HS2

November 2021

Construction noise and vibration Monthly Report – September 2021

London Borough of Camden

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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 and vibration monitoring carried out within the London Borough of Camden during the month of September 2021.

Within this period monitoring was undertaken at the following worksites:

- Noise monitoring was undertaken in the vicinity of The Adelaide Road Ventilation Shaft (ref.: ARVS) where utility works, vegetation clearance, installation of working platforms, concrete pouring, installation of site welfare units, digging of trial holes and hoarding and fencing works were underway.
- Noise monitoring was undertaken in the vicinity of Euston Throat Retained Cut and Granby Terrace Bridge worksite (ref.: ETRC & GTB) where piling, roadworks, installation of water treatment equipment, beam tests, concrete breaking and groundworks were underway.
- Noise monitoring was undertaken in the vicinity of Euston Scissor Cut worksite (ref.: ESC) where line works, piling, electricity substation installation, roadworks, wall demolitions and installation, pile mat construction and excavations were underway.
- Noise and vibration monitoring were undertaken in the vicinity of the Hampstead Road Bridge worksite (ref.: HRB) where hoarding works, utility works and roadworks were underway.
- Noise and vibration monitoring were undertaken in the vicinity of the Euston Cavern worksite (ref.: ECAV), where wall support works and pile mat construction were underway.
- Noise monitoring was undertaken in the vicinity of On-Network worksites (ref.: B, C, D, E, F, G and H), where:
    - Deliveries for Clarkson Row access point works (worksite E);
    - mechanical and electrical enabling works and surveys (worksite H) were underway;
    - no works were undertaken at worksites B, C, D, F and G
- Noise monitoring was undertaken in the vicinity of the 140 Hampstead Road and Power Signal Box worksite (ref.: S001-WS02), where demolition and earthworks were underway.
- Noise monitoring was undertaken in the vicinity of the Former National Temperance Hospital - Euston North worksite (ref.: NTH-EN) where installation of excavation supports, cutting of temporary supports and excavations were underway.

- Noise monitoring was undertaken in the vicinity of the Euston Towers Demolition worksite (ref.: ETD), where demolition was underway.
- Noise monitoring was undertaken in the vicinity of the Vehicle Holding Area worksite (ref.: VHA), where vehicle movements were underway.
- Noise monitoring was undertaken in the vicinity of the Traction Substation worksite (ref.: TSS) where tunnelling and piling were underway.
- Noise monitoring was undertaken in the vicinity of the Interim Taxi Rank worksite (ref.: ITR), where site maintenance was underway.

Further works, where monitoring did not take place, were:

- Stephenson Way, Gower Street, Harrington Street and Varndell Street where utilities works were underway; and
- Doric Way, where digging of trial holes, surveys and installation of column protectors were underway; and

The HS2 threshold levels for significant noise impacts, which are defined in Information Paper E23 (https://www.gov.uk/government/publications/hs2-information-papers-environment) were exceeded on five (5) occasions due to HS2 works in the Local Authority Area during September 2021.

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

Eight (8) complaints were received during the monitoring period. A description of complaints, the results of investigations and any actions taken are detailed in Table 8 of this report.

Abbreviations and Descriptions

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

Table 1: Table of Abbreviations

Acronym/Term	Definition
$L_{Aeq,T}$	See equivalent continuous sound pressure level
Ambient sound	A description of the all-encompassing sound at a given location and time which will include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, $L_{pAeq,T}$
Decibel(s), or dB	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale called the decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement. Audibility of sound covers a range of approximately 0-140dB.
Decibel(s) A-weighted, or dB(A)	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and is written as 'dB(A)'.
Equivalent continuous sound pressure level, or $L_{Aeq,T}$	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value, typically expressed as a decibel level.
Exclusion of data	Measurement of noise levels can be affected by weather conditions such as prolonged periods of rain, winds speeds higher than 5m/s and snow/ice ground cover. Noise levels measured during these periods are considered not representative of normal noise conditions at the site and, for the purposes of this report, are excluded from the assessment of exceedances and calculation of typical noise levels and are also greyed out in charts. Identifiable incongruous noise and vibration events not attributable to HS2 construction noise are also excluded.
Façade	A facade noise level is the noise level 1m in front of a large reflecting surface. The effect of reflection, is to produce a slightly higher (typically +2.5 to +3 dB) sound level than it would be if the reflecting surface was not there.
Free-field	A free-field noise level is the noise level measured at a location where no reflective surfaces, other than the ground, lies within 3.5 metres of the microphone position.
LOAEL	Lowest Observed Adverse Effect Level - the level above which adverse effects on health and quality of life can be detected.
Peak particle velocity, or PPV	Instantaneous maximum velocity reached by a vibrating element as it oscillates about its rest position. The PPV is a simple indicator of perceptibility and risk of damage to structures due to vibration. It is usually measured in mm/s.
SOAEL	Significant Observed Adverse Effect Level - the level above which significant adverse effects on health and quality of life occur.
Sound pressure level	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre and a change of 3dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
Vibration dose value, or VDV	An index used to evaluate human exposure to vibration in buildings. While the PPV provides information regarding the magnitude of single vibration events, the VDV provides a measure of the total vibration experienced over a specified period of time (typically 16h daytime and 8h night-time). It takes into account the magnitude, the number and the duration of vibration events and can be used to quantify exposure to continuous, impulsive, occasional and intermittent vibration. The vibration dose value is measured in $m/s^{1.75}$.

1 Introduction

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

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

Monitoring data and interpretive reports are to be provided to each relevant local authority on a monthly basis and shall include a summary of the construction activities occurring, the data recorded over the monitoring period, any complaints received, any periods in exceedance of agreed trigger levels, the results of any investigations and any actions taken or mitigation measures implemented. This report provides noise data, and interpretation thereof, for monitoring carried out by HS2 within the London Borough of Camden (LBC) for the period 1st to 30th September 2021.

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

- The Adelaide Road ventilation shaft ref.: ARVS, (see plan 2 in Appendix A), where work activities included:
  - utility works (saw cutting, road breakout, excavations, duct laying and backfilling);
  - vegetation clearance;
  - installation of working platforms;
  - concrete pouring;
  - installation of new welfare area (installation of plinths, utility run, temporary sewage holding tank, site cabins and relocation of a generator);
  - digging of trial holes;
  - hoarding works; and
  - modification of access gate.

- Euston Throat Retained Cut and Granby Terrace Bridge worksite ref.: ETRC & GTB (see plan 2 in Appendix A), where work activities included:
    - sheet piling;
    - haul road modification works;
    - installation of water treatment equipment;
    - steel and concrete beam (capping beam) trial;
    - concrete guide wall breakout;
    - excavation of west retaining wall;
    - piling platform construction;
    - hoarding works;
    - removal of broken masonry wall;
    - wall demolition;
    - backfilling; and
    - contiguous bored piling including vacuum excavation of excess concrete.
- Euston Scissor Cut worksite ref.: ESC (see plan 2 in Appendix A), where work activities included:
    - line works (mobilisation, bridge strengthening and anchor installation);
    - contiguous pore piling;
    - low voltage substation installation;
    - haul road modification;
    - wall demolition (excavations, concrete breaking, backfilling, compaction and muckaway);
    - wall works (coring, installation of ground anchors and unexploded ordnance survey probing);
    - wall capping beam installation (steel fixing, formworks, sheet piling, concrete pouring and breaking out of guide walls);
    - portal pile mat construction (excavation, backfill, compaction, muckaway and piling); and
    - bulk excavations.
- Hampstead Road Bridge worksite ref.: HRB (see plan 3 in Appendix A), where work activities included:
    - hoarding modifications;
    - utility works (temporary site installation, removal of tree stump and road breaking); and

- modification of central reservation on Hampstead Road (fencing works, digging of trial pit, breaking out of central reservation, excavation, concrete pouring and repositioning of kerbs).

- Euston Cavern worksite ref.: ECAV (see plan 3 in Appendix A), where work activities included:
  - wall works on Park Village East (coring, installation of ground anchors and unexploded ordnance survey probing); and
  - portal pile mat construction (excavations, backfilling, compaction, muckaway and piling)
- On-Network worksites ref.: B, C, D, E, F, G and H (see plan 3 in Appendix A), where work activities included:
  - deliveries for Clarkson Row access point works (worksite E); and
  - mechanical and electrical enabling works and surveys (worksite H).
  - no works were undertaken at worksites B, C, D, F and G.

- 140 Hampstead Road and Power Signal Box worksite ref.: S001-WS02 (see plan 2 in Appendix A), where work activities included:
  - substructure demolition; and
  - earthworks (ground remediation and backfilling).
- Former National Temperance Hospital - Euston North worksite ref.: NTH-EN (see plan 3 in Appendix A), where work activities included:
  - installation of excavation support props;
  - cutting of temporary support probs to Ibis Hotel slab; and
  - excavations for upper wall installation.
- Euston Towers Demolition worksite ref.: ETD (see plan 3 in Appendix A), where work activities included:
  - basement slab demolition.
- Vehicle Holding Area worksite ref.: VHA (see plan 1 in Appendix A), where work activities included:
  - general compound operation (vehicle movements).
- Traction Substation worksite ref.: TSS (see plan 3 in Appendix A), where work activities included:
  - tunnelling; and
  - installation of primary and secondary rotary bored piles.
- Interim Taxi Rank worksite ref.: ITR (see plan 3 in Appendix A), where work activities included:

- site maintenance.

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

- Stephenson Way, Gower Street, Harrington Street and Varndell Street where utilities works were undertaken; and
- Doric Way, where digging of trial holes, surveys and installation of column protectors at Magic Circle and Royal College of General Practitioners were undertaken.

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

1.2 Measurement Locations

1.2.1 Thirty-three (33) noise and ten (10) vibration monitoring installations were active across fourteen worksites in September in the LBC area. Table 2 summarises the position of noise and vibration monitoring installations within the LBC area in September 2021.

1.2.2 An additional noise monitor, monitor ref.: CR, was installed at Clarkson Row, adjacent worksite E, on the 14th of September.

1.2.3 Maps showing the position of noise and vibration monitoring installations are presented in Appendix B.

Table 2: Monitoring Locations

Worksite Reference	Measurement Reference	Address
ARVS	N051	Outside 70 Adelaide Road
	N052	Adelaide Road-Beaumont Walk
	V059	Outside 68 Adelaide Road
B	JC	Juniper Crescent
ESC	N024	External to Park Village Studios, Park Village East
	N047	Park Village East/Mornington Street bridge, lamppost #13
	PVS-V1	Park Village Studios
ESC, C	N022	External to 34 Mornington Terrace
	N046	Mornington Terrace near The Edinboro Castle pub, lamppost #18
ETRC & GTB	N001	Park Village East, lamppost #1 (external to Cubitt Court, 100 Park Village East)
	N002	Park Village East, lamppost #2 (external to Richmond Court)
	N003	Park Village East, lamppost #9 (external to Silsoe House)
	SH-V1	Silsoe House
ETRC & GTB, D	N004	Mornington Terrace, lamppost #7 (junction of Mornington Terrace, Mornington Place and Clarkson Row)
ETRC & GTB, E	N005	5A Granby Terrace
E	CR	Lamppost #2 on Clarkson Row
ETRC & GTB, F	N023	Lamppost #21 on Hampstead Road
HRB	N020	Mackworth Street, lamppost #1
	N021	Stanhope Street, lamppost #2
	N044	Regents Park Estate west, near Langdale
	N045	Regents Park Estate south, external to Coniston

Worksite Reference	Measurement Reference	Address
	V039	Coniston, Regents Park Estate
	V043	Cubitt Court, Park Village East
G, H	HH	Euston Station Parcel Deck, Barnby Street
G	BS	Roof of Stockbeck House, Barnby Street
S001-WS02	N018	Outside replacement housing, Hampstead Road
	N019	Outside Cartmel, Hampstead Road
ETD, TSS	N006	Royal College of General Practitioners roof level
TSS	N008	Stephenson's Way lamppost (external to RCGP)
	N010	Wesley Hotel
	N011	Euston Street, lamppost #4 (external to 82 Euston Street)
	V002	Royal College of General Practitioners basement boiler room by Stephenson Way
	V037	Magic Circle, basement
	V038	Wesley Hotel, basement lightwell, Euston Street
ETD	N007	Royal College of General Practitioners, Melton Street
	V003	Royal College of General Practitioners basement vaults under Melton St
VHA	N025	External to 3 Prince Albert Road
	N026	Thames Water Compound
NTH-EN, TSS	N012	Drummond Street, lamppost #14 (opposite to 92-94 Drummond Street)
NTH-EN	N014	Starcross Street lamppost (external to Exmouth Arms)
	N016	Margaret Centre roof
	N017	Hampstead Road, lamppost #48
	V021	42-44 Cobourg Street

2 Summary of Results

2.1 Summary of Measured Noise and Vibration Levels

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

Table 3: Summary of Measured dB L_{Aeq} Data over the Monitoring Period

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekly 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
ARVS	N051	Outside 70 Adelaide Road	Free-field	67.3 (73.4)	68.0 (69.4)	67.4 (72.5)	66.3 (71.7)	62.1 (73.1)	63.9 (65.0)	66.6 (67.2)	66.5 (67.1)	67.0 (72.3)	62.9 (67.4)	65.3 (68.7)	61.3 (65.0)
	N052	Adelaide Road-Beaumont Walk	Free-field	65.5 (69.9)	67.0 (69.6)	66.0 (71.9)	64.6 (69.1)	60.5 (66.4)	62.8 (64.1)	65.5 (66.4)	66.7 (67.5)	64.9 (72.8)	60.8 (64.8)	63.4 (67.1)	59.2 (62.8)
B	JC	Juniper Crescent	Free-field	55.3 (59.7)	56.3 (59.7)	56.1 (58.4)	56.7 (61.2)	53.4 (61.7)	56.4 (57.5)	57.3 (58.8)	56.9 (57.6)	57.6 (60.1)	54.5 (58.5)	57.3 (59.6)	53.8 (57.9)
ESC	N024	External to Park Village Studios, Park Village East	Free-field	62.1 (64.3)	63.4 (70.3)	62.4 (68.0)	60.4 (77.3)	56.5 (64.6)	57.8 (60.5)	61.6 (65.2)	61.5 (65.9)	59.8 (64.6)	56.1 (60.2)	58.7 (65.5)	55.3 (63.4)
	N047	Park Village East/Mornington Street bridge, lamppost #13	Free-field	62.0 (65.0)	65.1 (71.3)	62.8 (66.5)	60.1 (63.2)	56.5 (64.4)	59.1 (62.7)	61.0 (62.5)	61.5 (65.9)	61.0 (66.1)	56.9 (61.8)	60.2 (70.0)	56.0 (63.3)
ESC, C	N022	External to 34 Mornington Terrace	Free-field	58.9 (60.3)	62.0 (64.4)	59.3 (60.3)	58.2 (60.6)	53.8 (60.1)	58.3 (59.0)	59.9 (63.9)	59.9 (65.1)	58.3 (64.9)	52.0 (58.6)	56.5 (59.0)	54.3 (68.2)
	N046	Mornington Terrace near The Edinboro Castle pub, lamppost #18	Free-field	62.8 (63.7)	64.4 (65.7)	63.2 (64.0)	62.2 (63.7)	58.1 (63.4)	62.7 (63.5)	62.9 (63.6)	63.5 (66.3)	62.7 (66.8)	55.4 (62.9)	60.8 (64.0)	57.2 (66.5)
ETRC & GTB	N001	External to Cubitt Court, 100 Park Village East	Free-field	59.6 (62.9)	65.5 (74.4)	60.6 (63.9)	58.3 (63.8)	53.7 (62.4)	56.3 (59.6)	66.7 (81.0)	61.3 (64.9)	60.3 (67.0)	54.1 (58.4)	57.4 (63.2)	54.0 (60.9)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekly 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
	N002	Richmond Court, Park Village East	Free-field	60.9 (63.9)	63.3 (65.5)	62.3 (67.8)	60.1 (65.1)	56.0 (65.8)	57.6 (60.8)	61.0 (61.6)	61.7 (65.5)	60.7 (65.9)	56.4 (60.4)	59.3 (66.6)	55.4 (61.8)
	N003	Silsoe House, Park Village East	Façade	61.7 (64.1)	64.1 (69.1)	63.1 (67.2)	60.9 (71.5)	57.0 (63.5)	57.9 (60.9)	60.9 (62.1)	61.8 (65.7)	61.2 (66.4)	57.5 (60.9)	59.6 (65.4)	56.3 (63.3)
ETRC & GTB, D	N004	Mornington Terrace, lamppost #7	Free-field	64.3 (66.0)	66.6 (68.8)	64.8 (66.5)	63.5 (66.2)	59.1 (65.8)	63.2 (64.0)	64.4 (65.4)	63.7 (66.6)	63.3 (67.1)	58.6 (71.0)	62.3 (66.8)	58.4 (63.1)
ETRC & GTB, E	N005	5A Granby Terrace	Free-field	64.8 (65.5)	66.3 (68.2)	65.1 (68.2)	64.8 (68.3)	61.4 (64.8)	63.7 (64.3)	65.5 (66.6)	65.2 (67.0)	64.7 (69.4)	61.3 (65.4)	63.3 (68.6)	61.0 (64.2)
E	CR	Lamppost #2 on Clarkson Row	Free-field	64.3 (67.6)	68.2 (70.3)	69.2 (77.8)	65.8 (69.6)	58.1 (65.7)	62.7 (63.2)	65.0 (65.4)	65.5 (67.7)	67.1 (70.9)	58.3 (63.4)	64.9 (70.6)	59.4 (67.4)
ETRC & GTB, F	N023	Lamppost #21 on Hampstead Road	Free-field	68.2 (69.5)	69.1 (71.8)	68.0 (71.4)	67.9 (73.6)	65.7 (71.8)	66.6 (67.7)	67.8 (68.3)	67.7 (68.3)	68.4 (74.4)	65.7 (69.7)	67.3 (73.9)	64.9 (67.9)
HRB	N020	Mackworth Street, lamppost #1	Free-field	52.7 (56.7)	69.2 (76.9)	52.7 (65.4)	50.3 (53.2)	47.4 (59.8)	49.9 (51.6)	68.3 (71.6)	57.6 (64.9)	52.5 (62.0)	46.8 (49.5)	49.1 (51.8)	46.9 (50.6)
	N021	Stanhope Street, lamppost #2	Free-field	59.2 (63.3)	62.9 (66.6)	60.1 (63.1)	57.8 (63.1)	53.8 (60.9)	55.0 (60.7)	63.4 (65.5)	63.5 (69.4)	59.8 (69.9)	53.6 (58.4)	57.3 (65.8)	54.0 (61.1)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekly 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
HRB	N044	Regents Park Estate west, near Langdale	Free-field	63.1 (63.8)	67.4 (71.6)	63.7 (70.5)	63.0 (64.0)	62.9 (65.0)	63.1 (63.7)	68.0 (71.4)	67.1 (69.8)	64.8 (67.6)	62.0 (63.7)	63.7 (67.0)	61.4 (63.1)
	N045	Regents Park Estate south, external to Coniston	Free-field	56.9 (62.2)	65.0 (76.1)	57.8 (68.2)	55.2 (59.0)	52.8 (60.5)	56.2 (56.8)	64.8 (70.6)	62.2 (70.3)	55.6 (61.9)	52.1 (54.9)	54.8 (57.4)	52.6 (57.6)
G, H	HH	Euston Station Parcel Deck, Barnby Street	Free-field	59.3 (63.1)	62.2 (63.7)	63.9 (66.6)	61.8 (68.6)	58.1 (68.0)	60.0 (60.3)	62.3 (63.7)	61.3 (63.4)	62.1 (65.7)	57.5 (62.2)	62.3 (66.4)	58.3 (63.7)
G	BS	Roof of Stockbeck House, Barnby Street	Free-field	61.0 (65.9)	62.0 (63.8)	61.8 (65.0)	61.5 (64.9)	58.0 (65.1)	61.8 (62.8)	63.2 (64.0)	62.1 (63.2)	62.9 (64.9)	59.1 (63.9)	62.8 (67.0)	58.3 (62.5)
S001-WS02	N018	Outside replacement housing, Hampstead Road	Free-field	69.0 (70.5)	70.5 (72.6)	69.5 (73.4)	69.3 (79.8)	66.9 (73.4)	67.5 (69.8)	68.3 (69.0)	68.7 (72.3)	69.6 (77.2)	67.7 (75.3)	69.5 (77.1)	66.2 (69.9)
	N019	Outside Cartmel, Hampstead Road	Free-field	53.2 (54.8)	57.7 (65.6)	53.6 (60.1)	53.3 (59.1)	50.8 (55.5)	51.9 (52.8)	55.1 (57.9)	55.2 (57.8)	53.7 (60.1)	50.6 (53.4)	52.4 (56.4)	51.1 (55.6)
ETD, TSS	N006	Royal College of General Practitioners roof level	Free-field	58.8 (62.3)	66.9 (72.8)	58.4 (62.8)	57.8 (60.8)	56.1 (60.8)	56.1 (56.7)	56.5 (56.9)	57.2 (59.1)	56.9 (62.5)	53.8 (56.0)	56.0 (57.2)	53.3 (55.9)
TSS	N008	Stephenson's Way lamppost (external to RCGP)	Façade	59.6 (66.6)	67.2 (77.2)	59.1 (69.4)	56.0 (66.9)	55.5 (68.8)	55.2 (59.0)	55.3 (56.7)	55.2 (57.4)	54.3 (61.7)	52.2 (55.2)	53.6 (57.0)	54.4 (64.0)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekly 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
TSS	N010	Wesley Hotel	Façade	69.6 (69.9)	70.2 (74.2)	59.8 (69.4)	58.3 (69.5)	59.3 (69.9)	69.4 (69.5)	69.3 (69.4)	69.4 (69.8)	58.3 (69.4)	56.7 (69.4)	66.7 (69.9)	58.2 (69.7)
	N011	Outside 82 Euston Street	Free-field	54.8 (61.2)	60.3 (67.8)	56.1 (65.0)	53.0 (60.1)	51.6 (61.7)	50.8 (51.3)	52.9 (54.3)	55.0 (56.1)	54.9 (60.5)	49.6 (53.1)	52.9 (61.2)	49.7 (54.6)
ETD	N007	Royal College of General Practitioners, Melton Street	Free-field	65.2 (69.2)	71.0 (74.6)	64.3 (66.8)	64.1 (68.2)	63.0 (68.6)	62.9 (64.1)	63.8 (64.5)	64.4 (65.3)	64.2 (67.7)	63.2 (66.4)	63.1 (66.8)	62.0 (65.2)
VHA	N025	External to 3 Prince Albert Road	Free-field	67.0 (68.6)	67.6 (73.2)	66.7 (74.4)	65.1 (68.4)	63.0 (72.2)	64.6 (65.4)	65.3 (65.8)	66.0 (67.1)	64.9 (66.9)	63.9 (68.7)	65.0 (71.1)	62.1 (67.1)
VHA	N026	Thames Water Compound	Free-field	56.1 (57.5)	57.7 (64.2)	56.4 (60.4)	54.8 (59.0)	51.3 (60.3)	53.5 (53.8)	54.6 (55.0)	57.9 (64.2)	55.2 (61.0)	51.7 (55.9)	54.1 (57.8)	50.1 (54.2)
NTH-EN, TSS	N012	Opposite 92-94 Drummond Street	Free-field	55.5 (65.1)	59.4 (61.9)	57.5 (60.9)	57.6 (61.8)	53.6 (64.9)	53.5 (54.6)	56.2 (57.4)	57.5 (59.3)	57.4 (62.0)	51.7 (56.3)	55.9 (59.6)	52.7 (59.0)
NTH-EN	N014	Starcross Street lamppost (external to Exmouth Arms)	Free-field	54.3 (60.5)	58.1 (62.0)	59.7 (66.3)	59.4 (67.2)	53.1 (66.2)	53.1 (58.3)	54.2 (55.8)	55.7 (57.4)	56.5 (62.8)	51.1 (56.0)	54.5 (59.3)	52.2 (62.6)
	N016	Margaret Centre roof	Free-field	53.8 (59.1)	57.8 (62.0)	53.1 (55.7)	52.9 (60.9)	50.7 (57.8)	52.0 (53.0)	53.5 (55.2)	53.2 (55.6)	54.4 (62.3)	50.5 (53.4)	52.6 (60.9)	50.2 (53.8)

Worksite Reference	Measurement Reference	Site Address	Free-field or Façade Measurement	Weekly 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
NTH-EN	N017	Hampstead Road, lamppost #48	Free-field	68.6 (70.1)	70.2 (75.8)	68.7 (73.3)	68.7 (75.6)	66.5 (74.5)	67.4 (68.7)	67.8 (68.1)	68.7 (72.2)	69.1 (76.3)	66.9 (70.9)	69.7 (76.5)	66.0 (71.5)

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

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

Worksite Reference	Measurement Reference	Monitor Address	Highest PPV measured in any axis, mm/s
ARVS	V059	Outside 68 Adelaide Road	3.13 (Z-axis)
HRB	V039	Coniston, Regents Park Estate	1.00 (Z-axis)
	V043	Cubitt Court, Park Village East	1.00 (Y-axis)
ETD, TSS	V003	RCGP basement vaults, 305 Euston Road	0.65 (Z-axis)
TSS	V002	RCGP basement boiler room, 305 Euston Road	1.31 (Z-axis)
	V037	Magic Circle, basement	3.19 (Z-axis)
	V038	Wesley Hotel, basement lightwell, Euston Street	0.74 (Y-axis)
NTH-EN	V021	42-44 Cobourg Street (floor)	0.73 (X-axis)
ESC	PVS-V1	Park Village Studios	1.17 (Y-axis)
ETRC & GTB	SH-V1	Silsoe House	1.01 (Z-axis)

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

2.2 Exceedances of the SOAEL

2.2.1 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."

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

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

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

Table 5: Summary of Exceedances of SOAEL

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of SOAEL
ARVS	N051	Outside 70 Adelaide Road	All days	All periods	No exceedance
	N052	Adelaide Road-Beaumont Walk	All days	All periods	No exceedance
B	JC	Juniper Crescent	All days	All periods	No exceedance
ESC	N024	External to Park Village Studios, Park Village East	All days	All periods	No exceedance
	N047	Park Village East/Mornington Street bridge, lamppost #13	All days	All periods	No exceedance
ESC, C	N022	External to 34 Mornington Terrace	All days	All periods	No exceedance
	N046	Mornington Terrace near The Edinboro Castle pub, lamppost #18	All days	All periods	No exceedance
ETRC & GTB	N001	External to Cubitt Court, 100 Park Village East	Weekday	08:00-18:00	1
	N002	Richmond Court, Park Village East	All days	All periods	No exceedance
	N003	Silsoe House, Park Village East	All days	All periods	No exceedance
ETRC & GTB, D	N004	Mornington Terrace, lamppost #7	All days	All periods	No exceedance
ETRC & GTB, E	N005	5A Granby Terrace	All days	All periods	No exceedance

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of SOAEL
E	CR	Lamppost #2 on Clarkson Row	All days	All periods	No exceedance
ETRC & GTB, F	N023	Lamppost #21 on Hampstead Road	All days	All periods	No exceedance
HRB	N020*	Mackworth Street, lamppost #1	All days	All periods	No exceedance
	N021	Stanhope Street, lamppost #2	All days	All periods	No exceedance
	N044	Regents Park Estate west, near Langdale	All days	All periods	No exceedance
	N045	Regents Park Estate south, external to Coniston	Weekday	08:00-18:00	4
G, H	HH	Euston Station Parcel Deck, Barnby Street	All days	All periods	No exceedance
G	BS	Roof of Stockbeck House, Barnby Street	All days	All periods	No exceedance
S001-WS02	N018	Outside replacement housing, Hampstead Road	All days	All periods	No exceedance
	N019	Outside Cartmel, Hampstead Road	All days	All periods	No exceedance
ETD, TSS	N006	RCGP Roof level	All days	All periods	Not applicable**
TSS	N008	RCGP Stephenson Way	All days	All periods	No exceedance
	N010	Wesley Hotel	All days	All periods	Not applicable**
	N011	Outside 82 Euston Street	All days	All periods	No exceedance
ETD	N007	RCGP, Melton Street	All days	All periods	No exceedance
VHA	N025	External to 3 Prince Albert Road	All days	All periods	No exceedance
	N026	Thames Water Compound	All days	All periods	No exceedance

Worksite Reference	Measurement Reference	Site Address	Day (Weekday, Saturday, Sunday, Night)	Time period	Number of exceedances of SOAEL
NTH-EN	N012	Opposite 92-94 Drummond Street	All days	All periods	No exceedance
	N014	Starcross Street lamppost (external to Exmouth Arms)	All days	All periods	No exceedance
	N016	Margarete Centre roof	All days	All periods	No exceedance
	N017	Hampstead Road, lamppost #48	All days	All periods	No exceedance

* Further analysis of noise levels due to utility works being undertaken in close proximity of the noise monitor has been undertaken and noise levels corrected to be representative of the nearest receptors.
** The defined SOAEL criteria are not applicable to non-residential properties.

2.2.5 For the purpose of assessing eligibility for noise insulation or temporary rehousing, multiple exceedances of the SOAEL in a 24-hour period would be counted as a single exceedance during that day. Over the reporting period, the overall number of SOAEL exceedances at each measurement location is shown in Table 6 and may be lower than the total sum of individual exceedances reported in Table 5 for each location.

Table 6: Summary of Total Exceedances of SOAEL

Worksite Reference	Measurement Reference	Monitor Address	Total of SOAEL exceedances in the month
ETRC & GTB	N001	External to Cubitt Court, 100 Park Village East	1
HRB	N045	Regents Park Estate south, external to Coniston	4

2.2.6 Five exceedances of the SOAEL at two monitoring locations were recorded due to HS2 construction works during September 2021. The exceedances occurred at:

- Monitoring location N001 during one daytime period due to road breaking; and
- Monitoring location N045 during one daytime period due to excavation works, one daytime period due to a combination of excavation works and saw cutting, one daytime period due to excavation of a manhole box and one daytime period due to a combinations of excavation works and sheet piling.

2.3 Exceedances of Trigger Level

2.3.1 Table 7 provides a summary of exceedances of the S61 trigger noise levels determined to be due to HS2 related construction noise measured during the reporting period, along with the findings of any investigation.

Table 7: Summary of Exceedances of Trigger Levels

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

2.4 Complaints

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

Table 8: Summary of Complaints

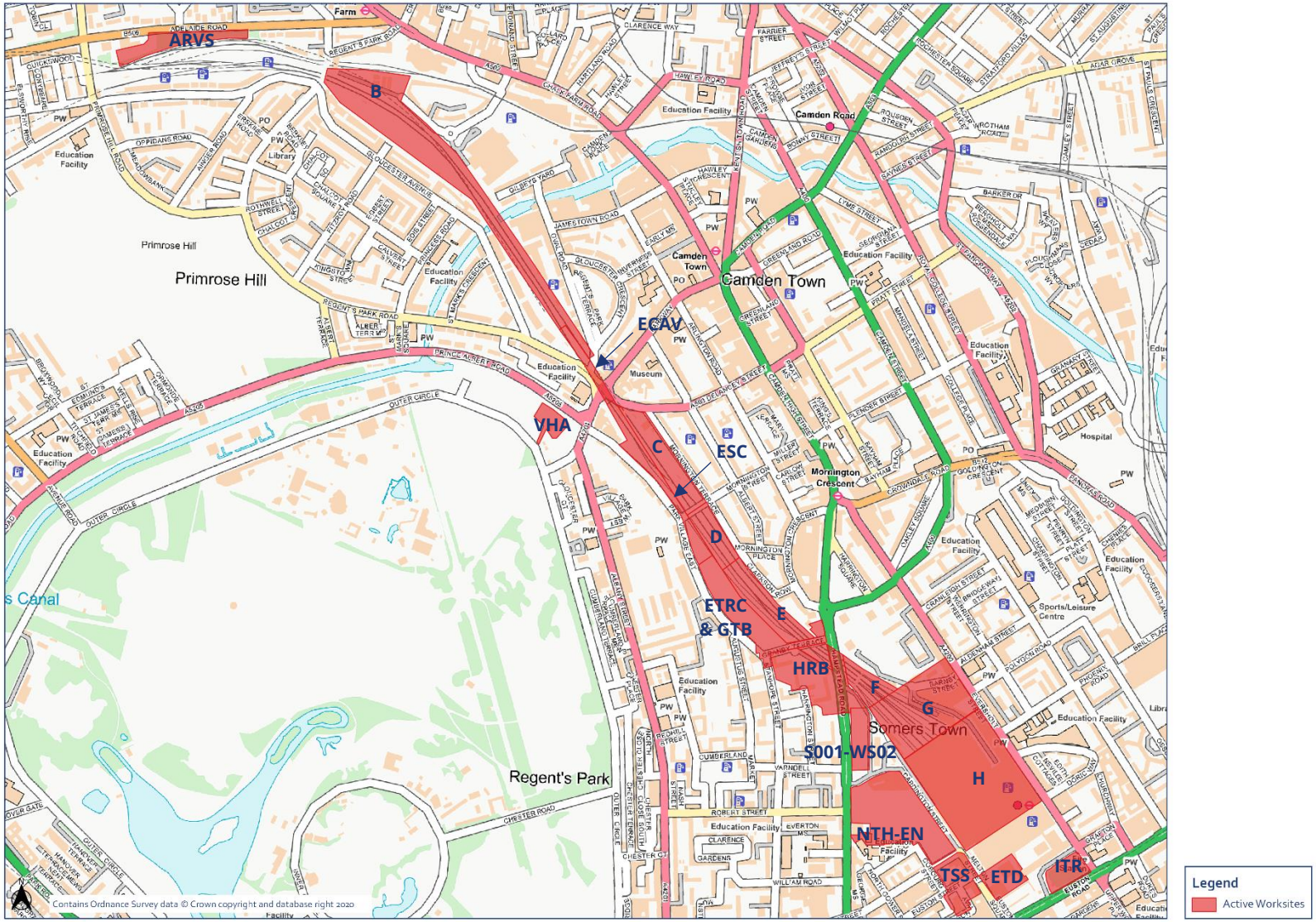
Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-21-42502-C	HRB	General complaint regarding construction noise during the daytime causing shaking throughout the Stakeholder's property.	Noise monitoring demonstrates compliance with Section 61 and best practicable means (BPM) were used.	Information was provided to the Stakeholder confirming that noise levels were within required limits and that a weekly allowance of respite is available at a nearby hotel.
HS2-21-42511-C	ESC	Complaint due to construction noise disturbing the Stakeholder's child.	Building surveyor attended property in July due to secondary glazing being installed incorrectly. Given Stakeholder's work commitment a suitable appointment to rectify the issue could not be made prior to the complaint being registered.	A meeting was arranged with the Stakeholder to rectify the secondary glazing installation issue.
HS2-21-42519-C	HRB, S001-WS02	General complaint regarding construction noise.	Noise monitoring demonstrates compliance with Section 61 and best practicable means (BPM) were used.	Information was provided to the Stakeholder confirming that noise levels were within required limits and mitigation measures that are in place to reduce noise. Information on special cases was also given.
HS2-21-42565-C	HRB	Complaint due to construction noise during the night-time.	The associated HS2 worksite was not operational during the night raised by the Stakeholder. The source of noise could not be identified.	Information was provided to the Stakeholder confirming that the noise was not associated with HS2 works.

Complaint Reference Number	Worksite Reference	Description of Complaint	Results of Investigation	Actions Taken
HS2-21-42572-C	HRB, S001-WS02	Complaint due to construction noise affecting the use of the Stakeholder's kitchen. Secondary glazing was requested.	Request for secondary glazing is exempt from complaints procedure.	The Stakeholder's request was forwarded to the H2 noise insulation team for consideration.
HS2-21-42579-C	HRB	Complaint due to vibration from construction works impacting building.	Mitigation measures are in place on site. Noise and vibration monitoring demonstrates compliance with Section 61 and best practicable means (BPM) were used.	Confirmation of the mitigations in place provided to stakeholder, along with confirmation that prescribed limits were not breached.
HS2-21-42581-C	HRB	Complaint due to generator noise during early morning hours.	Investigation has not been able to confirm the source of the noise	Response to Stakeholder to advise results of the investigation and invited to provide any further specific information on times of day and full details of the noise(s) heard. Noise monitors checked as matter of course and no breaches found.
HS2-21-42623-C	HRB, S001-WS02	General complaint regarding construction noise during the daytime.	Noise monitoring demonstrates compliance with Section 61. The works which resulted in the complaint were completed shortly after.	Information was provided to the Stakeholder confirming the programme of works.

Appendix A Site Locations

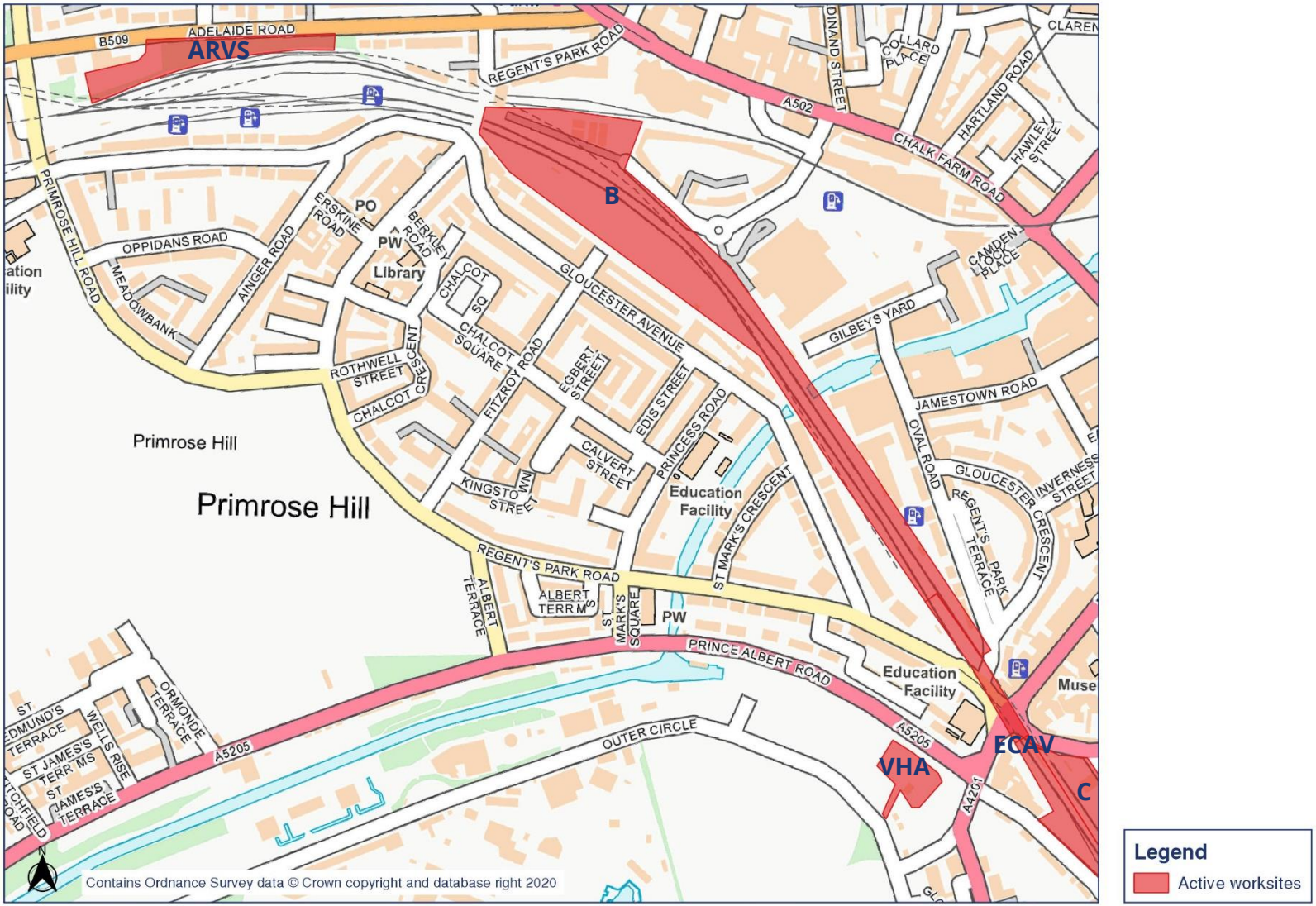
HS2

Worksite identification plan - Overview

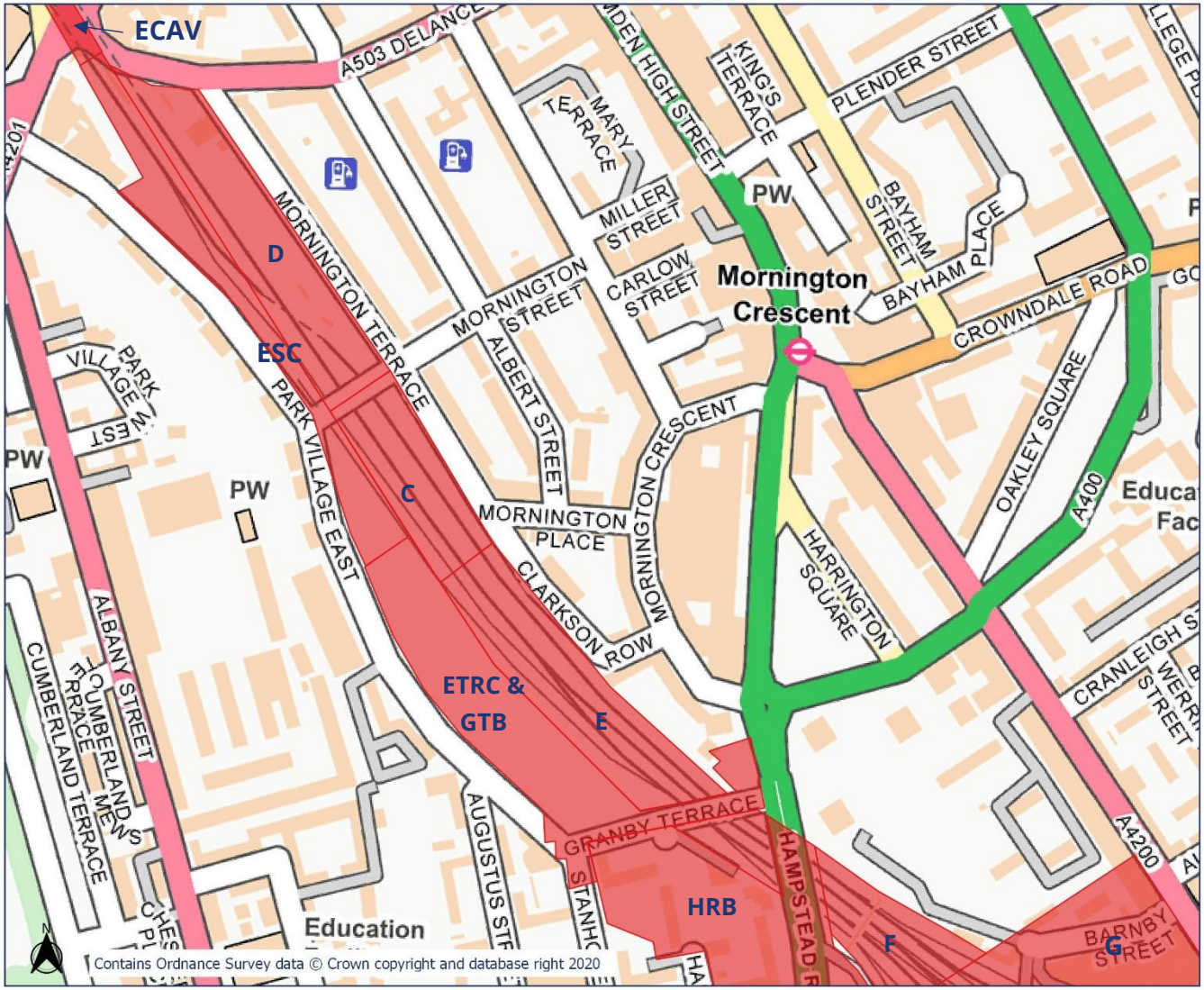


HS2

Worksite identification plan - 1



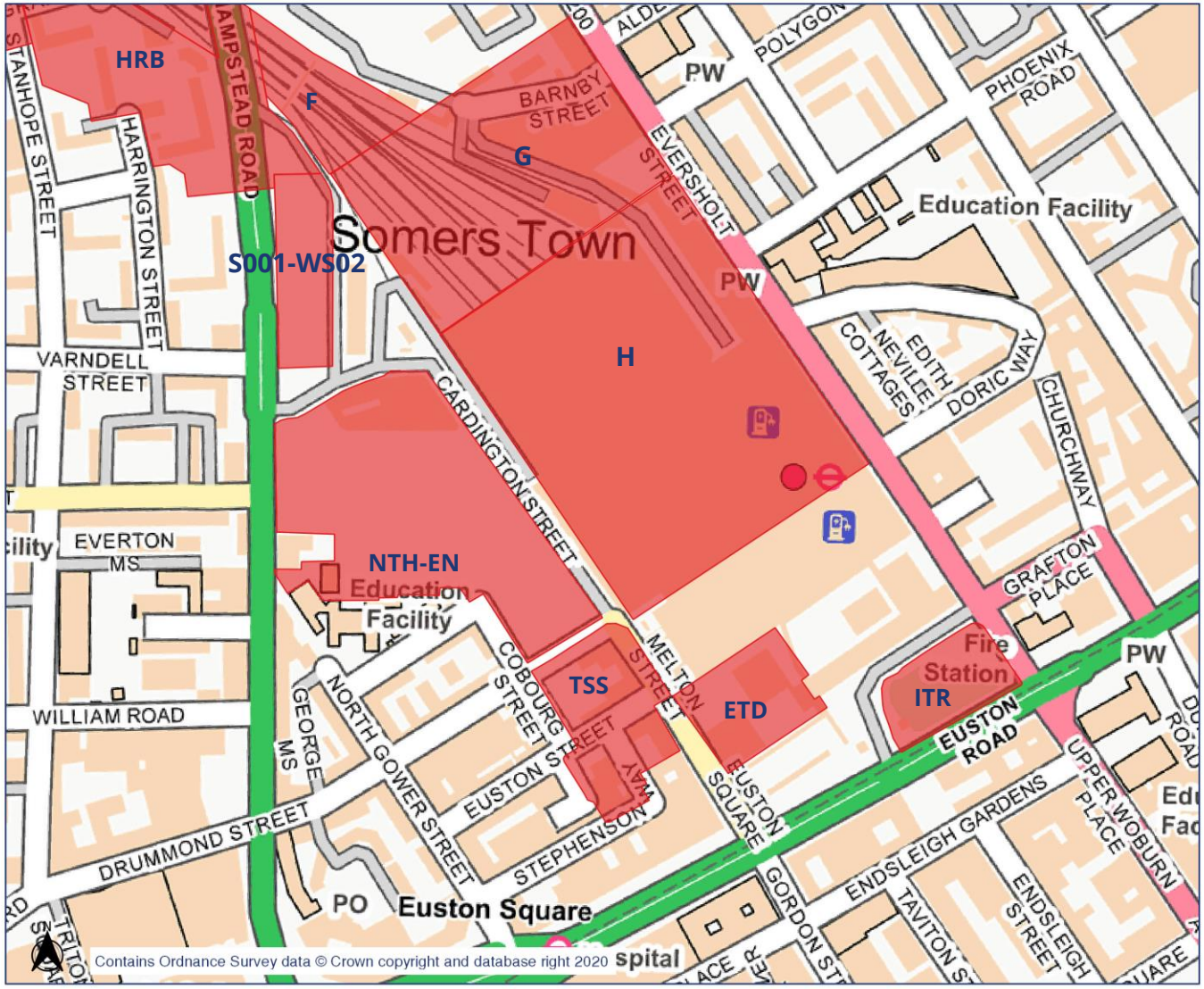
HS2 Worksite identification plan - 2



Legend

Active worksites

Worksite identification plan - 3



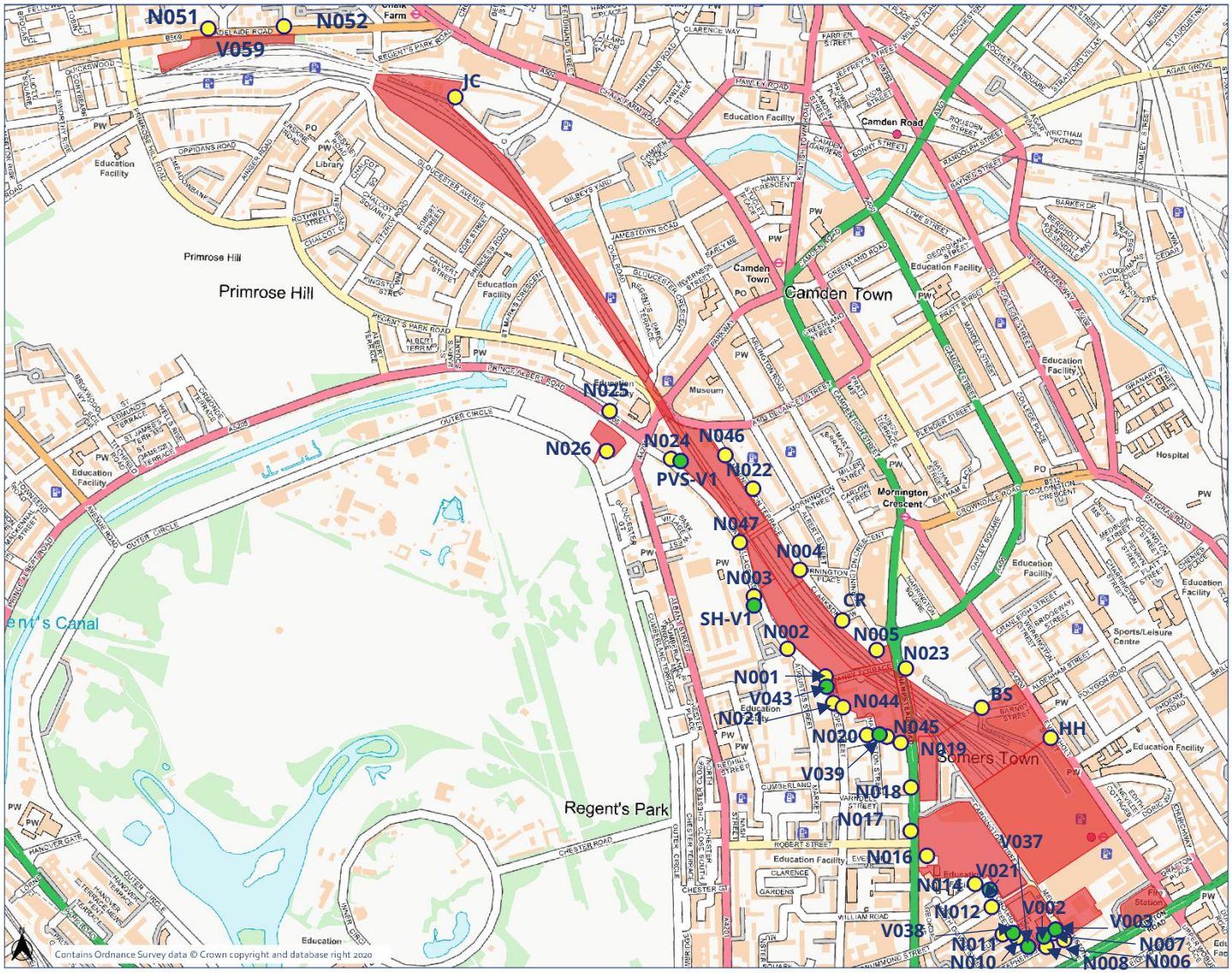
Legend

Active Worksites

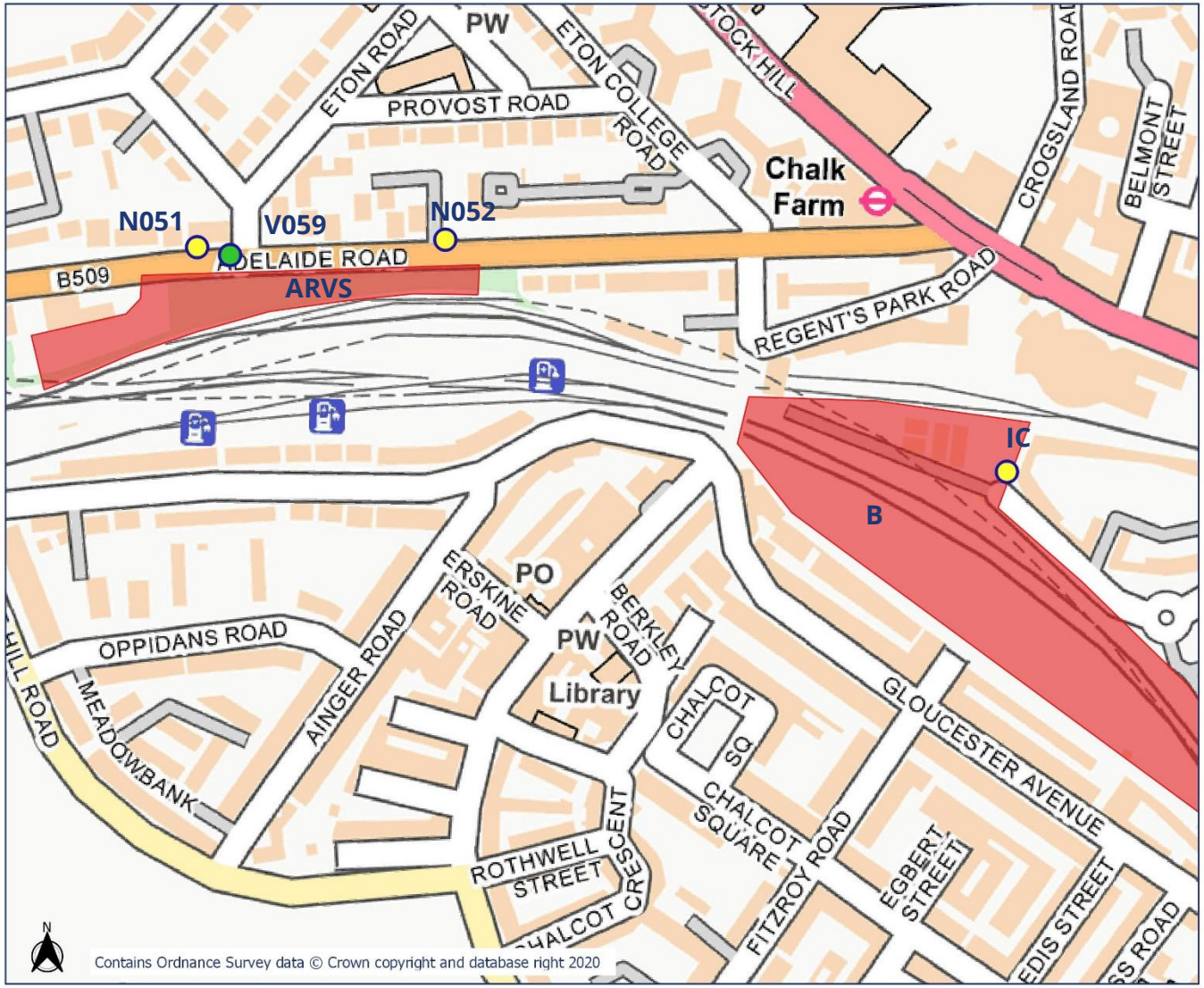
Appendix B Monitoring Locations

HS2

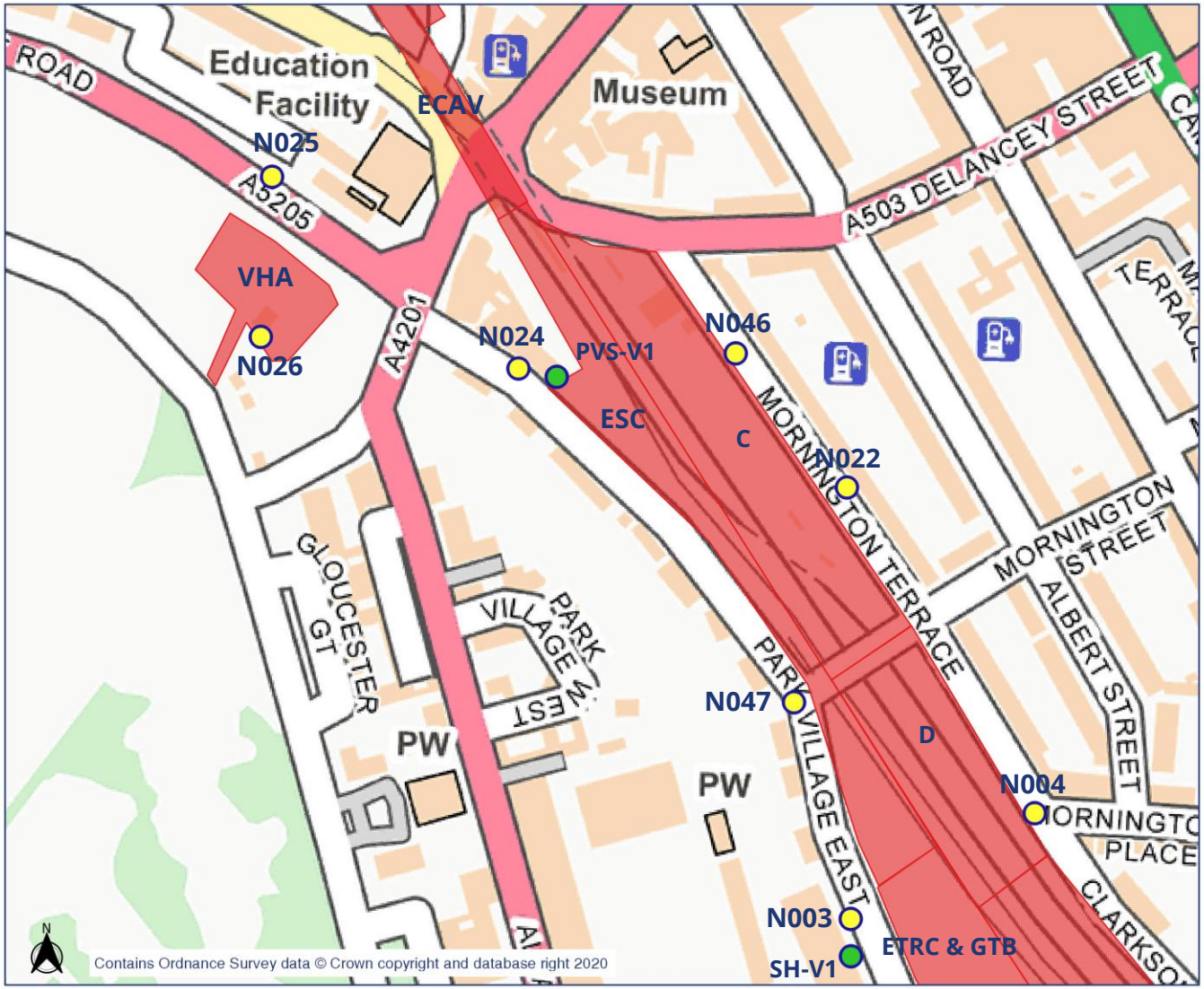
Noise and vibration monitoring plan - Overview



