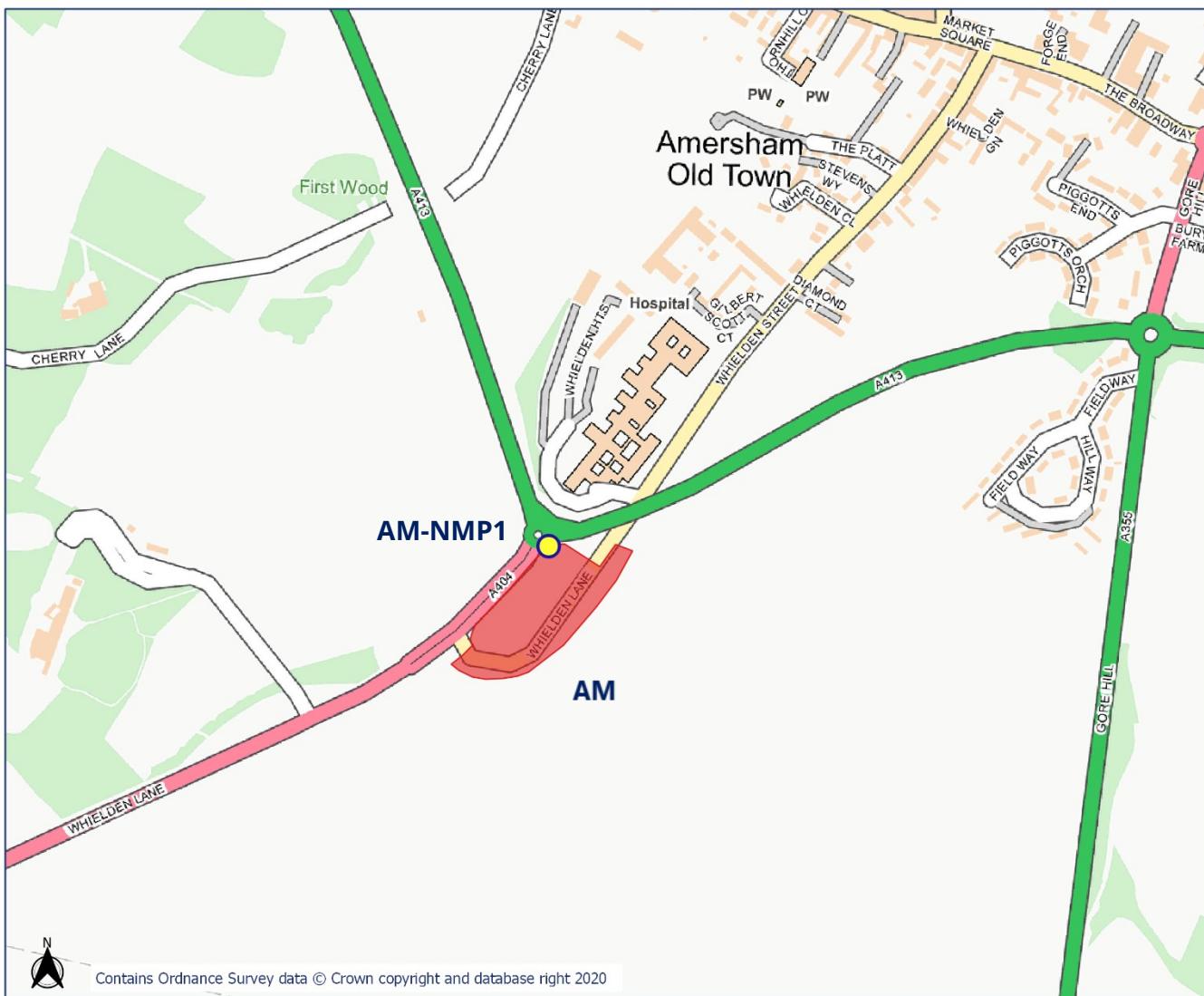
Noise and Vibration Monitoring Plan - 8



OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 9



Legend
● Noise Monitor
■ Active Worksites

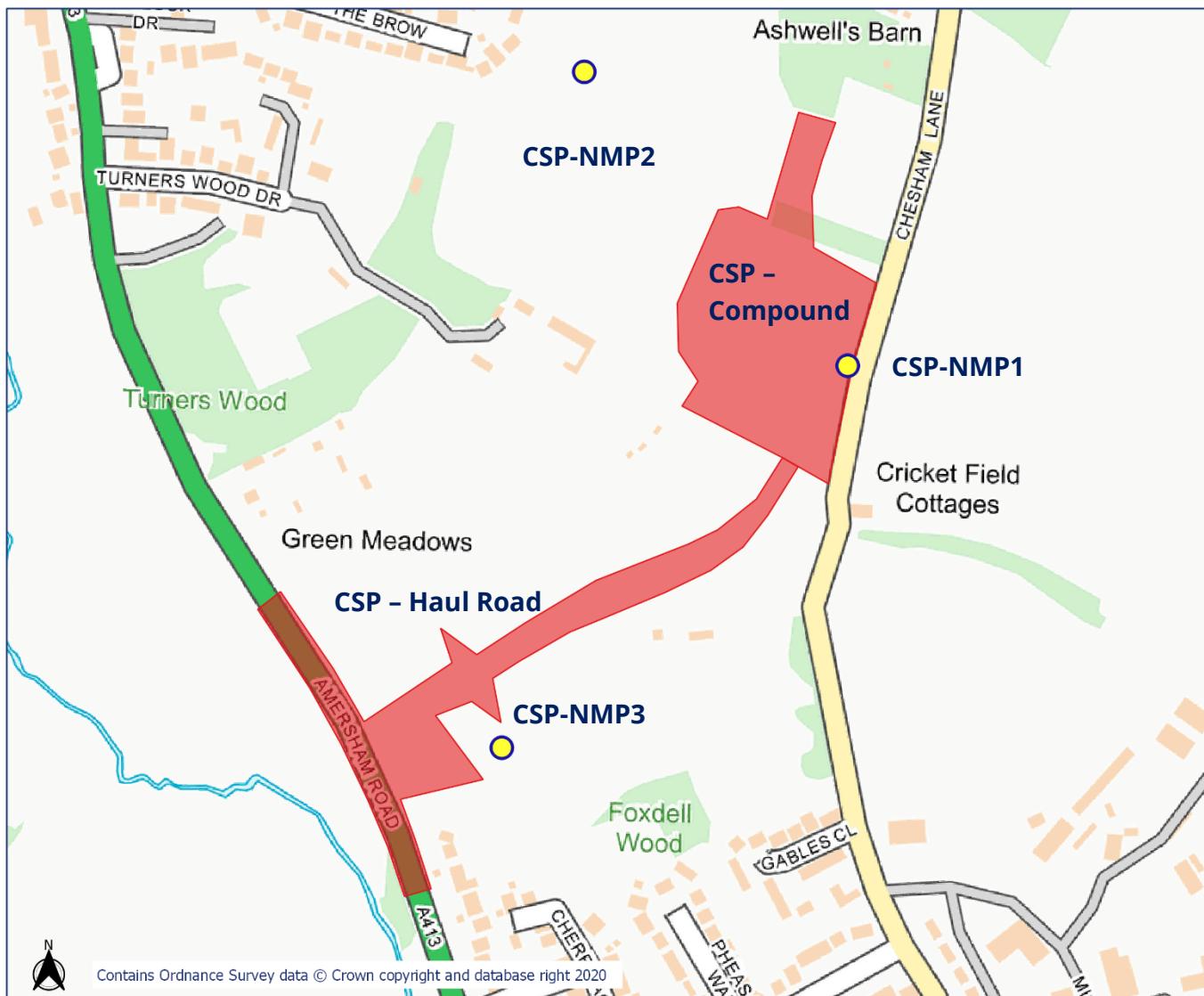
OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 10



OFFICIAL



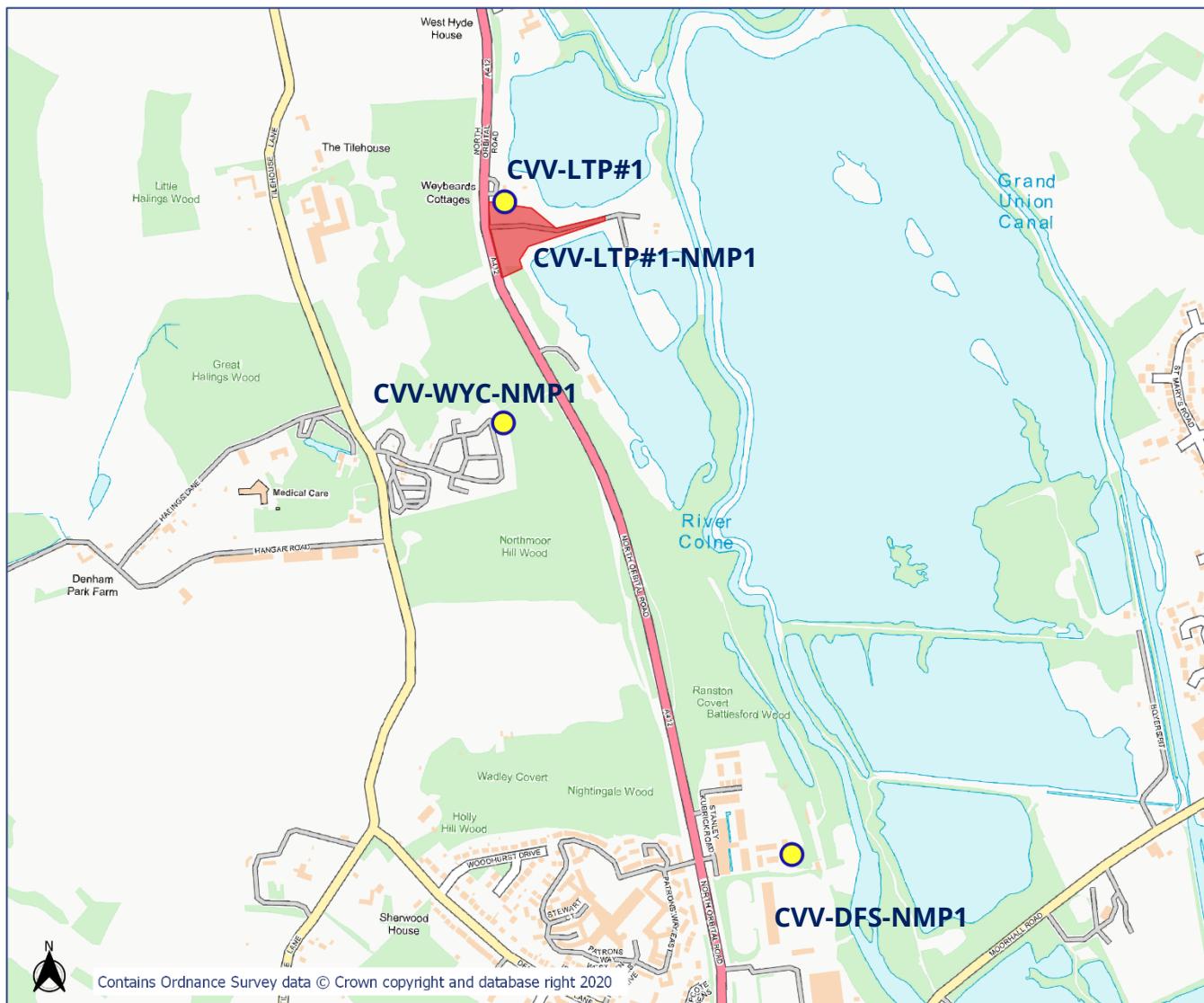
Legend

- Yellow circle: Noise Monitor
- Red area: Active Worksites

OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 12



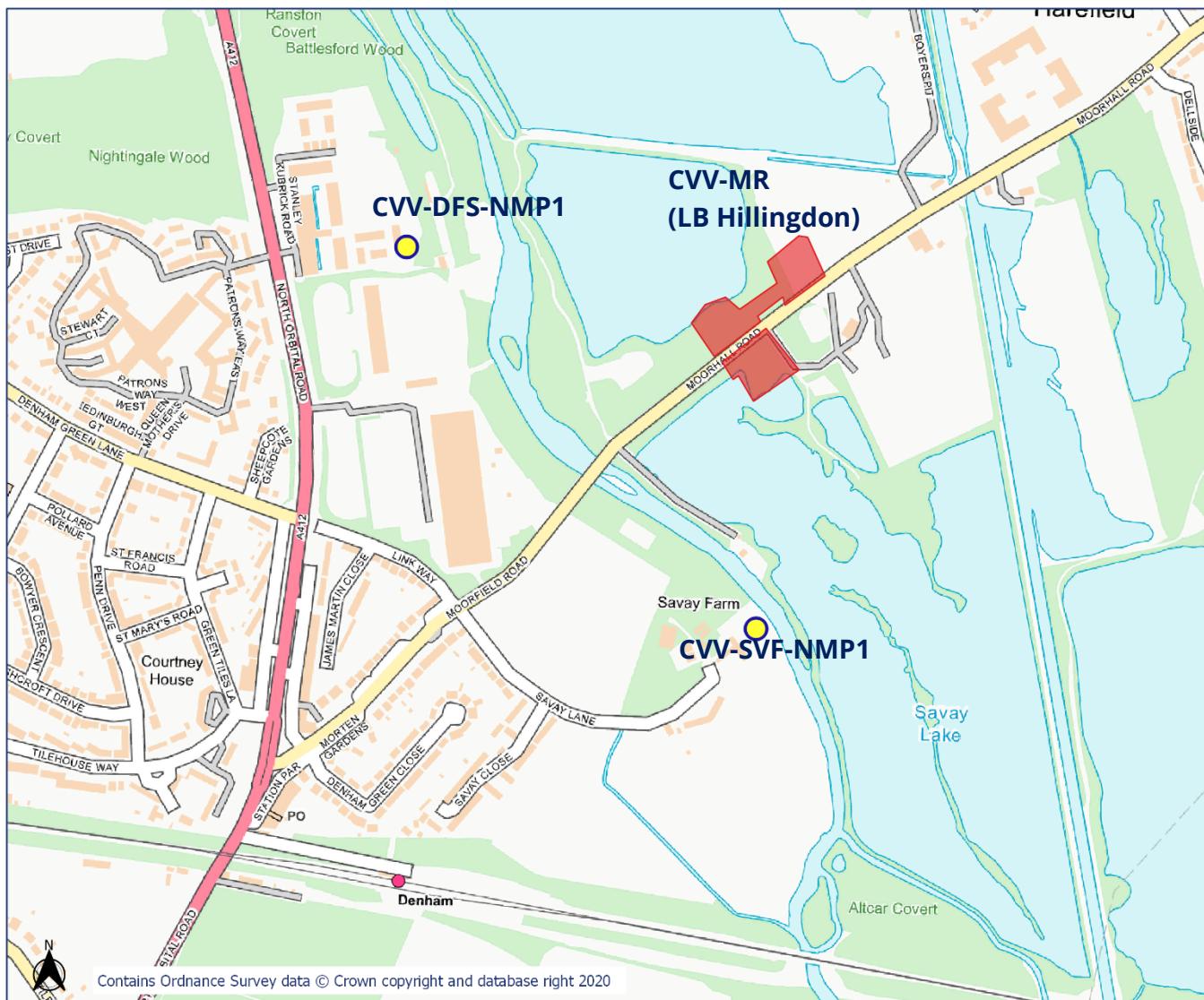
Legend

- Yellow circle: Noise Monitor
- Red shaded area: Active Worksites

OFFICIAL

HS2

Noise and Vibration Monitoring Plan - 13



Legend

- Yellow circle: Noise Monitor
- Red polygon: Active Worksites

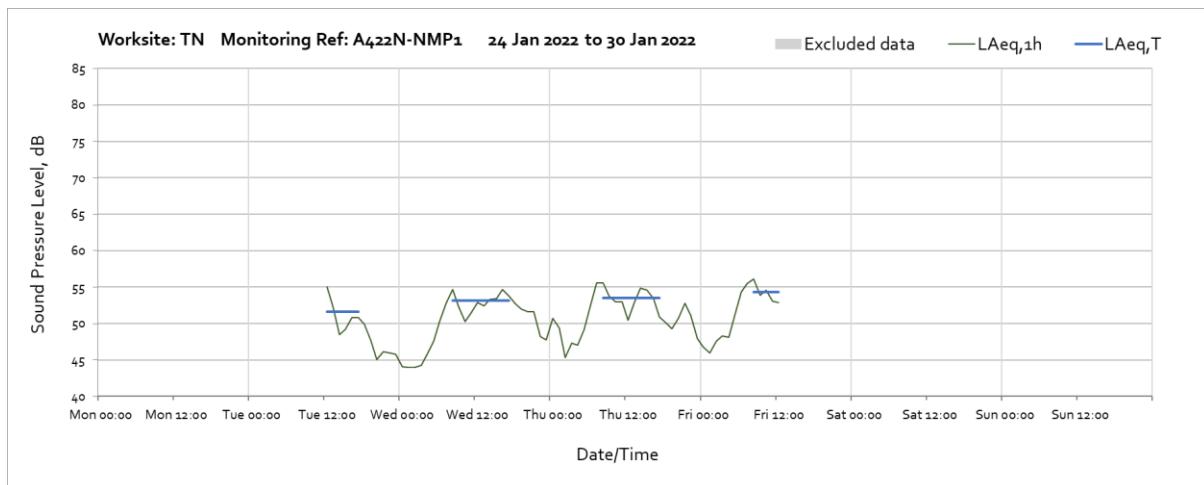
OFFICIAL

Appendix C Data

Noise

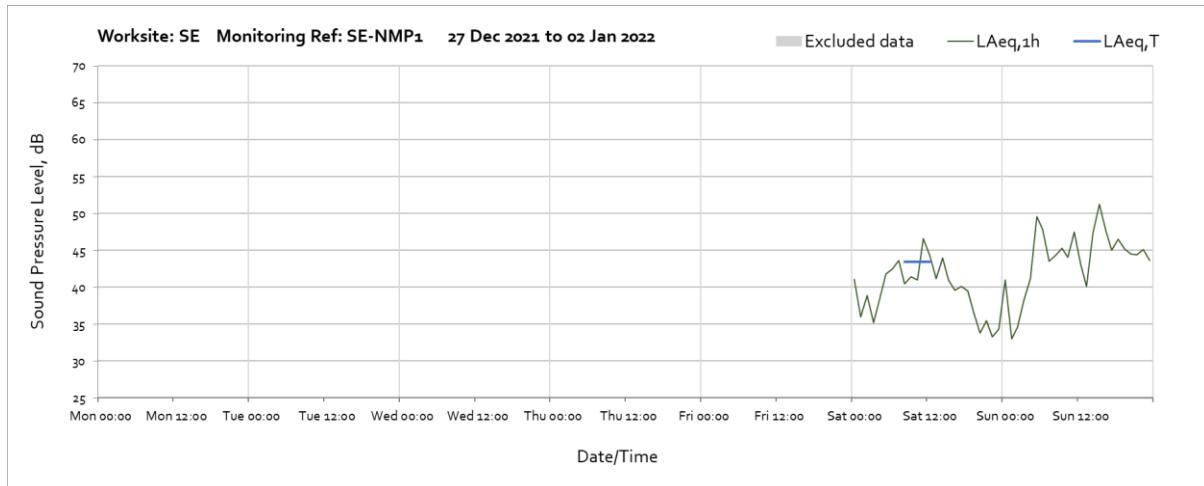
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have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

Worksite: TN – Monitoring Ref: A422N-NMP1

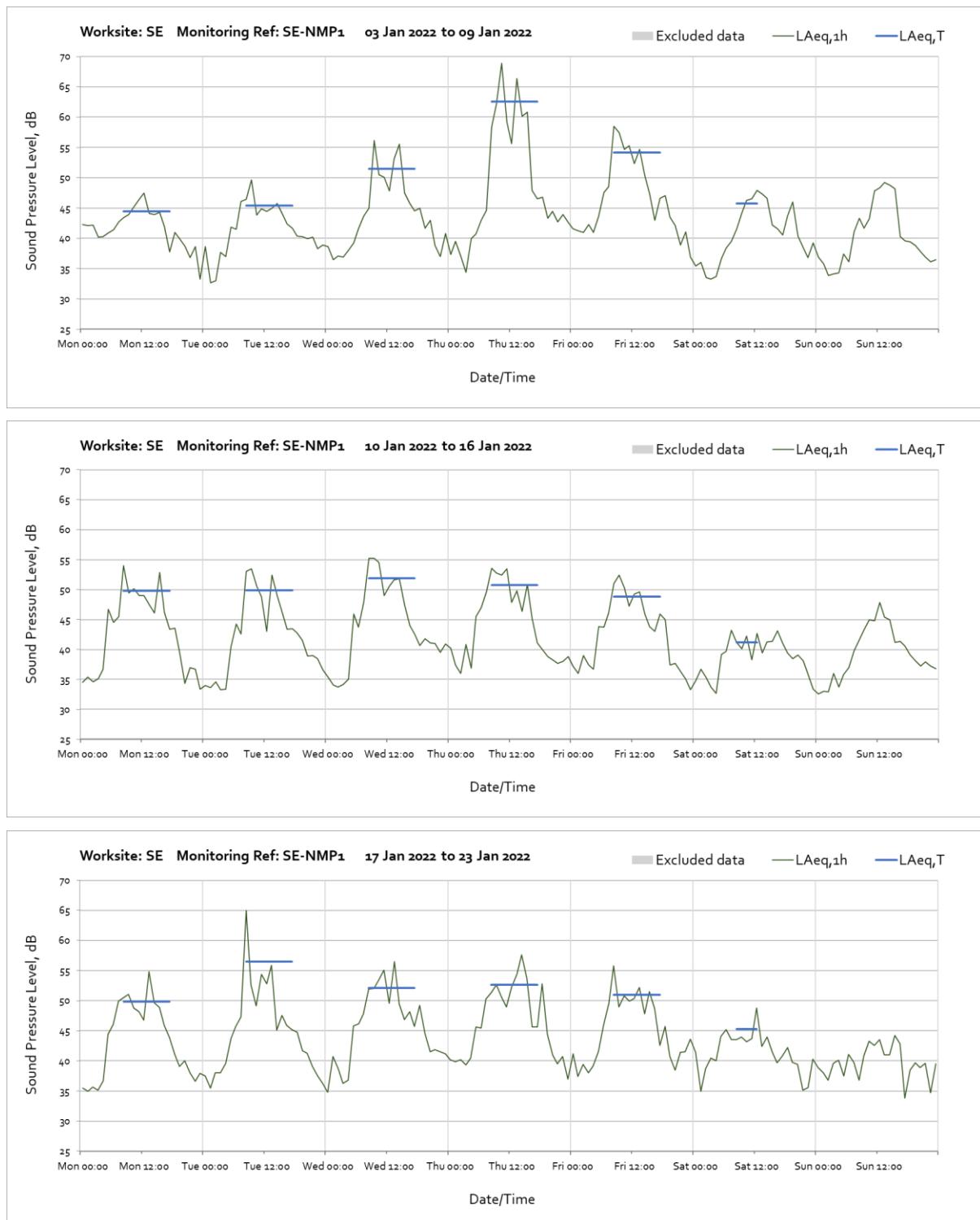


Note: The noise monitor was installed on 25th January 2022. Missing data from 13:00 on the 28th of January till the end of the month was due to loss of power to the monitor.

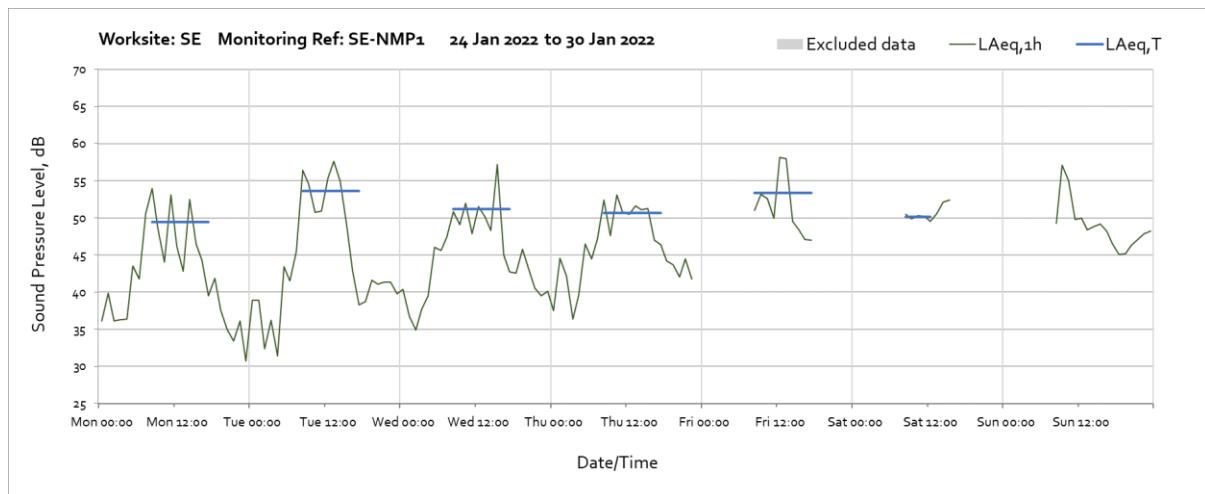
Worksite: SE – Monitoring Ref: SE-NMP1



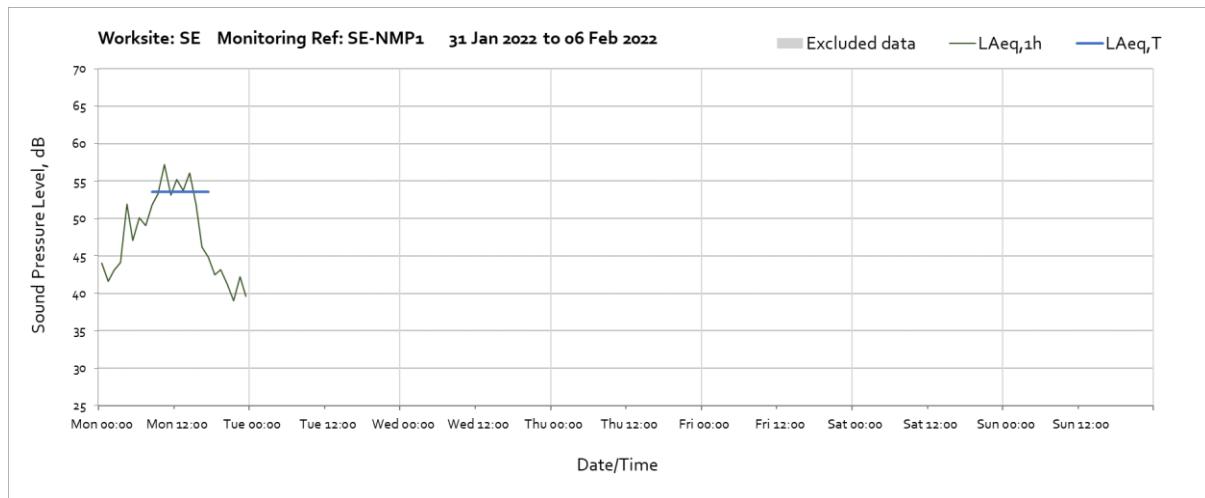
OFFICIAL



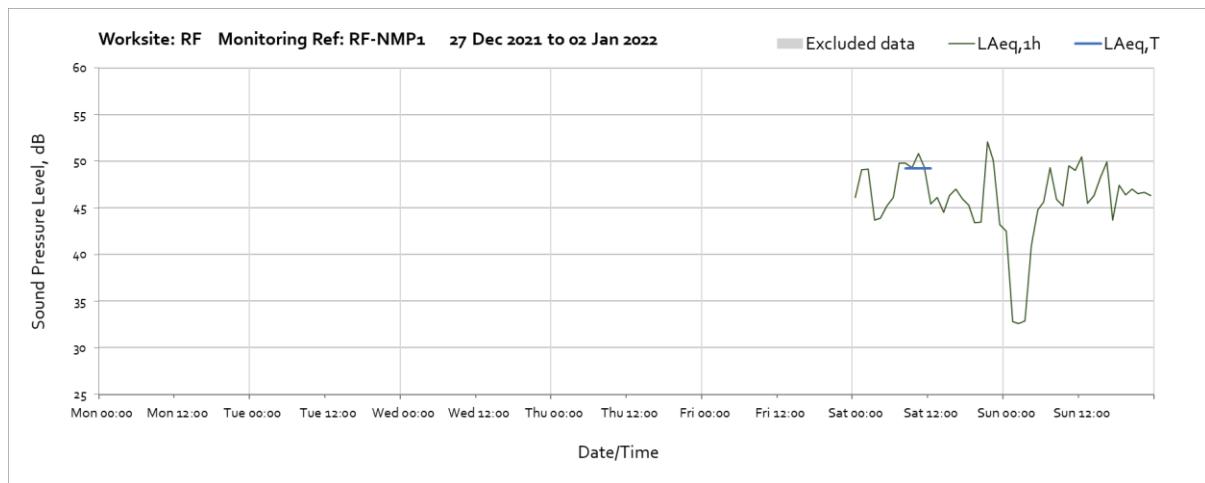
OFFICIAL



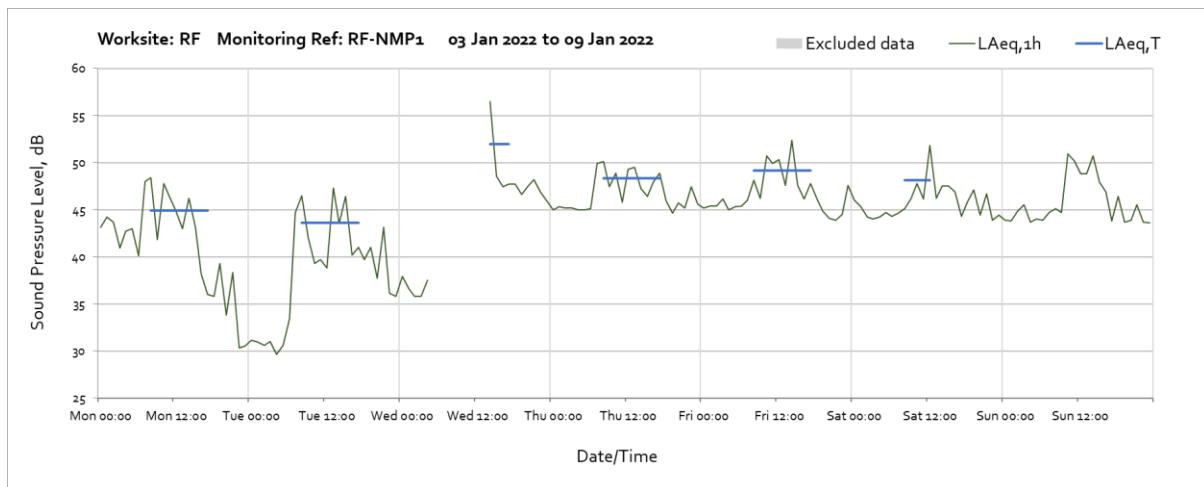
Note: Missing data throughout the week was due to loss of power to the equipment.



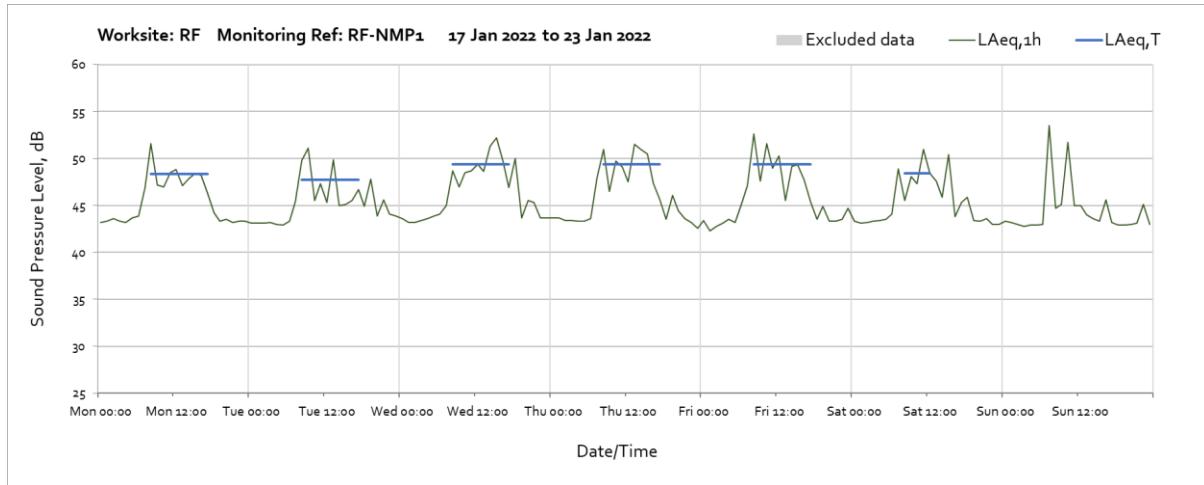
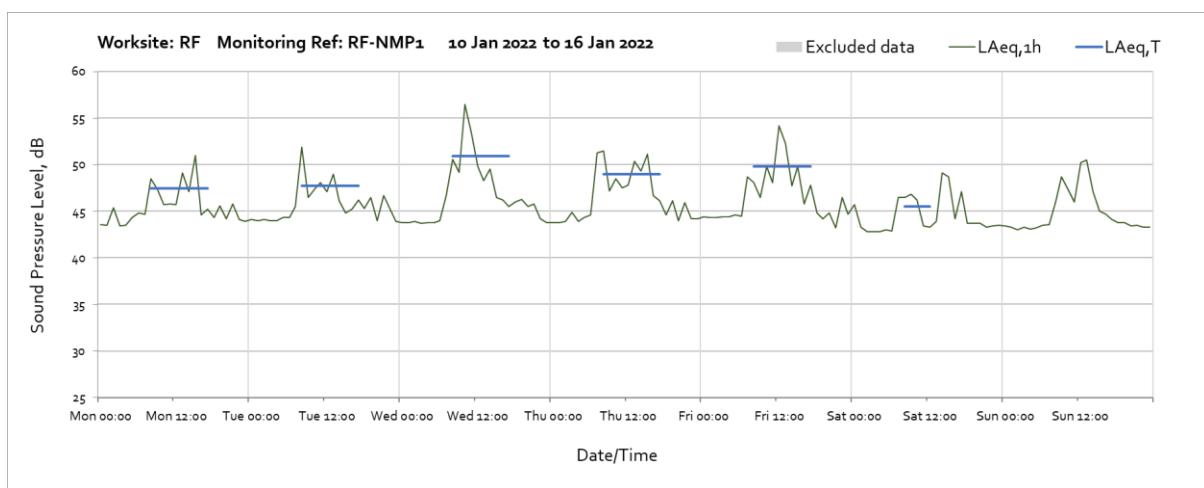
Worksite: RF – Monitoring Ref: RF-NMP1



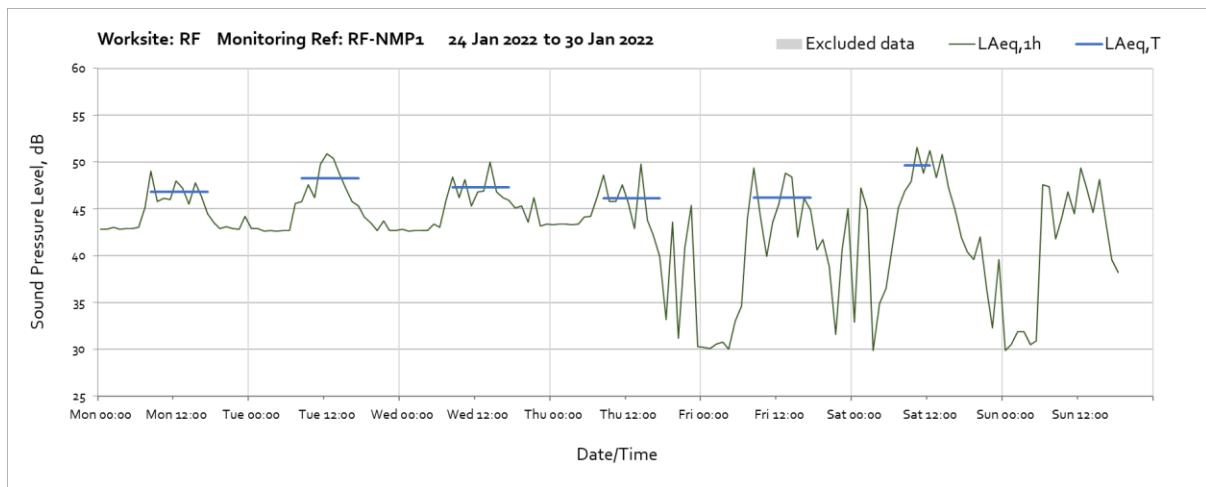
OFFICIAL



Note: Missing data from 05:00 to 14:00 on 5th January was due to loss of power to the equipment.

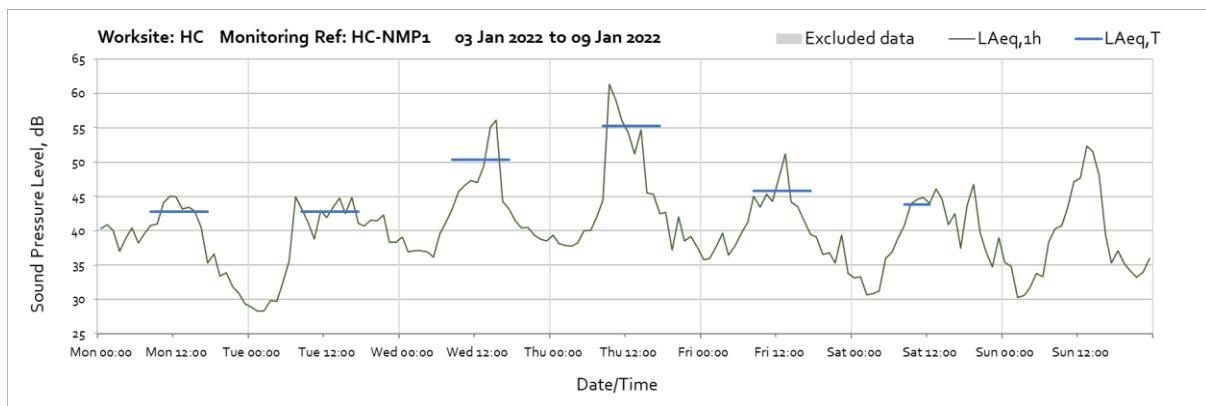
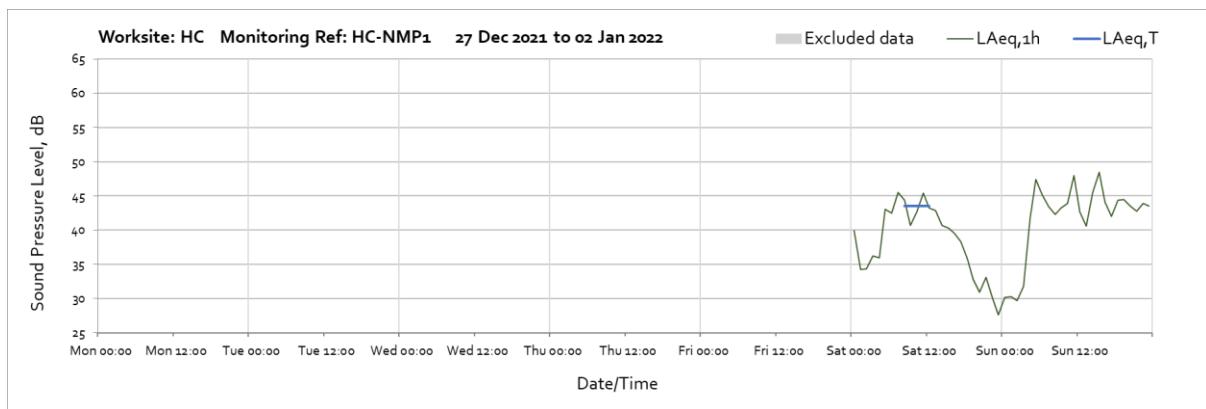


OFFICIAL

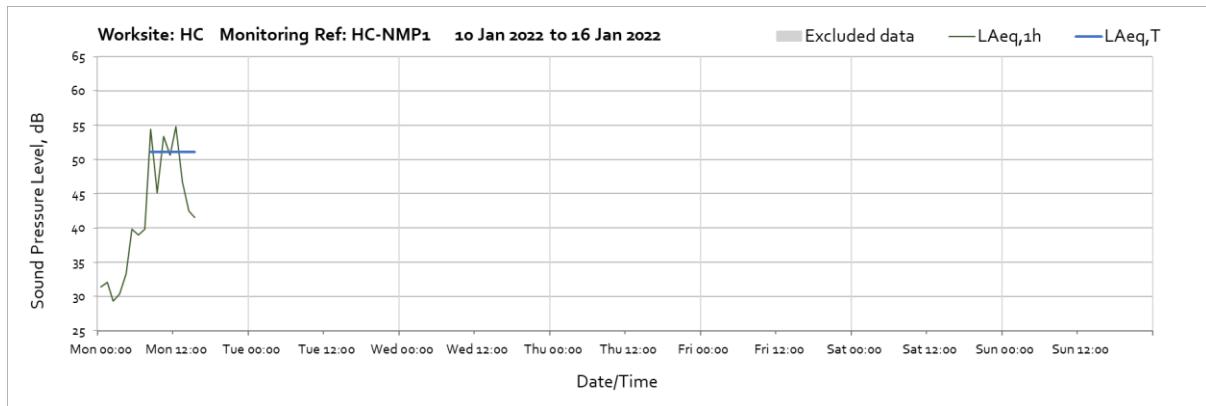


Note: Missing data from 19:00 on 30th January till the end of the month was due to loss of power to the equipment.

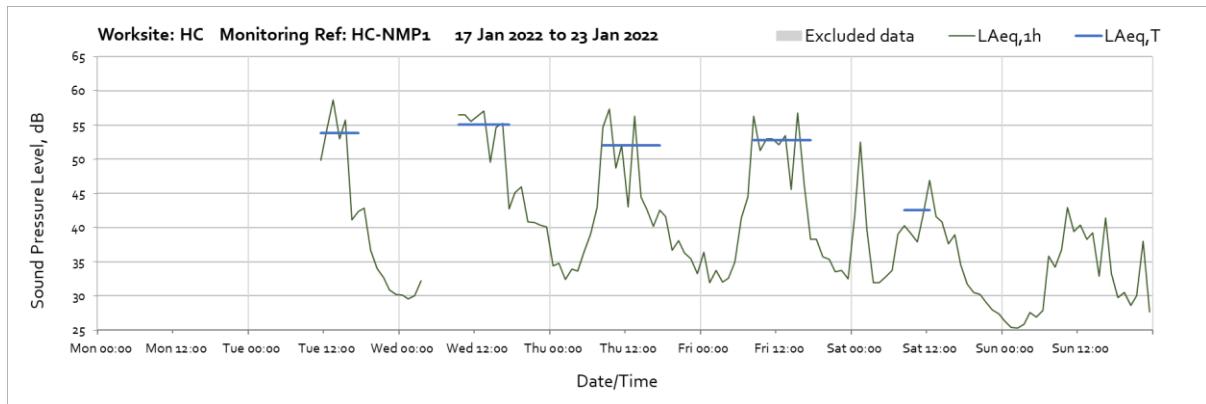
Worksite: HC – Monitoring Ref: HC-NMP1



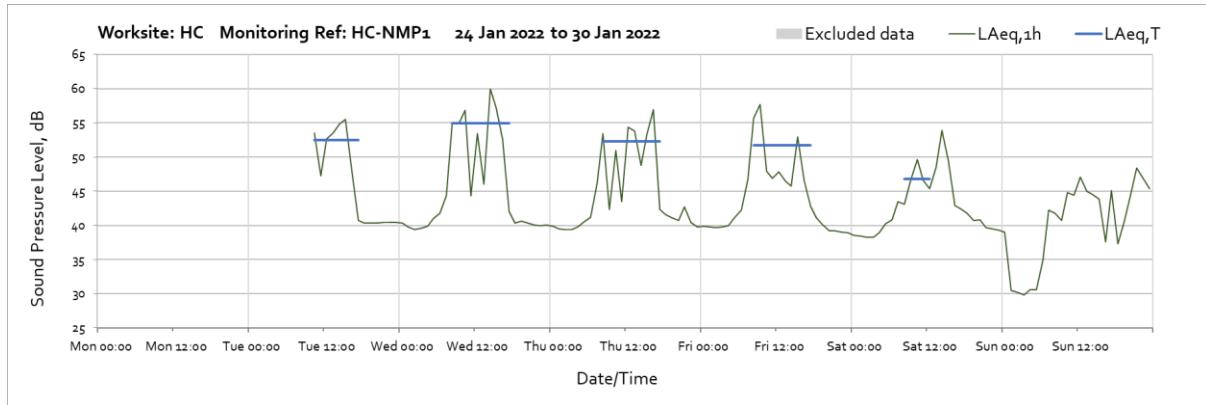
OFFICIAL



Note: Missing data from 16:00 on the 10th of January till the end of the week was due to loss of power to the monitor.

