

Seiont Redevelopment

Noise Impact Assessment

Client: Jones Bros. Ruthin (Civil Engineering) Co. Ltd.
Project/Proposal No: 6446
Version: 1.0
Date: 2023-12-04



Document Information

Project Name:	Seiont Redevelopment
Document Title:	Noise Impact Assessment
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Document Status:	Final for Issue
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Approved:	Simon Waddell
Date:	2023-12-04
Version:	1.0
Project/Proposal Number:	6446
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Revision History

Version	Date	Authored	Reviewed	Approved	Notes
0.1	2023-12-01	Ross Cullen	Simon Waddell		Draft
1.0	2023-12-04	Ross Cullen	Simon Waddell	Simon Waddell	Final for Issue

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1. Introduction

1.1 Background

Jones Bros. Ruthin (Civil Engineering) Co. Ltd. (hereafter 'the Applicant') is seeking planning permission to construct and operate a concrete batching plant, crusher and screen, at their engineering yard ('the Site') at Seiont, near Caernarfon, within the Gwynedd Council (GC) administrative area. A noise impact assessment (NIA) is required in support of this planning application. The Applicant has commissioned ITP Energised to provide this NIA report.

The Applicant estimates that the total annual duration of batching operations would be around 10 weeks at typically 25 hours per week. Therefore batching operations may sometimes, but not often, occur simultaneously with crushing and screening.

An existing Short-Term Operative Reserve (STOR) is also on the Site, and was the subject of a previous NIA report provided by ITP Energised (project 6018, dated 24 March 2023). Section 6.3.3 of the report noted that:

the facility will require the ability to operate at any time. Typically, however, the facility will only operate for relatively short periods when demand on the electrical grid peaks. The greatest demand on the grid is typically greatest in the evenings (around 17:00 – 20:00) when domestic usage peaks. During this period of greatest likelihood of operation, noise from road traffic and other anthropogenic sources is likely to be higher, such that noise from operation of the facility would be masked.

The proposed new operations are therefore to be expected only rarely to occur simultaneously with operation of the STOR.

Hereafter 'the Proposed Plant' refers to the concrete batching, crushing and screening operations collectively.

1.2 Scope of Assessment

The scope of this NIA comprised the following:

- consultation with GC Environmental Health to agree scope and approach to assessment;
- source characterisation measurements of the Applicant's operational plant;
- construction of a noise model and prediction of operational noise at NSRs surrounding the Site;
- evaluation of predicted noise levels in accordance with BS4142, considering potential cumulative noise impacts with the proposed peaking power plant;
- specification of appropriate mitigation, if required; and
- provision of this NIA report.

1.3 Study Area and Noise Sensitive Receptors (NSRs)

The Site is an area of flat land on the south side of Caernarfon, between the A487 road and the Afon Seiont river near the Ysbyty Eryri hospital. Maps, aerial imagery and layouts provided by the Applicant have informed the selection of an appropriate study area for the assessment.

The surrounding area comprises the following:

- former quarry workings to the east;
- woodland to the south, with the Caernarfon bypass road beyond; and
- the Afon Seiont (river) to the west and north, with residential dwellings and hospital beyond.



ITPEnergised has identified a representative selection of the nearest noise sensitive receptors (NSRs) in each direction and adopted a study area which includes these NSRs. Noise levels due to operation of the Proposed Plant at more distant NSRs will be lower than that at the closest NSRs. The identified representative NSRs are listed in Table 1, and the NSRs and study area are shown in Drawing 1.

Table 1 - Representative NSRs

NSR ID	Description of NSR	Approximate distance and direction from nearest Proposed Plant	Coordinates of NSR
NSR1	Residential property	190 m south-west of batching plant	248729, 361402
NSR2	Hospital	200 m west of batching plant	248690, 361514
NSR3	Residential property	225 m north-west of batching plant	248786, 361707

2. Relevant Guidance and Advice

The following relevant legislation, policy and guidance have been taken into consideration in the course of this assessment.