HS2 Noise and vibration monitoring plan - 1

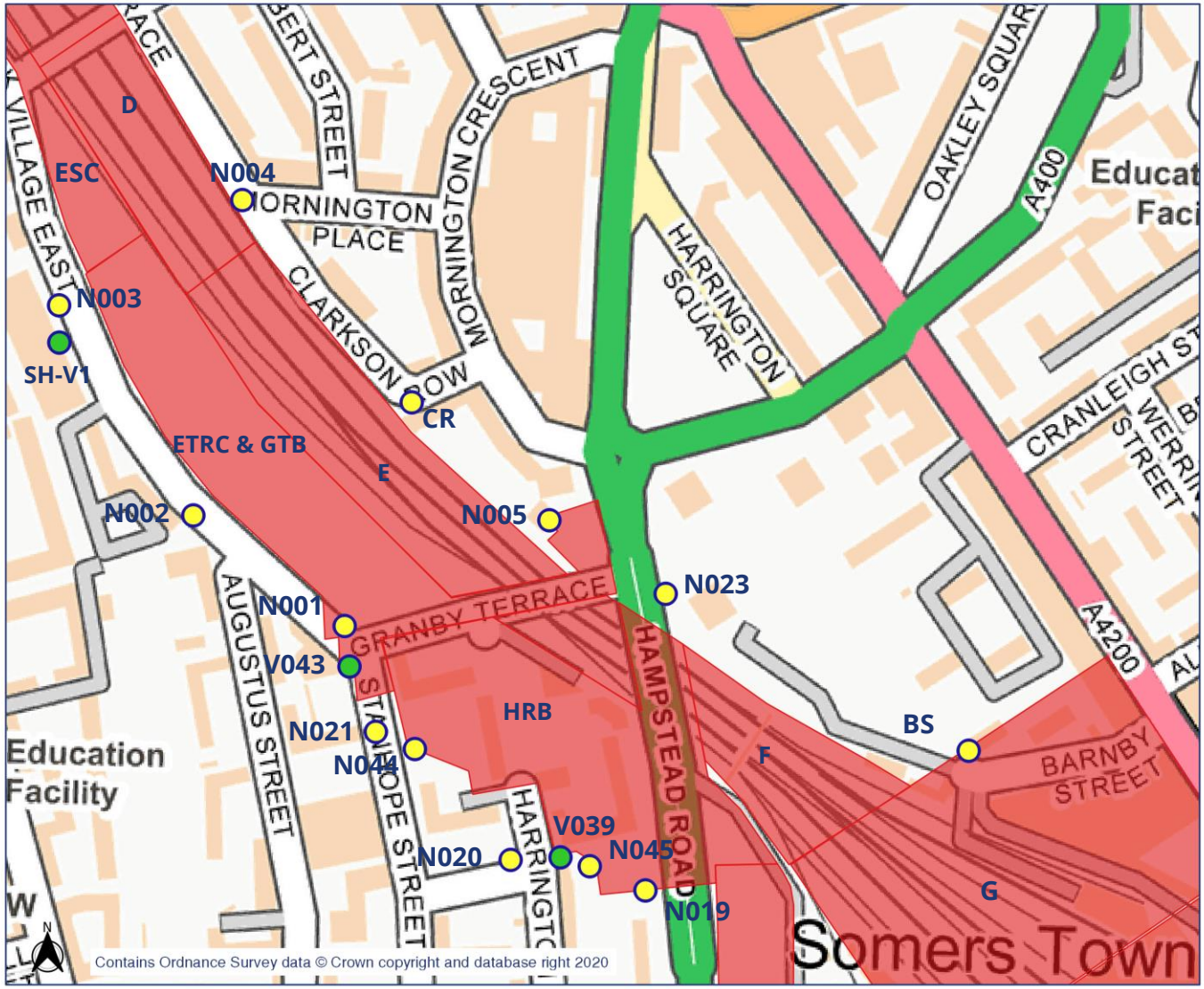


HS2 Noise and vibration monitoring plan - 2



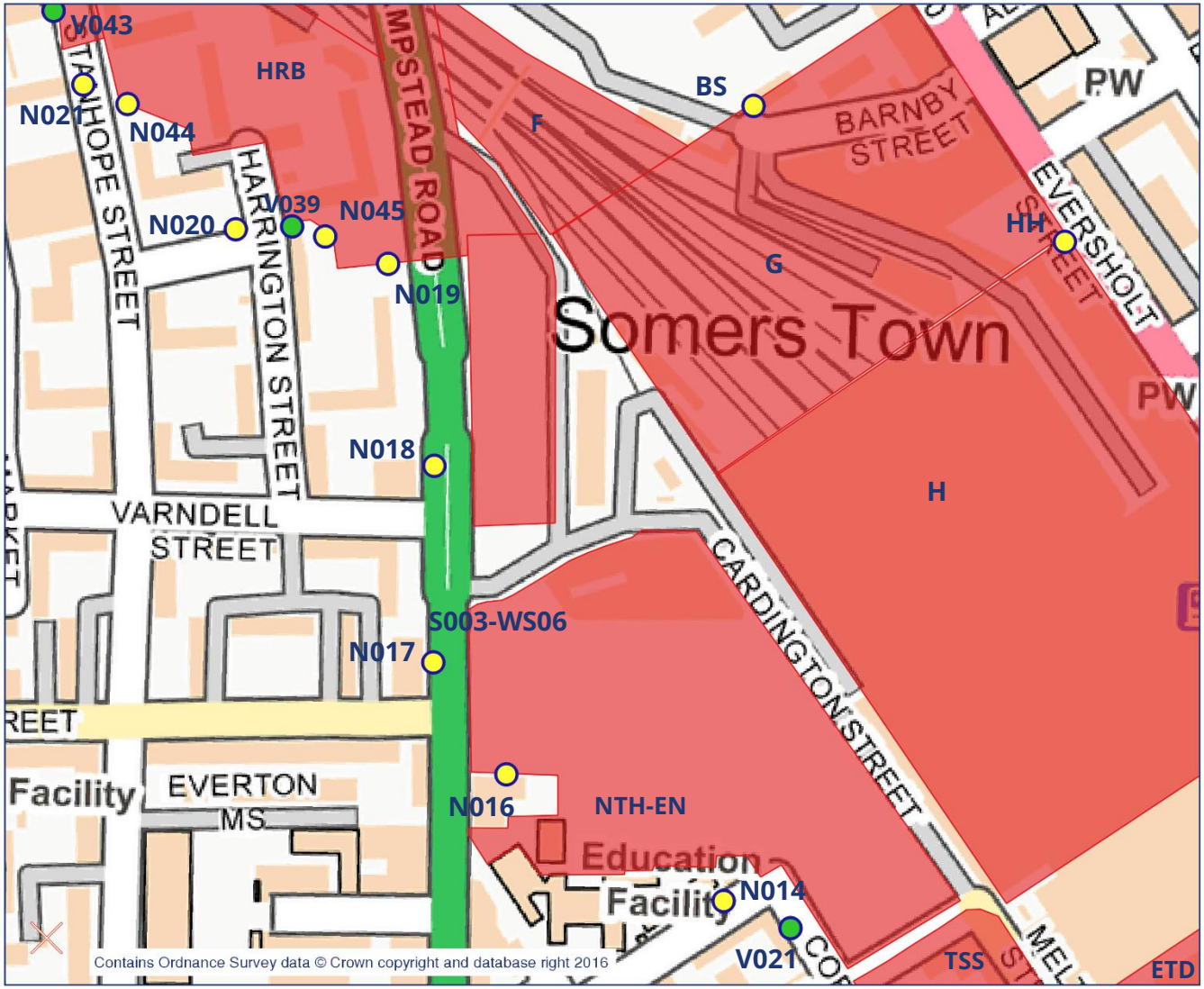
HS2

Noise and vibration monitoring plan - 3

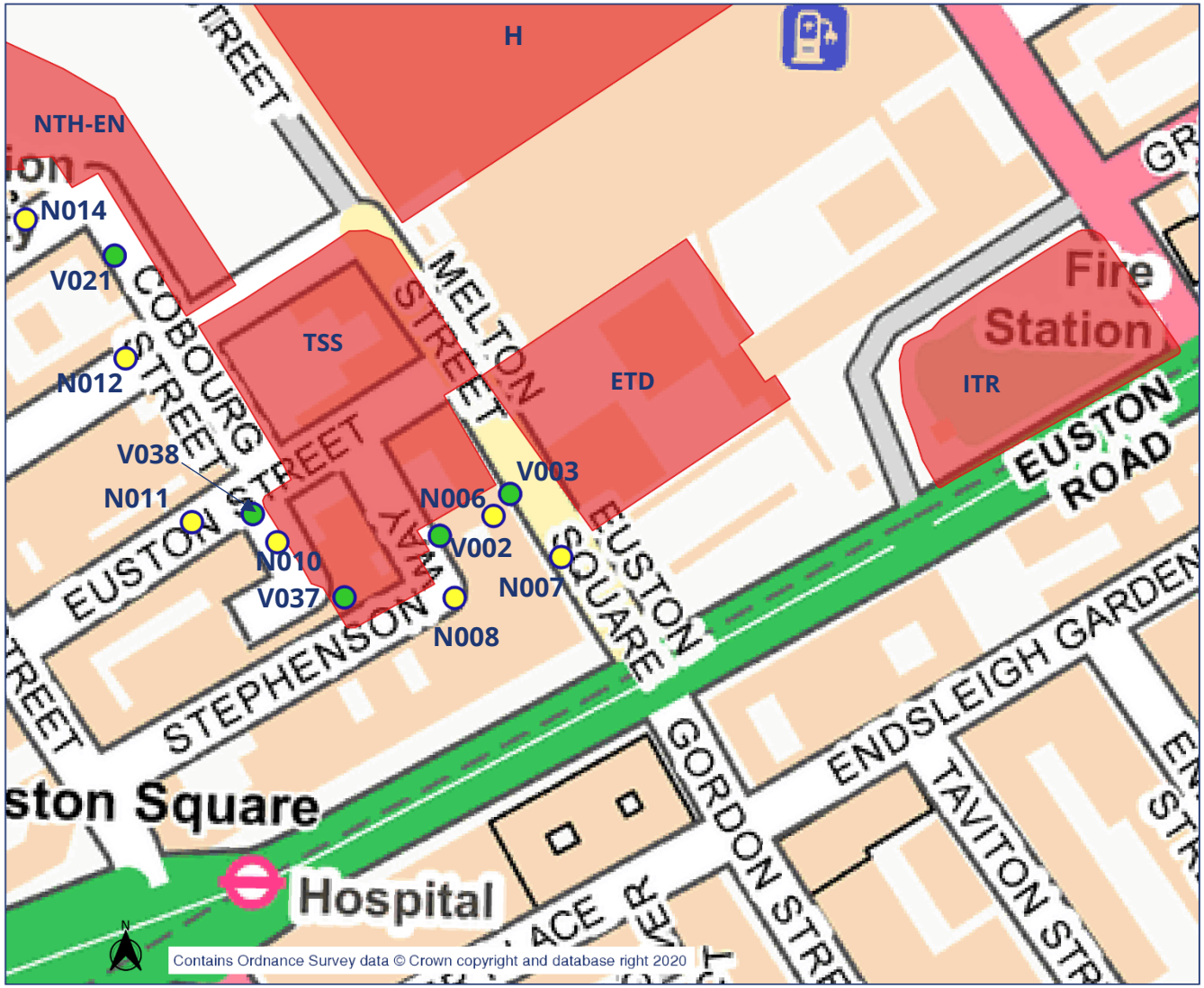


HS2

Noise monitoring plan - 4



Noise and vibration monitoring plan - 5



Legend

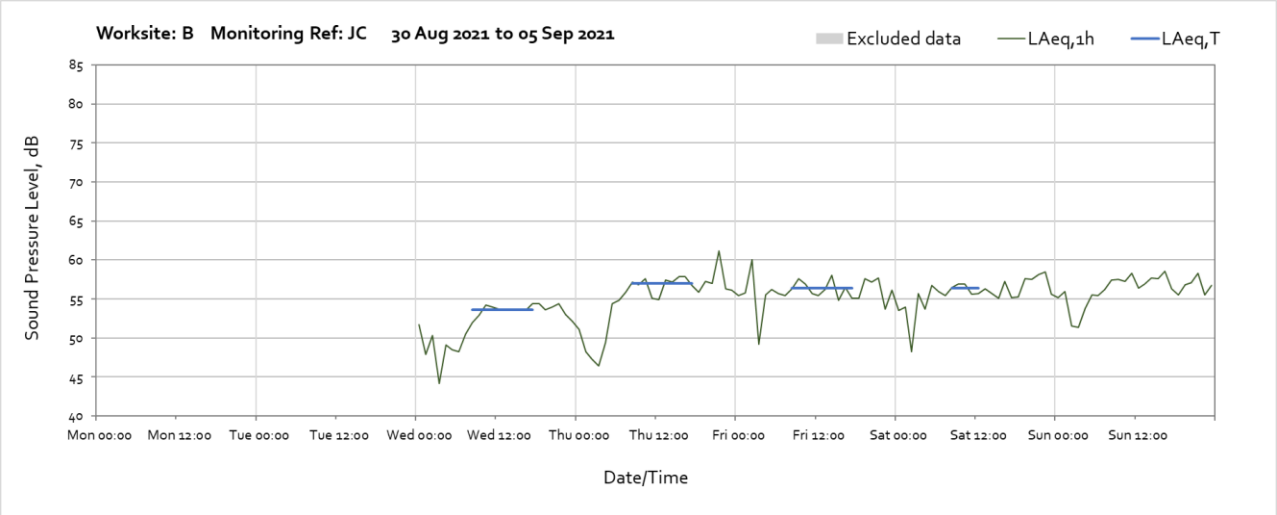
- Noise Monitor
- Vibration Monitor
- Active Worksites

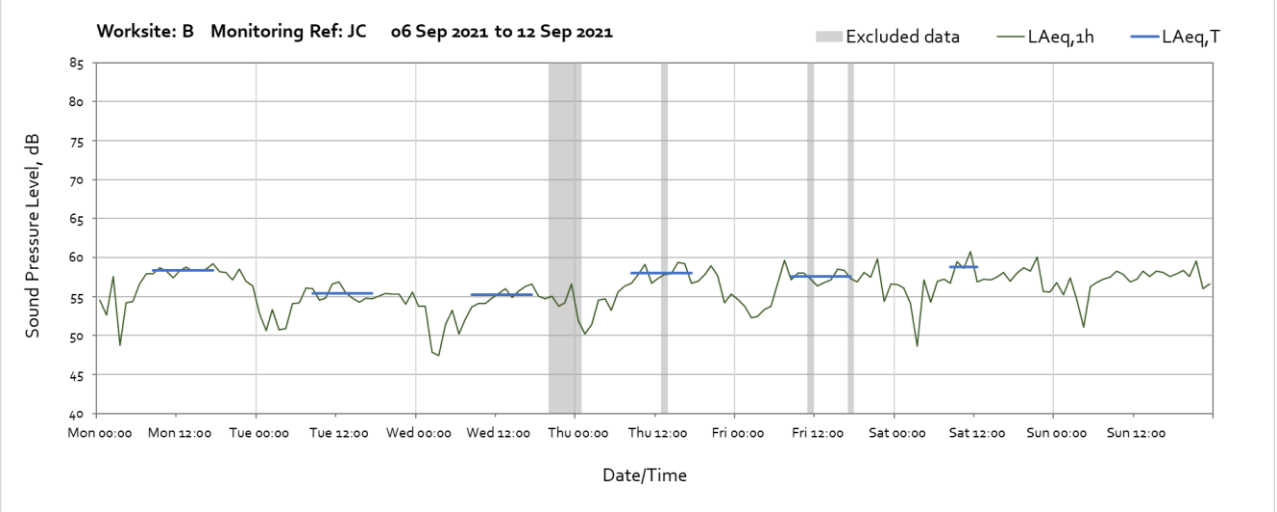
Appendix C Data

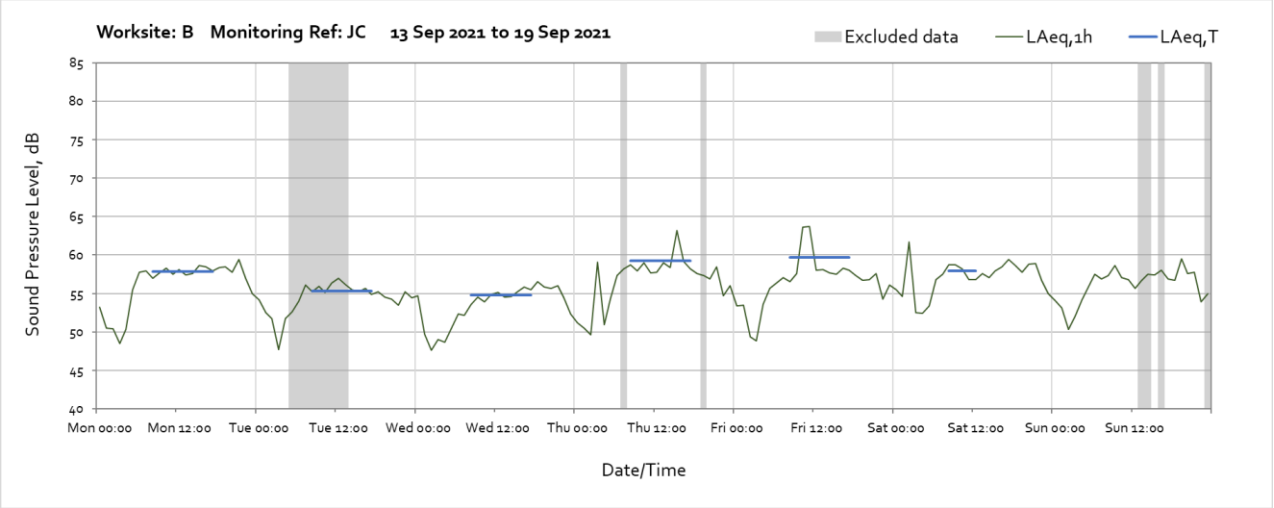
The following graphs show the hourly measured ambient noise level $L_{Aeq,1h}$ and, where relevant, the averaged noise level $L_{Aeq,T}$ values, where the time period T is as specified in Table 1 of HS2 Information Paper E23. Periods with adversely weather affected noise levels are greyed out and have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

Noise

Worksite: B – Monitoring Ref: JC



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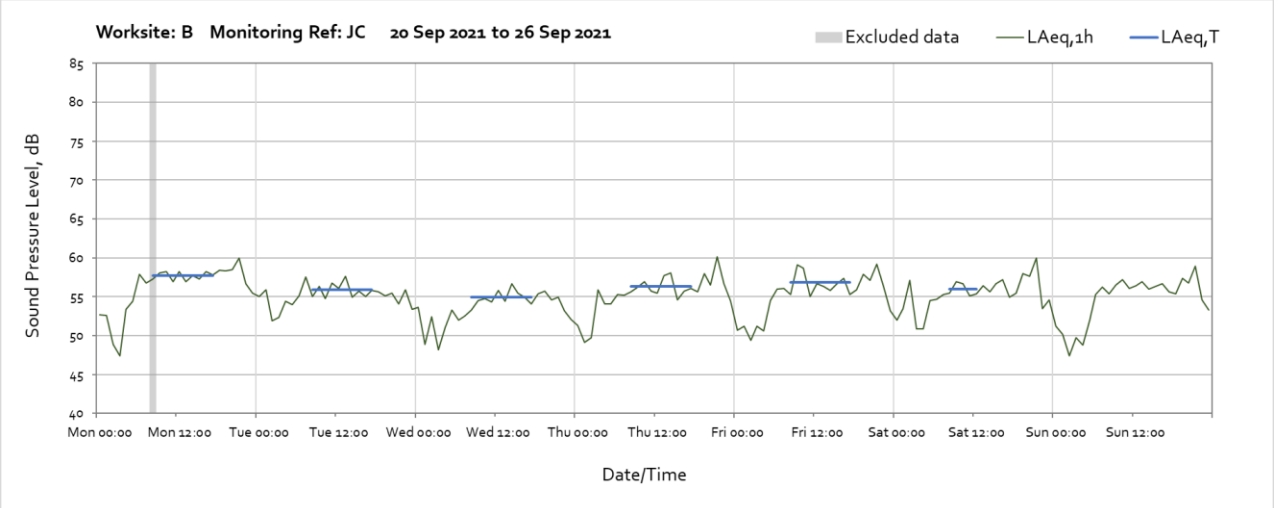
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time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LAeq,T
Sound Pressure Level, dB
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80
75
70
65
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Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
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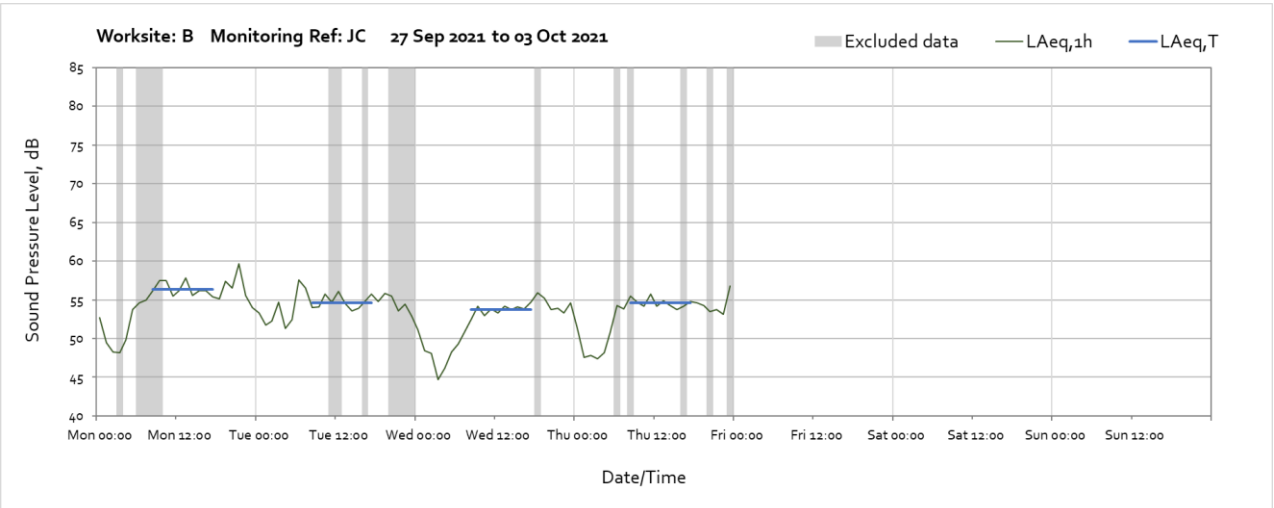
Sun 00:00
Sun 12:00
Date/Time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LAeq,1h
LAeq,T
Sound Pressure Level, dB
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80
75
70
65
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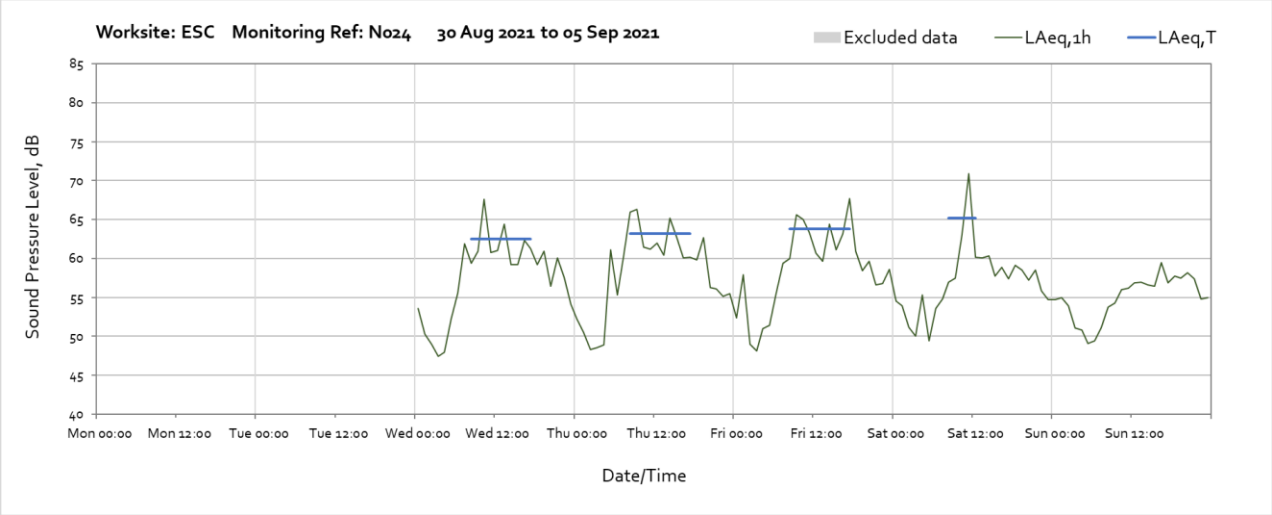
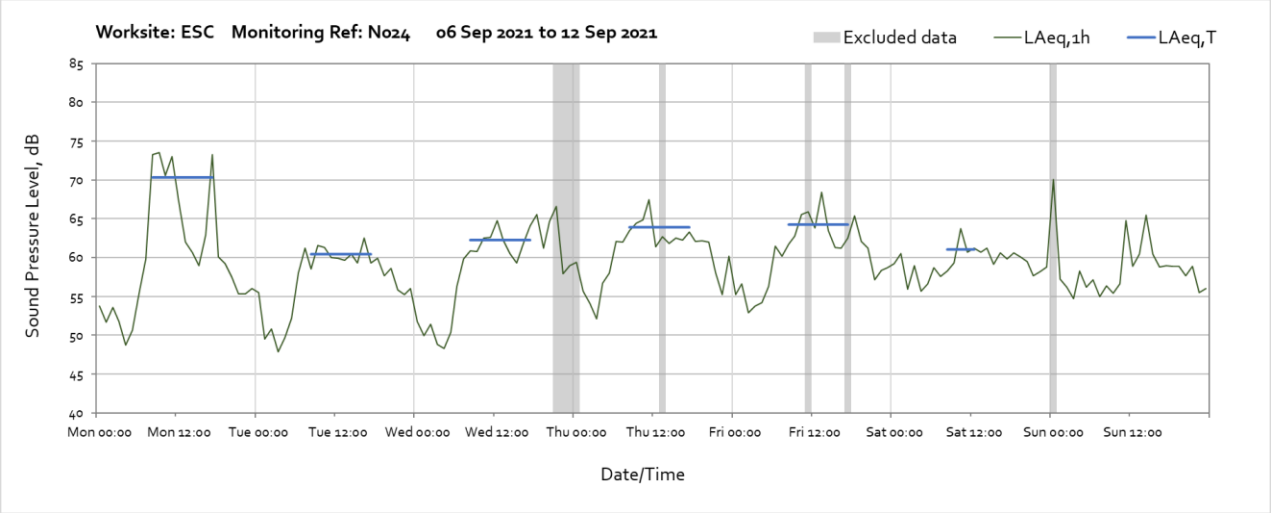
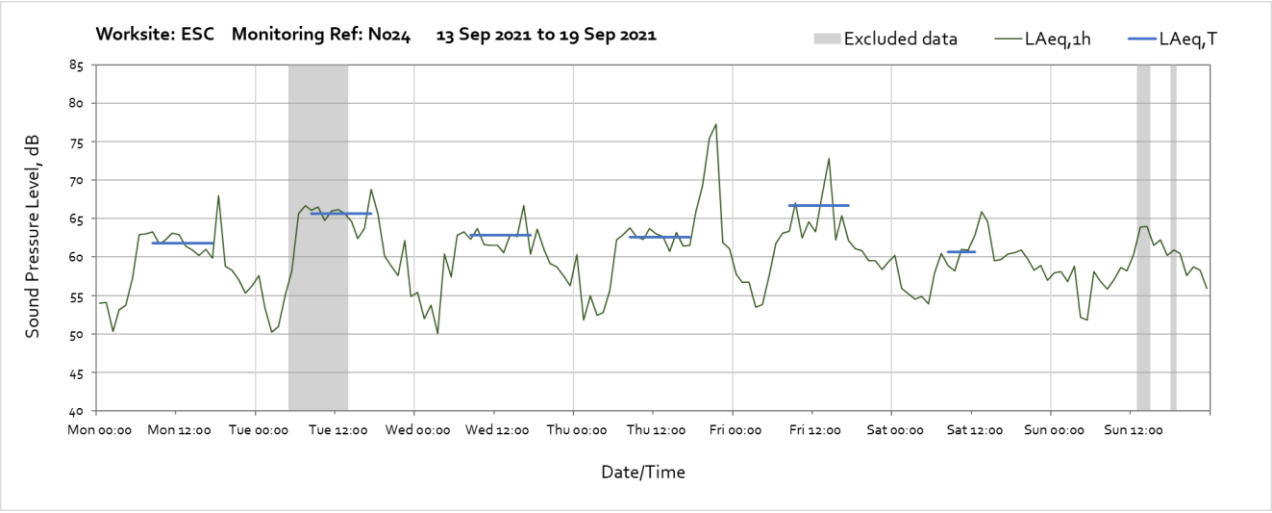
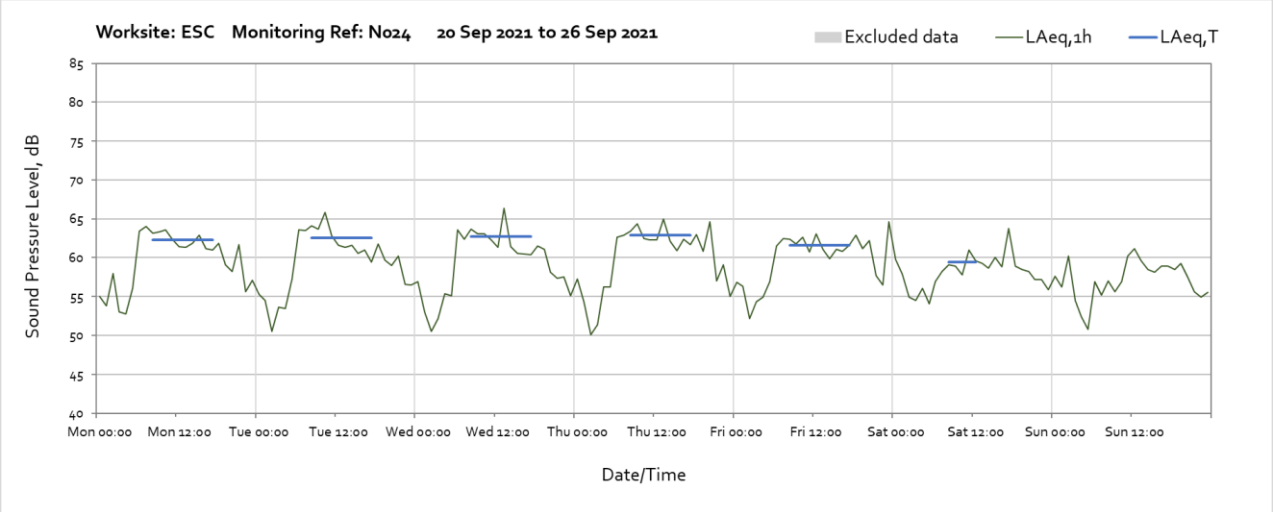
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Worksite: ESC – Monitoring Ref: N024

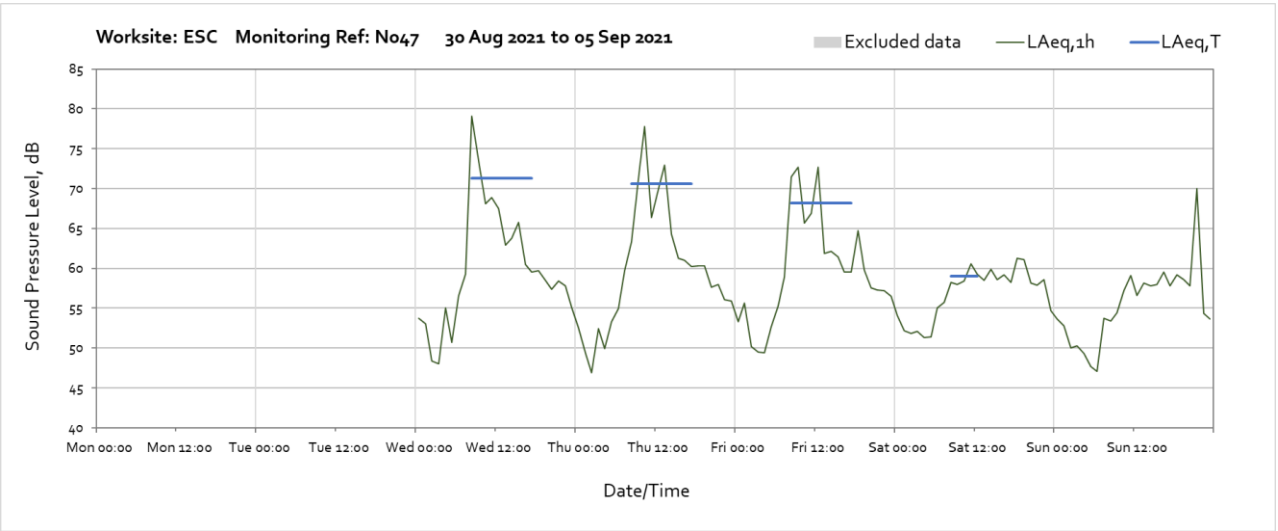


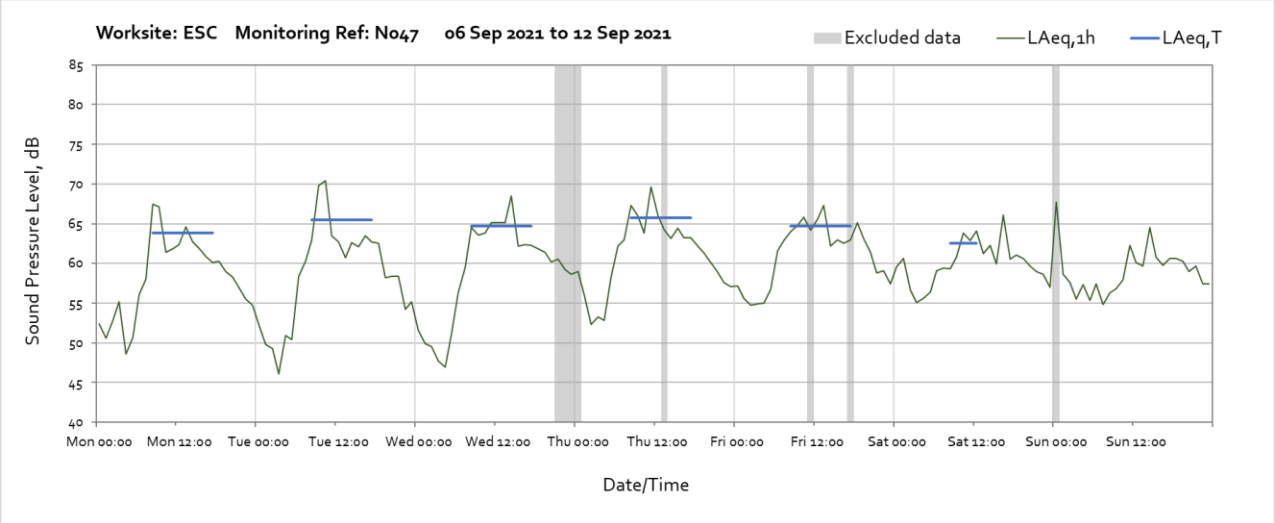






Worksite: ESC – Monitoring Ref: N047




Worksite: ESC Monitoring Ref: No47 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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80
75
70
65
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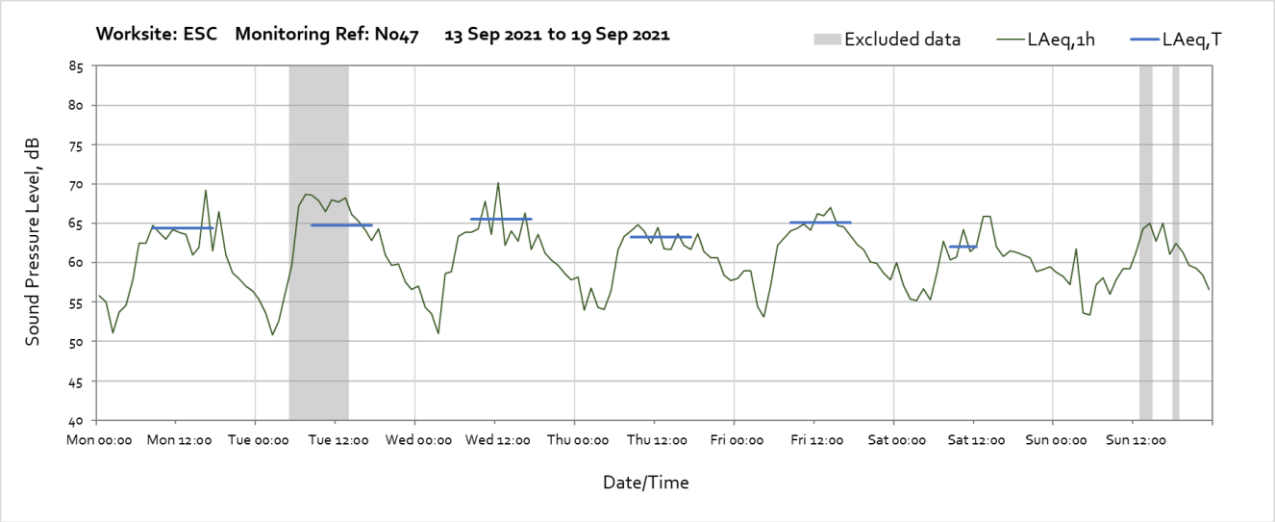
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: ESC Monitoring Ref: No47 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
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65
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55
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45
40
Mon 00:00
Mon 12:00
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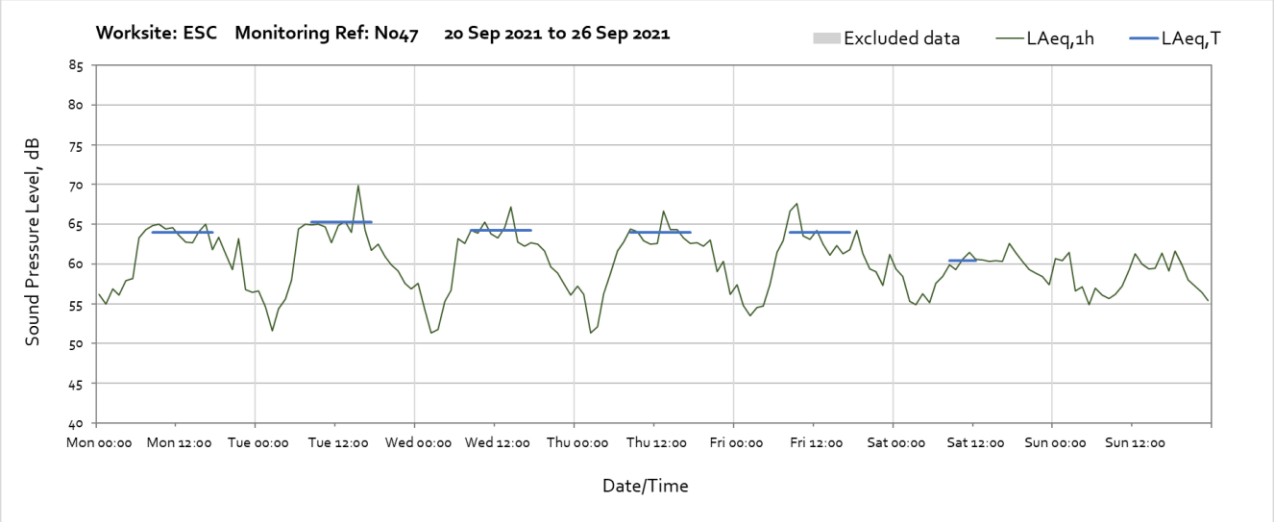
Date/Time


Worksite: ESC Monitoring Ref: No47 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
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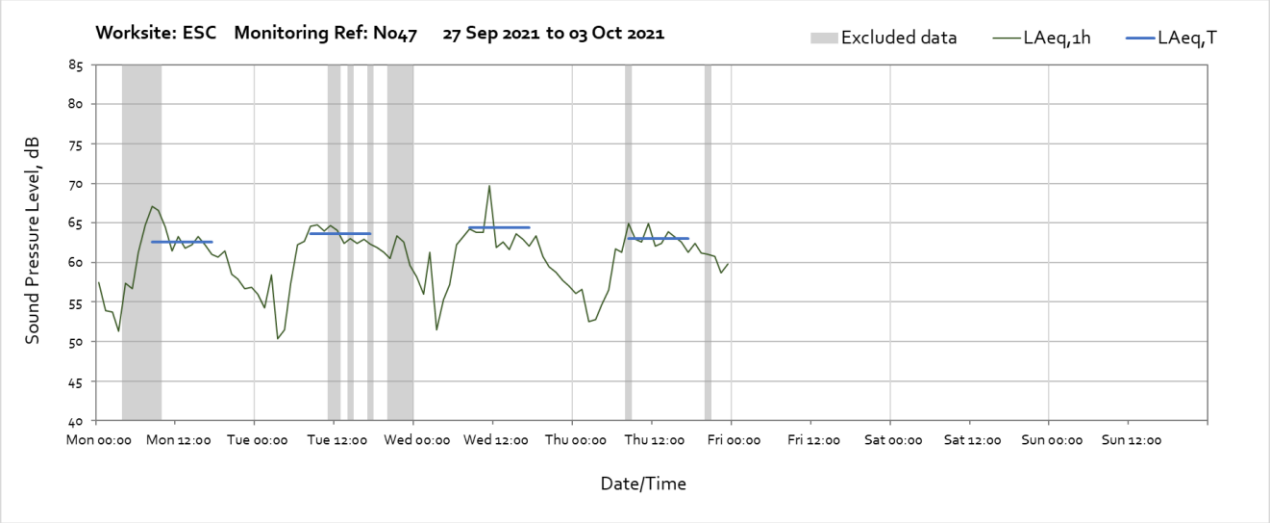
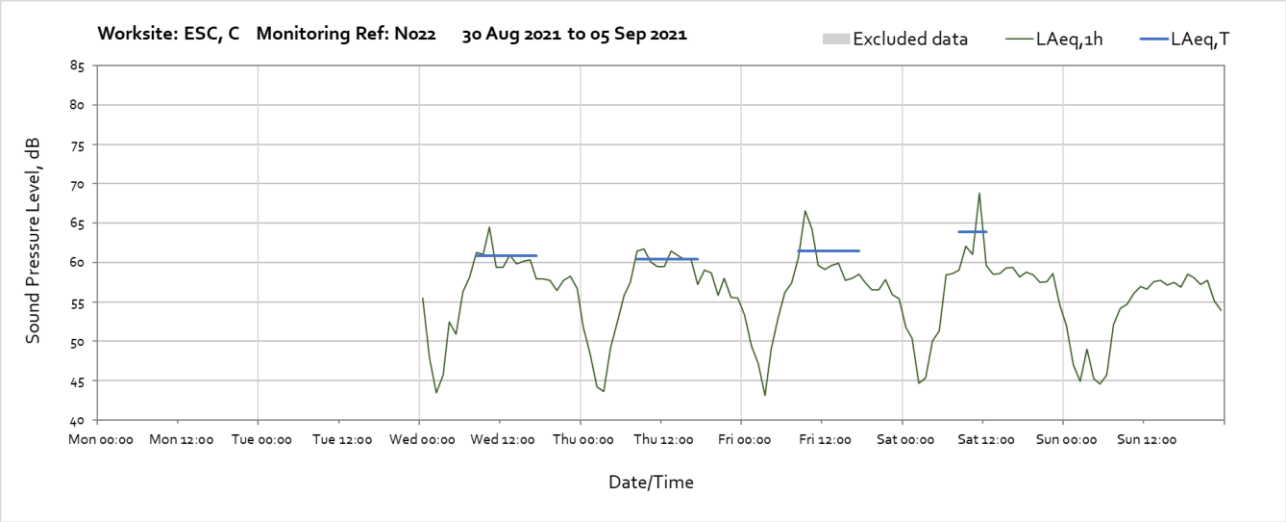
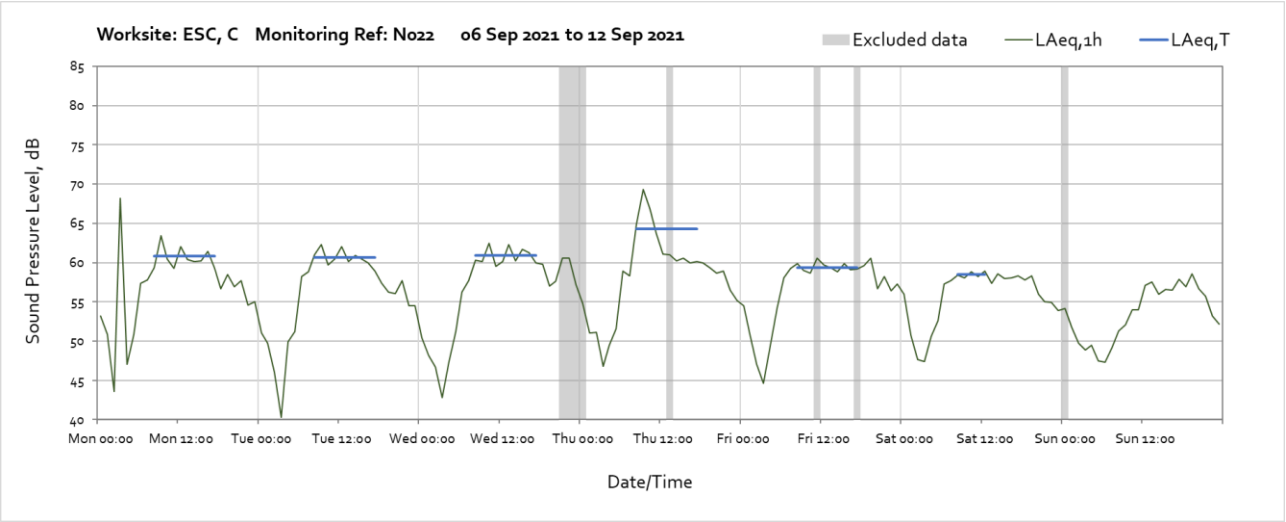
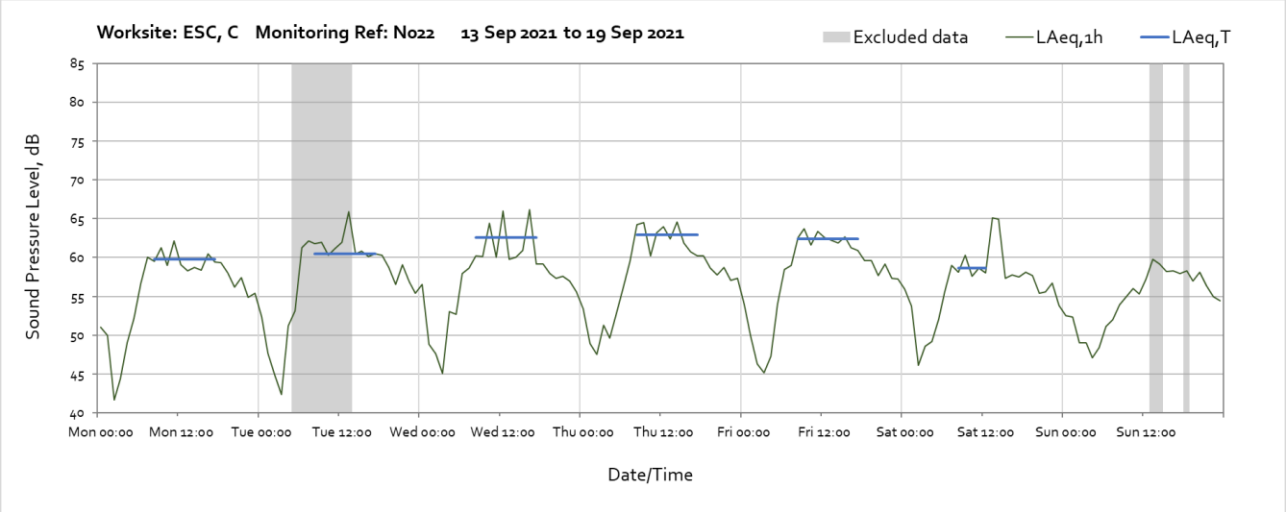
Date/Time



Worksite: ESC, C – Monitoring Ref: N022






Worksite: ESC, C Monitoring Ref: No22 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
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55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
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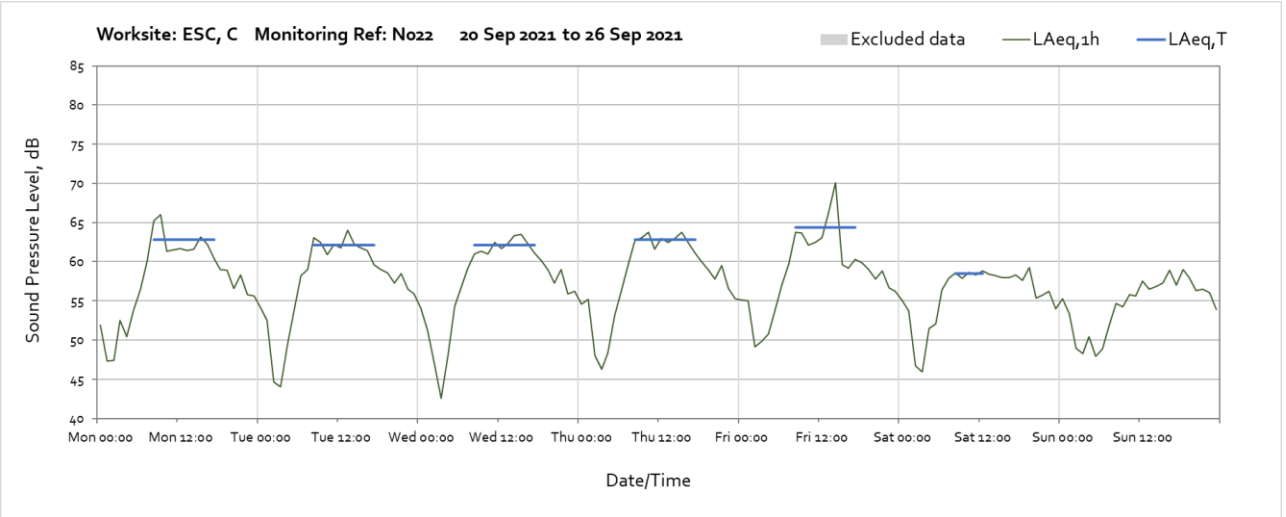
Date/Time


Worksite: ESC, C Monitoring Ref: No22 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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45
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Mon 00:00
Mon 12:00
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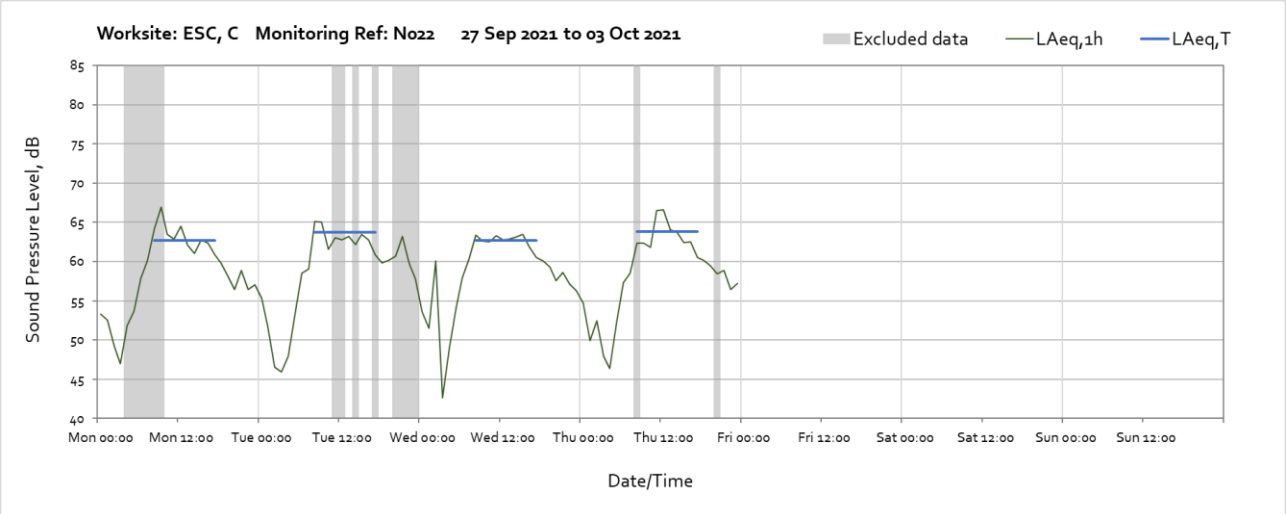
Date/Time


Worksite: ESC, C Monitoring Ref: No22 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
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60
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Mon 00:00
Mon 12:00
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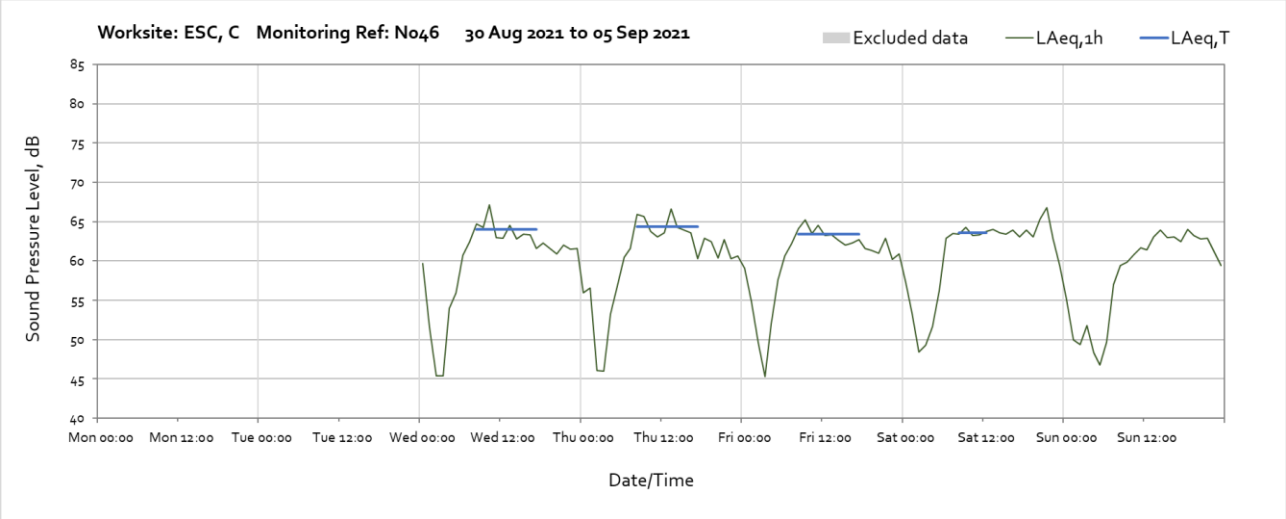
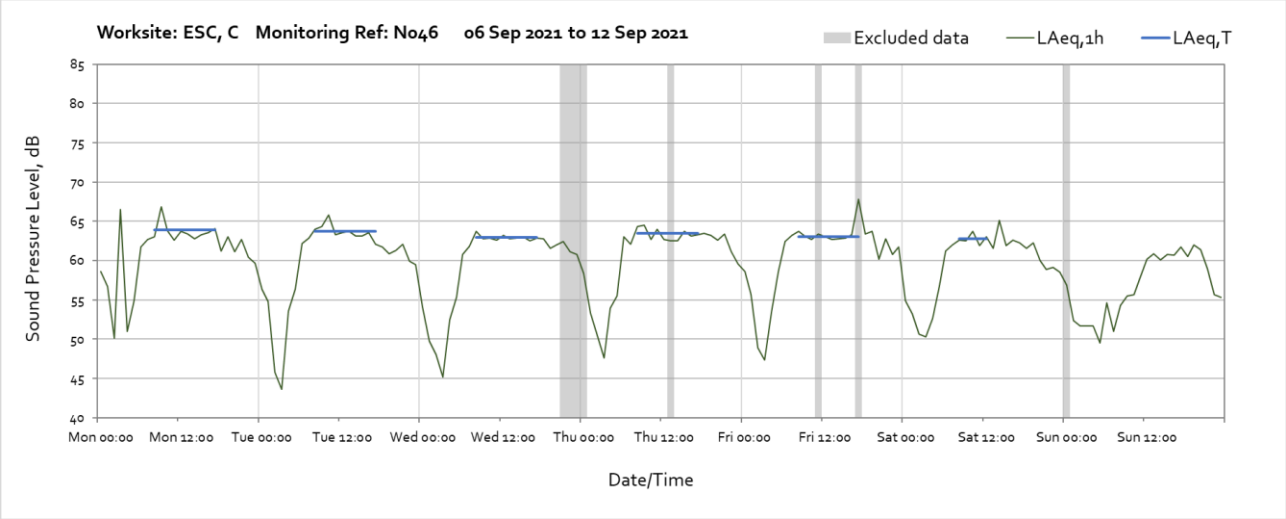
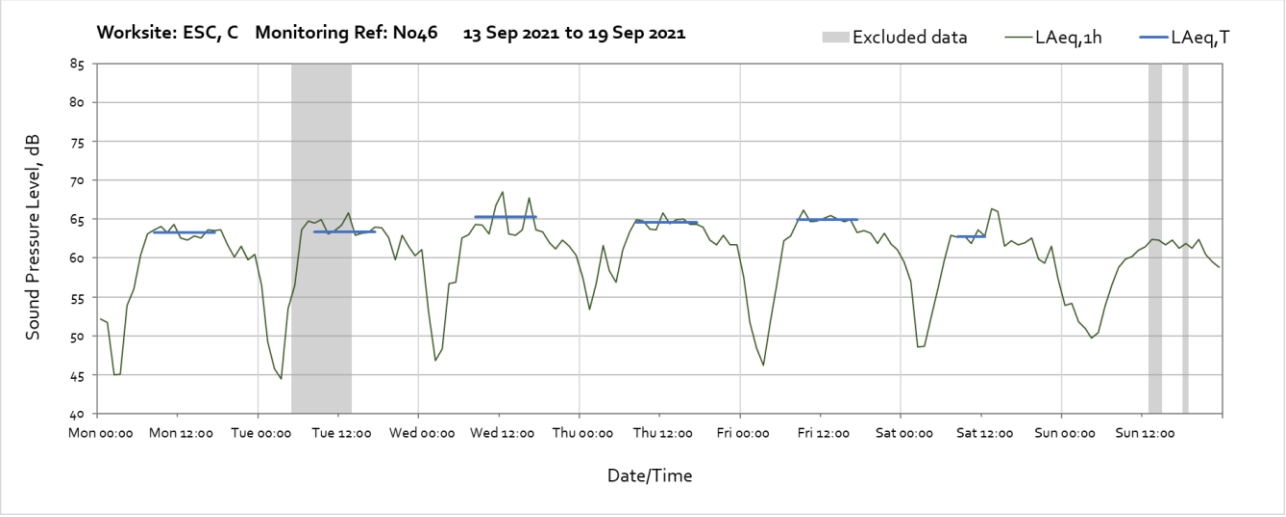
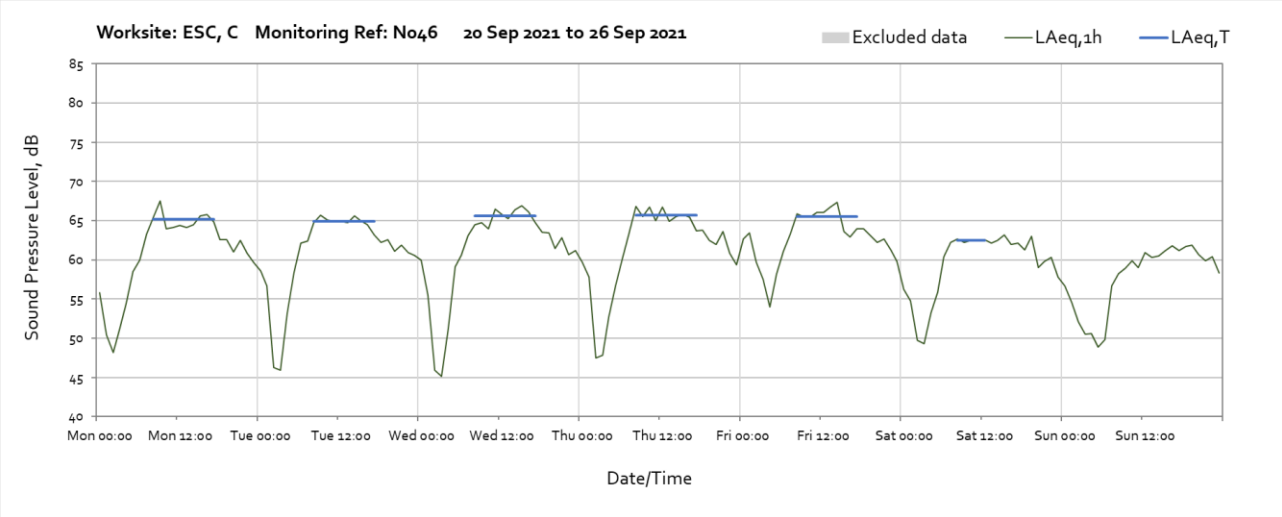
Sun 12:00
Date/Time

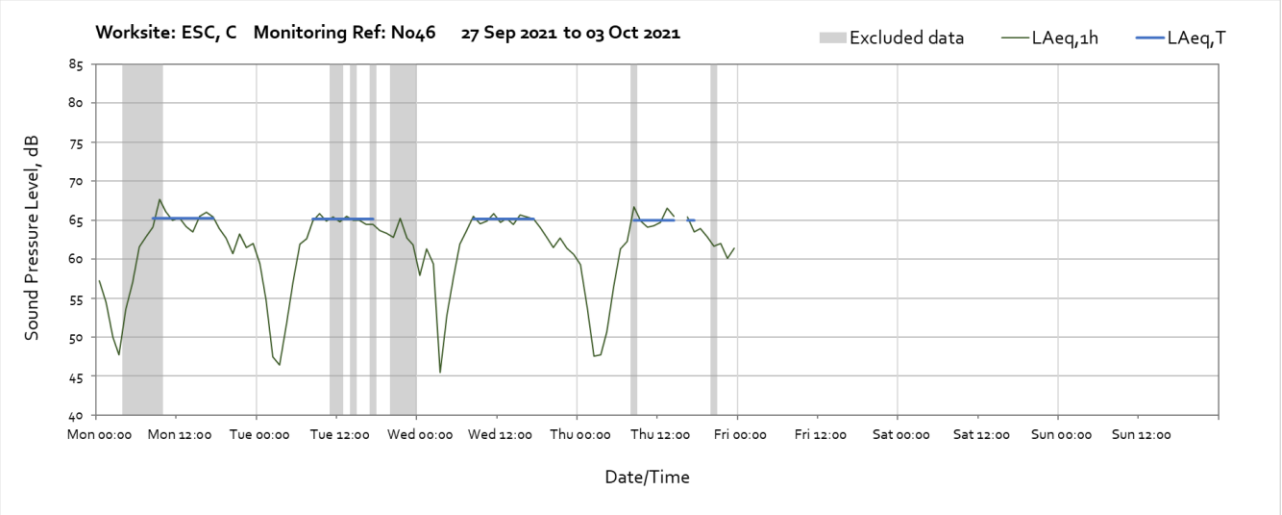
Worksite: ESC, C – Monitoring Ref: N046





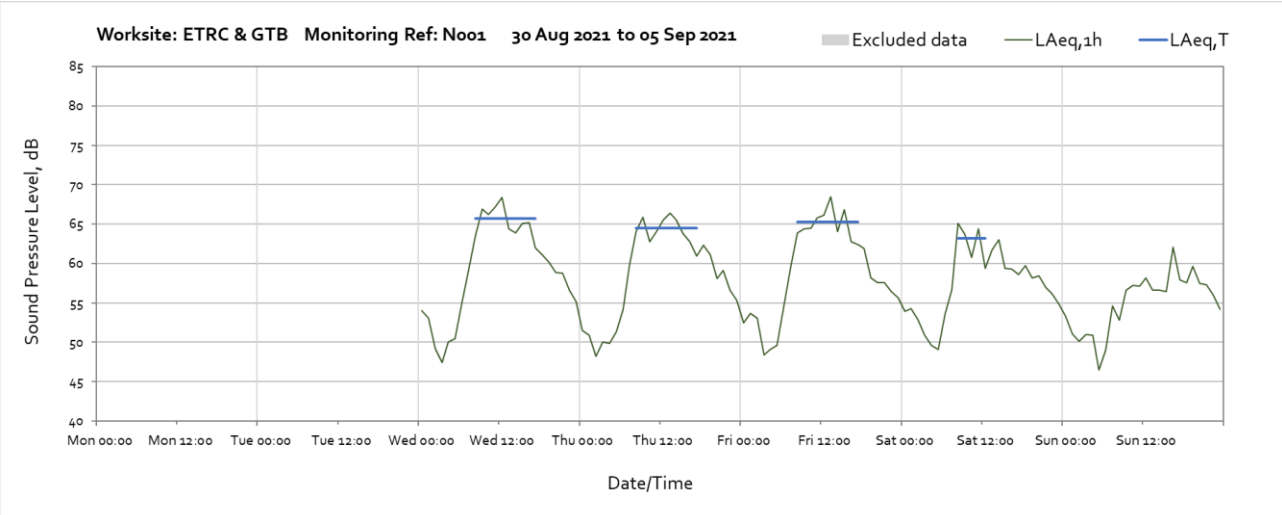


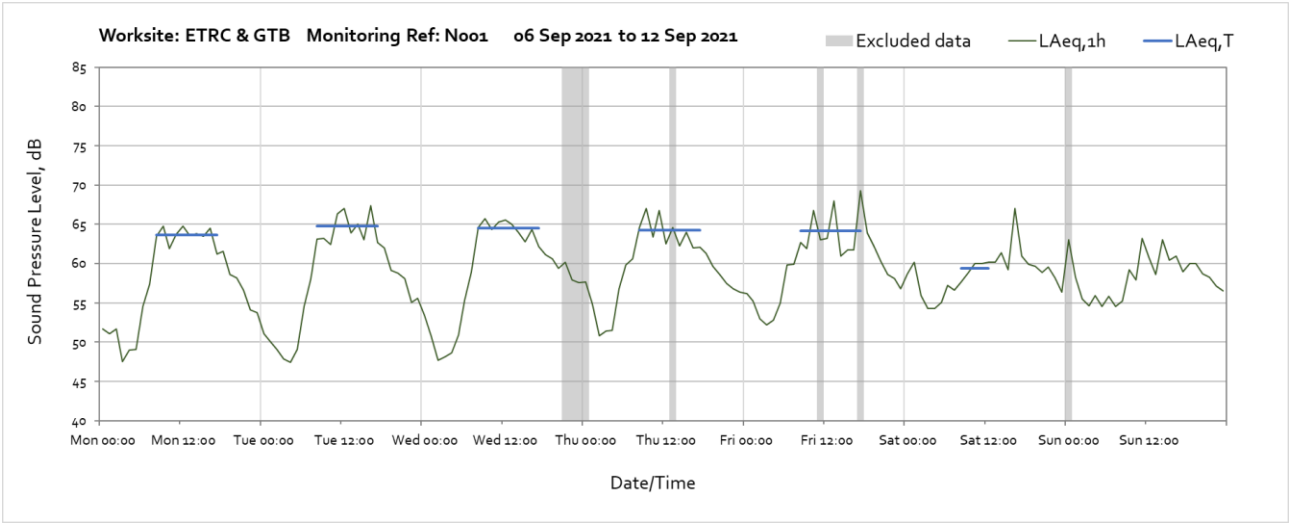




Note: Missing data from 15:00 until 16:00 on Thursday 30th September was due to a memory card error. The memory card has been reformatted with view of avoiding further loss of data.