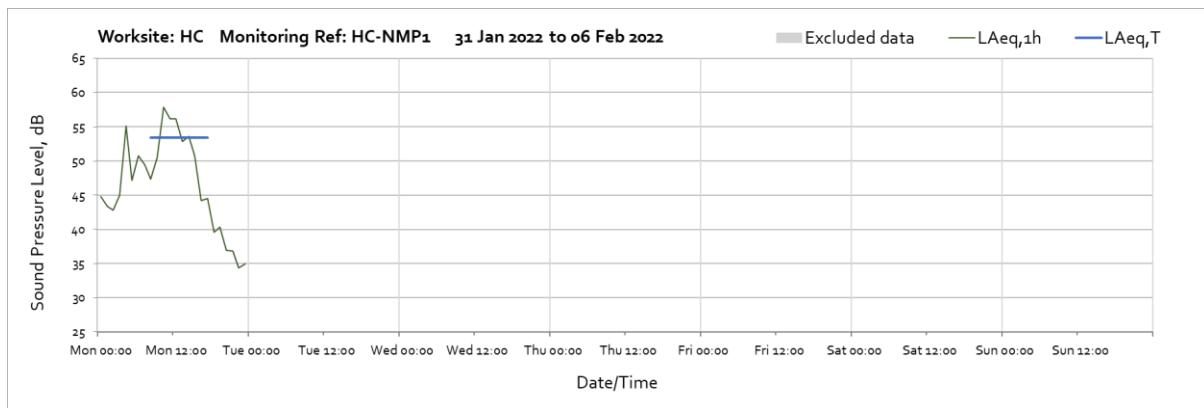


Note: Missing data throughout the week was due to loss of power to the equipment.

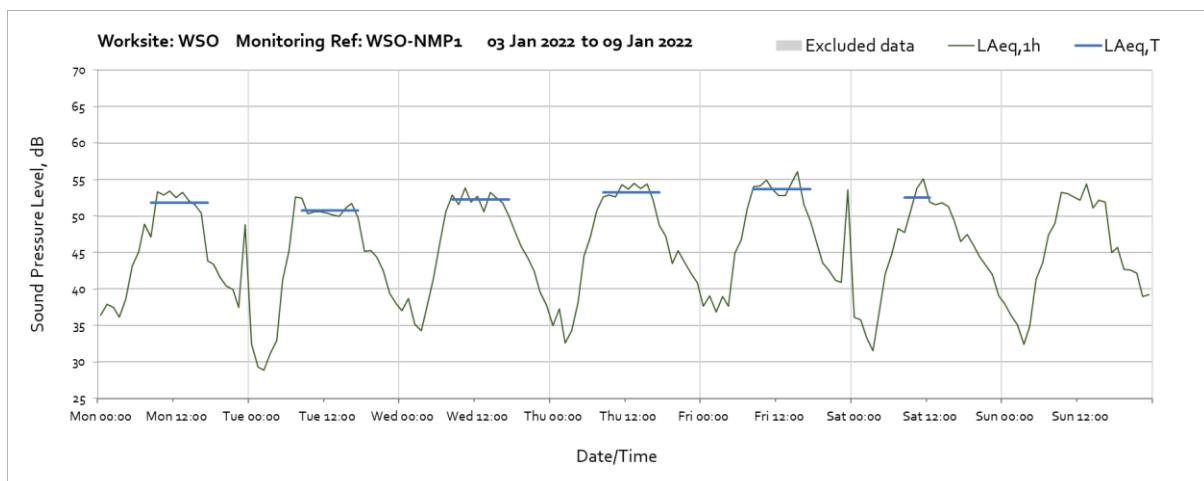
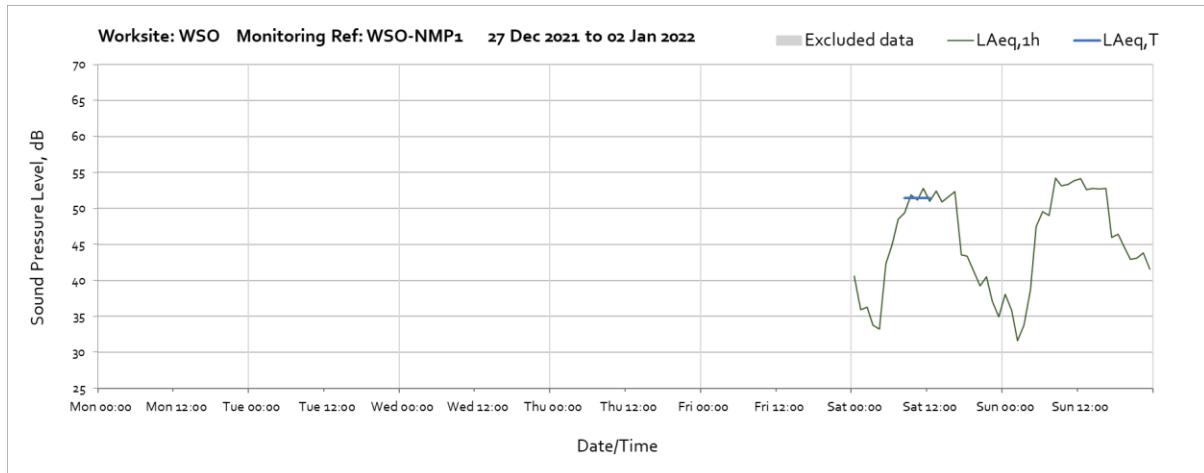


Note: Missing data between 00:00 on the 24th of January and 10:00 on the 25th of January was due to loss of power to the monitor.

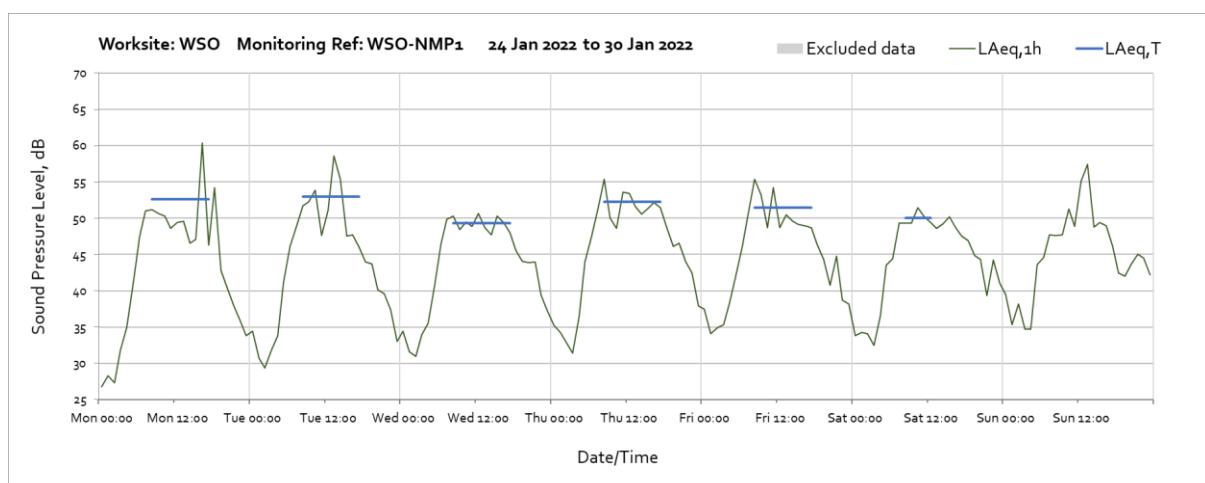
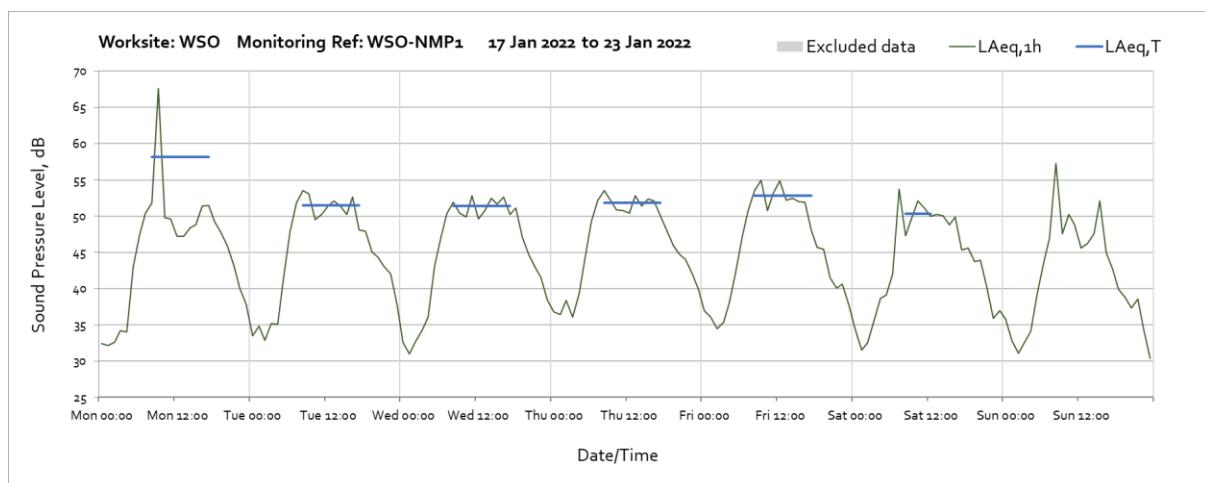
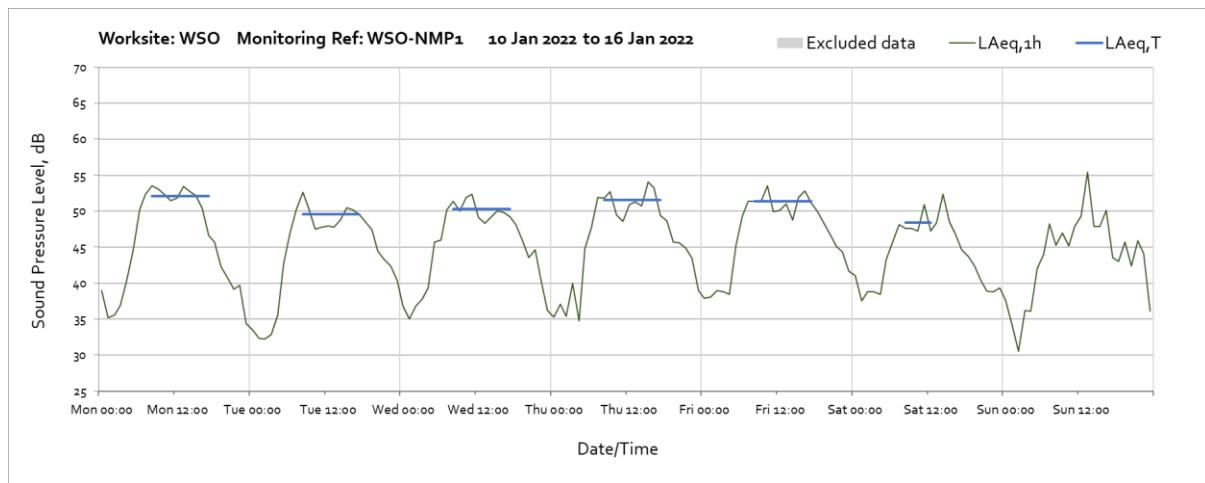
OFFICIAL



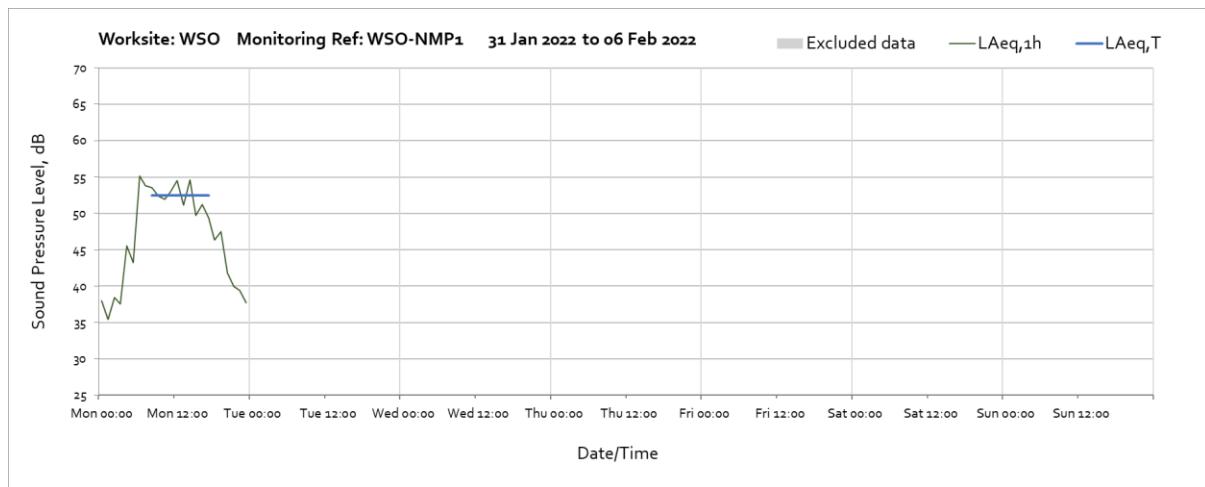
Worksite: WSO – Monitoring Ref: WSO-NMP1



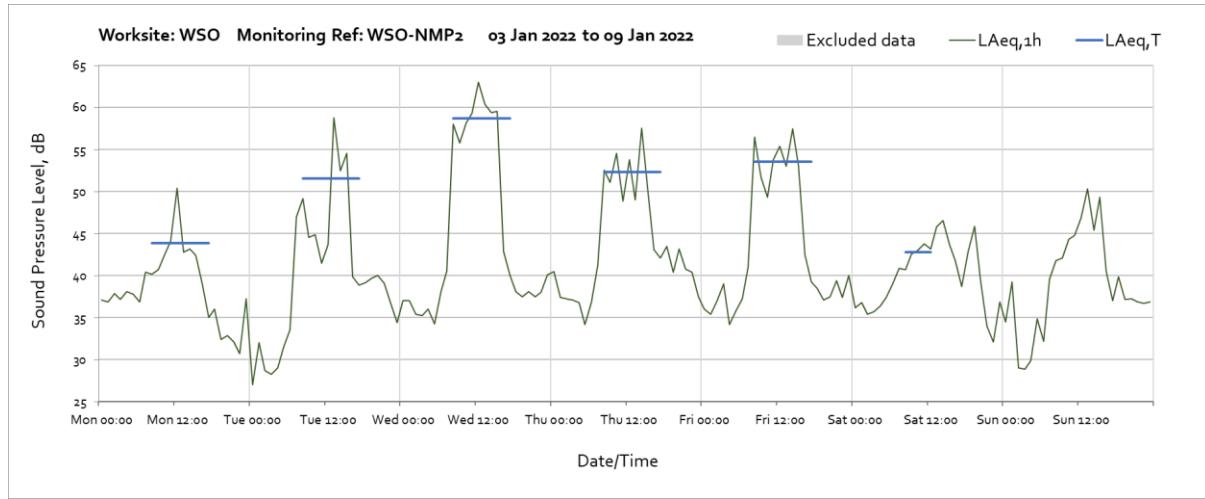
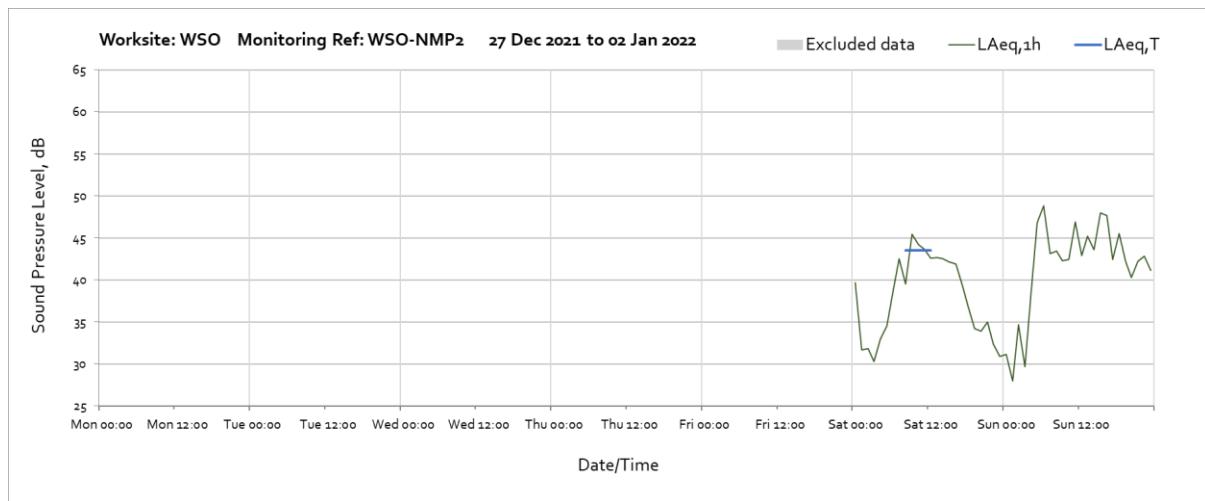
OFFICIAL



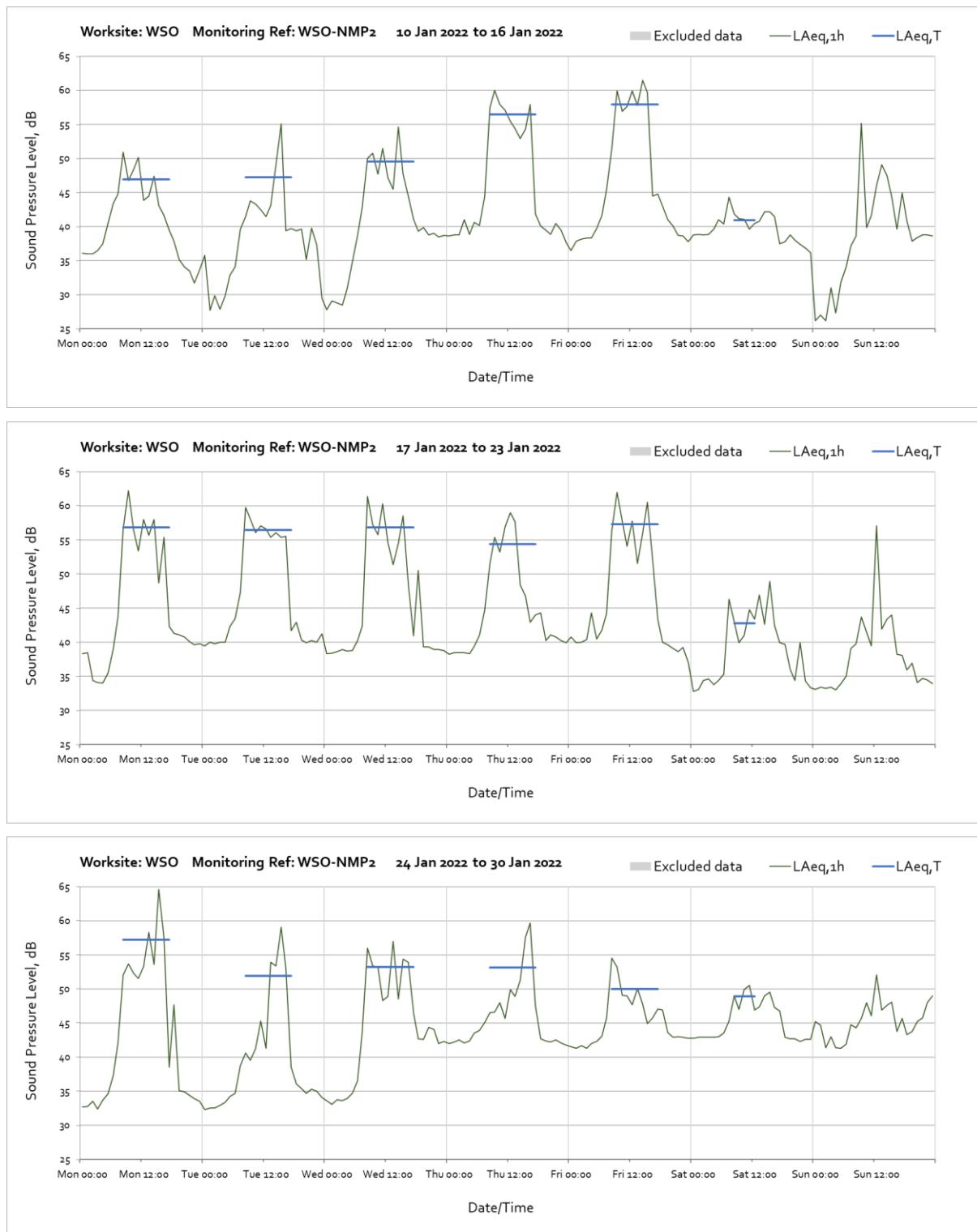
OFFICIAL



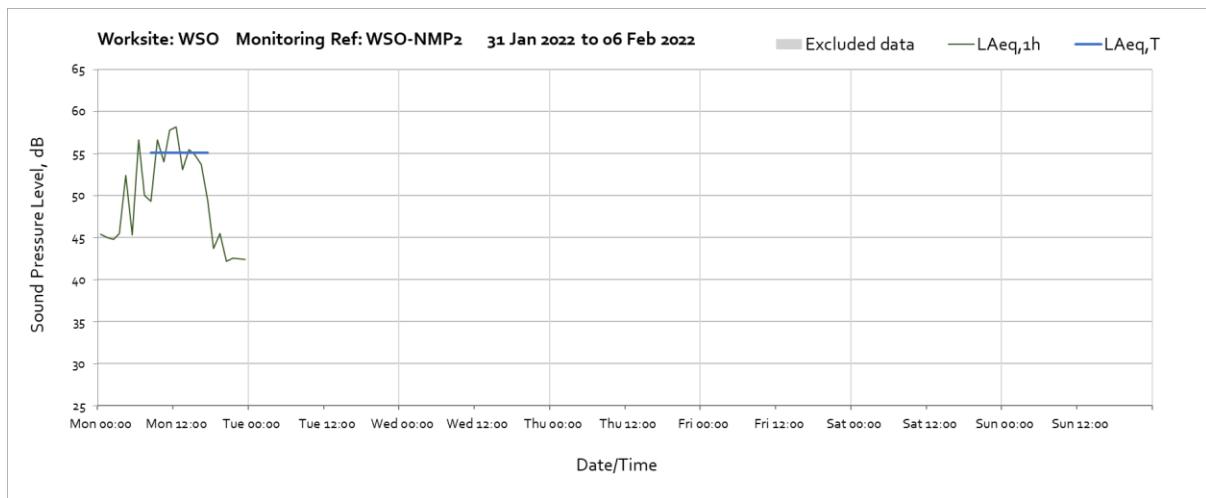
Worksite: WSO – Monitoring Ref: WSO-NMP2



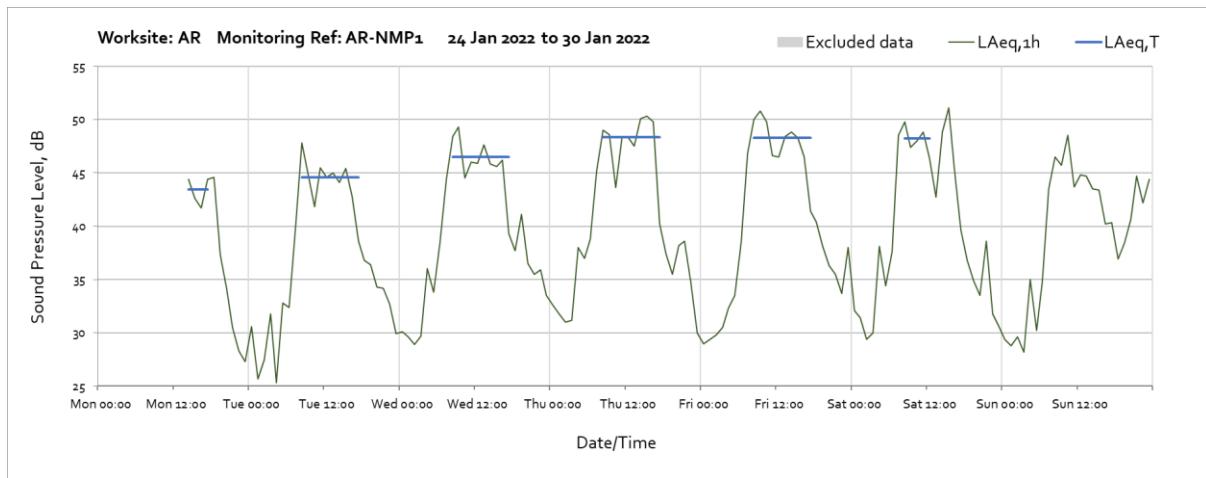
OFFICIAL



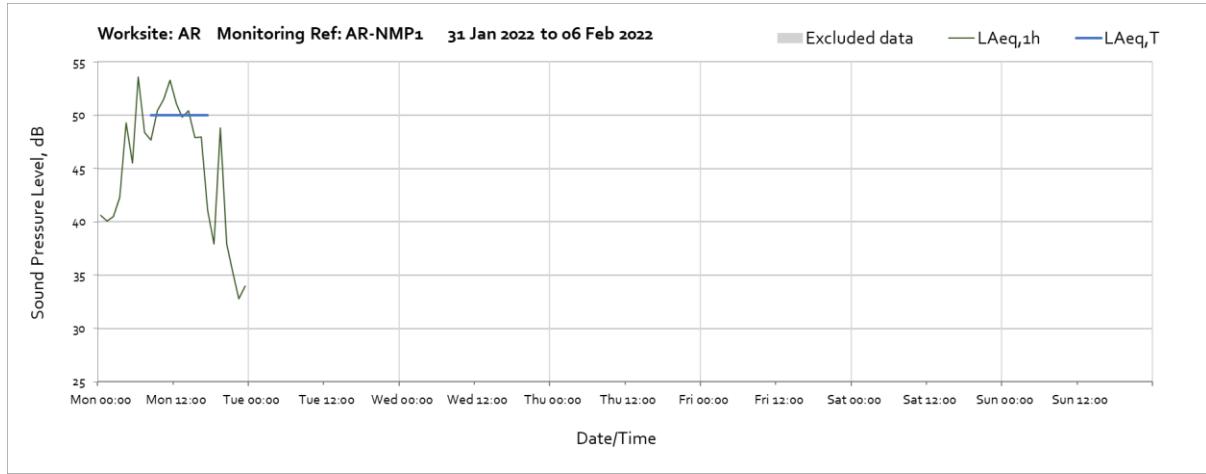
OFFICIAL



Worksite: AR - Monitoring Ref: AR-NMP1

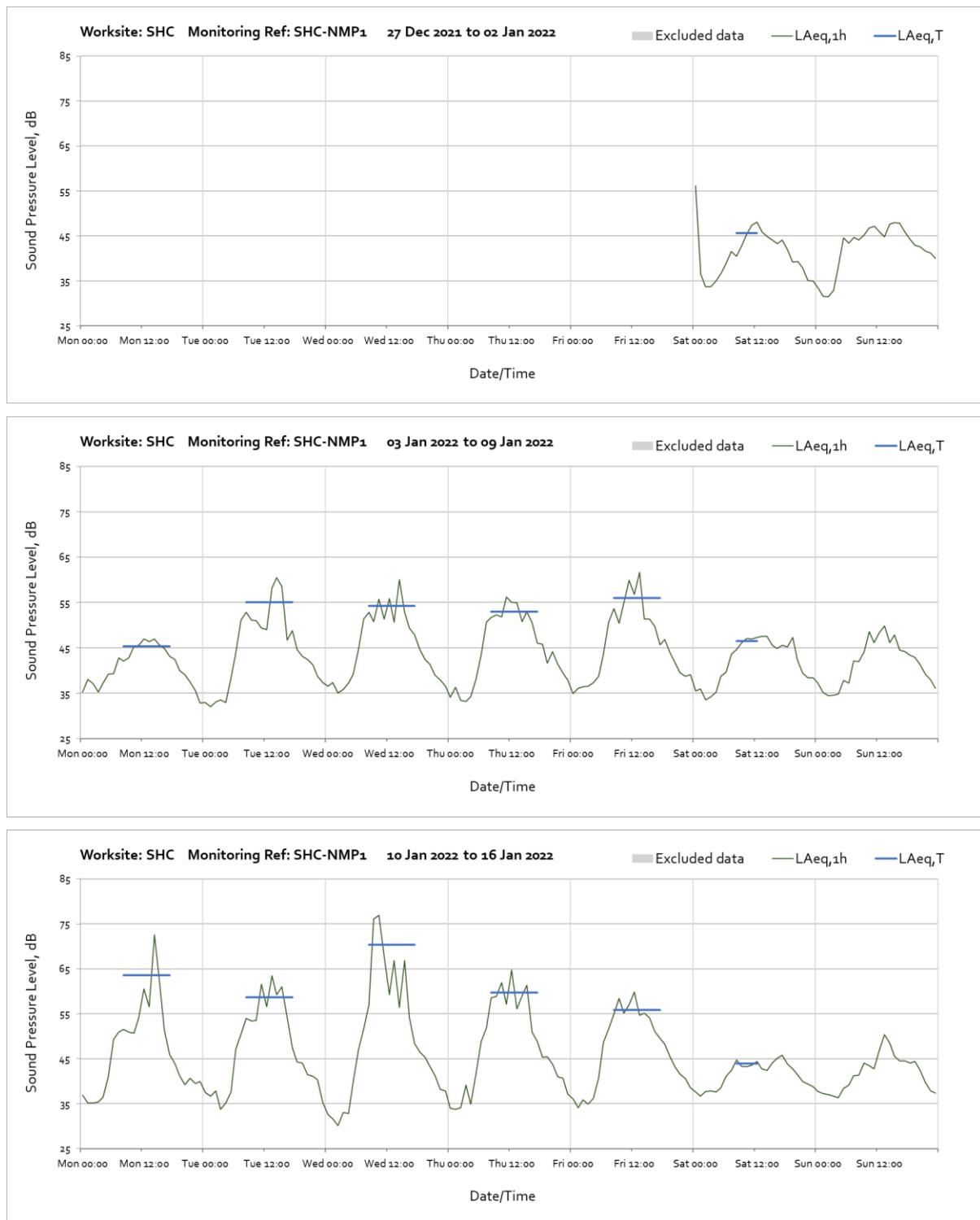


Note: The noise monitor was installed on 24th January 2022.