2.1 EU Directive 2002/49/EC

The EU Directive (2002/49/EC) on the Assessment and Management of Environmental Noise came into force in June 2002 (Council of the European Union, 2002). The Directive is transposed into UK Law by The Environmental Noise (Wales) Regulations 2006, as amended 2009, and The Environmental Noise (Wales) (Amendment) (EU Exit) Regulations 2019.

2.2 Planning Guidance (Wales), Technical Advice Note (Wales) 11, Noise – October 1997 ('TAN11')

Current Welsh planning policy on noise is provided in TAN11; consultation on an updated version finished in January 2023, however, TAN11 remains the applicable guidance.

TAN11 provides general guidance on the approach to evaluating noise from noise-generating developments and at noise-sensitive developments. Regarding noise-generating developments, the guidance places responsibility for ensuring that unacceptable impacts do not occur on the local authority, and notes that appropriate conditions should be considered.

The use of BS4142 (see Section 2.3) is recommended for evaluation of noise from commercial and industrial developments. The guidance notes that a difference of around 5 dB between the rating level and the background level is of marginal significance.

2.3 BS4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound ('BS4142')

BS4142 describes methods for rating and assessing sound from industrial or commercial premises. The methods detailed in the standard utilise outdoor sound levels to assess the likely effects on people inside or outside a residential dwelling upon which sound is incident.

The standard provides methods for determining the following:

- Rating levels for sources of industrial and commercial sound;
- Ambient, background and residual sound levels; and
- The audibility of tones in sound: 1/3-octave method.



These may be used for assessing sound from proposed, new, modified or additional sources of sound of a commercial or industrial nature or to assess the suitability of introducing a receptor near an existing commercial or industrial site.

The standard makes use of the following terms:

- **Ambient sound level, $L_a = L_{Aeq,T}$** The equivalent continuous sound pressure level of the totally encompassing sound in a given situation at a given time, usually from multiple sources, at the assessment location over a given time interval, T.
- **Background sound level, $L_{A90,T}$** The A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90 percent of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.
- **Specific sound level, $L_s = L_{Aeq,Tr}$** The equivalent continuous sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T.
- **Rating level, $L_{Ar,Tr}$** The specific sound level plus any adjustment for the characteristic features of the sound.
- **Residual sound level, $L_r = L_{Aeq,T}$** The equivalent continuous sound pressure level at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound, over a given reference time interval, T.

The standard determines the degree of noise impact by comparison of the background noise level at NSRs in the absence of the industrial or commercial facility (the specific source) with the ambient sound level when the specific source is operational.

Where particular characteristics such as tones, intermittency or impulsivity are present in the noise emissions of the specific source and perceptible at the receptor, the standard requires that “penalties” be added to the specific sound level to account for the increased annoyance that these can cause.

The following evaluation impact significance identifiers are provided in the standard, in which the difference between the specific sound level and measured background level are considered:

- The greater the difference, the greater the magnitude of impact;
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact;
- A difference of around + 5 dB is likely to be an indication of a low adverse impact;
- The lower the rating level, relative to the measured background level, the less likely that the specific sound source will have an adverse (or significant adverse) impact; and
- Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

The standard also makes the following comments:

1. *“Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following:*
 - i. *The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.*
 - ii. *Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*
 - iii. *Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds*



the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.

2. *The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/ or commercial nature is likely to be perceived and how people react to it.*
3. *The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:*
 - i. *facade insulation treatment;*
 - ii. *ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*
 - iii. *acoustic screening.”*

2.4 ISO 9613: Attenuation of sound during propagation outdoors, Part 1 and Part 2

ISO 9613 1&2 describe a method for calculating the attenuation of sound during propagation outdoors to predict the levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions.

2.5 British Standard BS7445-1:2003 Description and Measurement of Environmental Noise. Guide to Quantities and Procedures

BS7445 provides a minimum specification for instrumentation for surveys, along with recommendations for appropriate weather conditions and observations to note.

2.6 BS5228:2009(1)+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.

BS5228 provides representative source spectra of items of plant on construction sites.

3. Method

3.1 Consultation with Gwynedd Council

ITPEnergised consulted with GC on 28 November 2023 to agree the proposed scope and methodology for the assessment.