Worksite: ETRC & GTB – Monitoring Ref: N001




Worksite: ETRC & GTB Monitoring Ref: No01 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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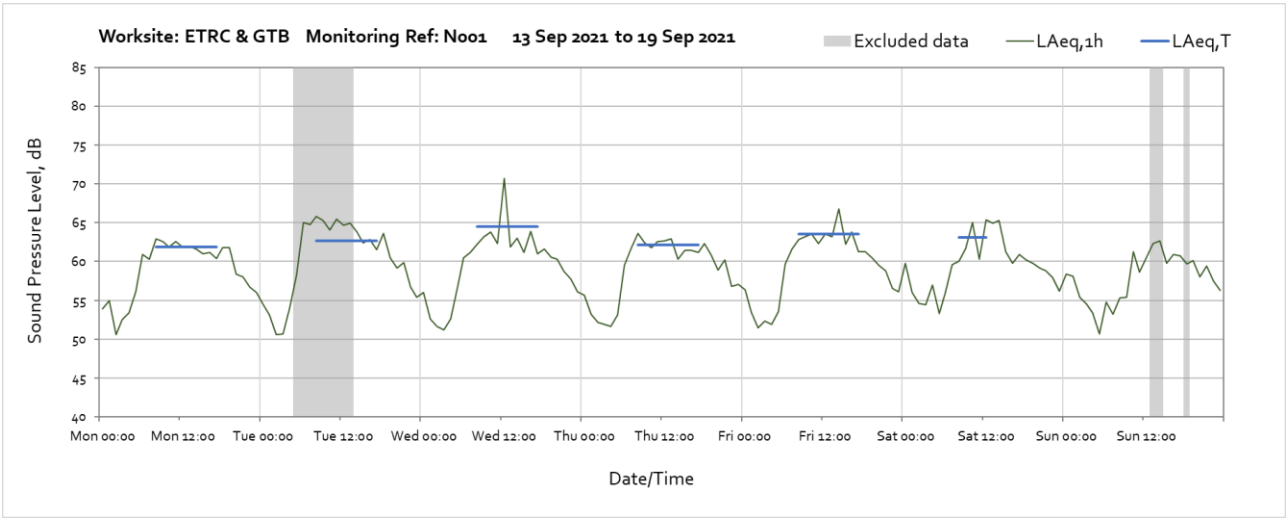
Sun 12:00
Date/Time


Worksite: ETRC & GTB Monitoring Ref: No01 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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65
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Mon 00:00
Mon 12:00
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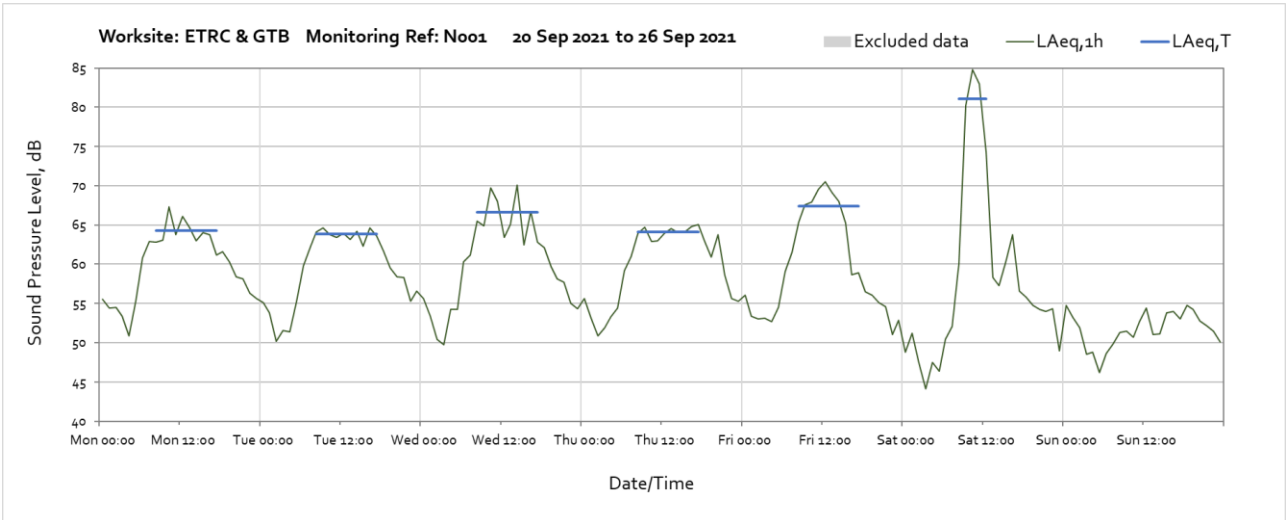
Date/Time


Worksite: ETRC & GTB Monitoring Ref: No01 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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65
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Mon 00:00
Mon 12:00
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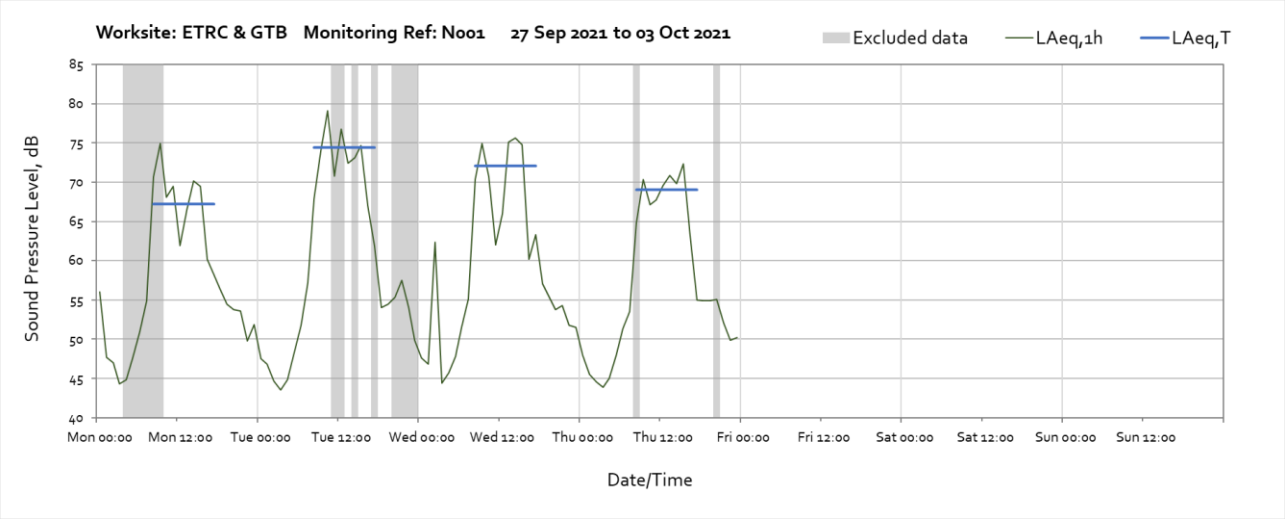
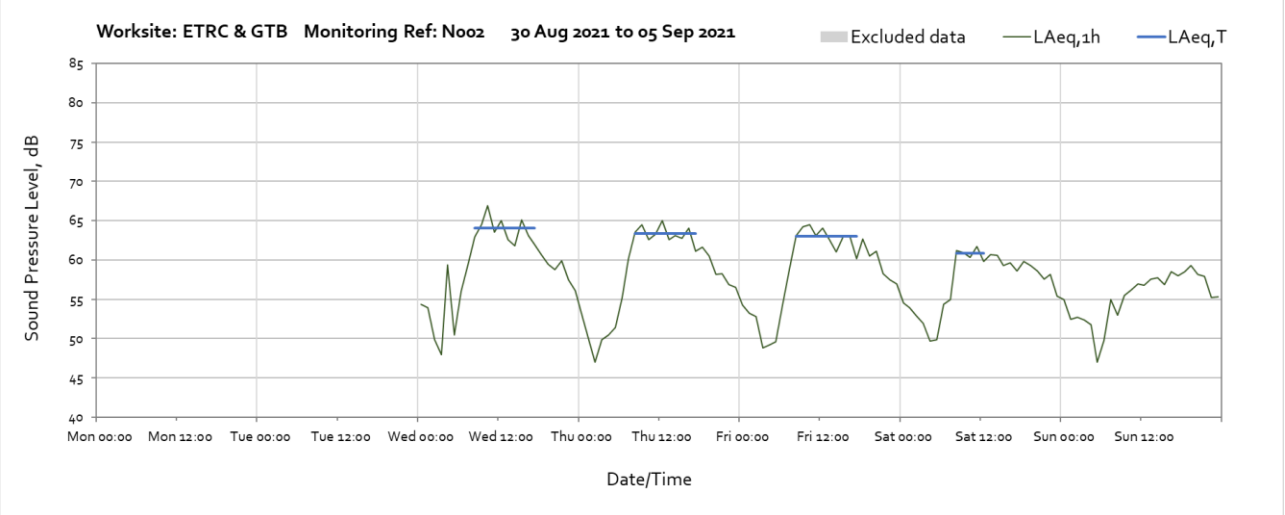
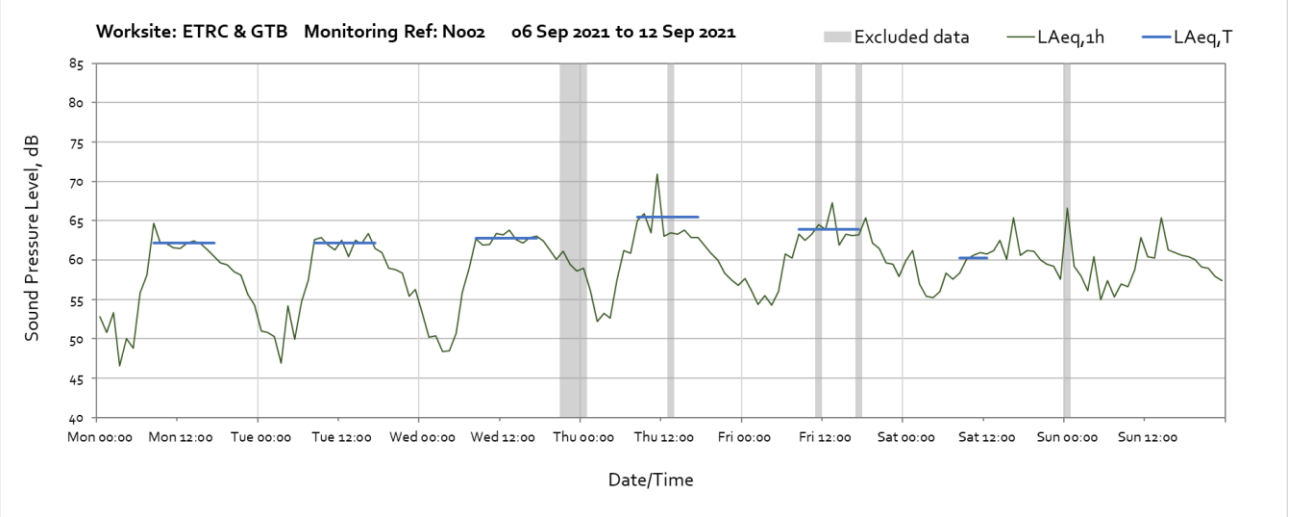
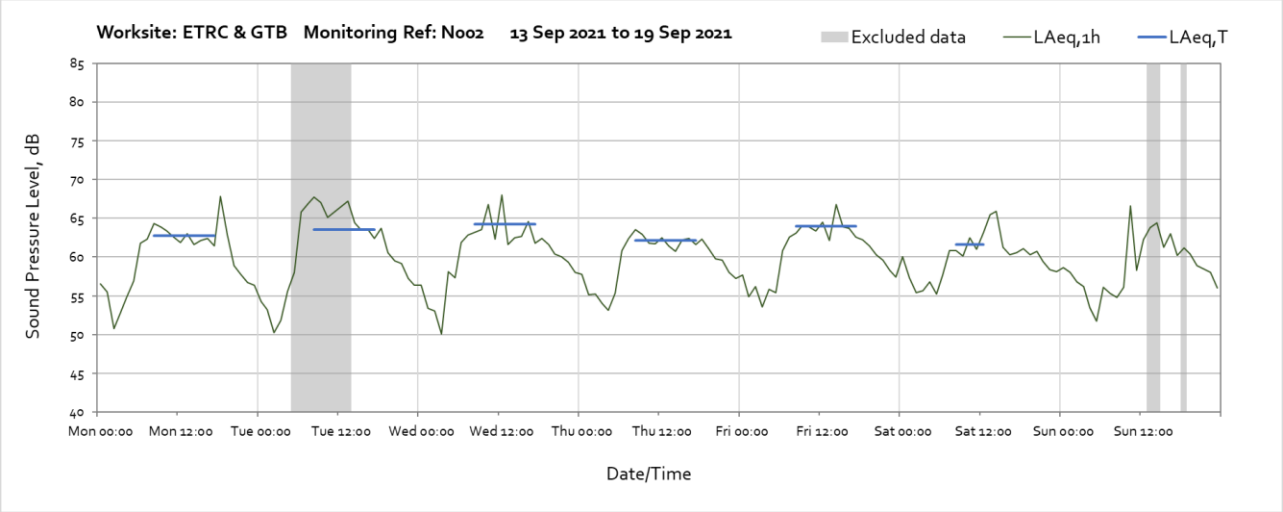
Date/Time



Worksite: ETRC & GTB – Monitoring Ref: N002






Worksite: ETRC & GTB Monitoring Ref: N002 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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60
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40
Mon 00:00
Mon 12:00
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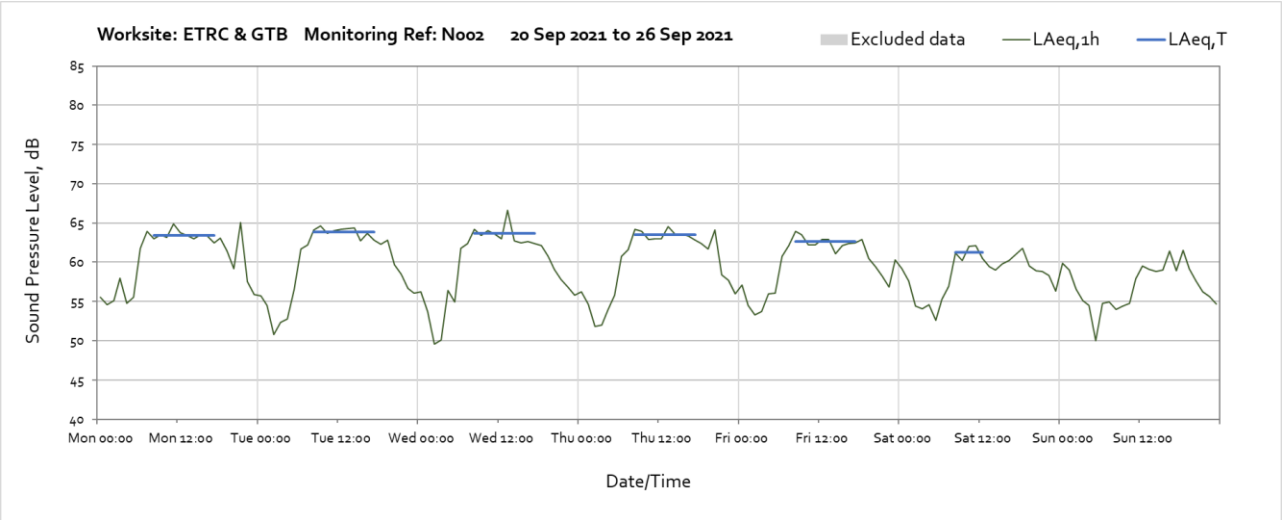
Date/Time


Worksite: ETRC & GTB Monitoring Ref: N002 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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70
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60
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Mon 00:00
Mon 12:00
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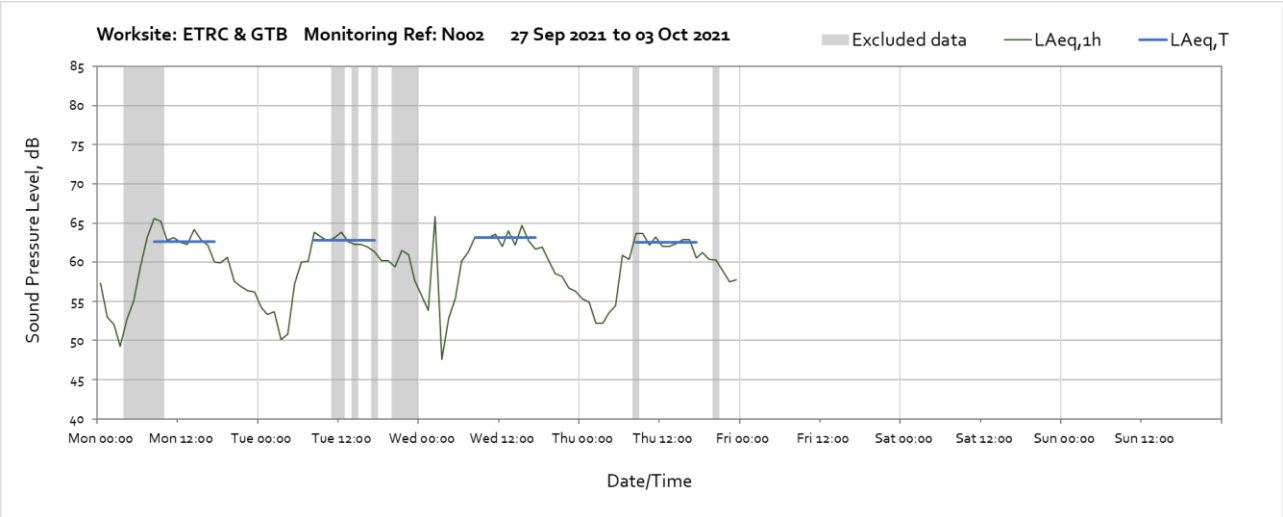
Sun 12:00
Date/Time


Worksite: ETRC & GTB Monitoring Ref: N002 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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70
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60
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Mon 12:00
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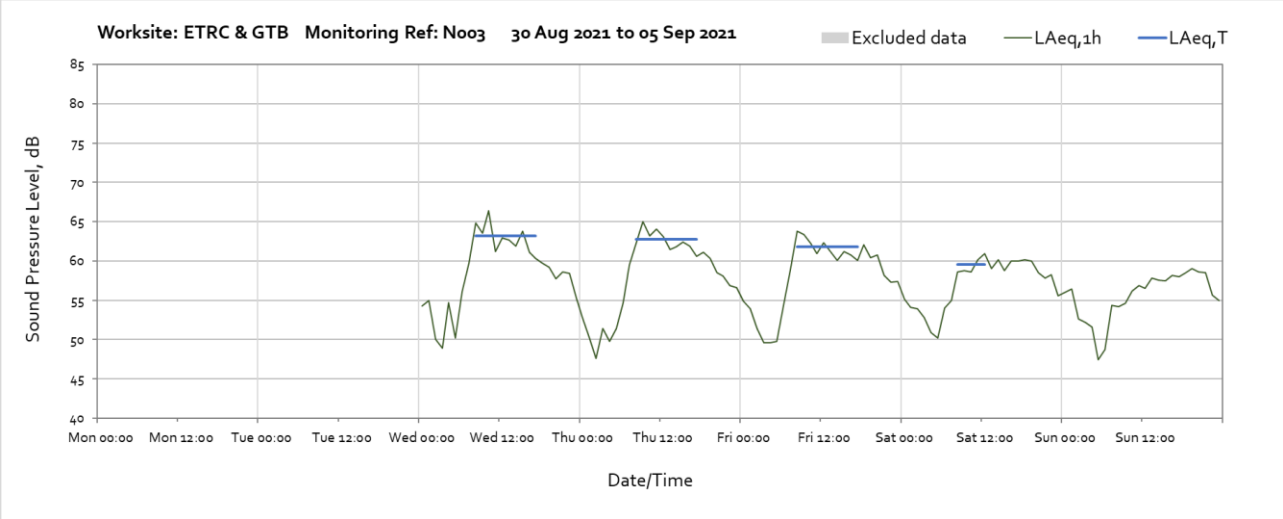
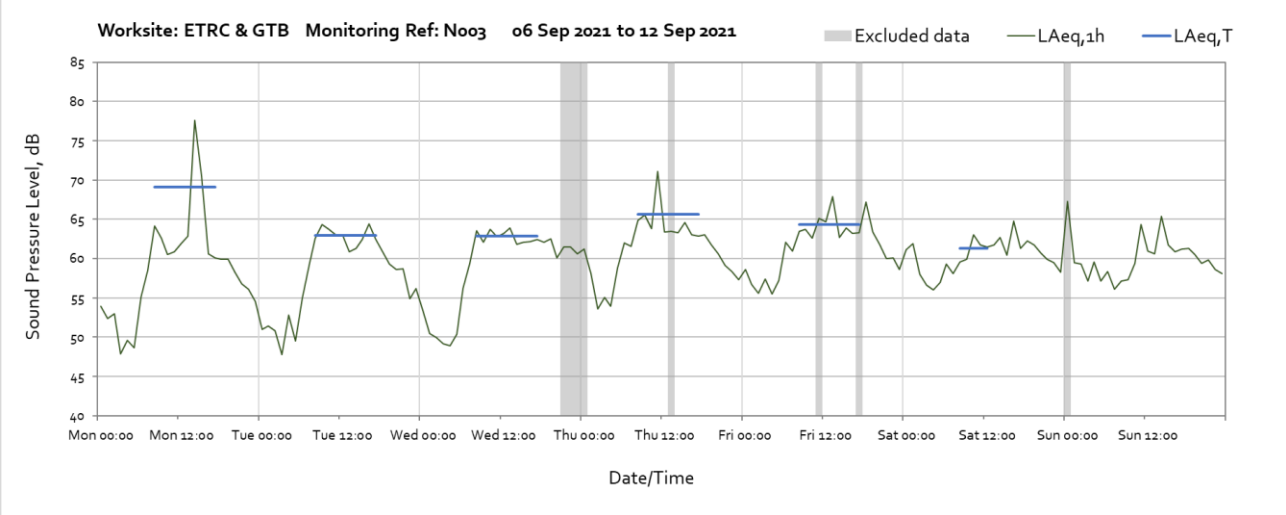
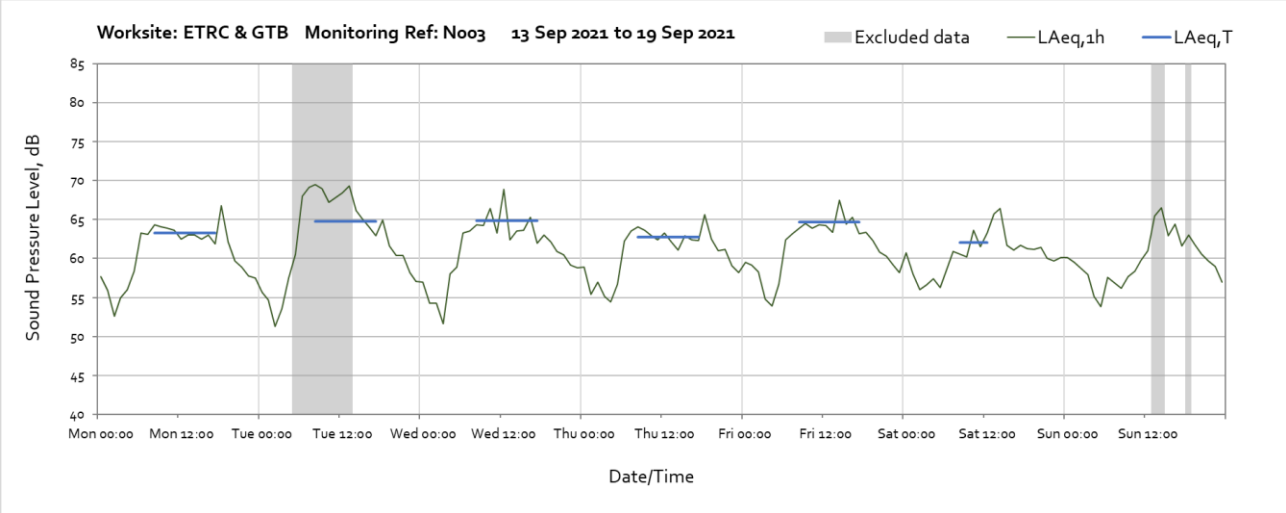
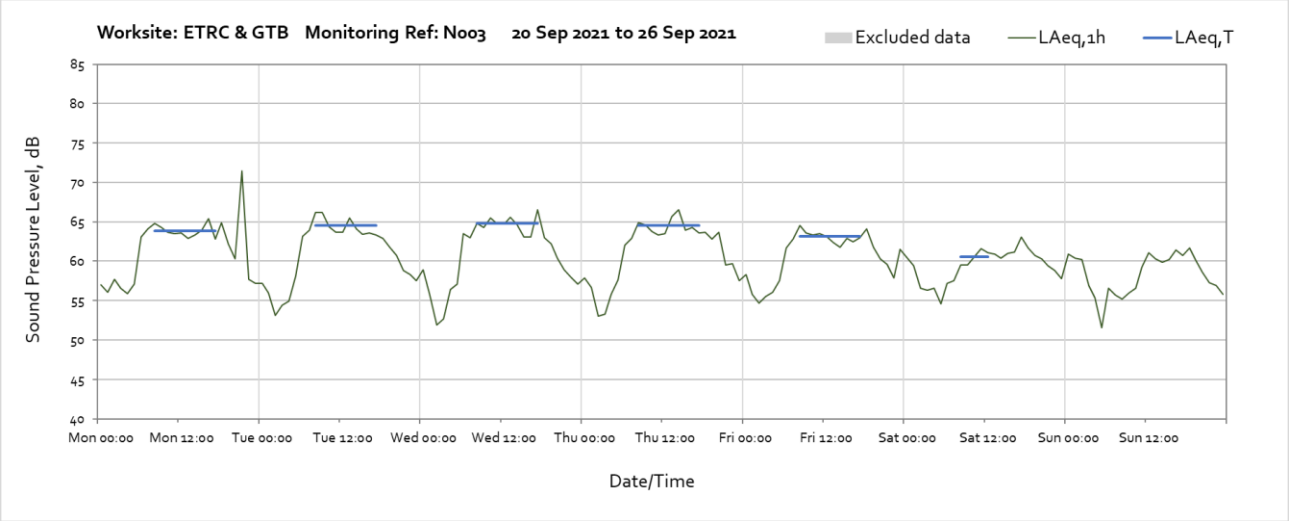
Sun 12:00
Date/Time

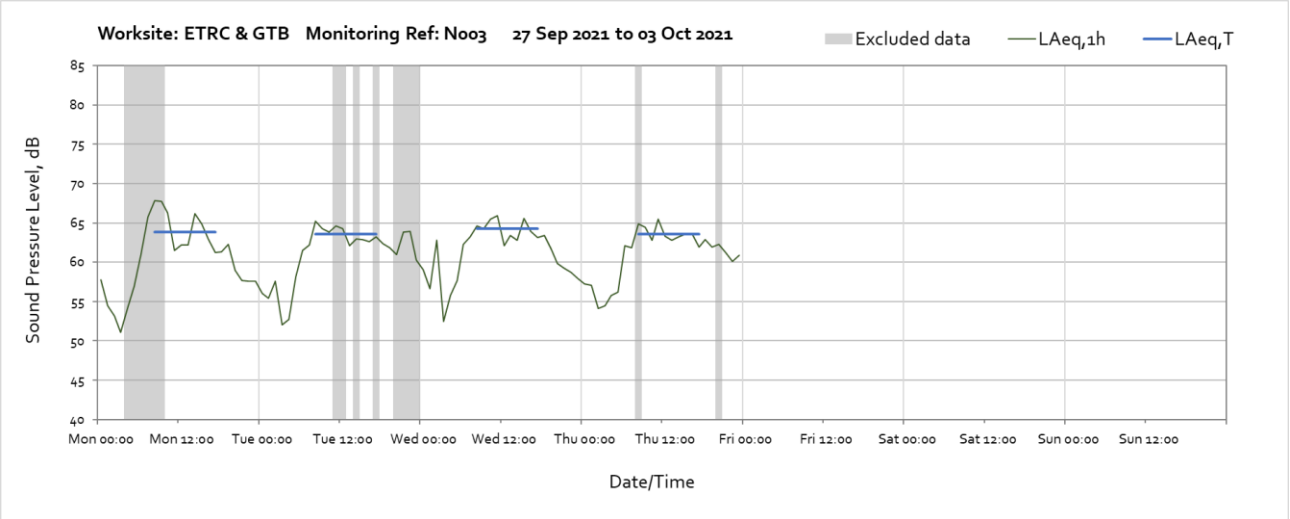
Worksite: ETRC & GTB – Monitoring Ref: N003



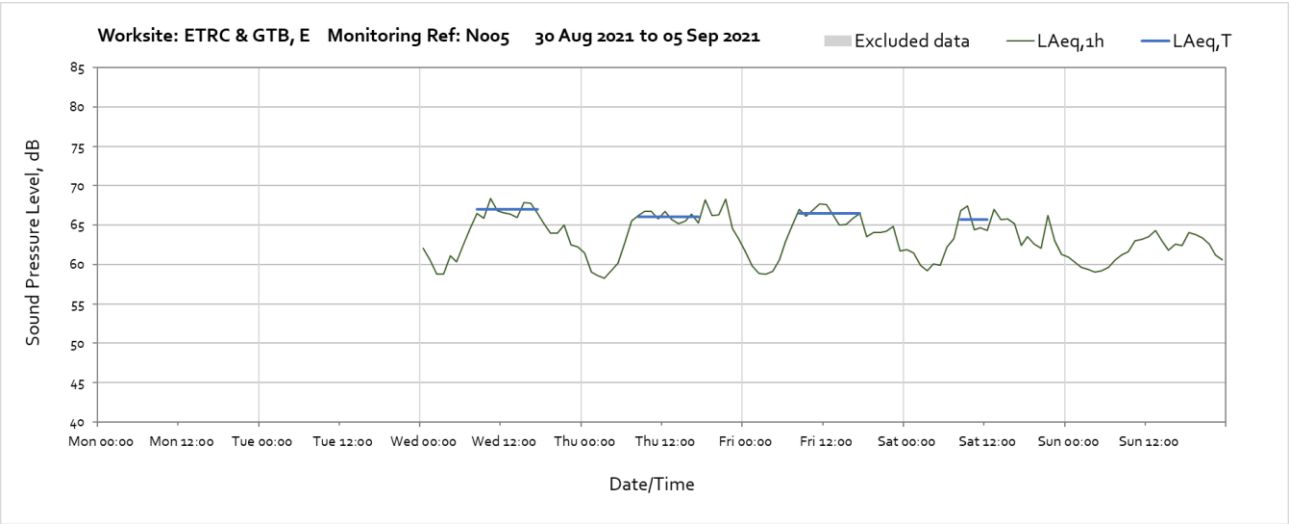


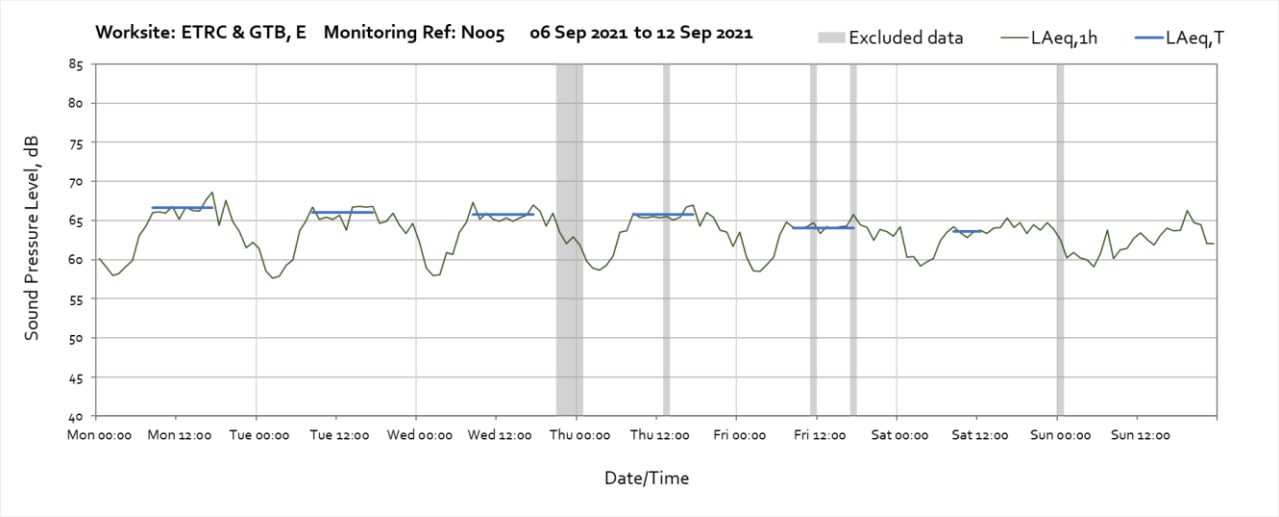


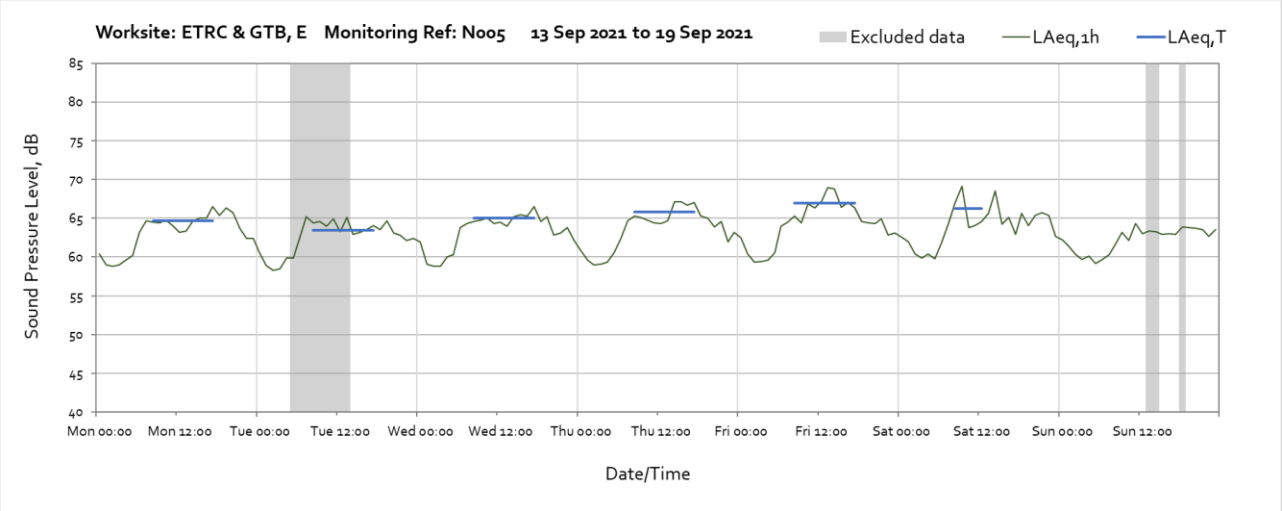


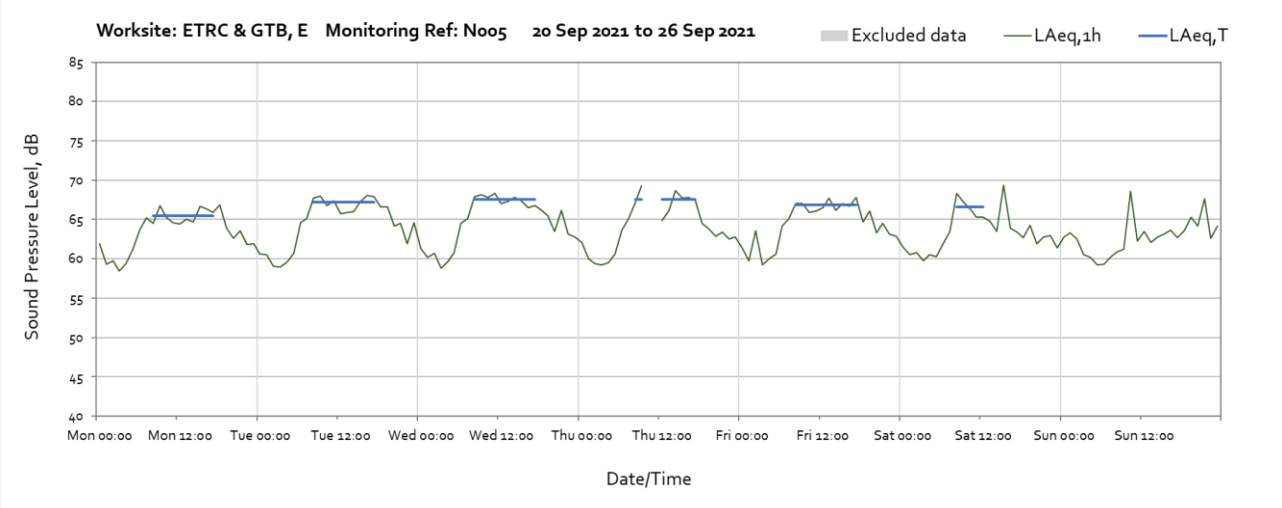


Worksite: ETRC & GTB, E – Monitoring Ref: N005

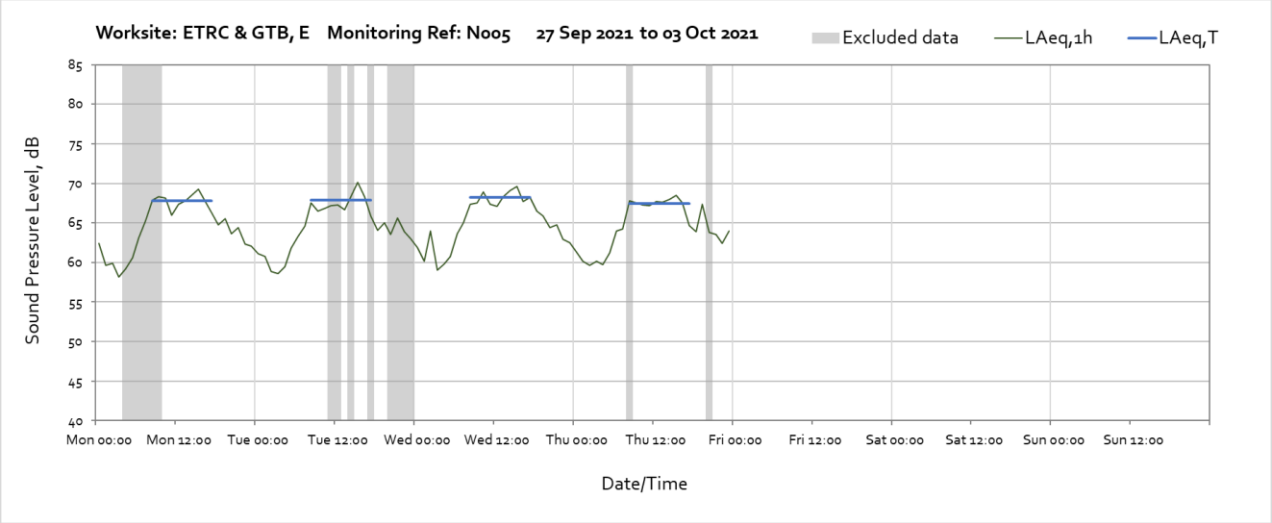




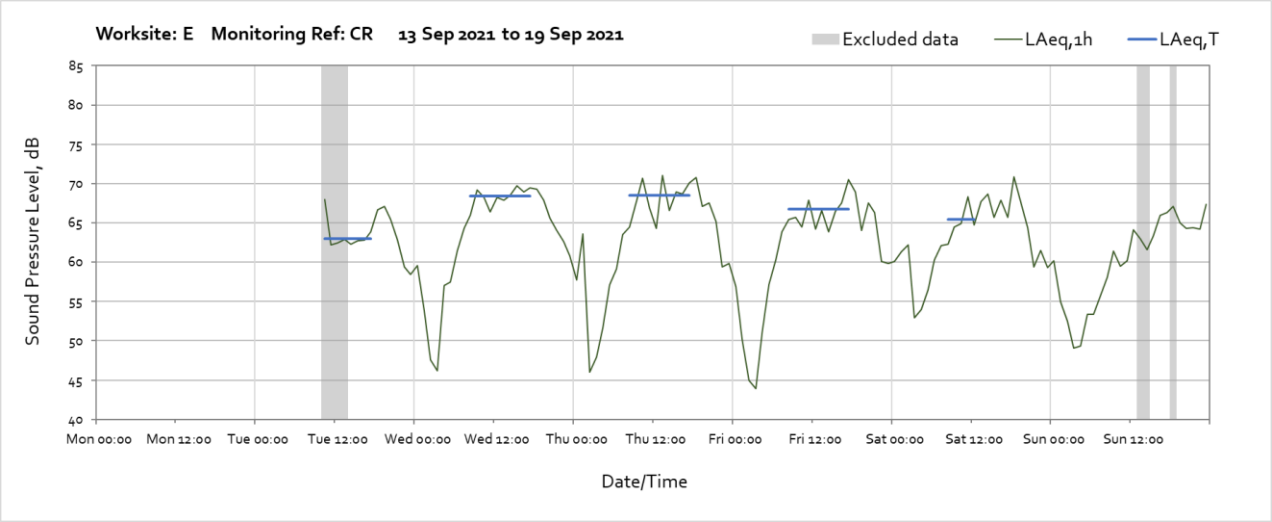




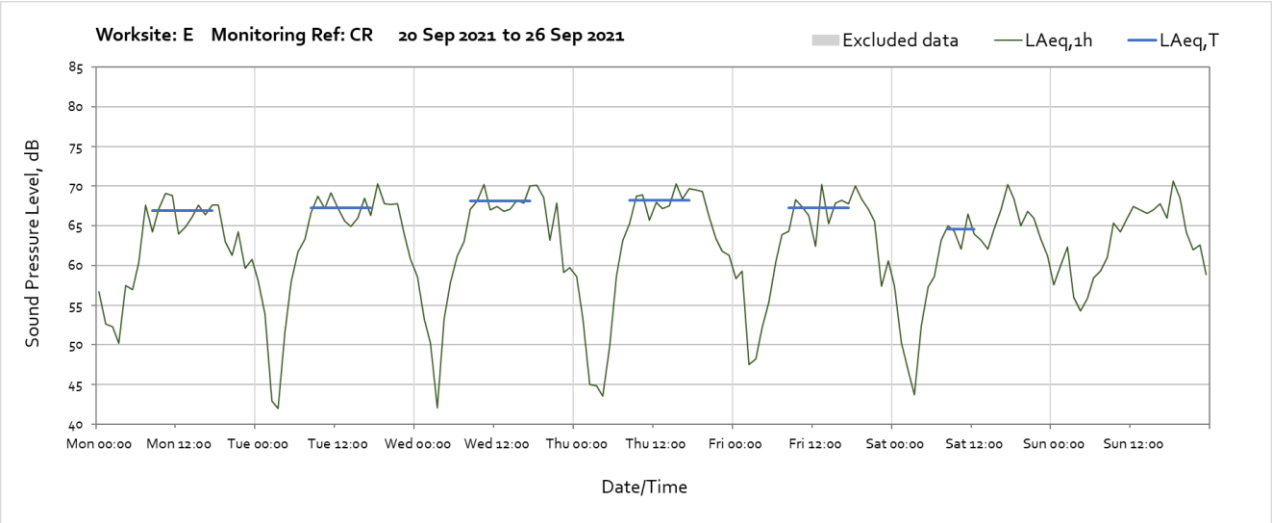
Note: Missing data from 10:00 until 12:00 on Thursday 23rd September was due to a memory card error. The memory card has been reformatted with view of avoiding further loss of data.

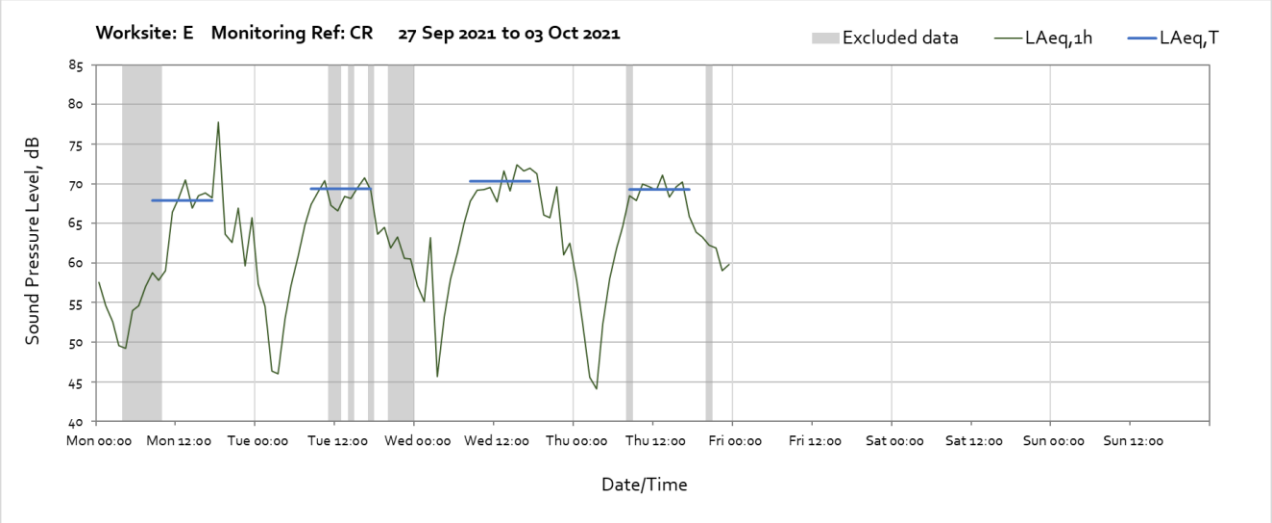


Worksite: E – Monitoring Ref: CR

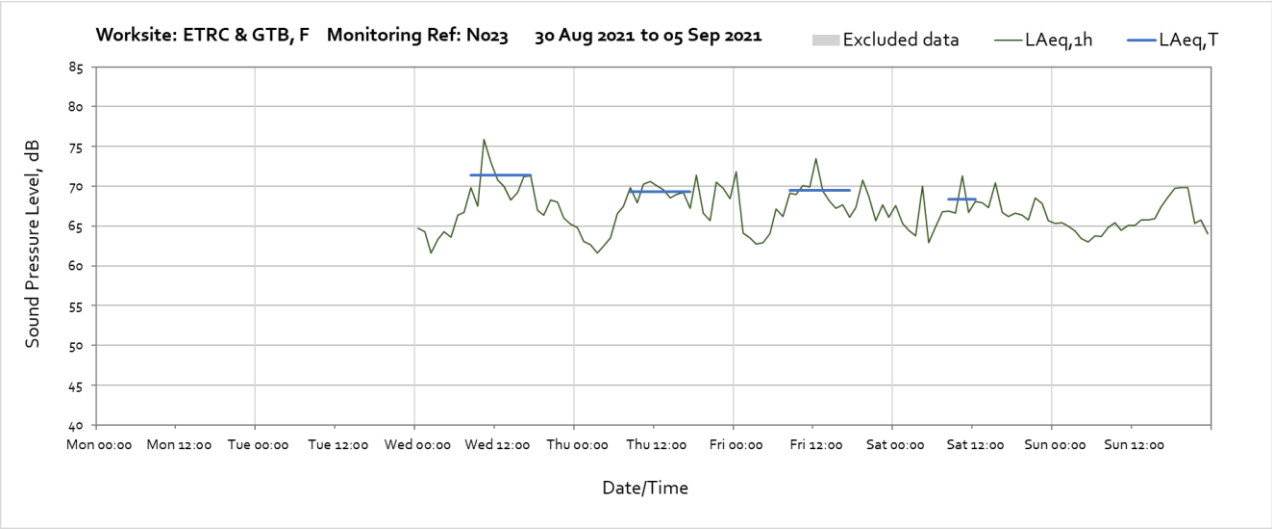


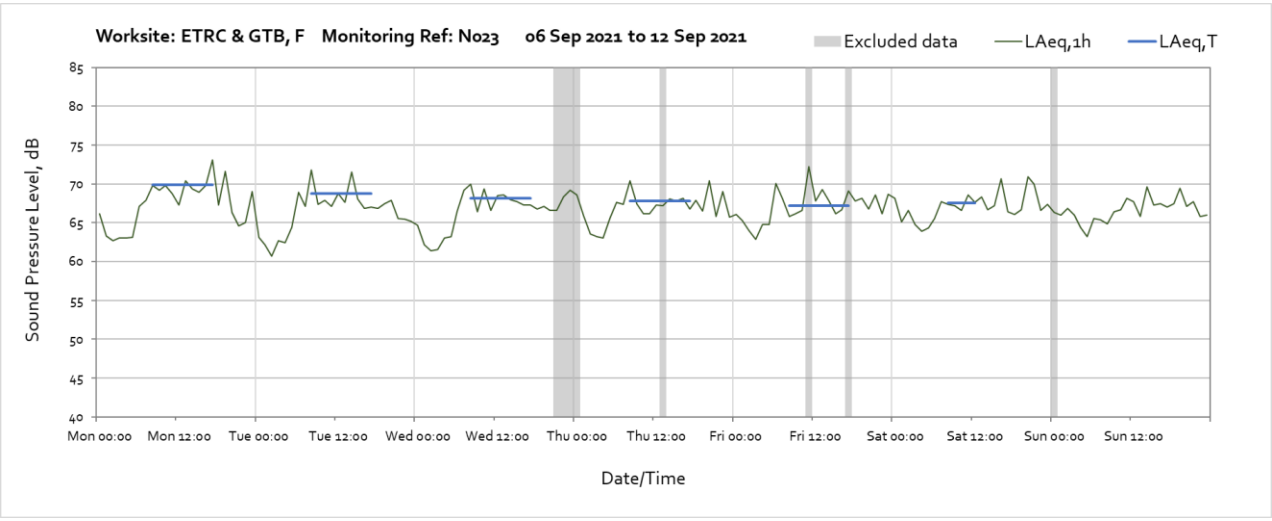
Note: Monitoring station was installed at 10:00 on Tuesday 14th September 2021.

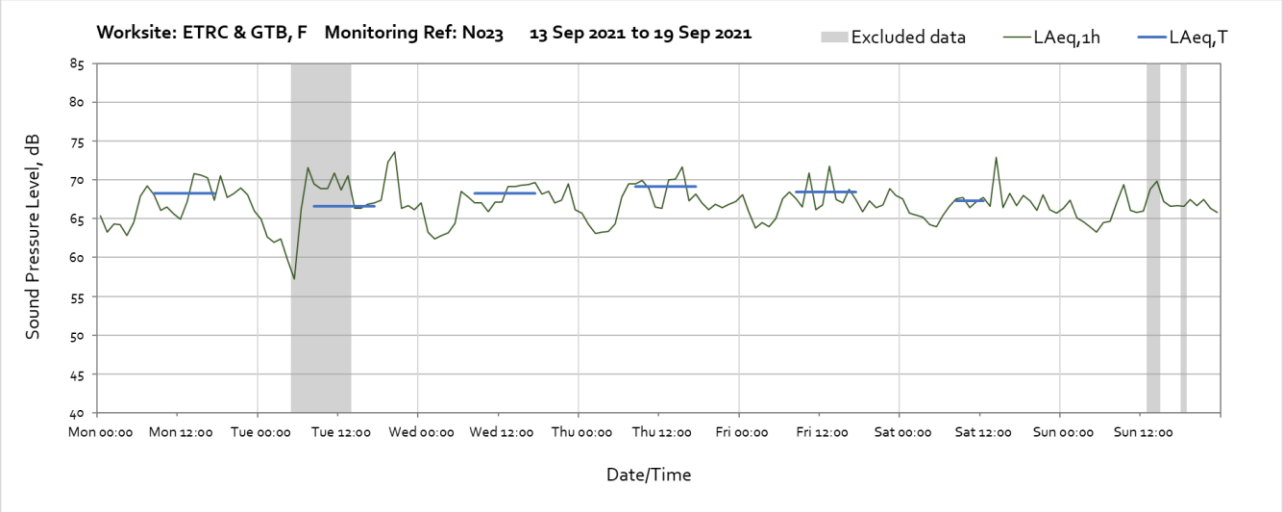




Worksite: ETRC & GTB, F – Monitoring Ref: N023






Worksite: ETRC & GTB, F Monitoring Ref: No23 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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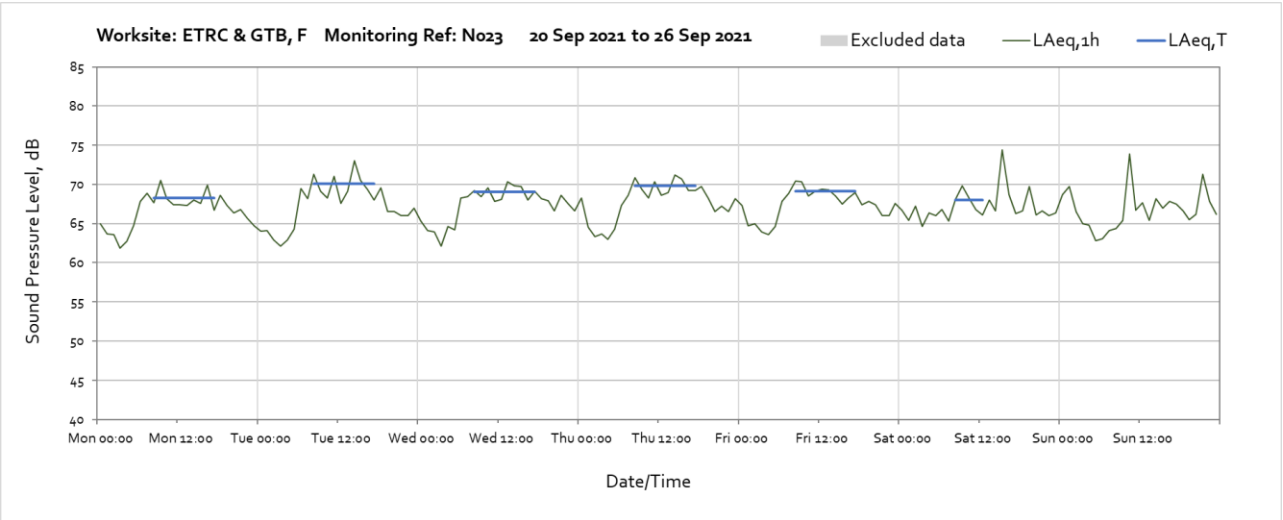
Date/Time


Worksite: ETRC & GTB, F Monitoring Ref: No23 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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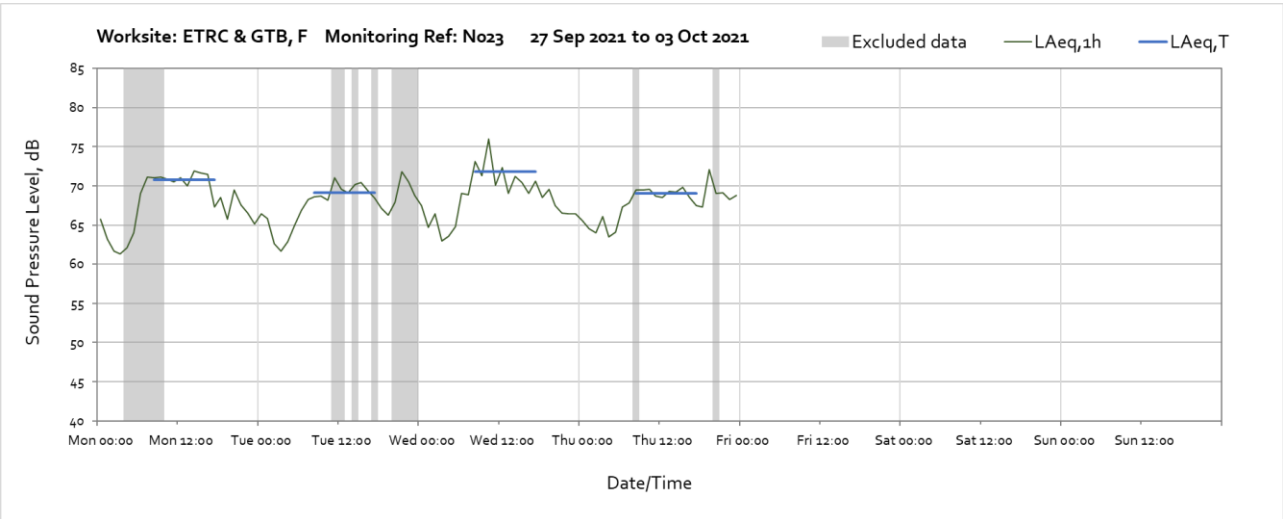
Date/Time


Worksite: ETRC & GTB, F Monitoring Ref: No23 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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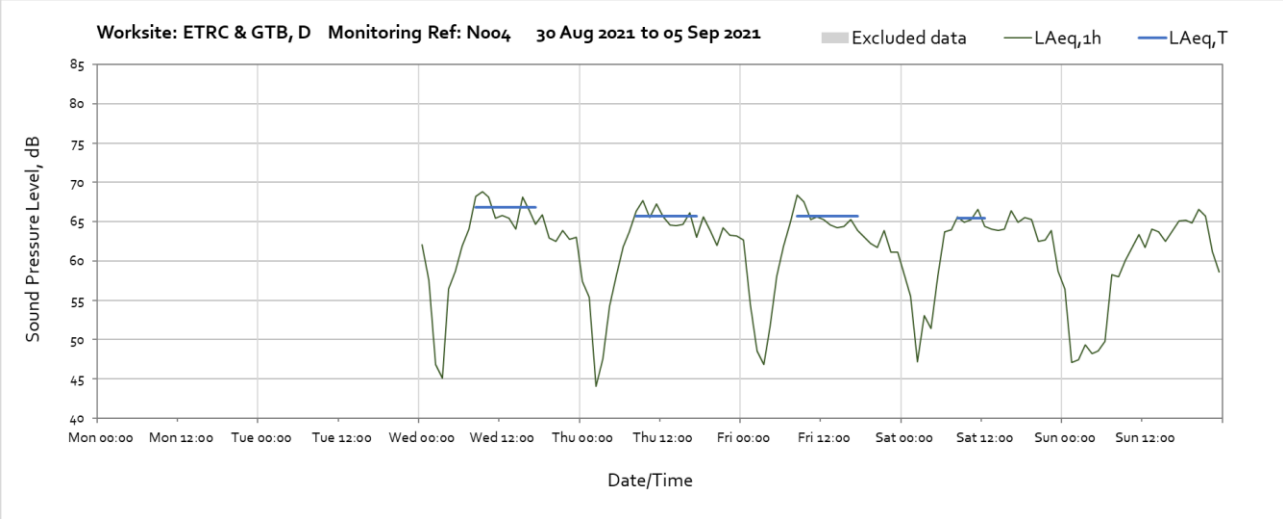
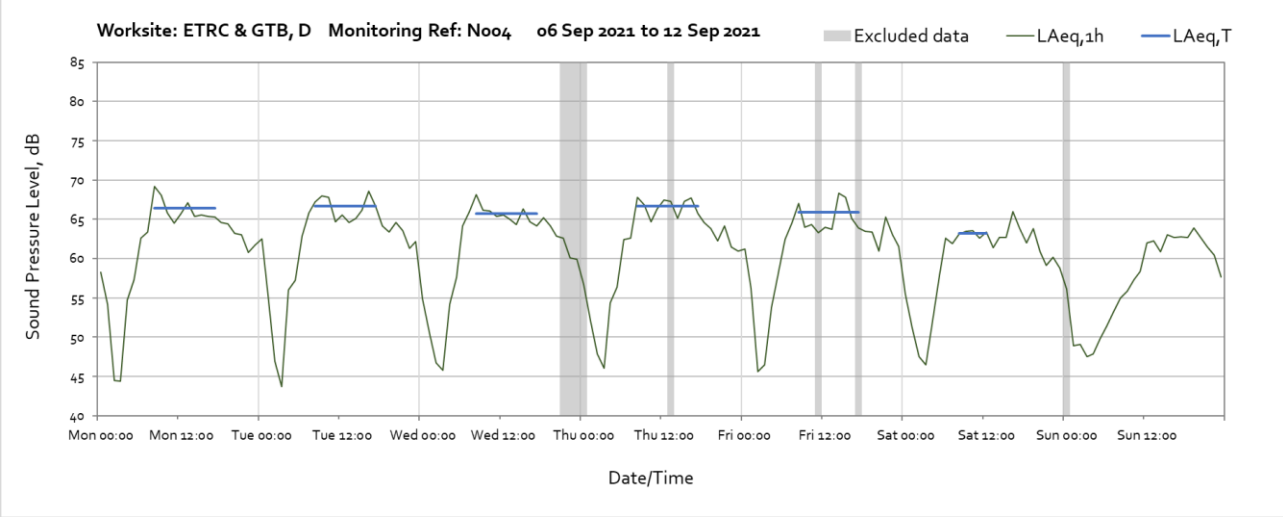
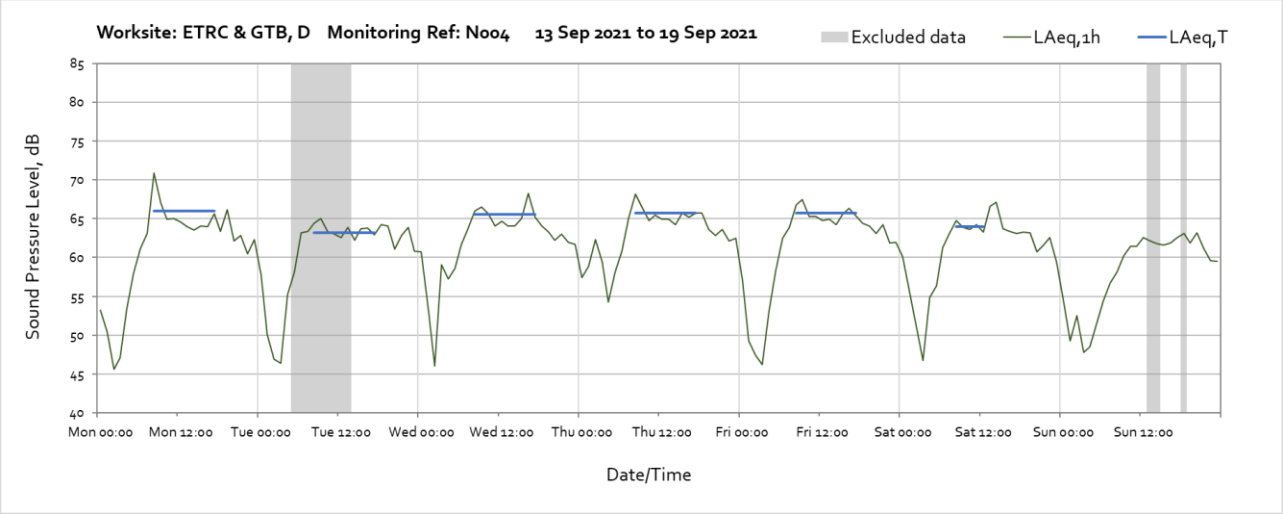
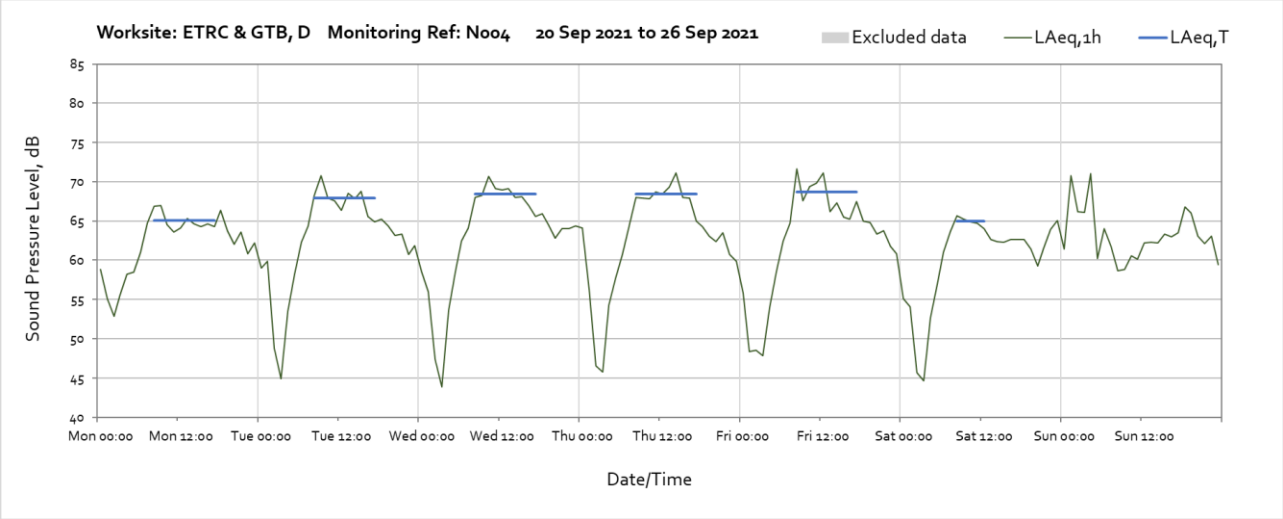
Sun 12:00
Date/Time

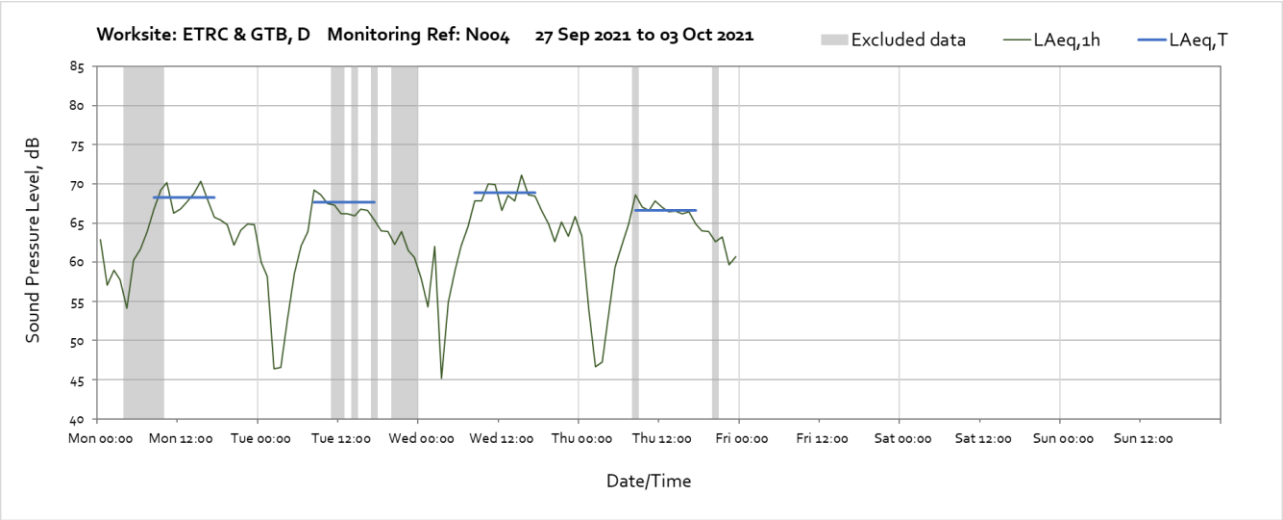
Worksite: ETRC & GTB, D – Monitoring Ref: N004