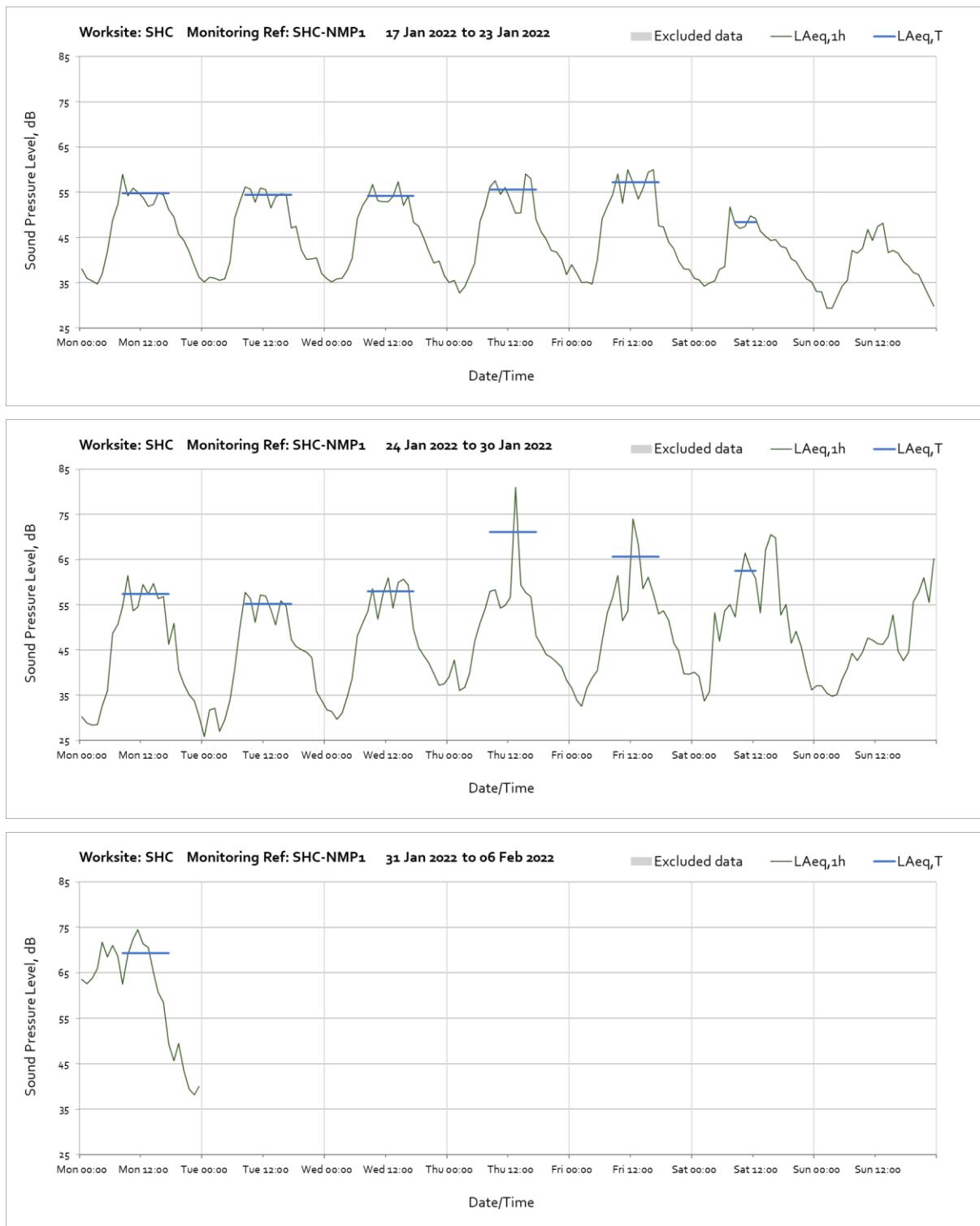


OFFICIAL

Worksite: SHC – Monitoring Ref: SHC-NMP1

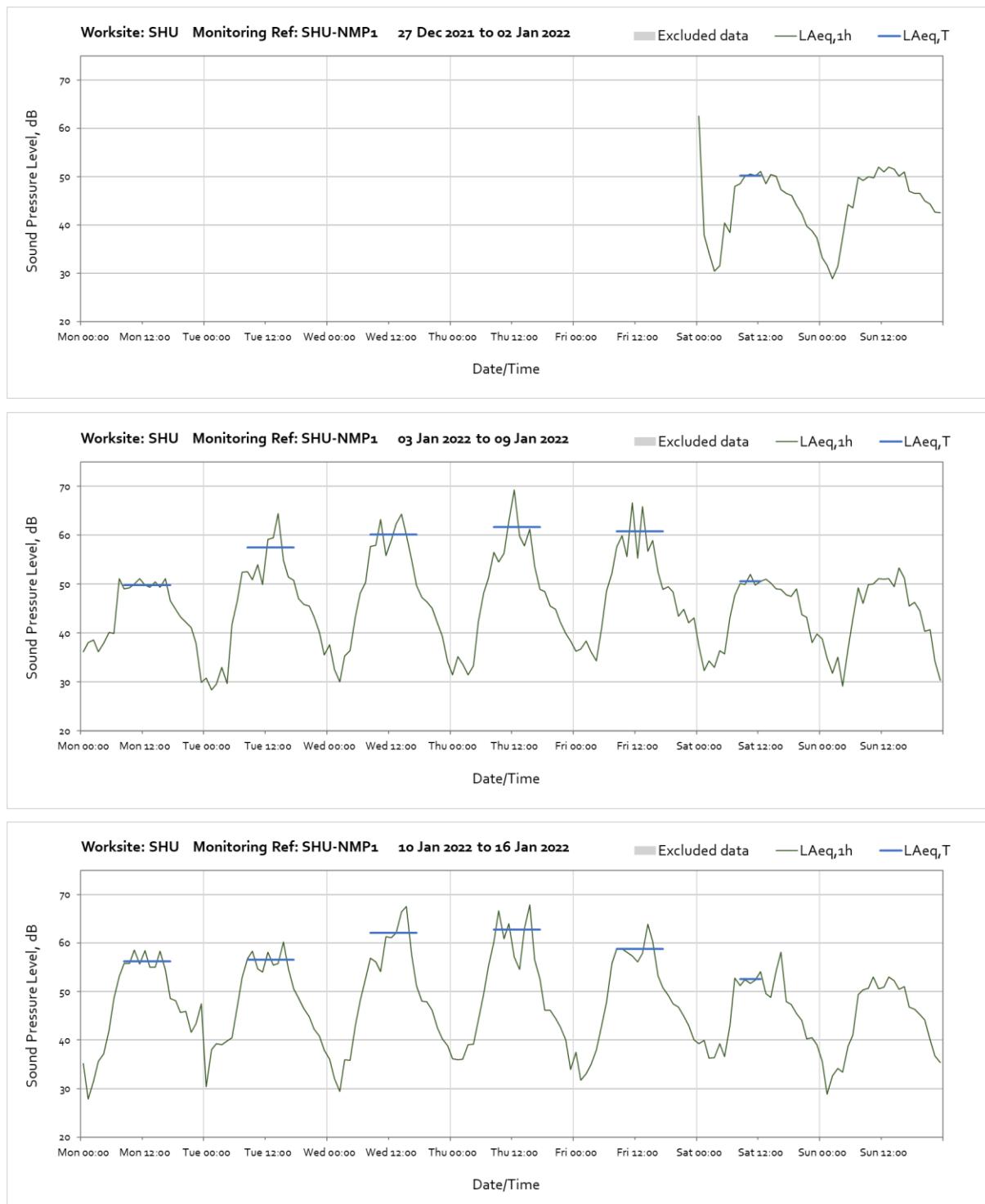


OFFICIAL

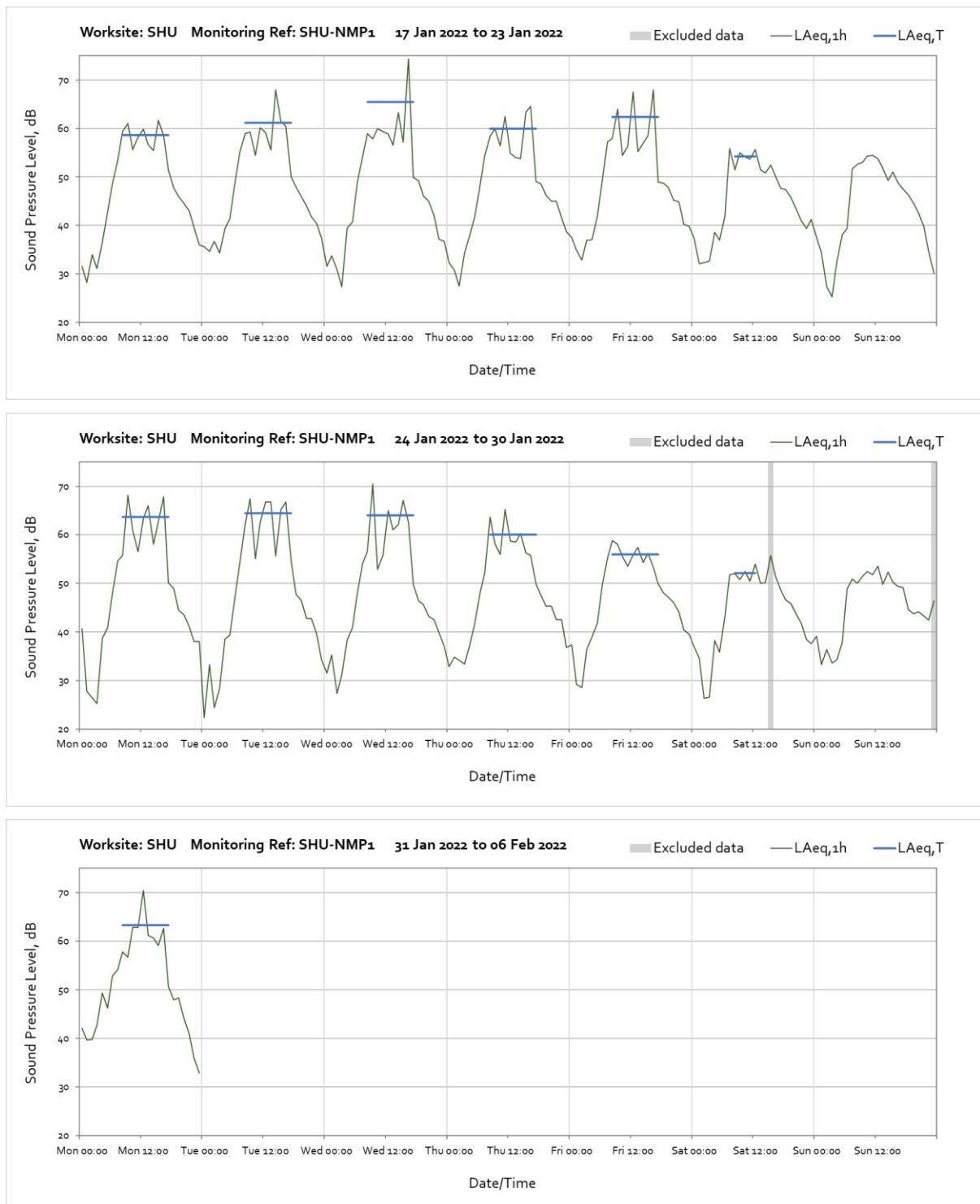


OFFICIAL

Worksite: SHU – Monitoring Ref: SHU-NMP1

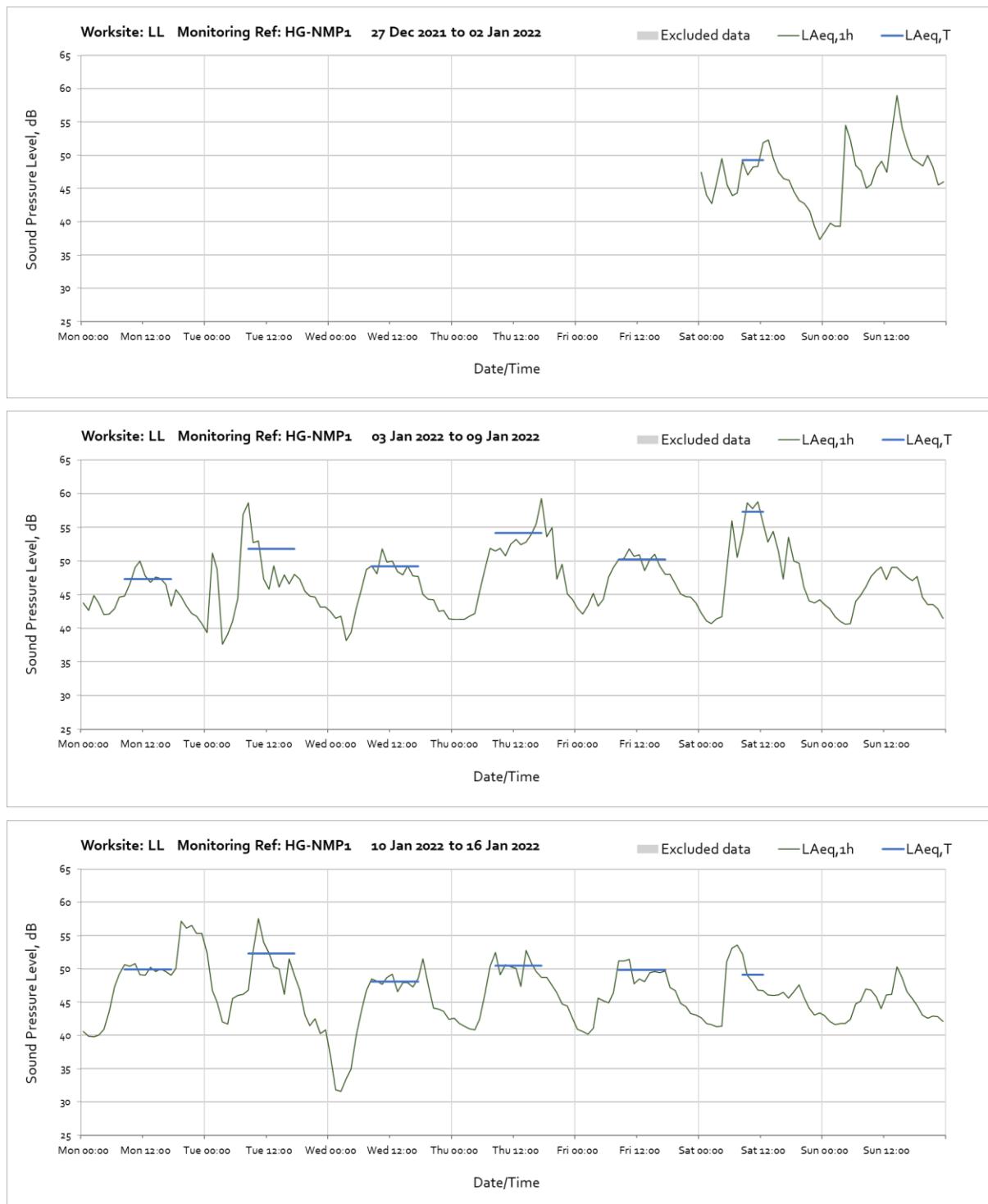


OFFICIAL

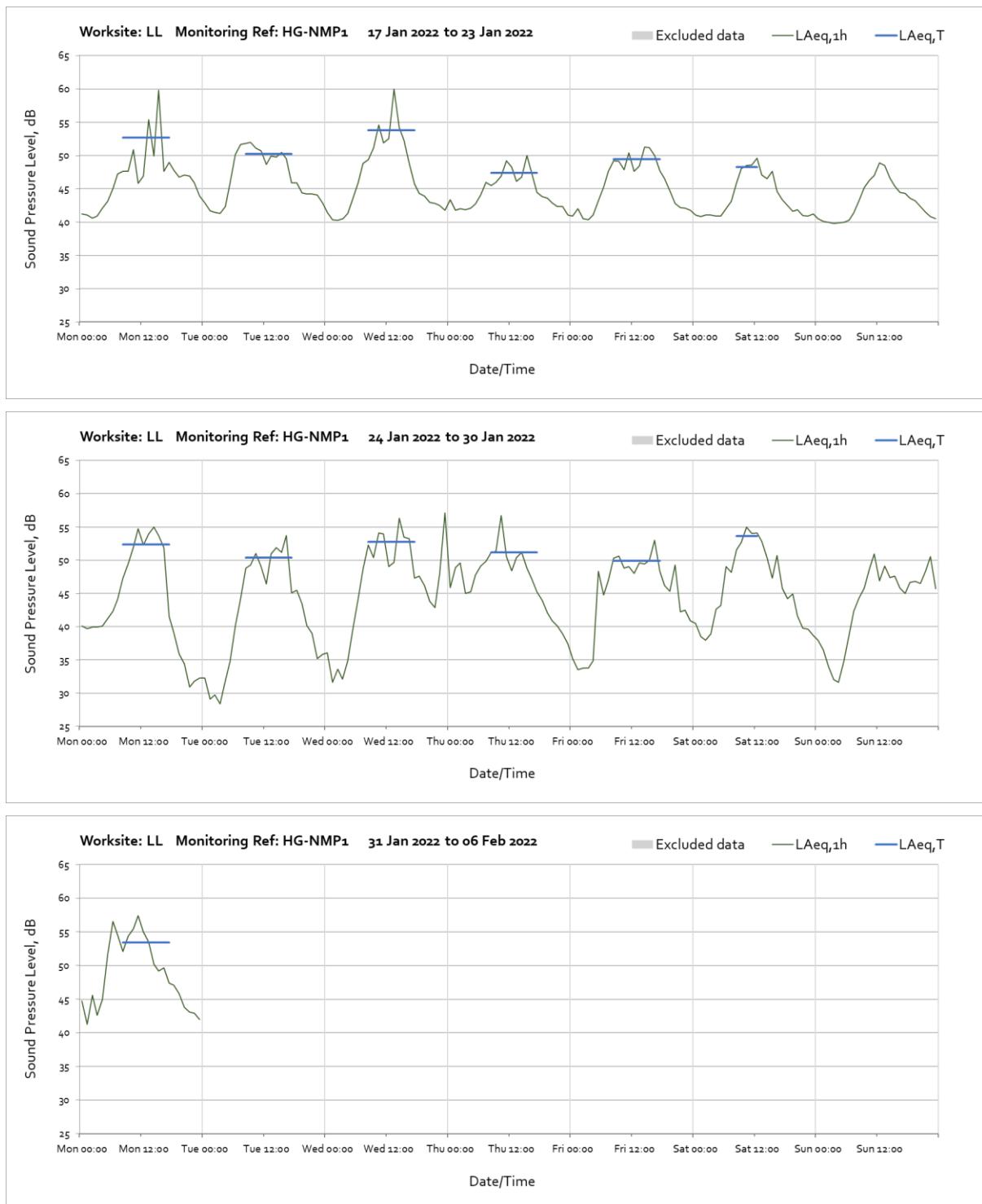


OFFICIAL

Worksite: LL – Monitoring Ref: HG-NMP1

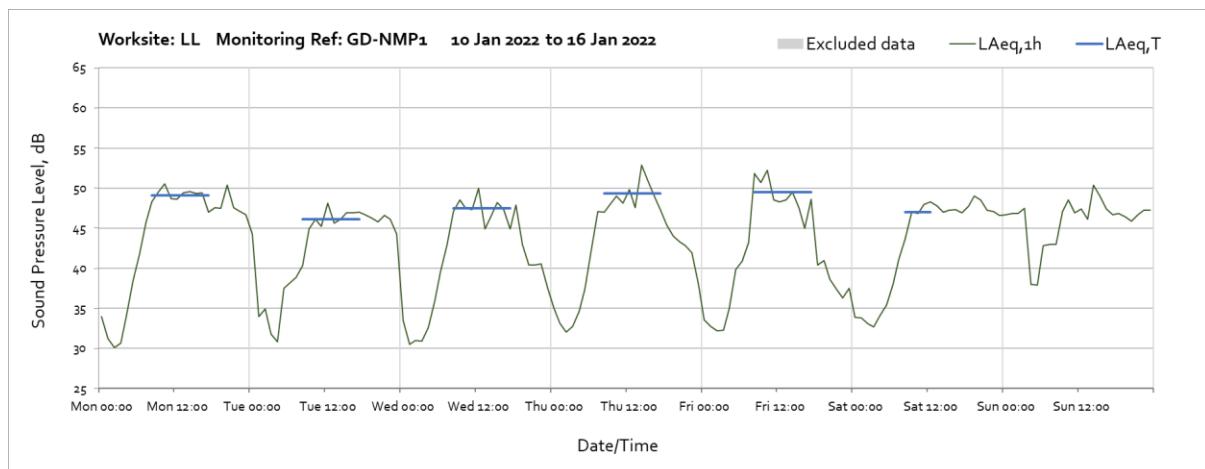
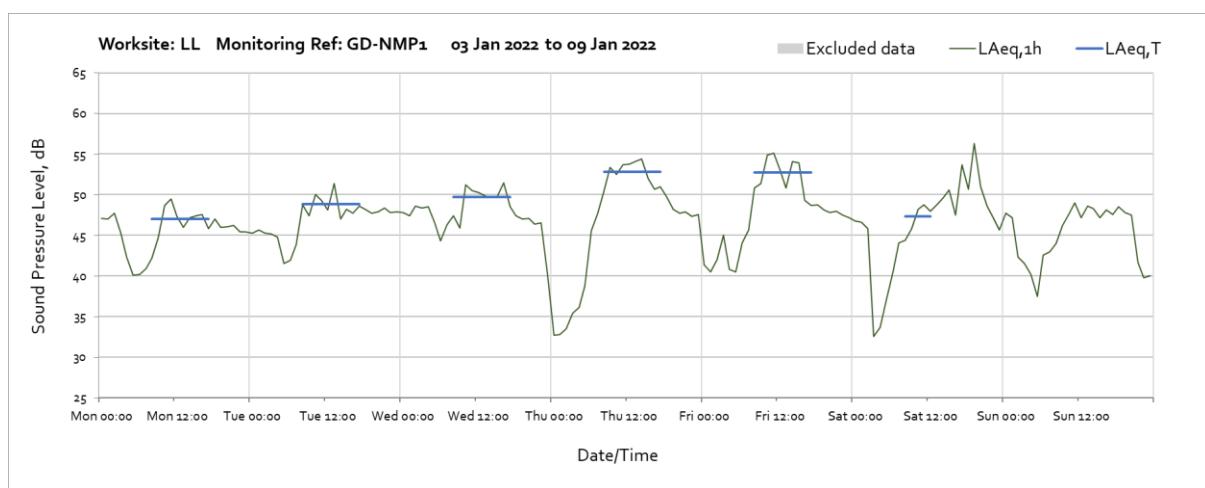
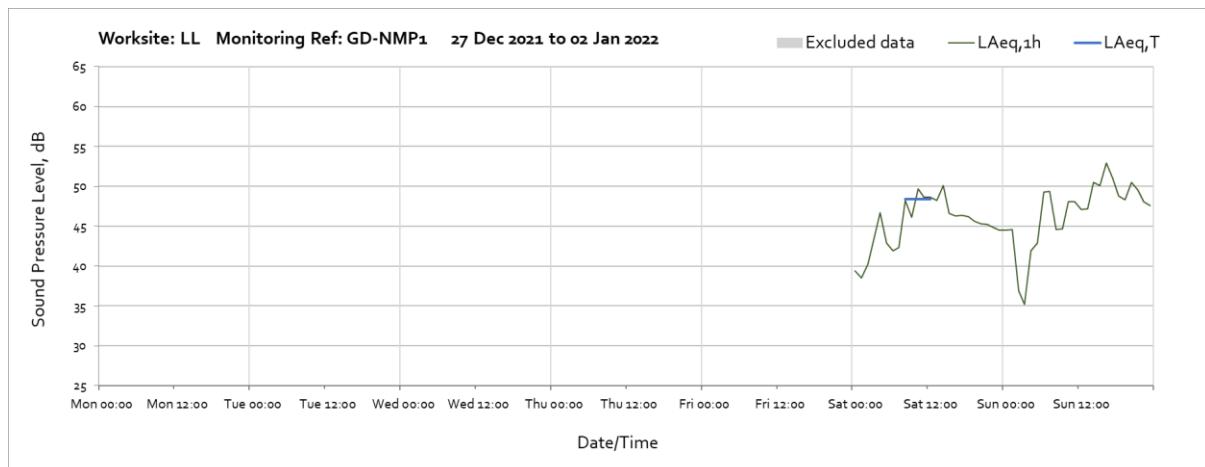


OFFICIAL

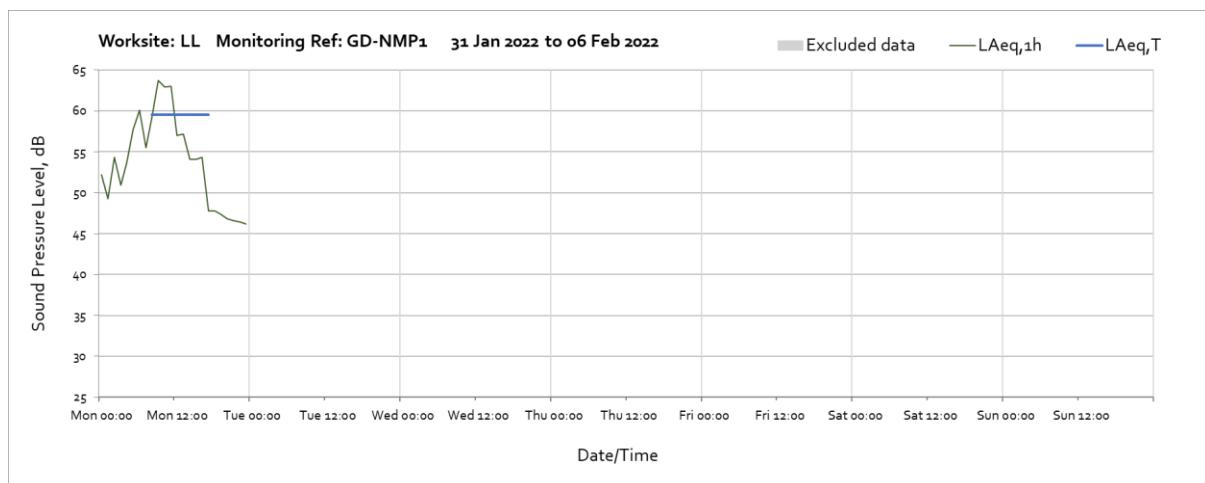
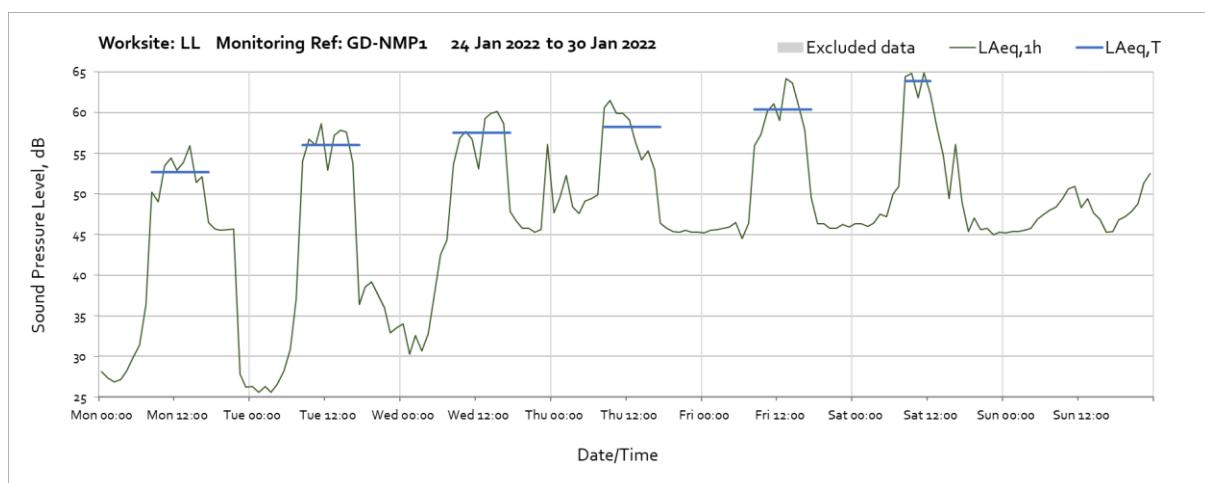
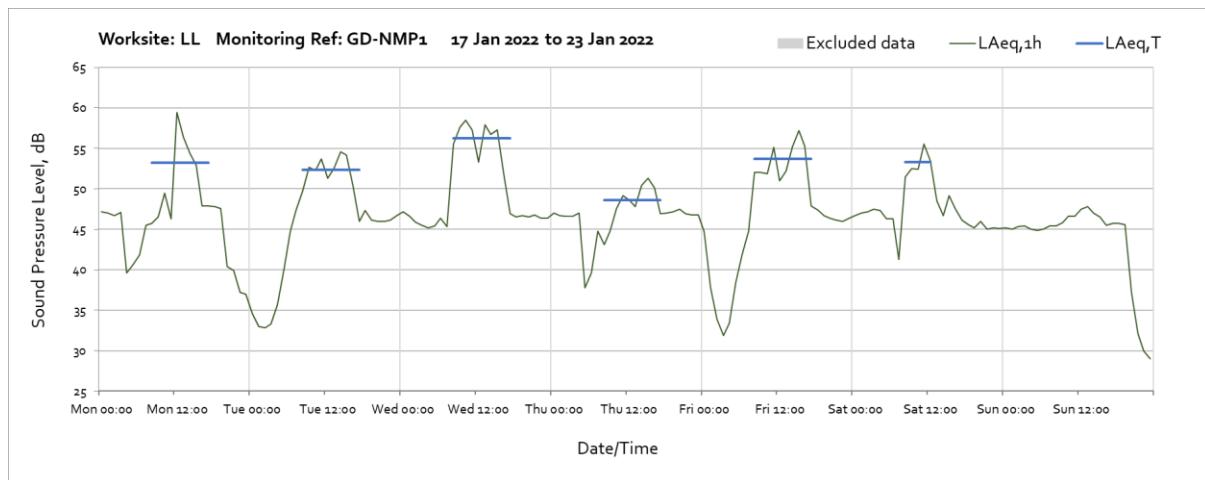


OFFICIAL

Worksite: LL - Monitoring Ref: GD-NMP1

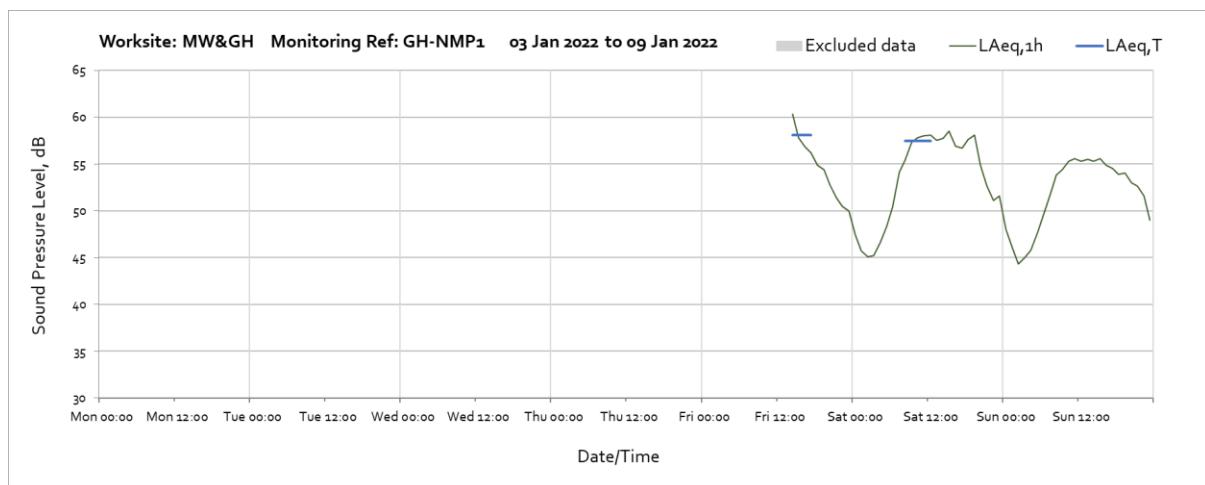


OFFICIAL

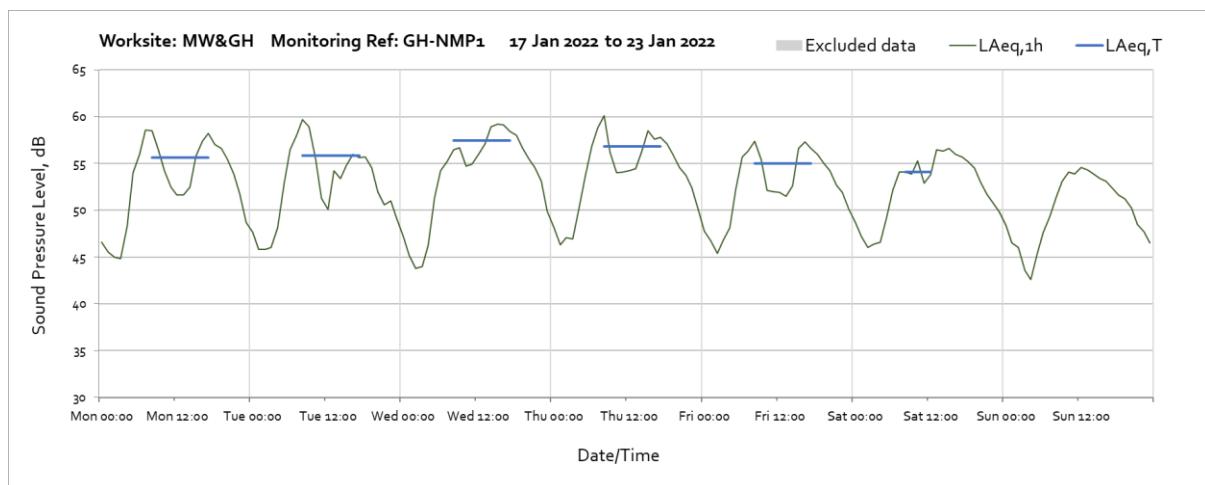
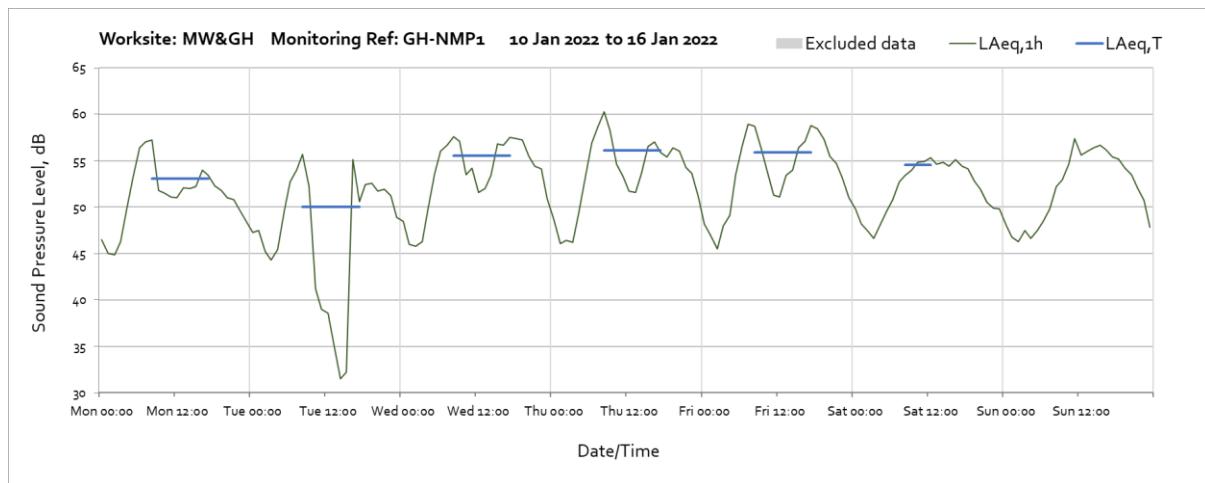


OFFICIAL

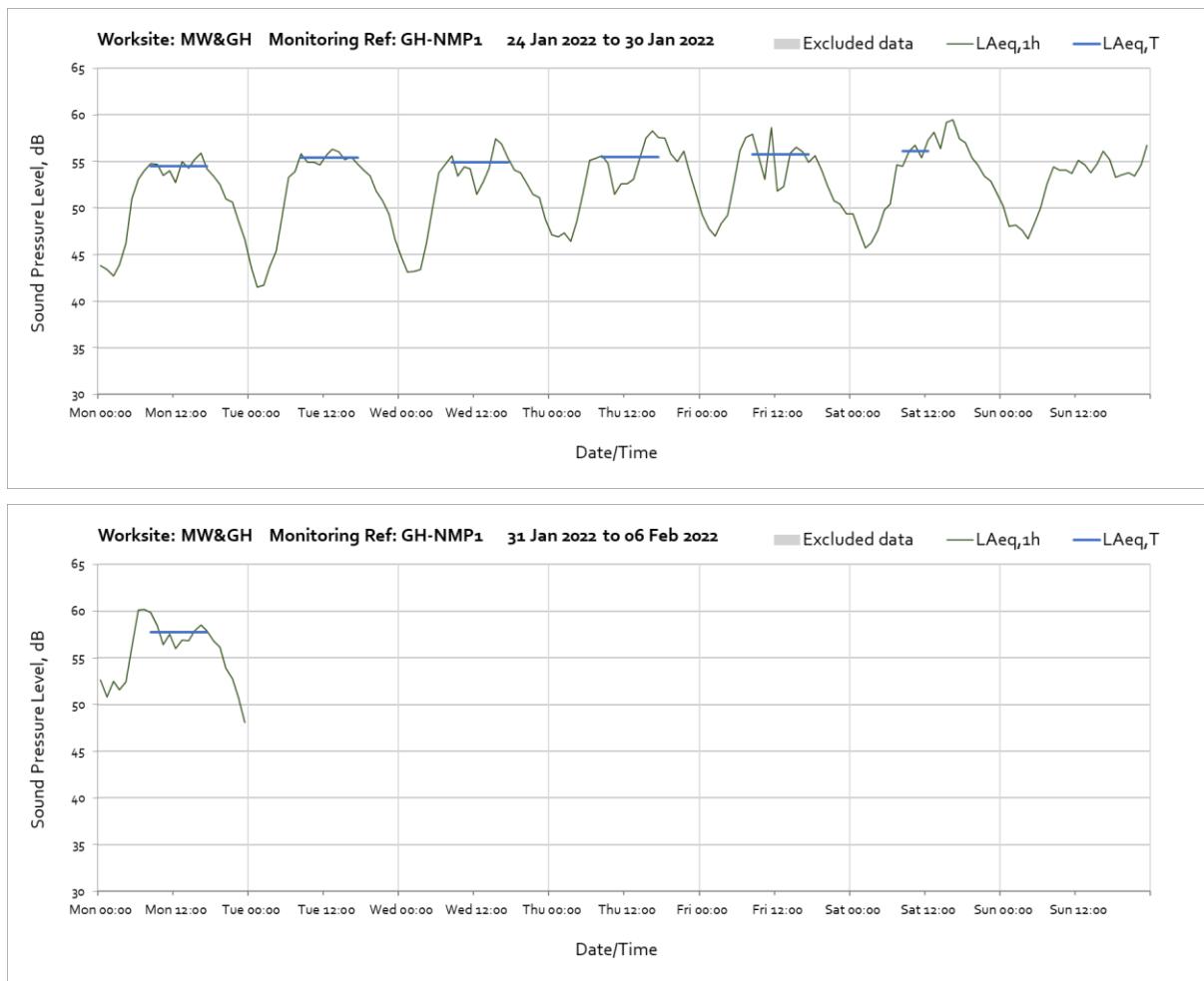
Worksite: MW&GH – Monitoring Ref: GH-NMP1



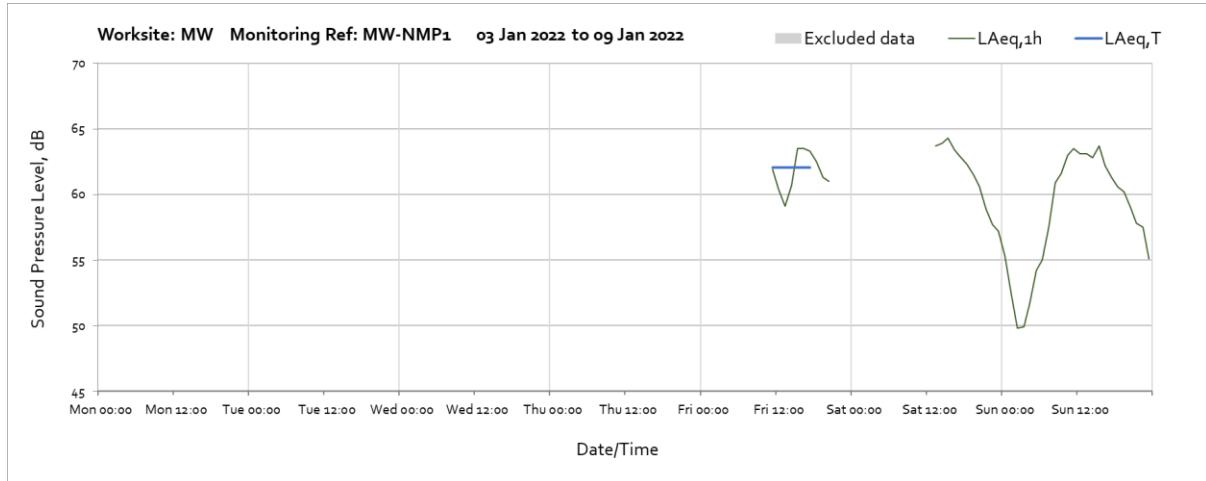
Note: The noise monitor was installed on 7th January 2022.



OFFICIAL

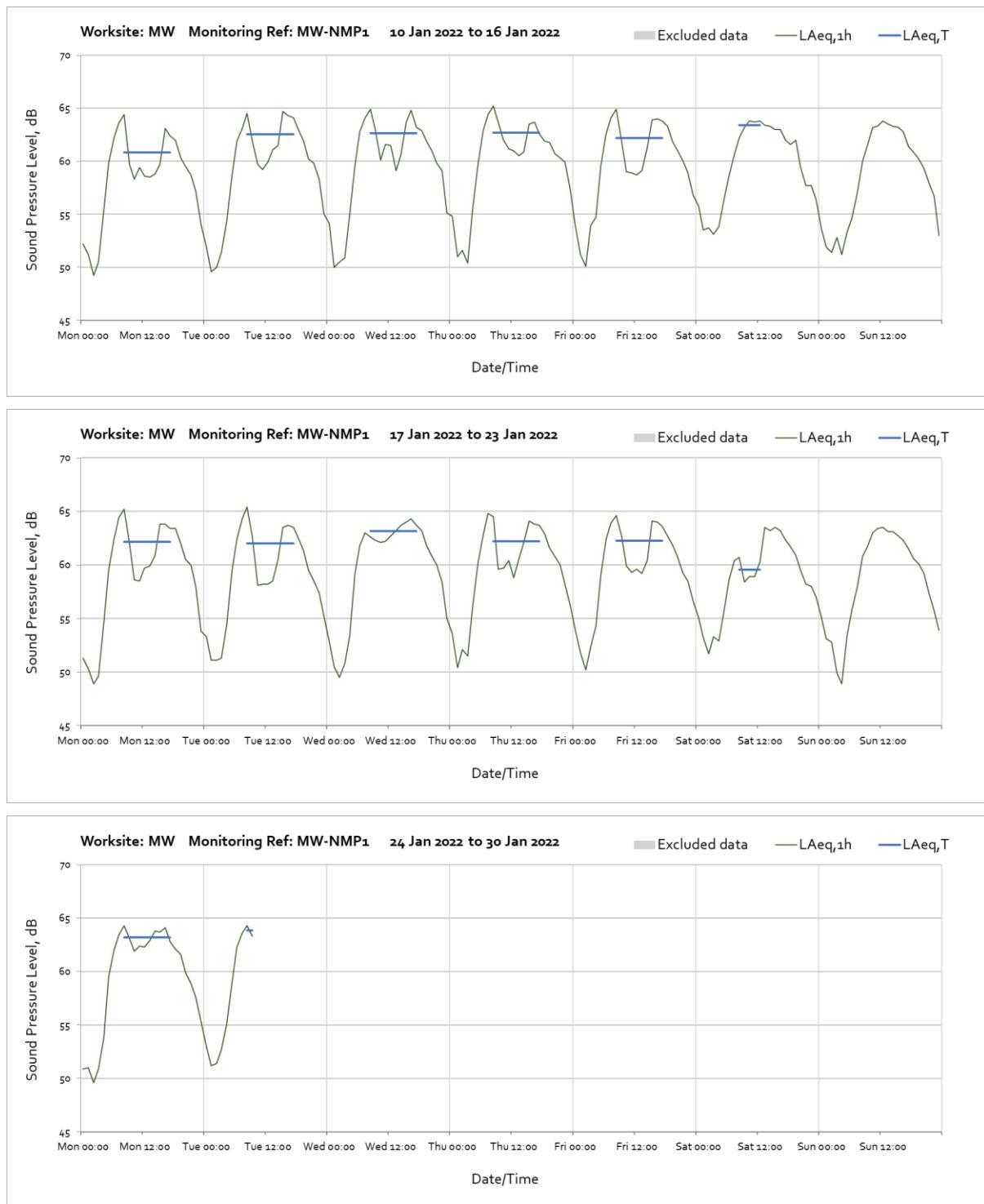


Worksite: MW&GH – Monitoring Ref: MW-NMP1



Note: Missing data between 21:00 on 7th January and 13:00 on 8th January was due to technical issues from the charging controller.

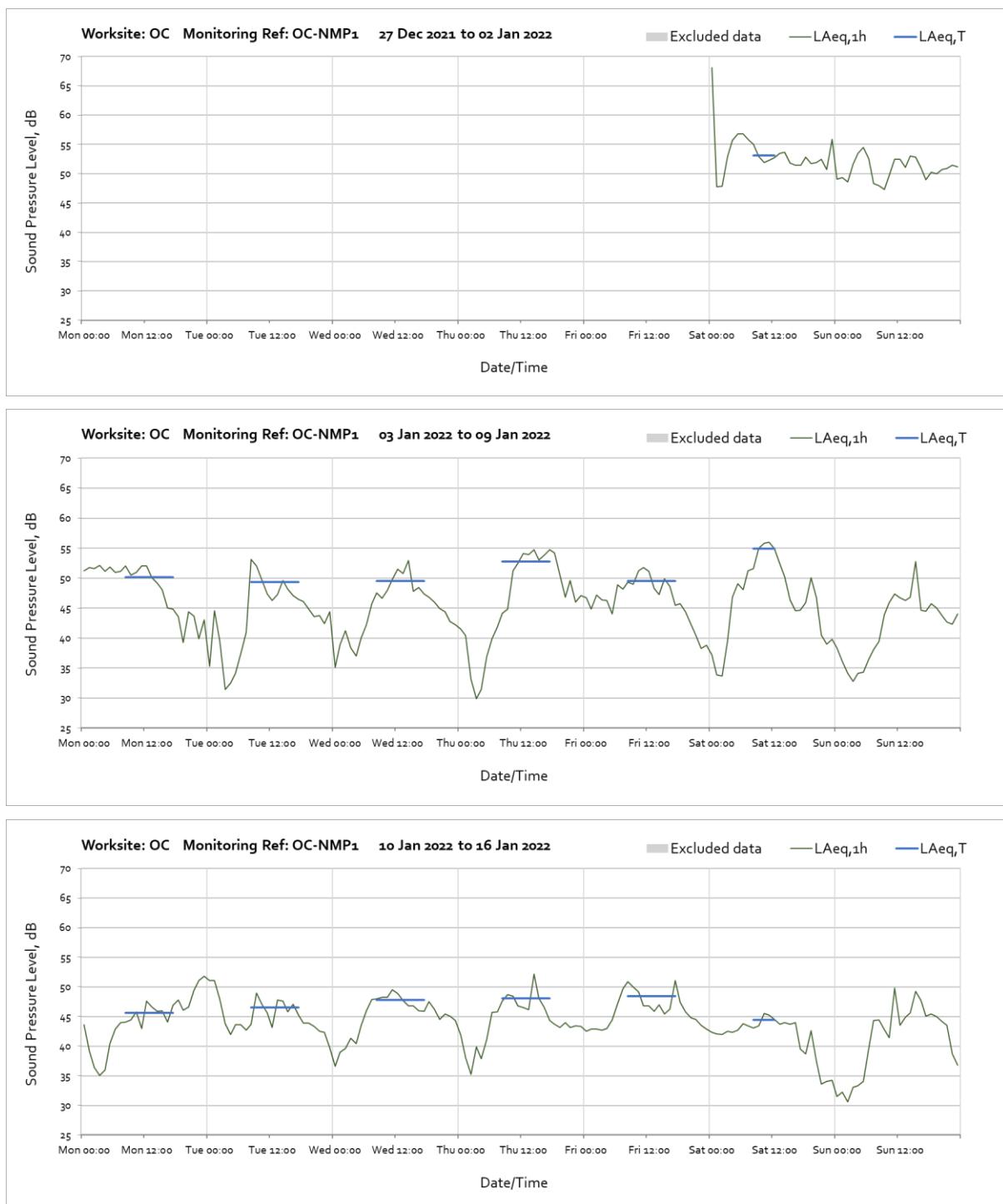
OFFICIAL



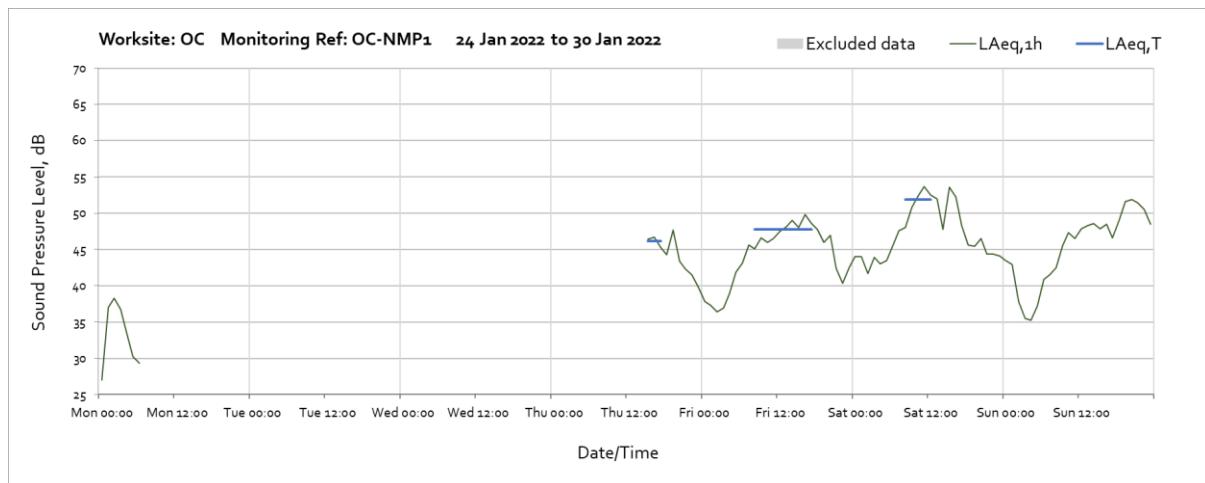
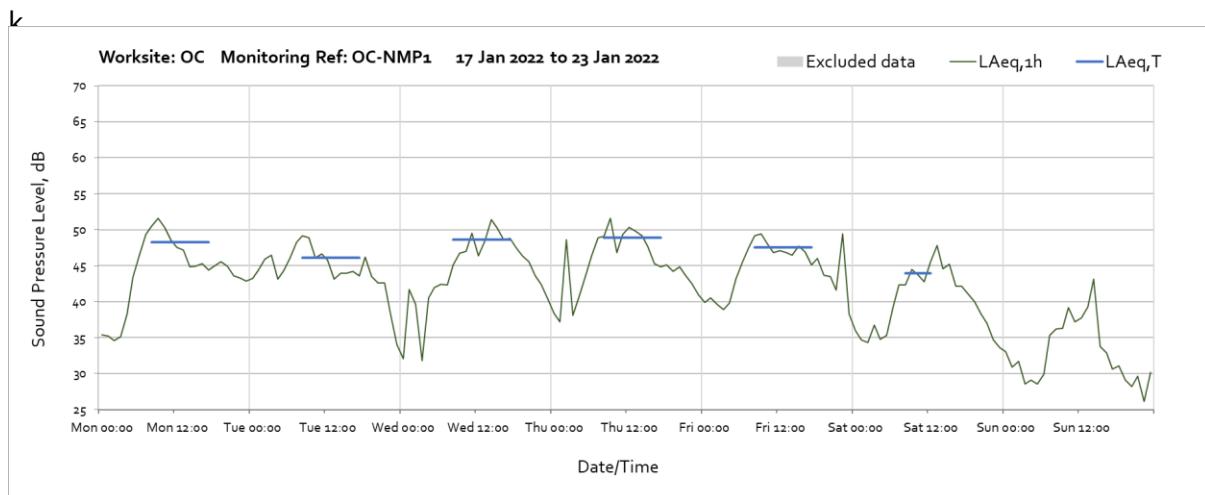
Note: Missing data from 10:00 on 25th January till the end of the month was due loss of power to the noise monitor.