A response was received from GC on 30 November 2023 noting the methodology and scope and noting:

- the importance of a long-term background measurement for permitting a non-temporary development;
- concern about background creep due to the addition of new noise sources since the earlier (March 2023) NIA for the same site; and
- the relevance of assessing the specific proposed plant items and working methods.



ITPEnergised responded on 30 November 2023 providing assurance regarding these points.

The above correspondence is reproduced in Appendix 1.

3.2 Evaluation of Impacts

3.2.1 Overall Approach to Assessment

The Proposed Plant will introduce new industrial noise sources to the area, with the potential for impacts on existing residential NSRs. We evaluated noise impacts in line with guidance in BS4142, TAN11 and other relevant documents as detailed in Section 2.

Due to the infrequent operation of the STOR, we assessed the cumulative impacts of the Proposed Plant (see Section 4.2) as of primary importance, and additionally assessed the infrequent event of cumulative impacts of the Proposed Plant and STOR (see Section 4.3).

3.2.2 Adopted Evaluation Criteria

The evaluation criterion used in the assessment is that the rating level of cumulative noise from the Proposed Plant and STOR, incident on the NSRs, should not exceed the respective background levels (L_{A90}) at the NSRs by 5 dB or more. The relevant policy is TAN11, which indicates with reference to BS4142 that a difference of around 5 dB between the rating and background levels is of marginal significance.

3.2.3 Determination of Background Levels

ITPEnergised commissioned a baseline noise survey on 3 - 7 March 2023. Monitoring was undertaken in accordance with the requirements of BS4142 using Svantek SV307A Class I integrating sound level meters (SLMs). The SLMs were within their two-year laboratory calibration period and a calibration check was performed before and after each measurement, with no drift in calibration noted. The noise indices L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} were recorded at each location at an averaging resolution of 15 minutes.

Weather conditions during the attended surveys were within the requirements of BS4142, with very low wind speeds and no significant rainfall; a light shower was noted during the final averaging period at NMP3. During the unattended measurement, the wind speed remained low (substantially below 5 m/s). The period was generally dry; there was some brief rain during 4-5 March; periods of anomalously high noise levels in the measurements have been reviewed to neutralise potential influence of weather conditions.

Details of the measurements completed at representative noise monitoring positions (NMPs) are provided in Table 2. The locations of the NMPs are shown in Drawing 1. (Note that their positions and ID numbers match the representative NSRs whose positions are shown: for example, NMP1 = NSR1.)

Table 2 - Summary of Baseline Measurements

NMP ID and Location	Time and Duration	Representative of (NSRs)
NMP1 Seiont Mill Road	6 March 09:39-10:39 1 h	NSR1
NMP2 Car park of Ysbyty Eryri hospital	6 March 10:49-12:00 1 h 10 m	NSR2
NMP3 Sports pitch to south of Tyddyn Llwydyn	6 March 12:15-13:15 1 h	NSR3
NMP4 Jones Bros yard	3 March 17:45 – 7 March 08:45 4.5 days	All NSRs



3.2.4 Determination of Source Levels

ITP Energised commissioned noise measurements of plant in operation by the Applicant at other sites on 22 June 2023. The batching plant to be used at Seiont was measured at four NMPs over a total of 2.5 hours. Crushing and screening operations were measured at three NMPs over a total of 16 minutes.

We constructed noise models of the measured sources and NMPs within CadnaA noise modelling software and thereby determined representative sound power levels of these plant operations.

Our observations identified that the primary noise source of the batching operation is the associated movement of lorries. We therefore modelled this source with an operating time correction of 25%, alongside an additional source for the constant batching plant noise, with broadband levels set to match higher and lower observed levels, respectively. Character correction is discussed below in Section 3.2.6.

We obtained specifications of plant which had not been measured. The Applicant provided ITP Energised with the manufacturer's datasheet for the crusher to be used at Seiont, which shows the operational noise of the crusher will be approximately 124 dB(A). The manufacturer of the STOR provided spectral data as a quoted sound power level (SWL): the operational noise of the STOR will be approximately 75 dB(A). The data sheets are in Appendix 2.