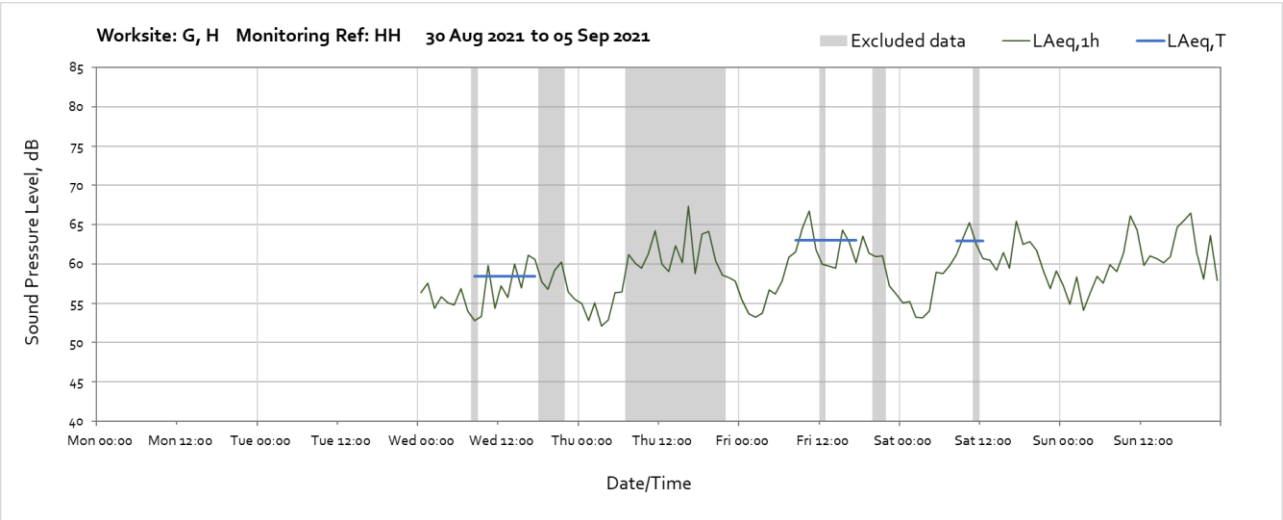


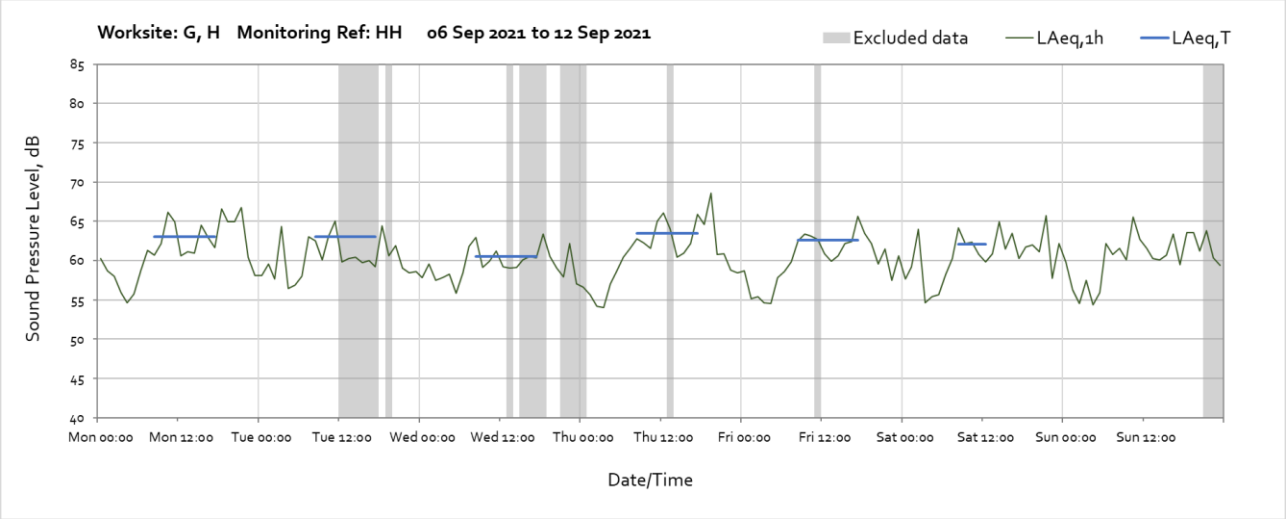






Worksite: G, H – Monitoring Ref: HH




Worksite: G, H Monitoring Ref: HH 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
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55
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45
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Mon 00:00
Mon 12:00
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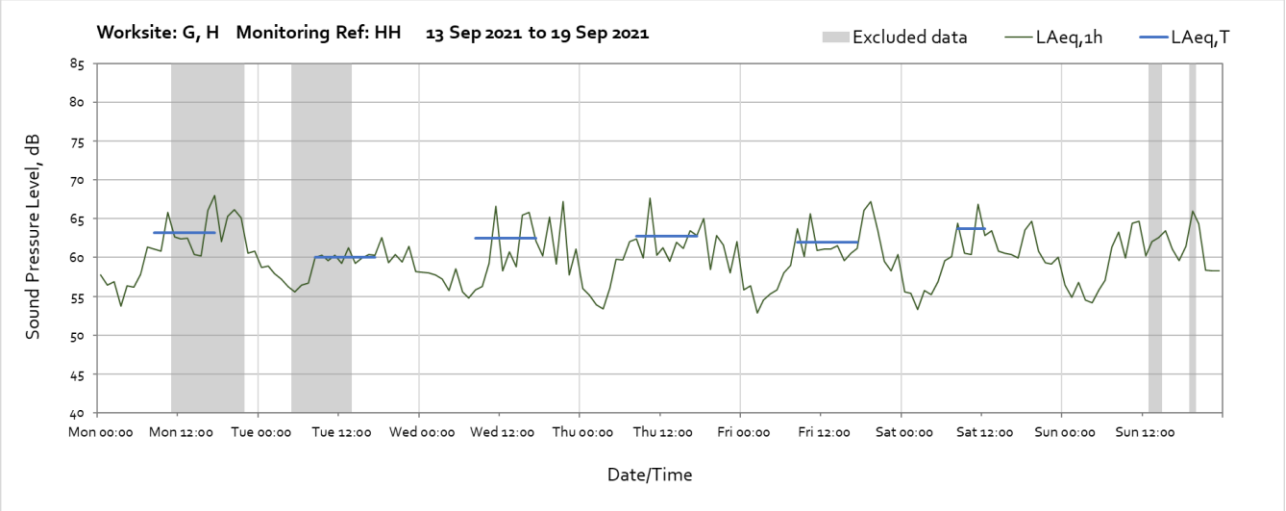
Date/Time


Worksite: G, H Monitoring Ref: HH 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
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50
45
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Mon 00:00
Mon 12:00
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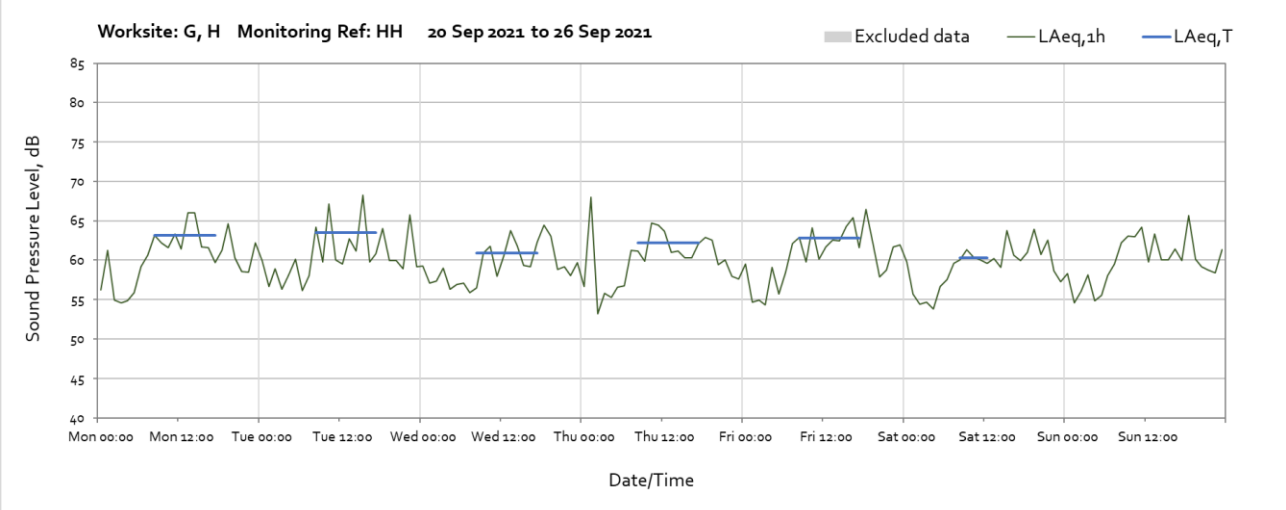
Date/Time


Worksite: G, H Monitoring Ref: HH 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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75
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55
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45
40
Mon 00:00
Mon 12:00
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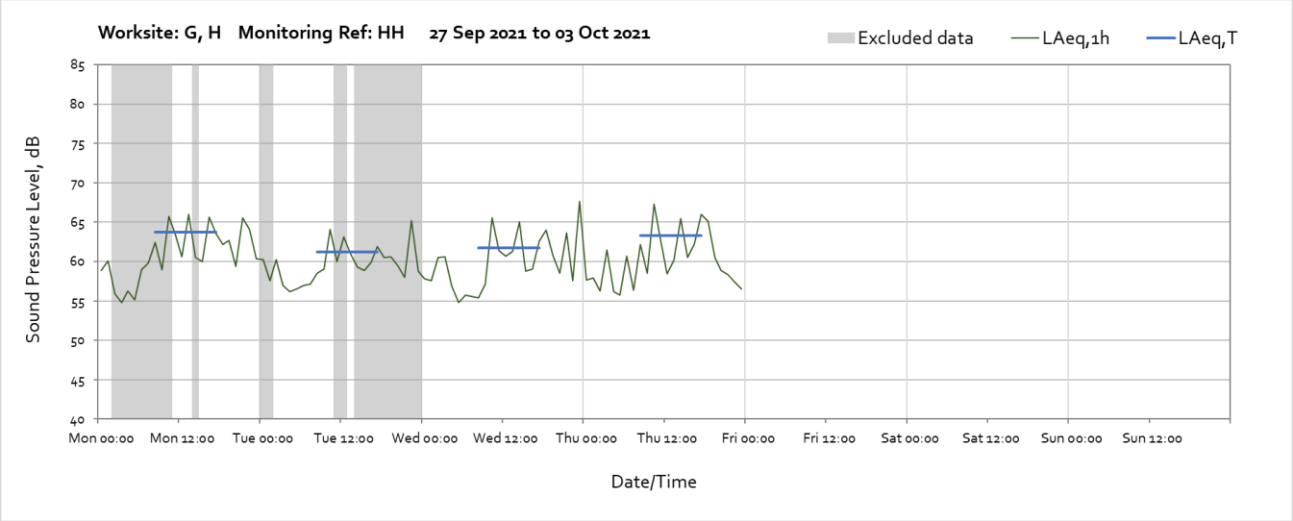
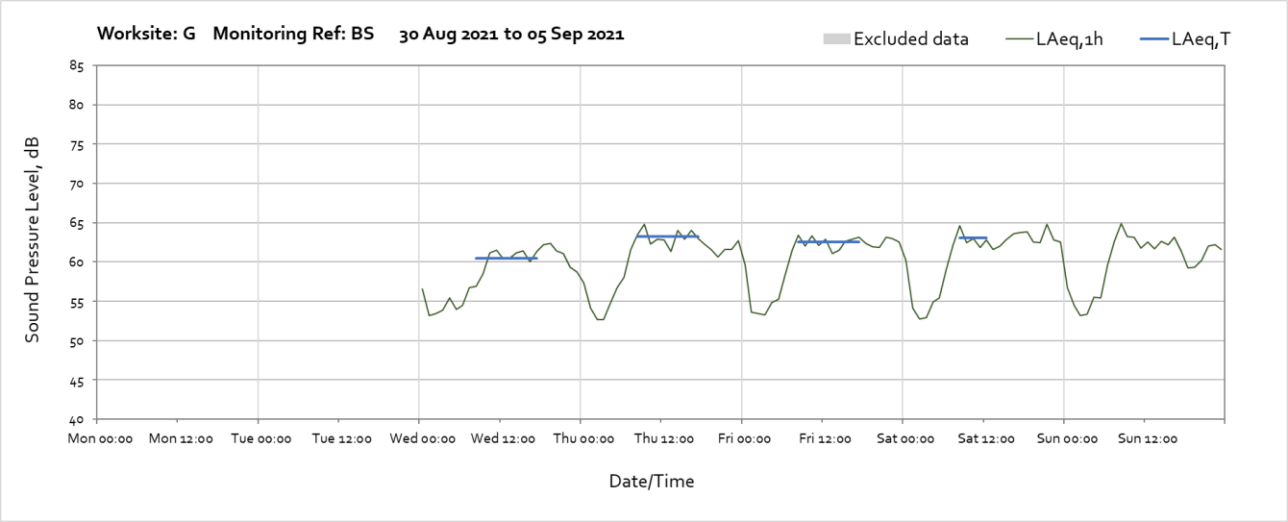
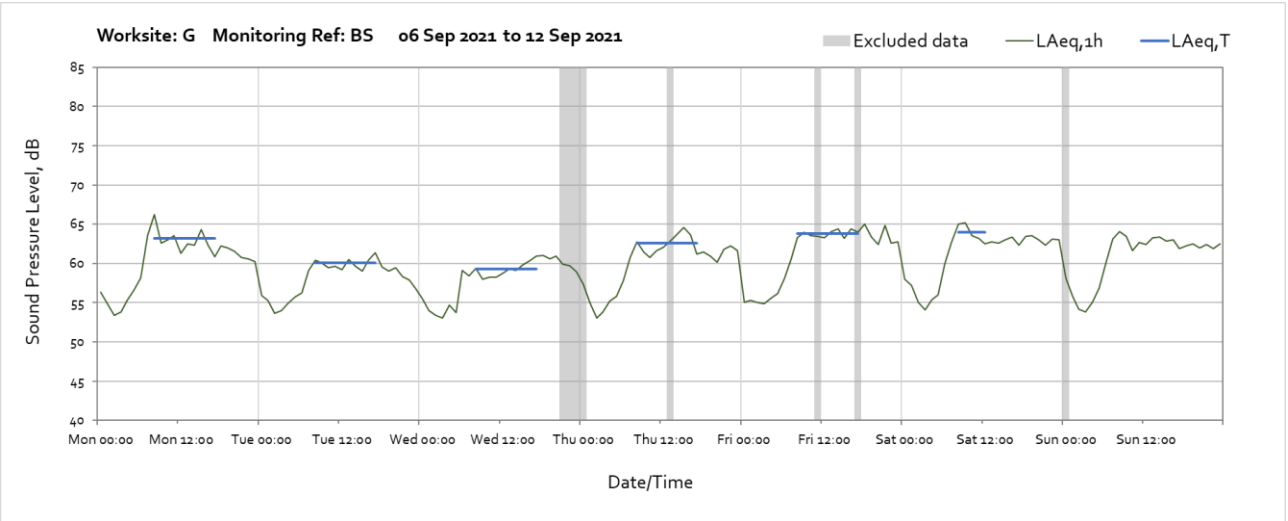
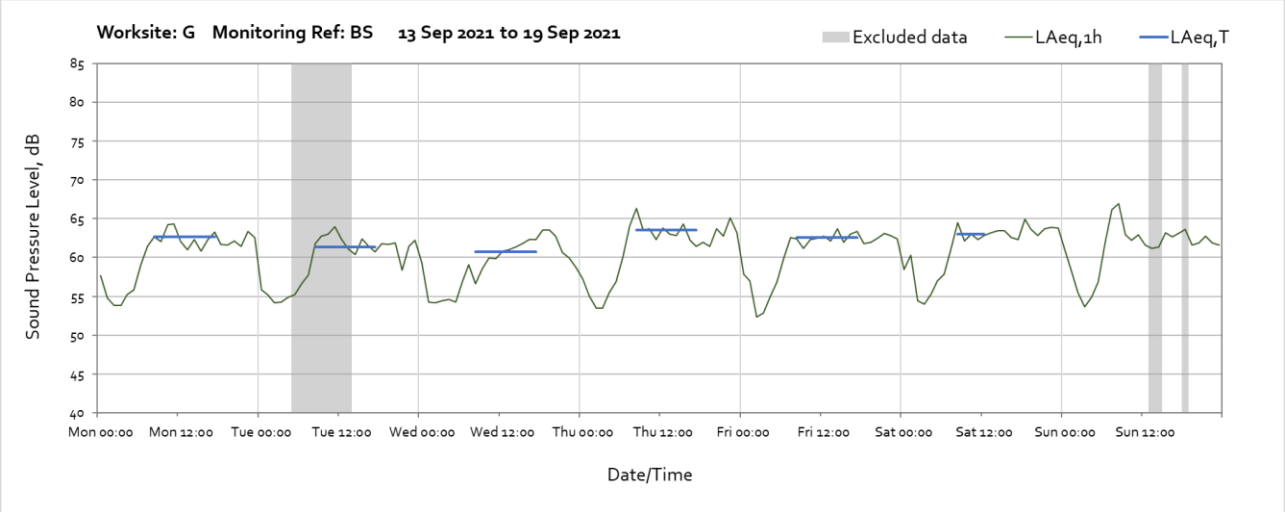
Date/Time



Worksite: G – Monitoring Ref: BS






Worksite: G Monitoring Ref: BS 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
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60
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50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
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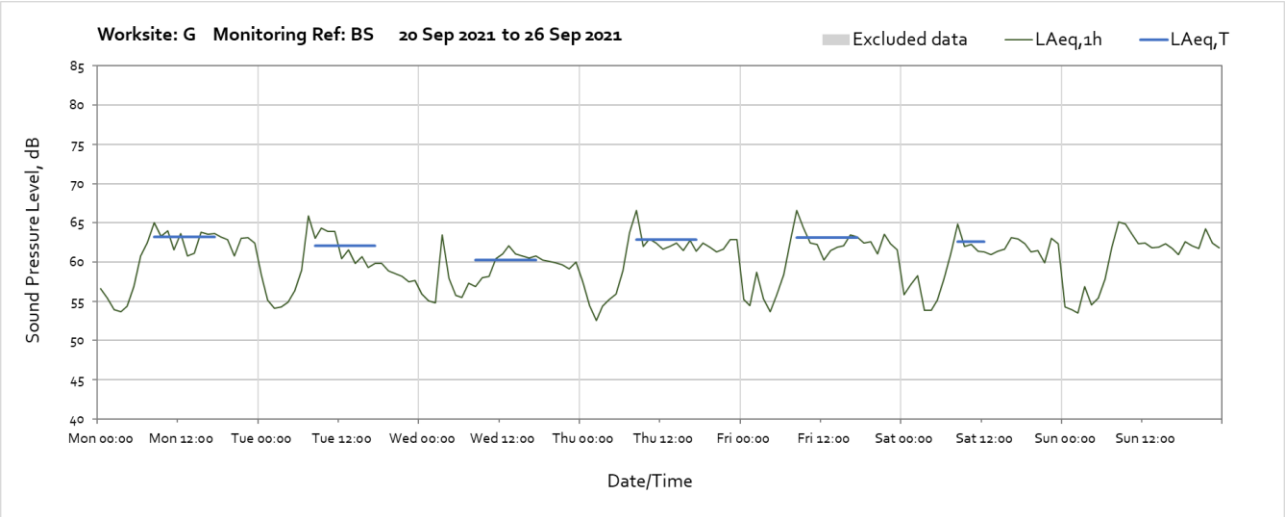
Date/Time


Worksite: G Monitoring Ref: BS 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
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50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
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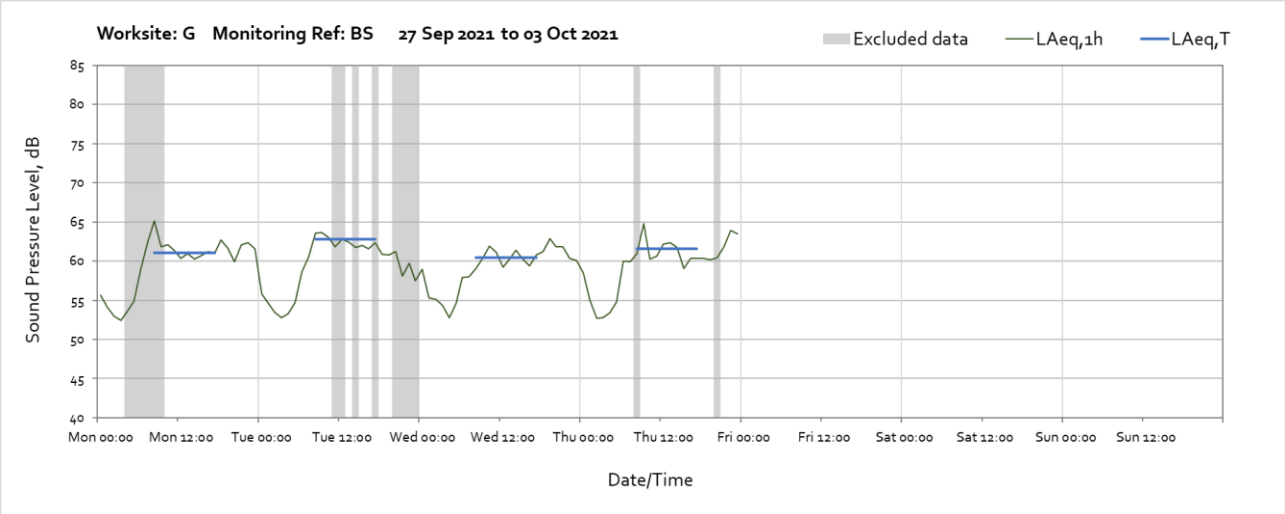
Date/Time


Worksite: G Monitoring Ref: BS 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
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Mon 00:00
Mon 12:00
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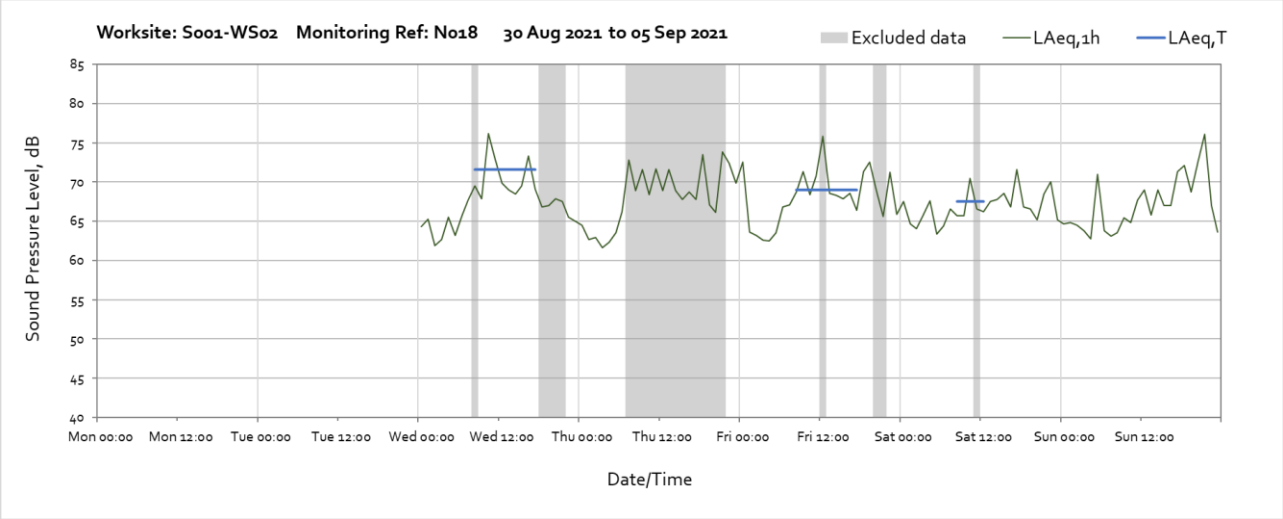
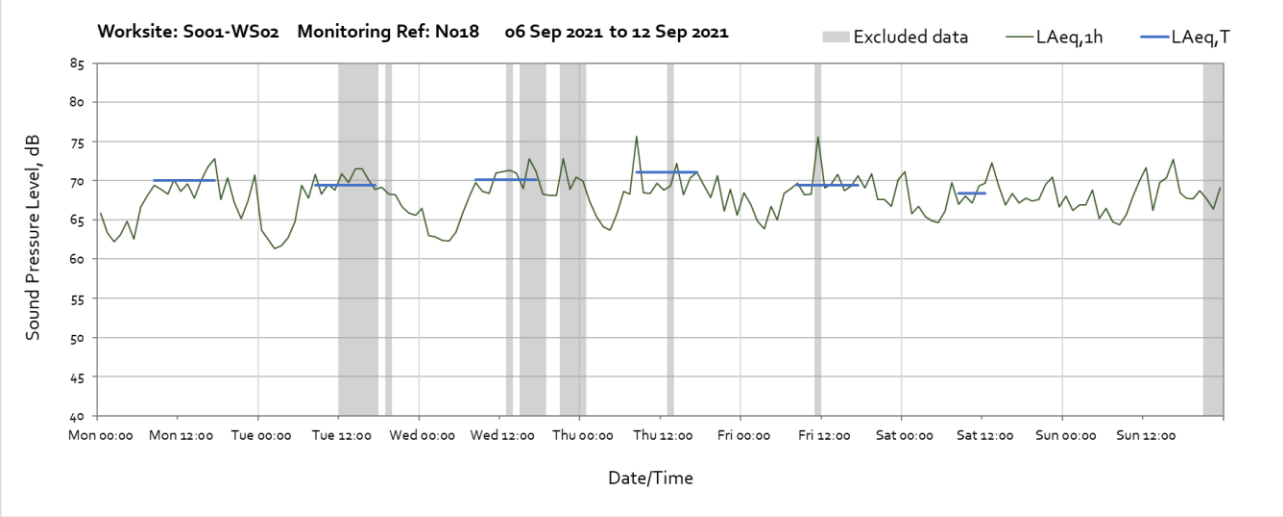
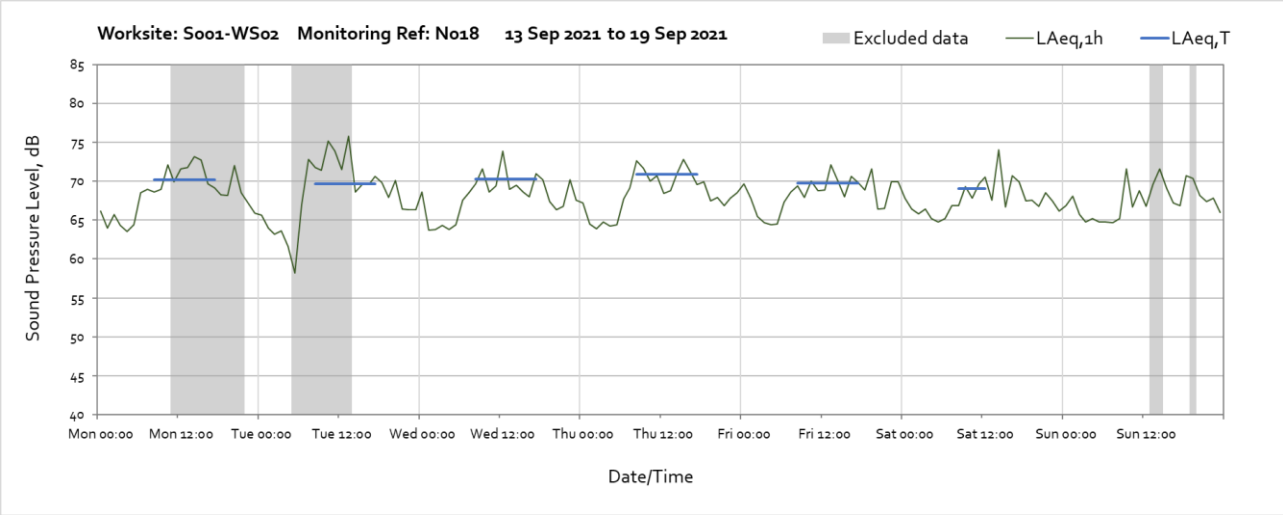
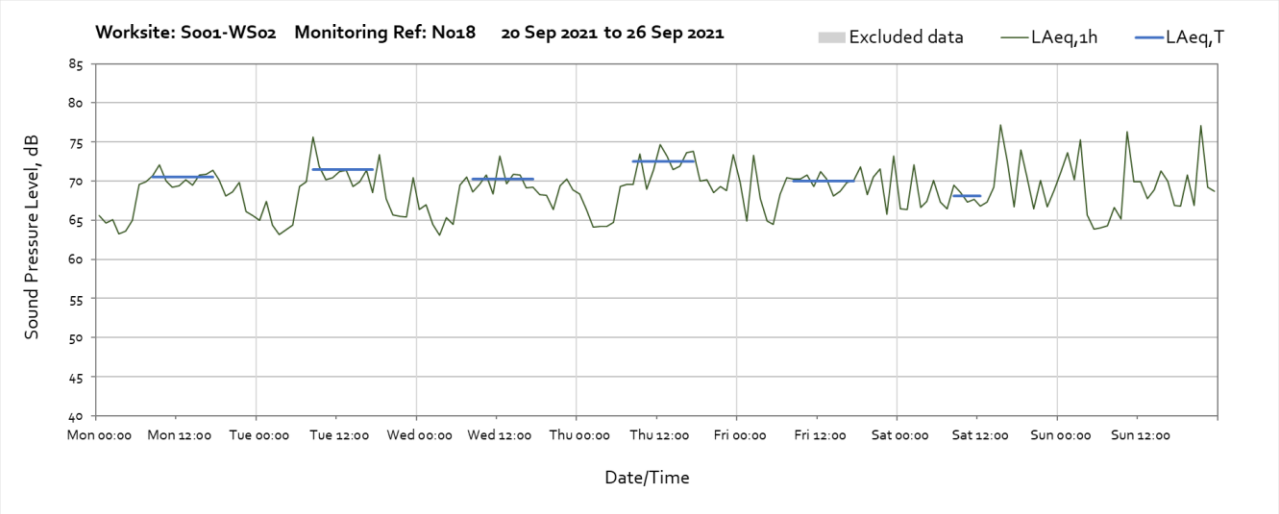
Date/Time

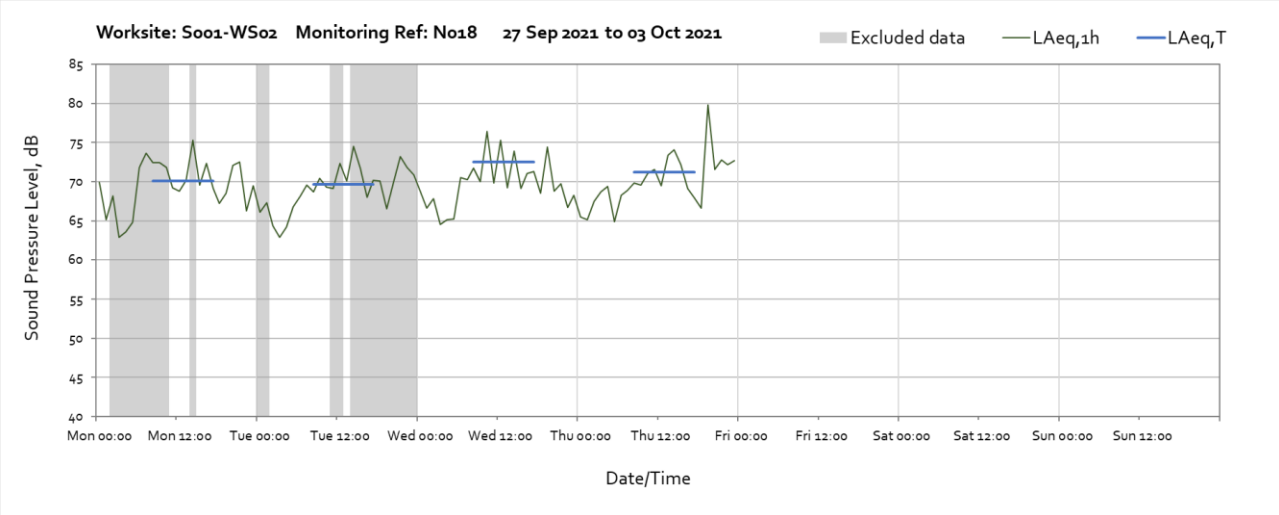
Worksite: S001-WS02 – Monitoring Ref: N018



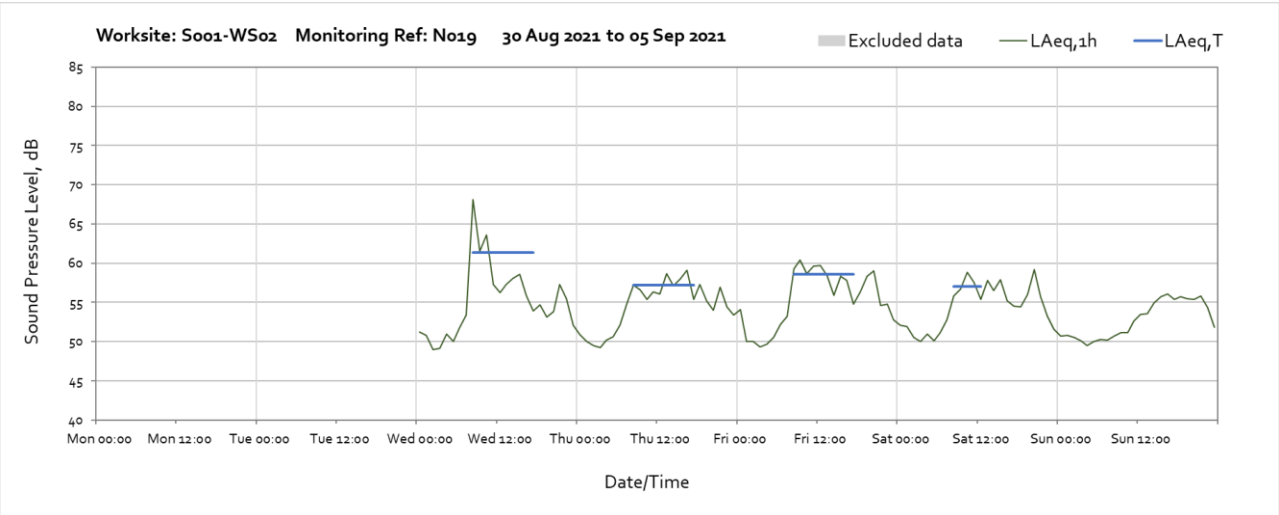


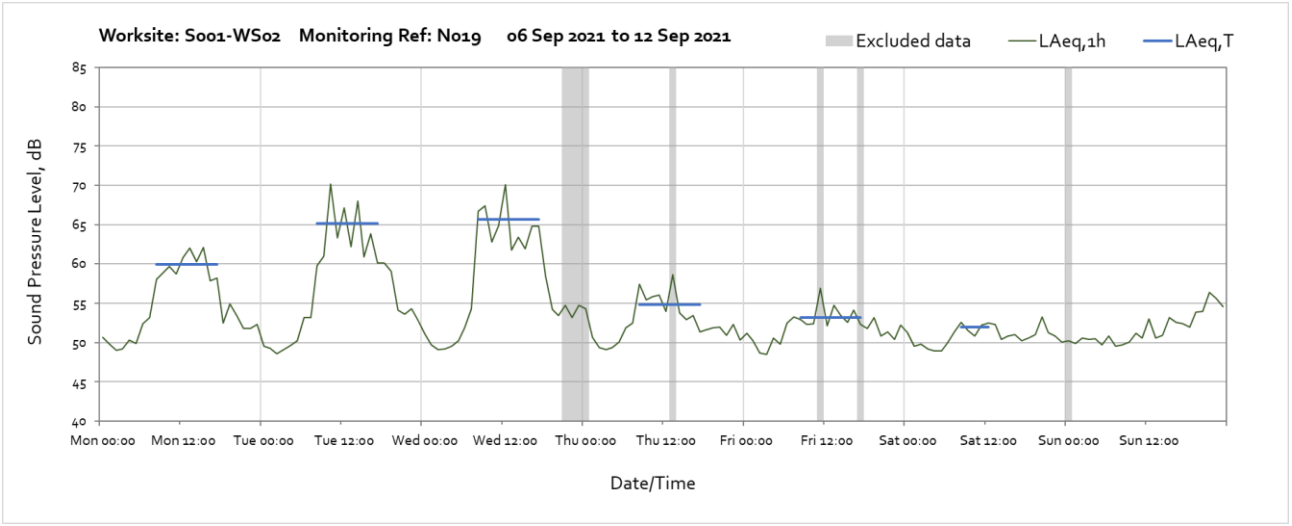






Worksite: S001-WS02 – Monitoring Ref: N019




Worksite: S001-WS02 Monitoring Ref: N019 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
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Mon 00:00
Mon 12:00
Tue 00:00
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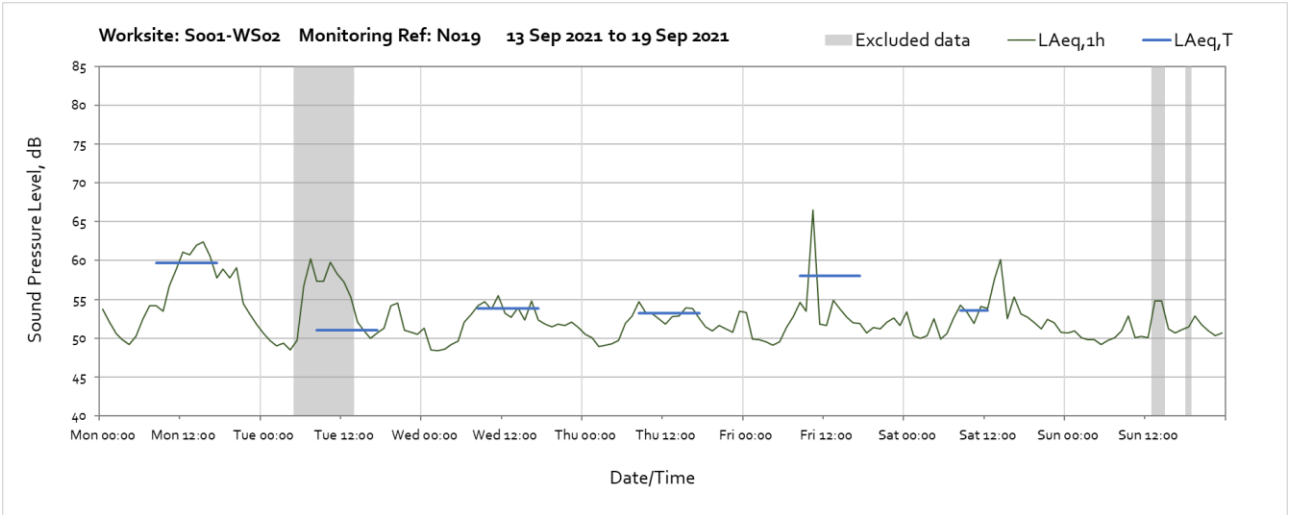
Date/Time


Worksite: S001-WS02 Monitoring Ref: N019 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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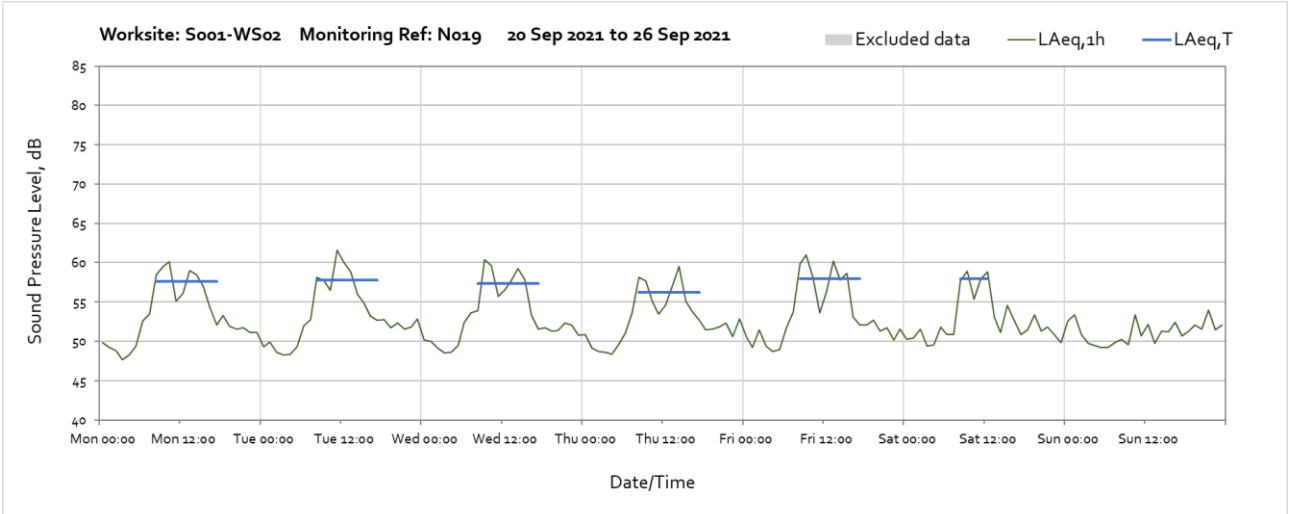
Date/Time


Worksite: S001-WS02 Monitoring Ref: N019 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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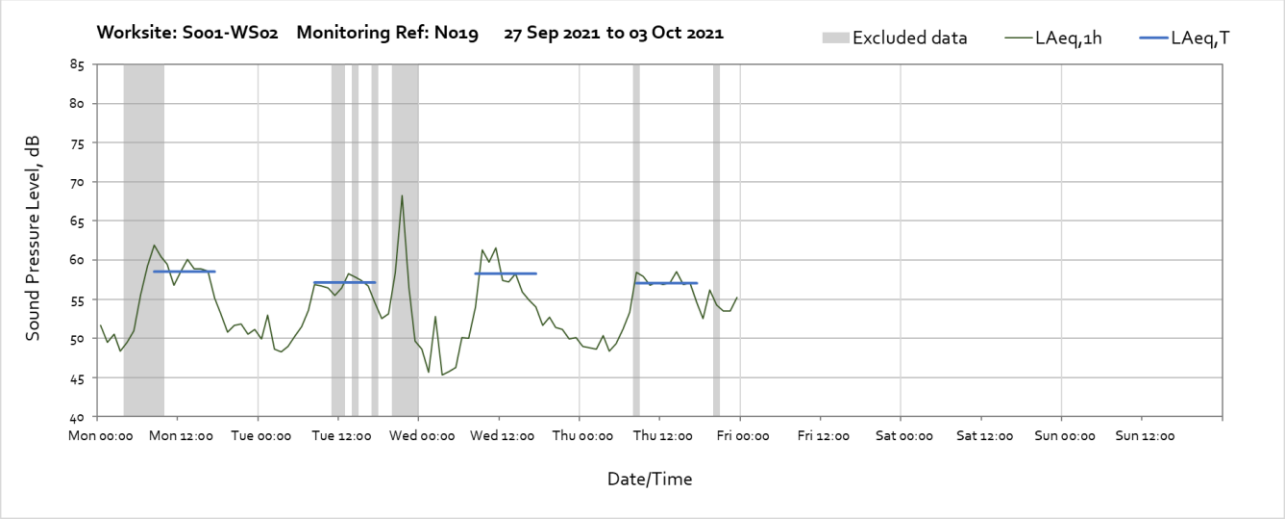
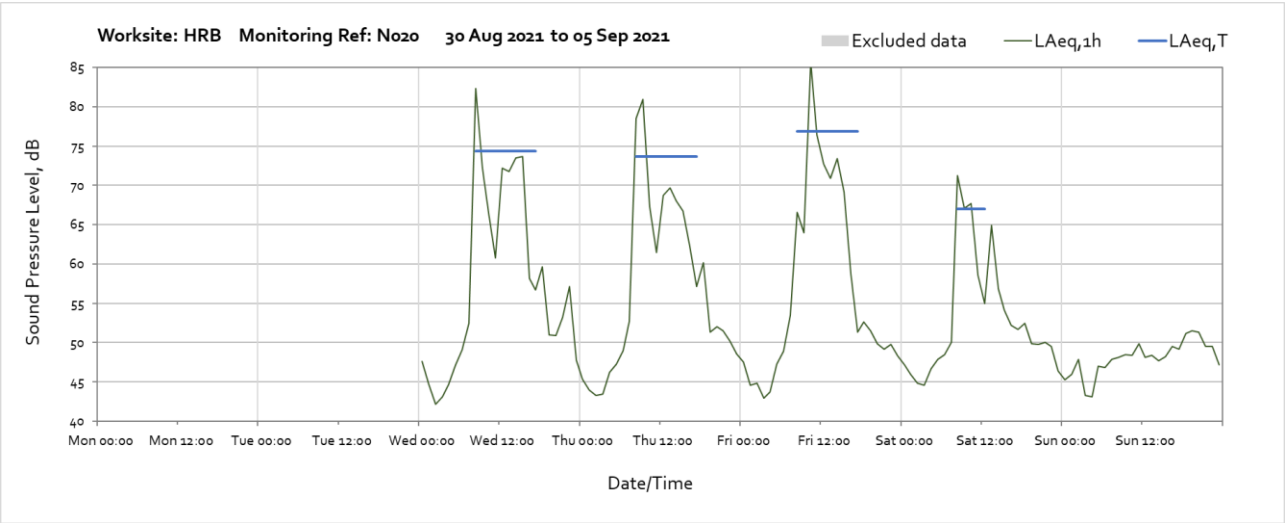
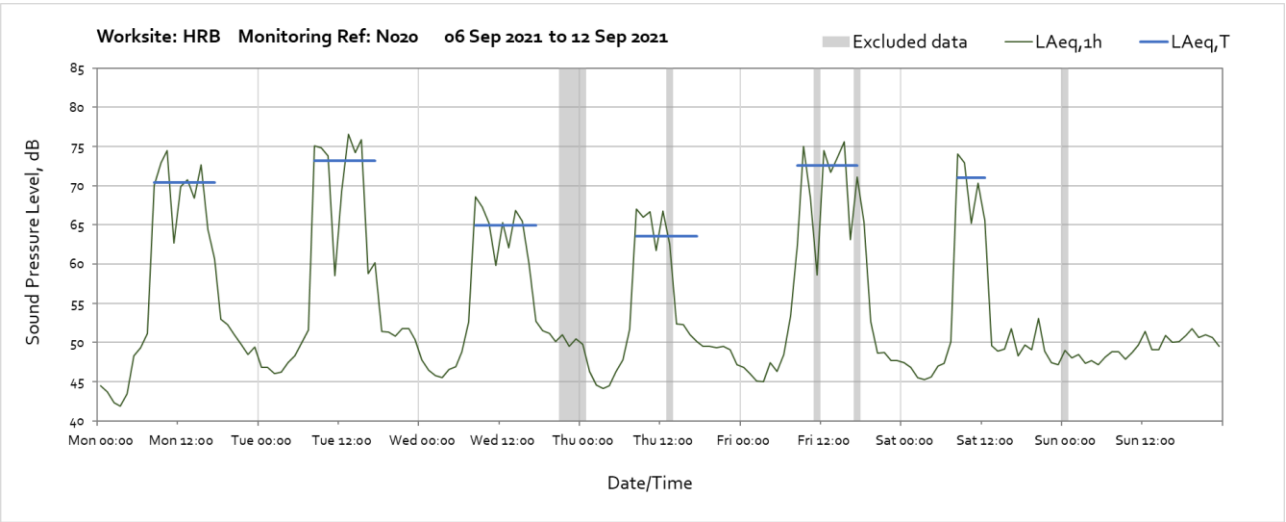
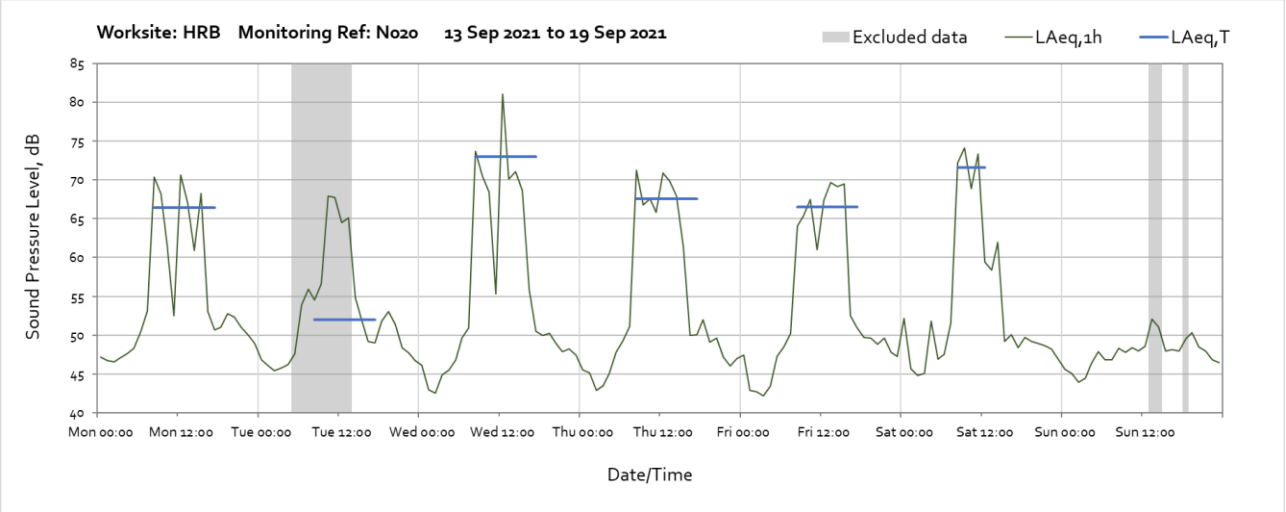
Date/Time



Worksite: HRB – Monitoring Ref: N020






Worksite: HRB Monitoring Ref: No20 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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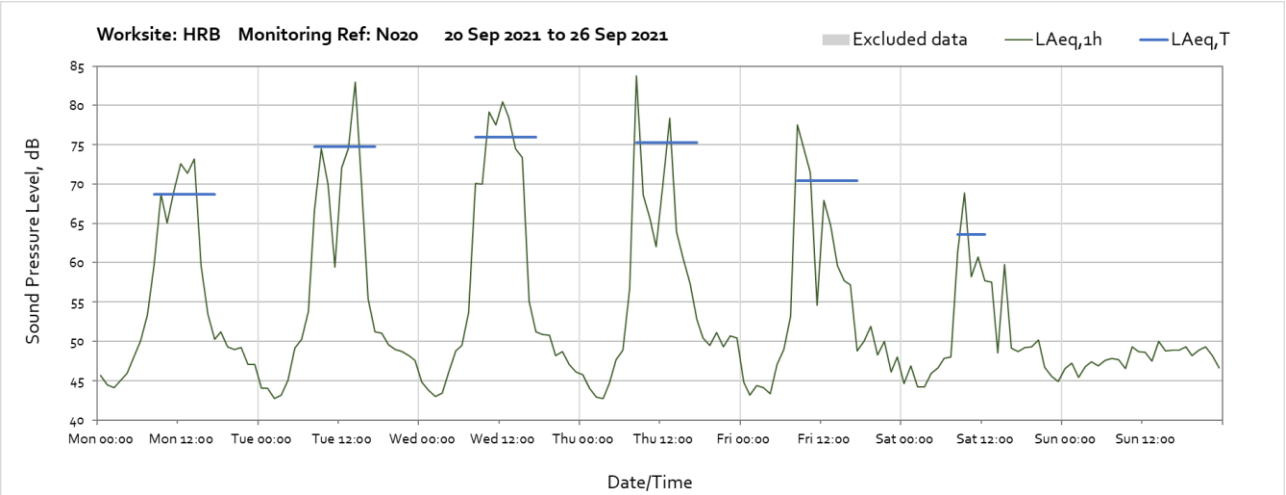
Date/Time


Worksite: HRB Monitoring Ref: No20 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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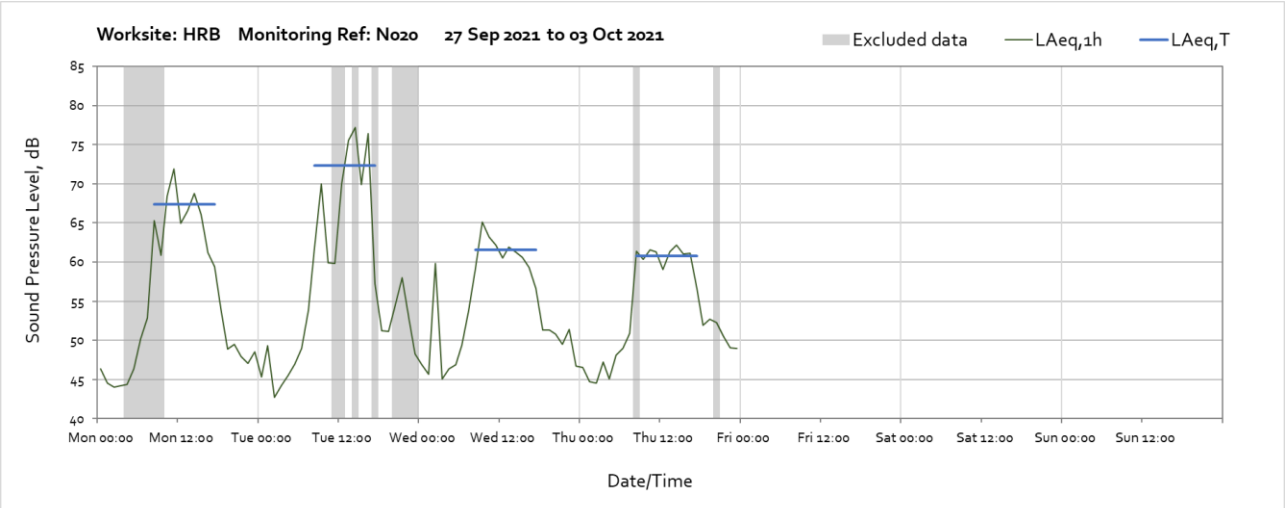
Date/Time


Worksite: HRB Monitoring Ref: No20 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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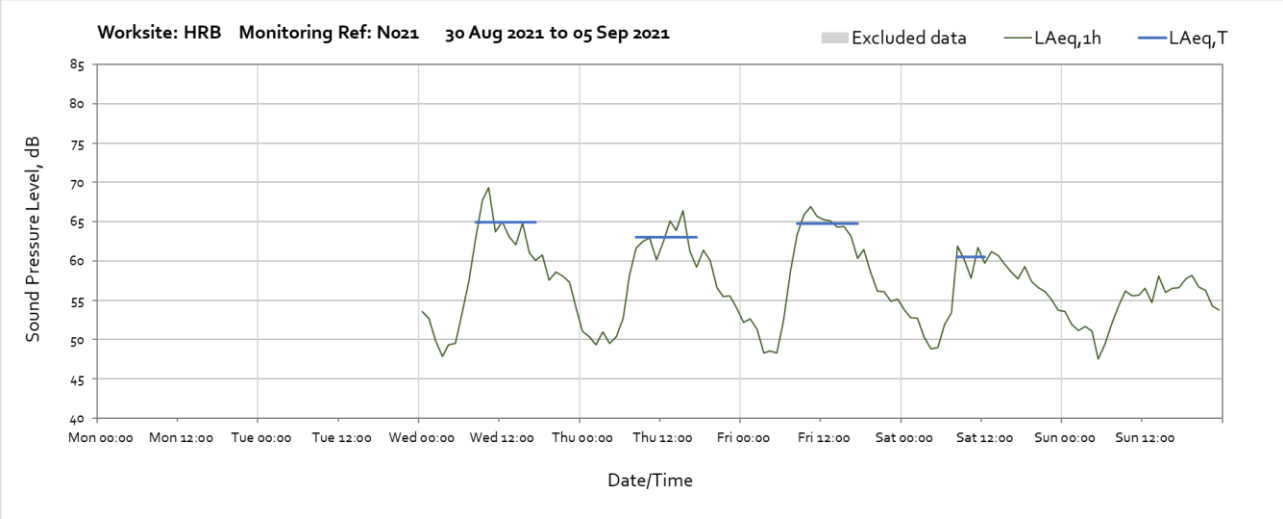
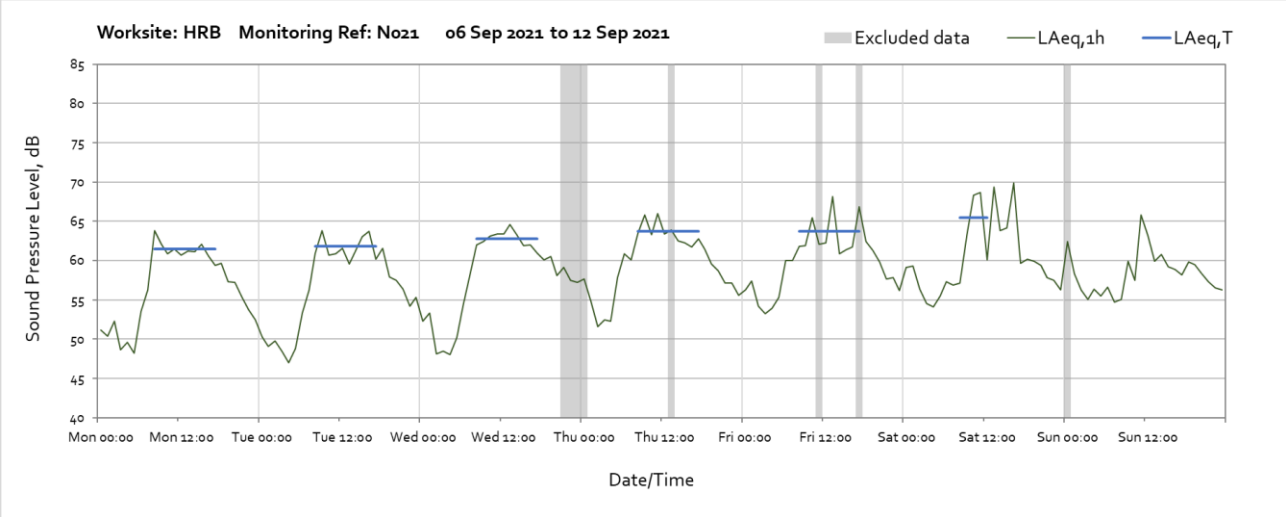
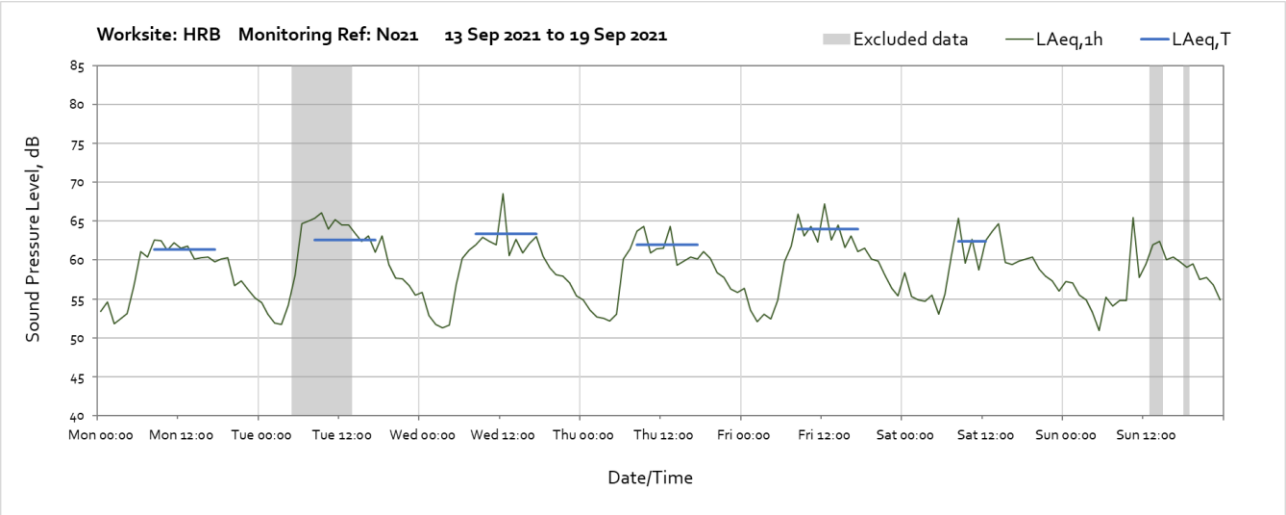
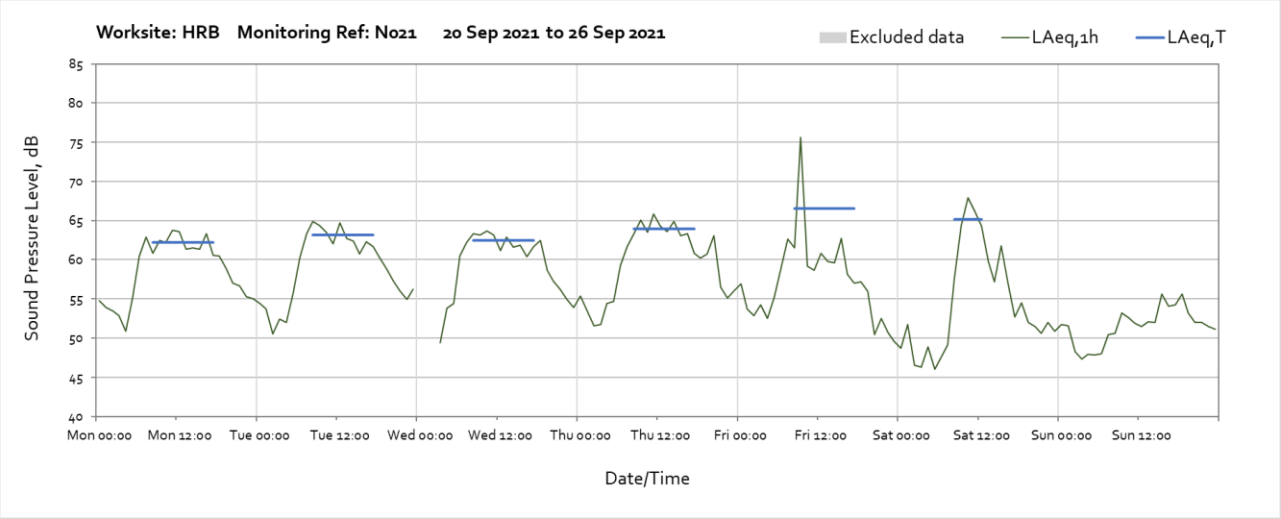
Date/Time

Worksite: HRB – Monitoring Ref: N021

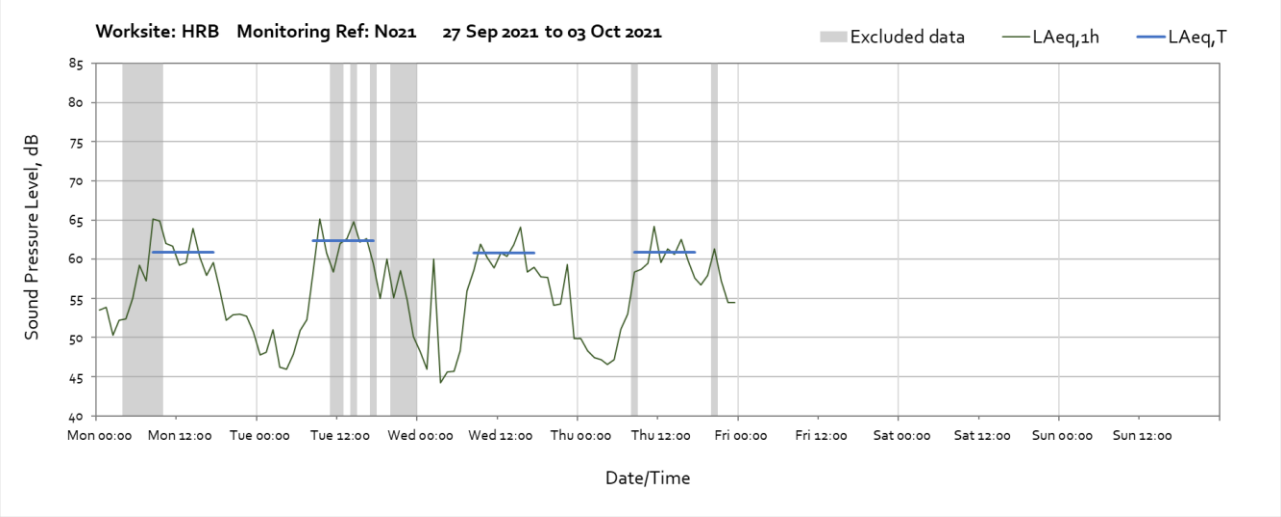




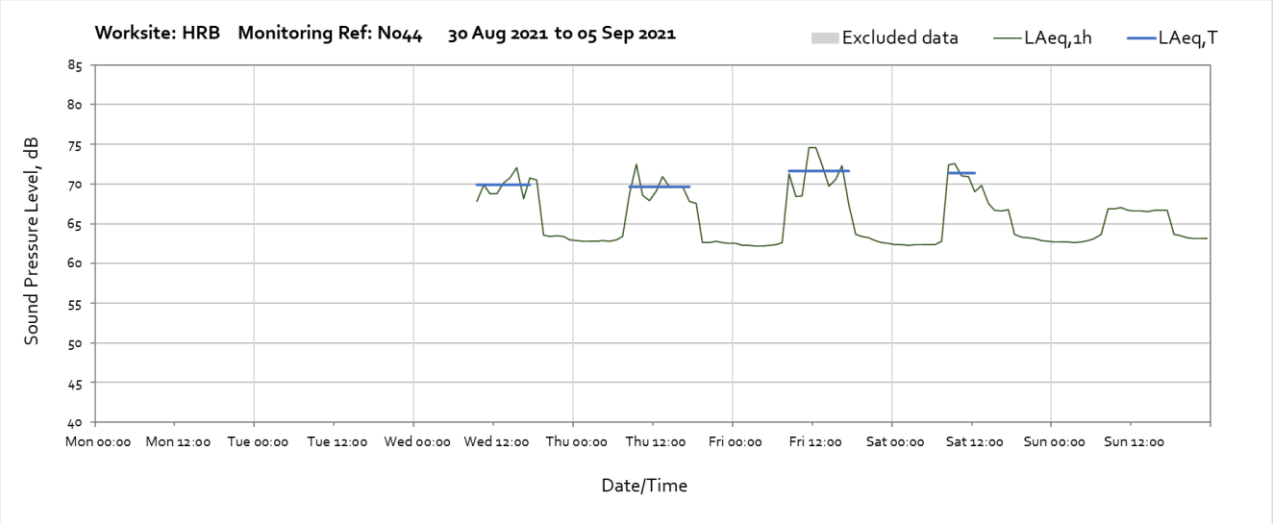




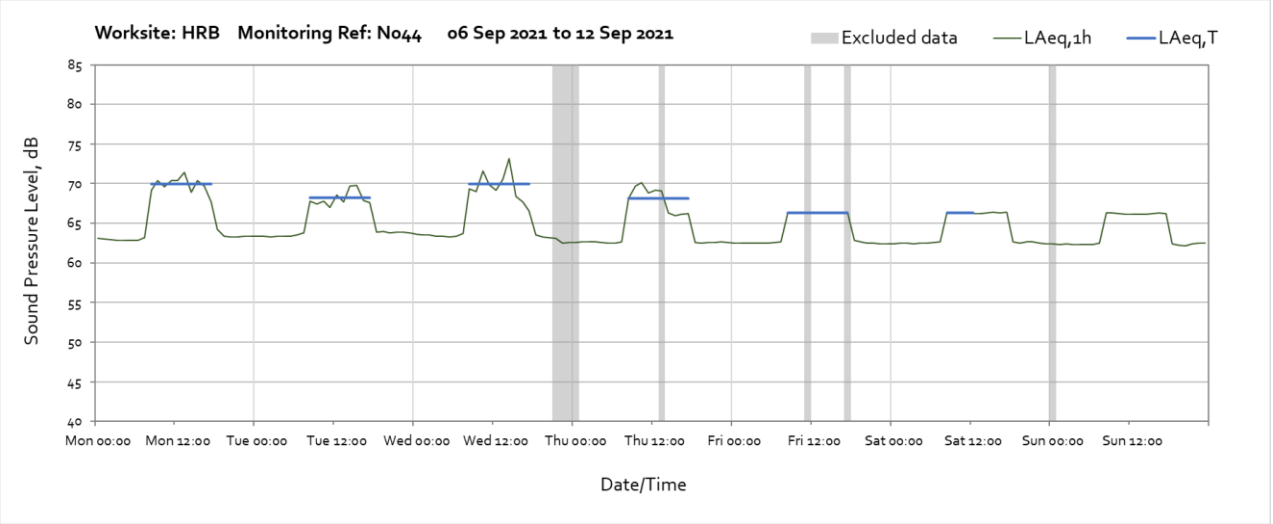
Note: Missing data from 00:00 until 03:00 on Wednesday 22nd September was due to a memoty fault within the monitoring station. The monitor firmware will be updated with view of avoiding further loss of data.