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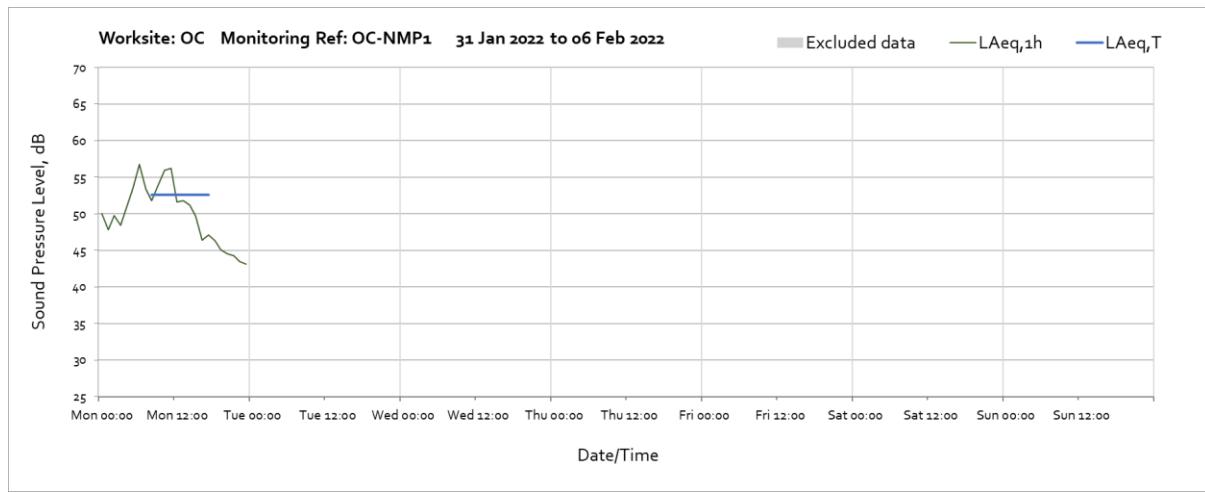
Worksite: OC – Monitoring Ref: OC-NMP1



OFFICIAL

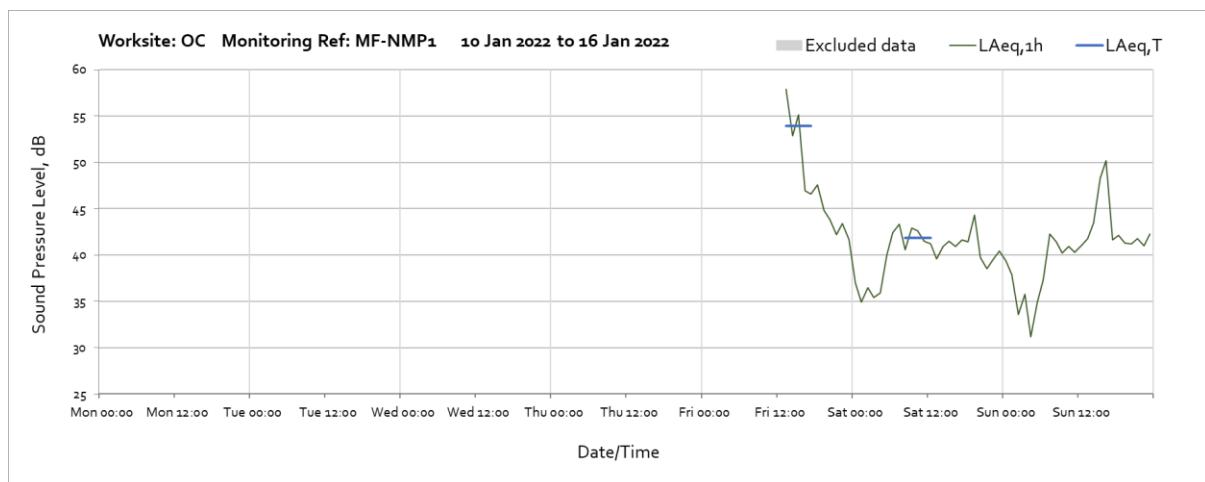


Note: Missing data from 07:00 on 24th January and 15:00 on 27th January month was due loss of power to the noise monitor.

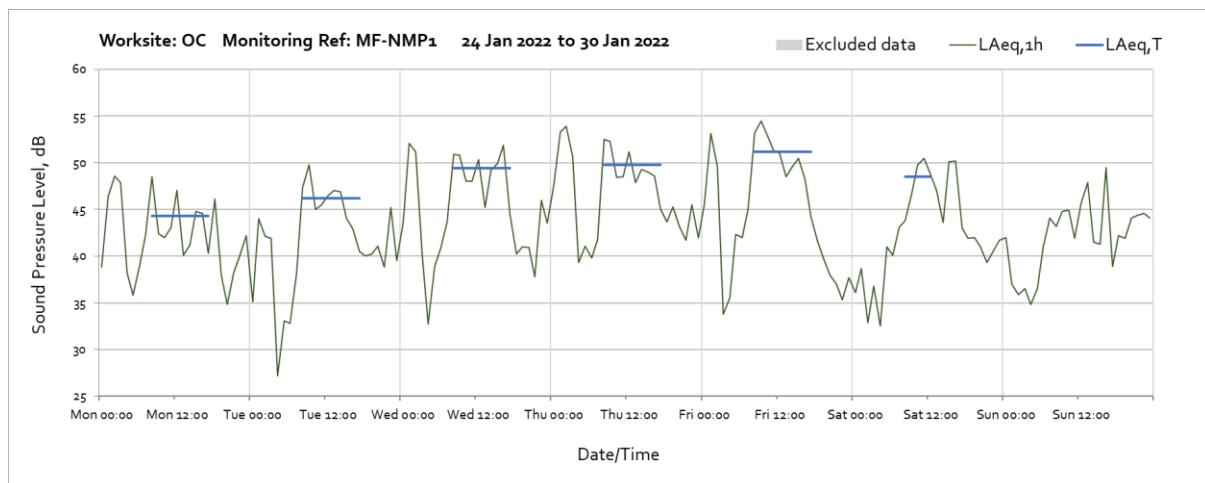
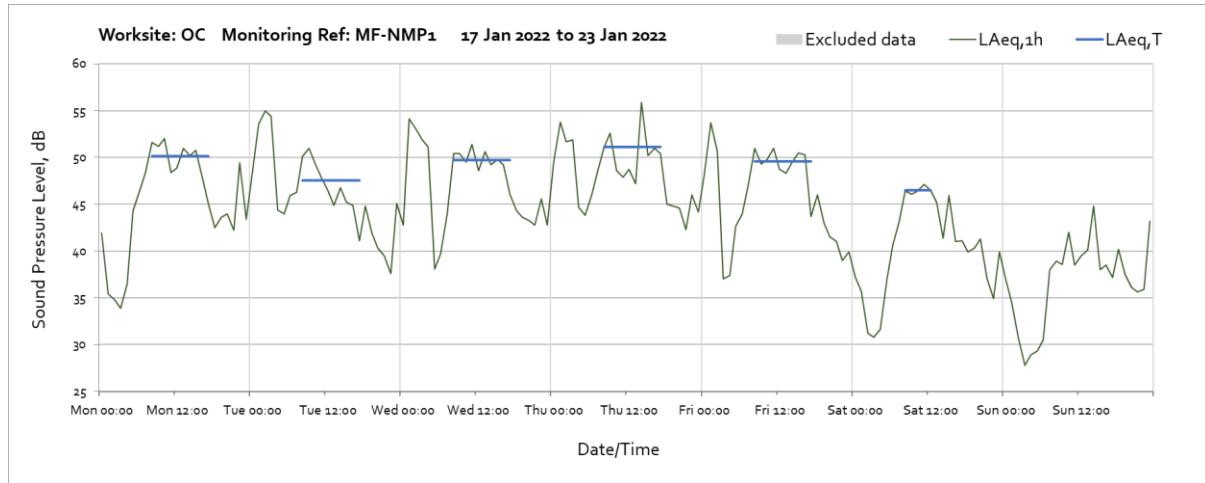


OFFICIAL

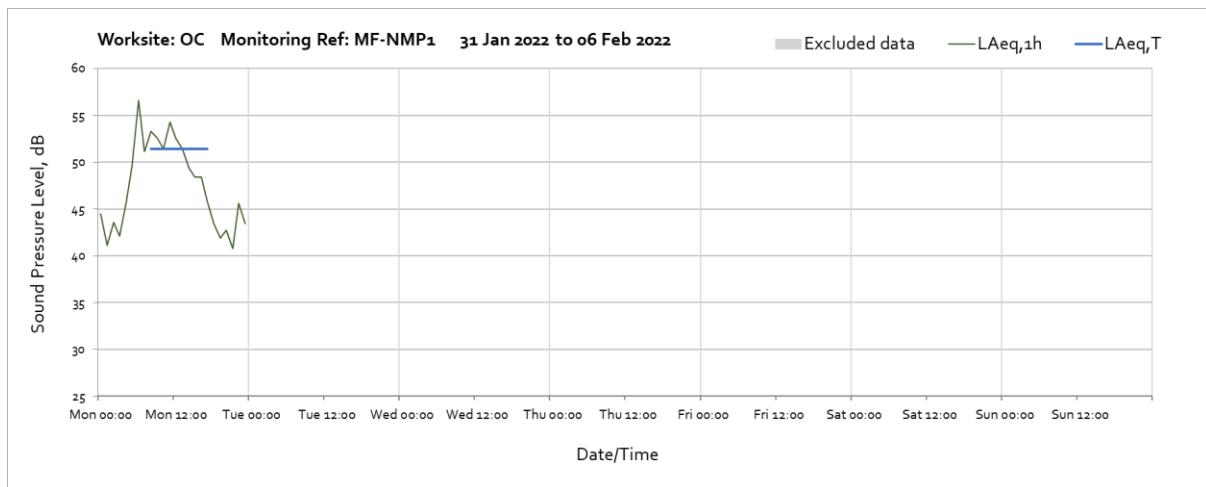
Worksite: OC – Monitoring Ref: MF-NMP1



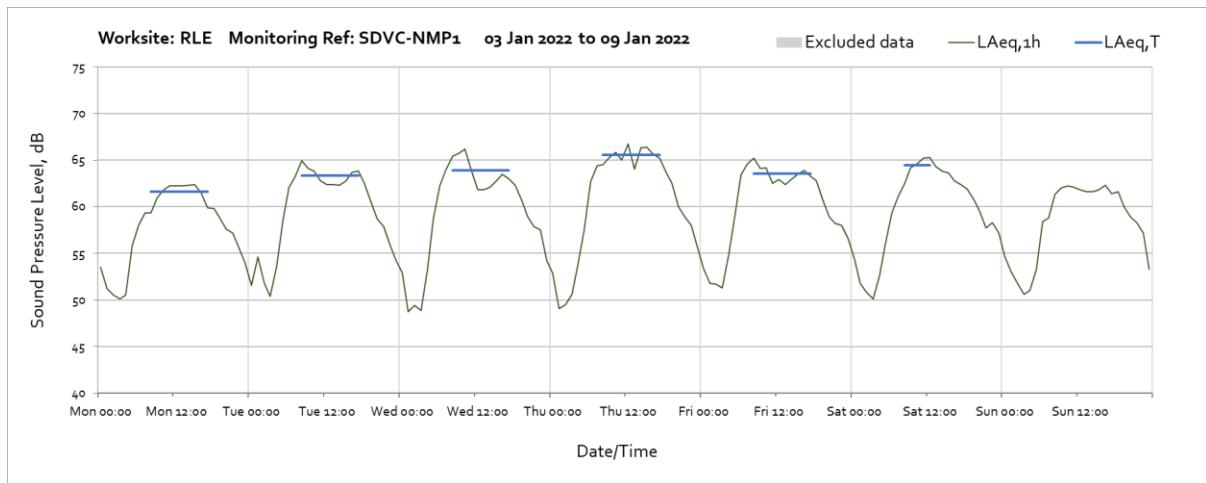
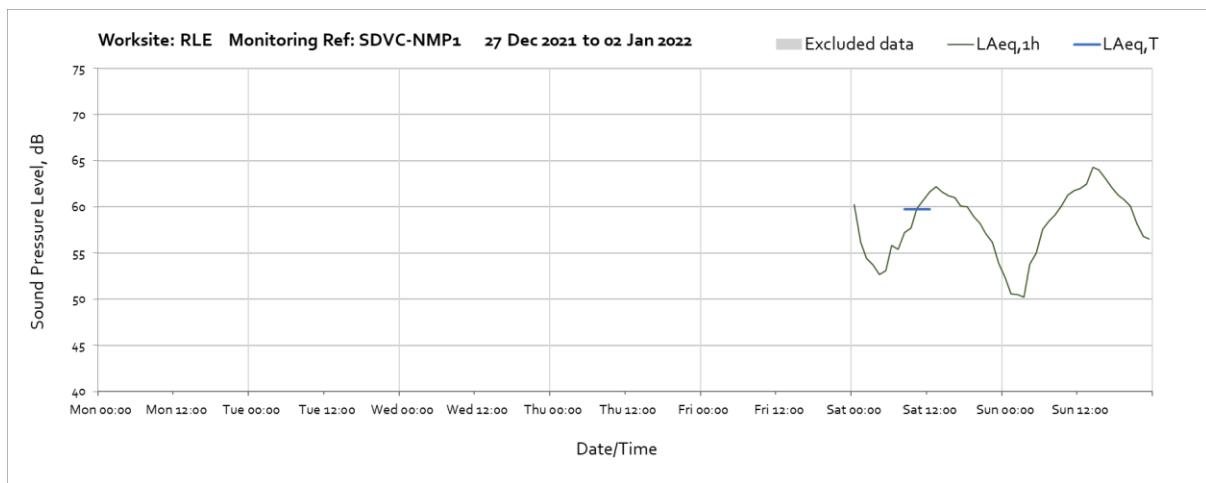
Note: The noise monitor was installed on 14th January 2022.



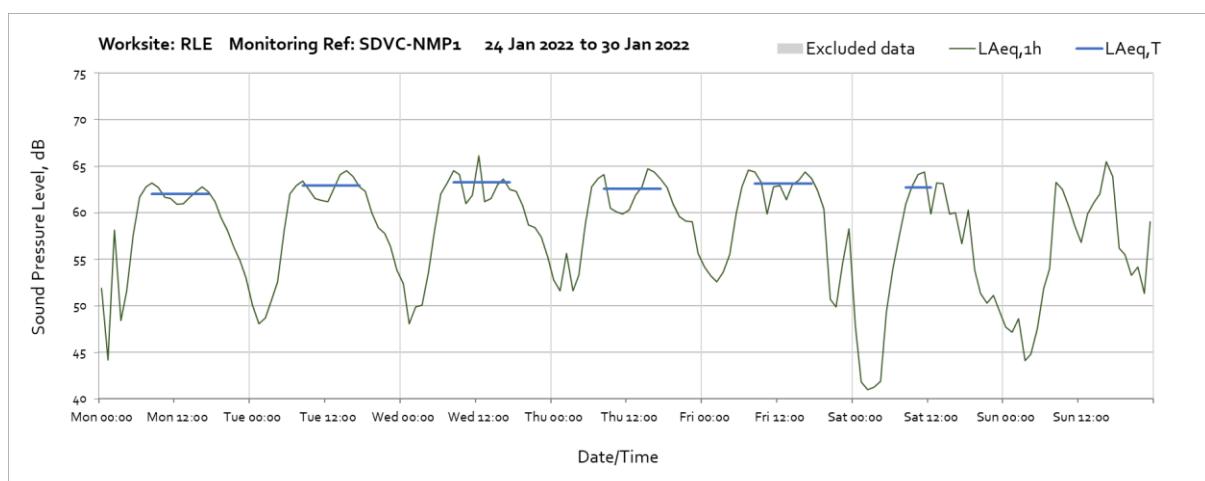
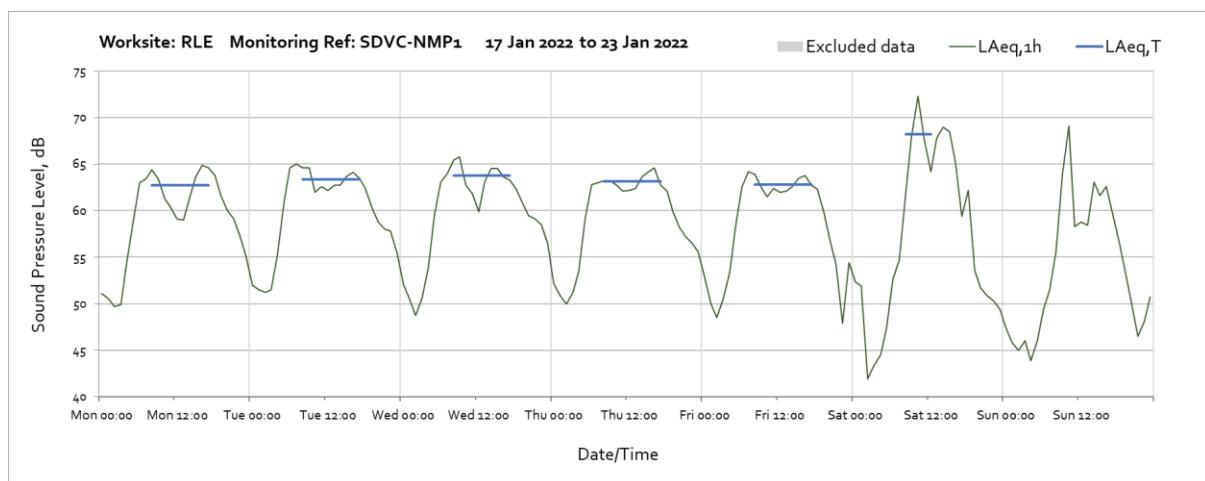
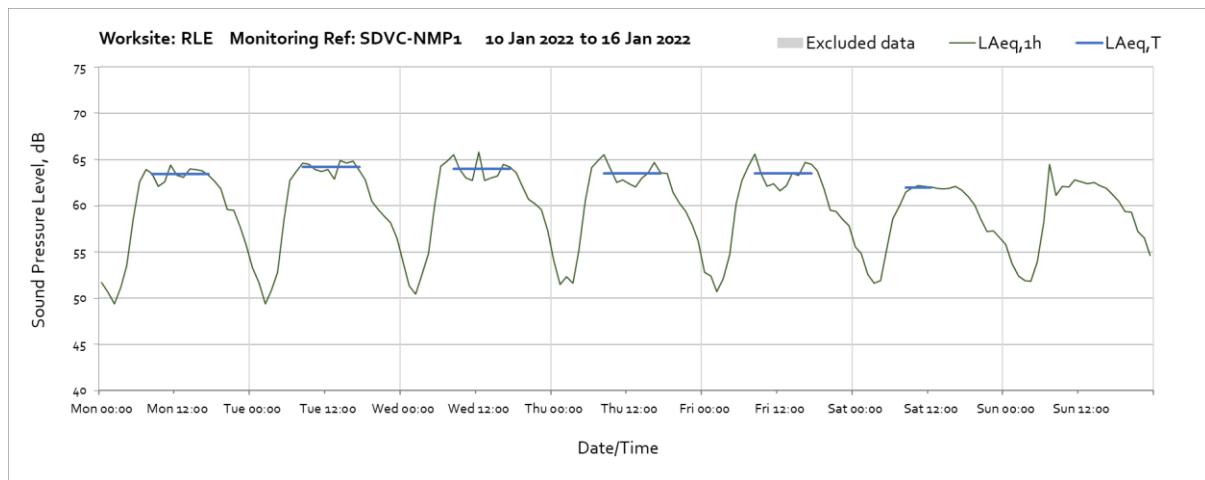
OFFICIAL



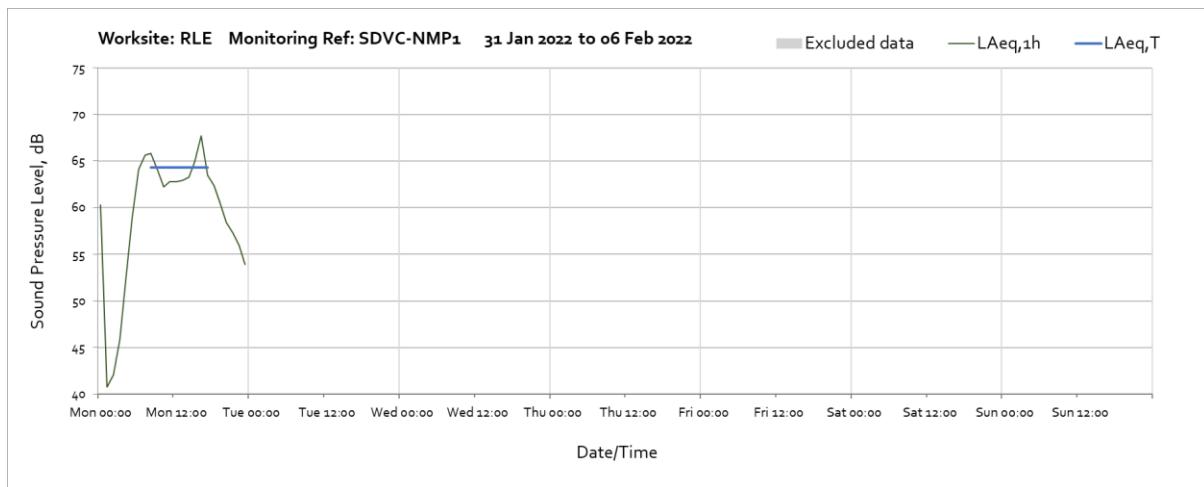
Worksite: RLE – Monitoring Ref: SDVC-NMP1



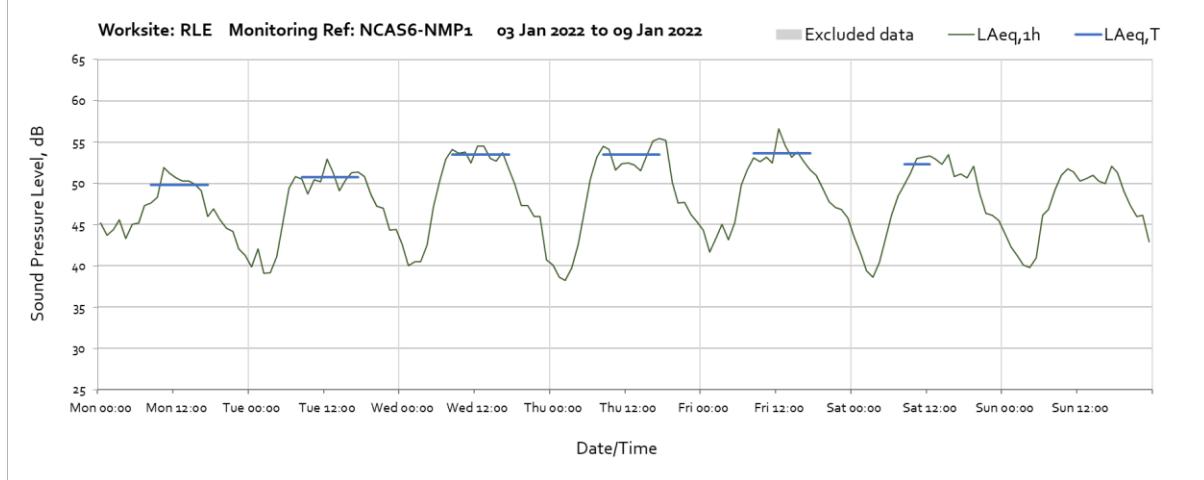
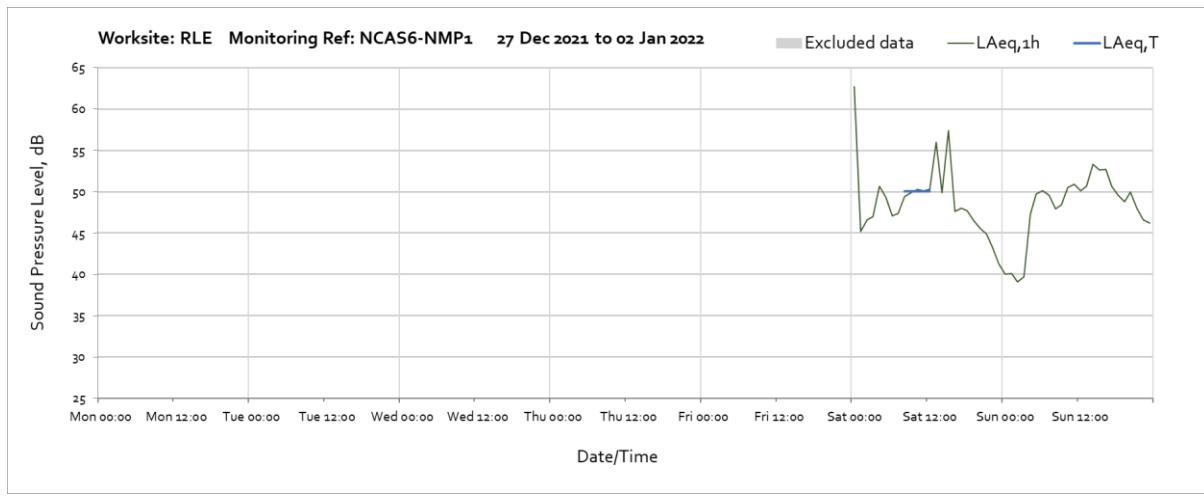
OFFICIAL



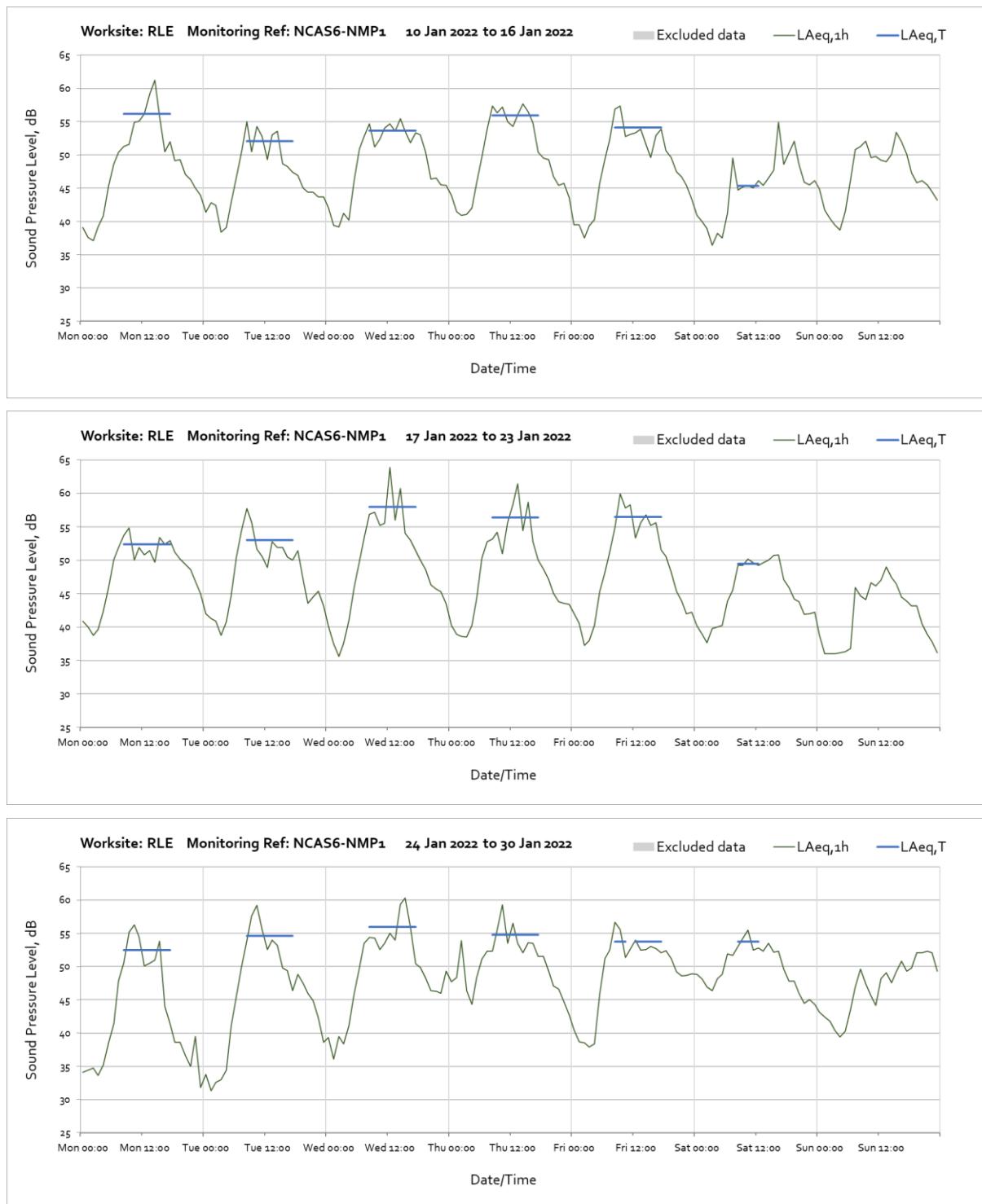
OFFICIAL



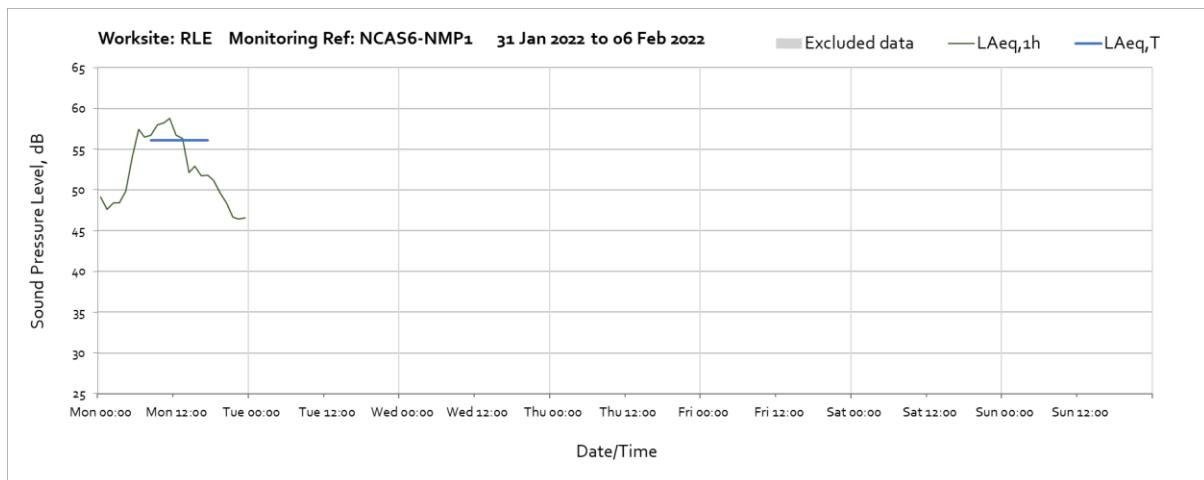
Worksite: RLE - Monitoring Ref: NCAS6-NMP1



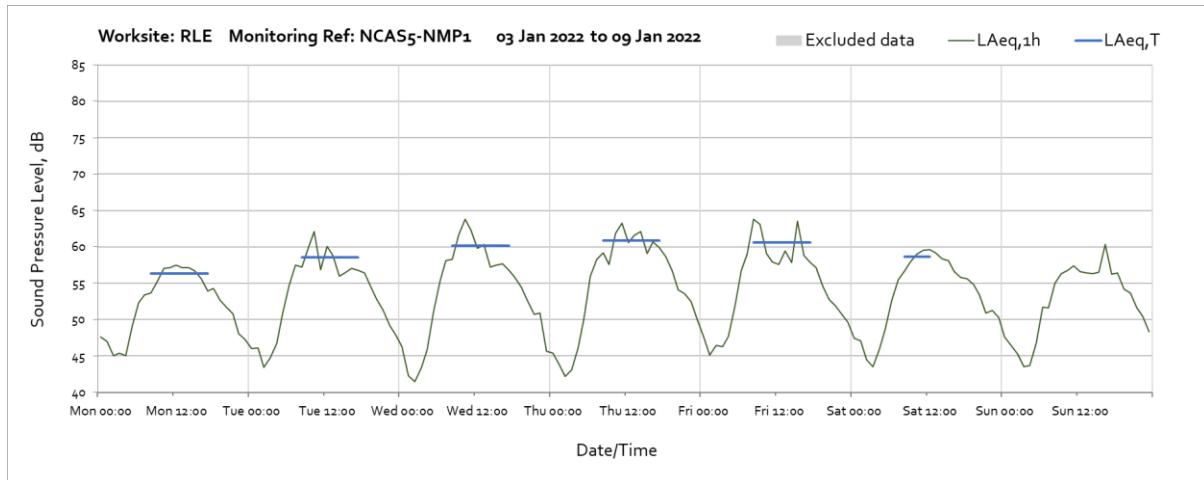
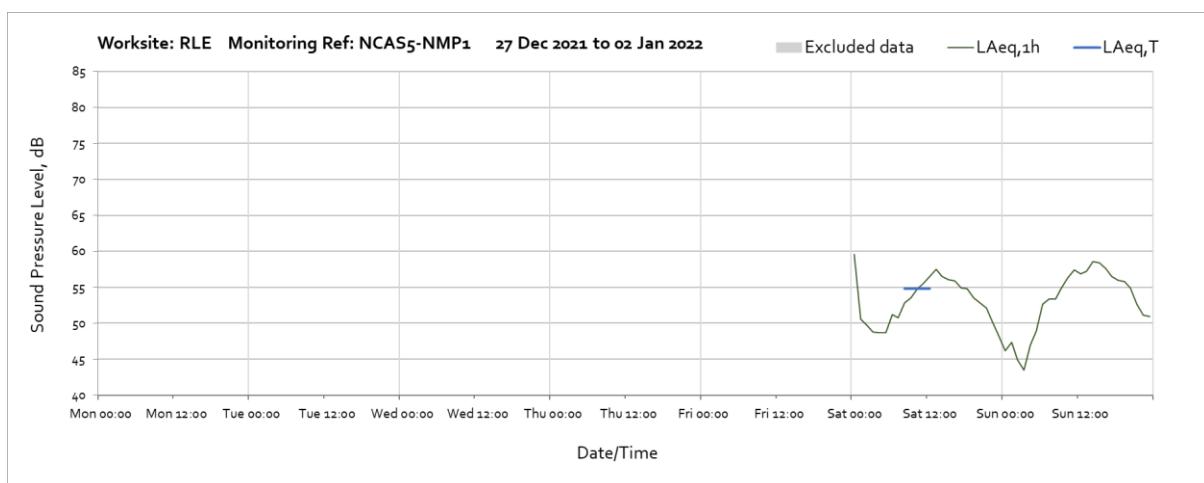
OFFICIAL



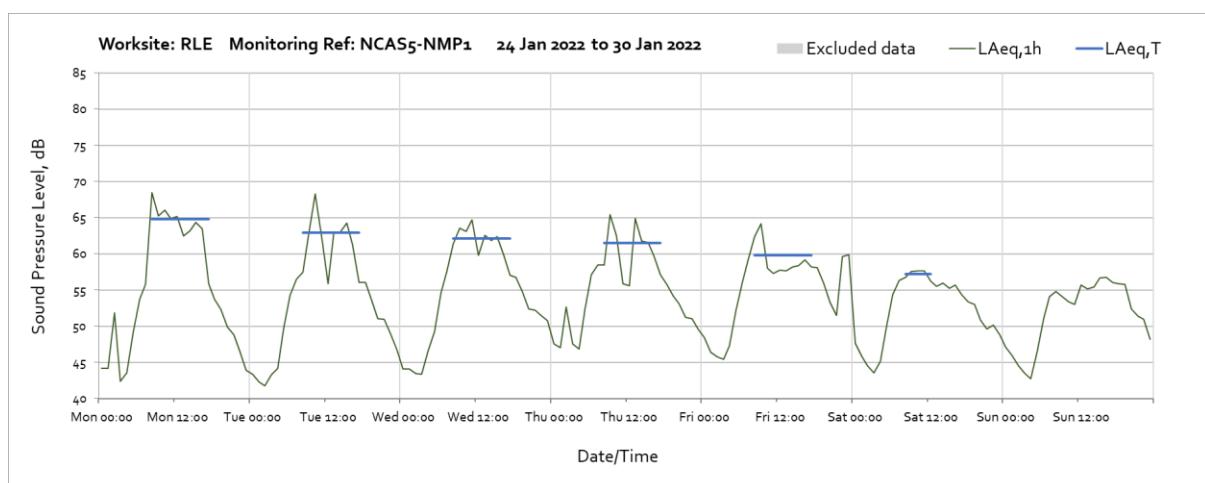
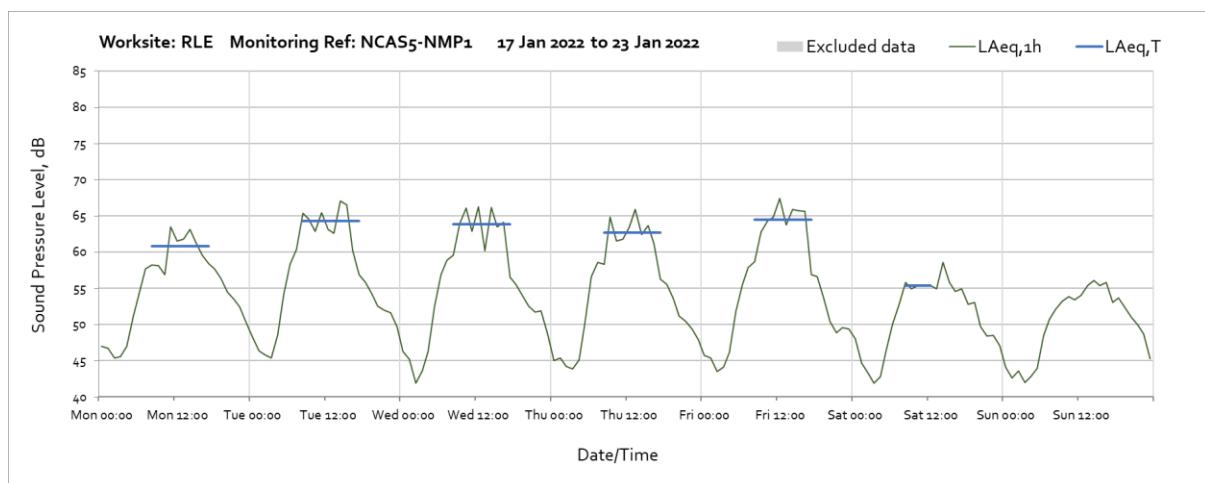
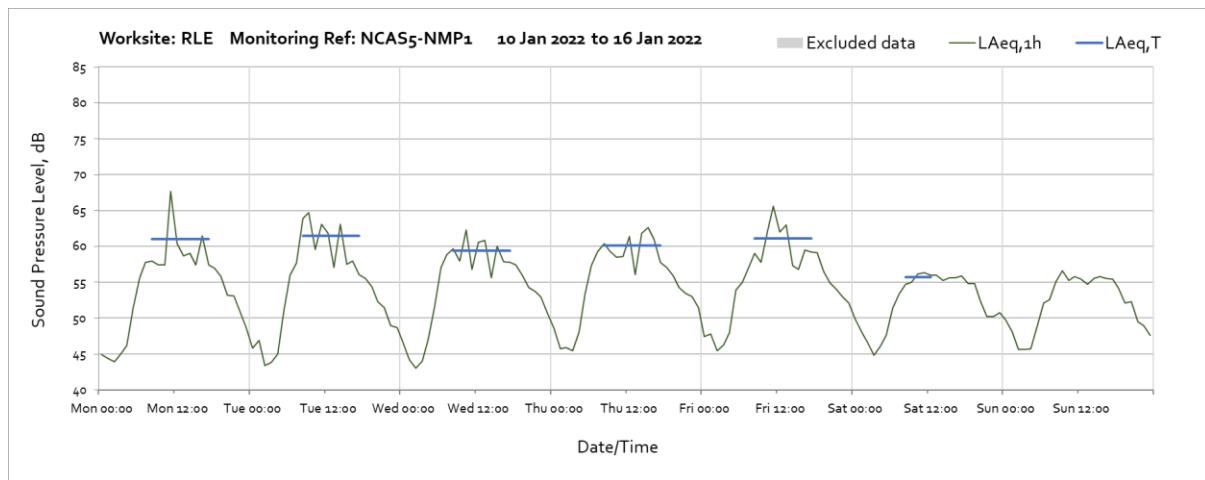
OFFICIAL



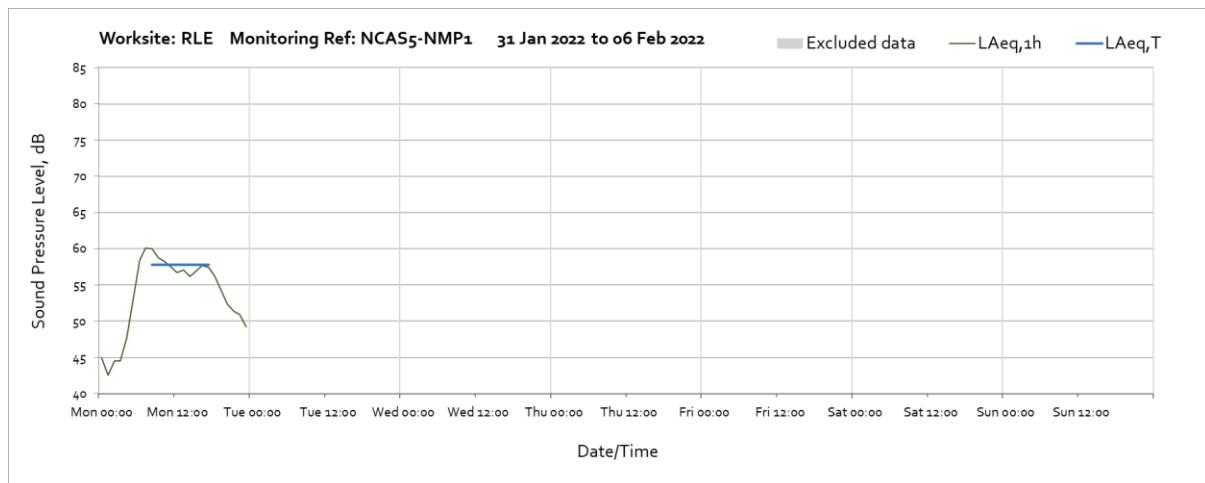
Worksite: RLE - Monitoring Ref: NCAS5-NMP1



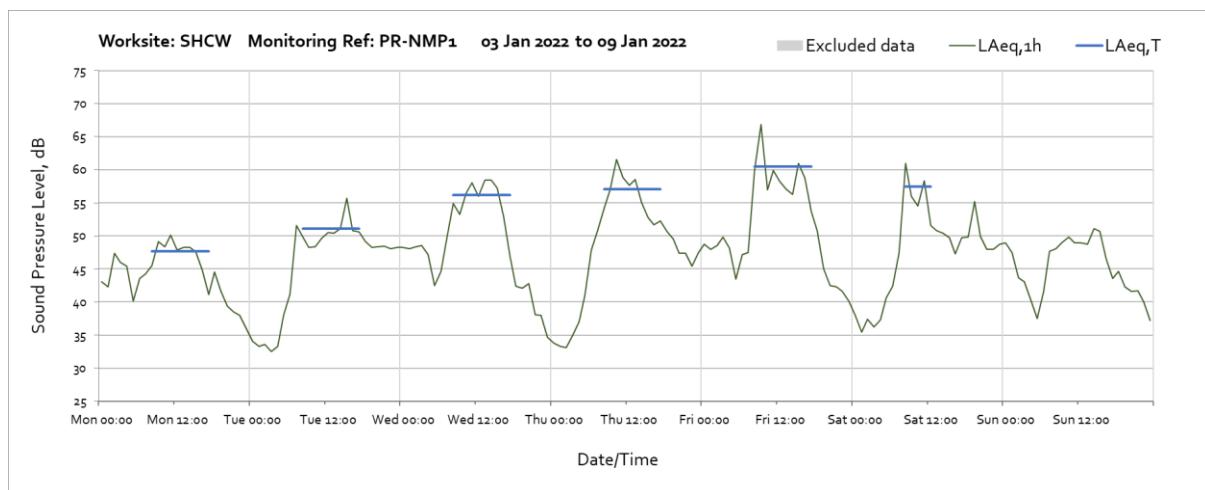
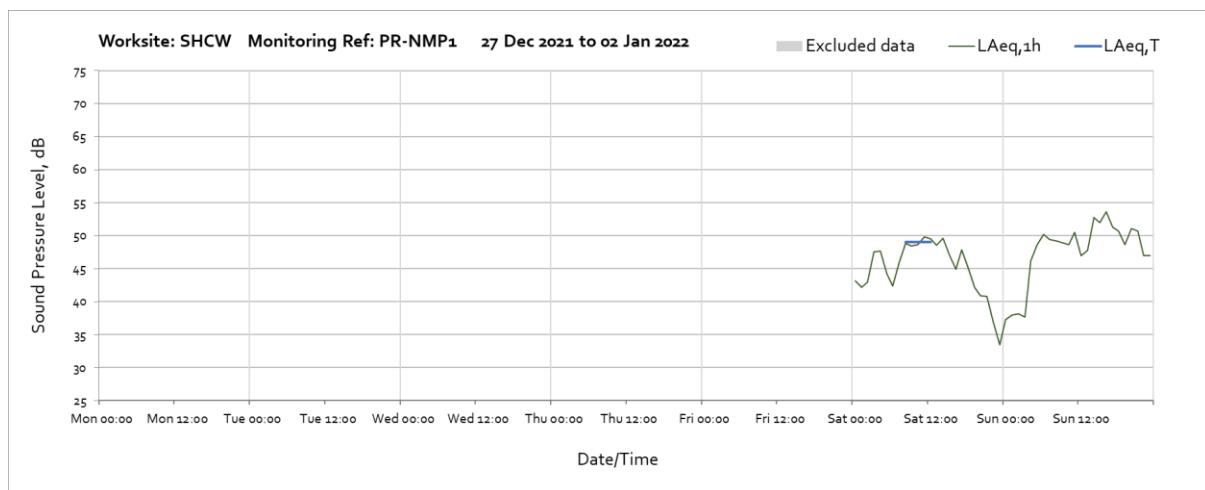
OFFICIAL