The crusher is to be housed within a building. We therefore calculated internal reverberant sound pressure level according to the dimensions provided by the Applicant and determined the resulting sound power level emanating from the walls and roof. Our calculations assumed a steel-framed structure with single-skin steel cladding with no enhanced acoustic attenuation; this is therefore a conservative method.

Similarly, the engines of the STOR will be housed within containers, and so we calculated the resulting sound from the walls and roof for each container, according to the dimensions provided by the Applicant. We verified noise levels from the containers using test receivers at a distance of 1 m from the engine.

The modelled spectra and overall levels are shown in Table 3.

Table 3 - Modelled levels of Noise Sources

Plant item / Source of spectrum	Level, dB								Total, SWL dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	
Crusher building (walls, roof) / BS5228 Table C.9 item 15	98	98	97	94	91	88	82	72	106
Screen / BS5228 Table C.10 item 14	93	86	79	78	75	71	69	62	105
Batching (intermittent) / BS5228 Table C.4 item 26	75	76	71	70	71	68	64	60	105
Batching (constant) / BS5228 Table C.4 item 26	75	76	71	70	71	68	64	60	82
STOR containers (walls, roofs) / manufacturer	61	68	56	53	54	54	49	73	74

3.2.5 Prediction of Operational Noise incident on NSRs

We constructed a noise model of the study area within CadnaA noise modelling software. The model includes topography and the following settings:

- Ground absorption G=0.0 on the Site; and G=1.0 elsewhere
- Temperature = 10°C



- Relative Humidity = 70%

We modelled the concrete batching and screening operations as point sources, and the crushing and STOR as area sources (representing the walls/roofs of the building and containers), in accordance with the proposed layout, and set their respective heights and sound power levels in accordance with findings described in Section 3.2.4. We additionally incorporated a wall of 3 m height, which will be built along the line of recycling stockpiles, providing some attenuation.

We used this model to predict noise impacts of the Proposed Plant and STOR at the representative NSRs.

The predicted noise contours (specific level) impacting on NSRs are shown in Drawing 2 (see Section 4.2) and Drawing 3 (see Section 4.3).

3.2.6 Character corrections

We considered each plant operation for the following characteristics: impulsivity; intermittency; tonality.

We identified that batching operations have an intermittent character due to the arrival and departure of lorries, which are the dominant noise source of the operation. We expect that the continuous broad-band noise of the batching plant will partially mask the intermittent characteristics and have therefore applied a +3 dB penalty when calculating the rating level.

We identified that crushing operations have an impulsive character due to the sudden impact of rock matter during loading. However, the building housing the crusher is expected to provide sufficient attenuation to reduce the impulsive characteristic outside the building such that impulsive characteristics will not be audible at NSRs.

We note that no other impulsive, intermittent or tonal characteristics are to be expected.

4. Results

4.1 Baseline Noise Environment Characterisation

Observations on the baseline noise environment for each monitoring location are detailed below.

NMP1 – Seiont Mill Road. The dominant noise source during the daytime was bird calls and continuous running water noise from the river. Lesser contributors to the noise environment comprised aircraft passing overhead, very faint distant road traffic, pedestrians passing a car manoeuvring in a nearby car park.

NMP2 - Car park of Ysbyty Eryri hospital. The dominant noise source during the daytime was bird calls. Lesser contributors were distant road traffic, gentle wind-induced rustling of trees and, for short periods, operational noise from the Applicant's site, which appeared to be a jackhammer or similar item of plant.

NMP3 - Sports pitch to south of Tyddyn Llwydyn. The dominant noise source during the daytime was bird calls. Lesser contributors were dogs barking, distant road traffic, wind-induced rustling of trees.

NMP4 – On-site location. The dominant noise source during attendance was bird calls, with lesser contributions from distant road traffic. No activities associated within the Applicant's yard were occurring at the time of commissioning or decommissioning and none were scheduled over the weekend. Some activity may have occurred on the Monday daytime.