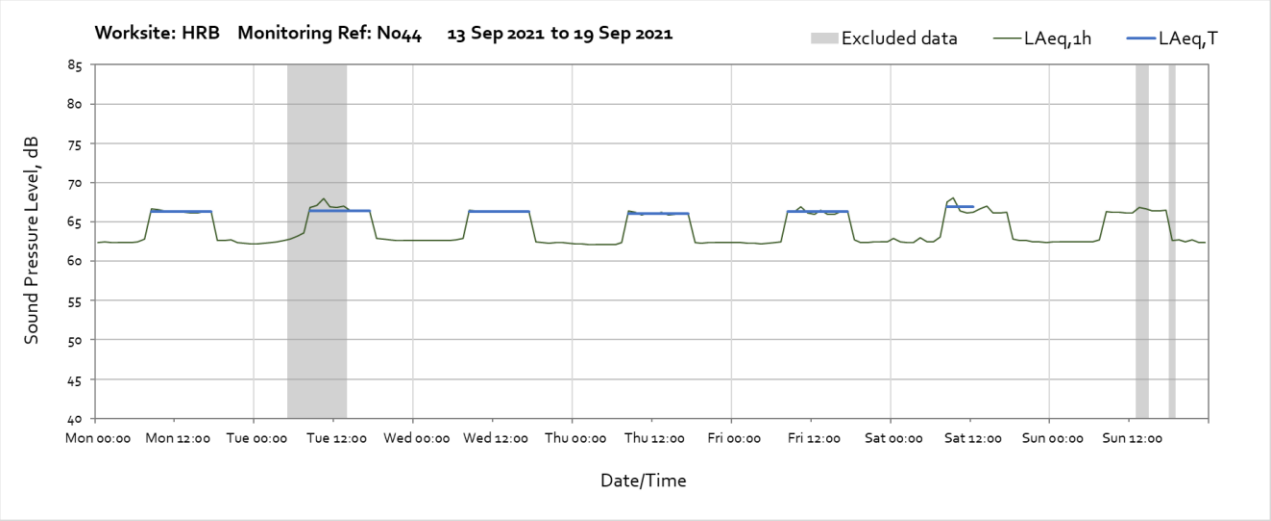
Worksite: HRB – Monitoring Ref: N044



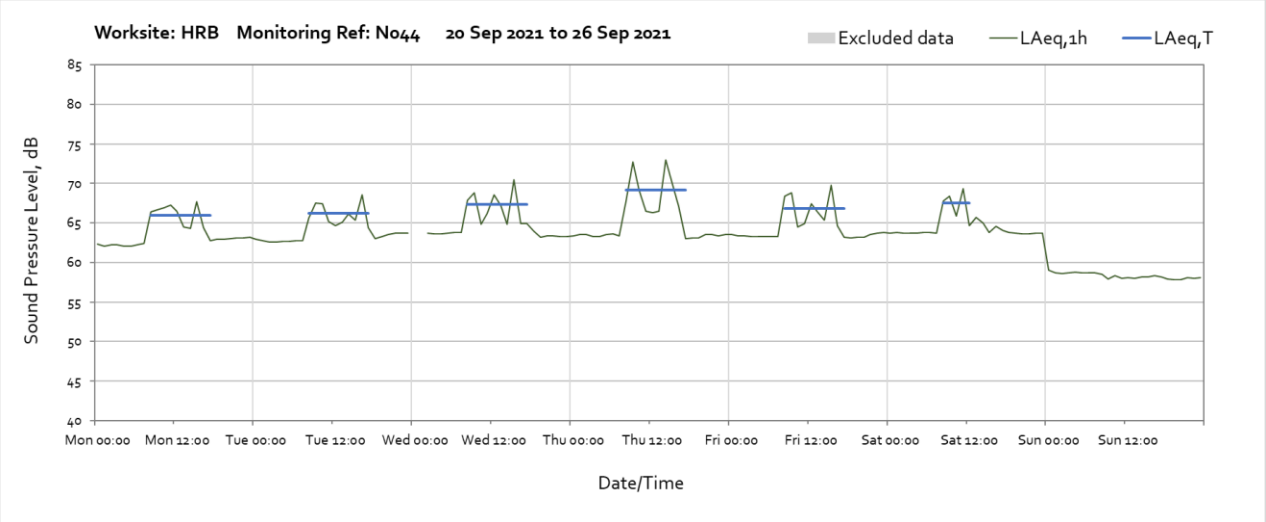
Note: Continuous noise levels measured throughout the week were caused by an operational generator near to the monitor. The nearest receptor is located further from the generator and will therefore experience lower noise levels.



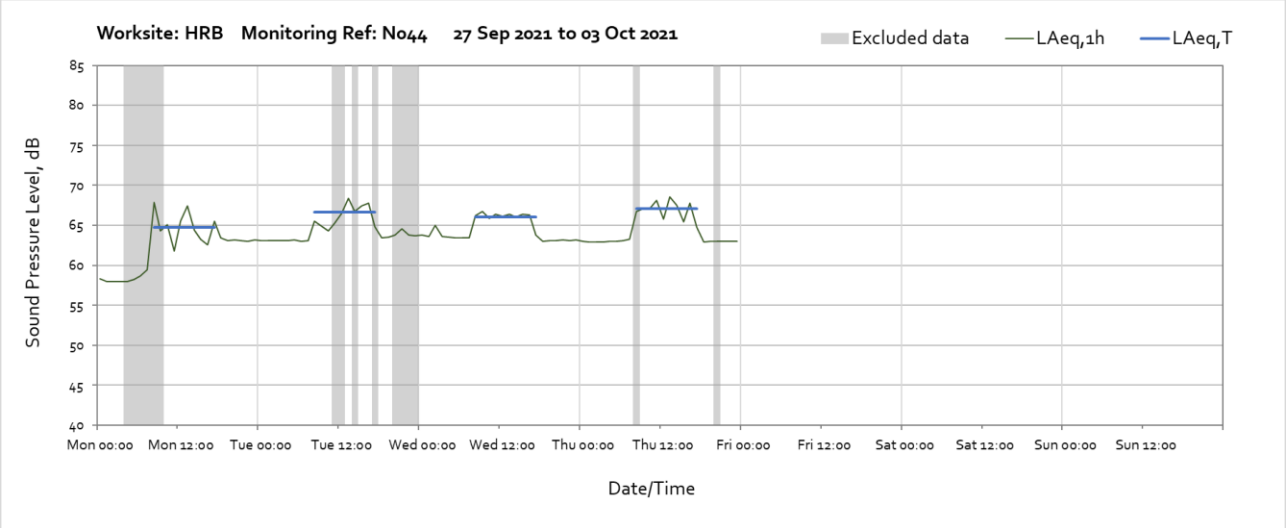
Note: Continuous noise levels measured throughout the week were caused by an operational generator near to the monitor. The nearest receptor is located further from the generator and will therefore experience lower noise levels.



Note: Continuous noise levels measured throughout the week were caused by an operational generator near to the monitor. The nearest receptor is located further from the generator and will therefore experience lower noise levels.

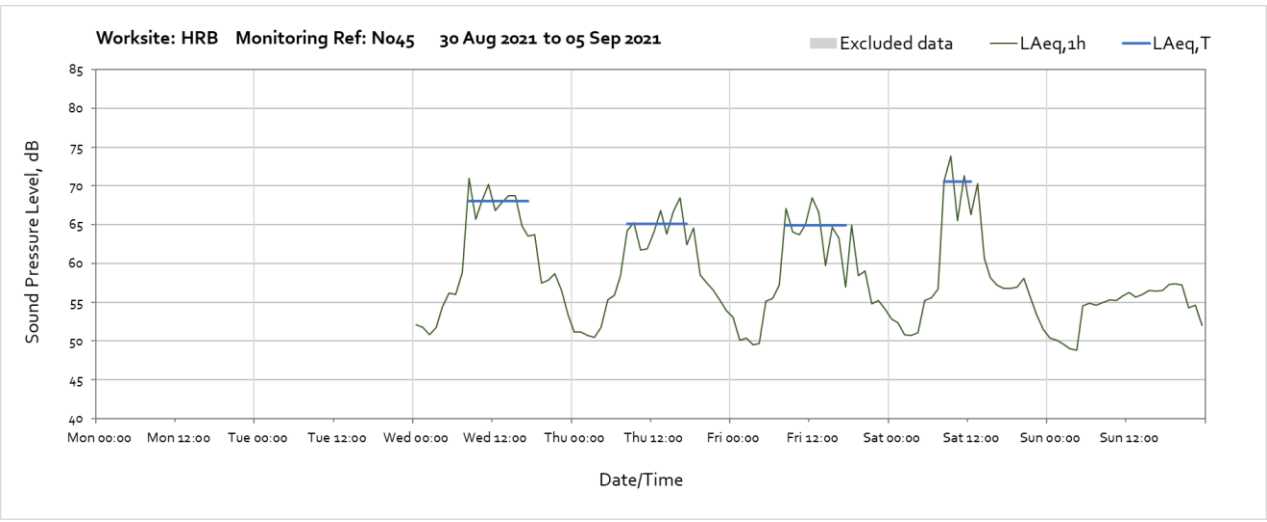


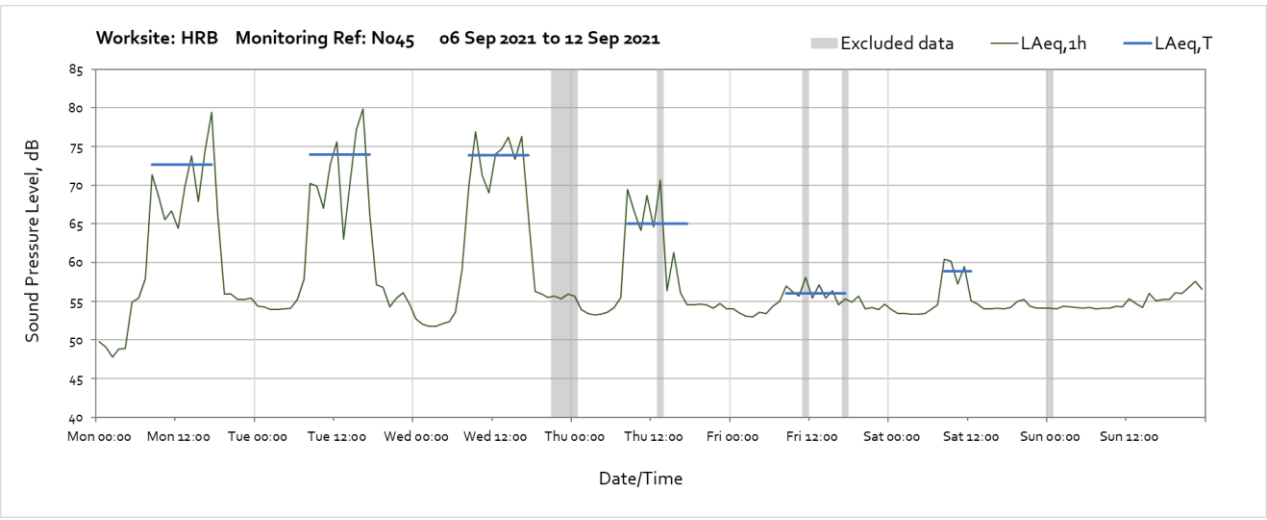
Note: Continuous noise levels measured throughout the week were caused by an operational generator near to the monitor. The nearest receptor is located further from the generator and will therefore experience lower noise levels. Missing data from 00:00 until 02:00 on Wednesday 22nd September was due to a memoty fault within the monitoring station. The monitor firmware will be updated with view of avoiding further loss of data.

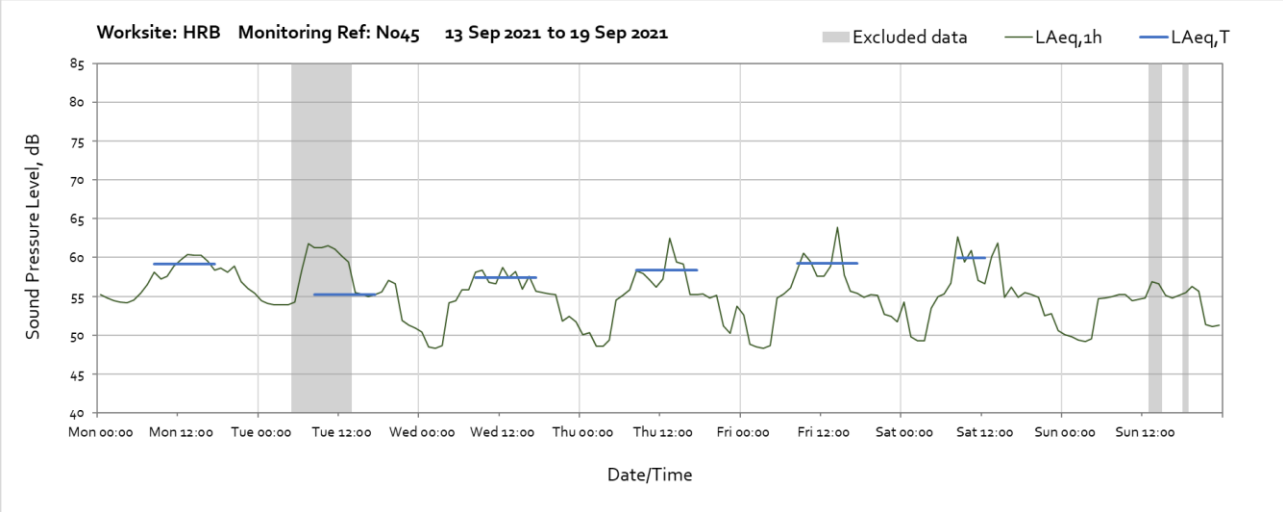


Note: Continuous noise levels measured throughout the week were caused by an operational generator near to the monitor. The nearest receptor is located further from the generator and will therefore experience lower noise levels.

Worksite: HRB – Monitoring Ref: N045






Worksite: HRB Monitoring Ref: No45 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
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Mon 12:00
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Wed 12:00
Thu 00:00
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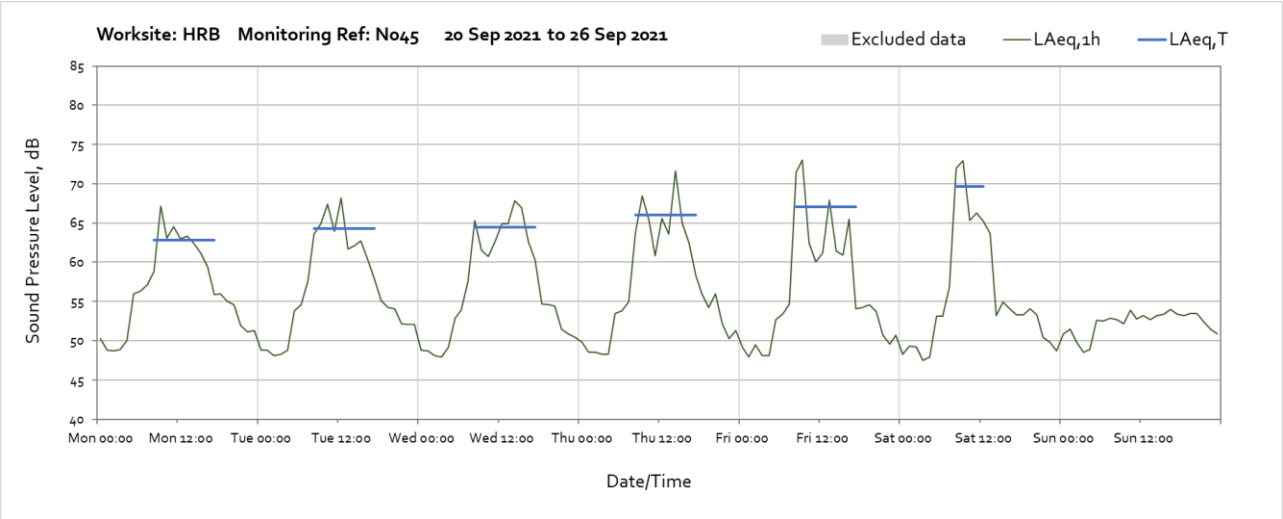
Sun 00:00
Sun 12:00
Date/Time


Worksite: HRB Monitoring Ref: No45 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
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45
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Mon 00:00
Mon 12:00
Tue 00:00
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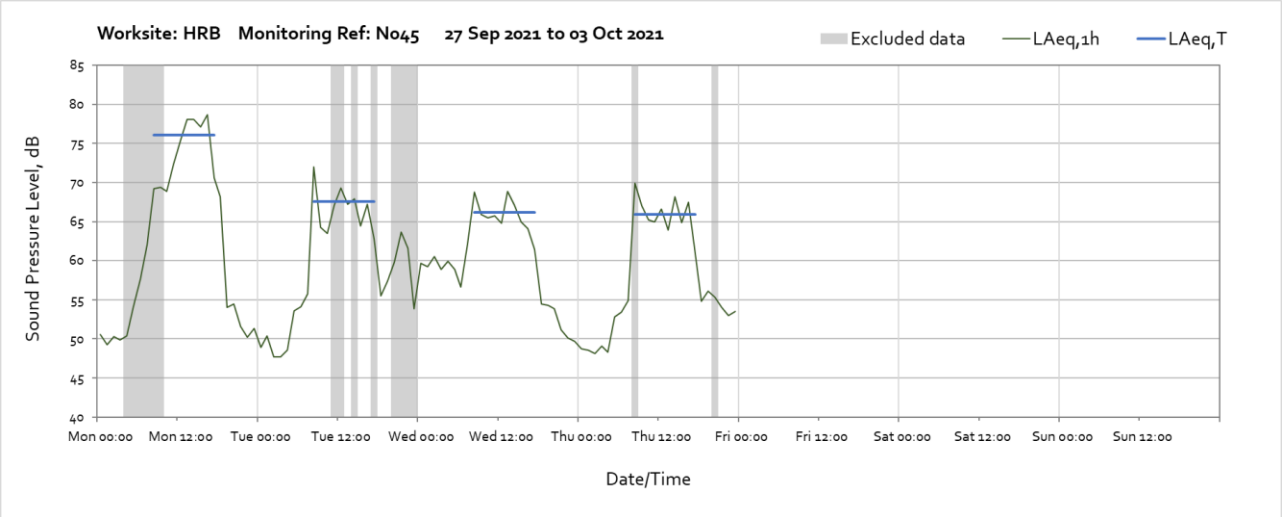
Sun 12:00
Date/Time


Worksite: HRB Monitoring Ref: No45 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
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45
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Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
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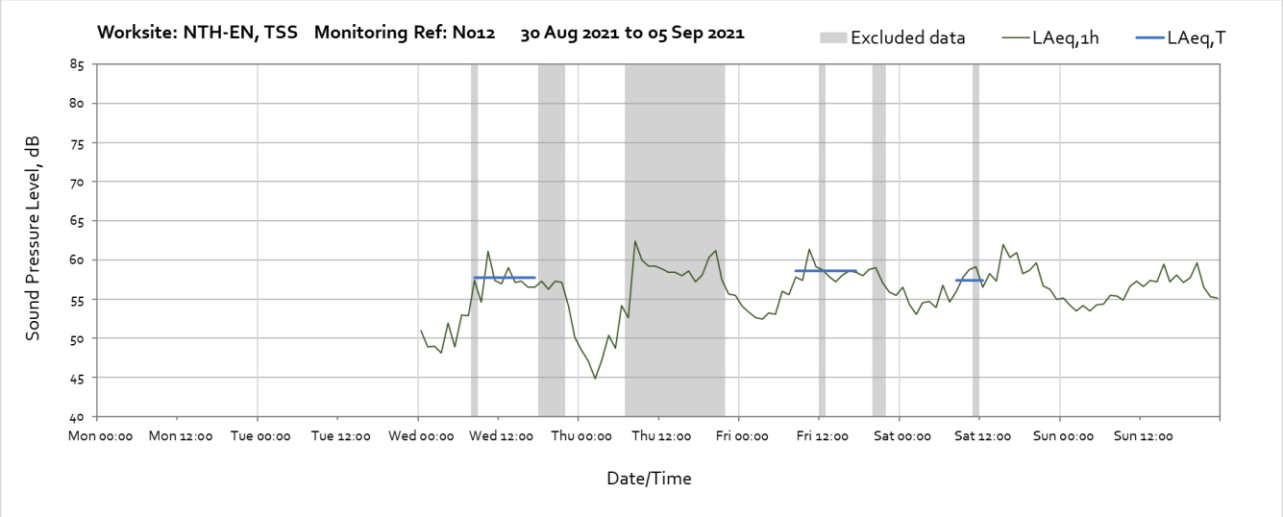
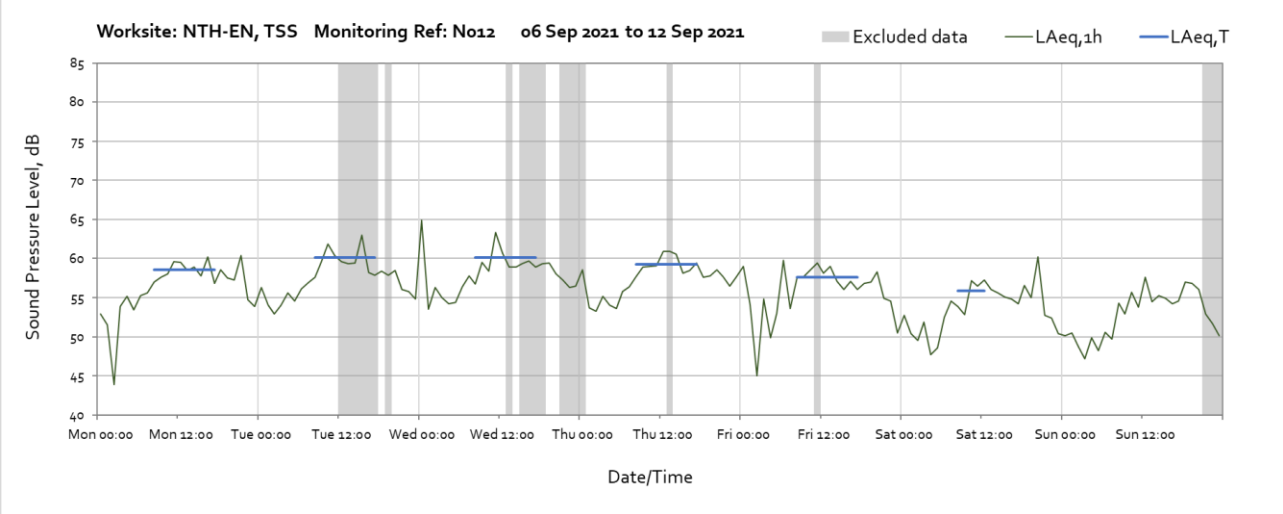
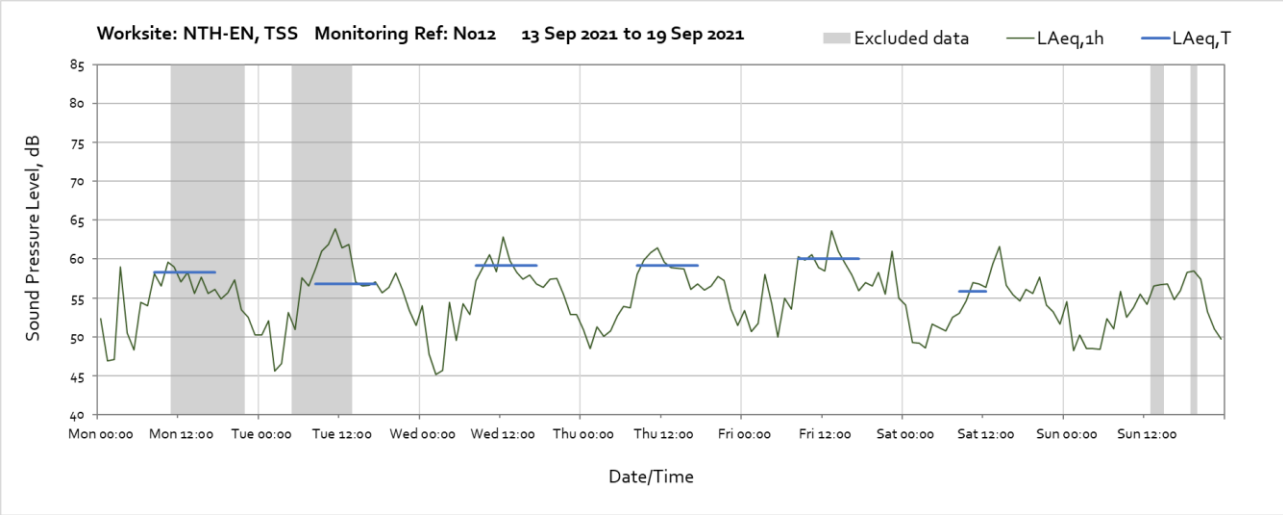
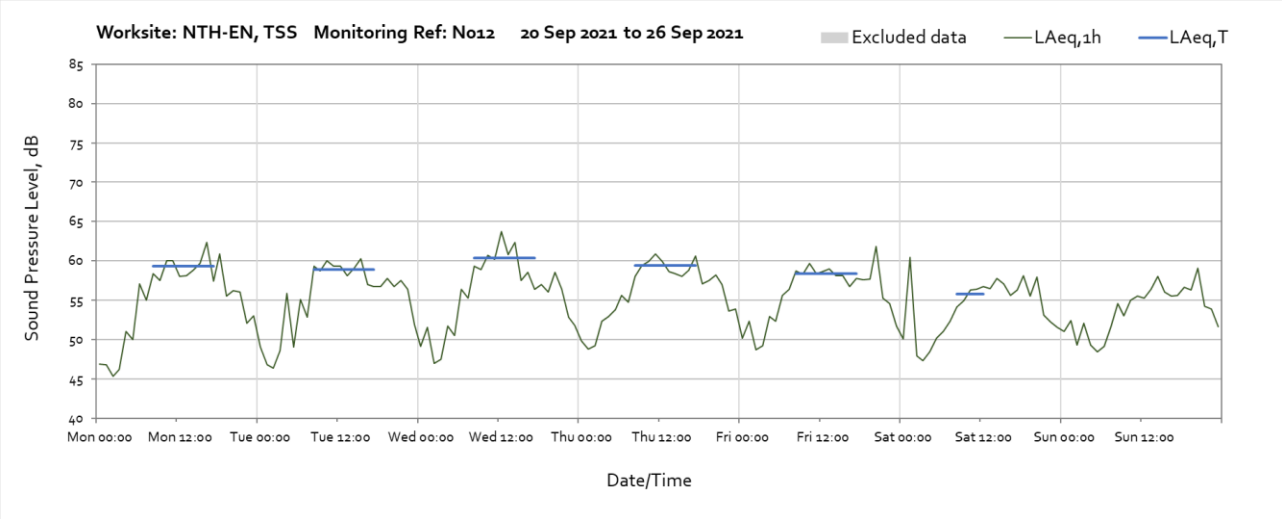
Date/Time

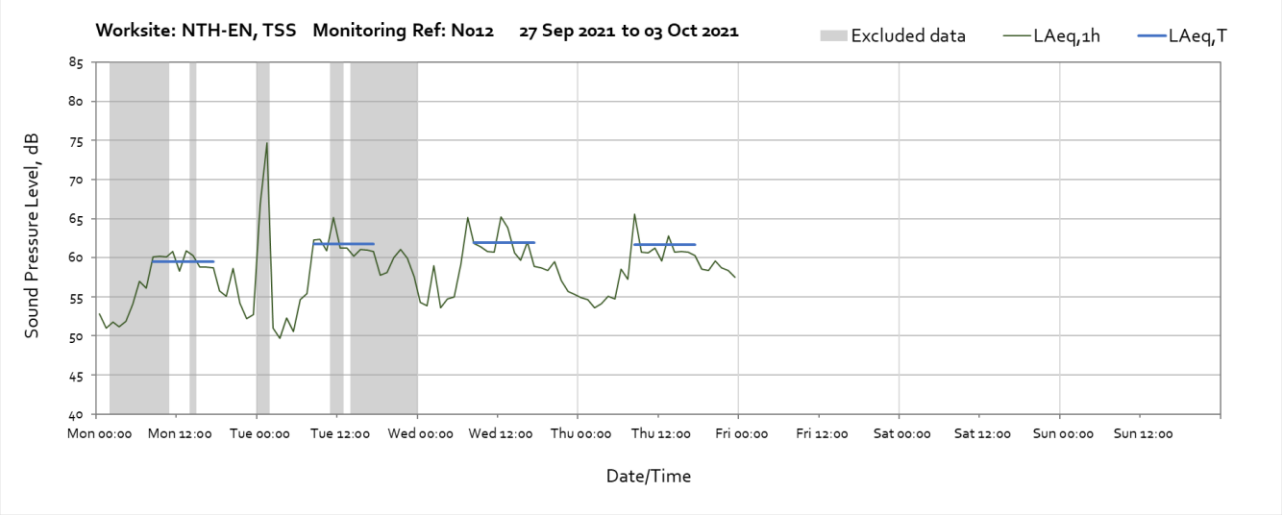
Worksite: NTH-EN, TSS – Monitoring Ref: N012



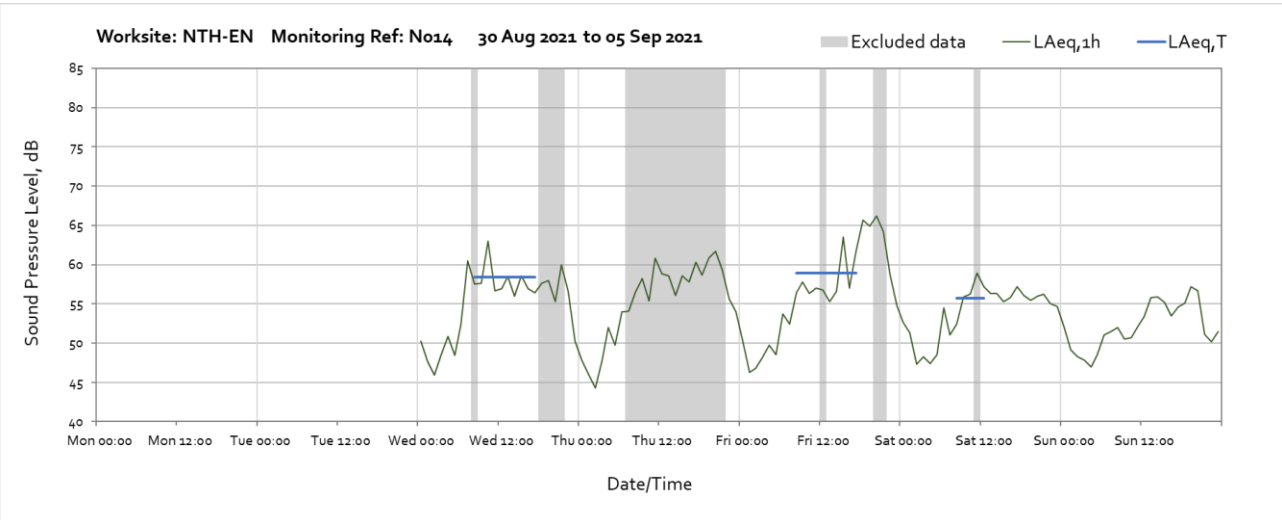


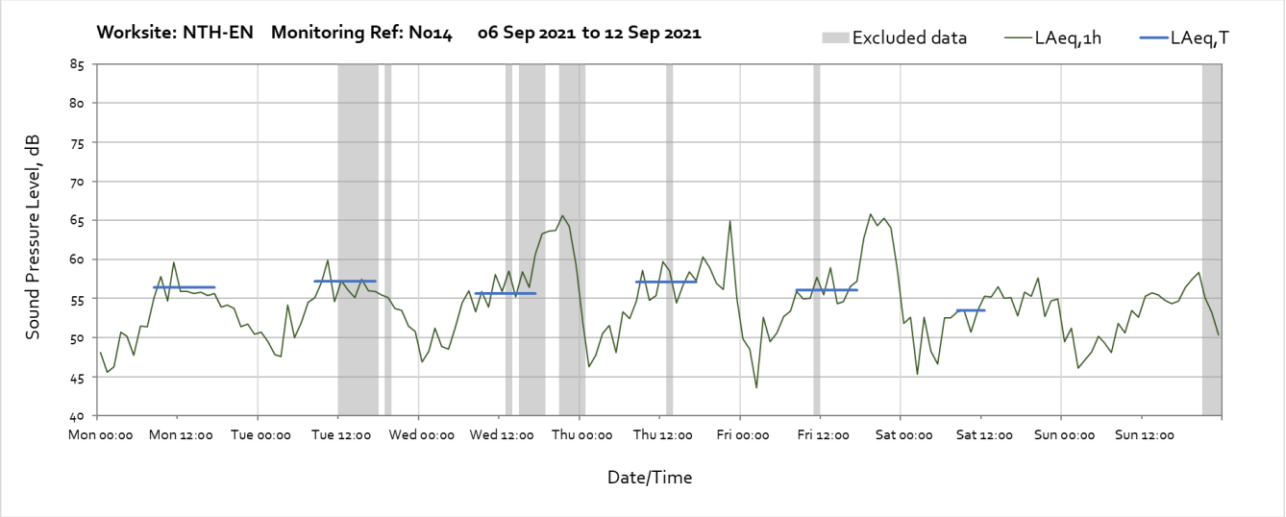






Worksite: NTH-EN – Monitoring Ref: N014




Worksite: NTH-EN Monitoring Ref: No14 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
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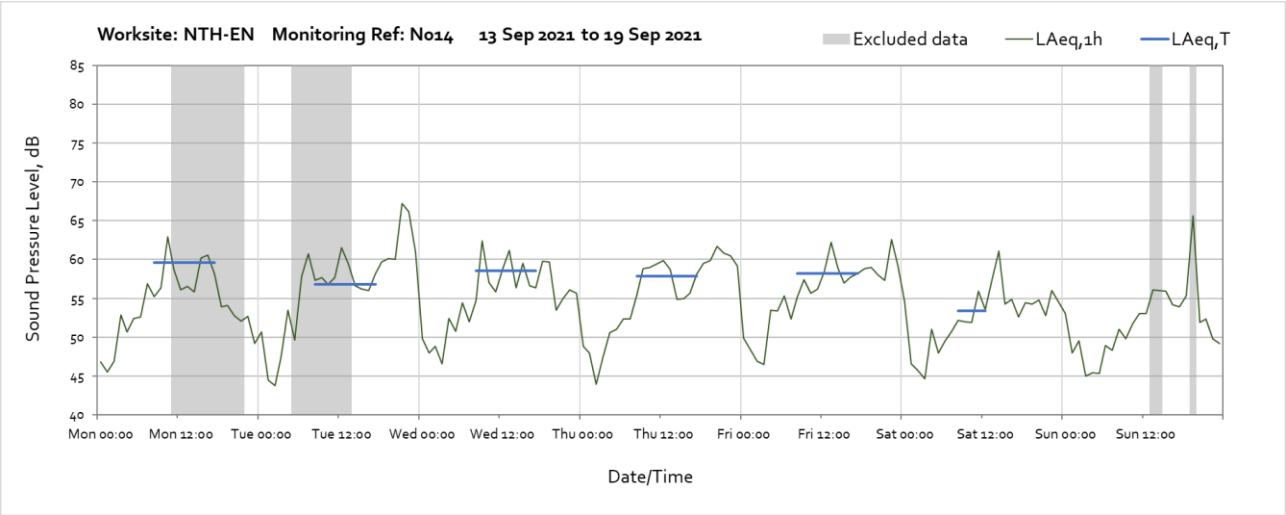
Date/Time


Worksite: NTH-EN Monitoring Ref: No14 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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75
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60
55
50
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40
Mon 00:00
Mon 12:00
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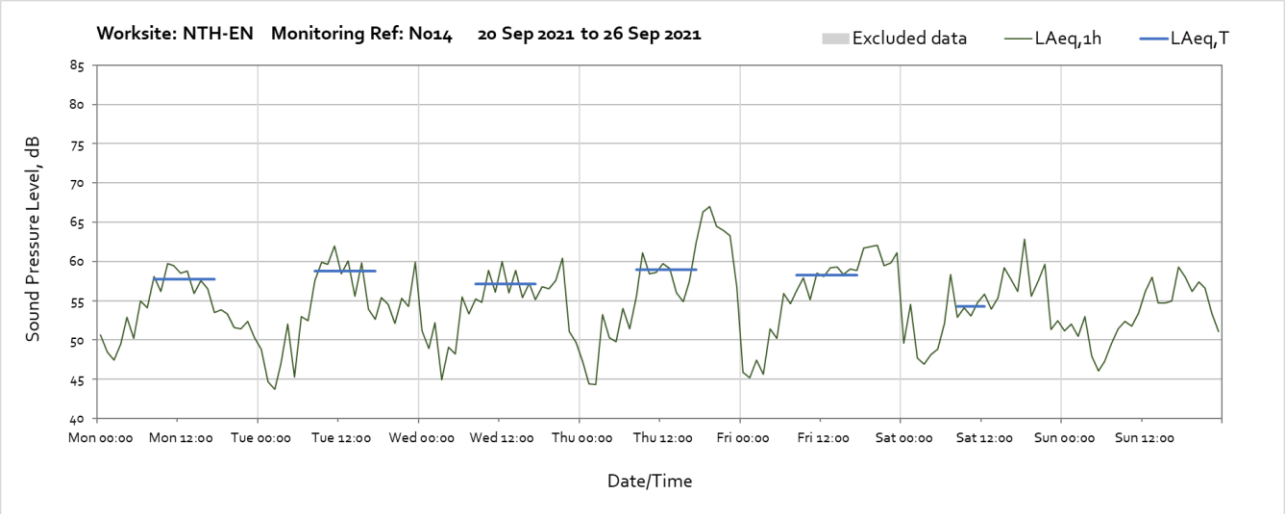
Date/Time


Worksite: NTH-EN Monitoring Ref: No14 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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60
55
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Mon 00:00
Mon 12:00
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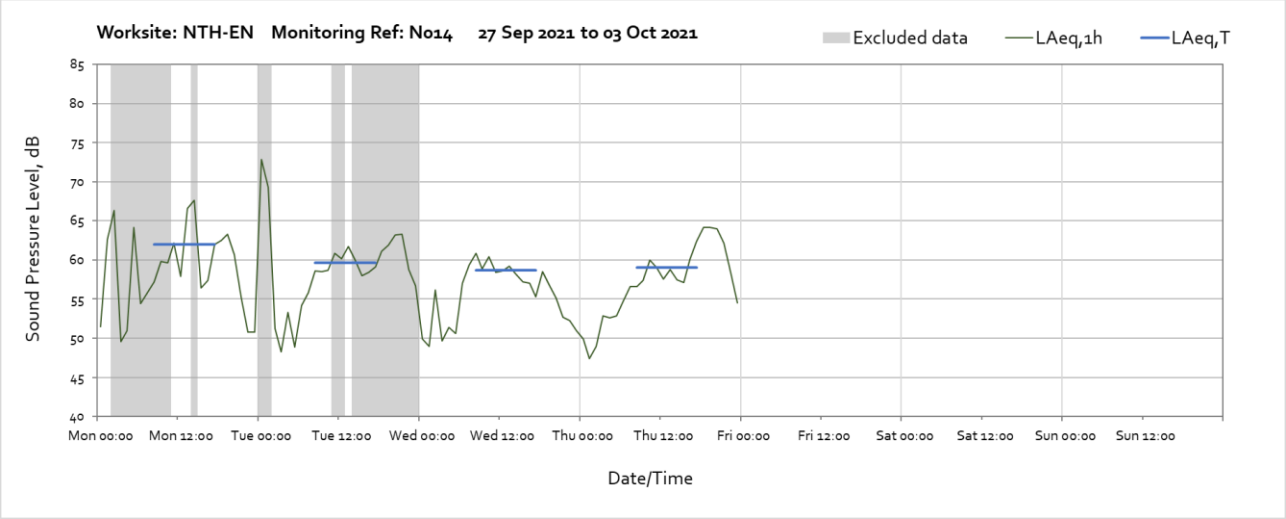
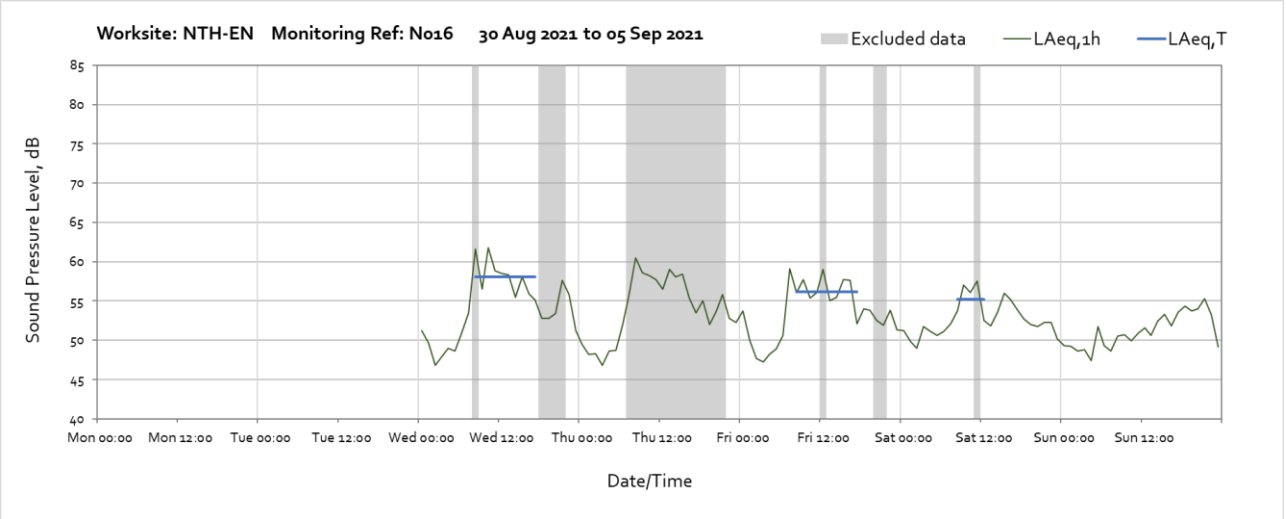
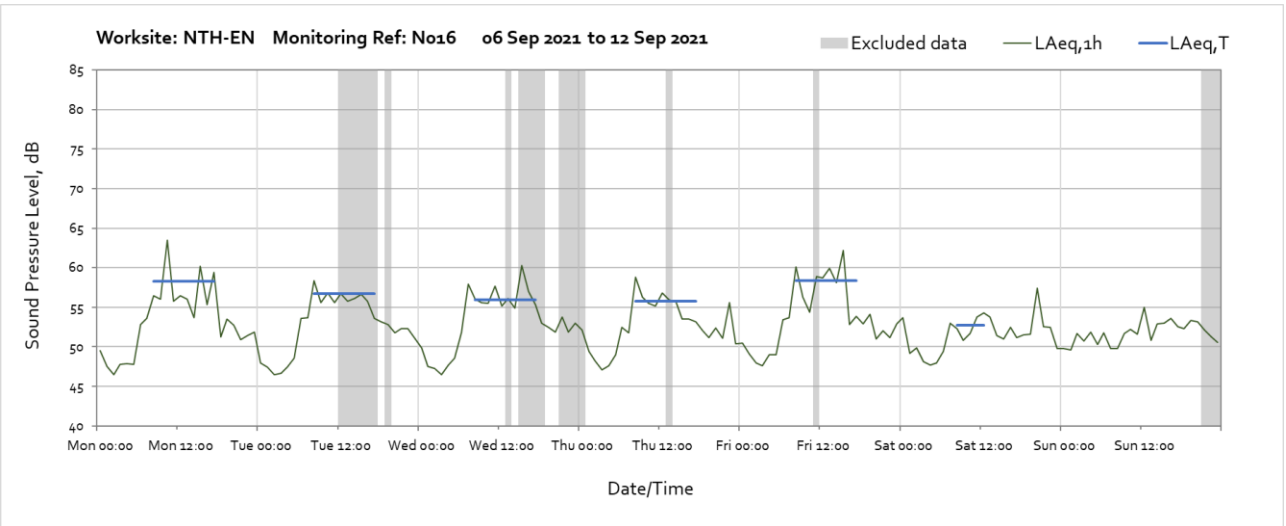
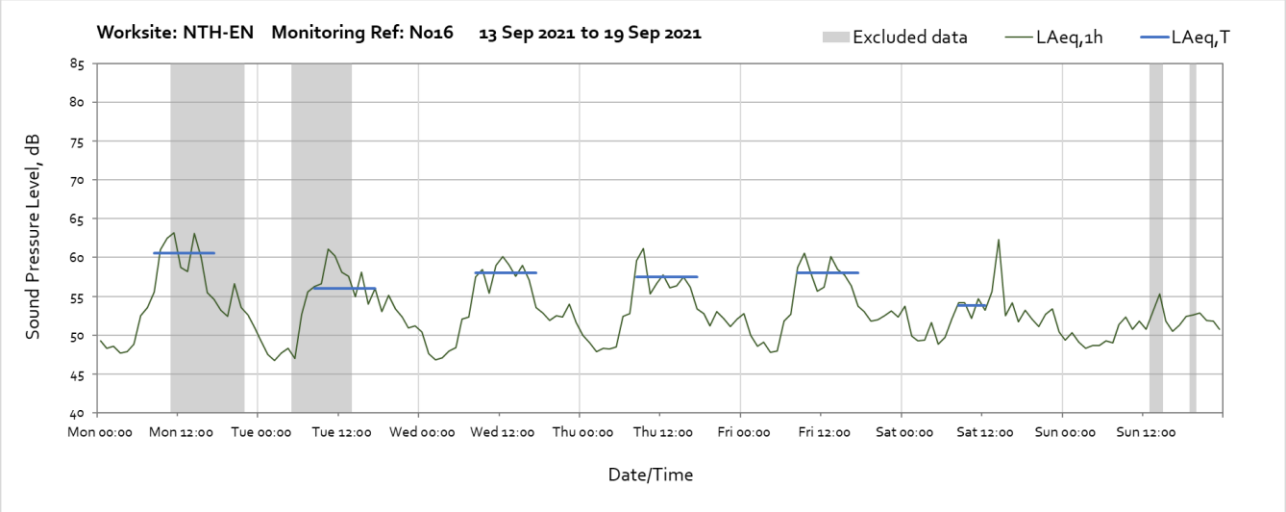
Date/Time



Worksite: NTH-EN – Monitoring Ref: N016






Worksite: NTH-EN Monitoring Ref: No16 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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60
55
50
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Mon 00:00
Mon 12:00
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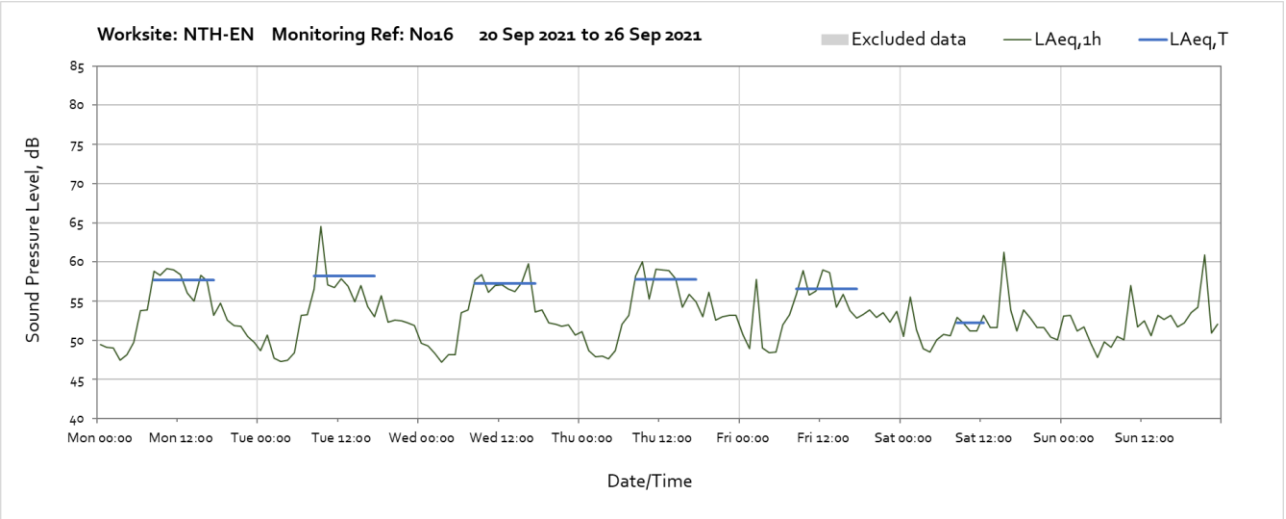
Date/Time


Worksite: NTH-EN Monitoring Ref: No16 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
Mon 12:00
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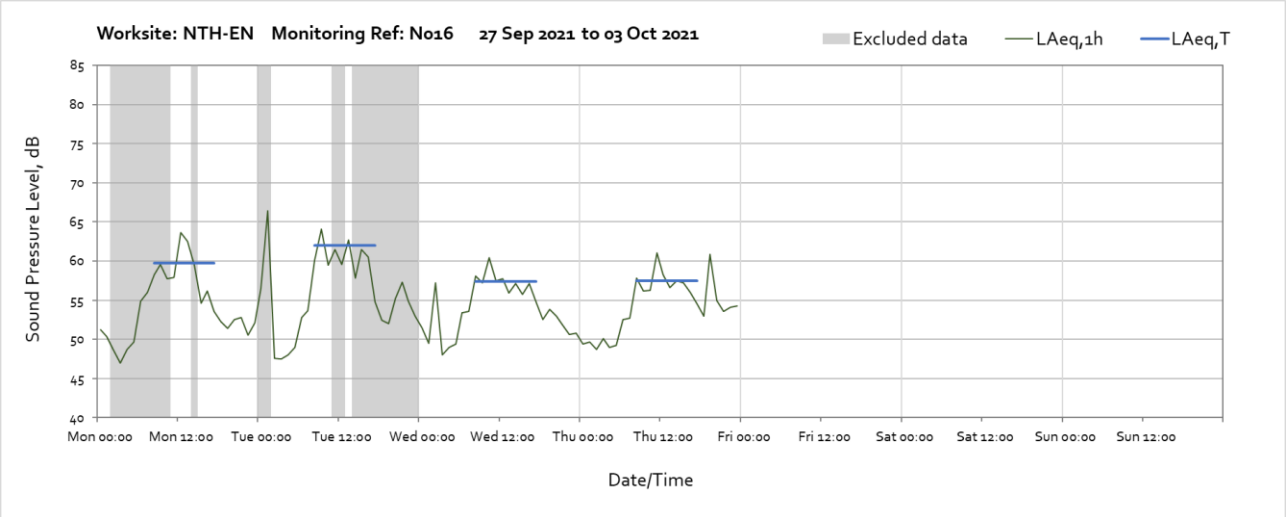
Date/Time


Worksite: NTH-EN Monitoring Ref: No16 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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Mon 00:00
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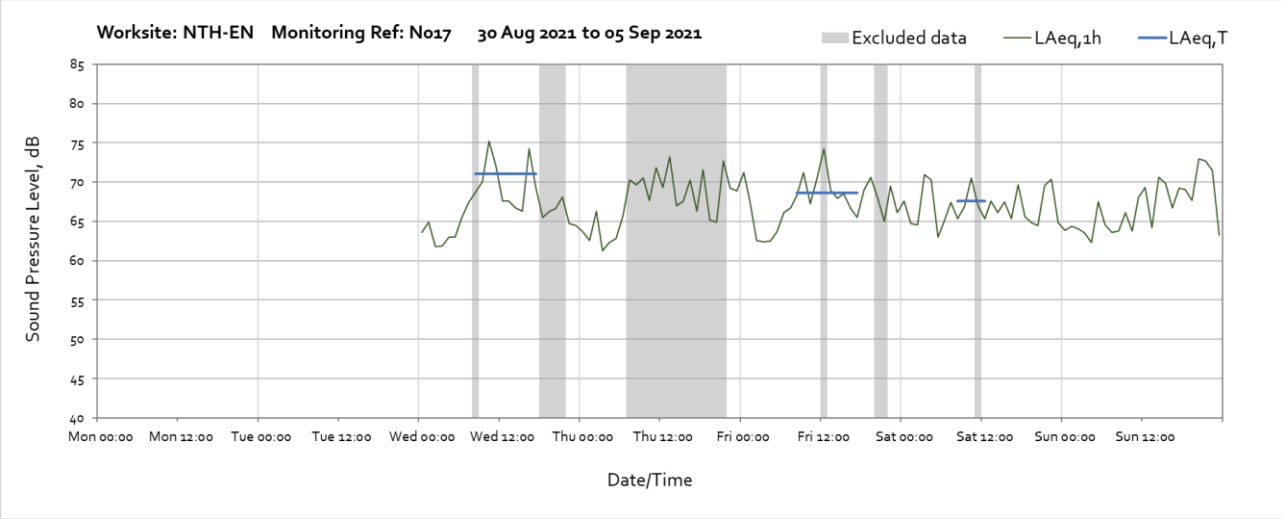
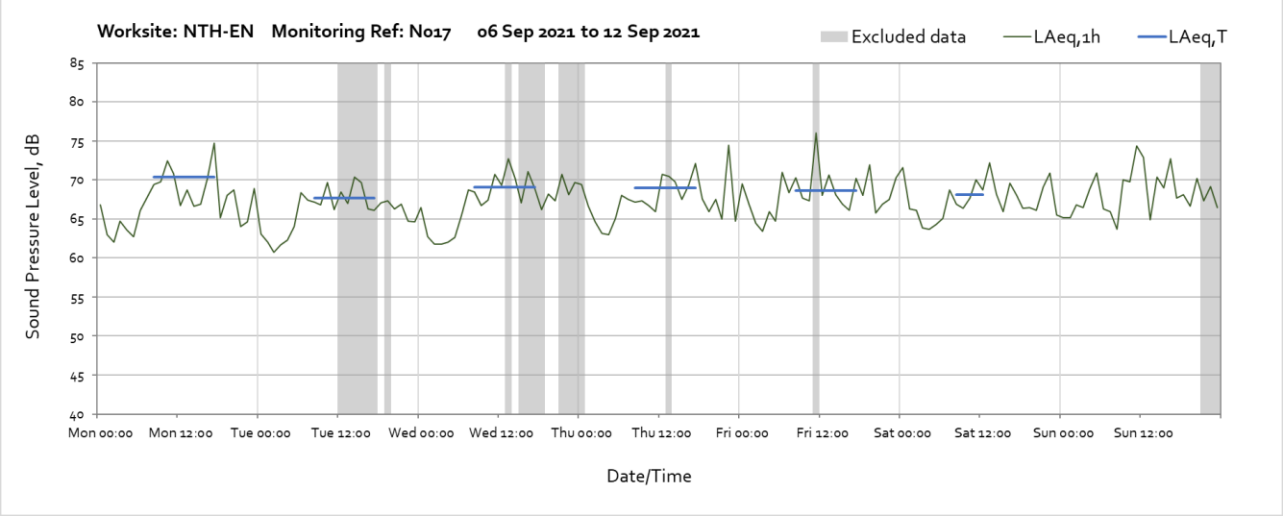
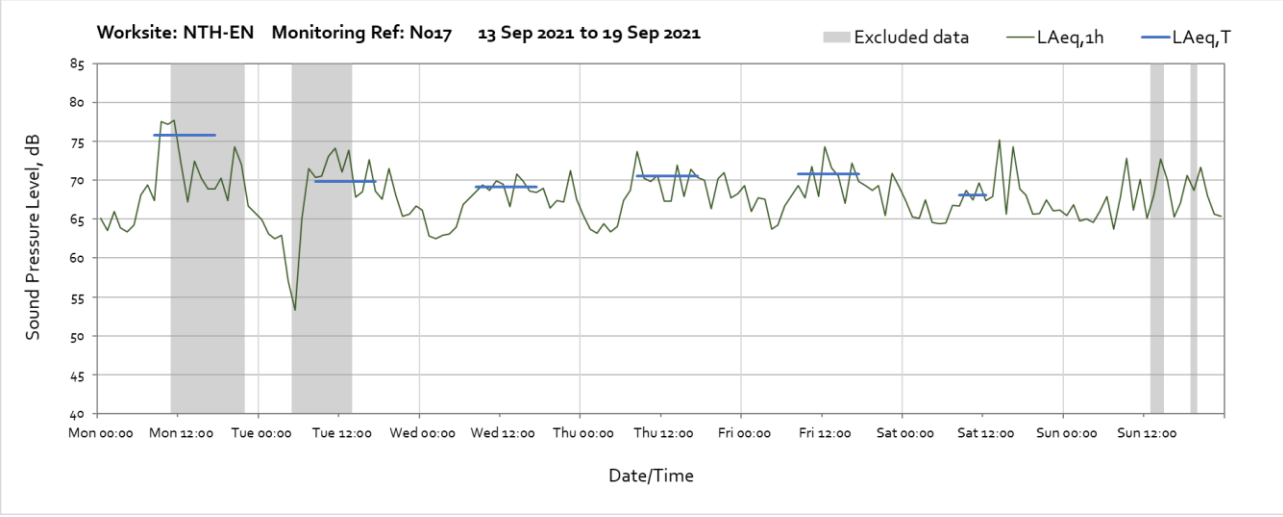
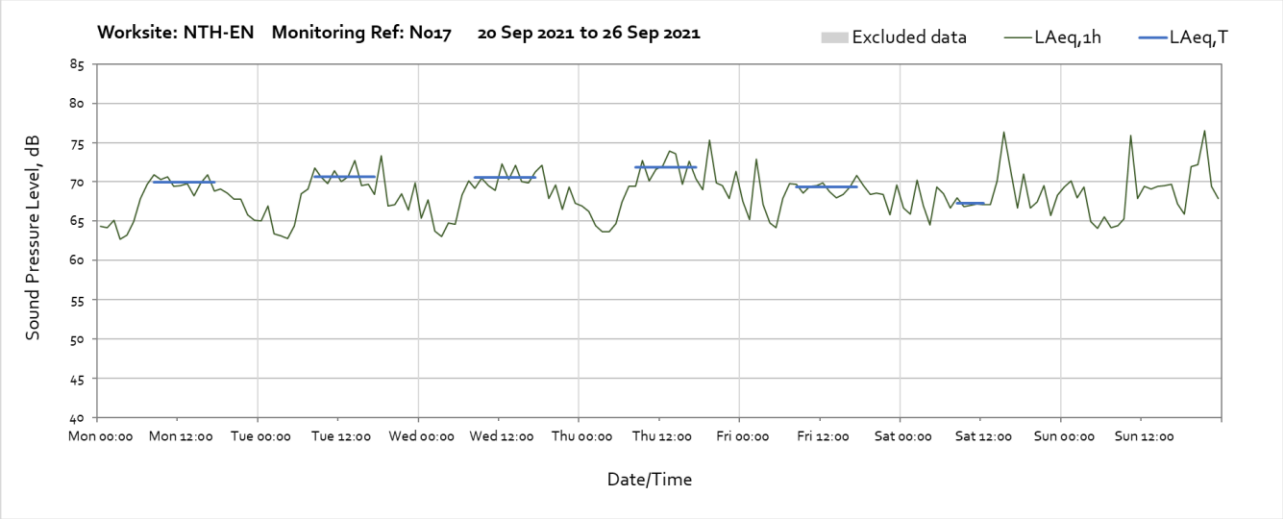
Sun 12:00
Date/Time