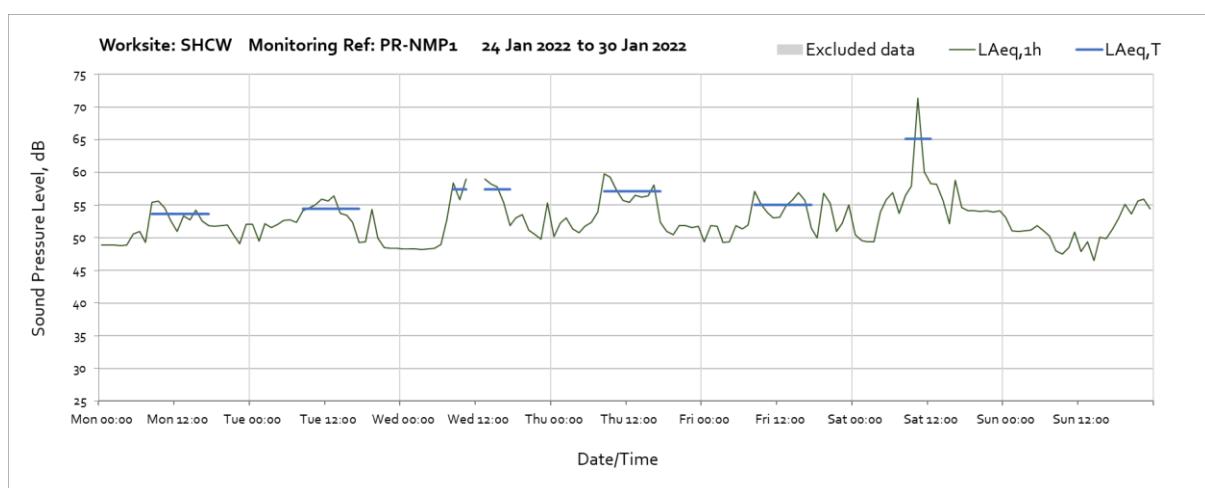
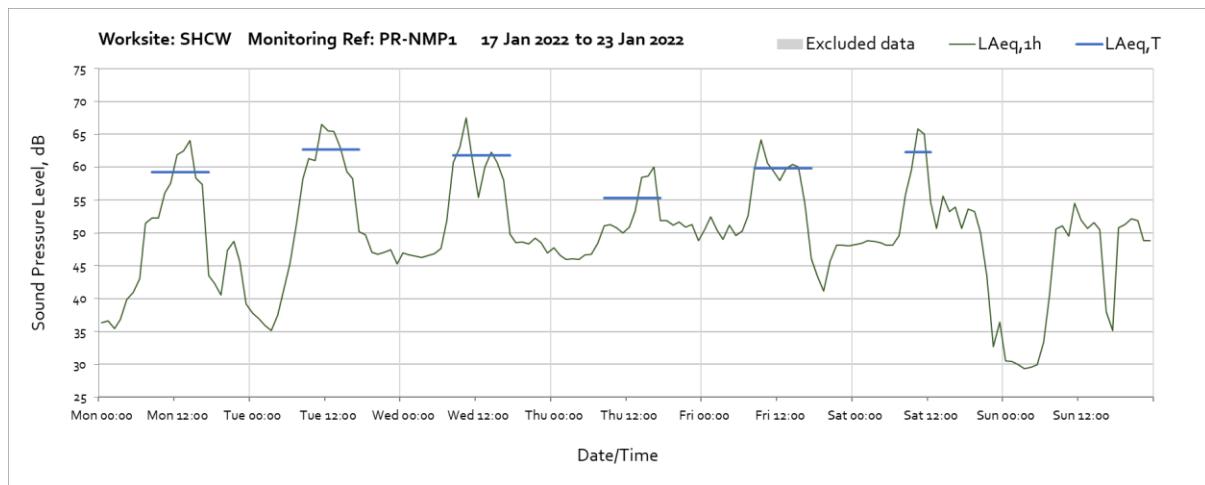
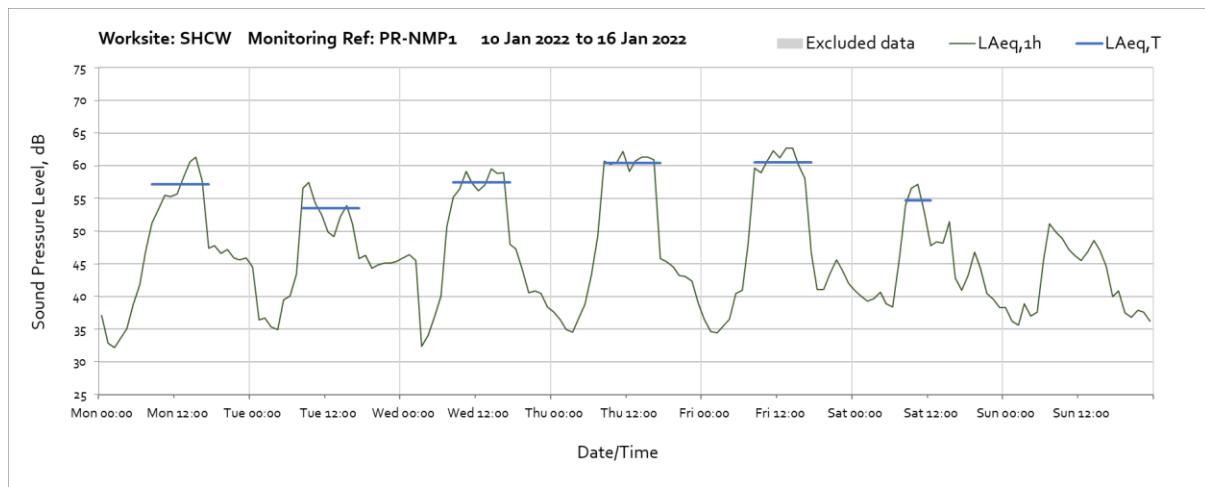
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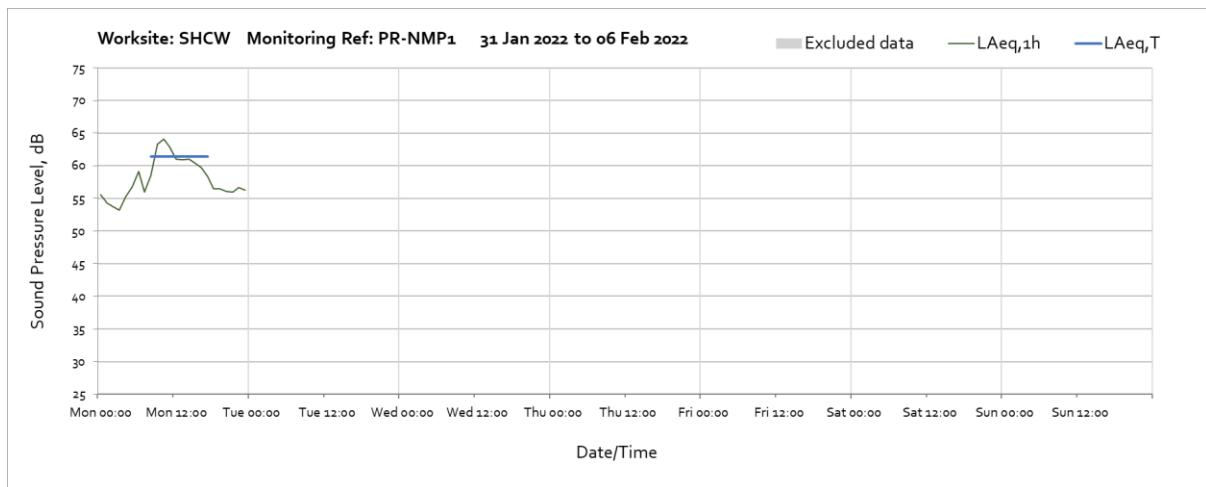
Worksite: SHCW – Monitoring Ref: PR-NMP1



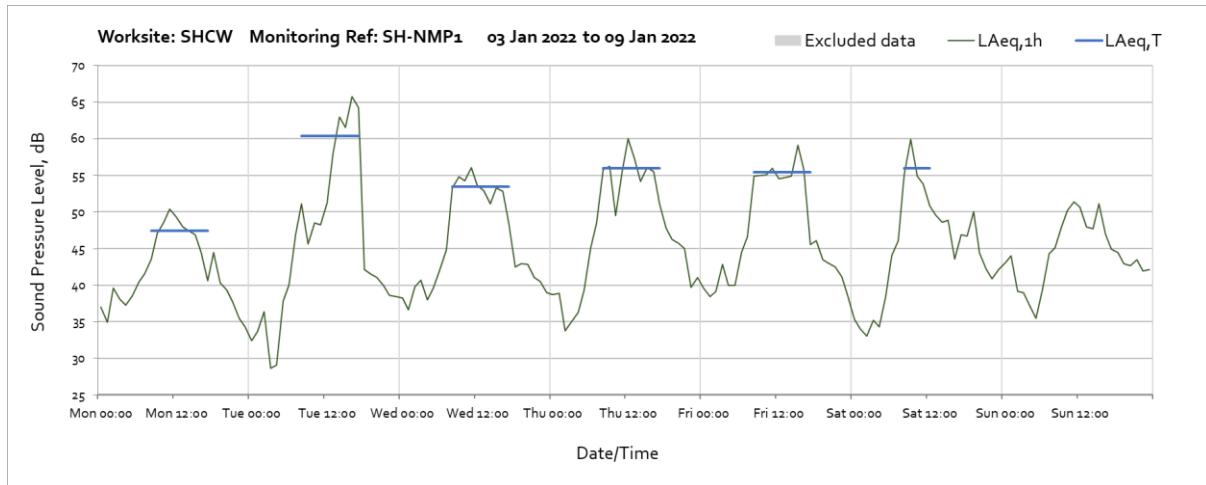
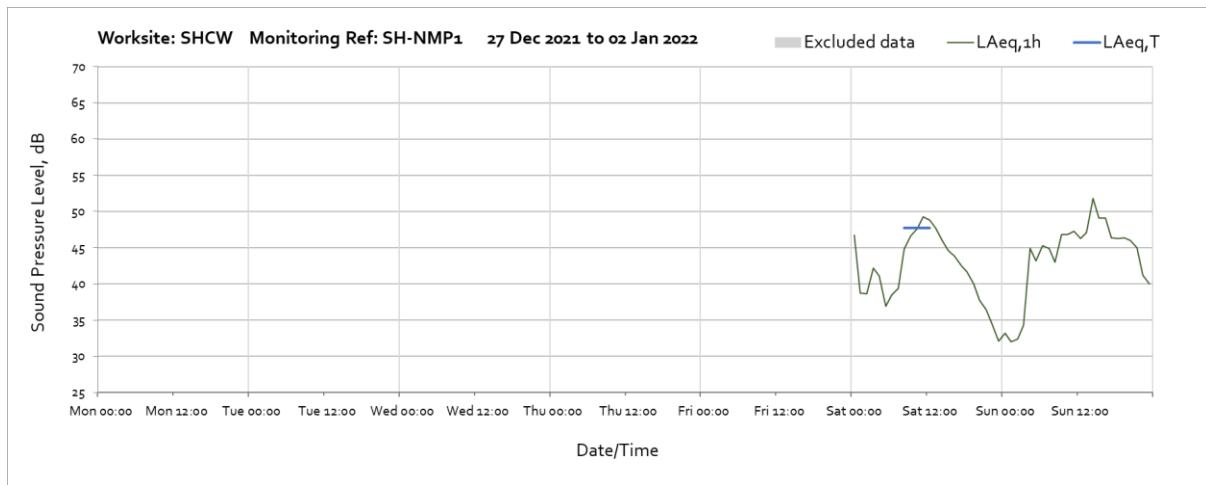
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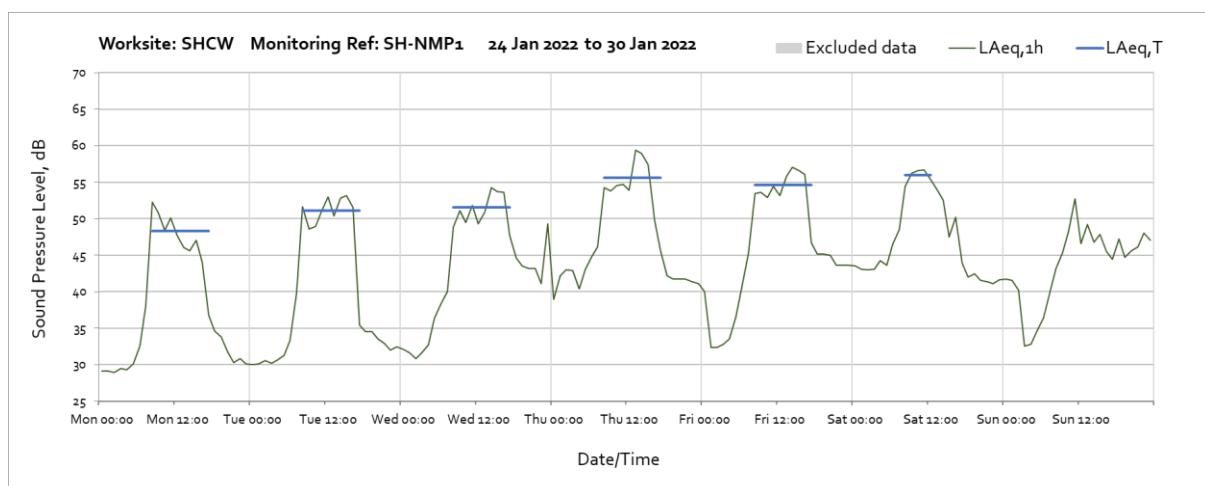
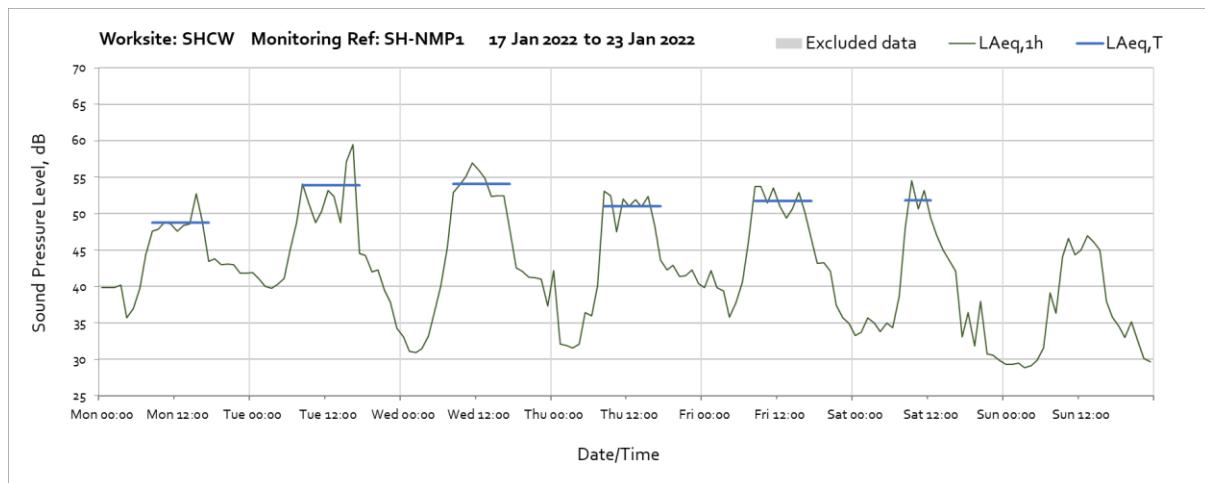
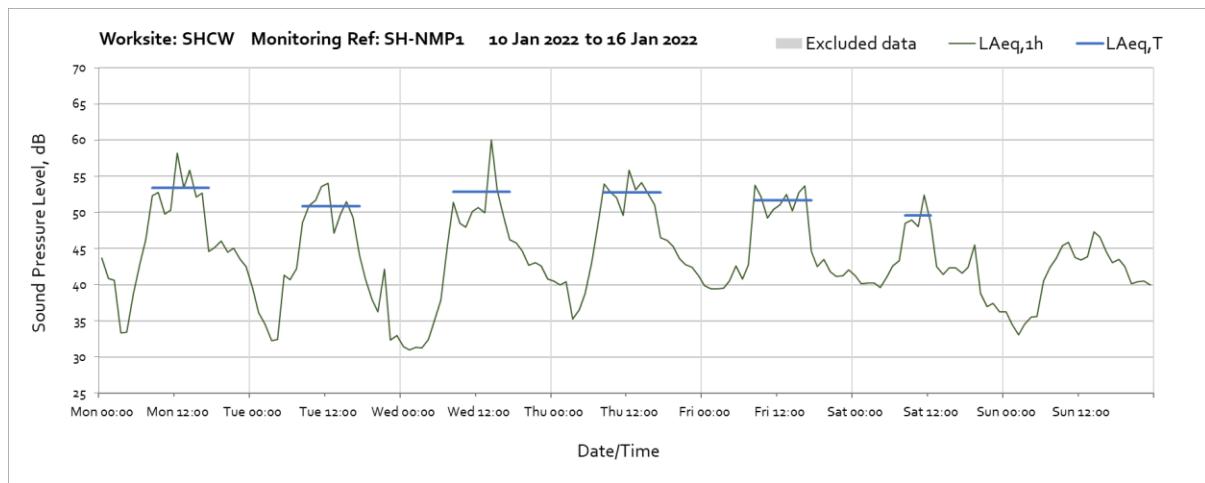
OFFICIAL



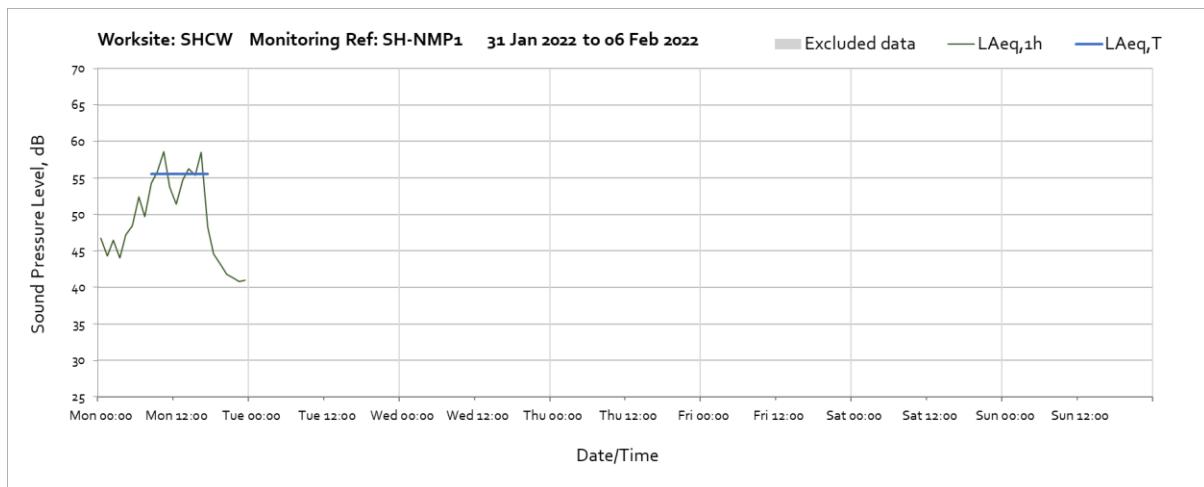
Worksite: SHCW - Monitoring Ref: SH-NMP1



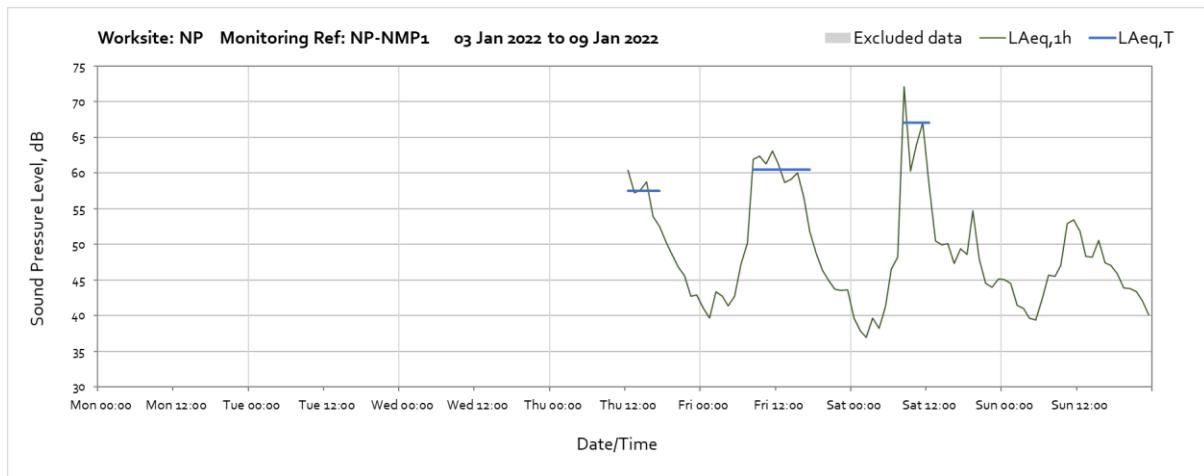
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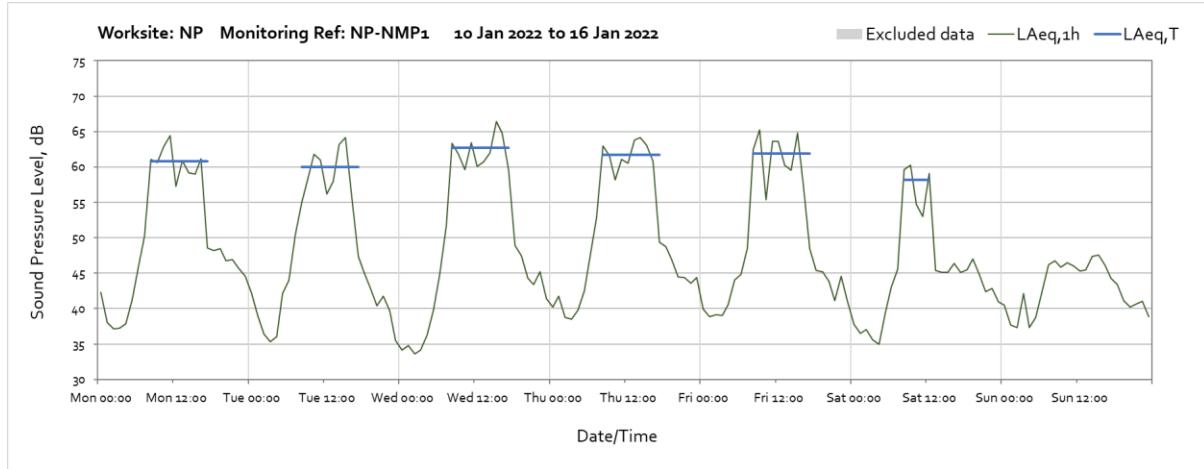
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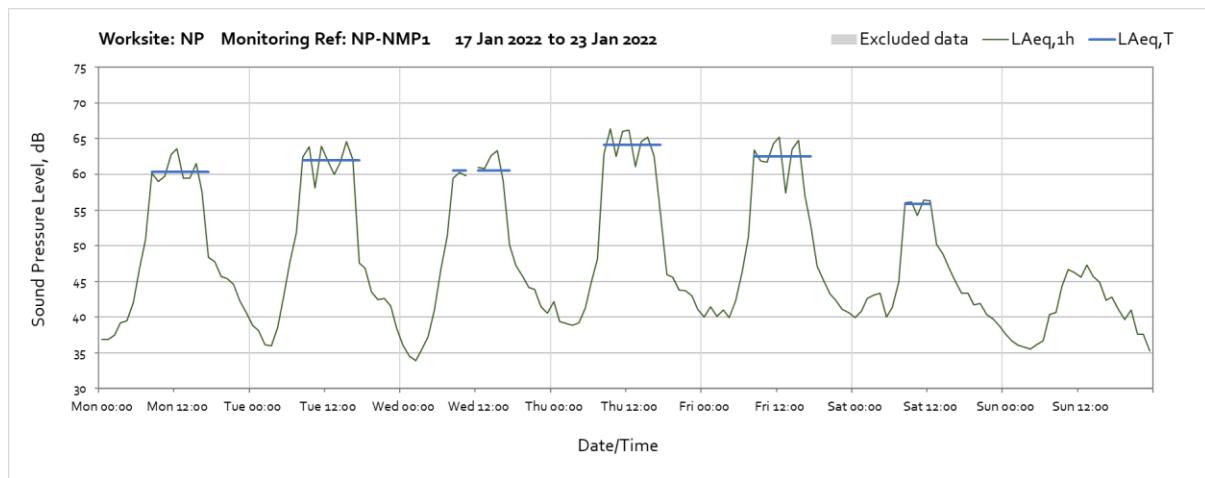
Worksite: NP – Monitoring Ref: NP-NMP1



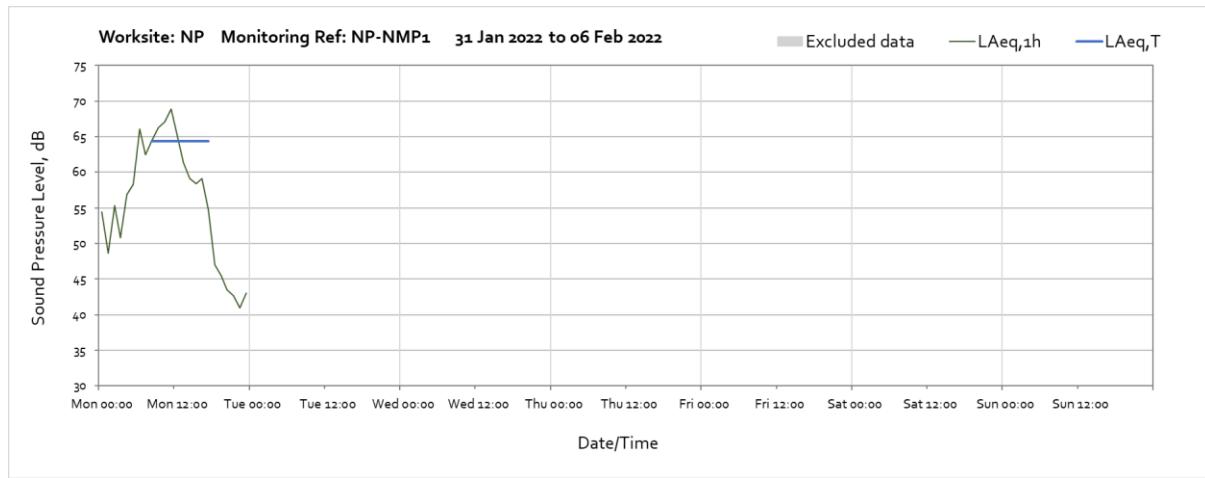
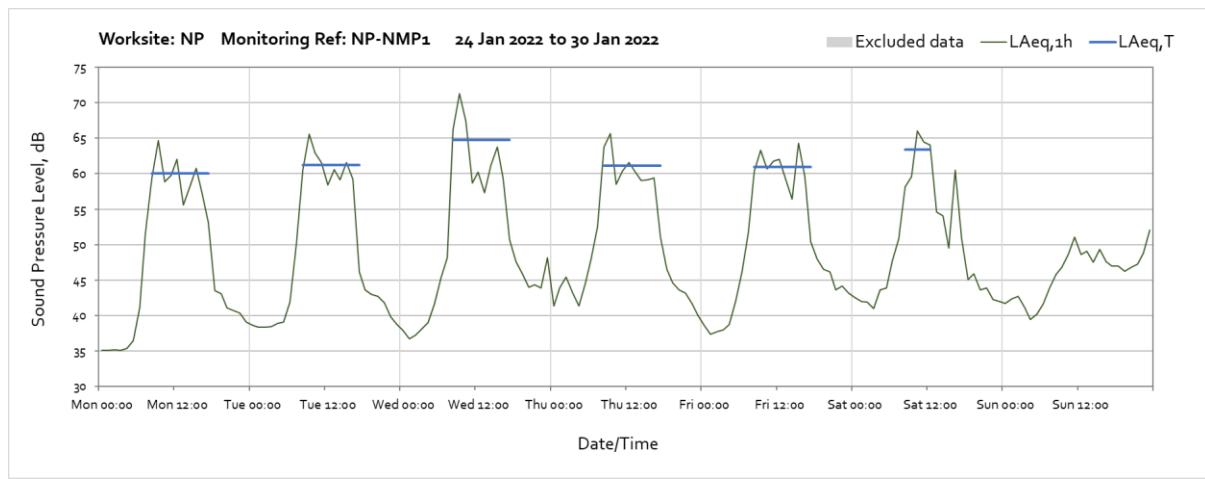
Note: Missing data until 6th of January was due to loss of power to the noise monitor.



OFFICIAL

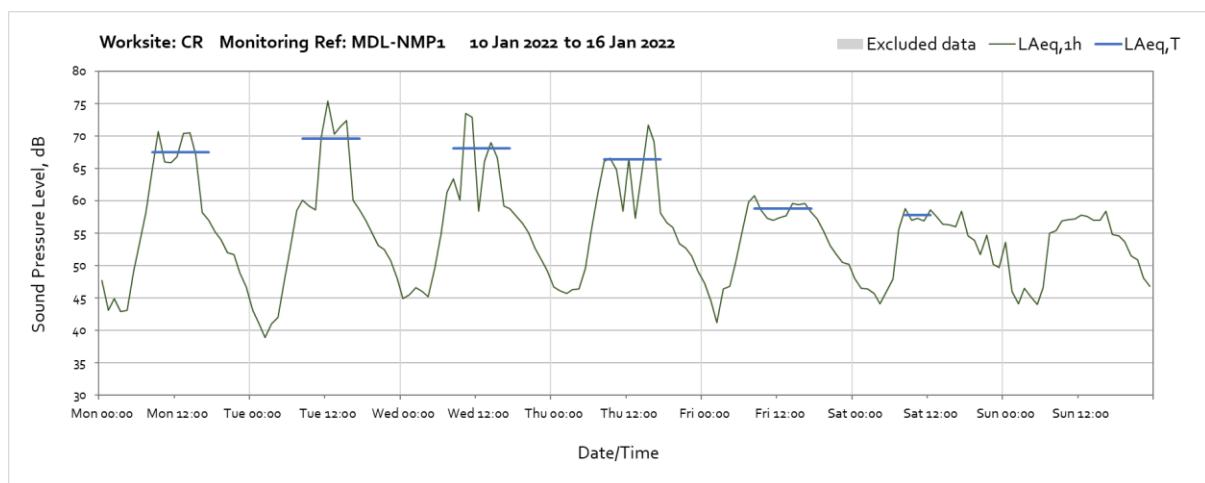
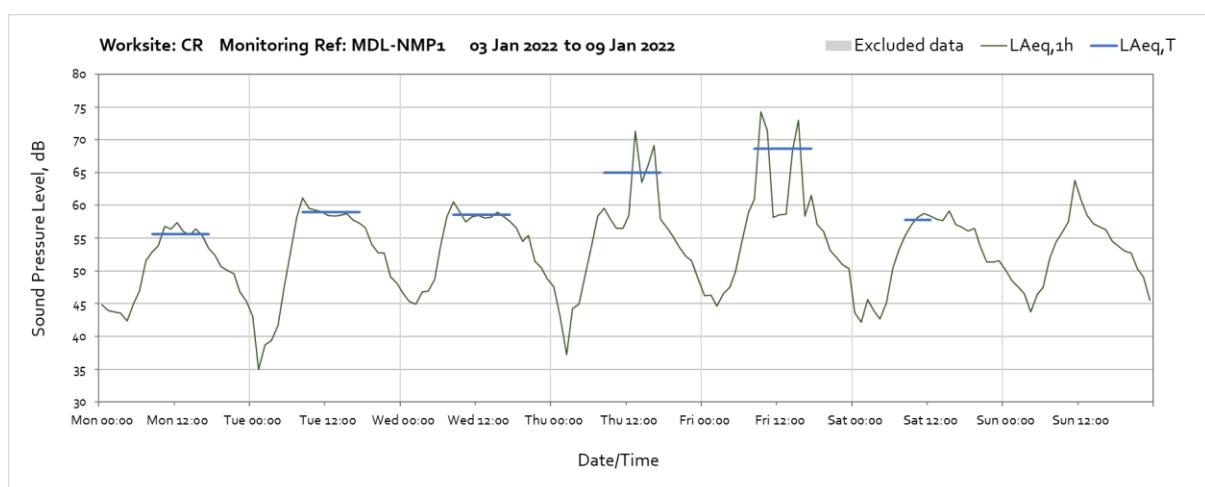
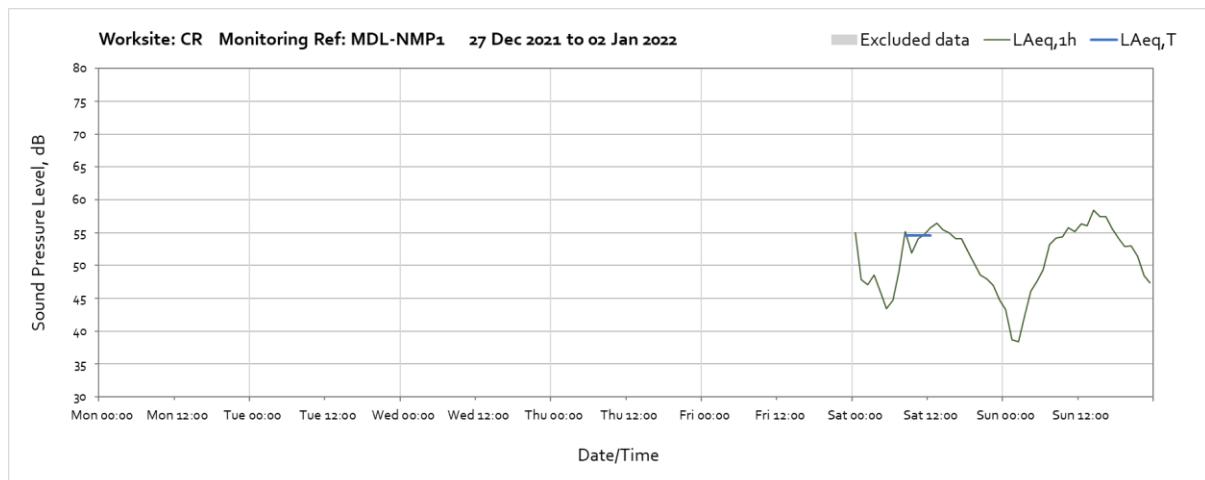


Note: Missing data between 11:00 and 12:00 on 19th January was due to monitor being paused for field calibration.

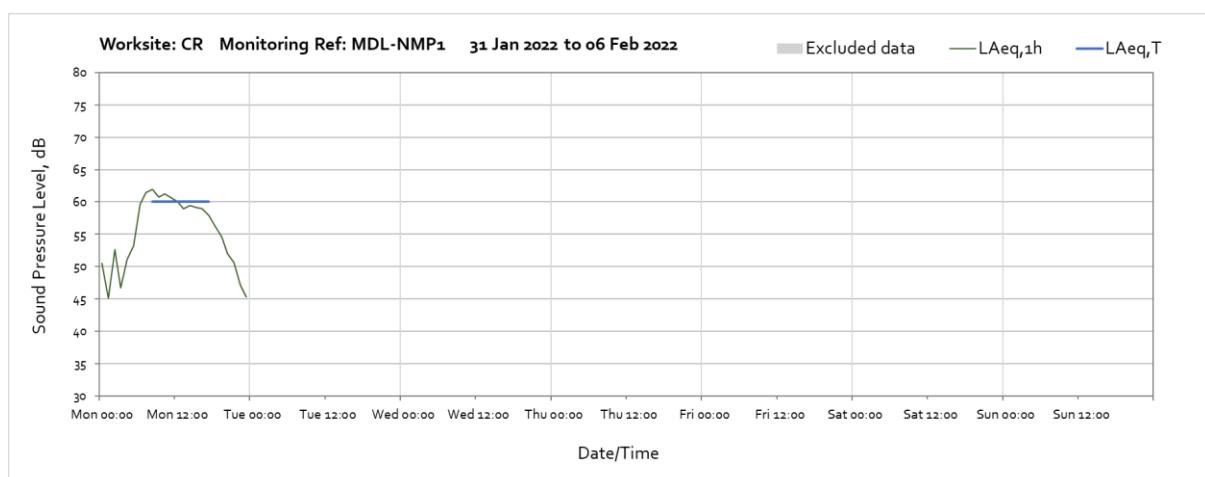
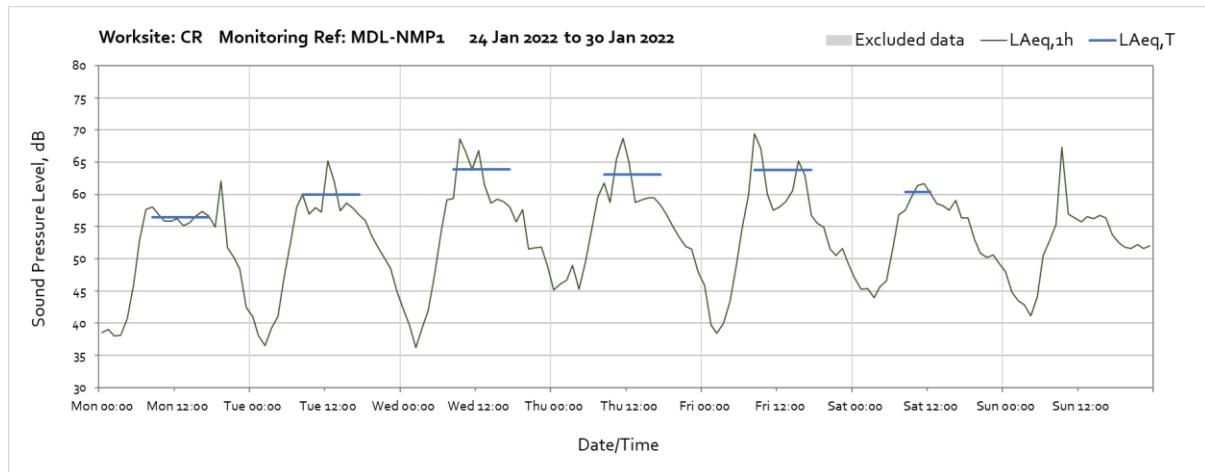
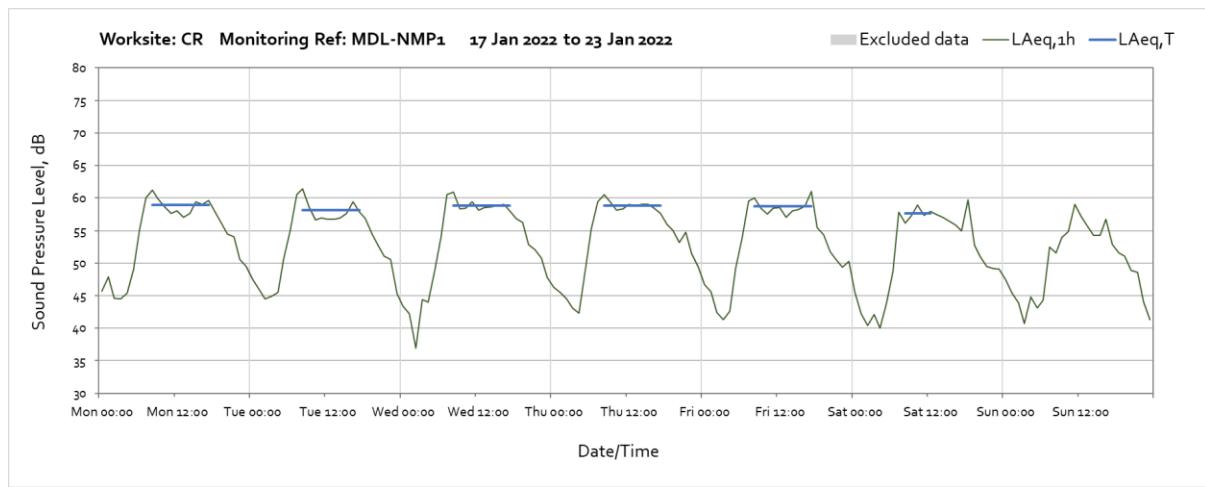


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Worksite: CR - Monitoring Ref: MDL-NMP1