Summary of Measured Levels. Observations on the noise environment were consistent between the monitoring locations, which is a positive indication that long-term measurements at the on-site location are representative of the off-site NSRs. The measured levels are summarised in Table 4 and the full dataset for each location is shown in charts in Appendix 3.



Table 4 - Summary of Measured Baseline Noise Levels

NMP ID – Period	Representative ambient level, dBL _{Aeq,T}	Representative background level, dBL _{A90,T}
NMP1 – Weekday daytime	48	44
NMP2 – Weekday daytime	51	44
NMP3 – Weekday daytime	45	41
NMP4 – Weekday daytime*	43	41
NMP4 – Weekend daytime*	47	41
NMP4 – Night-time	42	41

*Representative levels during weekday and weekend daytimes exclude times when elevated levels indicate activities at the Applicant’s yard or possible adverse weather events.

A robust approach has been taken when determining the representative ambient and background levels. The chart ‘Measured Sound Levels – NMP4’ in Appendix 3 shows the variation in the ambient, background, maximum and tenth percentile indices at the on-site location over the full measurement duration. With reference to the chart ‘Measured Sound Levels – NMP4’ we note the following:

- The background level remained highly consistent at approximately 41 dBL_{A90} across the daytime and night-time periods on 3-5 March and the morning of 6 March.
- The ambient level on 3-5 March and the morning of 6 March was also generally consistently in the range 41-45 dB, with some short-duration spikes during the daytime periods.
- There is a short-duration increase in the ambient and background levels around dawn on each day, consistent with dawn chorus and birdsong being the dominant noise source in the study area.
- Daytime levels on 6 March are substantially elevated, likely indicating the influence of the Applicant’s existing operations.

Representative ambient and background levels have been adopted based on the first three days of the measurement, which are understood to be unaffected by noise from existing operations at the site. The consistency of the measured levels provides confidence that the data is robust and representative.

The consistency of background levels across daytime and night-time during the long-term measurement (consistently 41 dB) means it is reasonable to take measured daytime levels to represent night-time levels at the short-term NMPs as well. Therefore we have adopted the background levels shown in Table 5 for the purposes of evaluation.

Table 5 – Adopted Representative Background Levels

NSR ID	Daytime/Night-time background level, dBL _{Aeq,T}
NSR1	44
NSR2	44
NSR3	41

4.2 Predicted Operational Noise Levels and Evaluation against BS4142 Criteria

The predicted operational noise levels at each NSR are as in Table 6, with a character correction applied for intermittency of the batching operation (see Section 3.2.6). Levels have been rounded to the nearest integer dB, in accordance with the BS4142 method. Drawing 2 shows the noise contours of the specific level.



Table 6 - Predicted Operational Noise Levels of Proposed Plant at NSRs

NSR ID	Specific level, $dBL_{Aeq,T}$	Character corrections	Rating level, $dBL_{Aeq,T}$
NSR1	44	+3	47
NSR2	44	+3	47
NSR3	43	+3	46

The assessment of predicted levels during simultaneous operation of the Proposed Plant is shown in Table 7, where negative and zero values in the “Comparison” column indicate compliance.

Table 7 - Evaluation of Noise Impacts of Proposed Plant

NSR ID	Criterion level, $dBL_{A90} + 5$ dB	Predicted rating level, $dBL_{Aeq,T}$	Comparison (predicted minus criterion), dB
NSR1	49	47	-2
NSR2	49	47	-2
NSR3	46	46	0

These results indicate that the Proposed Plant will **comply** with the criteria at all NSRs.

We note that this finding assumes continuous operation of simultaneous crushing, screening and batching operations. However, their operation would not be continuous (the Applicant estimates that the total annual duration of batching operations would be around 10 weeks at typically 25 hours per week) and not necessarily simultaneous, which would **further reduce** the overall impact on NSRs.

4.3 Predicted Levels during STOR Operational Periods and Evaluation against BS4142 Criteria

This section addresses the infrequent scenario in which all Proposed Plant and STOR operate simultaneously.

The predicted operational noise levels at each NSR are as in Table 8, with a character correction applied for intermittency of the batching operation (see Section 3.2.6). Levels have been rounded to the nearest integer dB, in accordance with the BS4142 method. Drawing 3 shows the noise contours of the specific level.