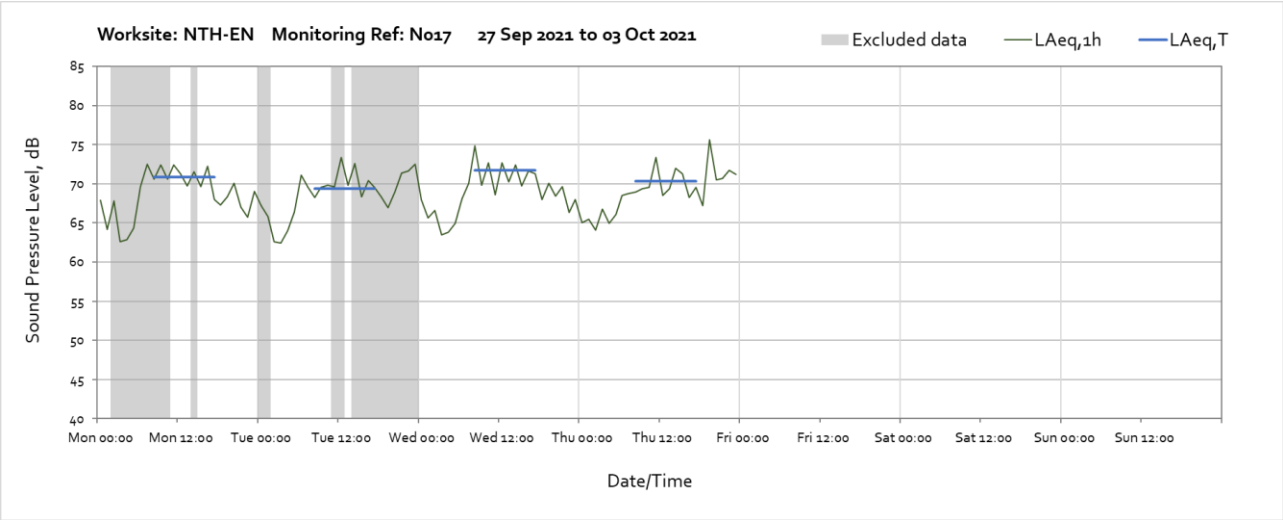
Worksite: NTH-EN – Monitoring Ref: N017



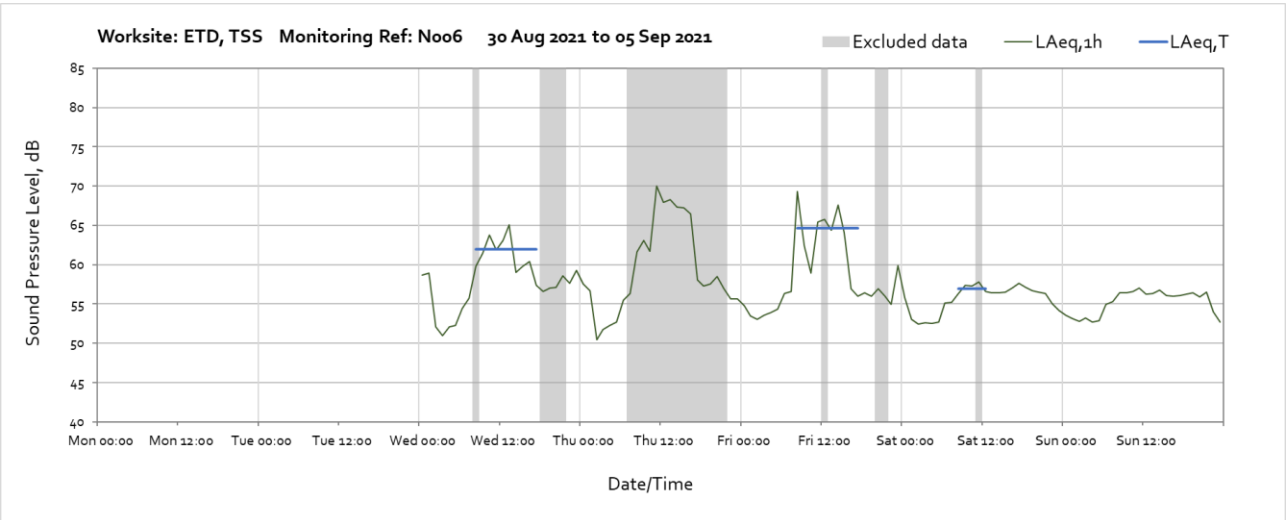


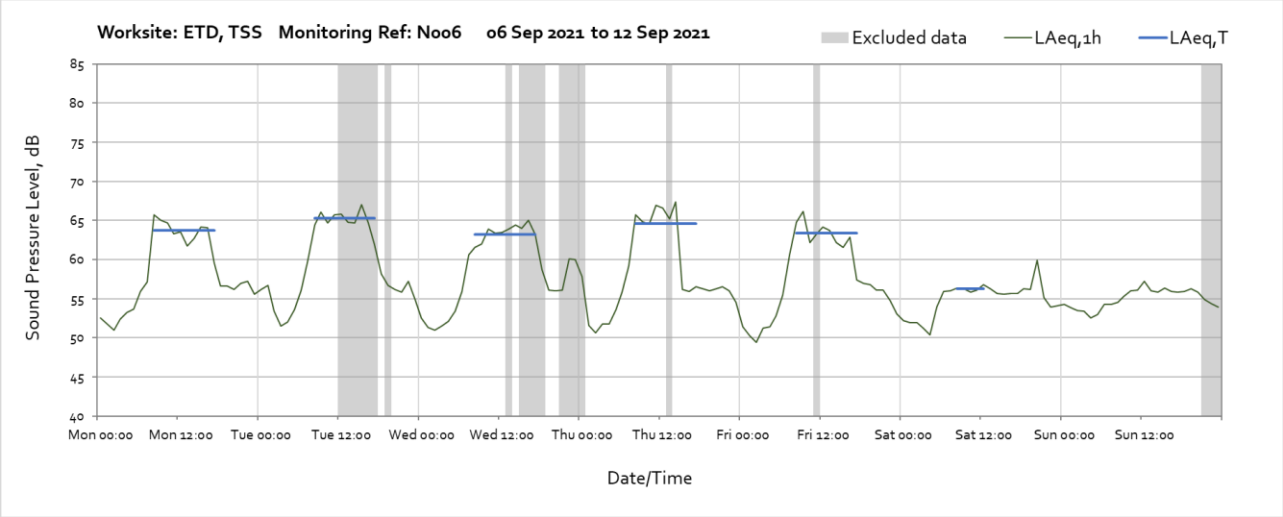






Worksite: ETD, TSS – Monitoring Ref: N006




Worksite: ETD, TSS Monitoring Ref: No06 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
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Mon 00:00
Mon 12:00
Tue 00:00
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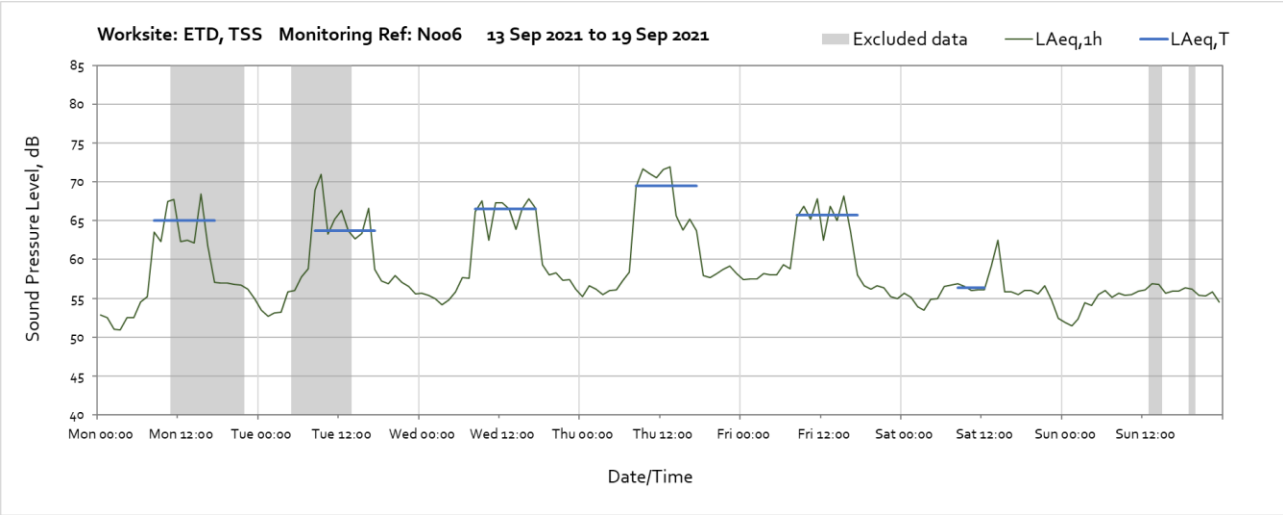
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: ETD, TSS Monitoring Ref: No06 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
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Mon 00:00
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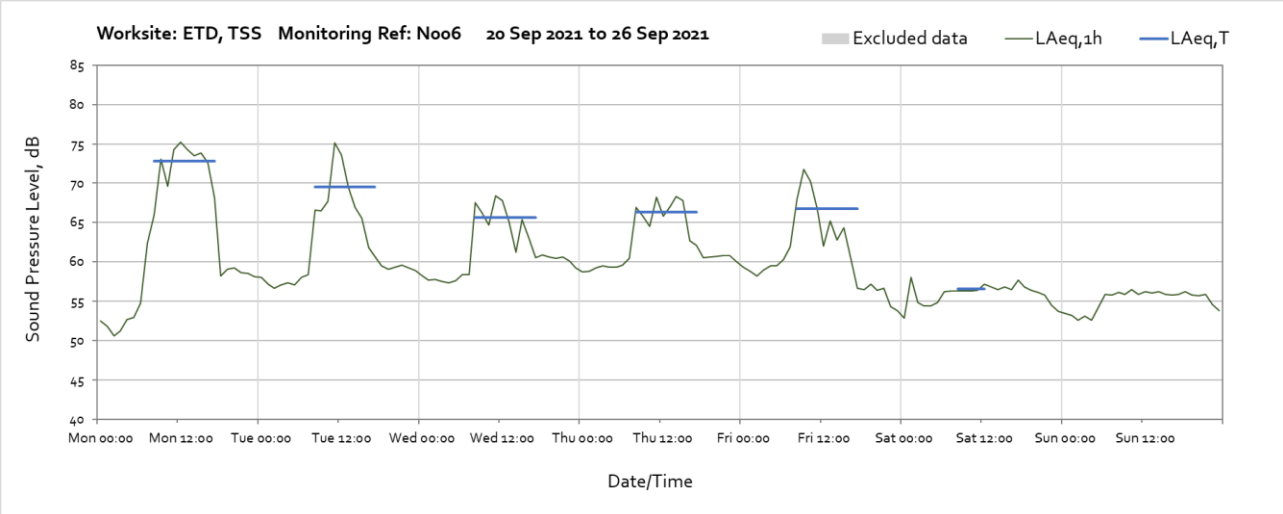
Sun 12:00
Date/Time


Worksite: ETD, TSS Monitoring Ref: No06 20 Sep 2021 to 26 Sep 2021
Excluded data
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LAeq,T
Sound Pressure Level, dB
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80
75
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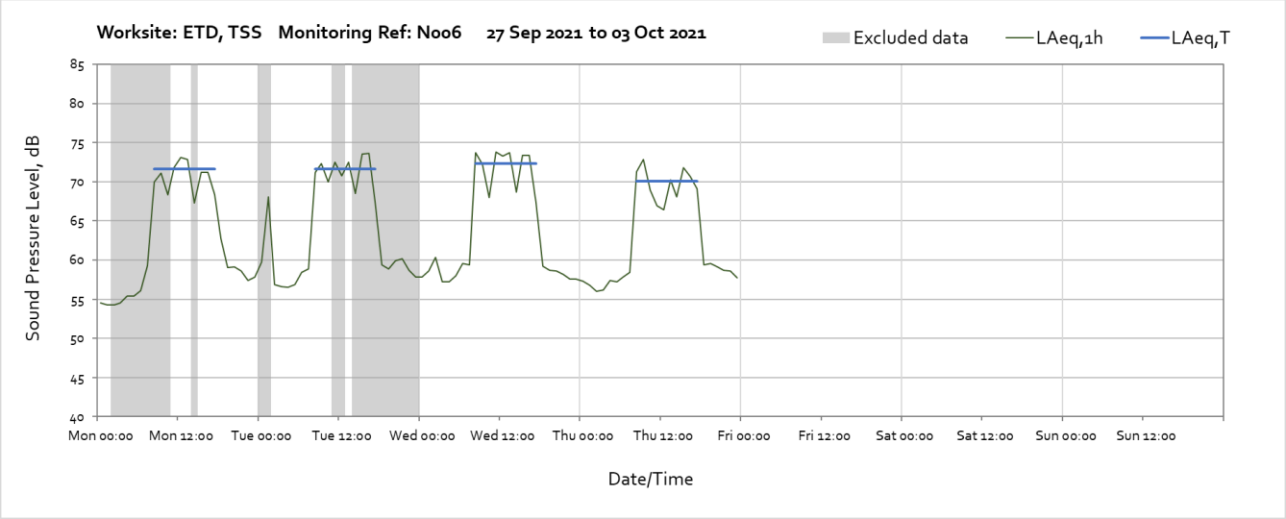
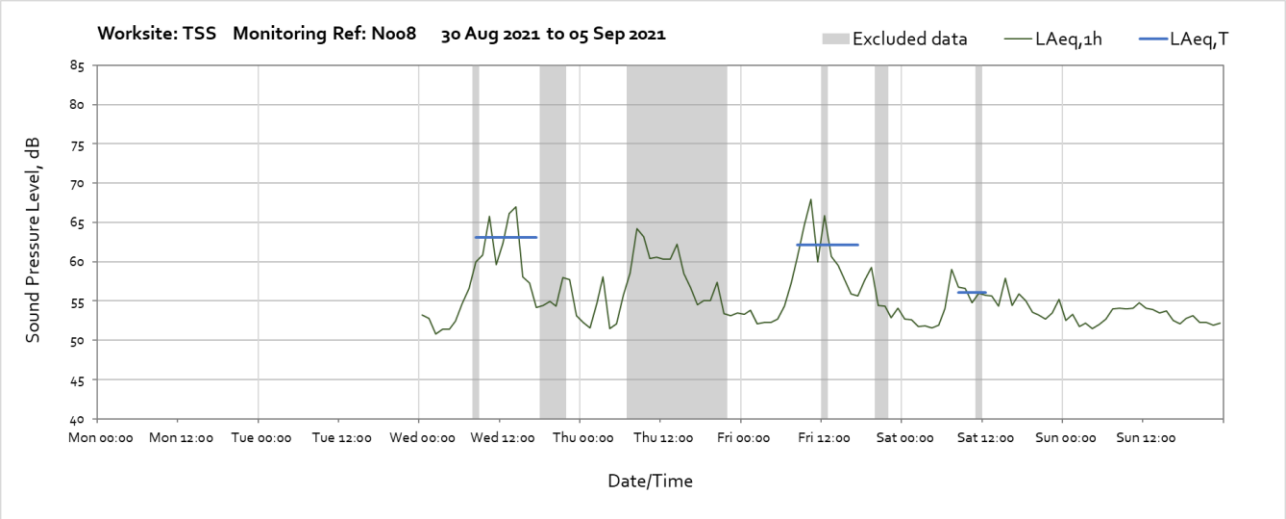
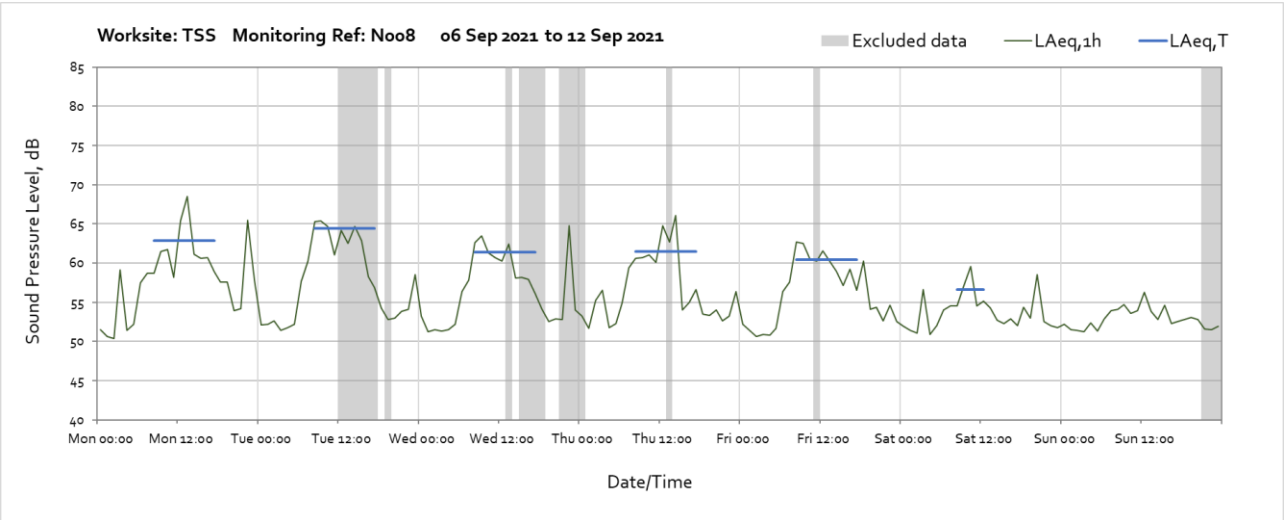
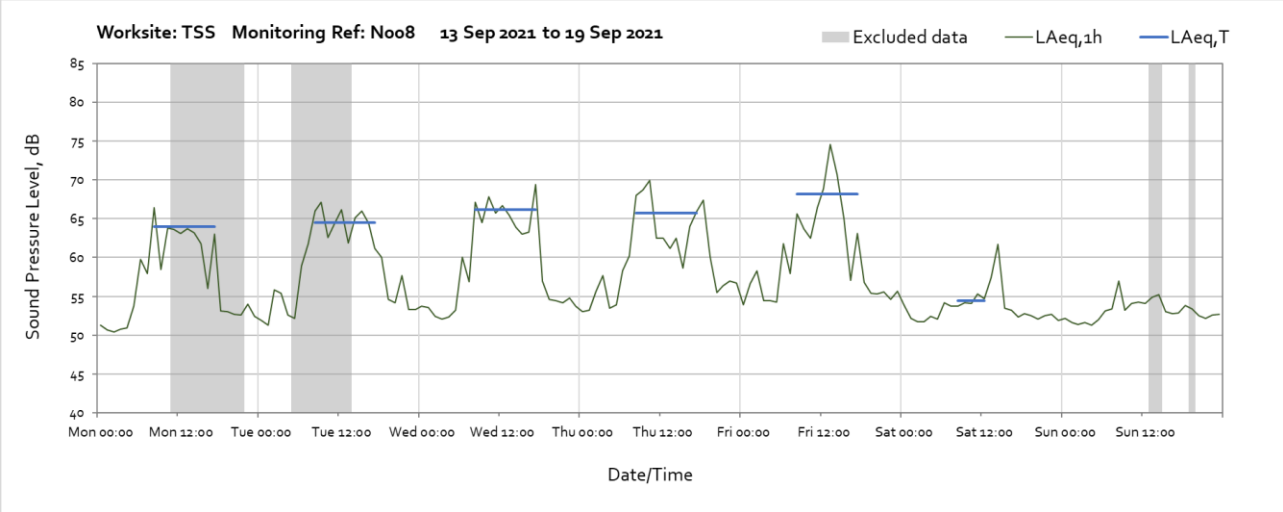
Date/Time



Worksite: TSS – Monitoring Ref: N008






Worksite: TSS Monitoring Ref: Noo8 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
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60
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40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
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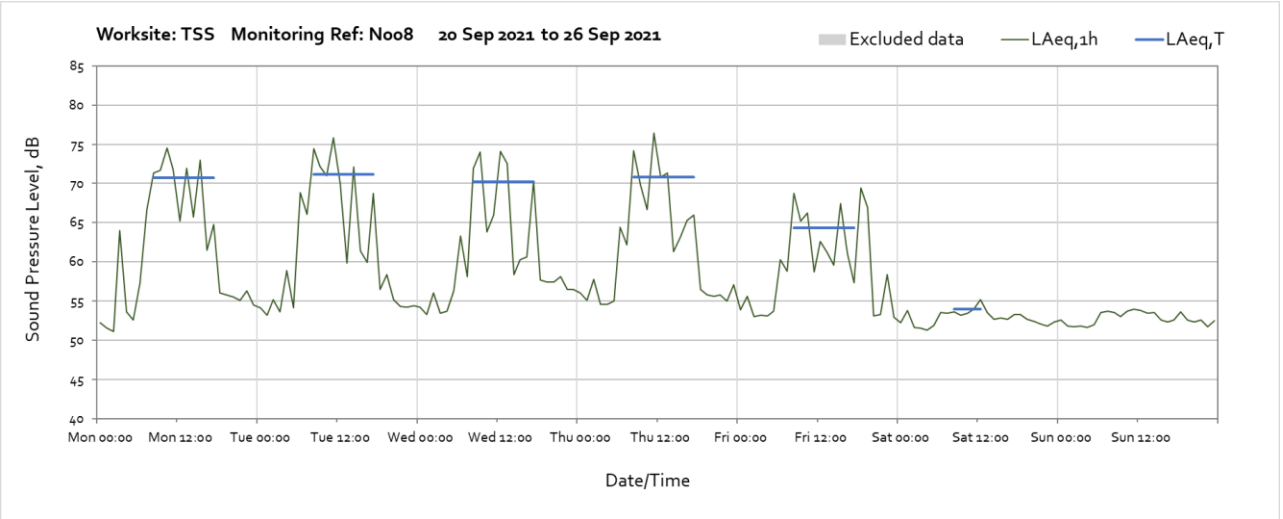
Sun 00:00
Sun 12:00
Date/Time


Worksite: TSS Monitoring Ref: Noo8 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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75
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Mon 00:00
Mon 12:00
Tue 00:00
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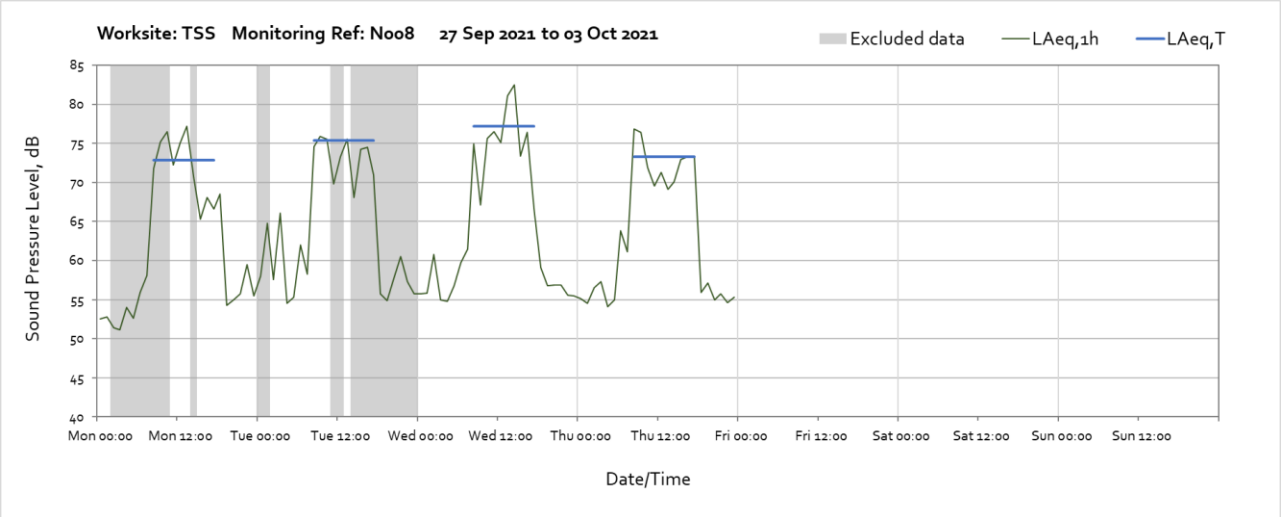
Sun 12:00
Date/Time


Worksite: TSS Monitoring Ref: Noo8 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
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60
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Mon 00:00
Mon 12:00
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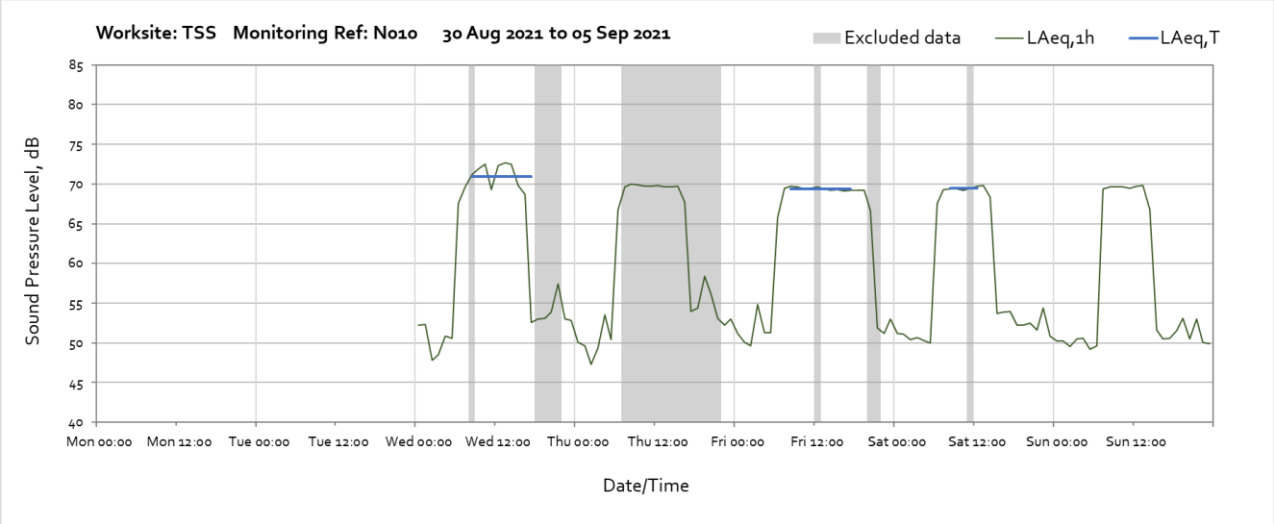
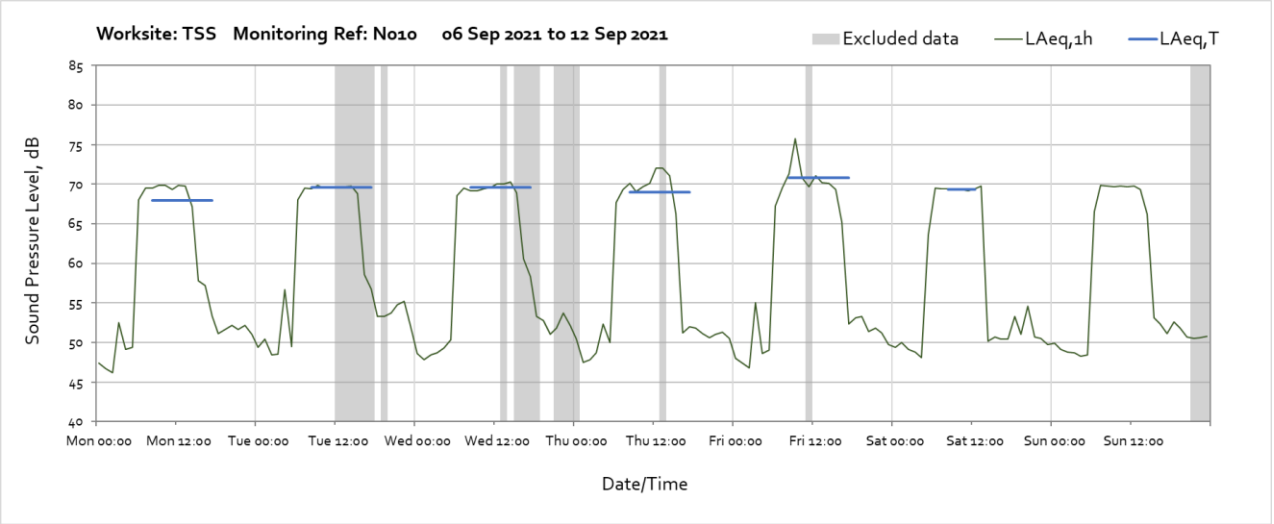
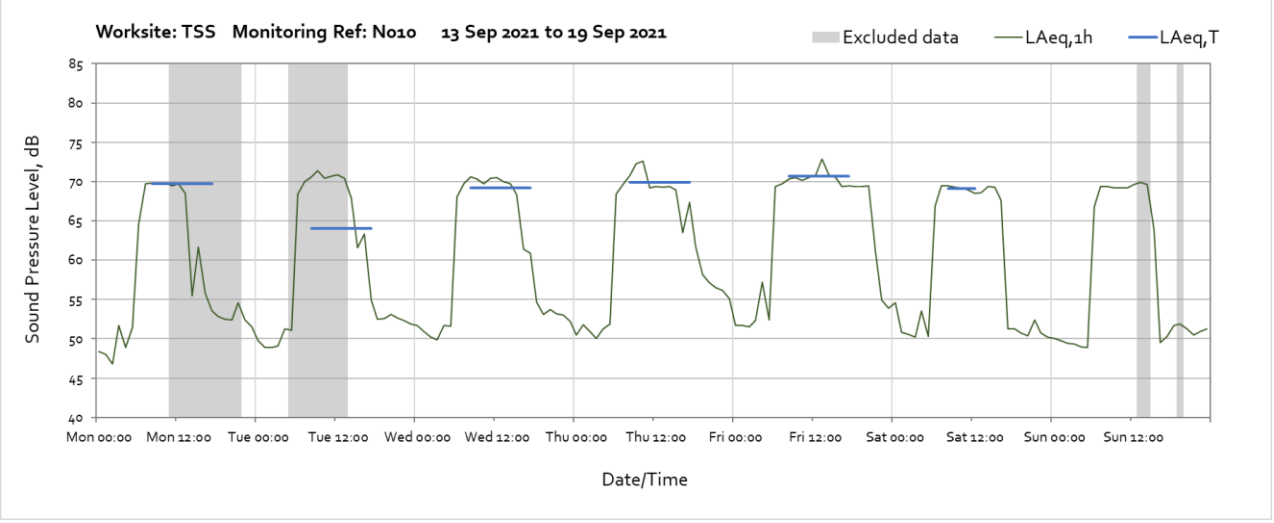
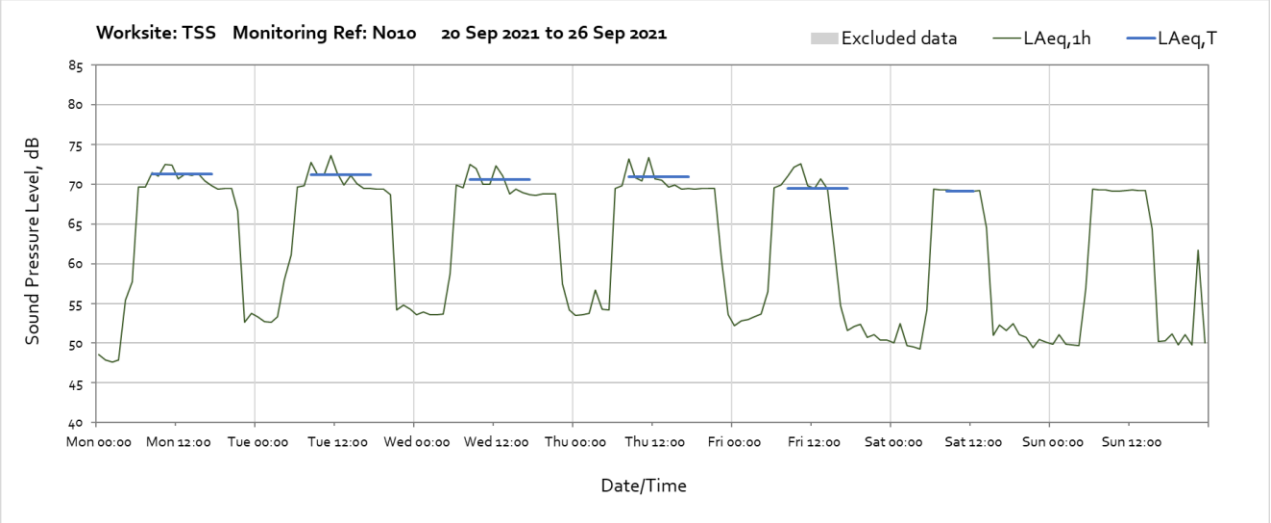
Sun 12:00
Date/Time

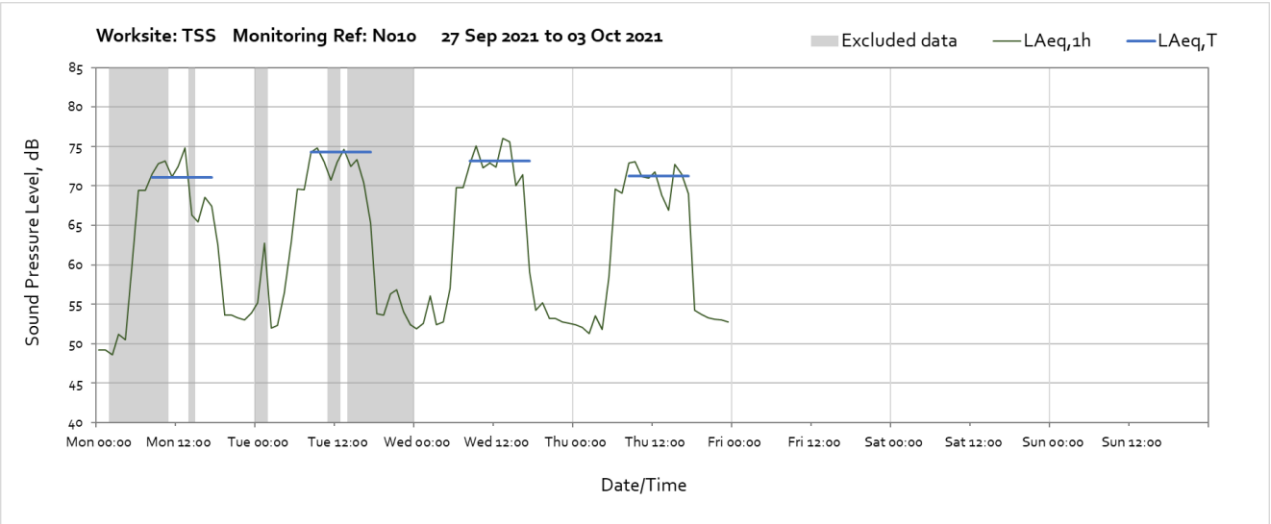
Worksite: TSS – Monitoring Ref: N010



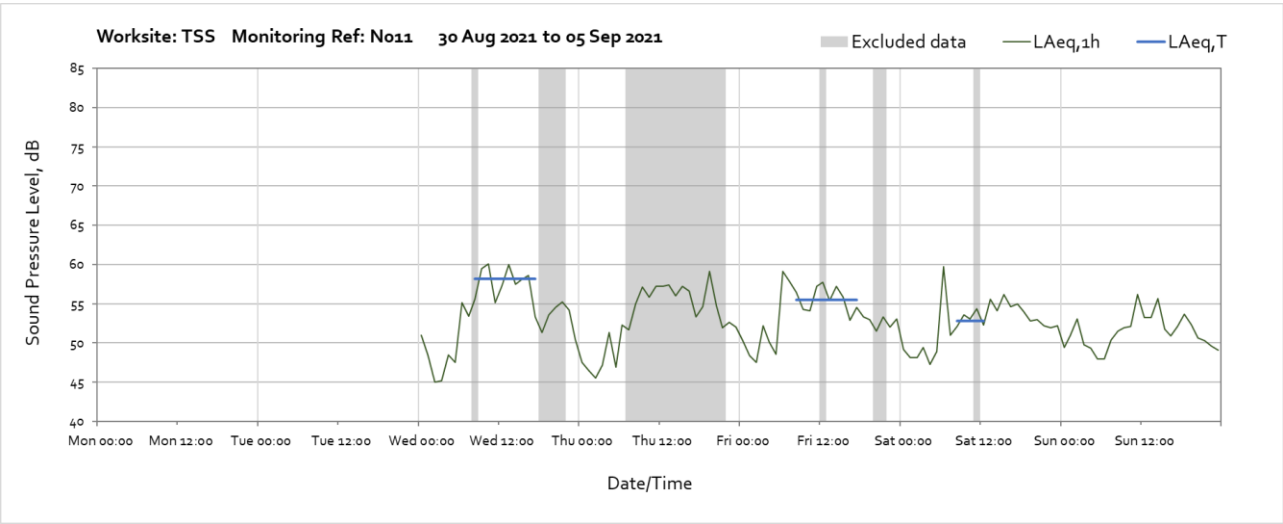


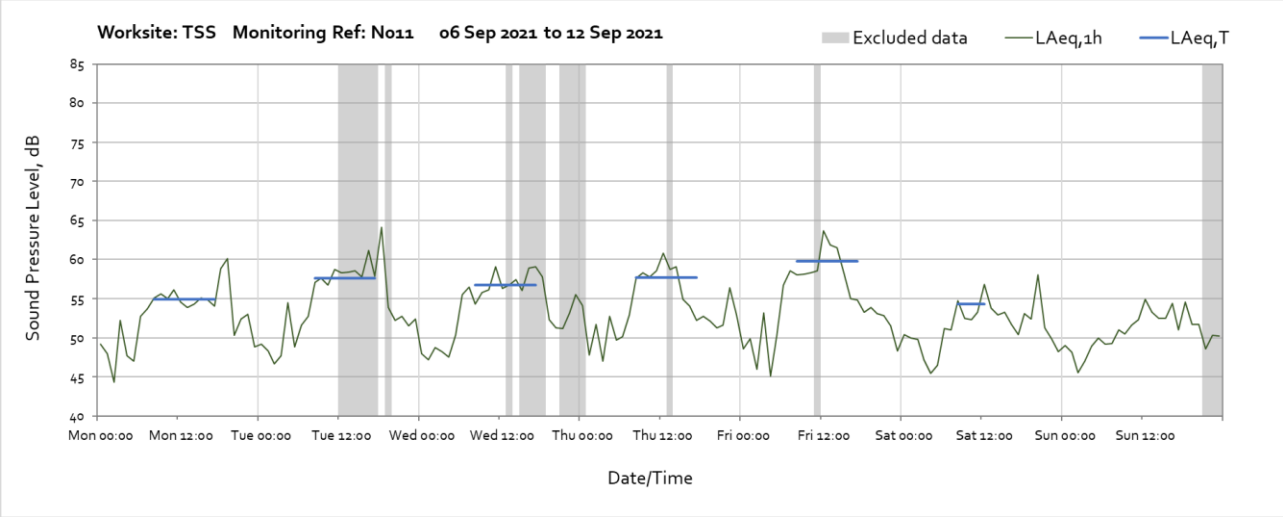






Worksite: S003-WS03 – Monitoring Ref: N011




Worksite: TSS Monitoring Ref: No11 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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Mon 12:00
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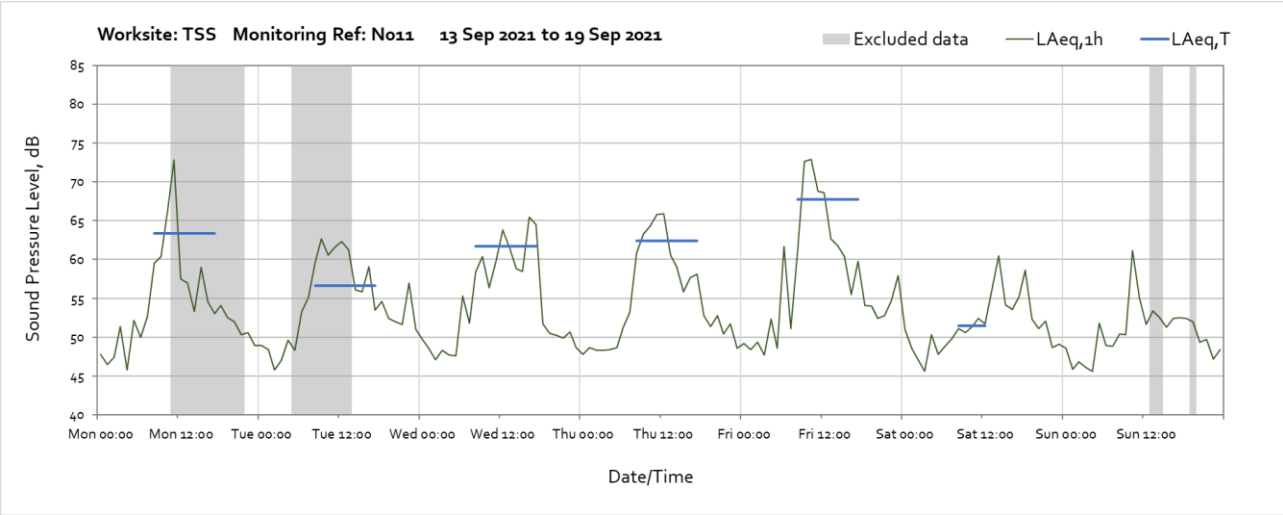
Sun 12:00
Date/Time


Worksite: TSS Monitoring Ref: No11 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
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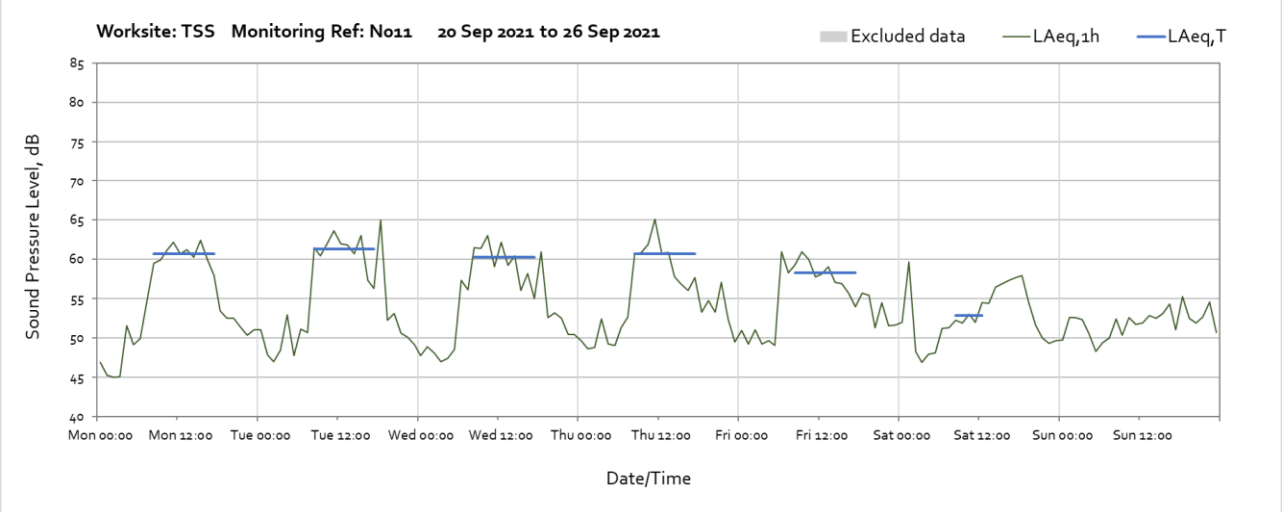
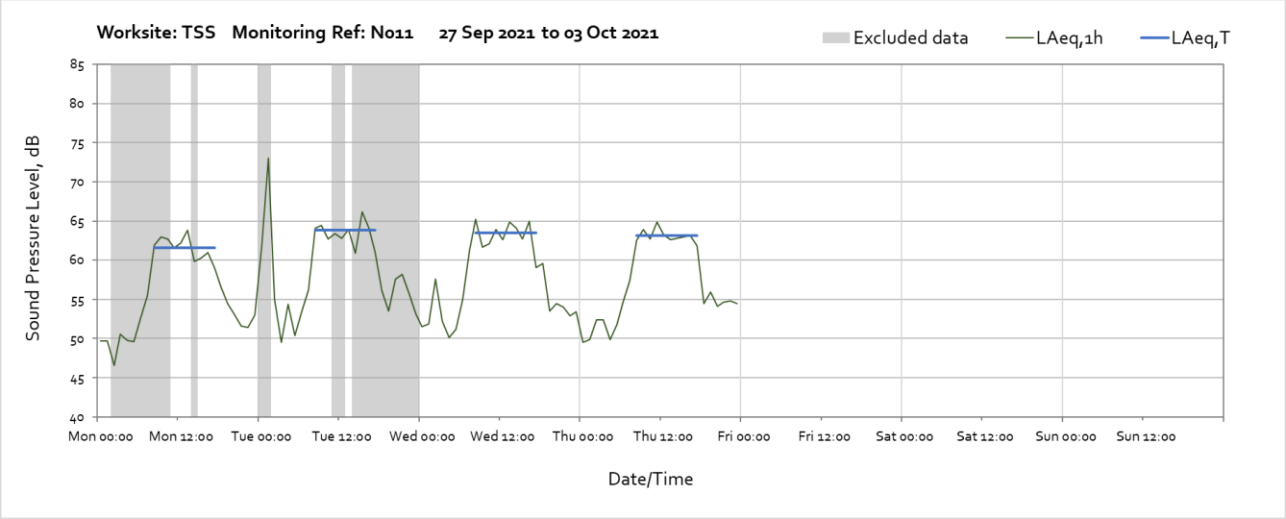
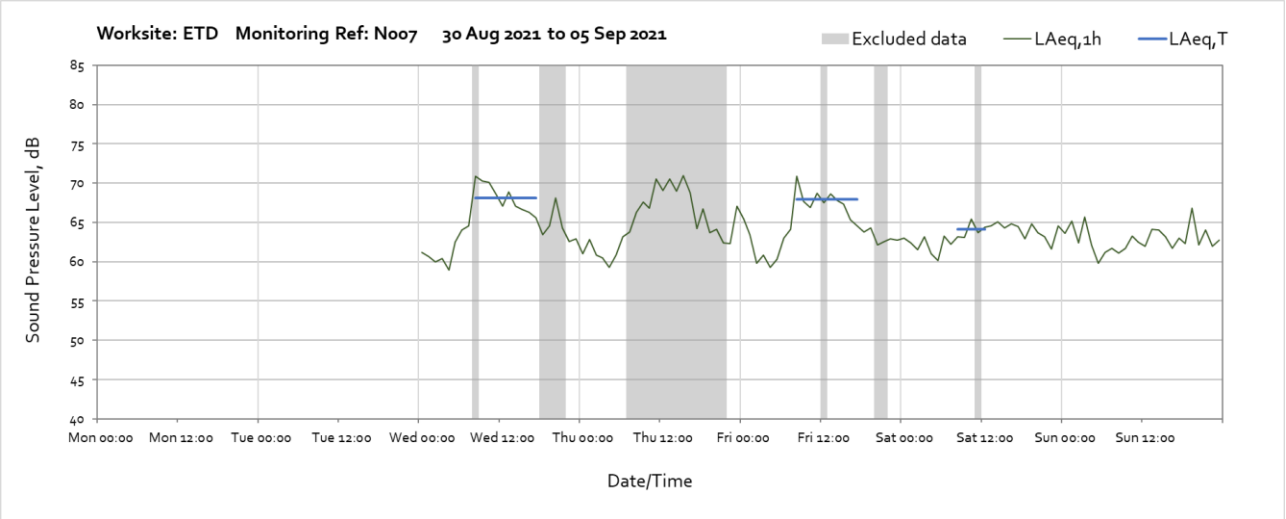
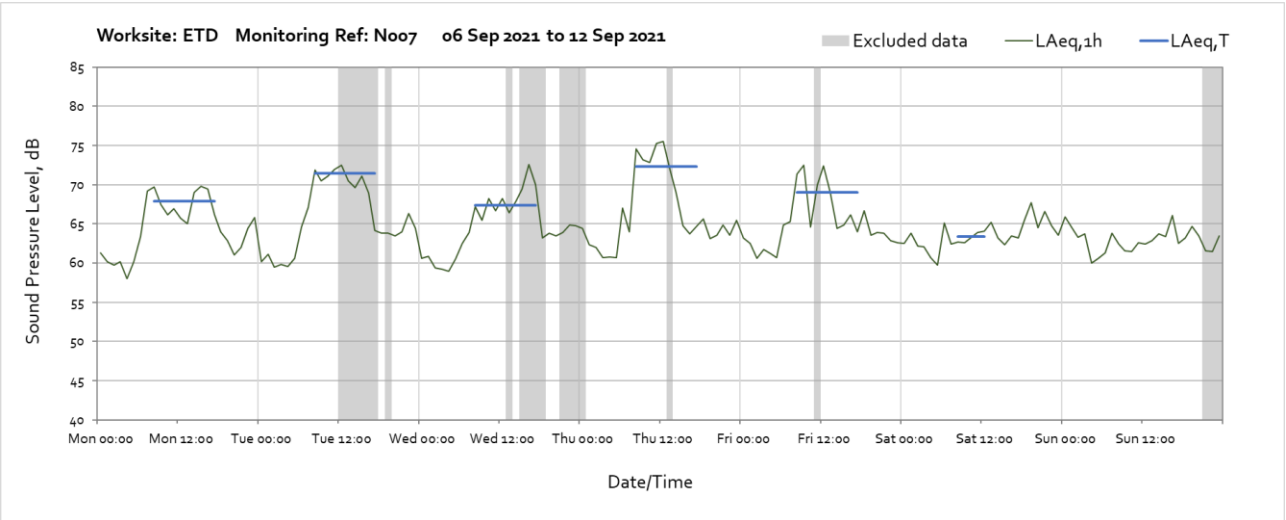
Date/Time

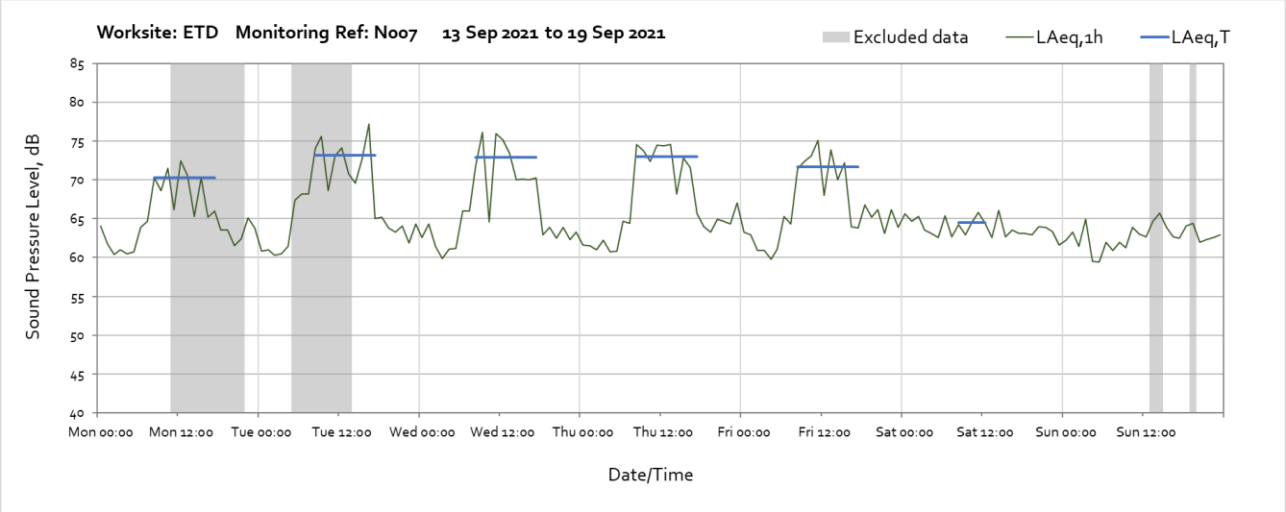

Worksite: TSS Monitoring Ref: No11 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

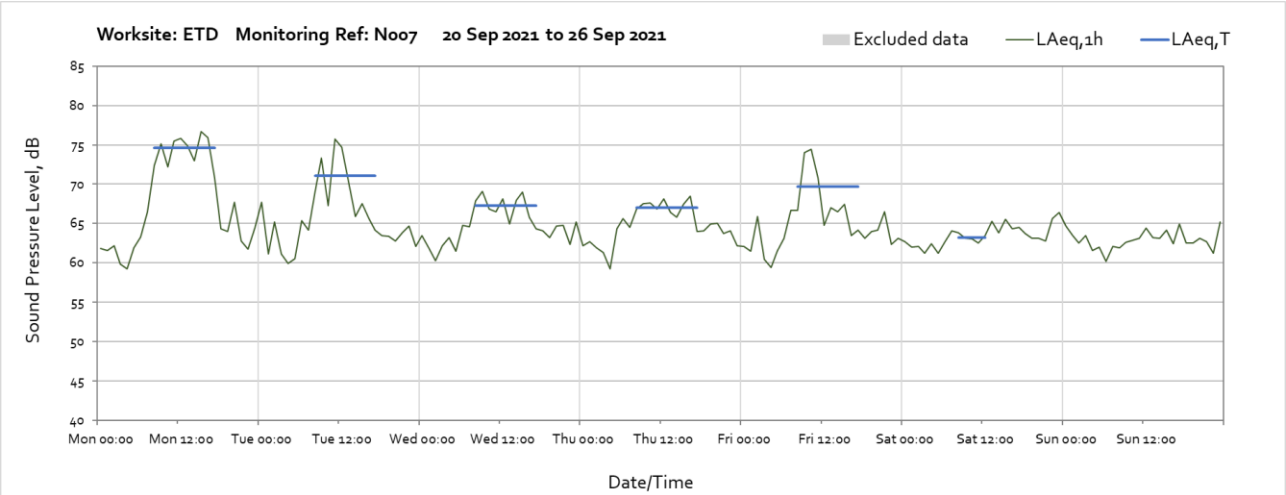


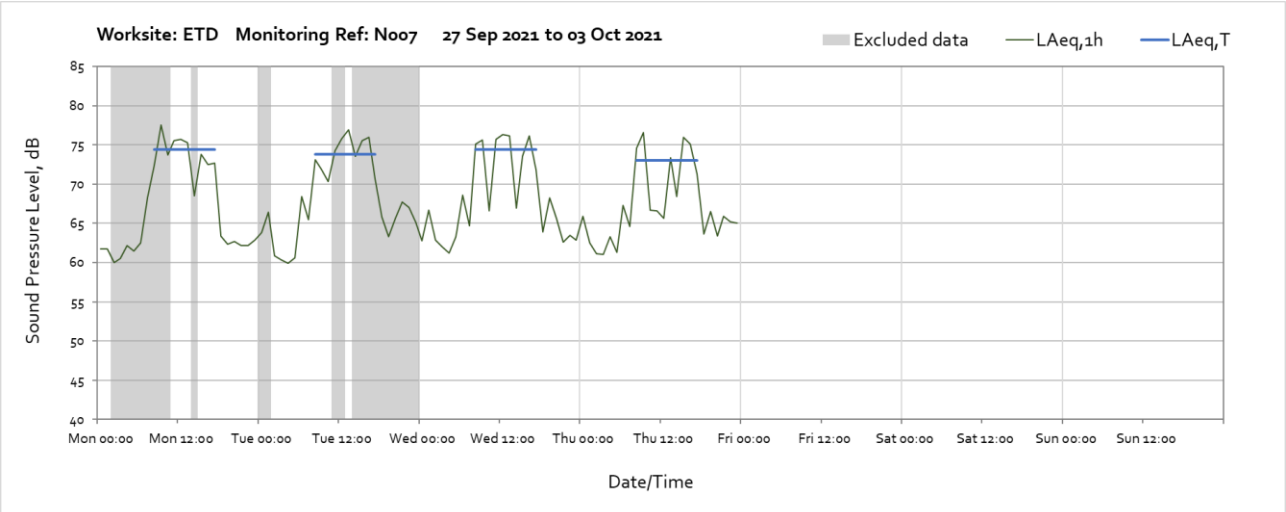
Worksite: ETD – Monitoring Ref: N007



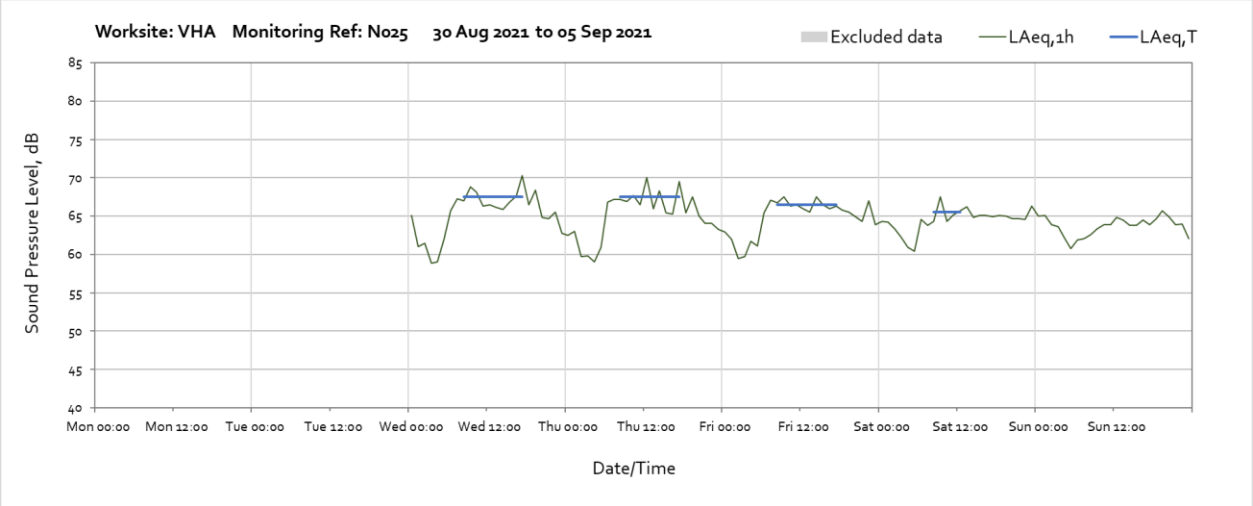


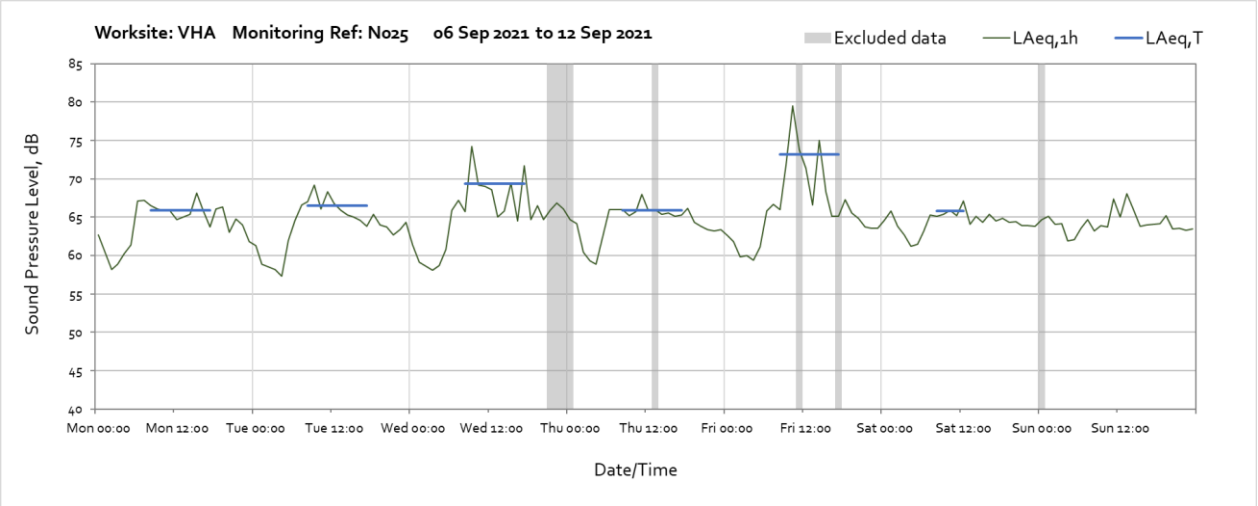

Worksite: ETD Monitoring Ref: N007 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

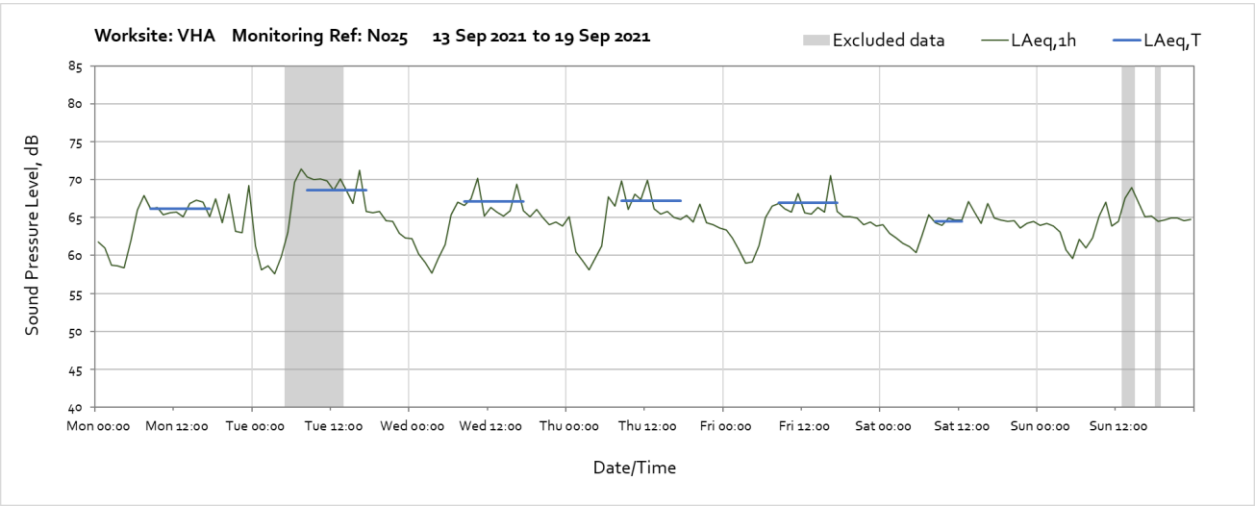

Worksite: ETD Monitoring Ref: N007 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

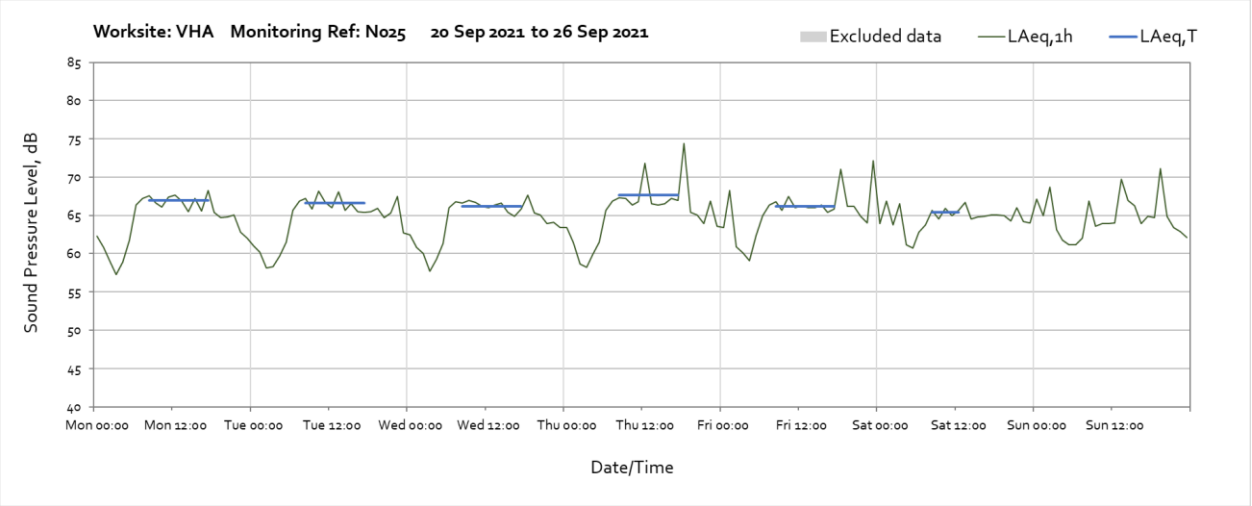

Worksite: ETD Monitoring Ref: N007 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

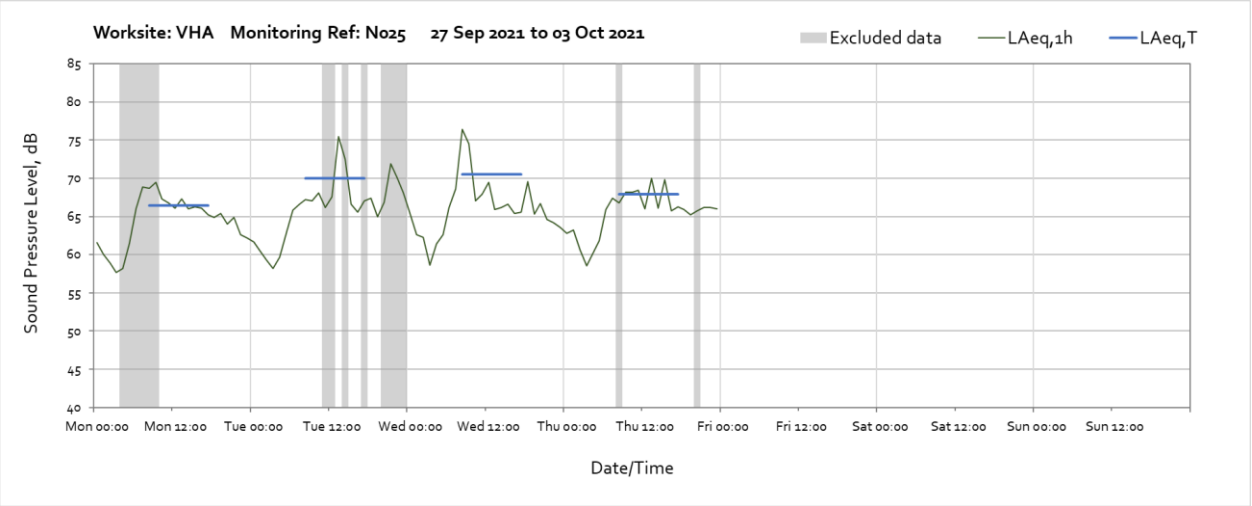
Vehicle Holding Area (VHA) – Monitoring Ref: N025