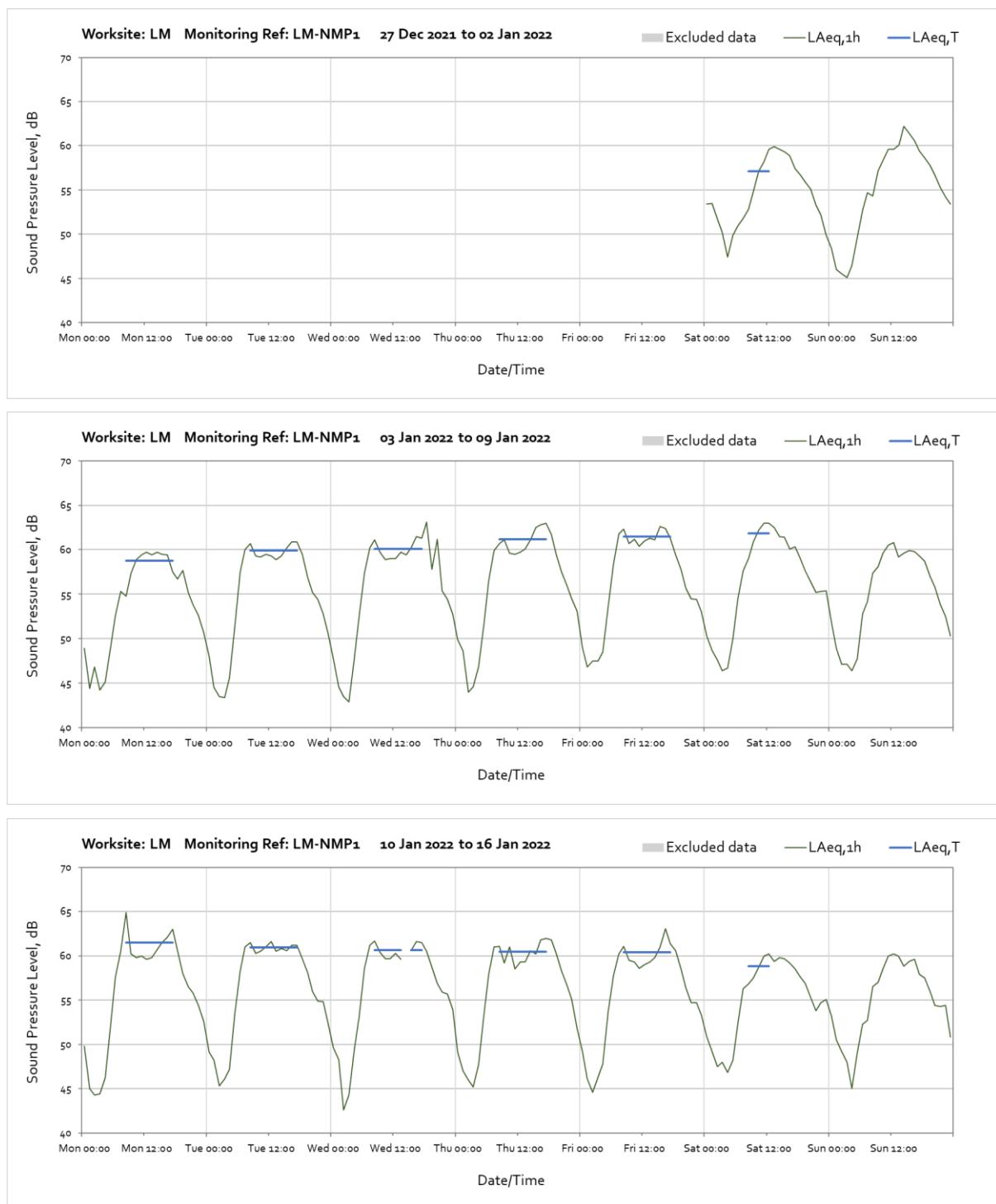


OFFICIAL



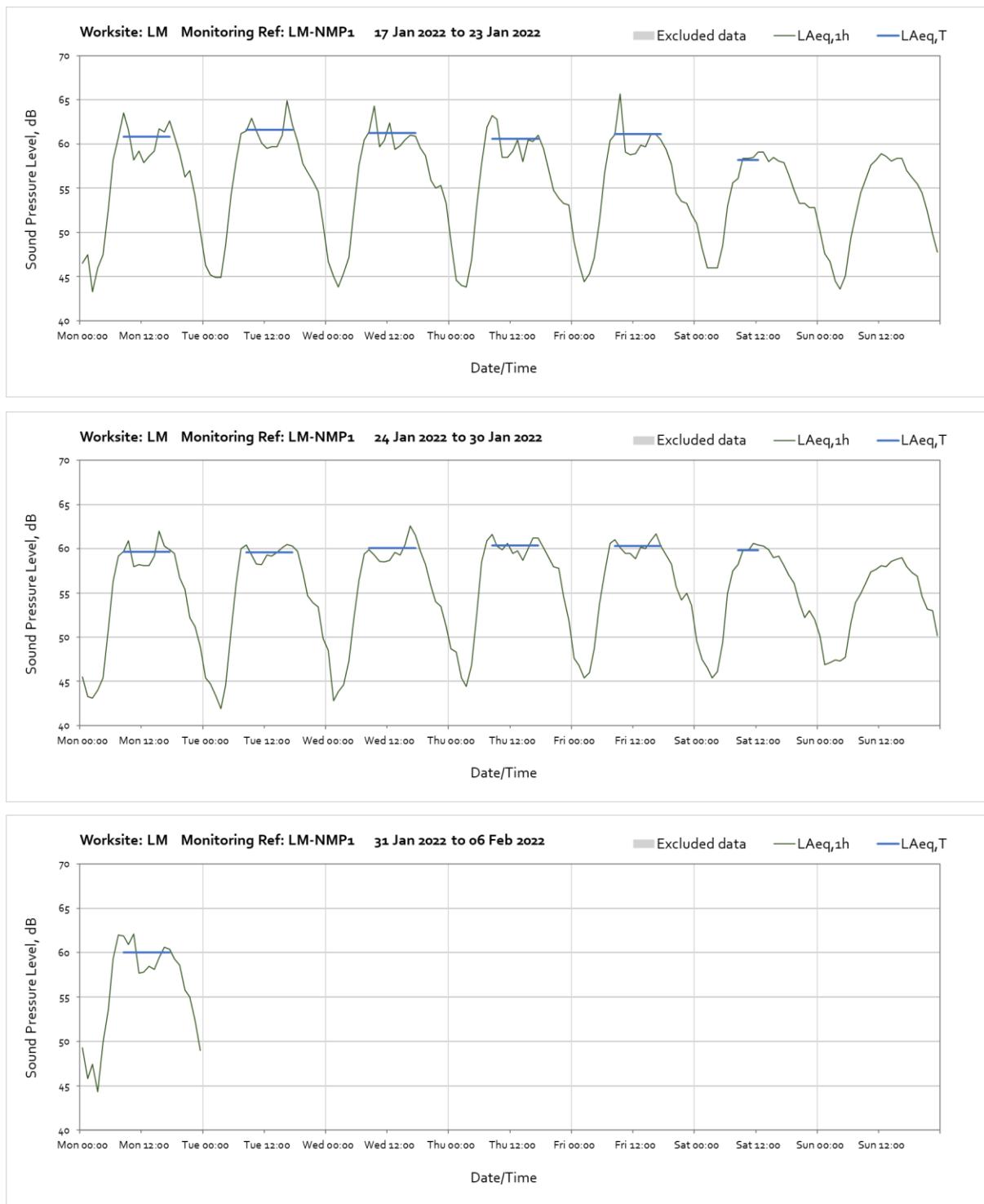
OFFICIAL

Worksite: LM – Monitoring Ref: LM-NMP1



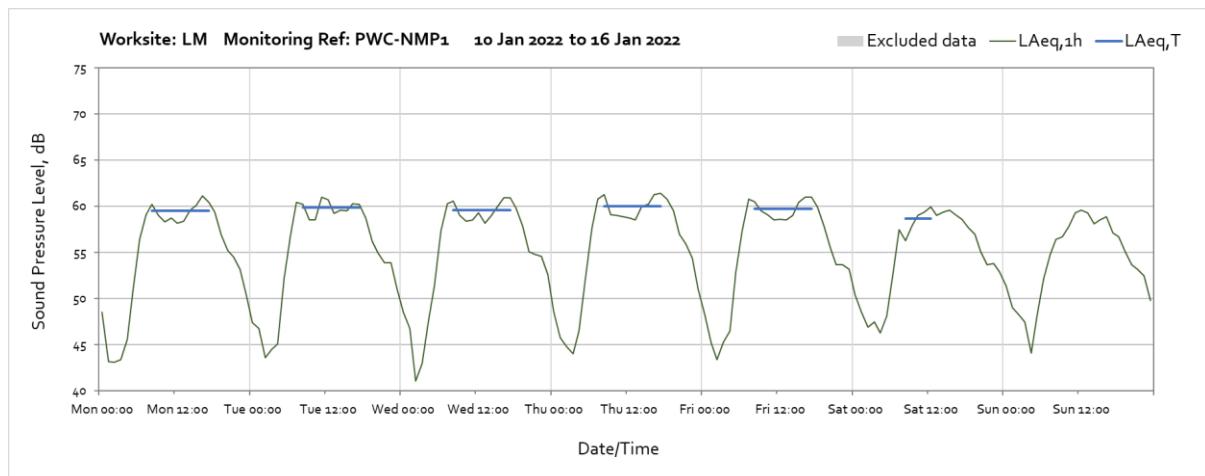
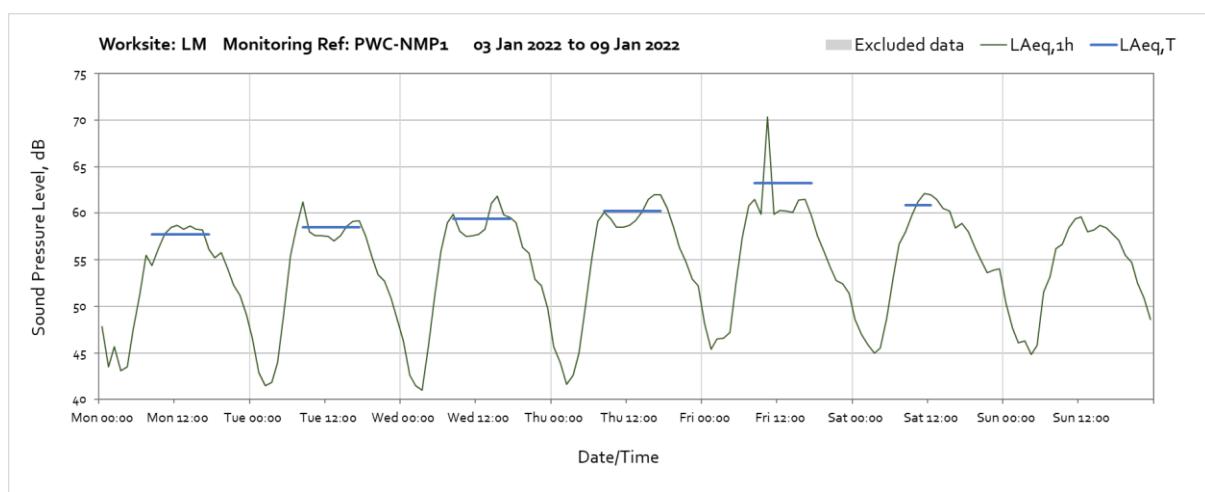
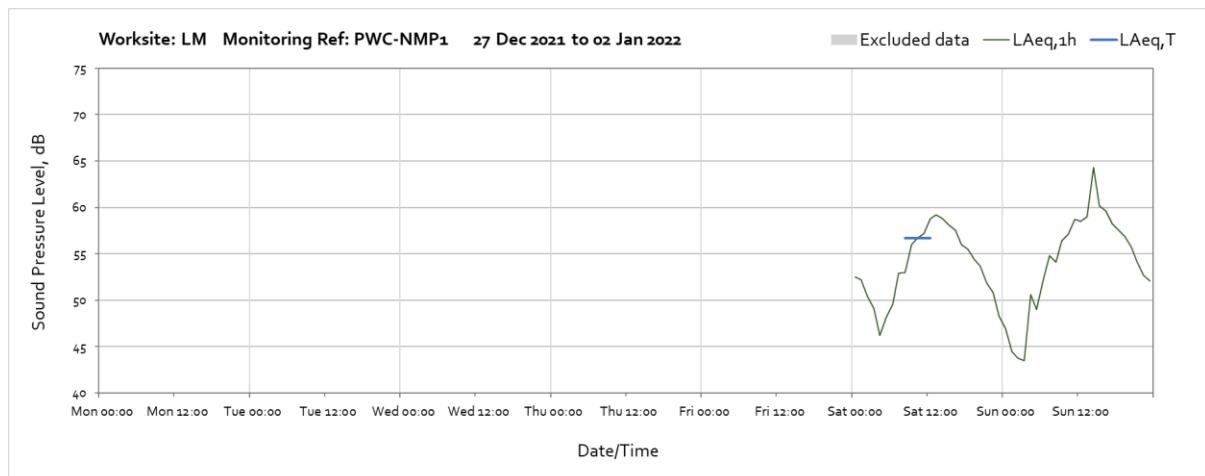
Note: Missing data between 14:00 and 15:00 on 12th January was due to monitor being paused for field calibration.

OFFICIAL

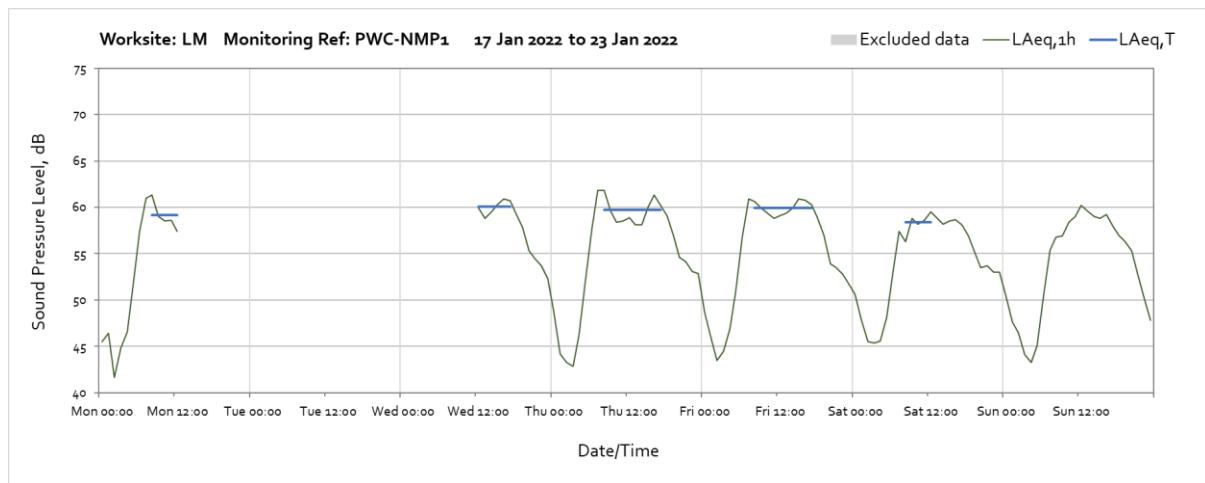


OFFICIAL

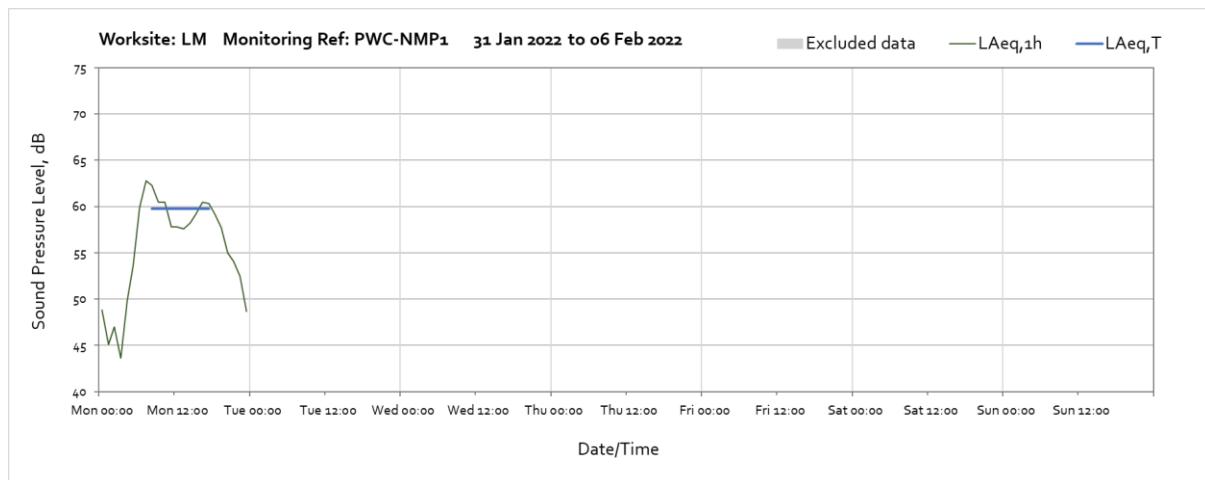
Worksite: LM – Monitoring Ref: PWC-NMP1



OFFICIAL

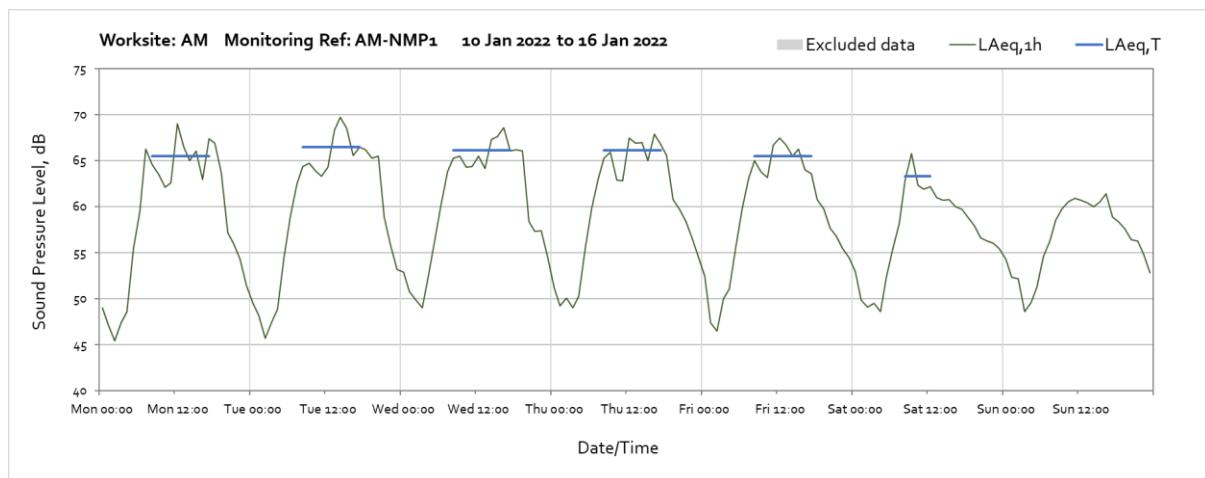
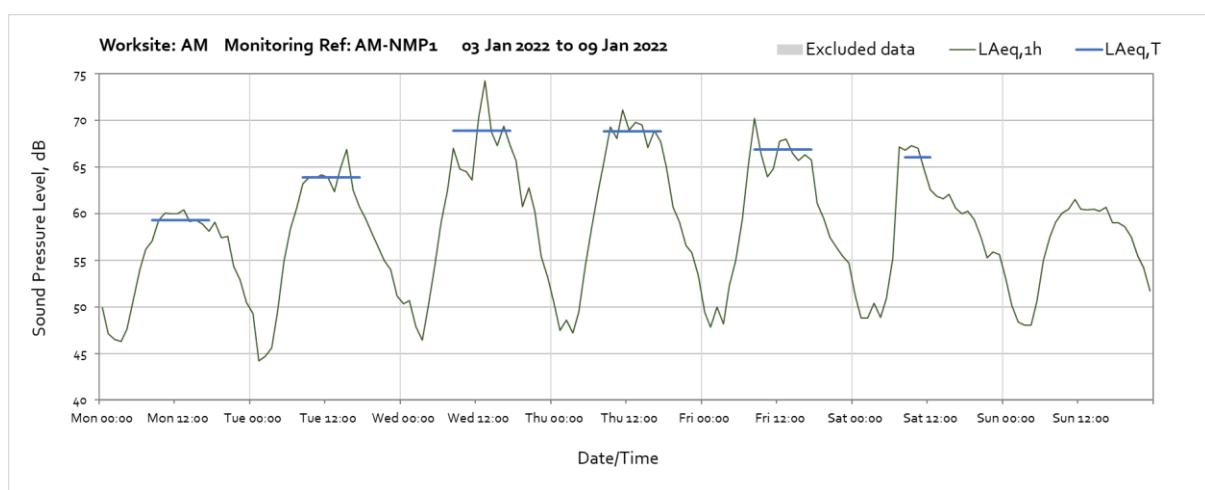
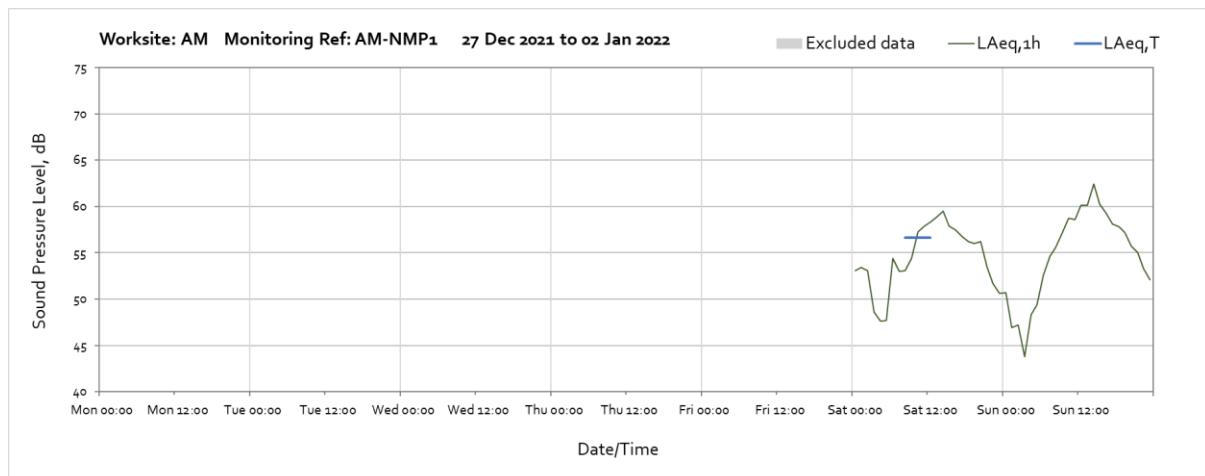


Note: Missing data between 13:00 on 17th January and 12:00 on 19th January was due to loss of power to the equipment.

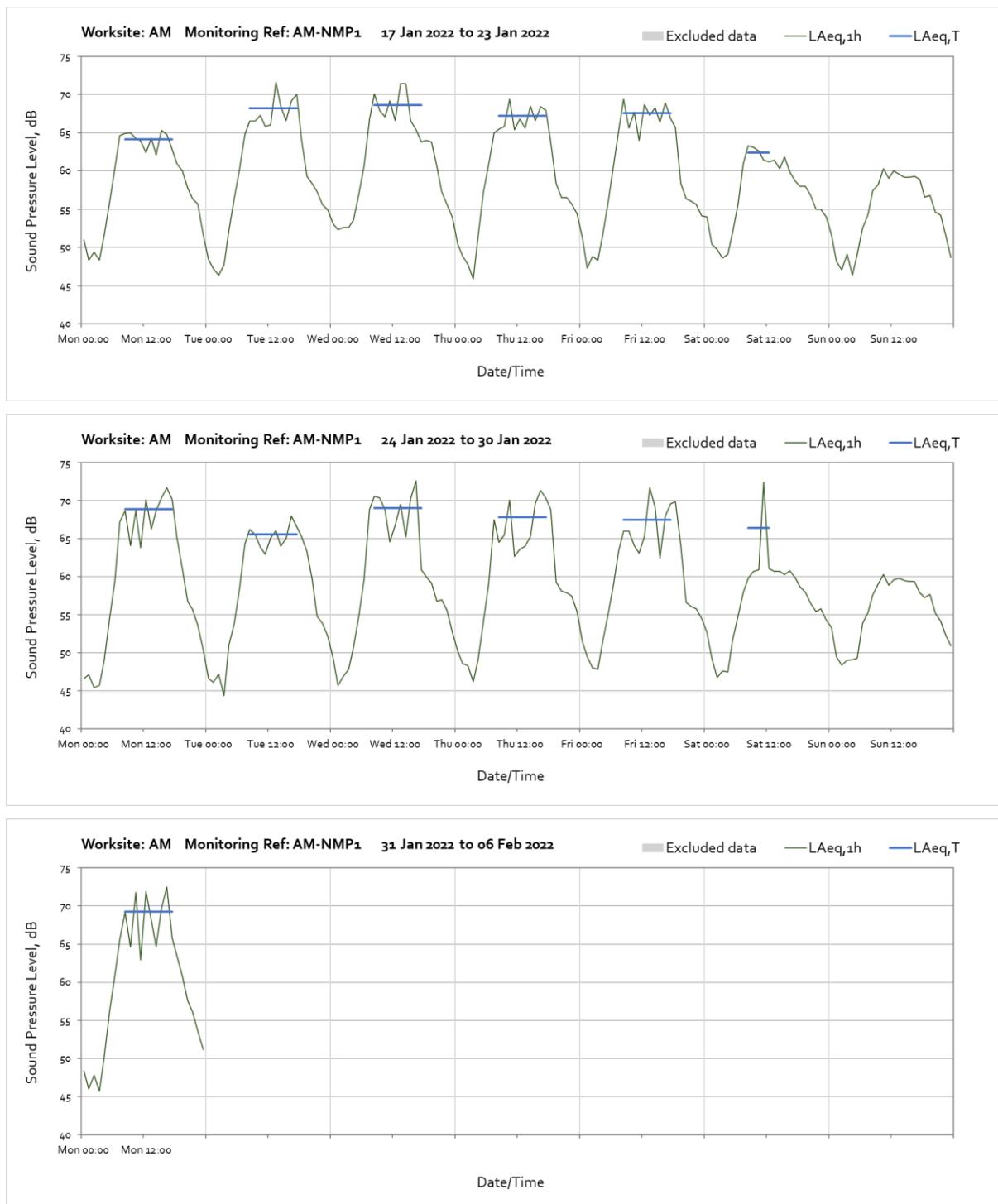


OFFICIAL

Worksite: AM - Monitoring Ref: AM-NMP1

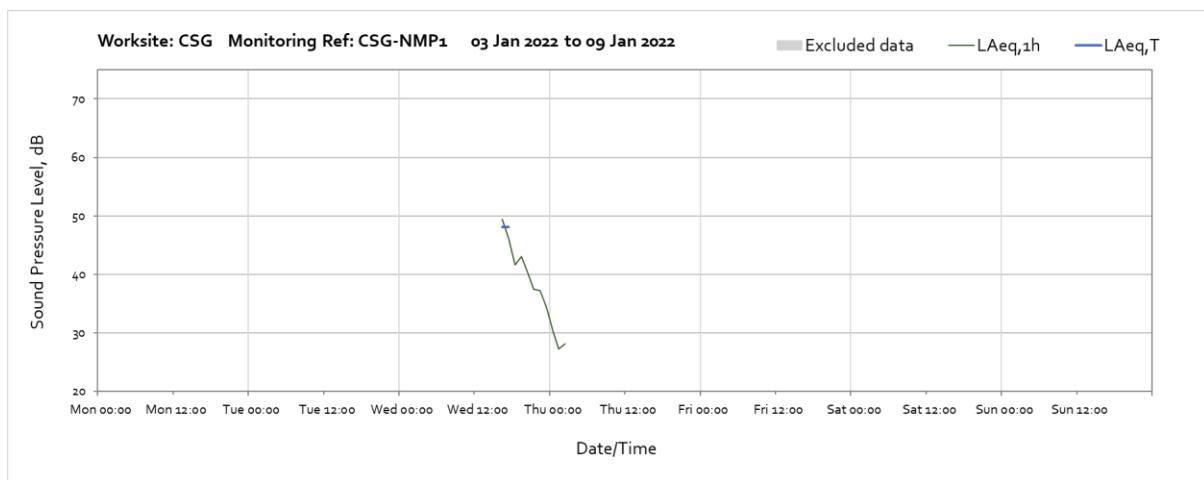


OFFICIAL

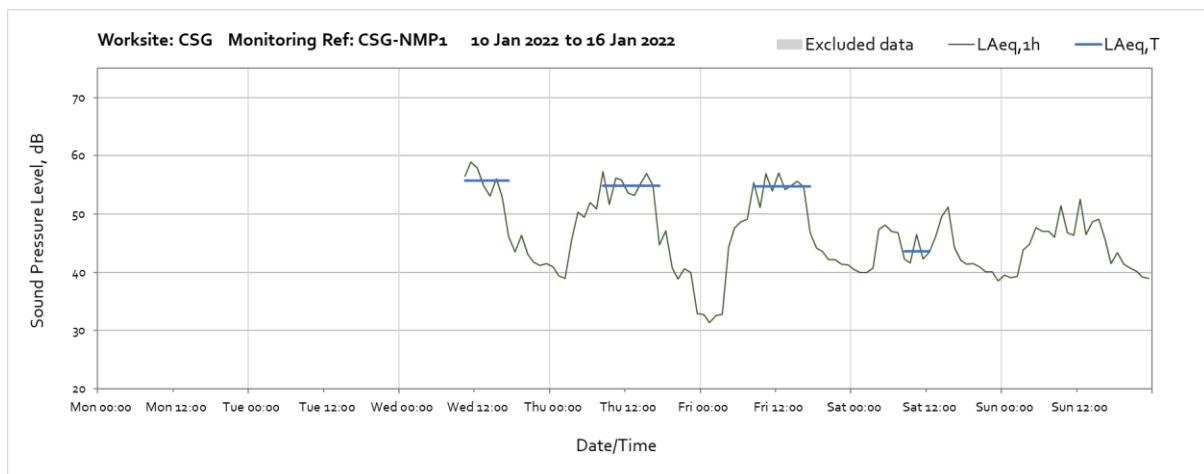


OFFICIAL

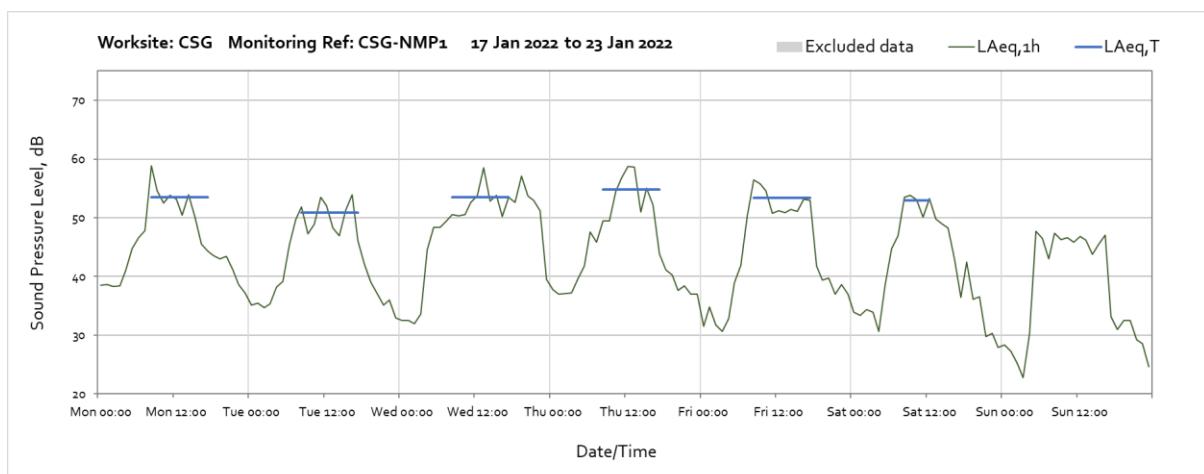
Worksite: CSG – Monitoring Ref: CSG-NMP1



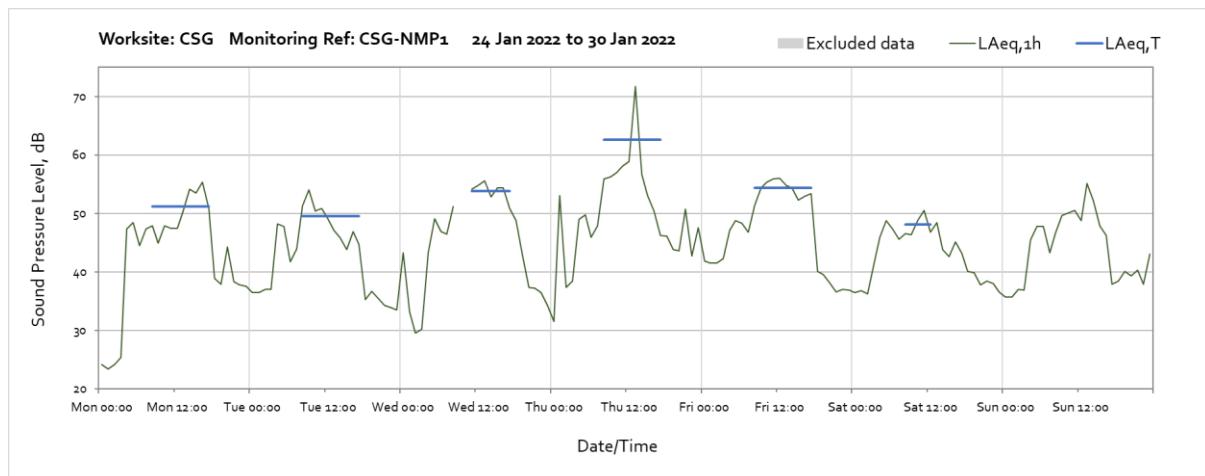
Note: Missing data throughout the week was due to loss of power to the equipment.



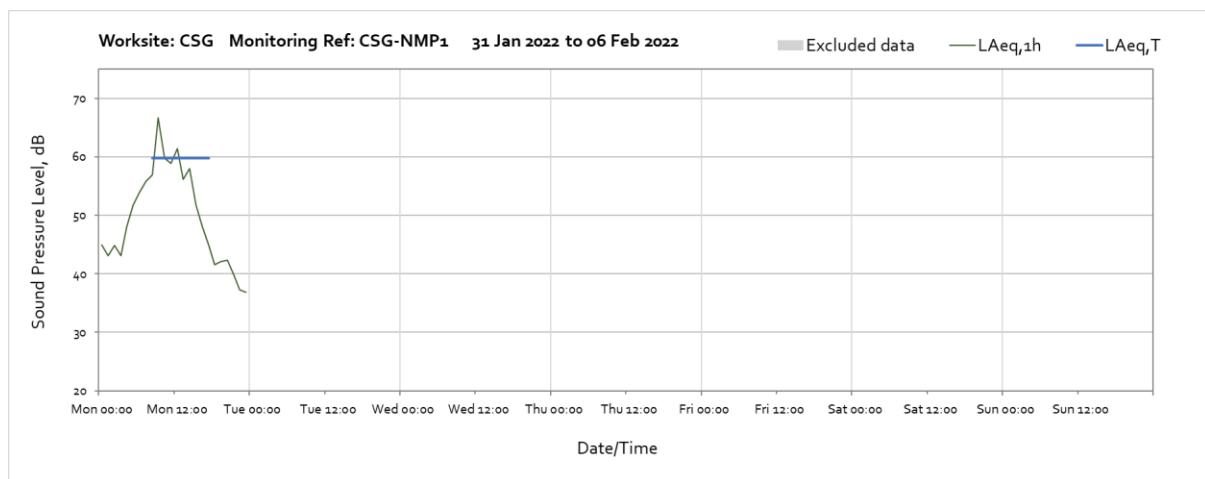
Note: Missing data between 00:00 on 10th January and 10:00 on 12th January was due to loss of power to the equipment.



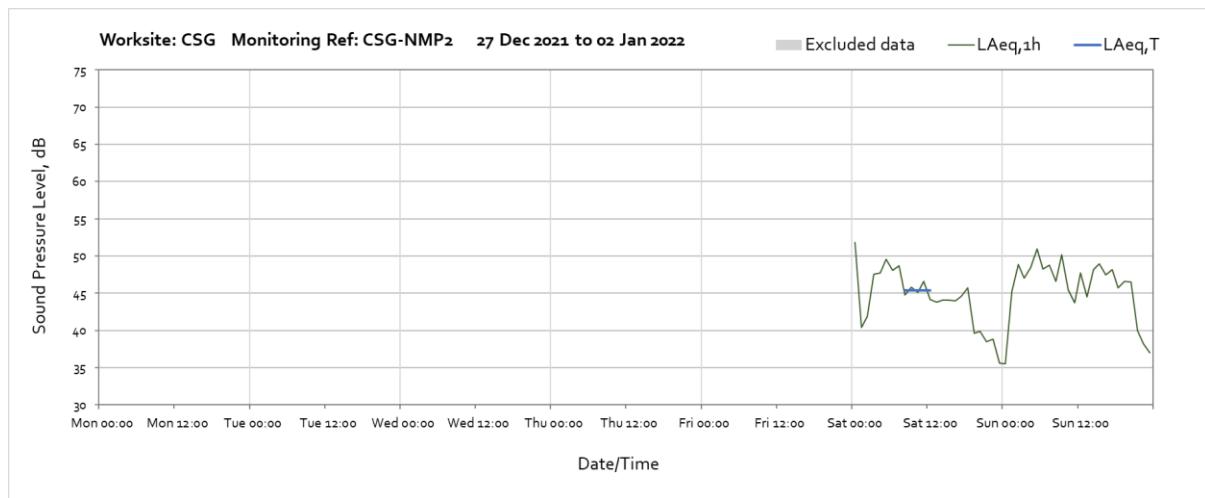
OFFICIAL



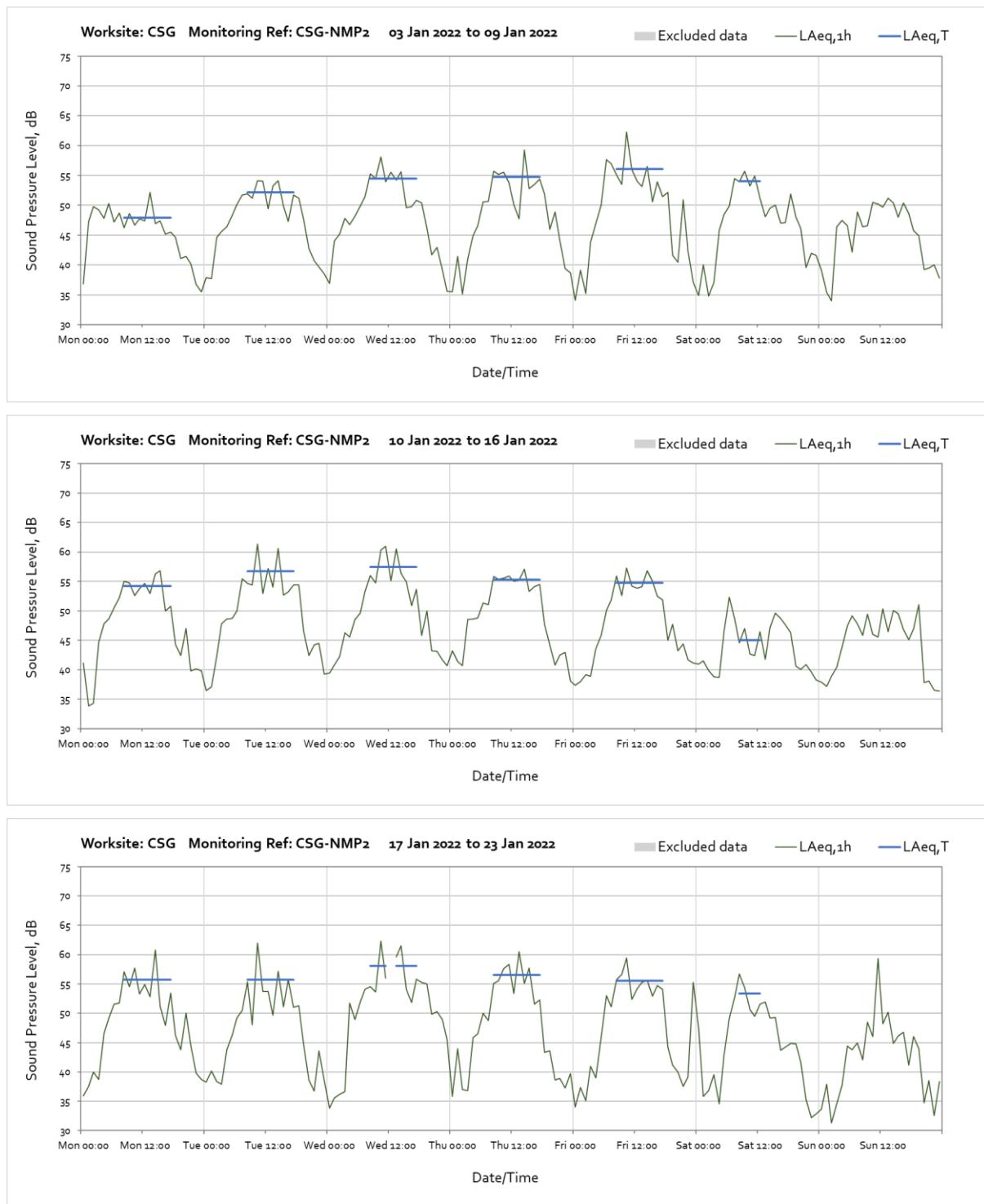
Note: Missing data from 09:00 to 10:00 on 26th January was due to loss of connection to the monitor.



Worksite: CSG – Monitoring Ref: CSG-NMP2

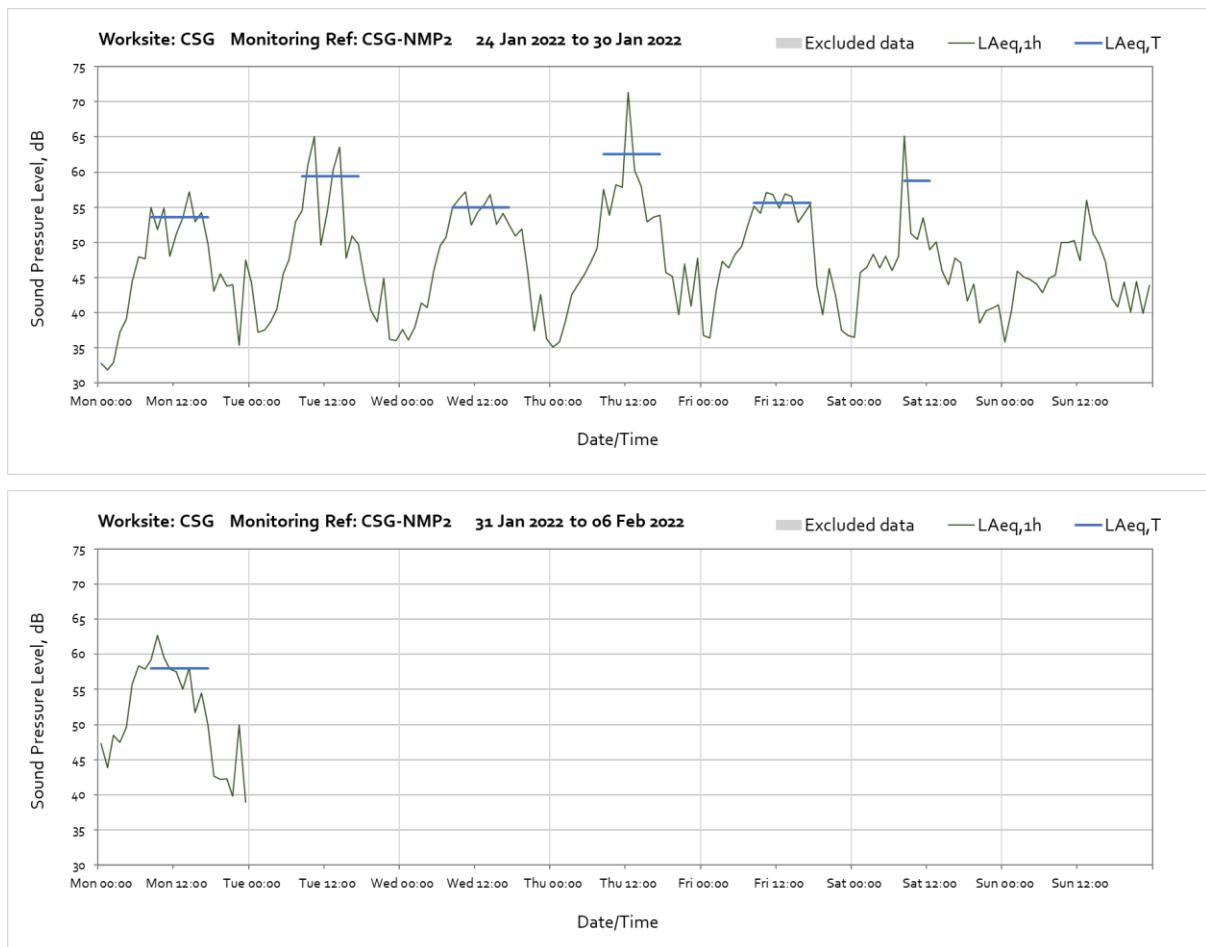


OFFICIAL

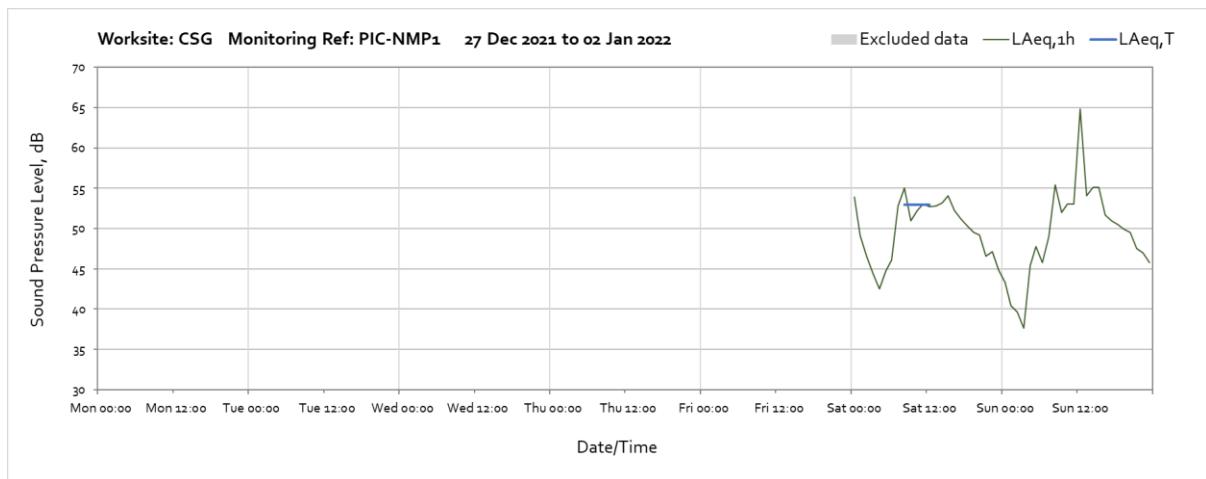


Note: Missing data at 12.00 on 19th January was due to monitor being paused for field calibration.