Table 8 - Predicted Operational Cumulative Noise Levels of Proposed Plant and STOR at NSRs

NSR ID	Specific level, $dBL_{Aeq,T}$	Character corrections	Rating level, $dBL_{Aeq,T}$
NSR1	45	+3	48
NSR2	45	+3	48
NSR3	45	+3	48



The assessment of predicted cumulative levels of the Proposed Plant and STOR are shown in Table 9, where negative and zero values in the “Comparison” column indicate compliance.

Table 9 - Evaluation of Cumulative Noise Impacts of Proposed Plant and STOR

NSR ID	Criterion level, dBL _{A90} + 5 dB	Predicted level, dBL _{Aeq,T}	Comparison (predicted minus criterion), dB
NSR1	49	48	-1
NSR2	49	48	-1
NSR3	46	48	+2

These results indicate that during operation of the STOR, the cumulative impact of the Proposed Plant and STOR **complies** with the criteria at NSR1 and NSR2, and has the **possibility of exceeding** the criteria at NSR3 by a margin of up to 2 dB.

The STOR facility will operate at times when demand on the grid is greatest, which is therefore infrequent, for relatively short duration, and coincides with times of elevated background noise (see Section 1.1) so that noise impacts will be reduced. The remaining Proposed Plant will not operate continuously (see discussion under Section 4.2) which further reduces the frequency of this scenario. Therefore the levels indicated here are expected to be **rarely experienced**.

Notwithstanding, to **additionally mitigate** these impacts, the Applicant will commit to produce a Noise Management Plan for operation of the batching plant and crusher/screen, indicating methods for deploying the best practicable means to control noise emissions.

5. Conclusion

ITP Energised has undertaken a noise impact assessment for proposed concrete batching, crushing and screening operations and a STOR facility at the Applicant’s site at Seiont, near Caernarfon. The assessment has comprised consultation with Gwynedd Council, characterisation of the baseline noise environment, prediction of reasonable worst-case operational noise levels and evaluation of potential impacts in accordance with the BS4142 method.

The assessment has determined that reasonable worst-case operational noise levels from the cumulative of simultaneous batching, crushing and screening operations will **comply** with criteria in accordance with BS4142 and agreed with GC. The margin of compliance would be a minimum of 0 dB, and discussion has been provided to demonstrate that actual impacts would be lesser (see Section 4.2).

The assessment has determined that reasonable worst-case operational noise levels from the cumulative operation of simultaneous batching, crushing and screening alongside STOR operation would comply with the target criteria at most NSRs by a minimum margin of 1 dB, and has the potential to occasionally exceed the target criteria at the NSR to the north, by up to 2 dB. Discussion has been provided to demonstrate that these impacts would be rarely seen; additionally, the Applicant will commit to produce a Noise Management Plan indicating methods for deploying the best practicable means to control noise emissions: this **complies** with the methodology agreed with GC (see Section 4.3).