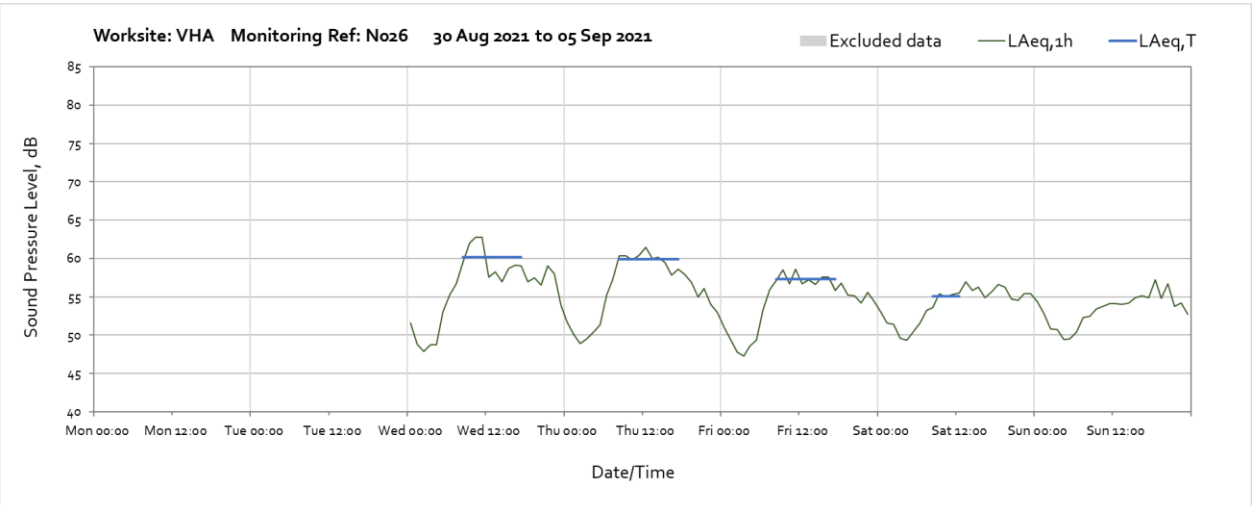


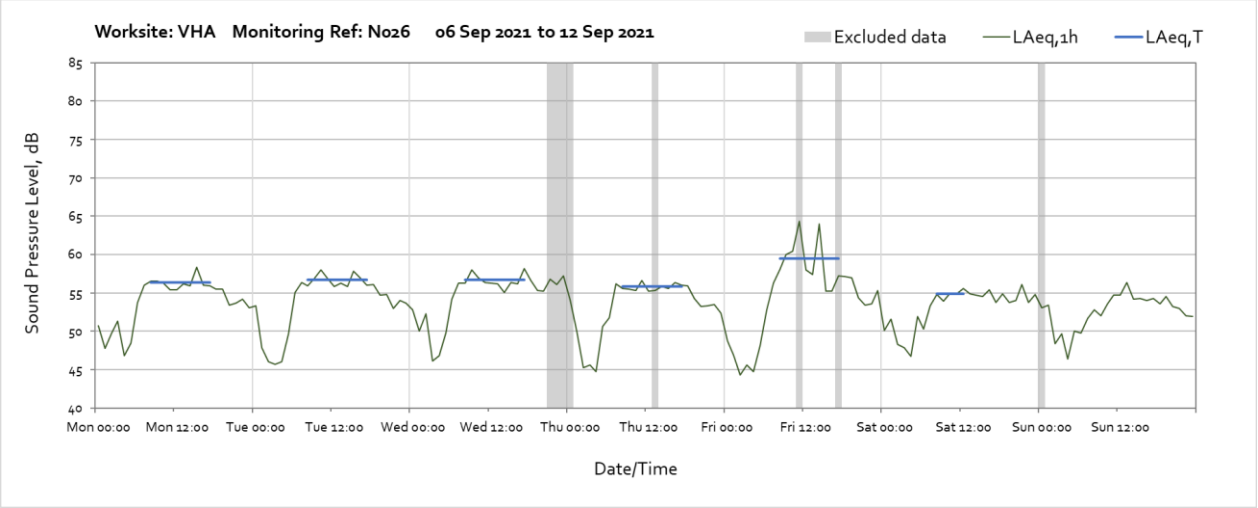


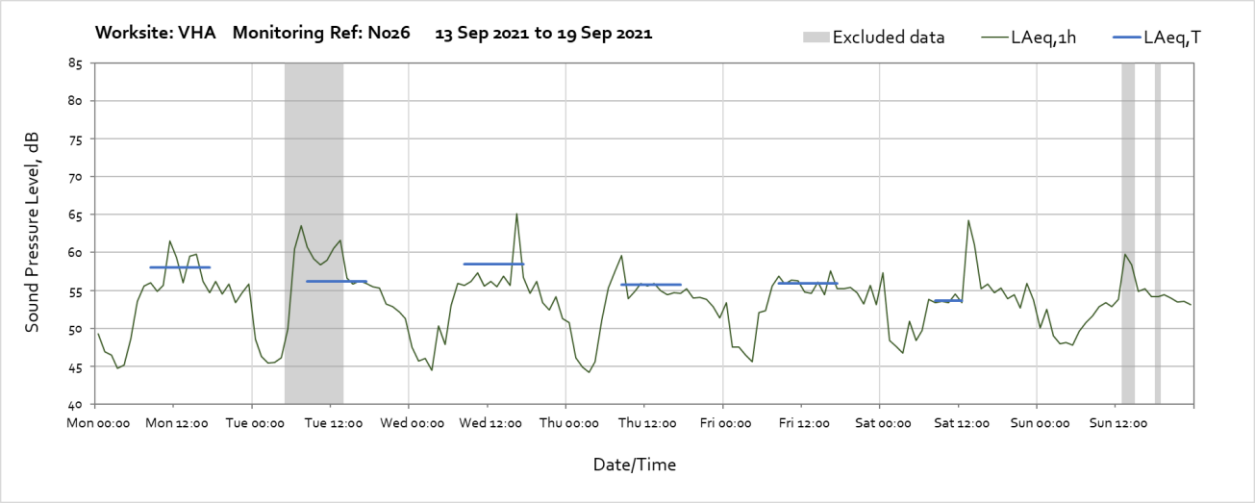




Vehicle Holding Area (VHA) – Monitoring Ref: N026




Worksite: VHA Monitoring Ref: No26 06 Sep 2021 to 12 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: VHA Monitoring Ref: No26 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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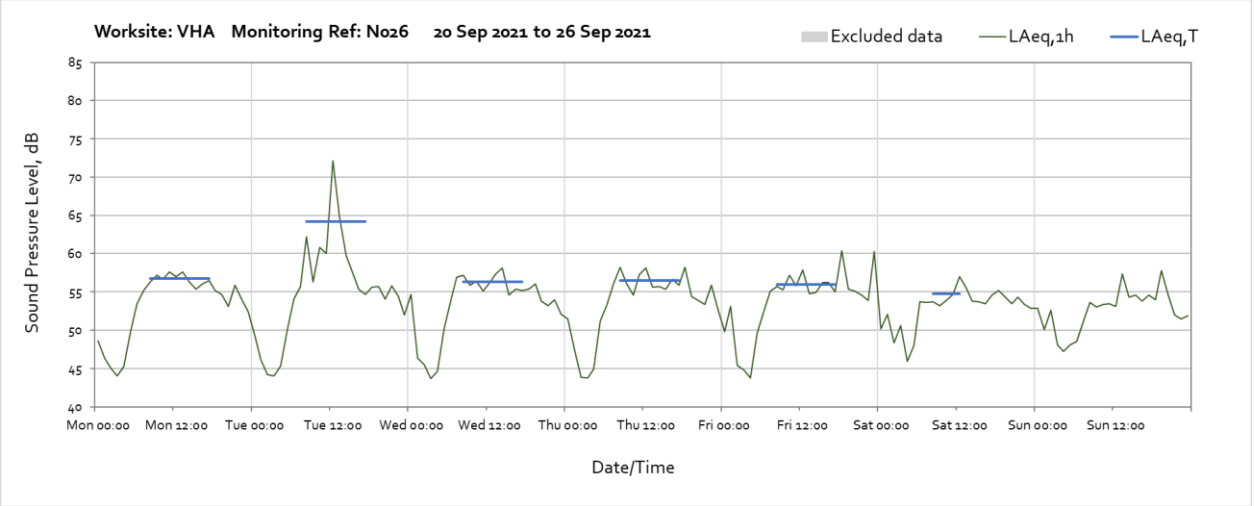
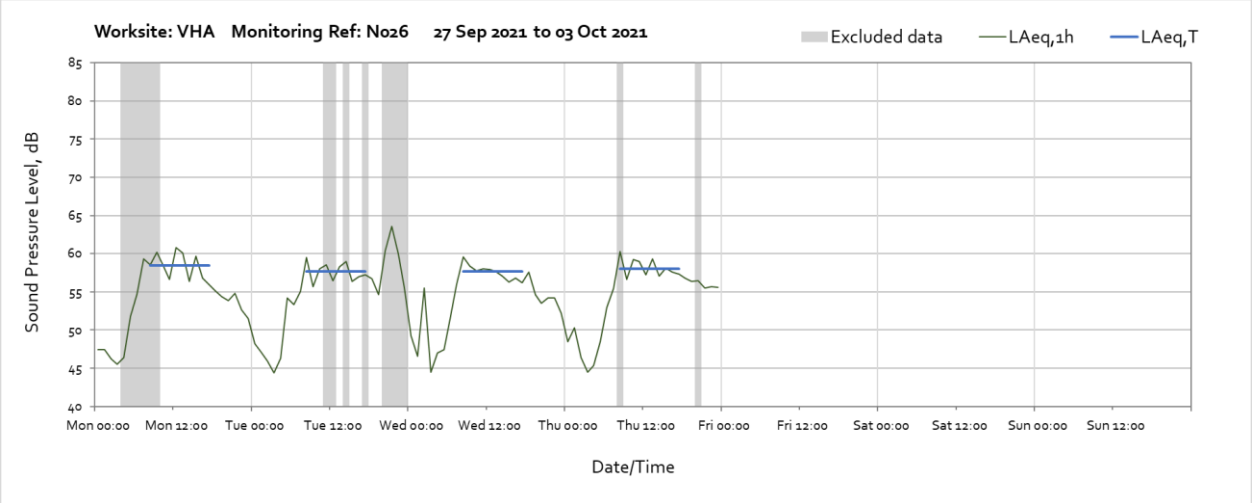
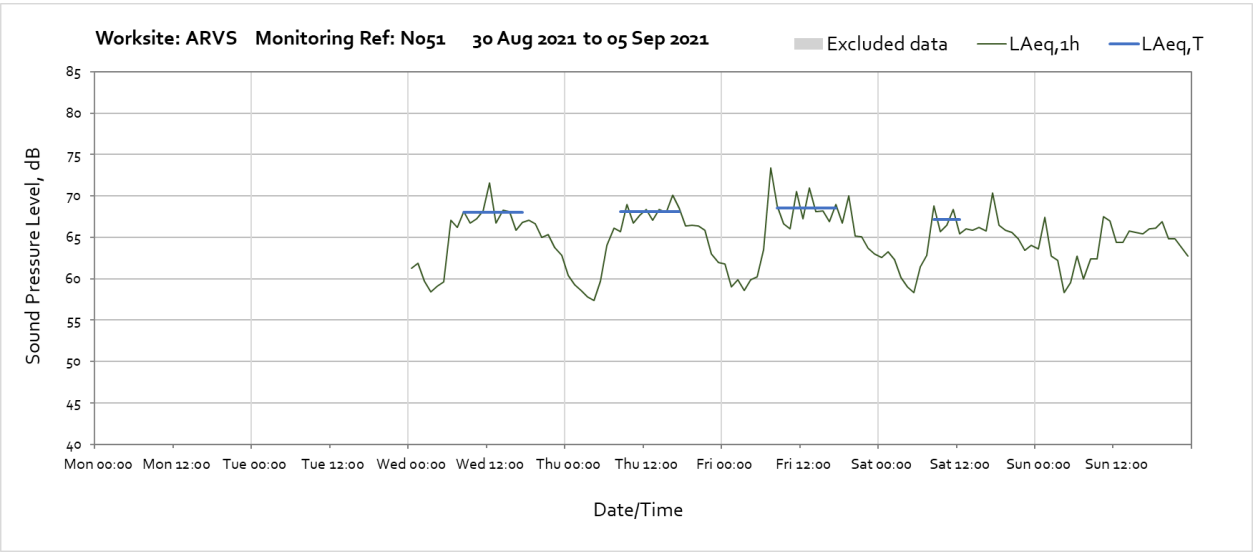
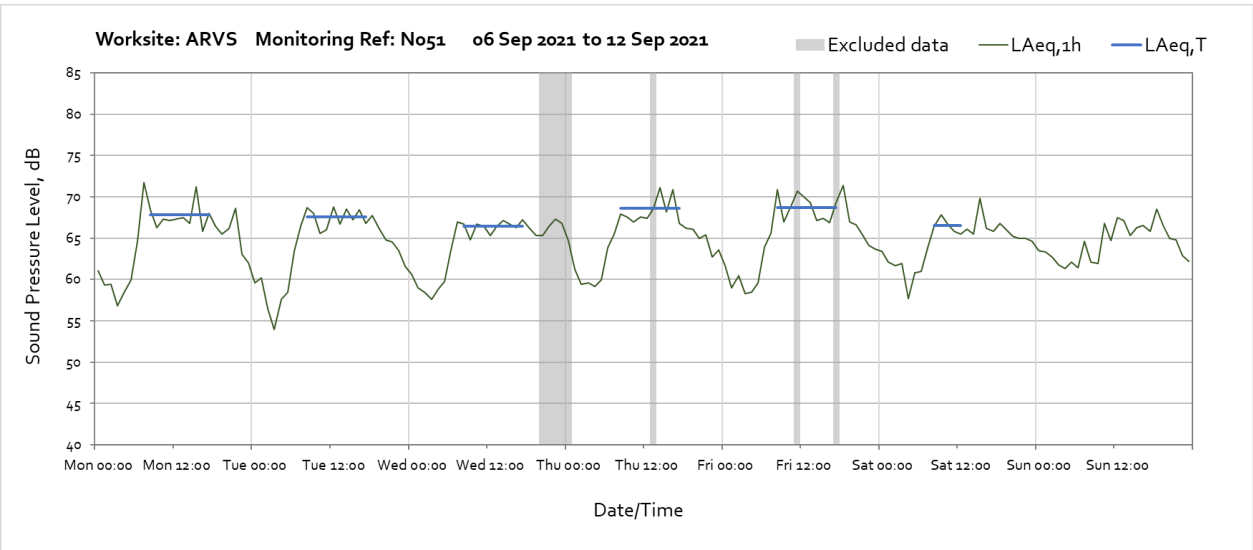
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

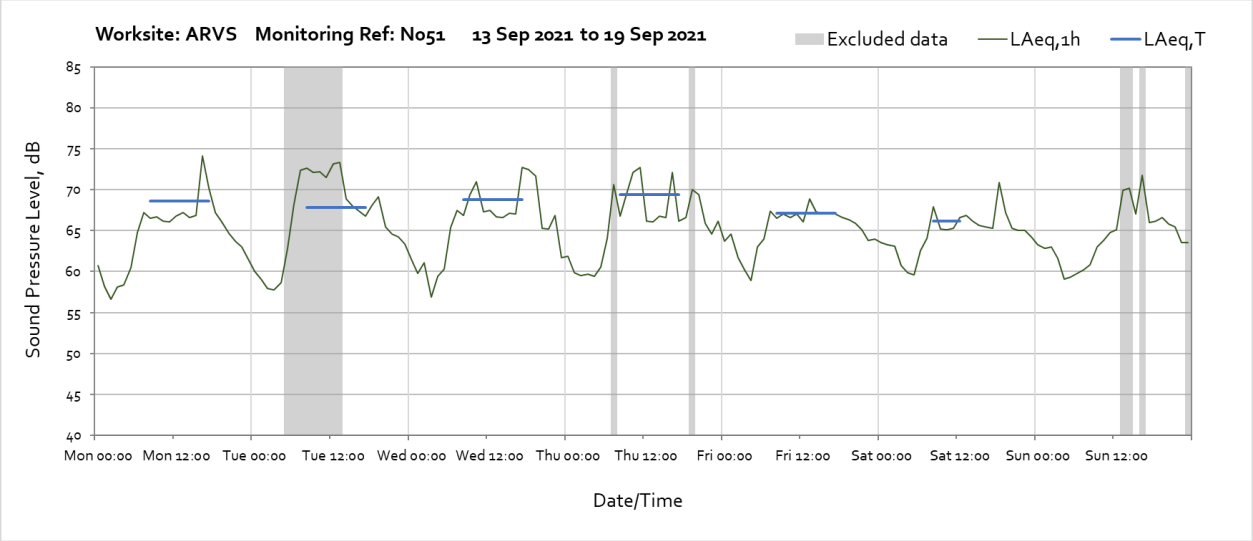

Worksite: VHA Monitoring Ref: No26 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time



Adelaide Road Ventilation Shaft (ARVS) – Monitoring Ref: N051






Worksite: ARVS Monitoring Ref: No51 13 Sep 2021 to 19 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
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Fri 12:00
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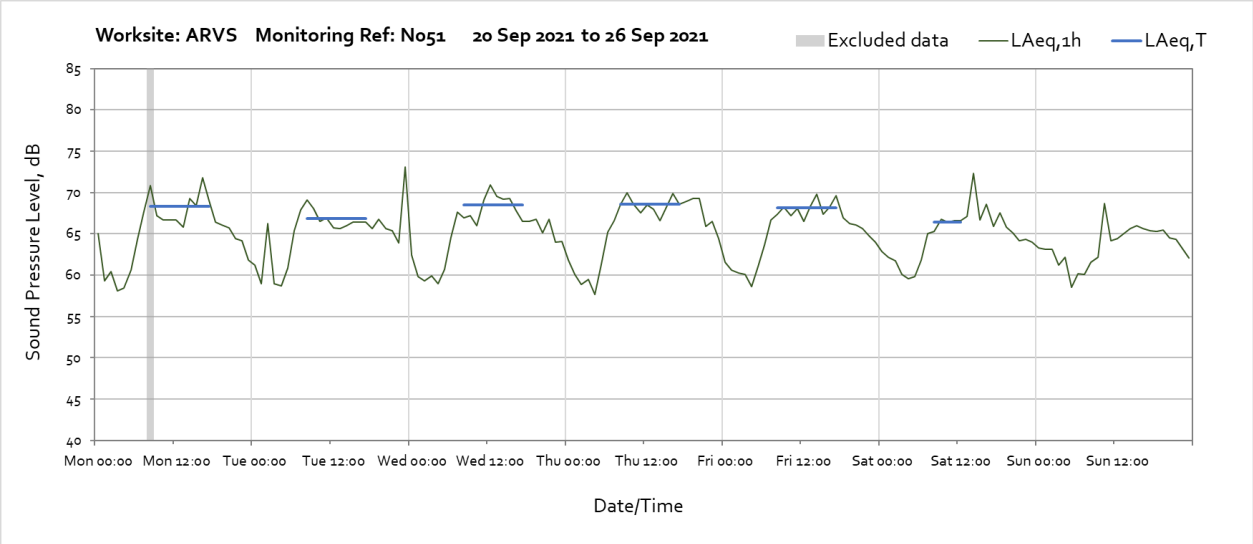
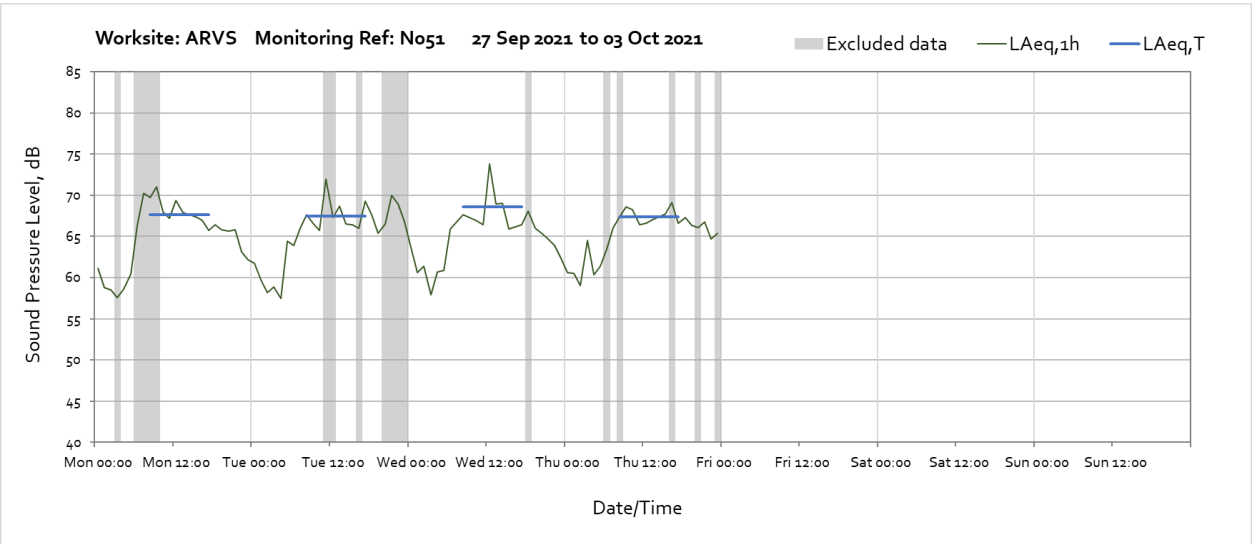
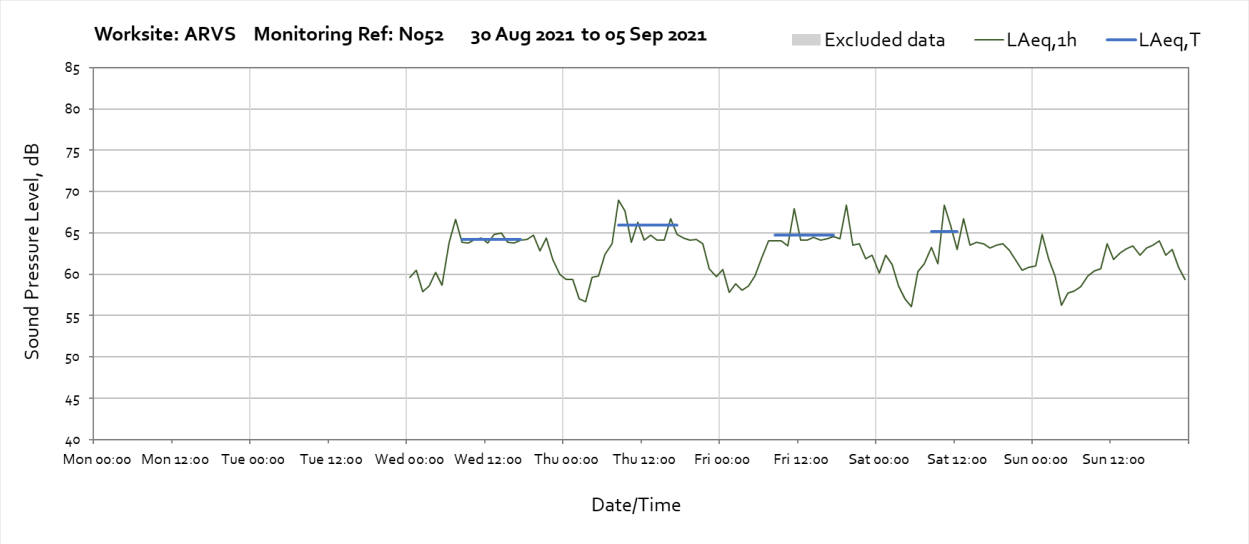
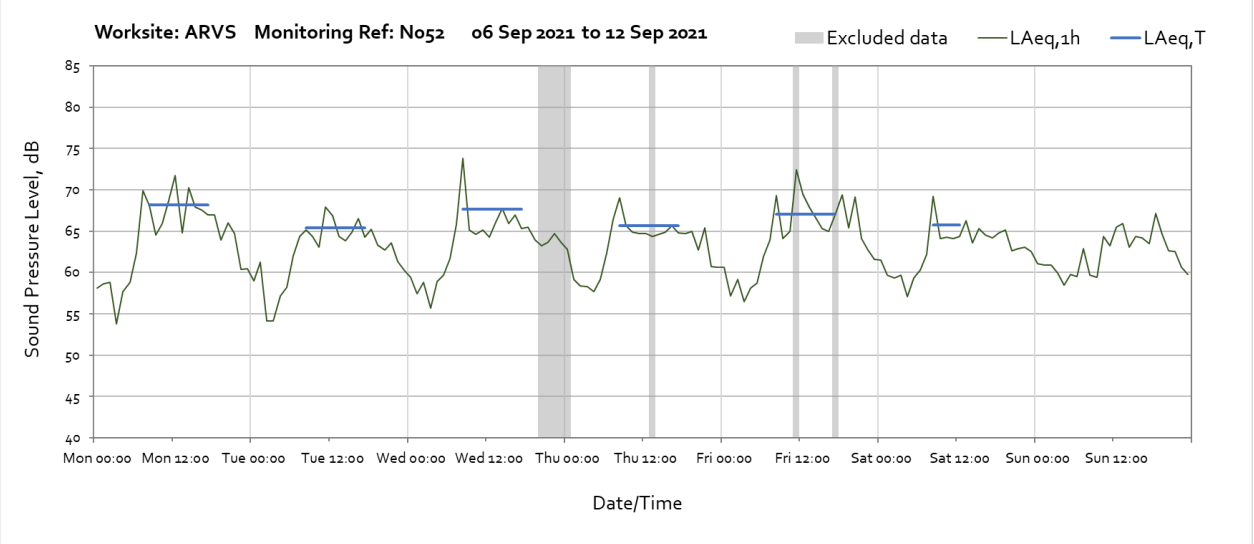
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

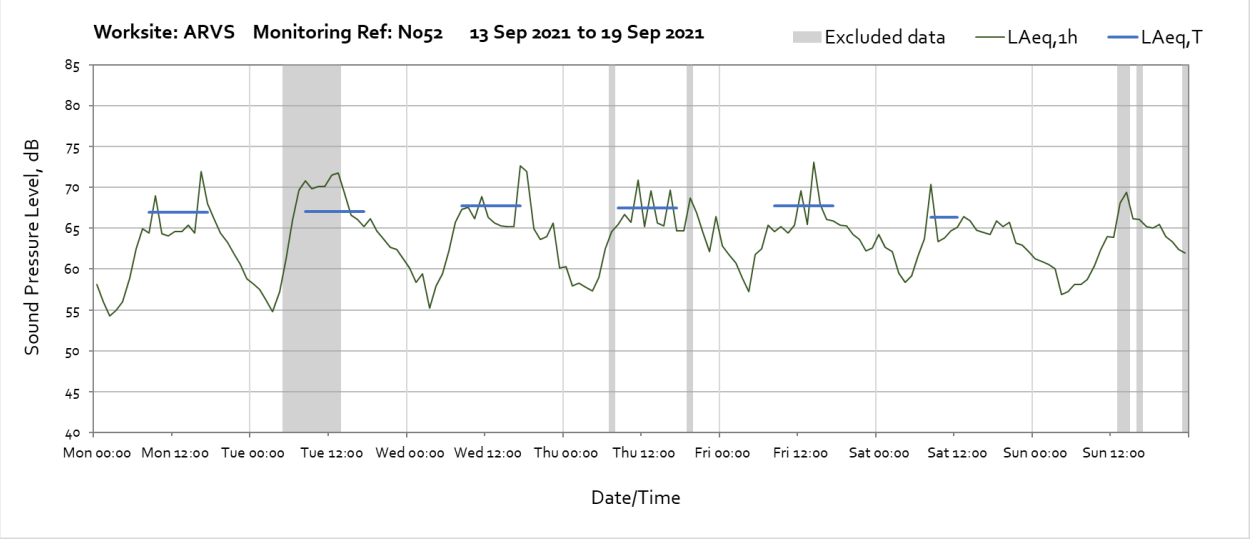

Worksite: ARVS Monitoring Ref: No51 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

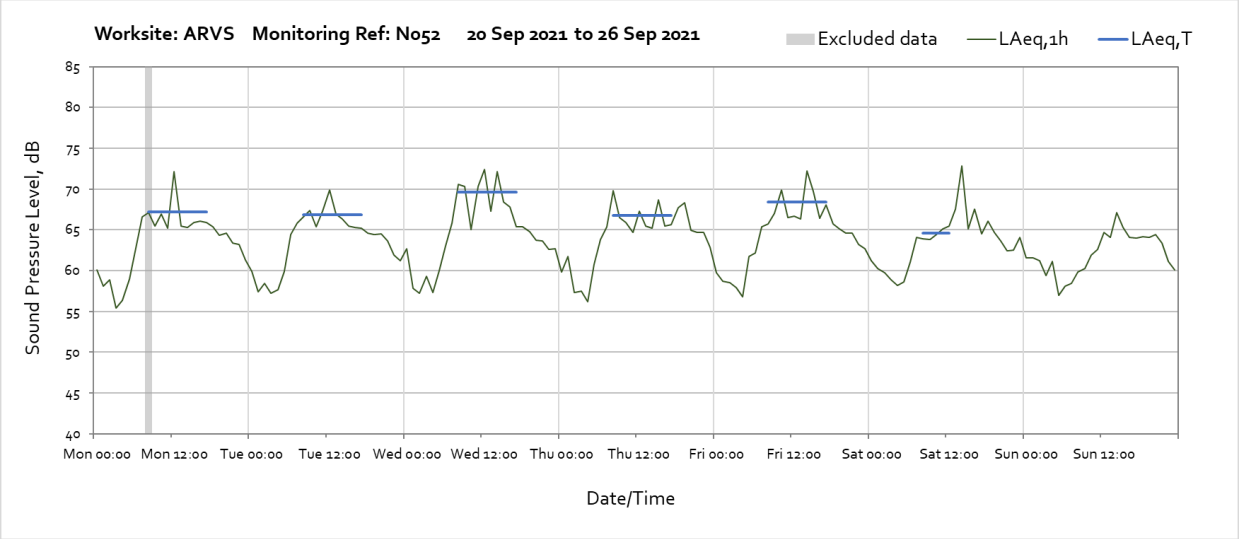

Worksite: ARVS Monitoring Ref: No51 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

Adelaide Road Ventilation Shaft (ARVS) – Monitoring Ref: N052








Worksite: ARVS Monitoring Ref: No52 20 Sep 2021 to 26 Sep 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
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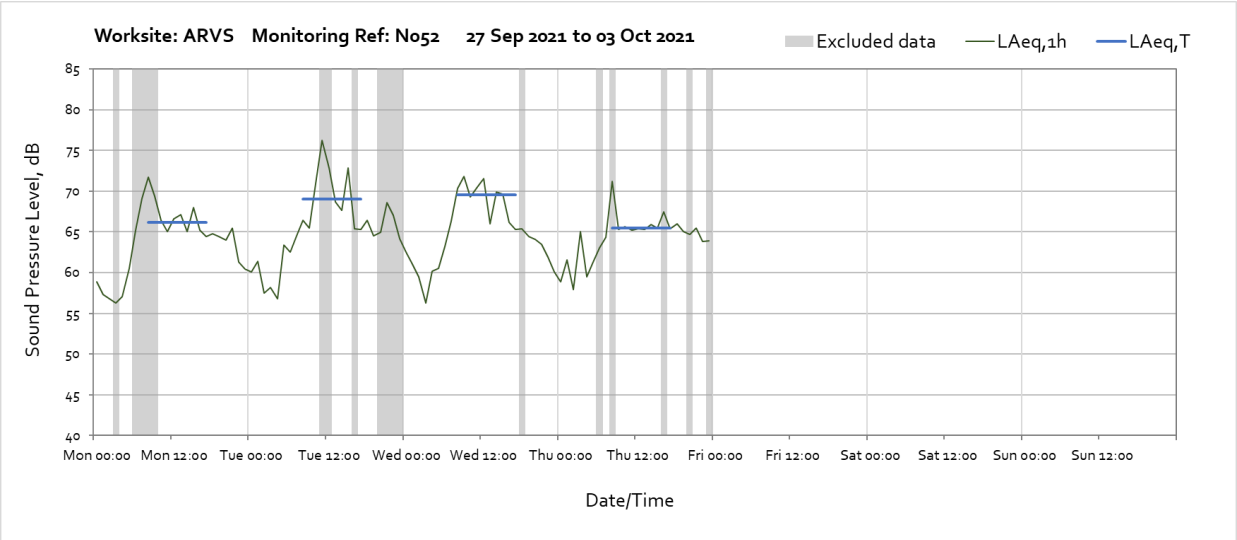
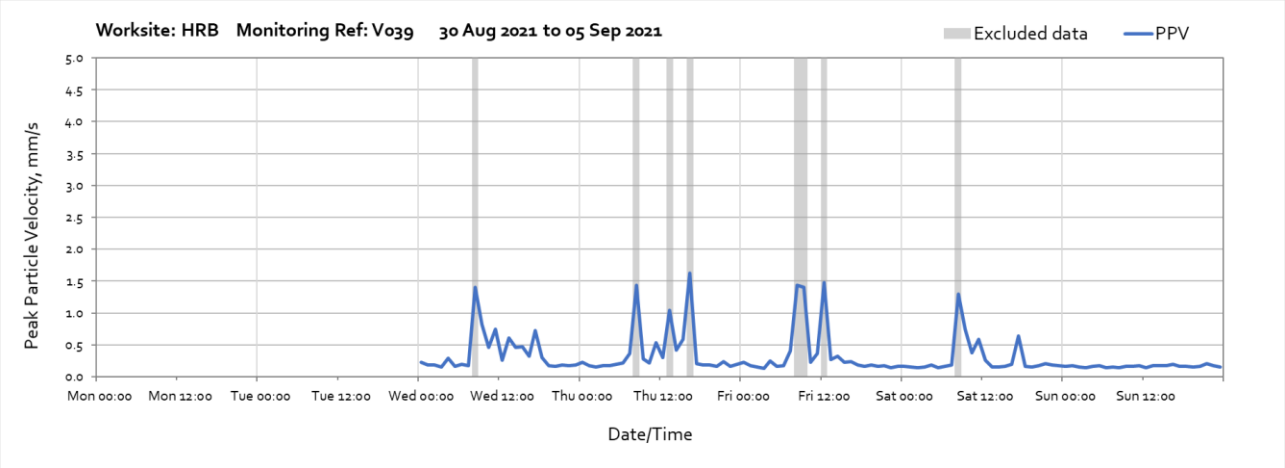
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: ARVS Monitoring Ref: No52 27 Sep 2021 to 03 Oct 2021
Excluded data
LAeq,1h
LAeq,T
Sound Pressure Level, dB
85
80
75
70
65
60
55
50
45
40
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

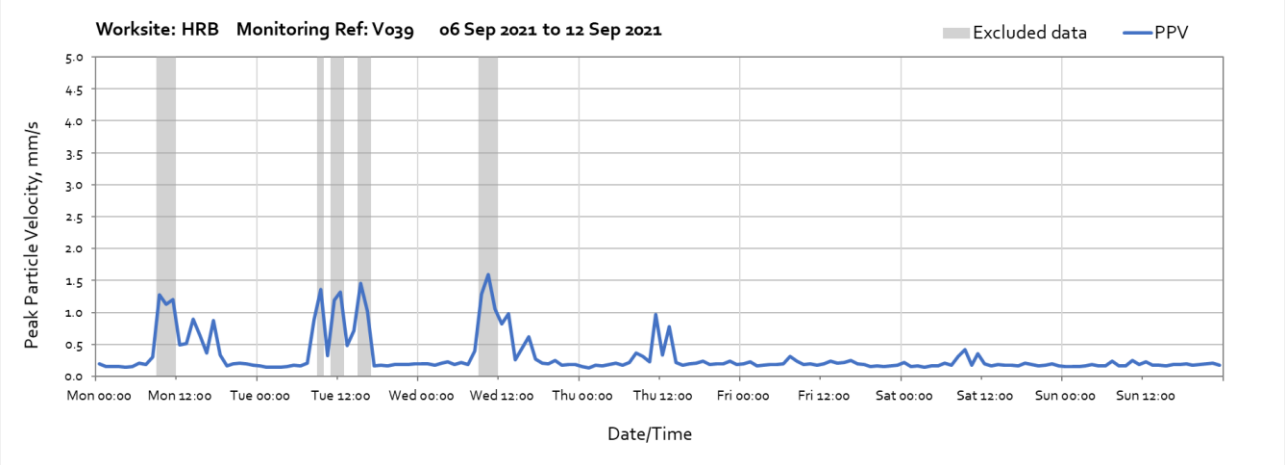
Vibration

The following graphs show the hourly measured peak particle velocity PPV recorded during the monitoring period. The graphs show the resultant PPV due to vibration components on three orthogonal axes x, y and z. Where resultant PPV data is not available (monitors V039 and V043), the highest vibration component in either of the three axes is presented for each 1hr measurement period respectively. 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.

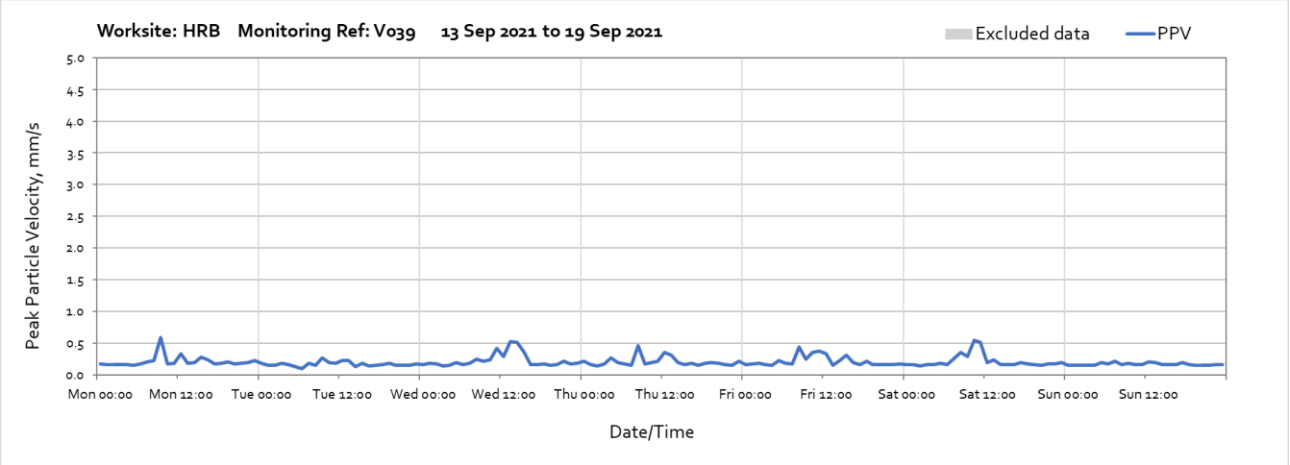
Worksite: HRB – Monitoring Ref: V039

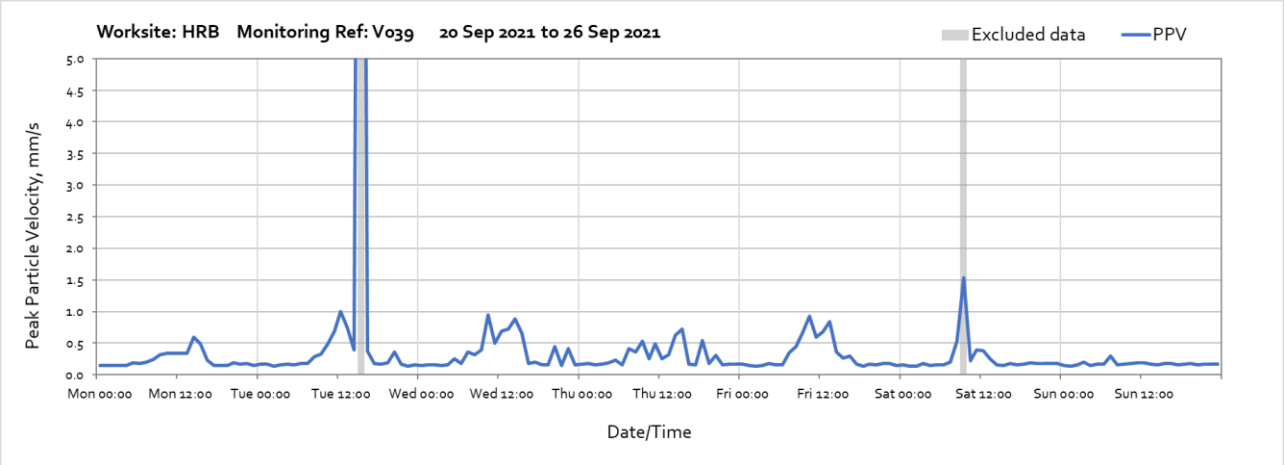


Note: High vibraton levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

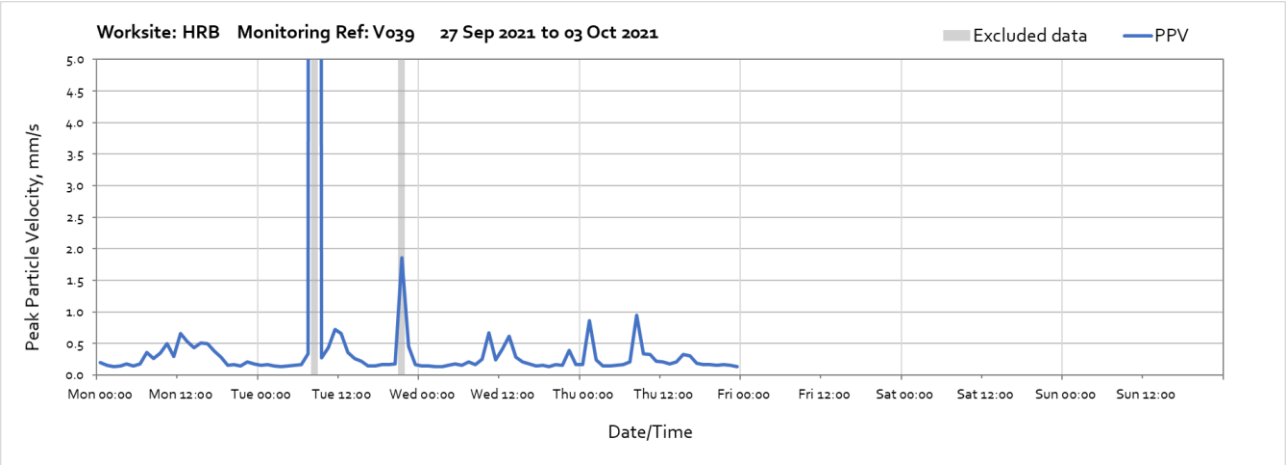


Note: High vibraton levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



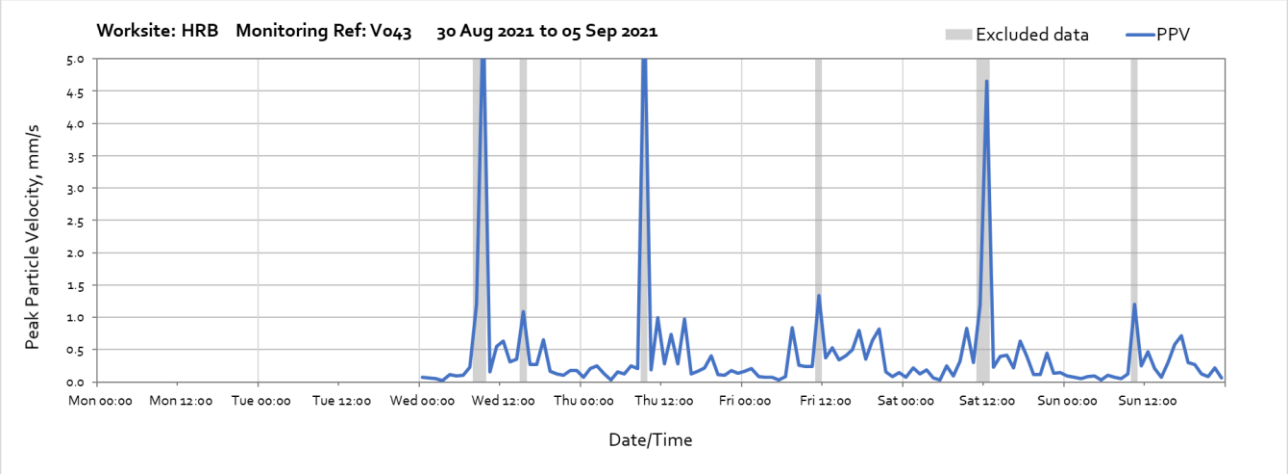


Note: High vibraton levels measured from 15:00 until 16:00 on Tuesday 21st September and from 09:00 until 10:00 on Saturday 25th September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

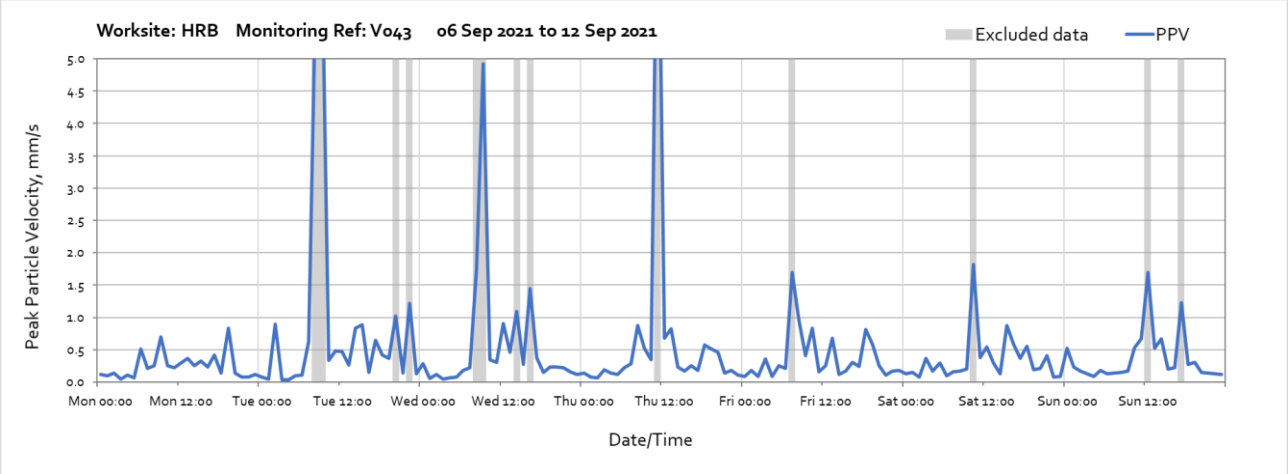


Note: High vibraton levels measured from 08:00 - 09:00 and from 21:00 - 22:00 on Tuesday 28th September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

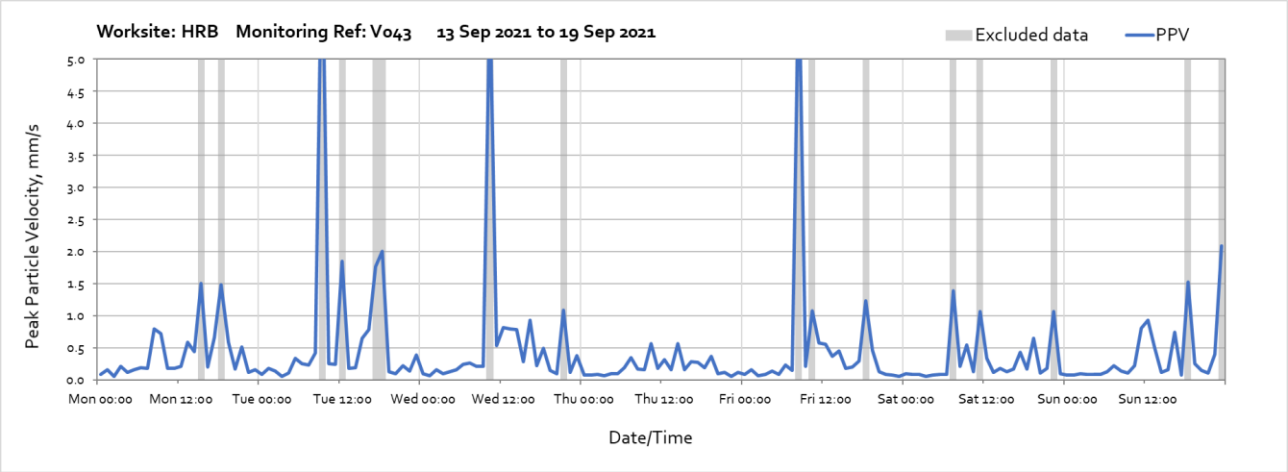
Worksite: HRB – Monitoring Ref: V043



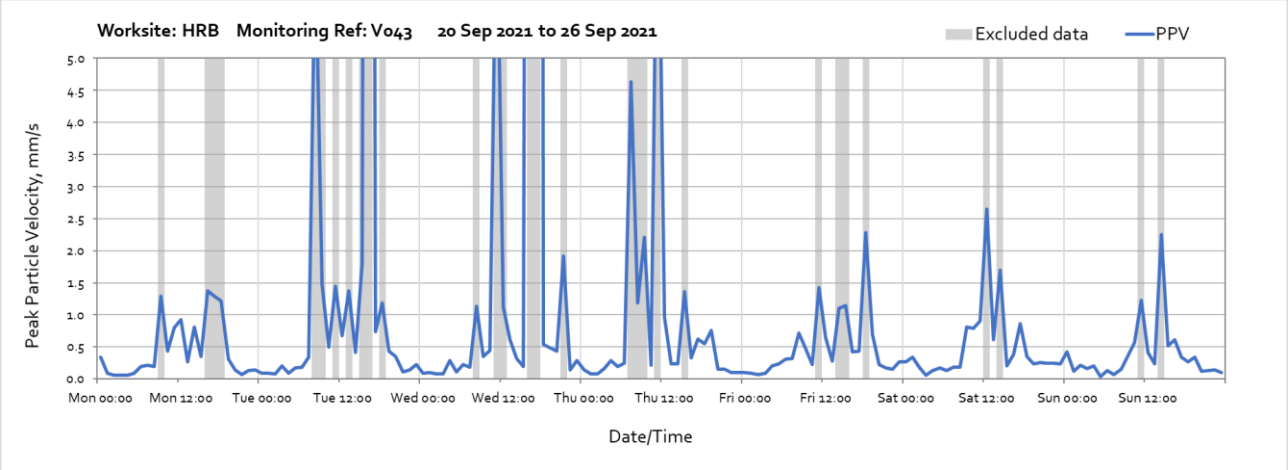
Note: High vibraton levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



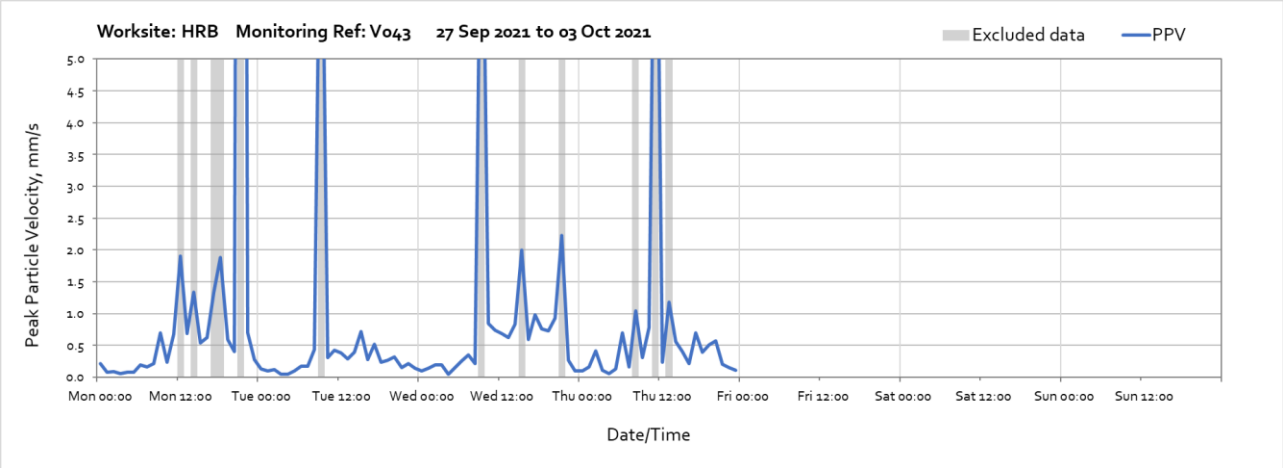
Note: High vibraton levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

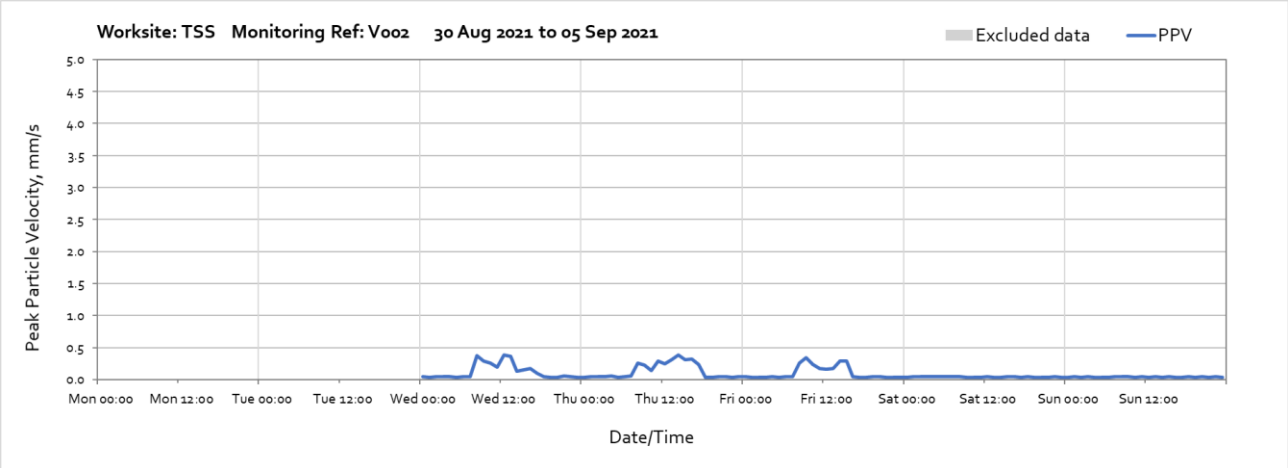


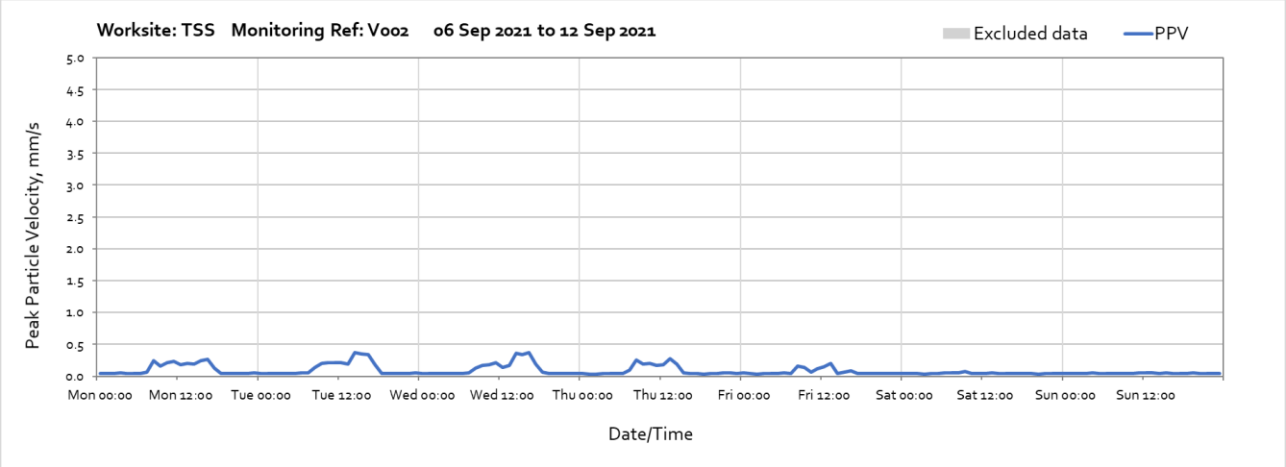
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

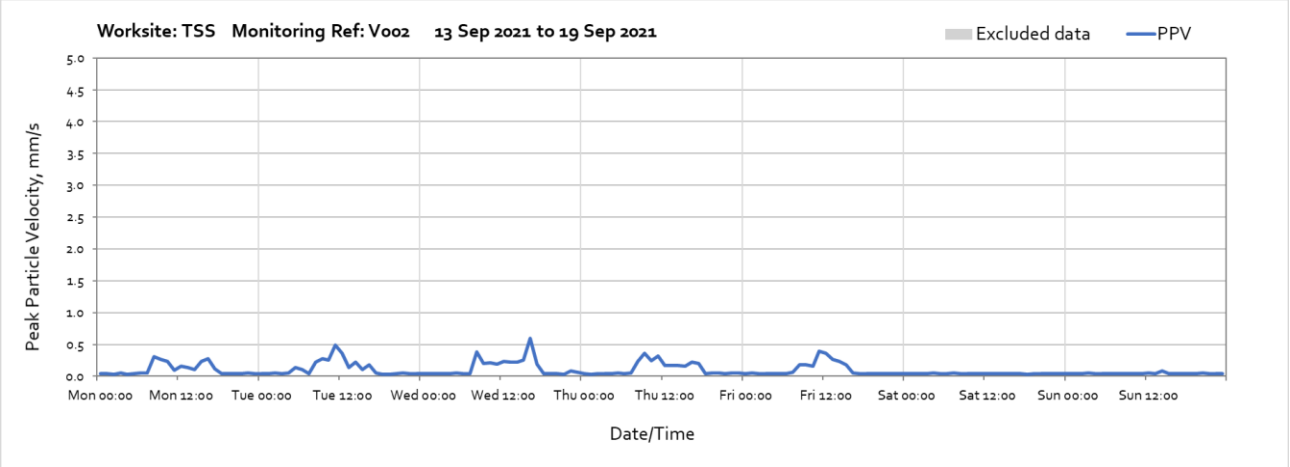


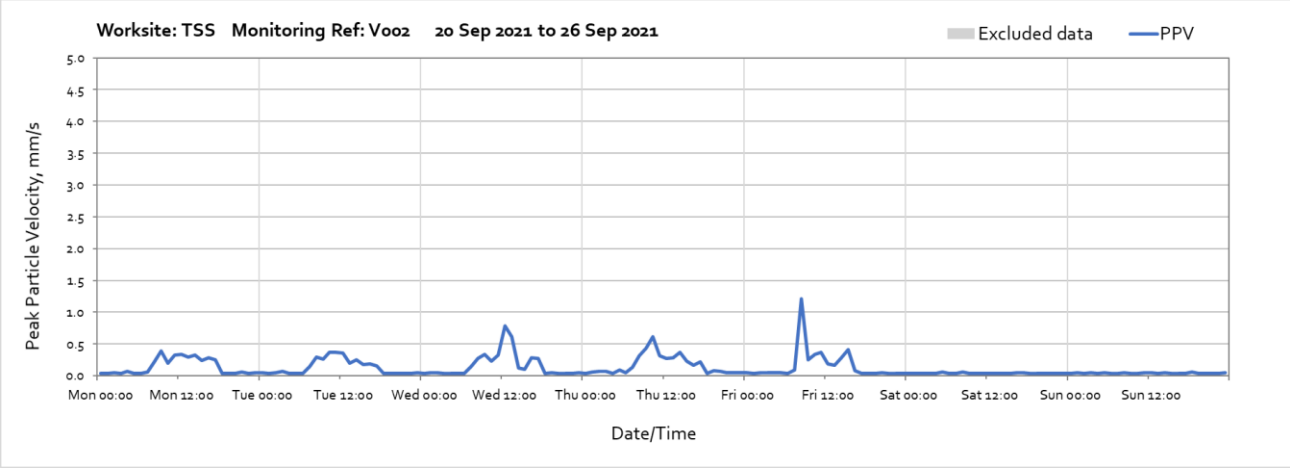
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

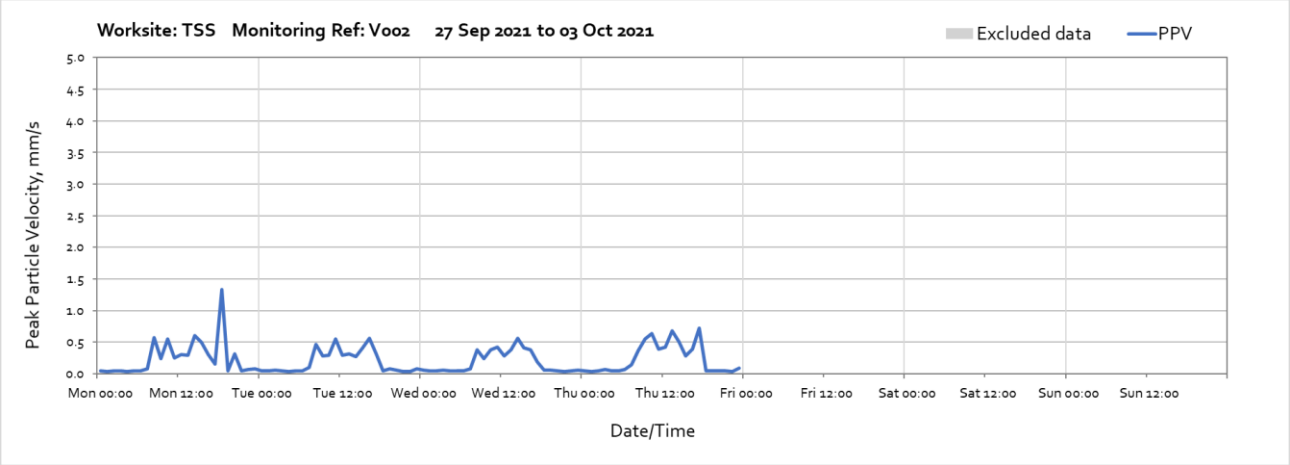
Worksite: TSS – Monitoring Ref: V002



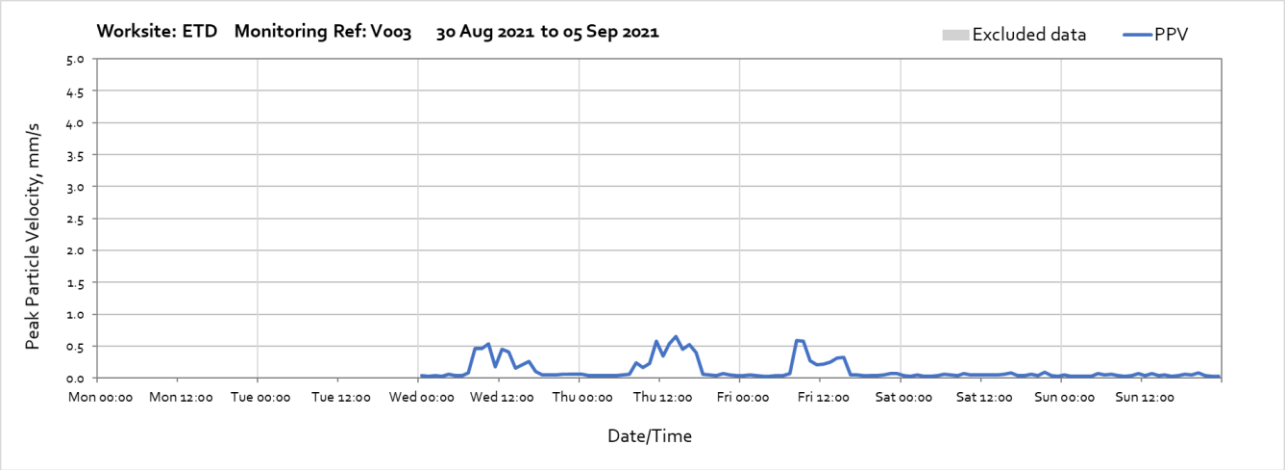

Worksite: TSS Monitoring Ref: V002 06 Sep 2021 to 12 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