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Worksite: CSG – Monitoring Ref: PIC-NMP1

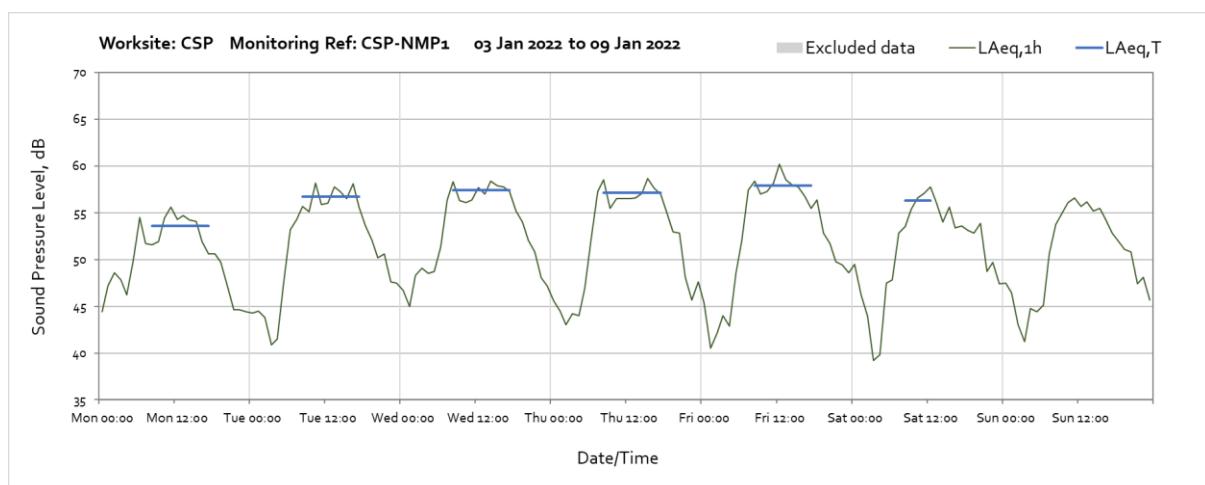
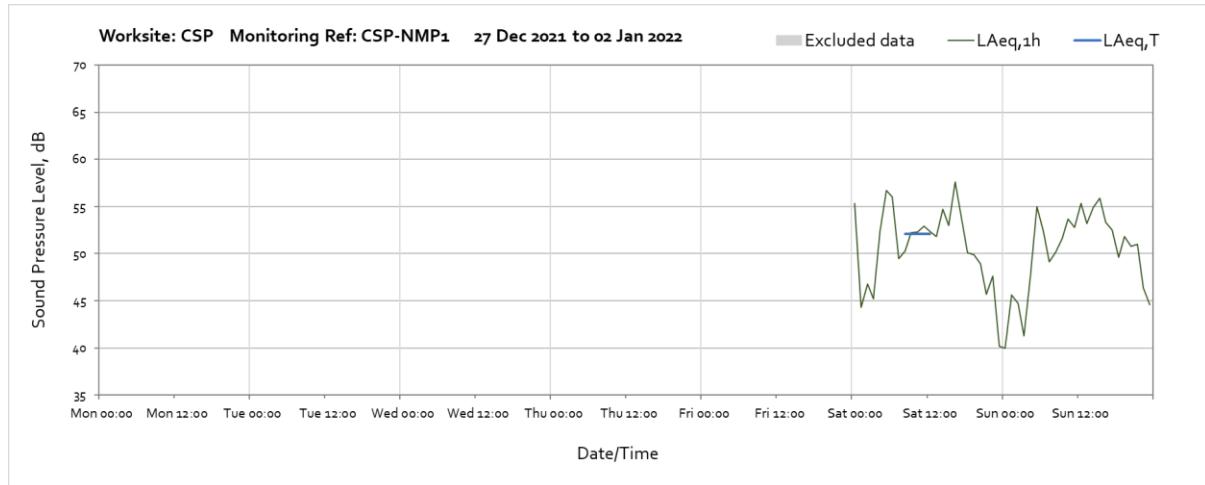


OFFICIAL

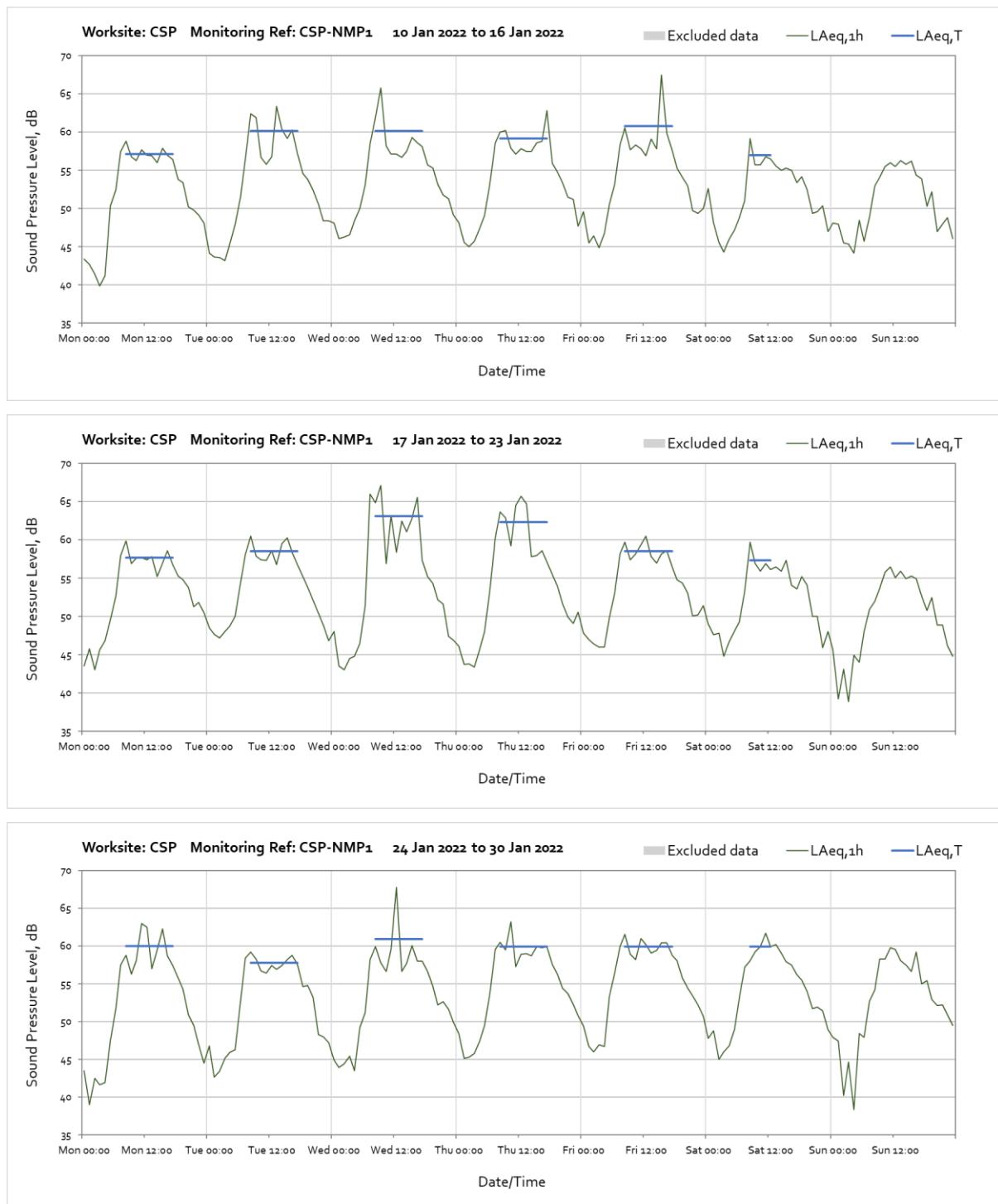


Note: Missing data between 05:00 on 6th January till the end of the month was due to loss of power to the monitor.

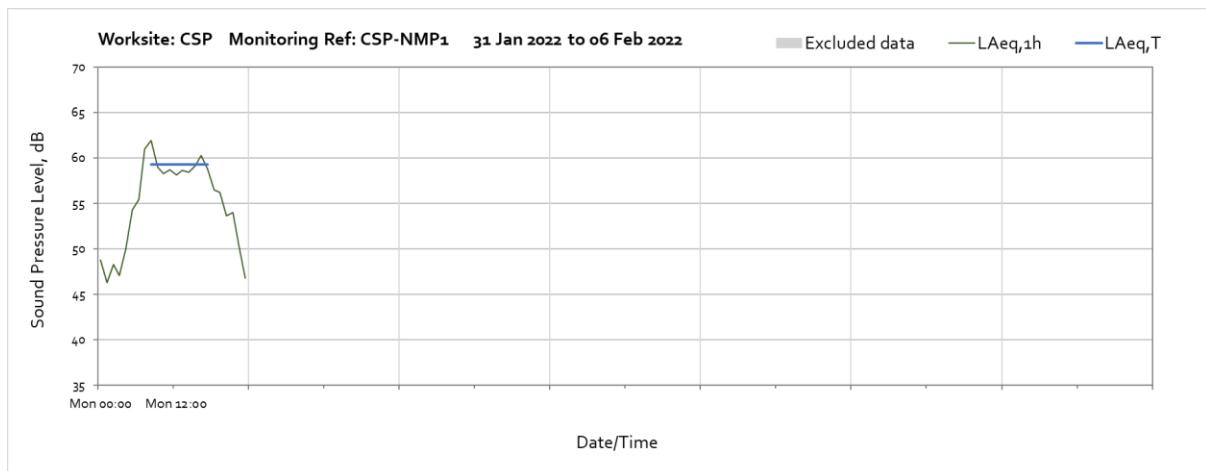
Worksite: CSP – Monitoring Ref: CSP-NMP1



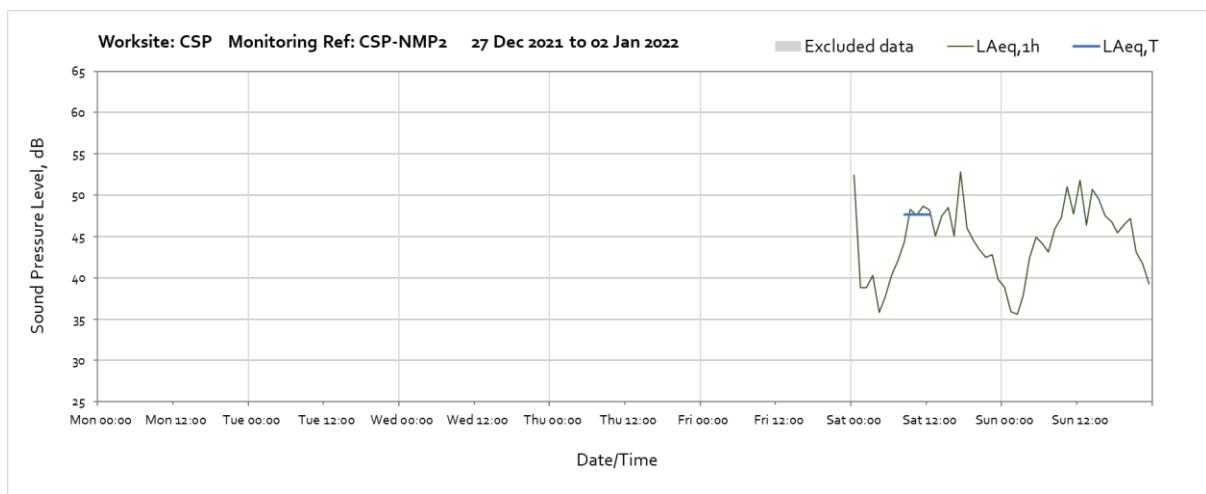
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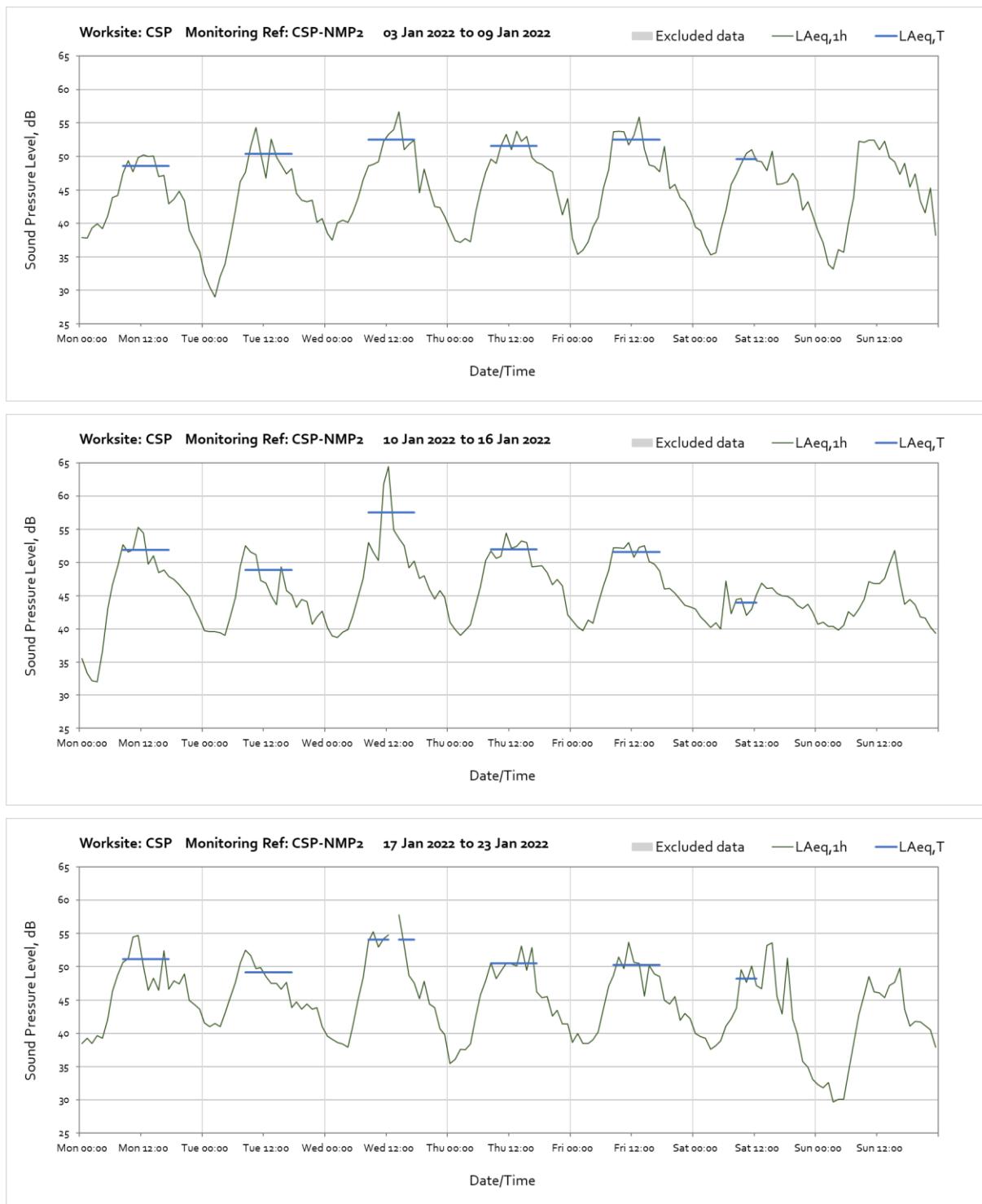
OFFICIAL



Worksite: CSP – Monitoring Ref: CSP-NMP2

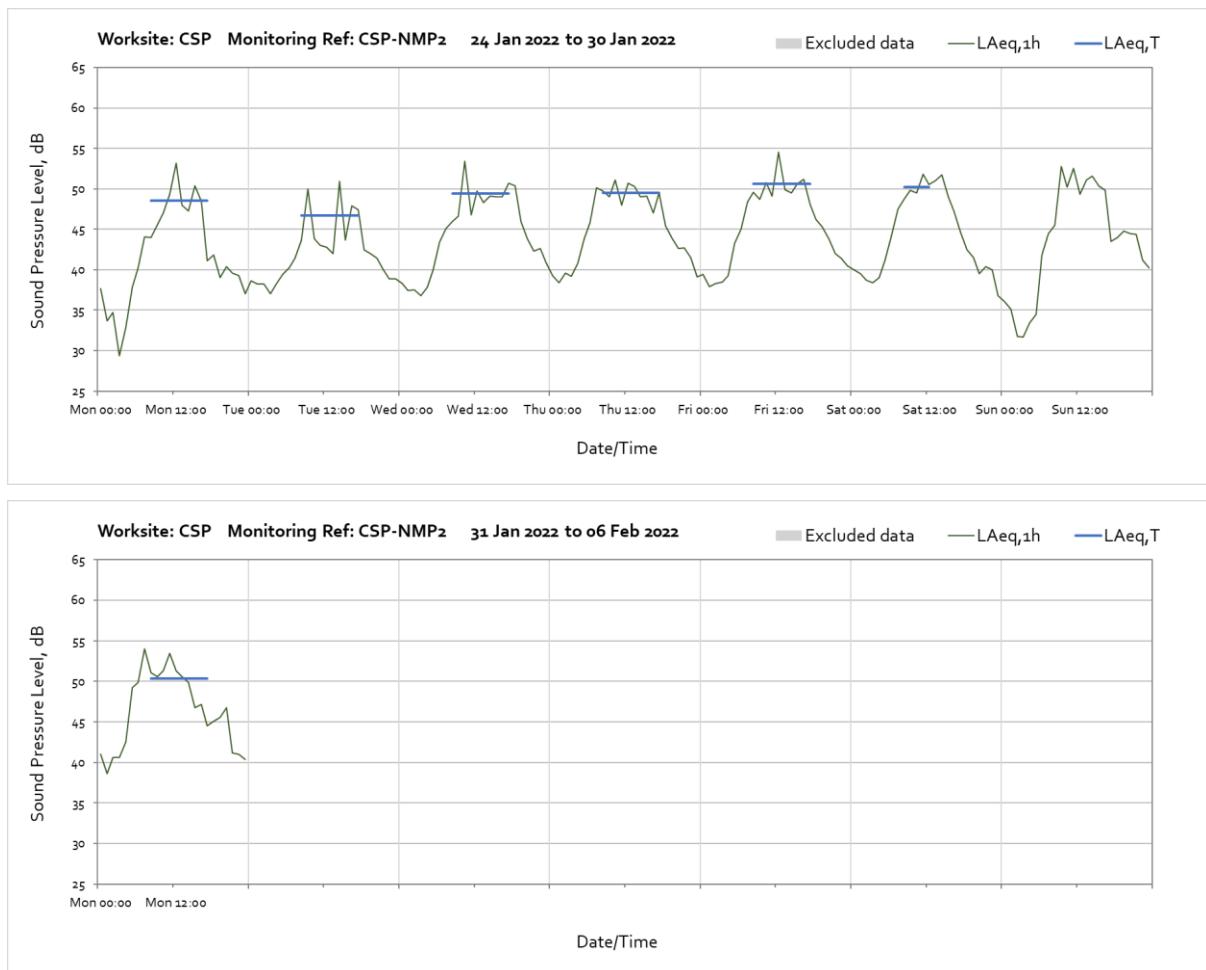


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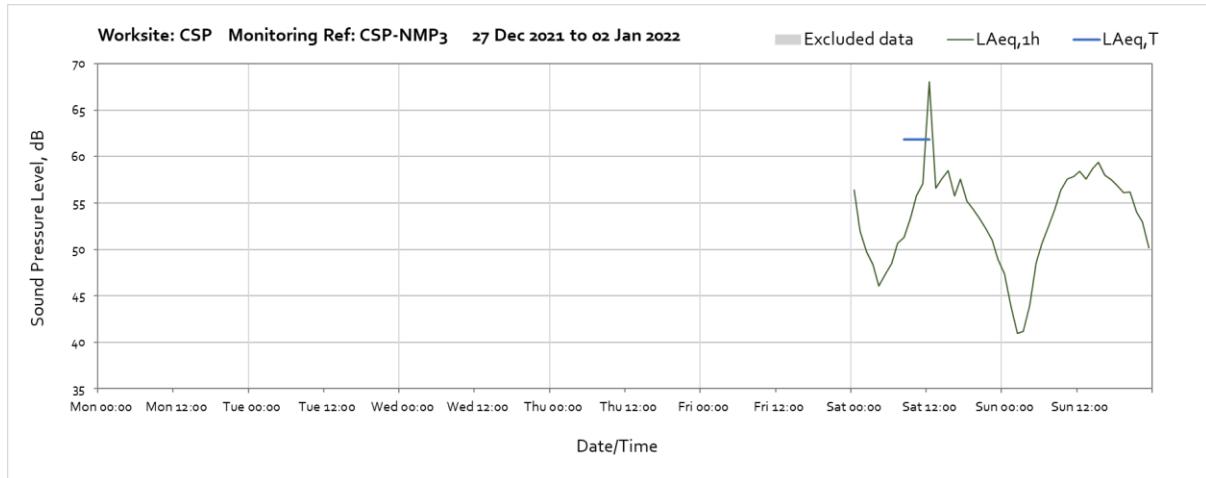


Note: Missing data at 13.00 on 19th January was due to monitor being paused for field calibration.

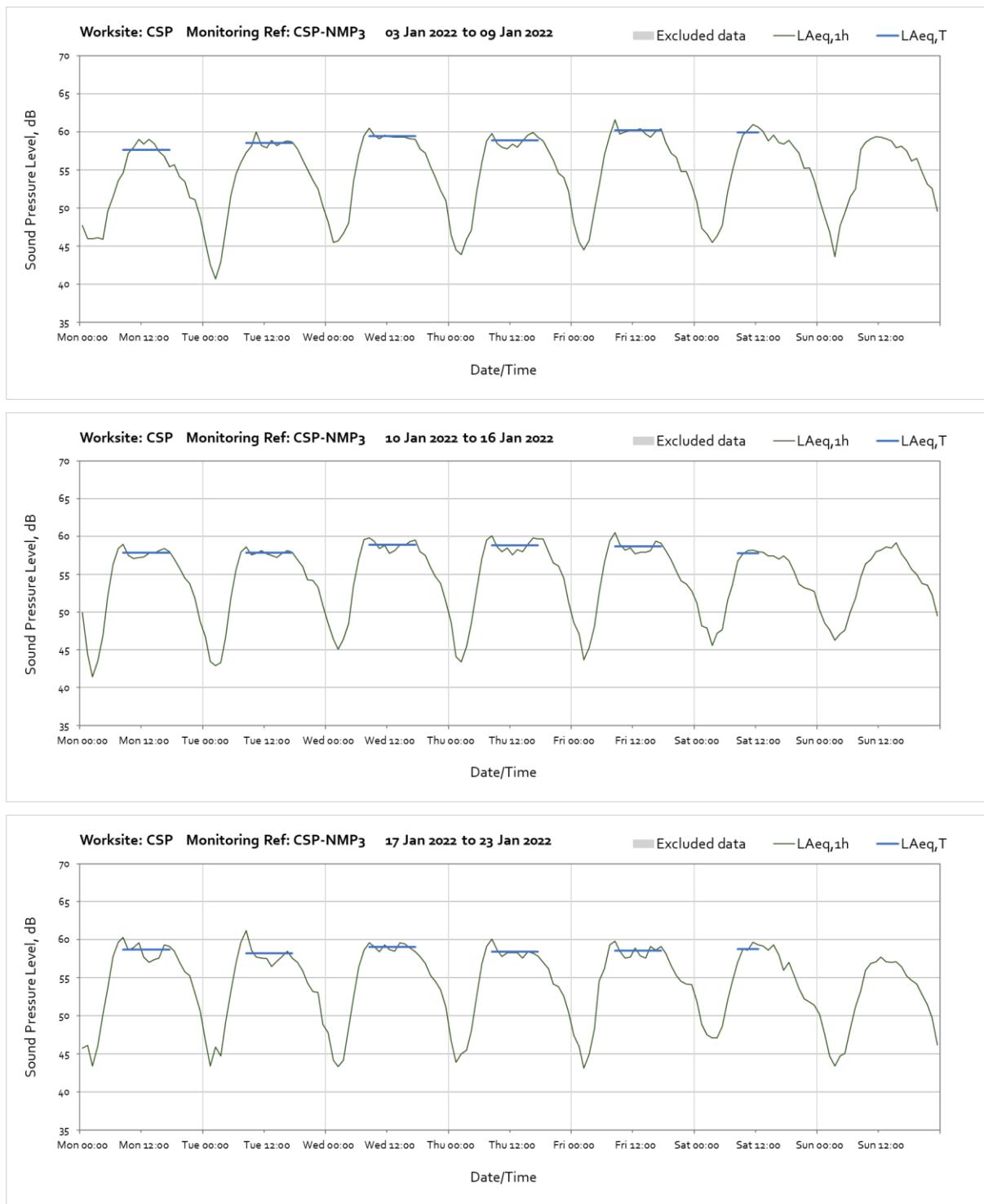
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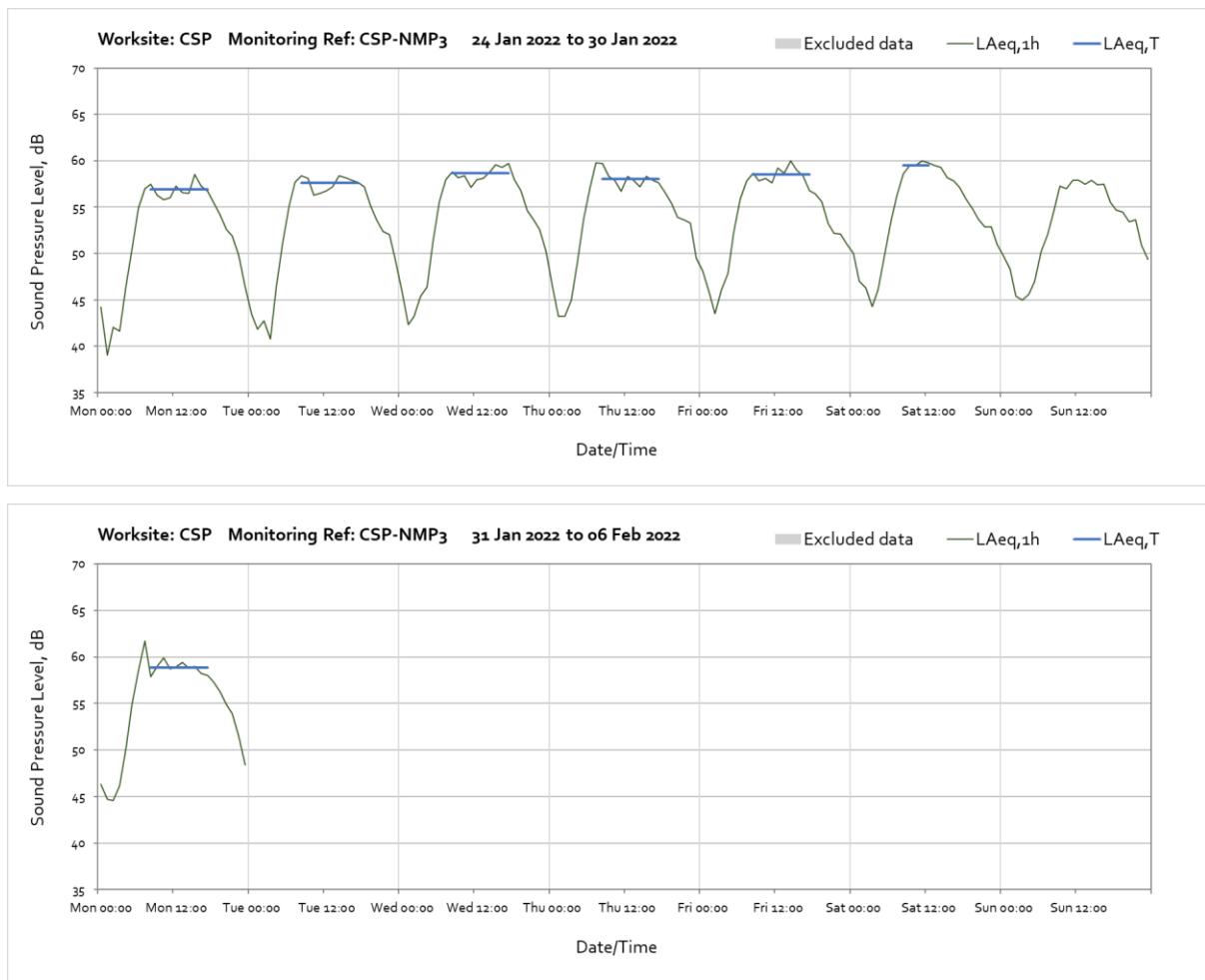
Worksite: CSP – Monitoring Ref: CSP-NMP3



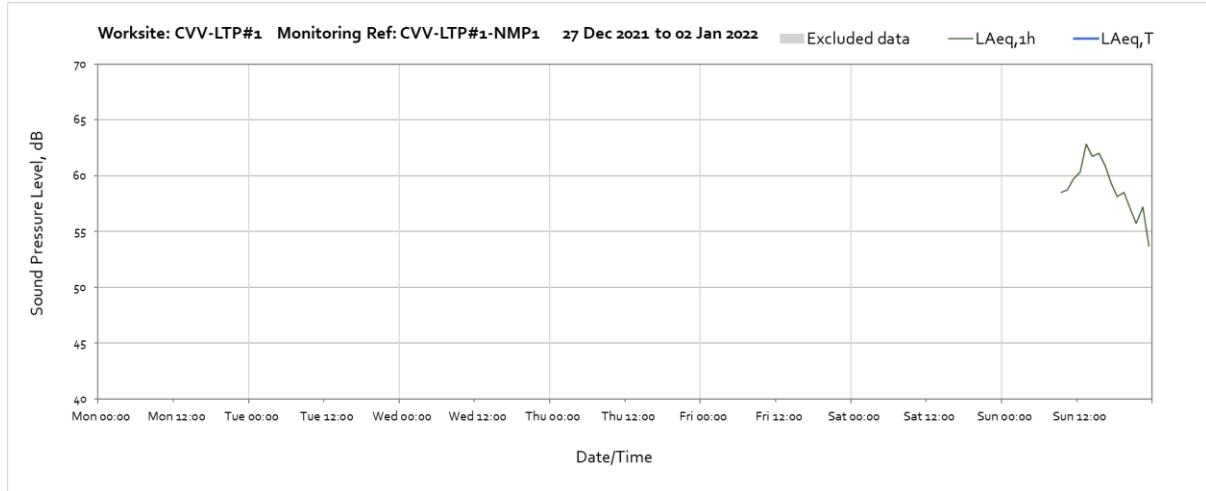
OFFICIAL



OFFICIAL

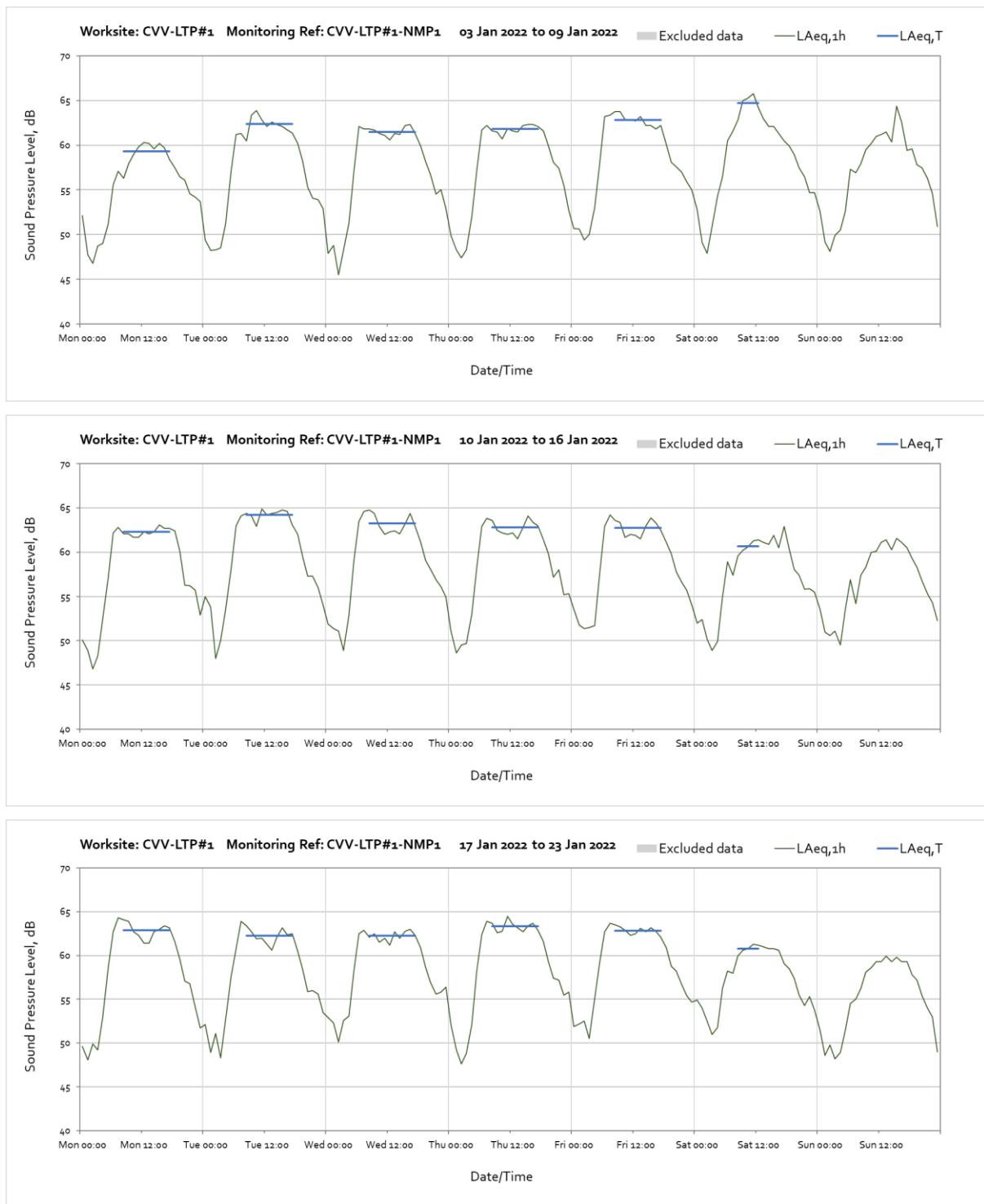


Worksite: CVV-LPT#1 – Monitoring Ref: CVV-LPT#1-NMP1

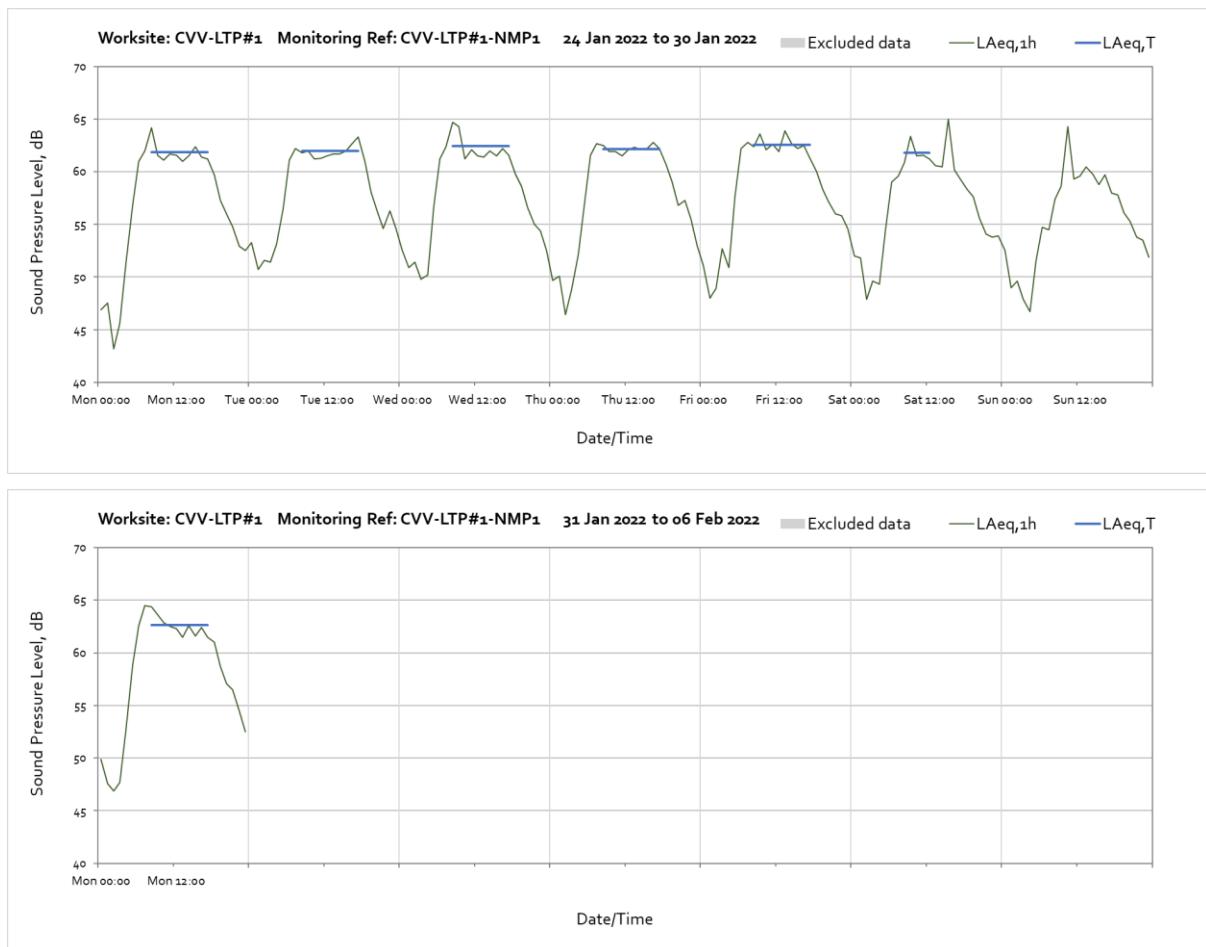


Note: Missing data throughout the week was due to loss of power to the equipment.

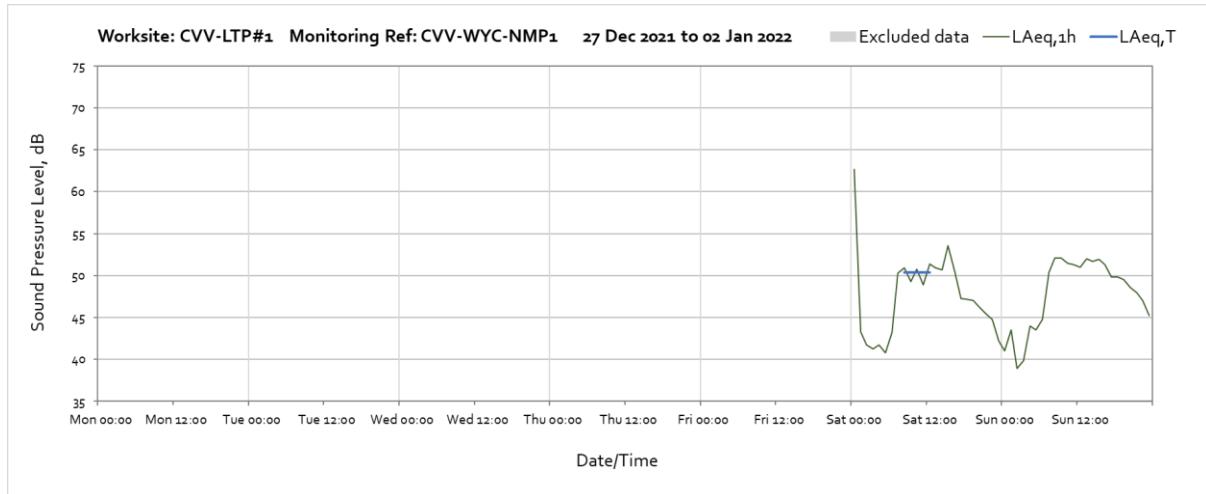
OFFICIAL



OFFICIAL

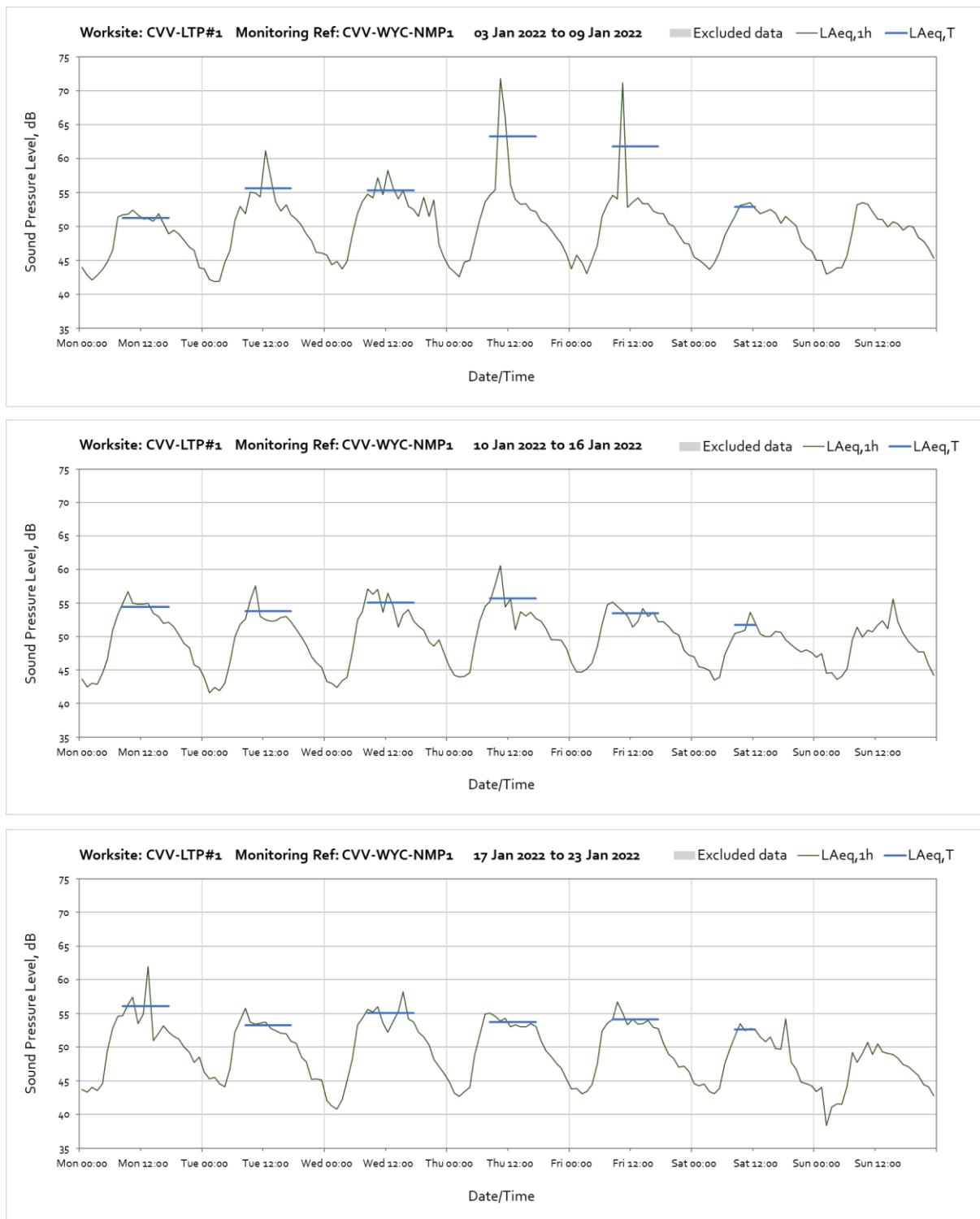


Worksite: CVV-LPT#1 – Monitoring Ref: CVV-WYC-NMP1

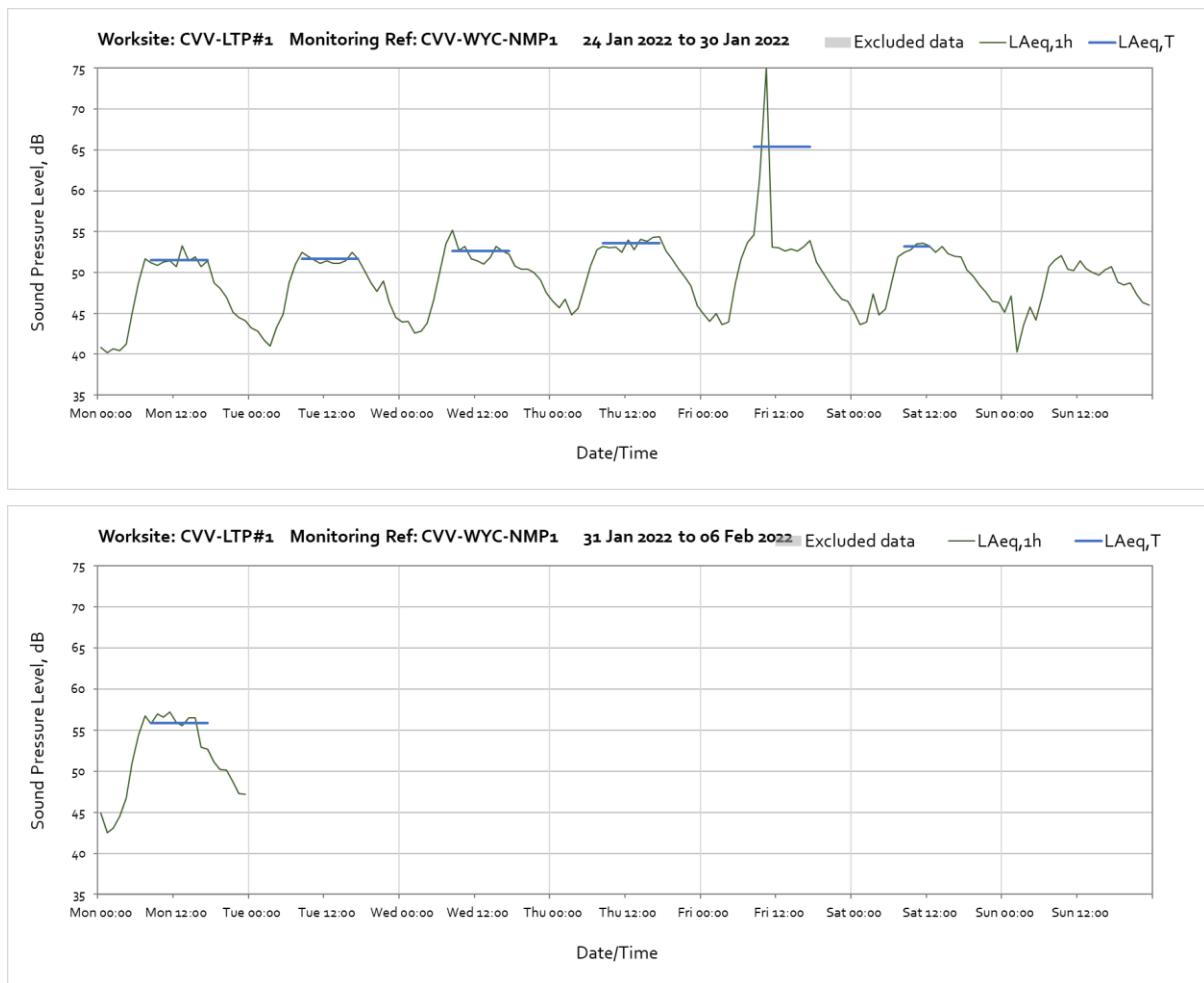


Note: High levels measured at 00:00 on the 1st January was due to fireworks on New Year's Eve.

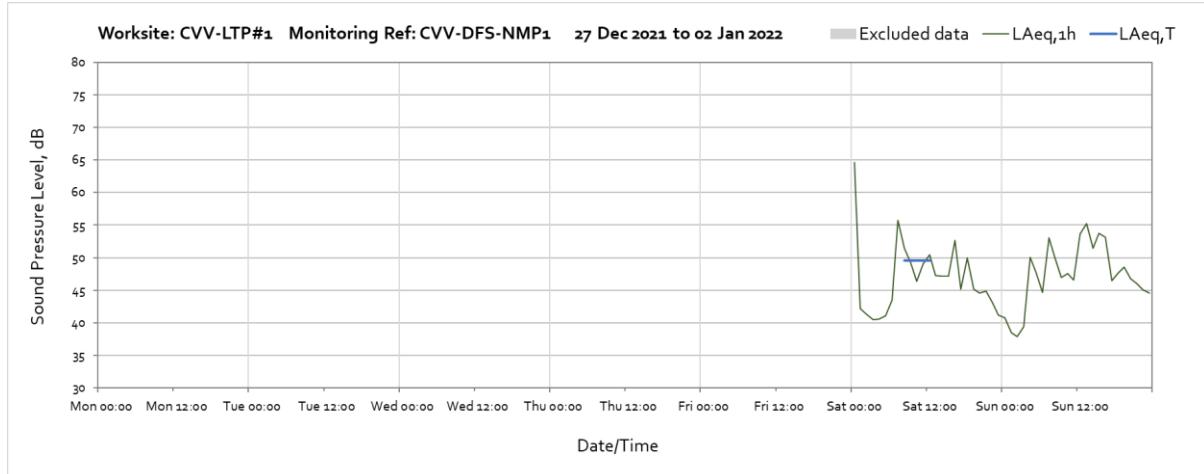
OFFICIAL



OFFICIAL

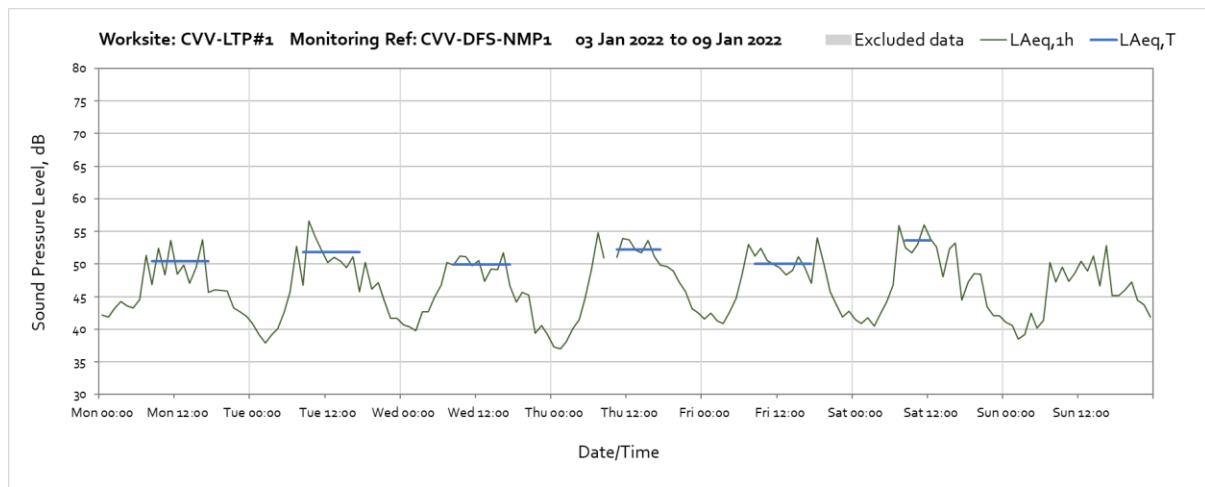


Worksite: CVV-LTP#1 – Monitoring Ref: CVV-DFS-NMP1

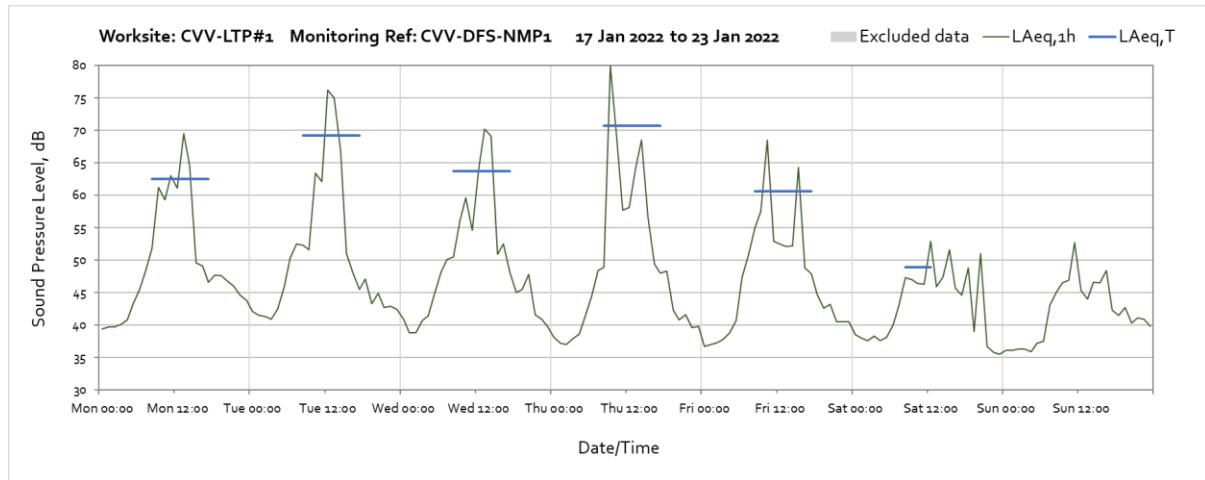
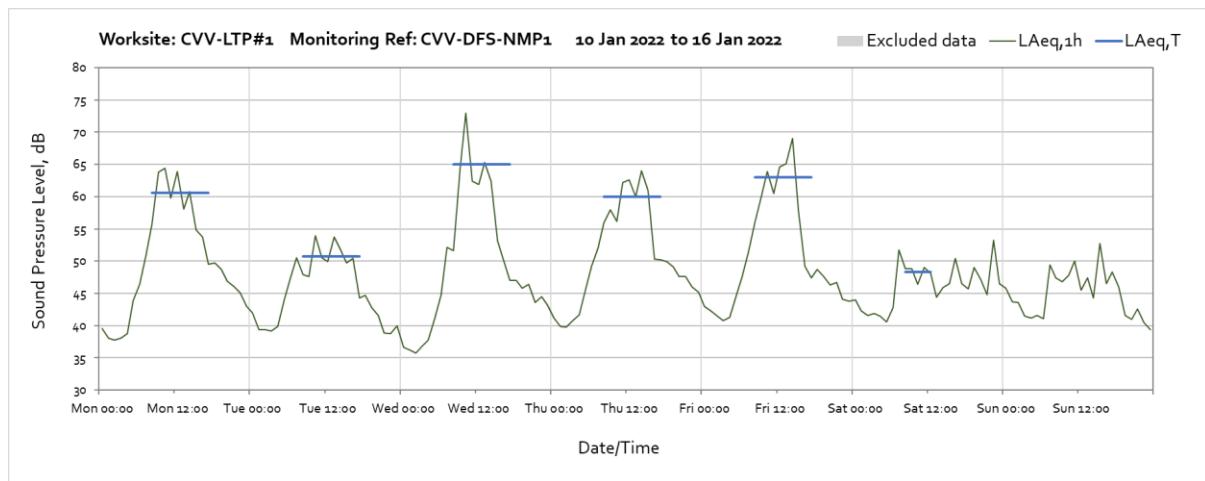


Note: High levels measured at 00:00 on the 1st January was due to fireworks on New Year's Eve.

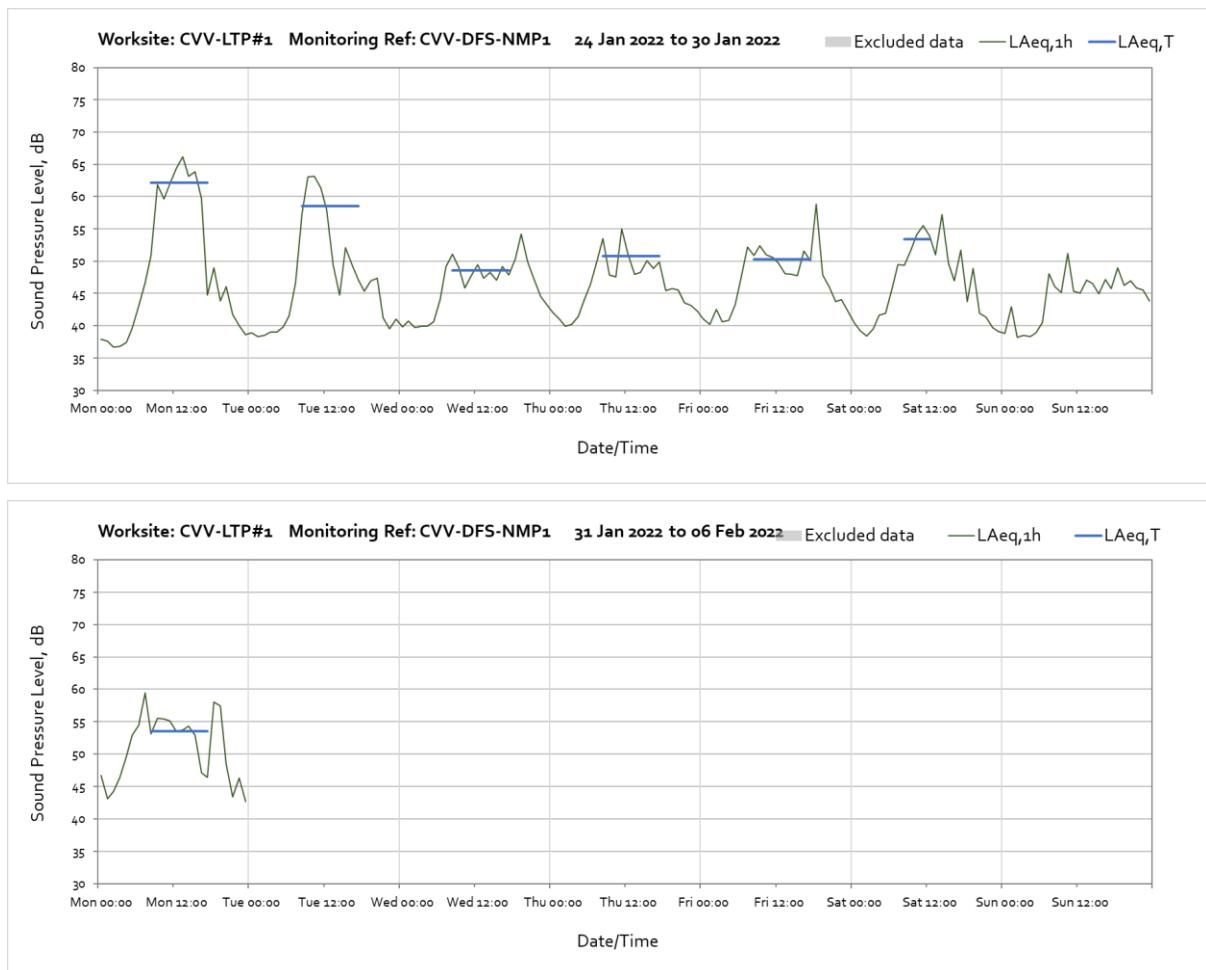
OFFICIAL



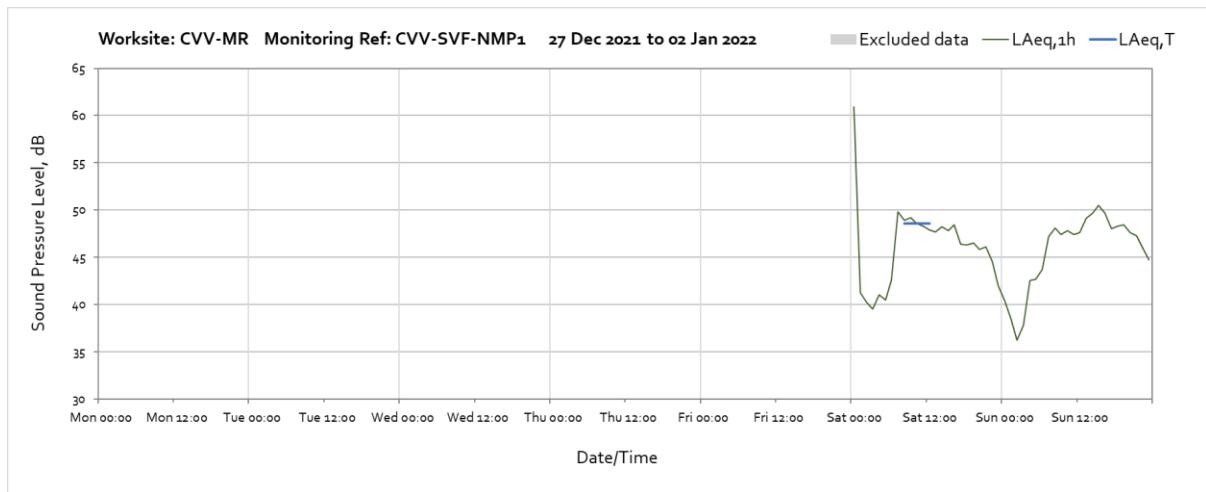
Note: Missing data at 09.00 on 6th January was due to monitor being paused for field calibration.



OFFICIAL

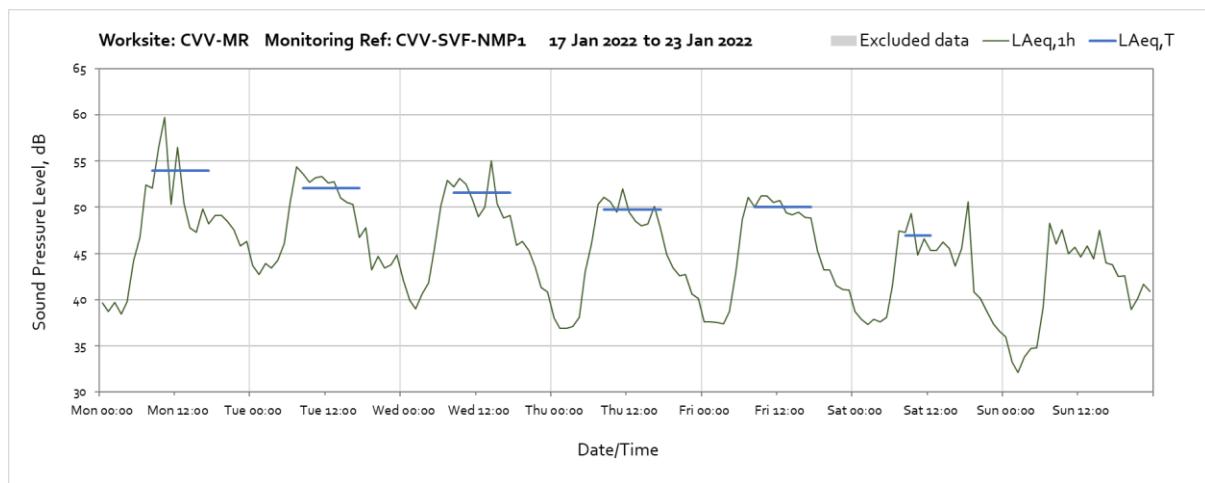
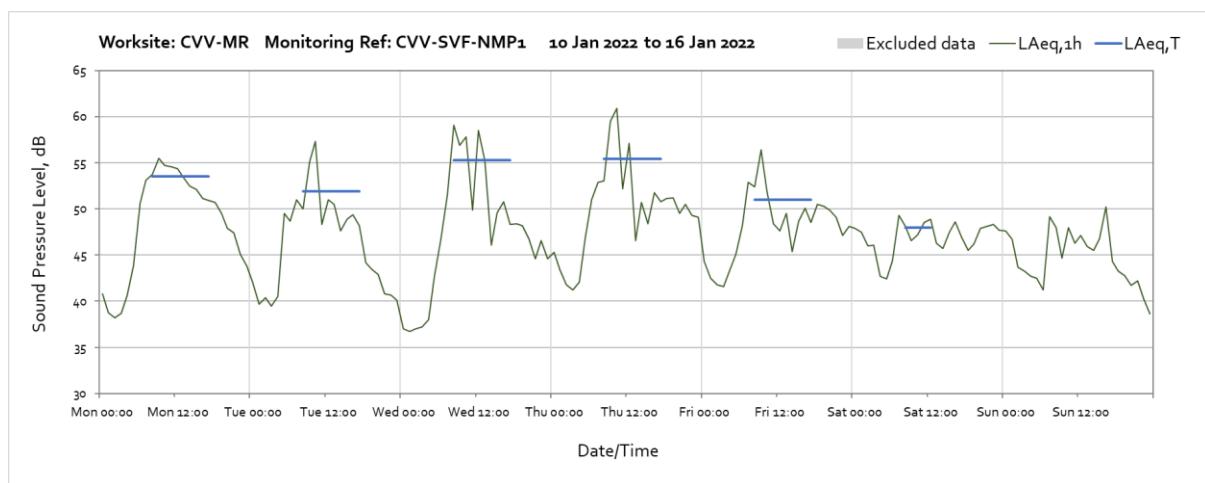
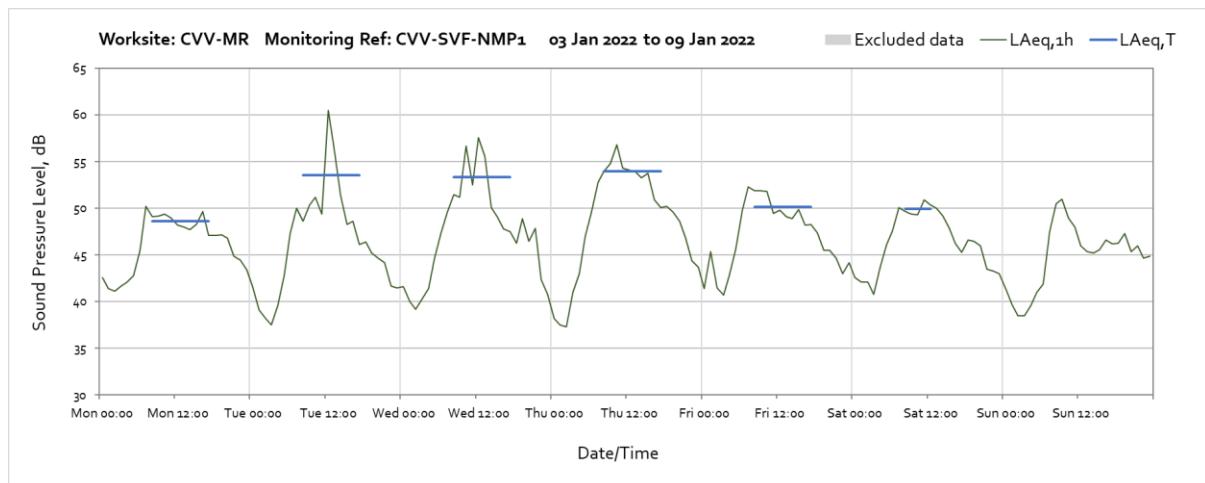


Worksite: CVV-MR – Monitoring Ref: CVV-SVF-NMP1

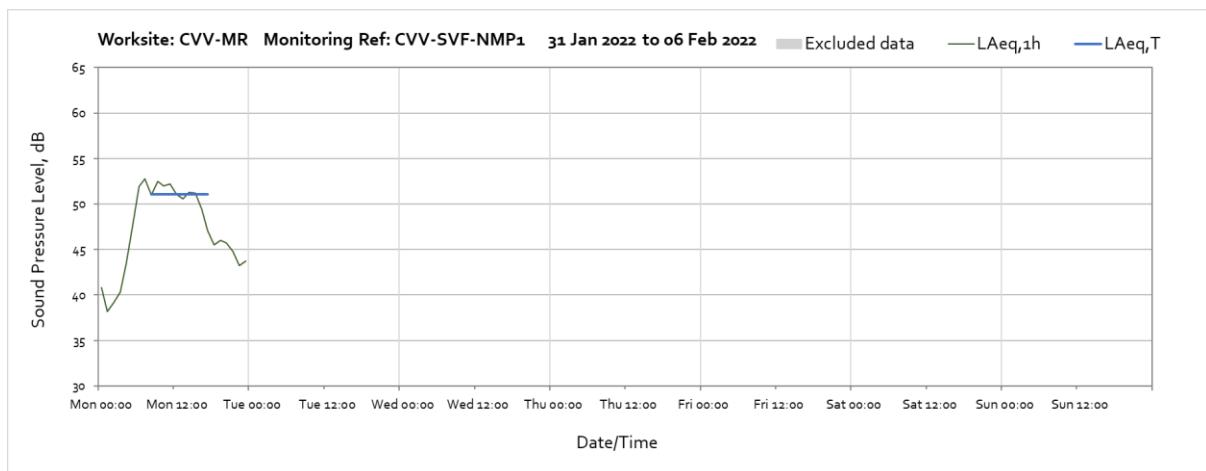
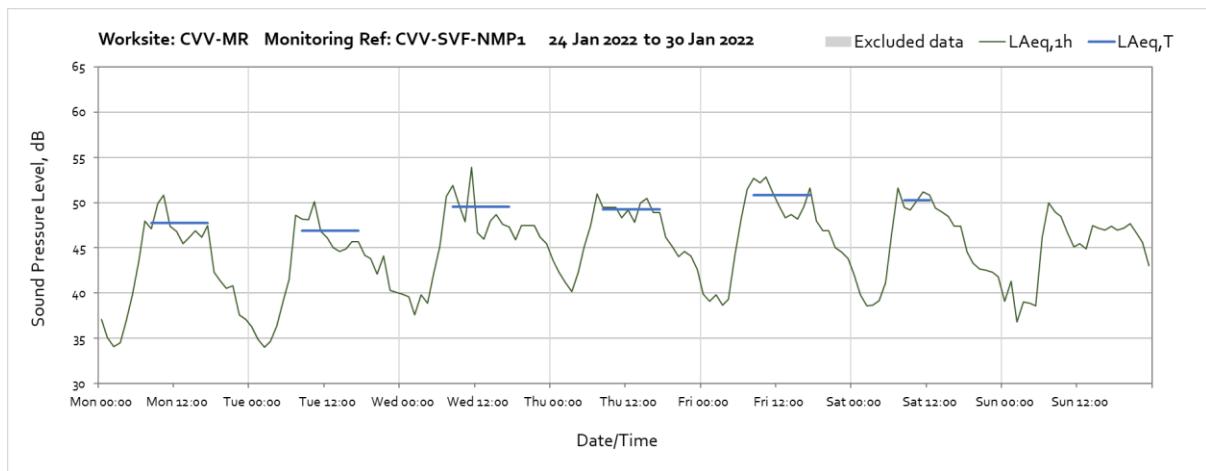


Note: High levels measured at 00:00 on the 1st January was due fireworks on New Year's Eve.

OFFICIAL



OFFICIAL

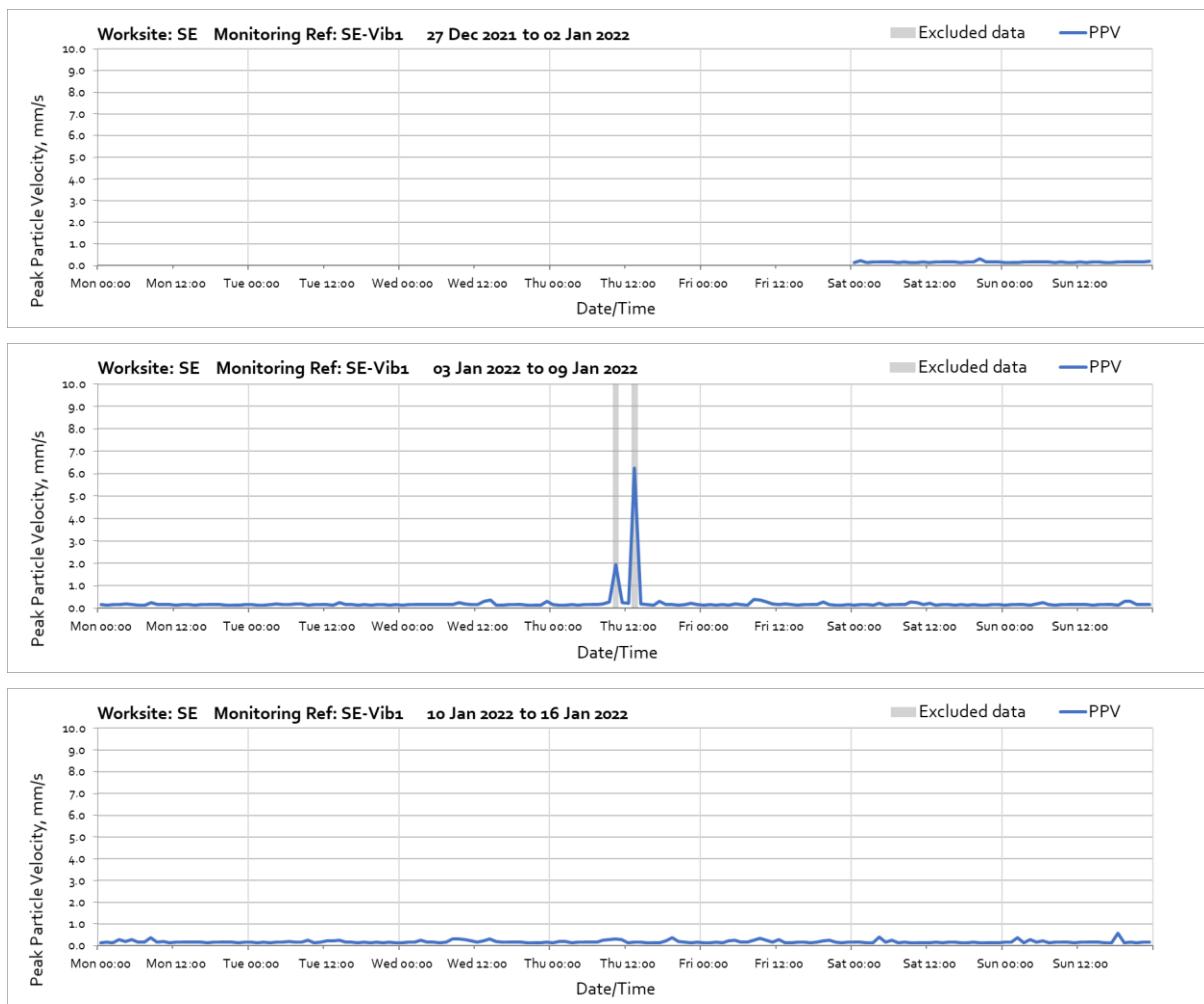


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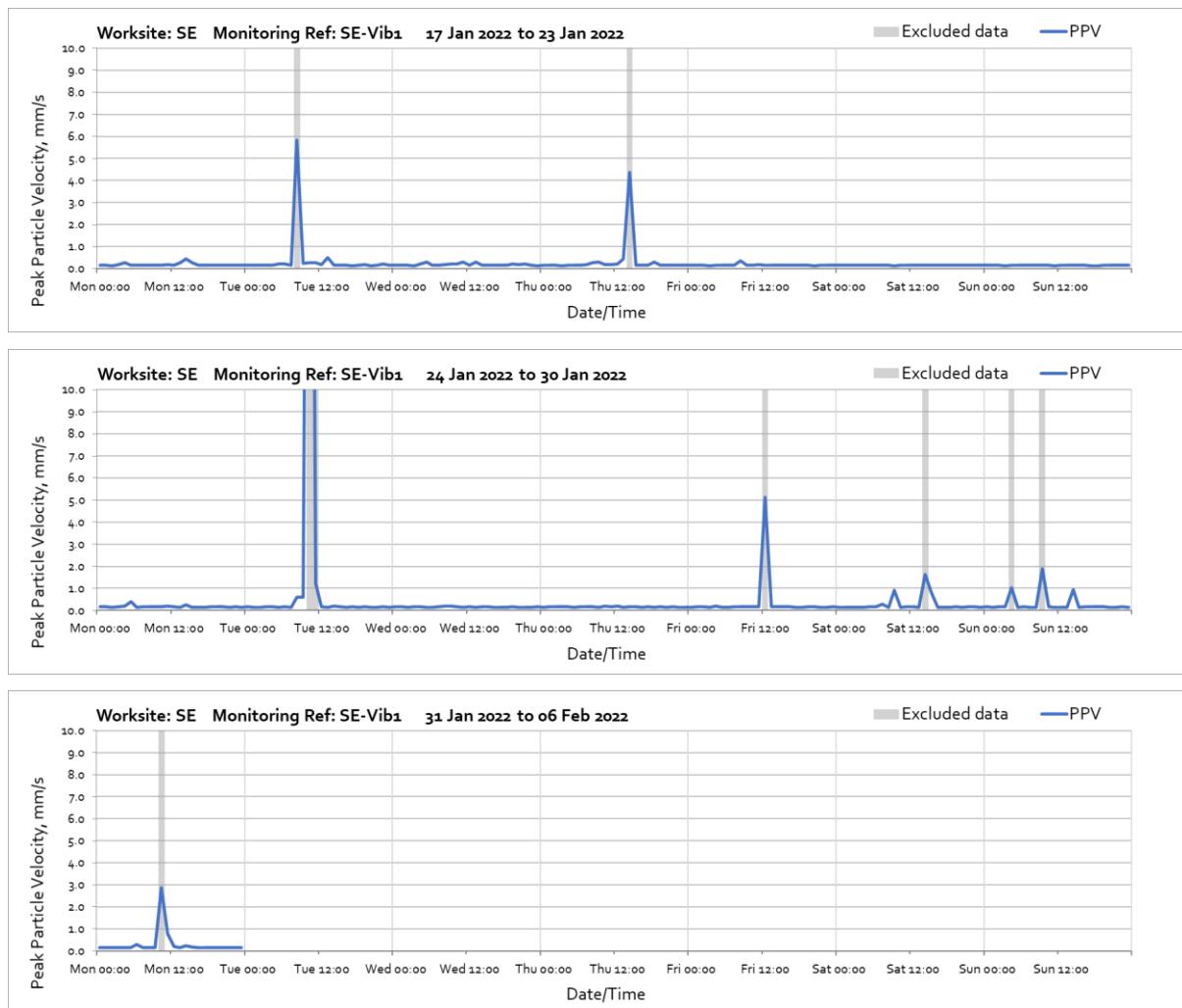
Vibration

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: SE – Monitoring Ref: SE-Vib 1



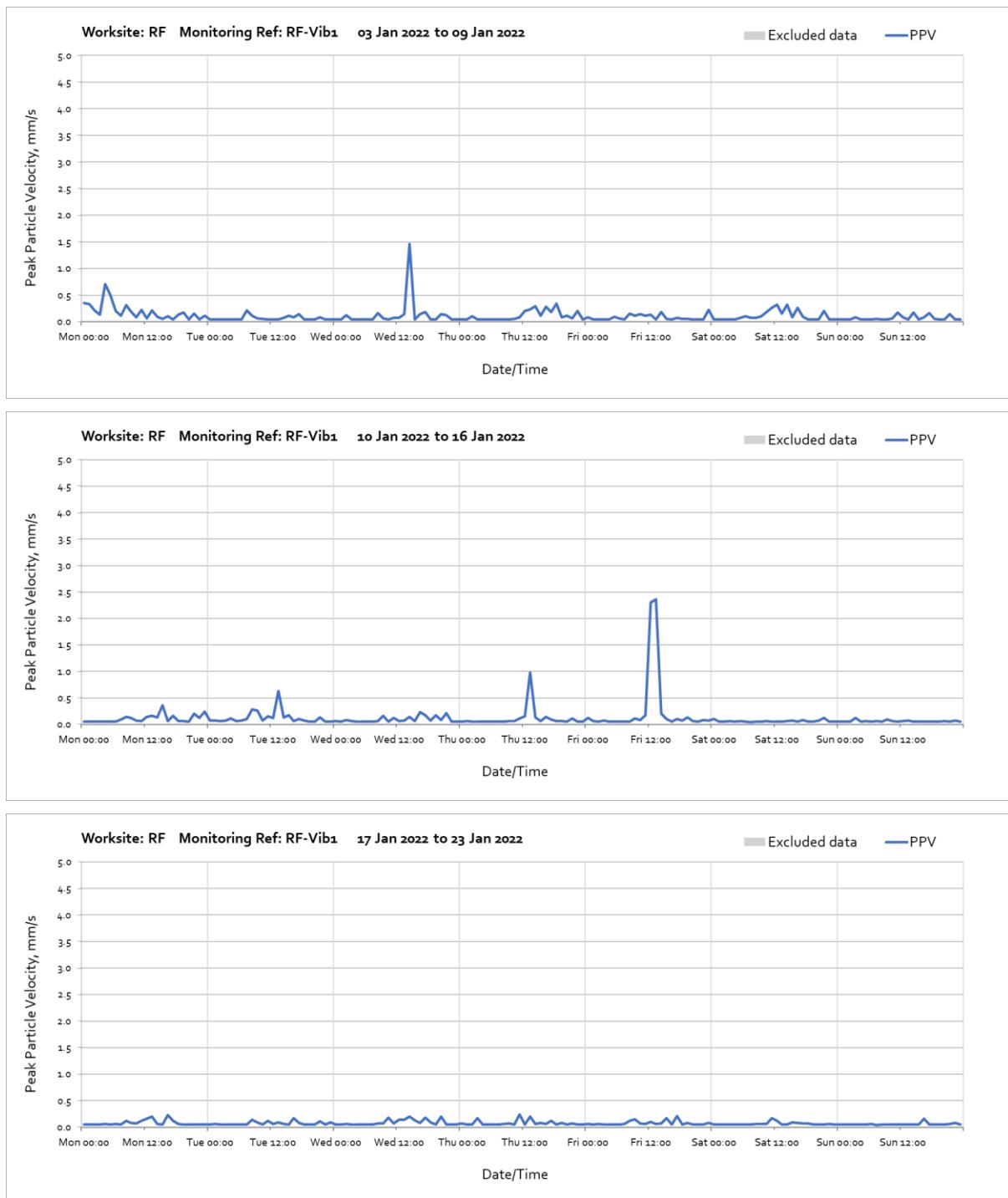
OFFICIAL



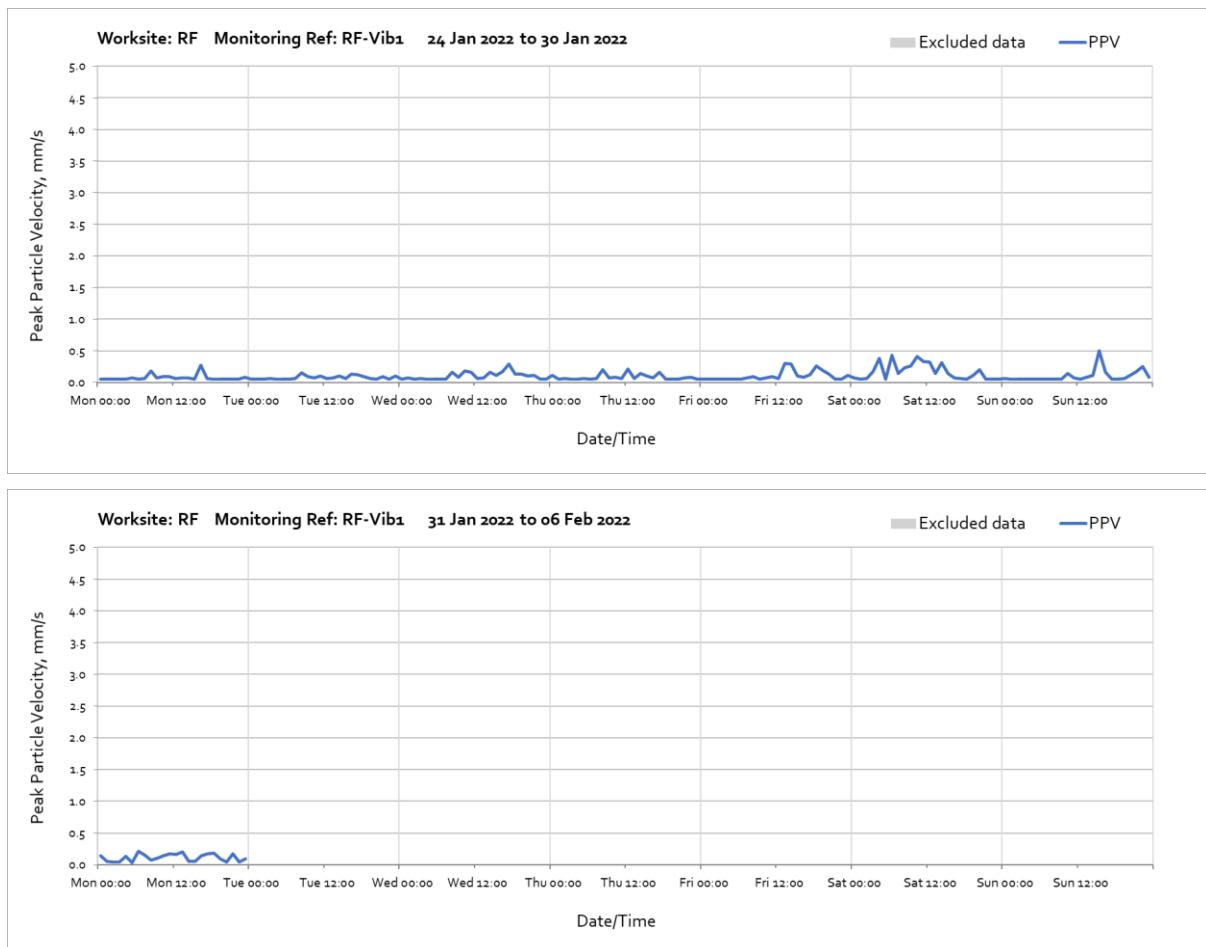
Worksite: RF – Monitoring Ref: RF-Vib 1



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OFFICIAL



OFFICIAL