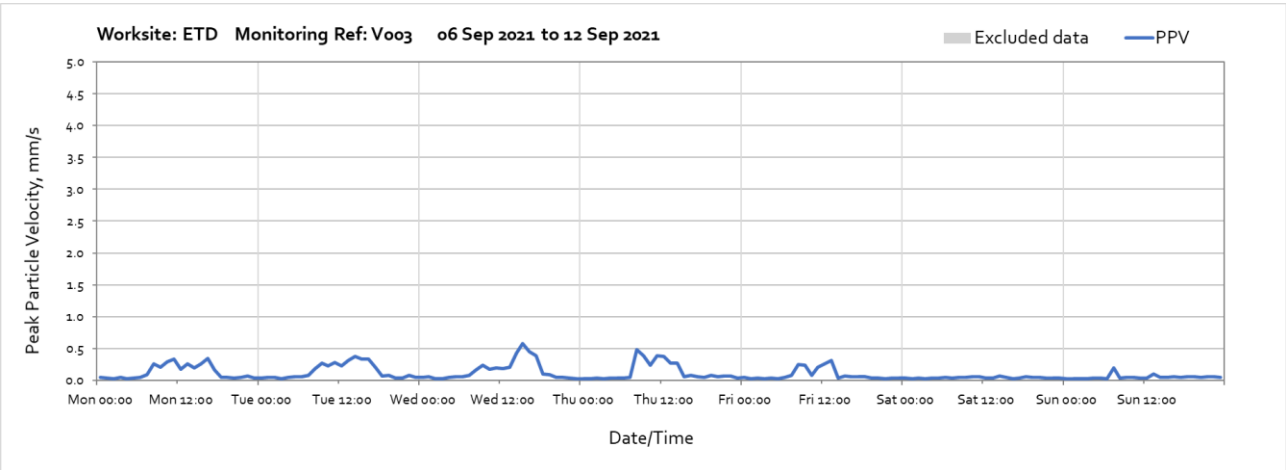

Worksite: TSS Monitoring Ref: V002 13 Sep 2021 to 19 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

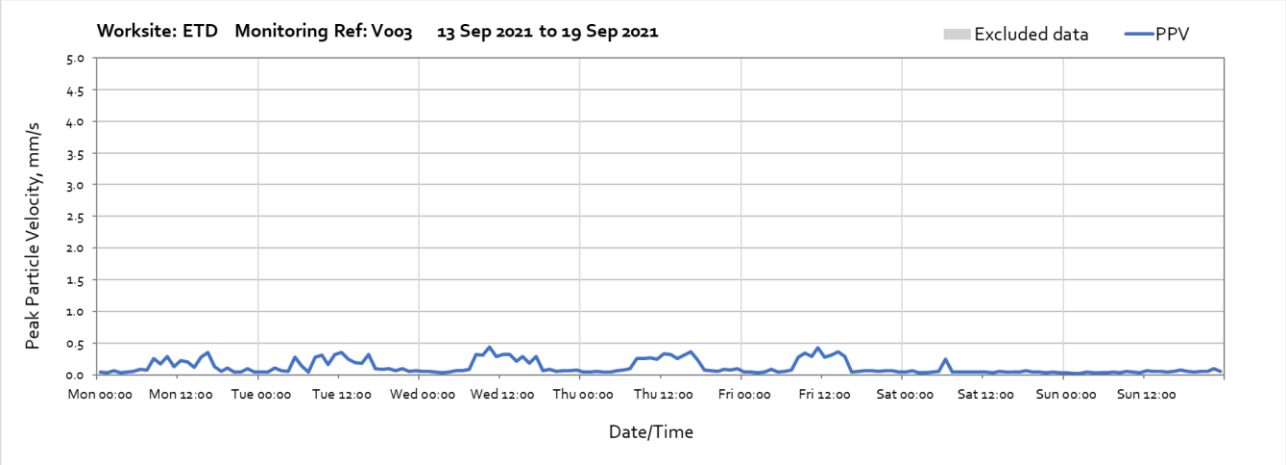

Worksite: TSS Monitoring Ref: V002 20 Sep 2021 to 26 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

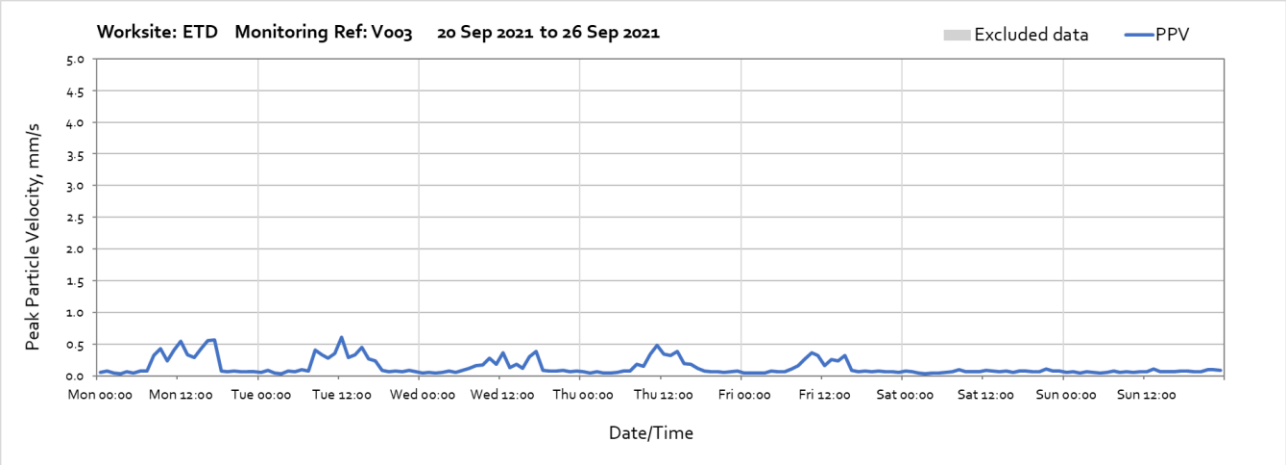


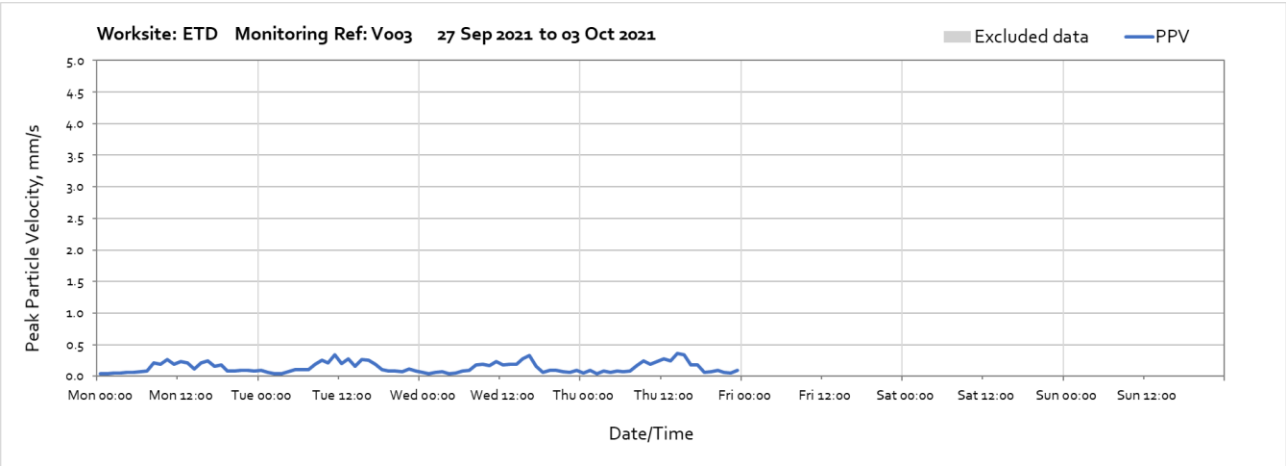
Worksite: ETD – Monitoring Ref: V003



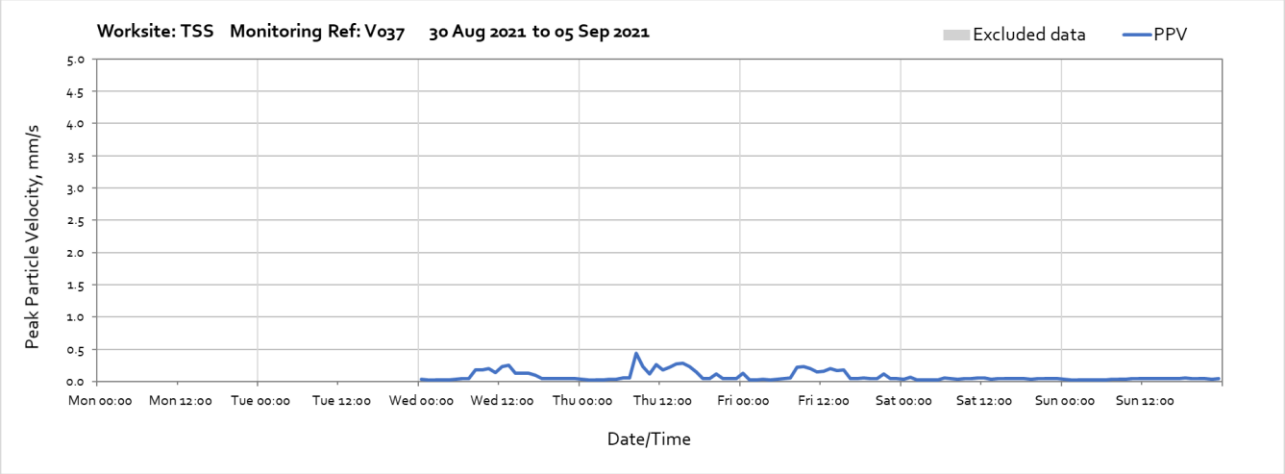


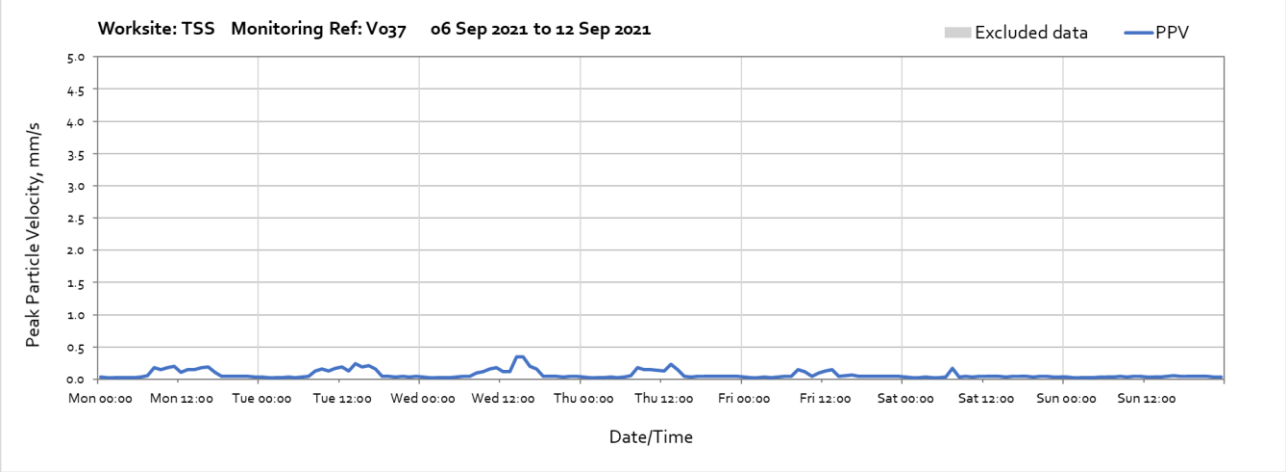

Worksite: ETD Monitoring Ref: V003 13 Sep 2021 to 19 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

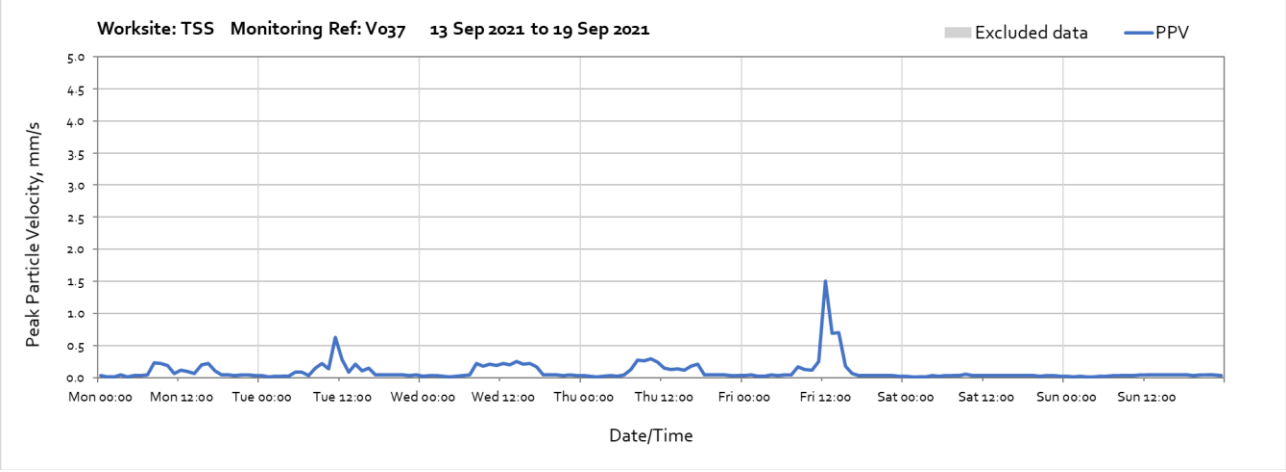

Worksite: ETD Monitoring Ref: V003 20 Sep 2021 to 26 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

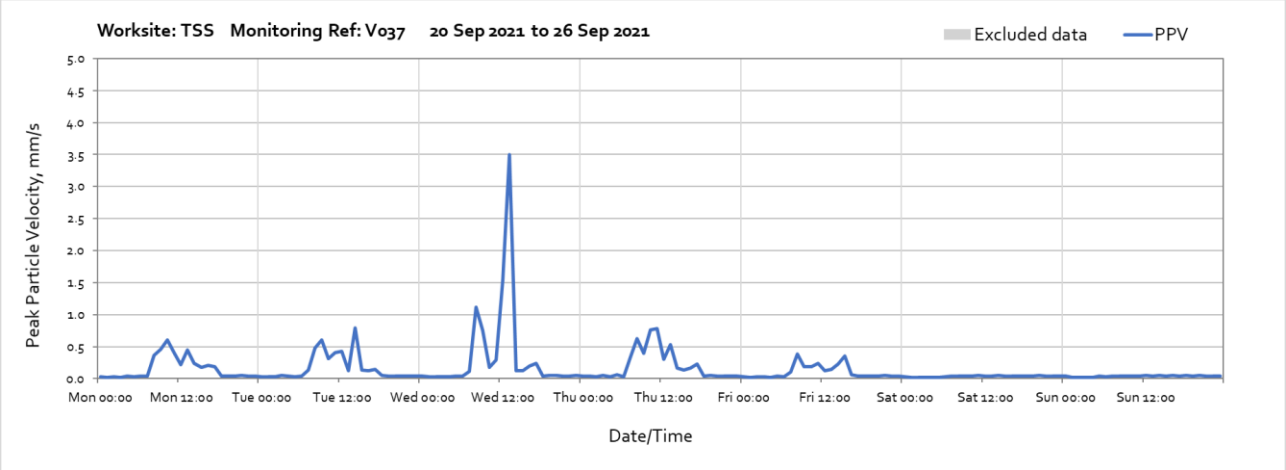

Worksite: ETD Monitoring Ref: V003 27 Sep 2021 to 03 Oct 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

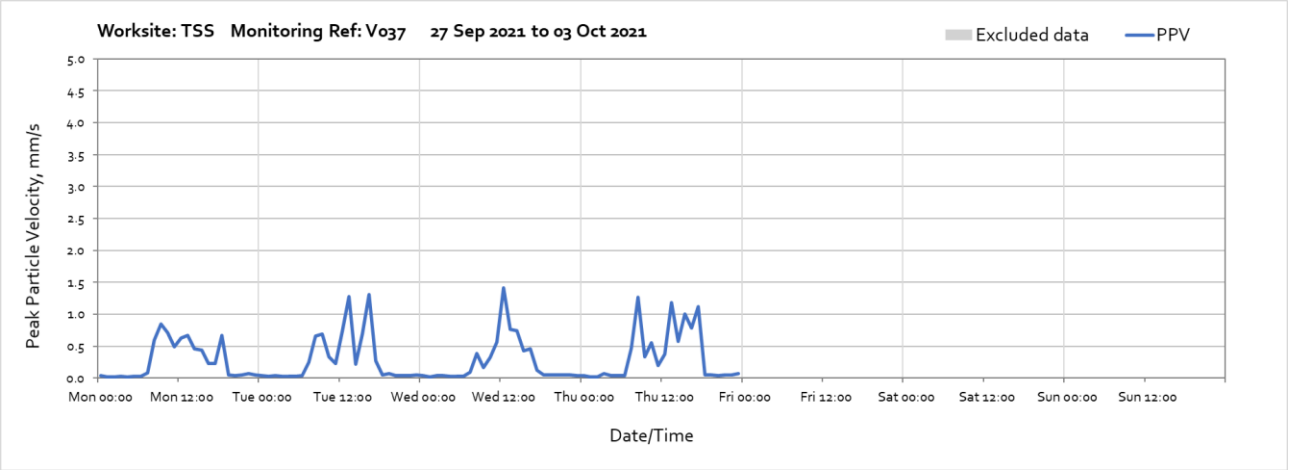
Worksite: TSS – Monitoring Ref: V037



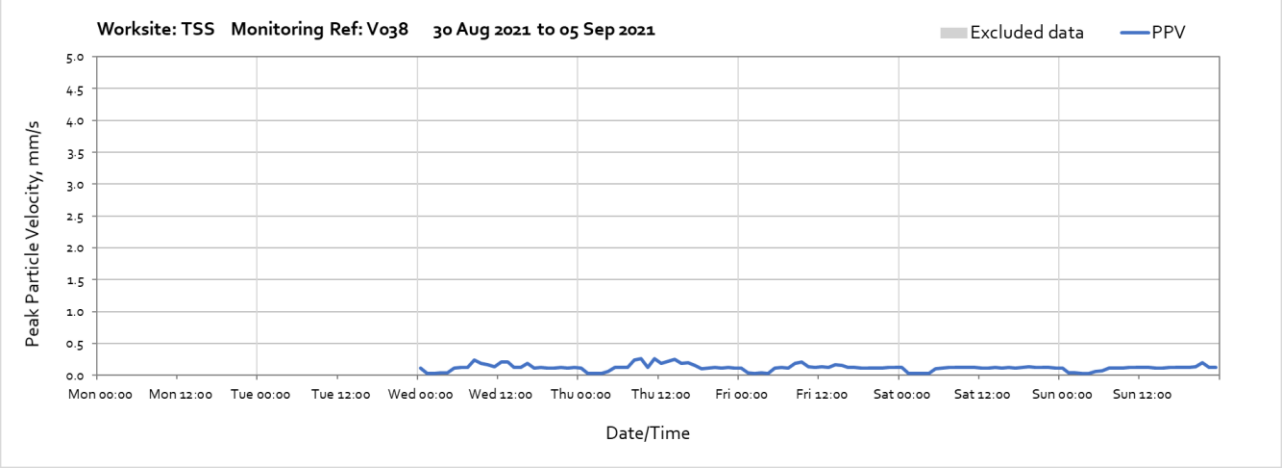


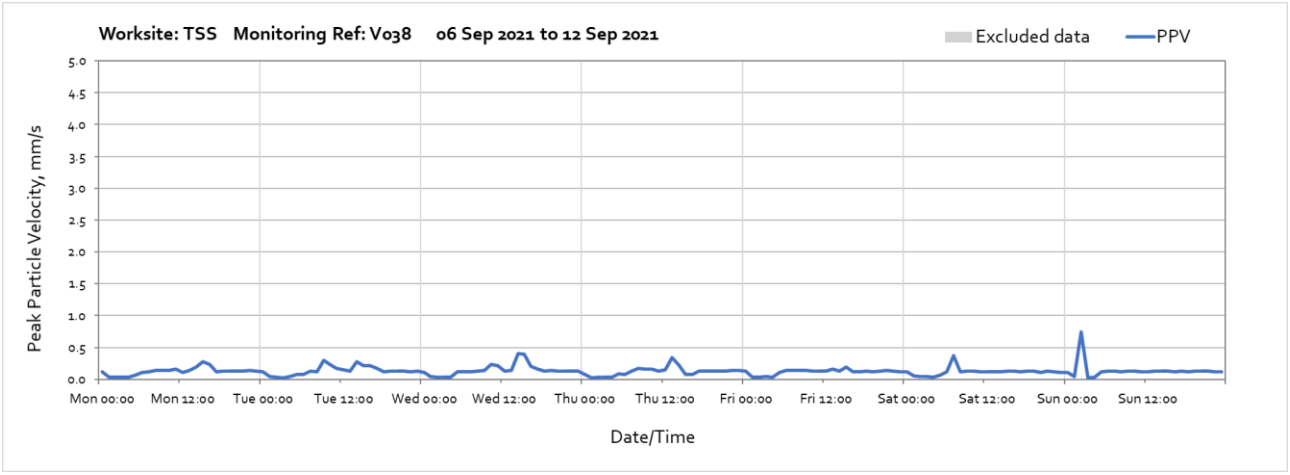


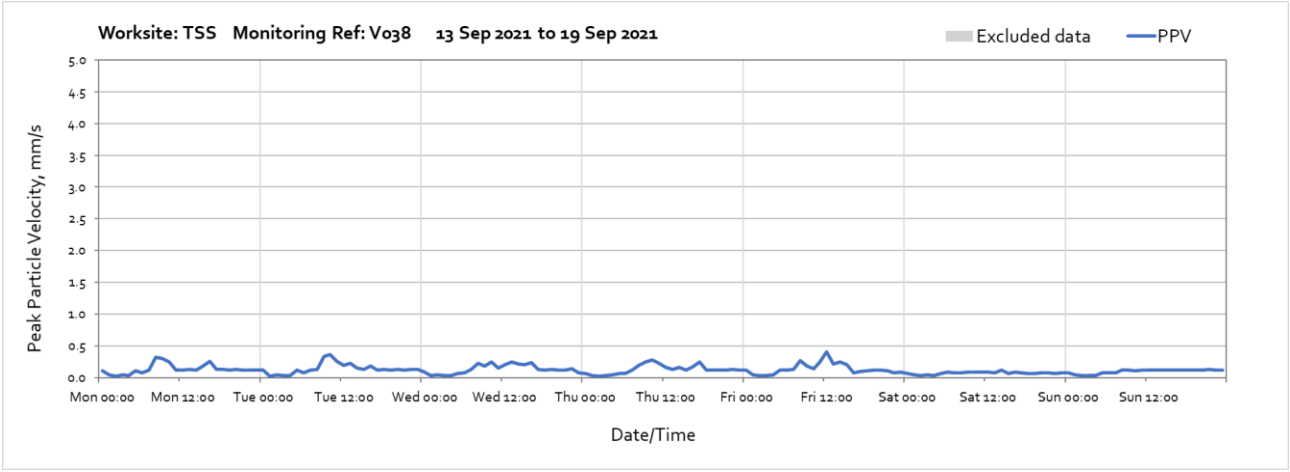




Worksite: TSS – Monitoring Ref: V038




Worksite: TSS Monitoring Ref: V038 06 Sep 2021 to 12 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: TSS Monitoring Ref: V038 13 Sep 2021 to 19 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
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Thu 12:00
Fri 00:00
Fri 12:00
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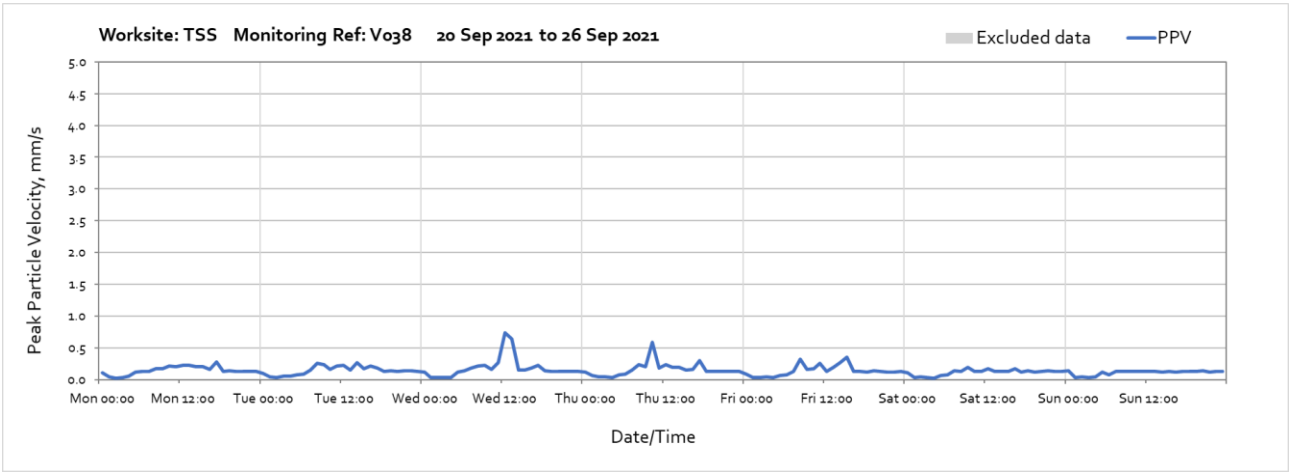
Sun 00:00
Sun 12:00
Date/Time


Worksite: TSS Monitoring Ref: V038 20 Sep 2021 to 26 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
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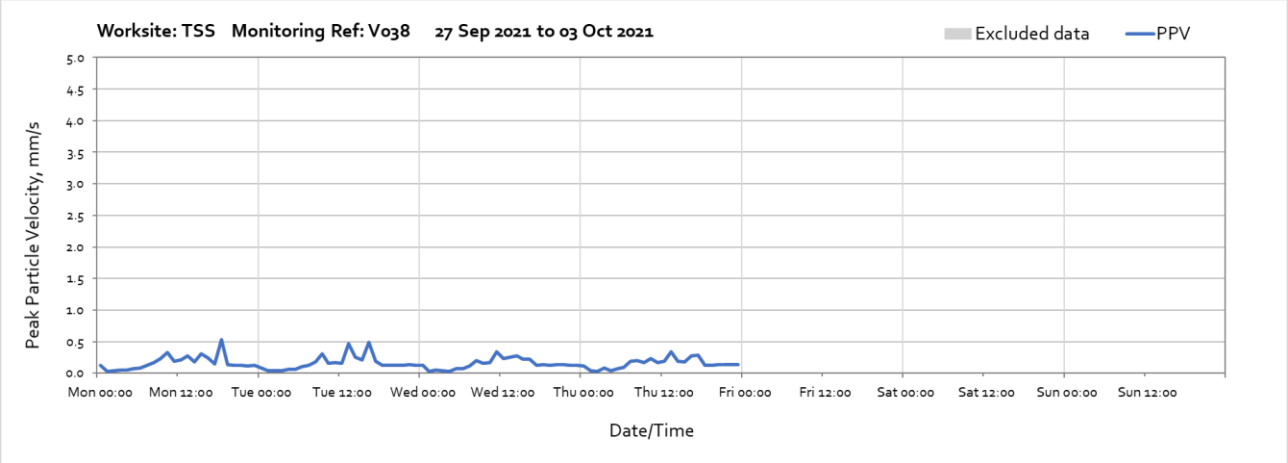
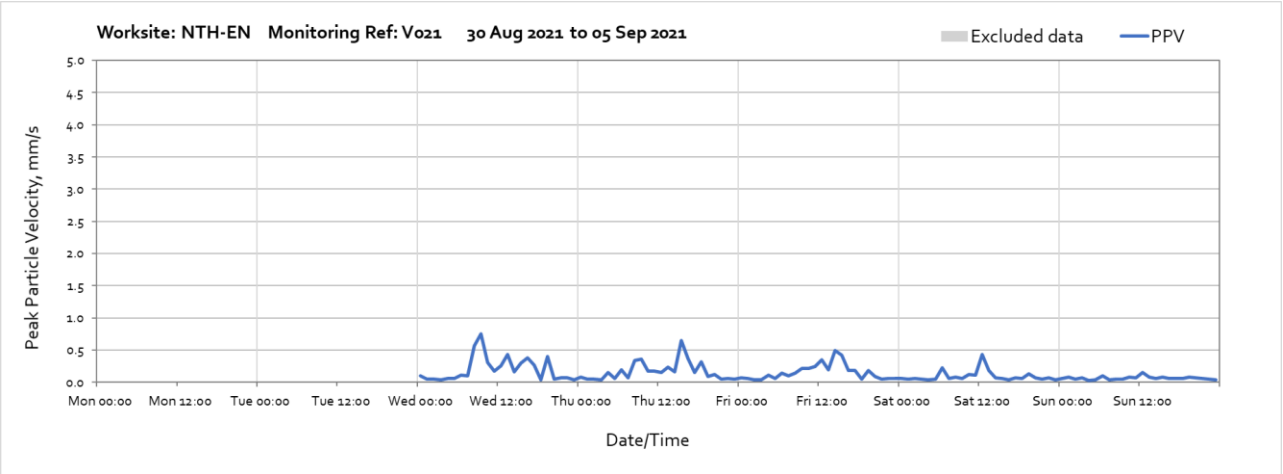
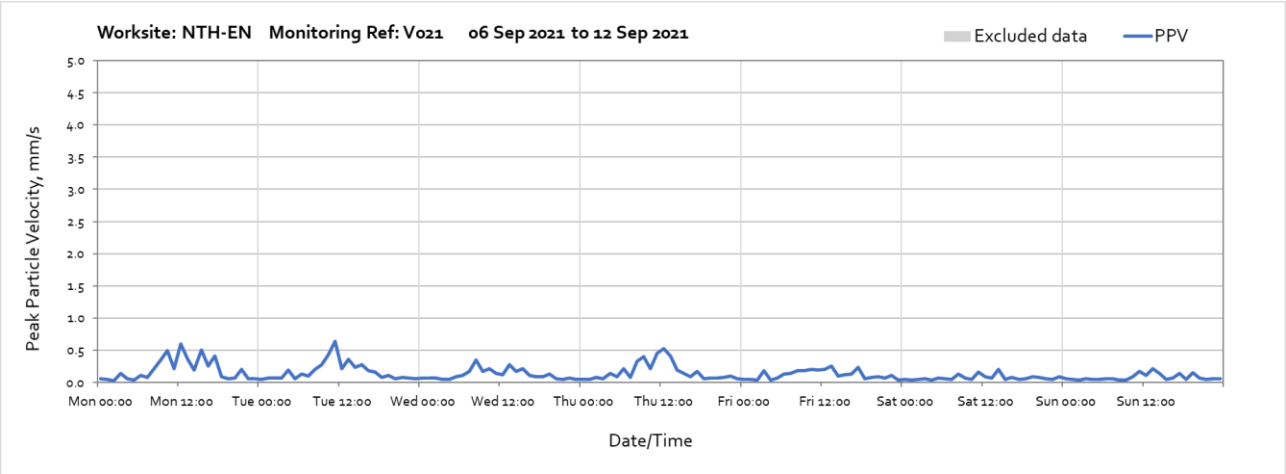
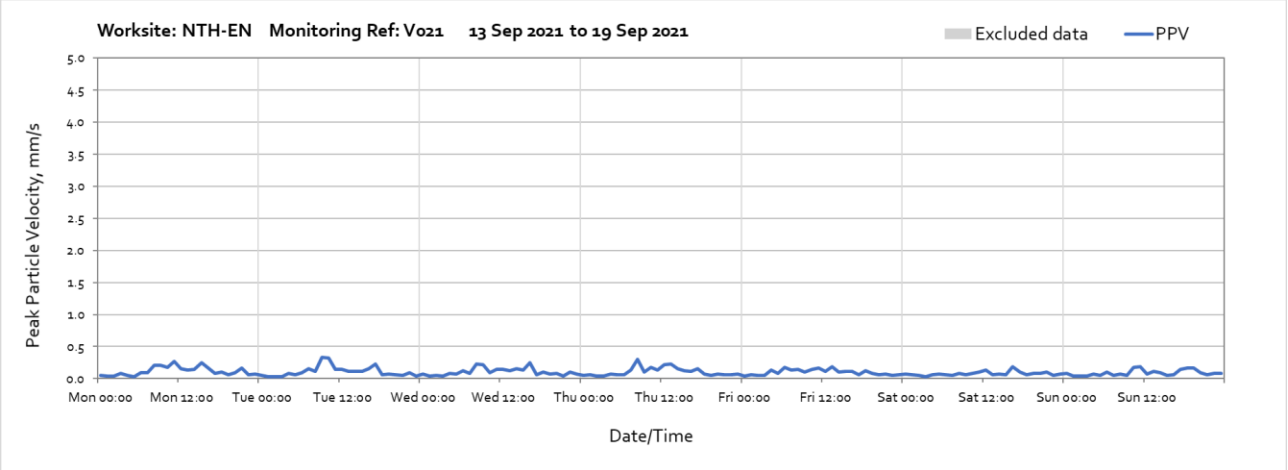
Sun 00:00
Sun 12:00
Date/Time

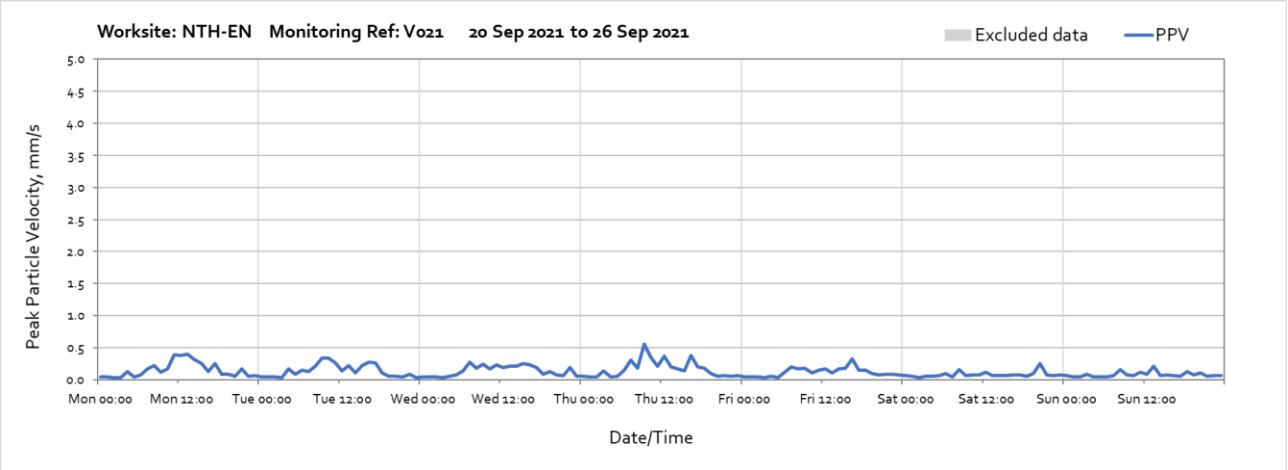


Worksite: NTH-EN – Monitoring Ref: V021






Worksite: NTH-EN Monitoring Ref: V021 13 Sep 2021 to 19 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: NTH-EN Monitoring Ref: V021 20 Sep 2021 to 26 Sep 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
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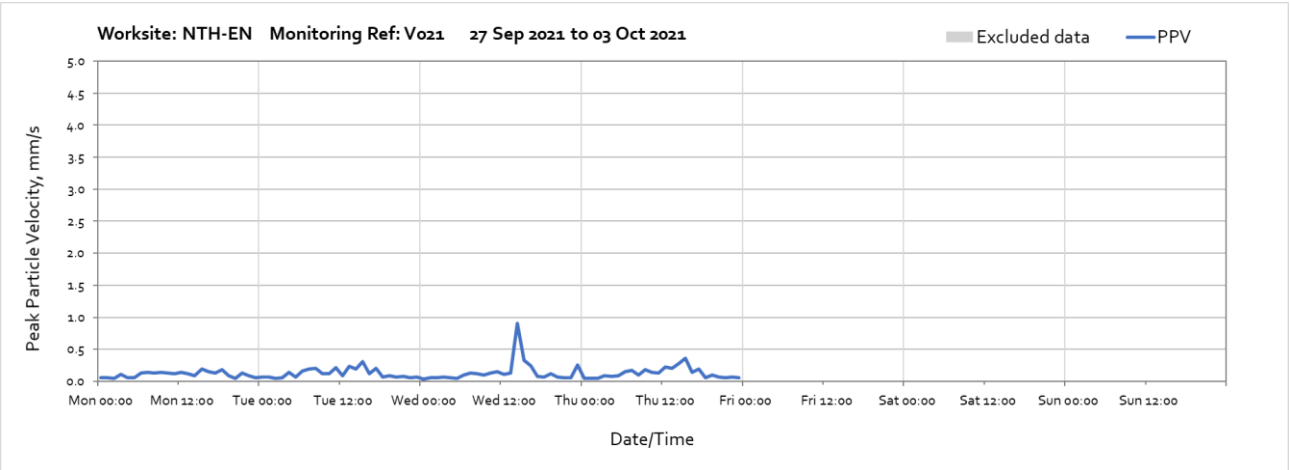
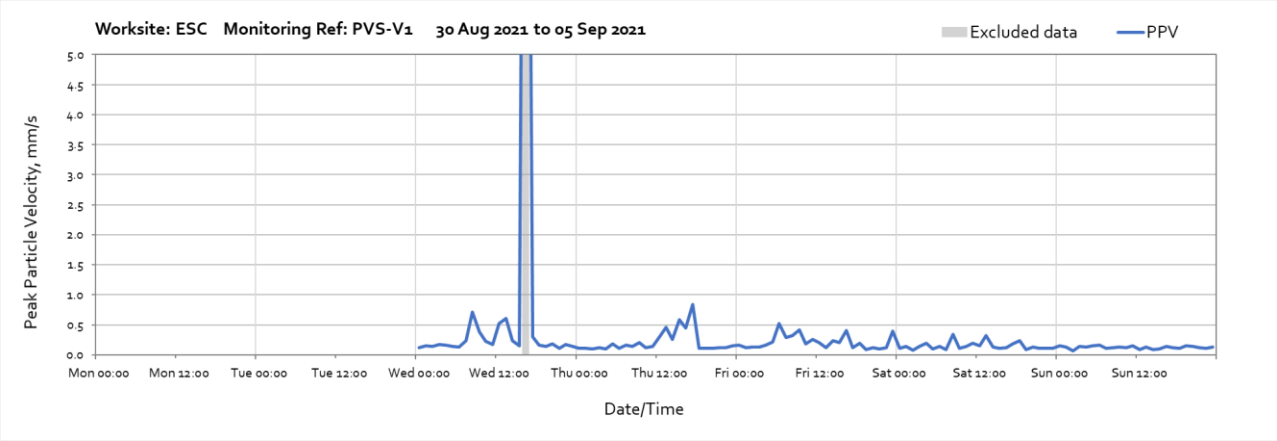
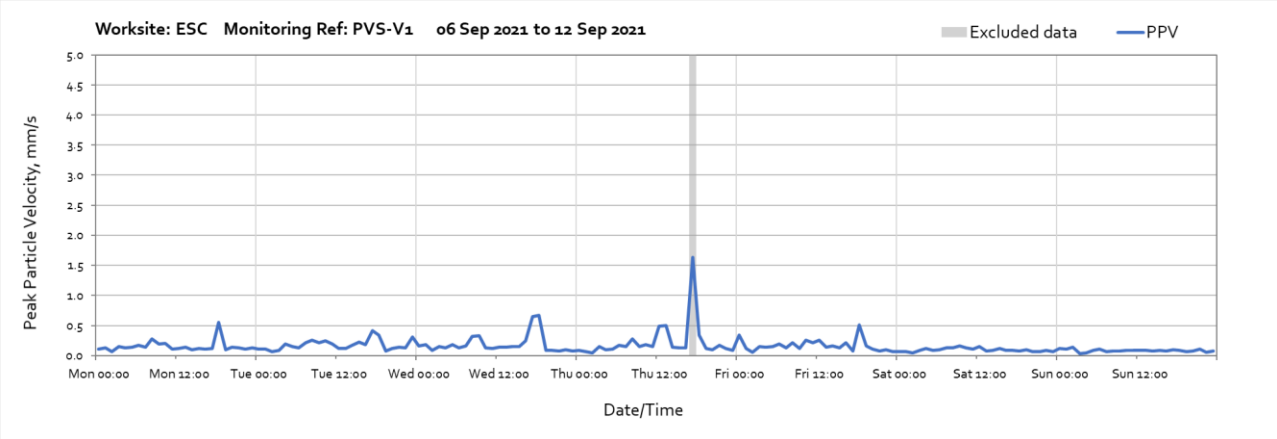
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time


Worksite: NTH-EN Monitoring Ref: V021 27 Sep 2021 to 03 Oct 2021
Excluded data
PPV
Peak Particle Velocity, mm/s
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Mon 00:00
Mon 12:00
Tue 00:00
Tue 12:00
Wed 00:00
Wed 12:00
Thu 00:00
Thu 12:00
Fri 00:00
Fri 12:00
Sat 00:00
Sat 12:00
Sun 00:00
Sun 12:00
Date/Time

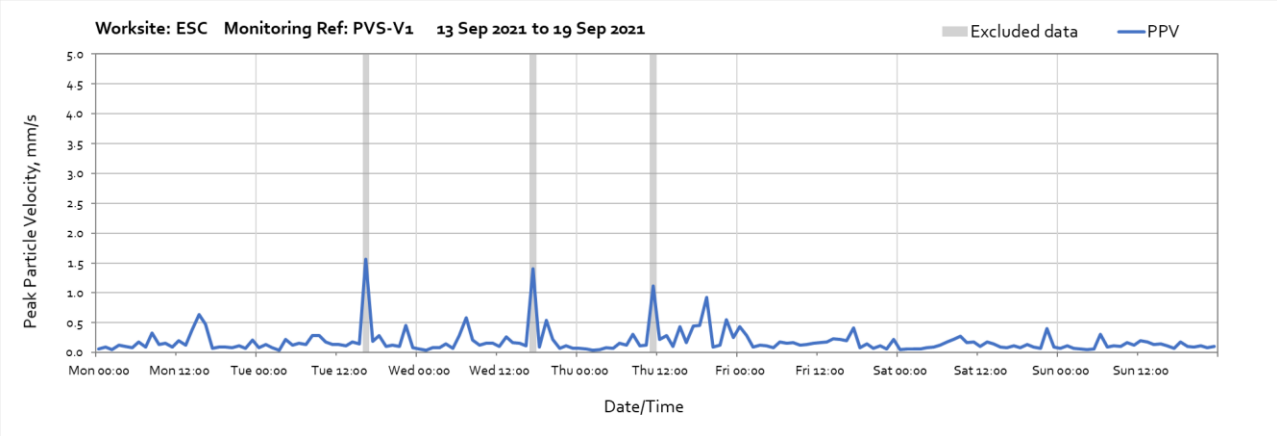
Worksite: ESC – Monitoring Ref: PVS-V1



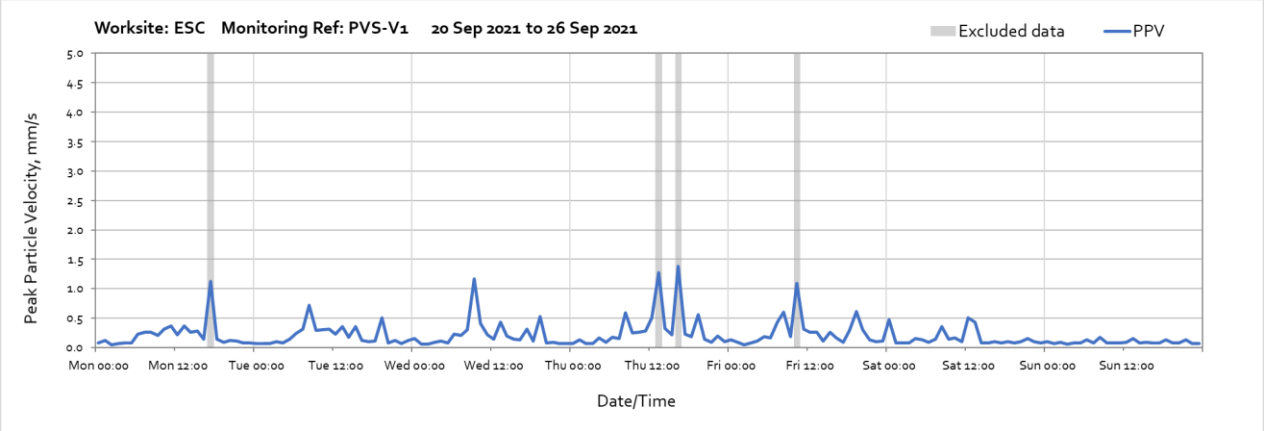
Note: High vibraton levels measured from 16:00 until 17:00 on Wednesday 1st September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



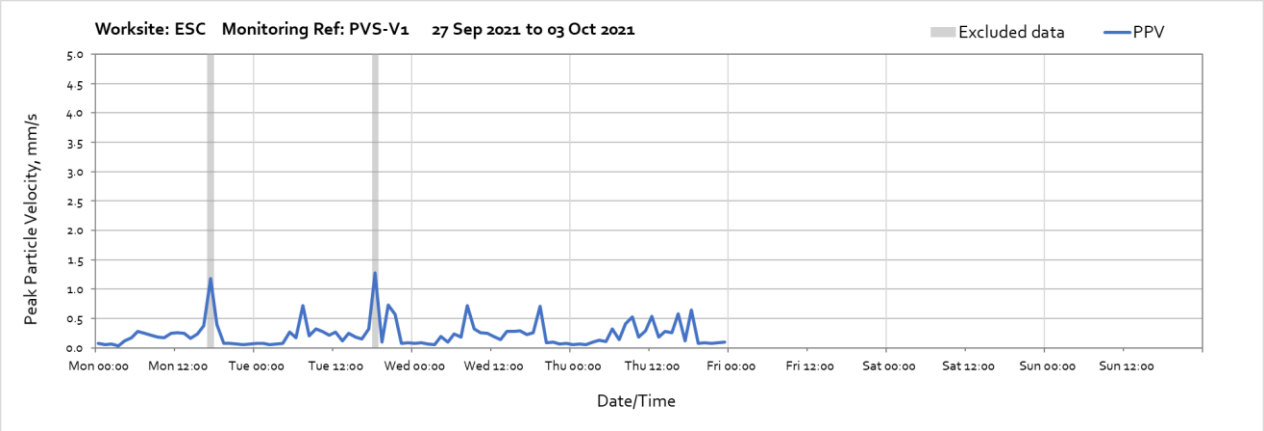
Note: High vibraton levels measured from 17:00 until 18:00 on Thursday 9th September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

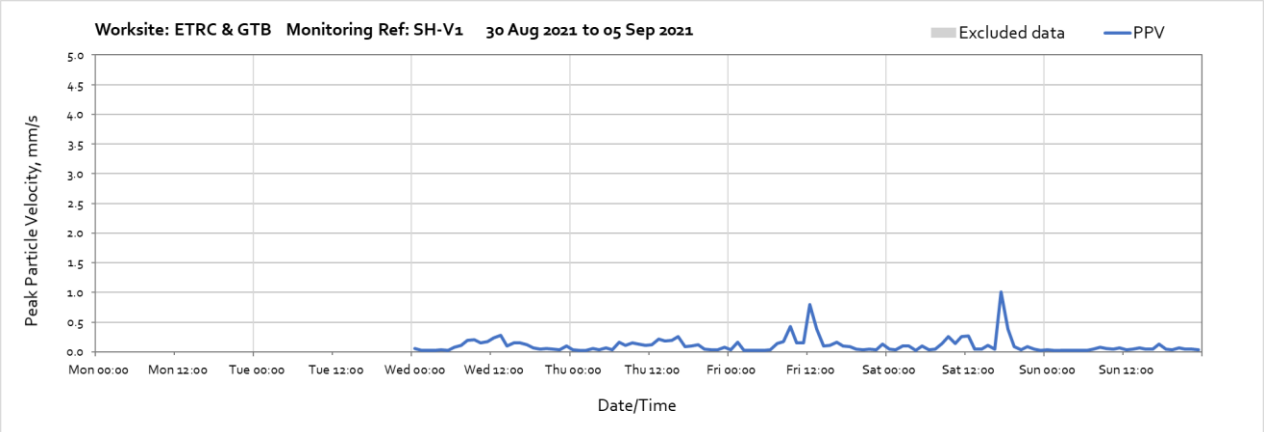


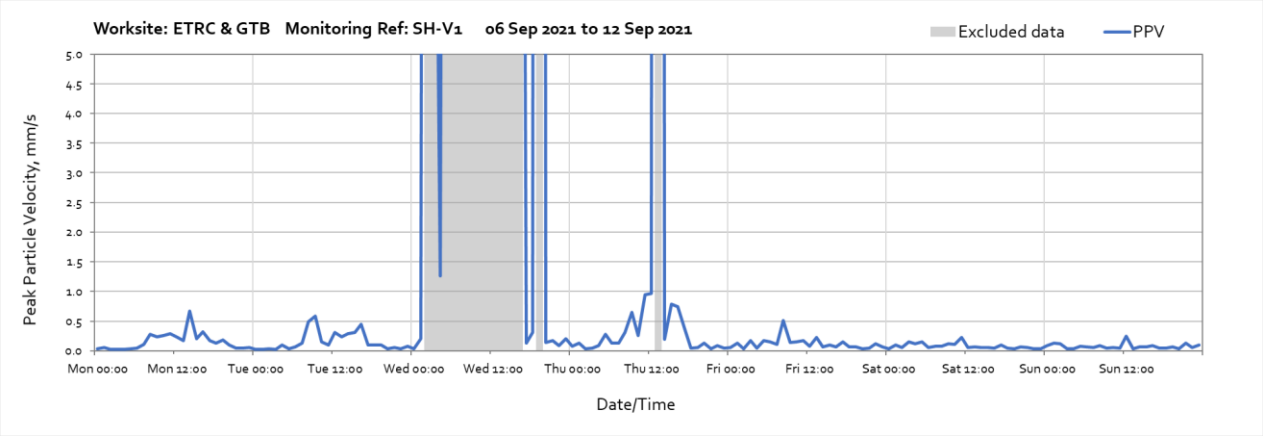
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



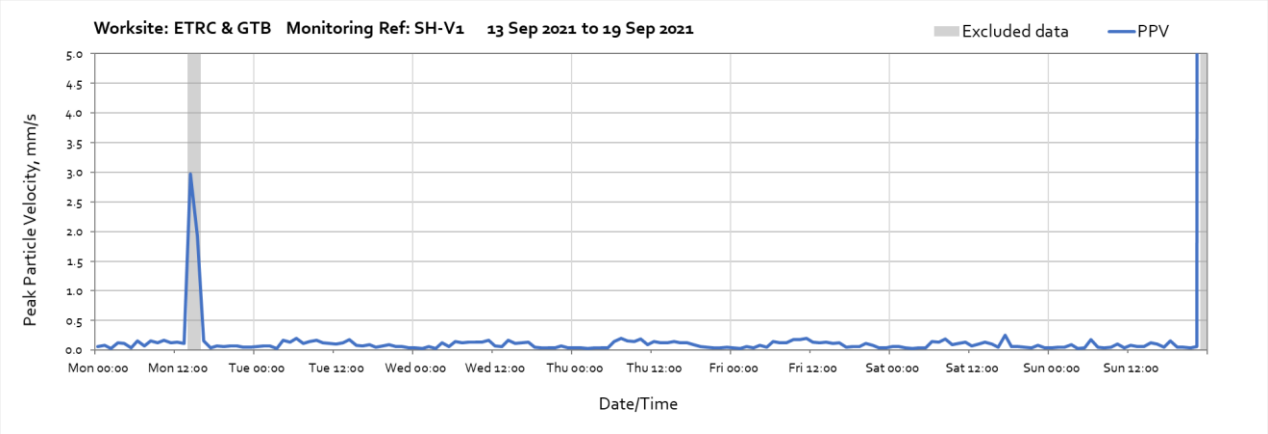
Note: High vibraton levels measured from 17:00 until 18:00 on Monday 27th September and from 18:00 until 19:00 on Tuesday 28th September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

Worksite: ETRC & GTB – Monitoring Ref: SH-V1

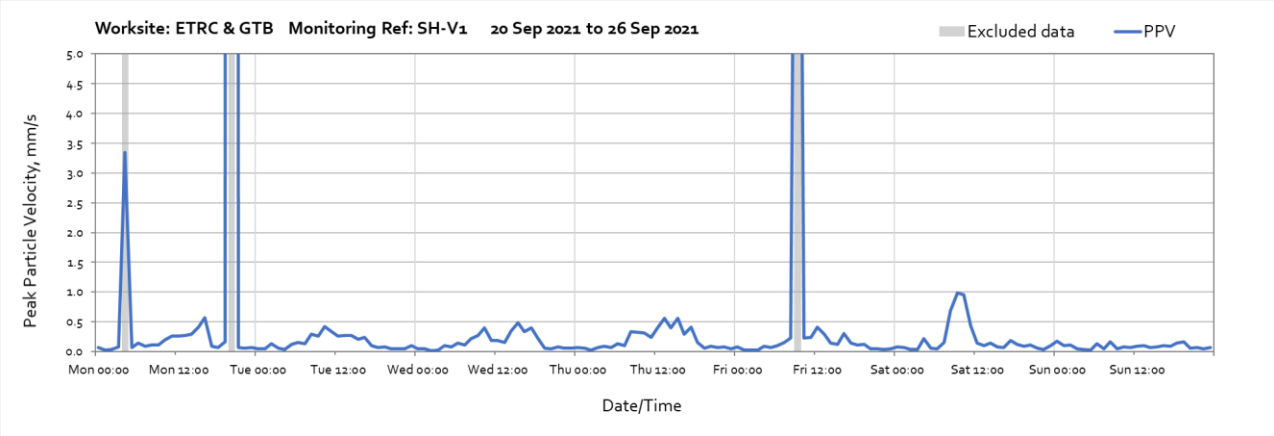




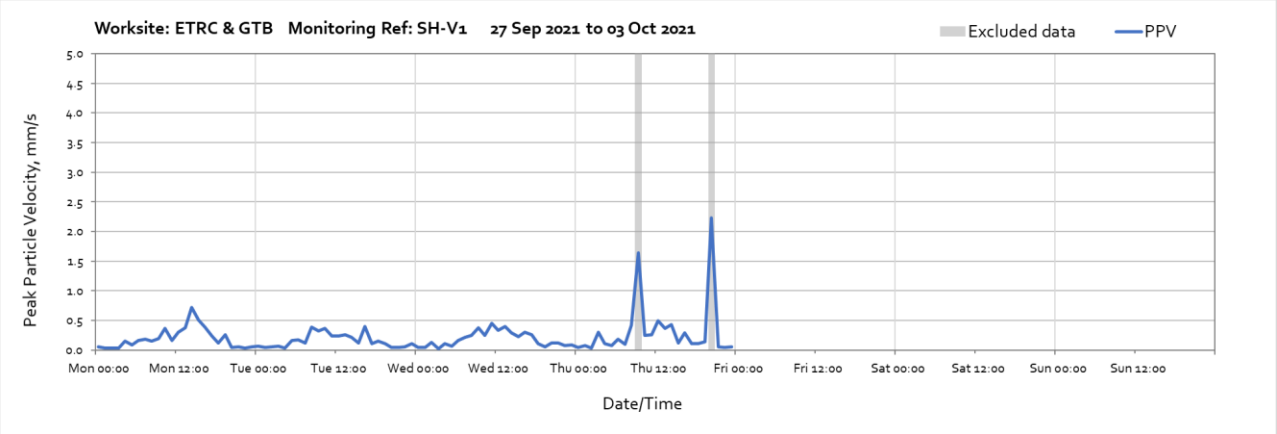
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibraton levels measured from 13:00 until 15:00 on Monday 13th September and from 23:00 Sunday 19th until 00:00 on Monday 20th September were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

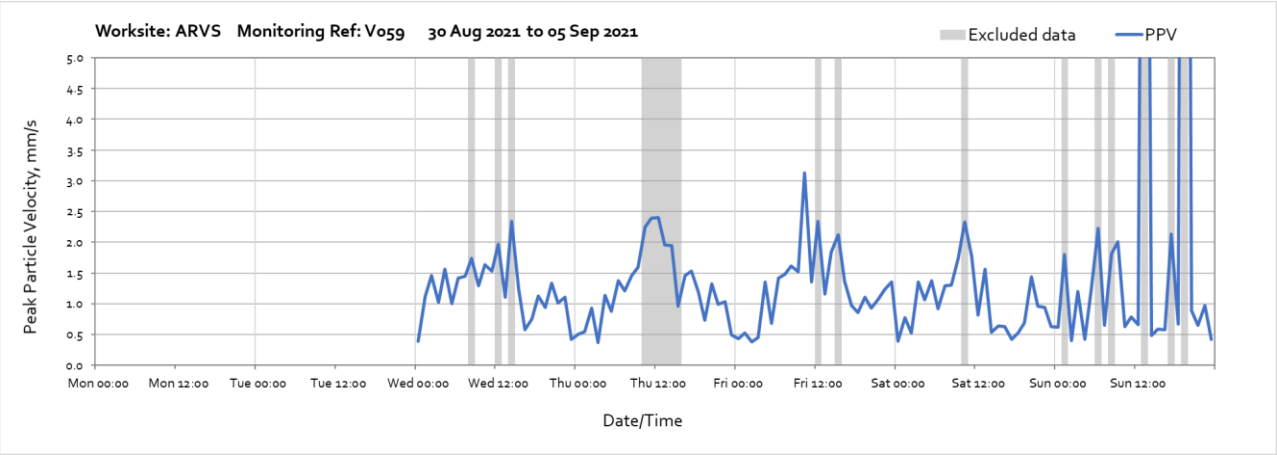


Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

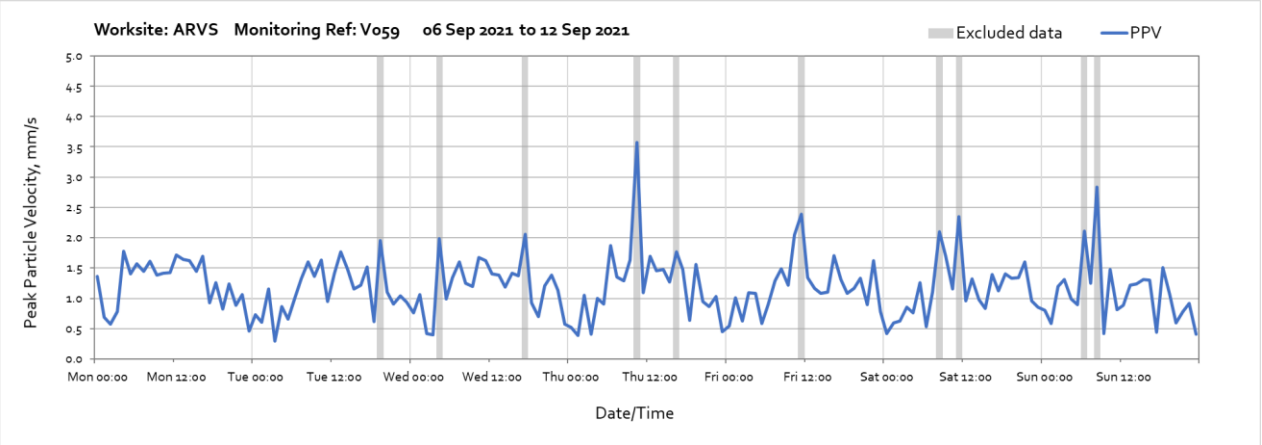


Note: High vibration levels measured from 09:00 - 10:00 and 20:00 – 21:00 on Thursday 30th September and were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.

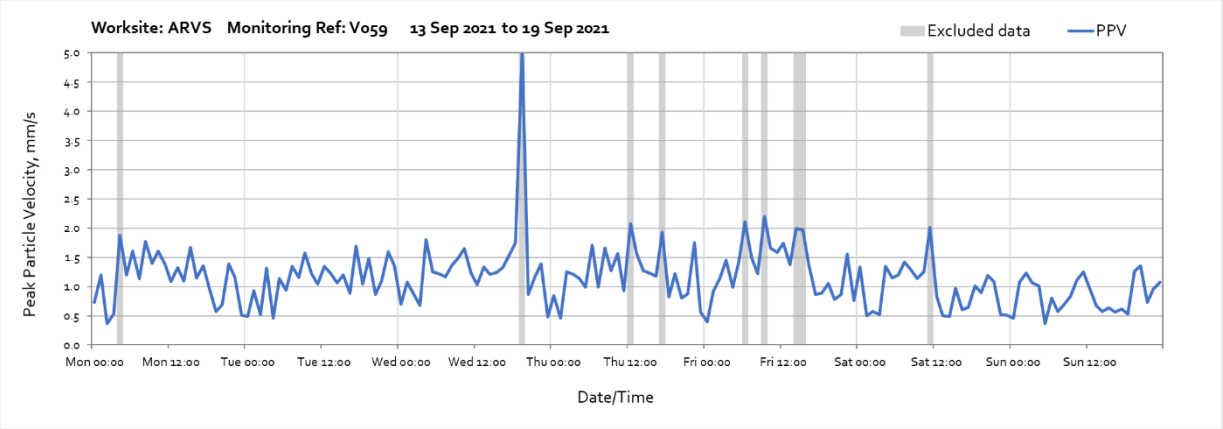
Worksite: ARVS – Monitoring Ref: V059



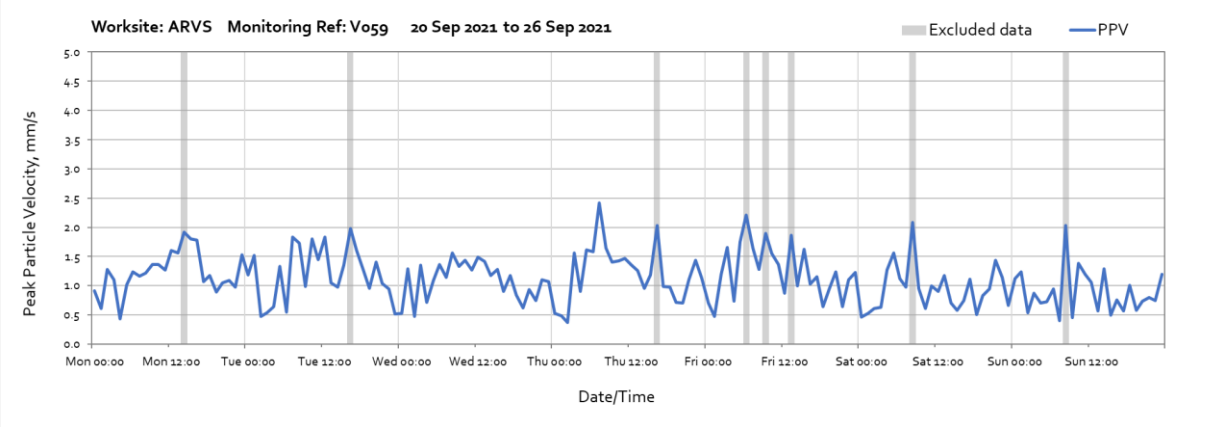
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



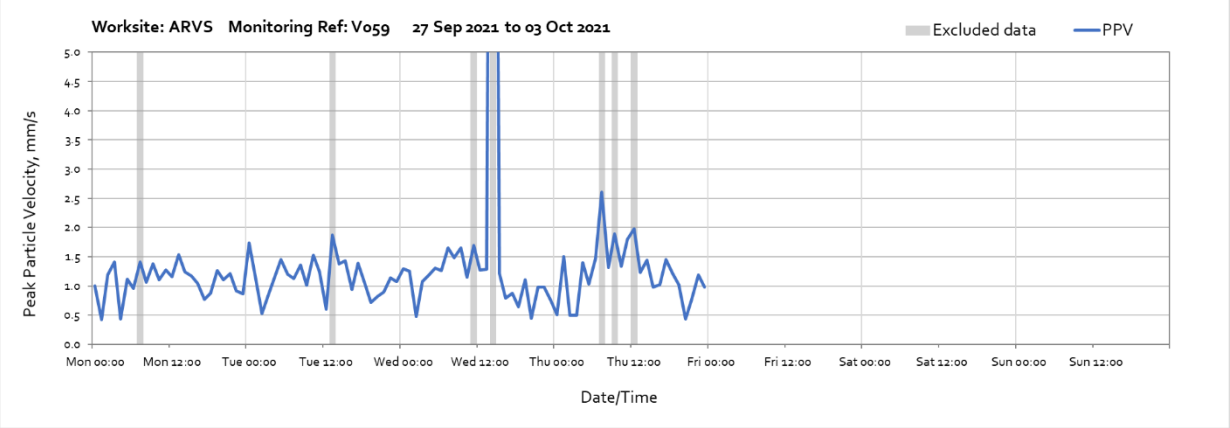
Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.



Note: High vibration levels measured throughout the week were due to local interference of the monitor and are not representative of HS2 vibration levels at the receptor.