6. References

Literature

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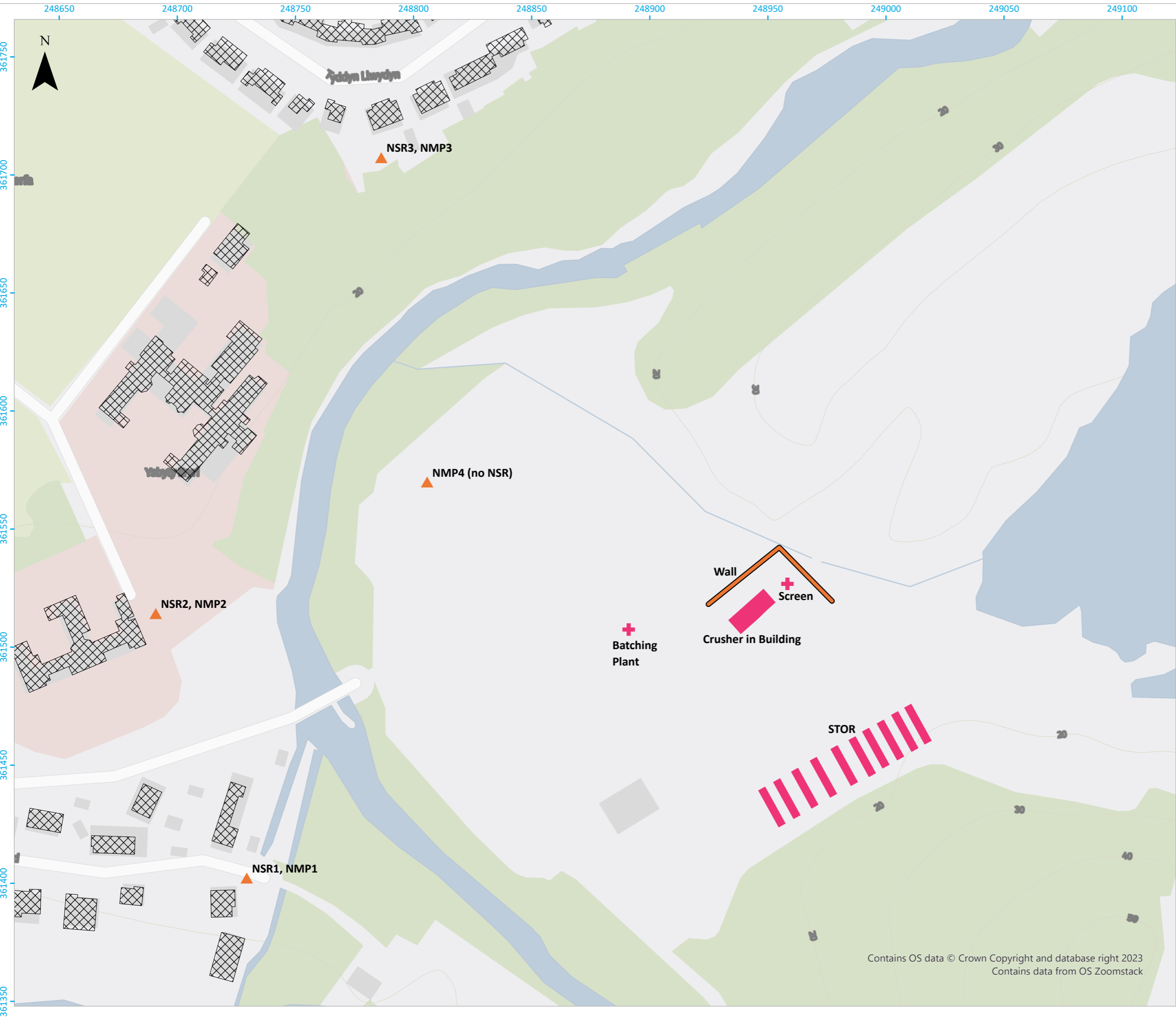
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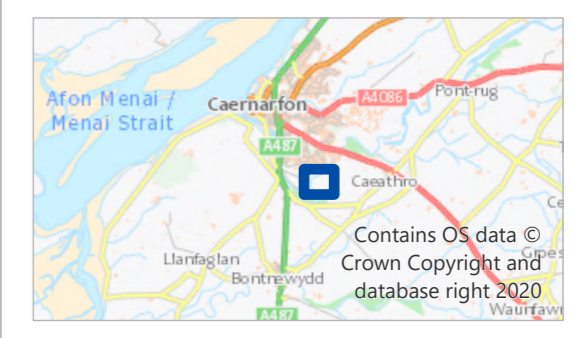
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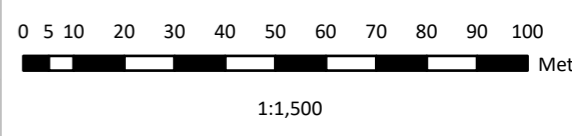


KEY

-  Modelled Buildings
-  NSRs / NMPs
-  Screen
-  Batching Plant
-  Crusher in Shed
-  STOR
-  Wall



Coordinate System: British National Grid
 Projection: Transverse Mercator

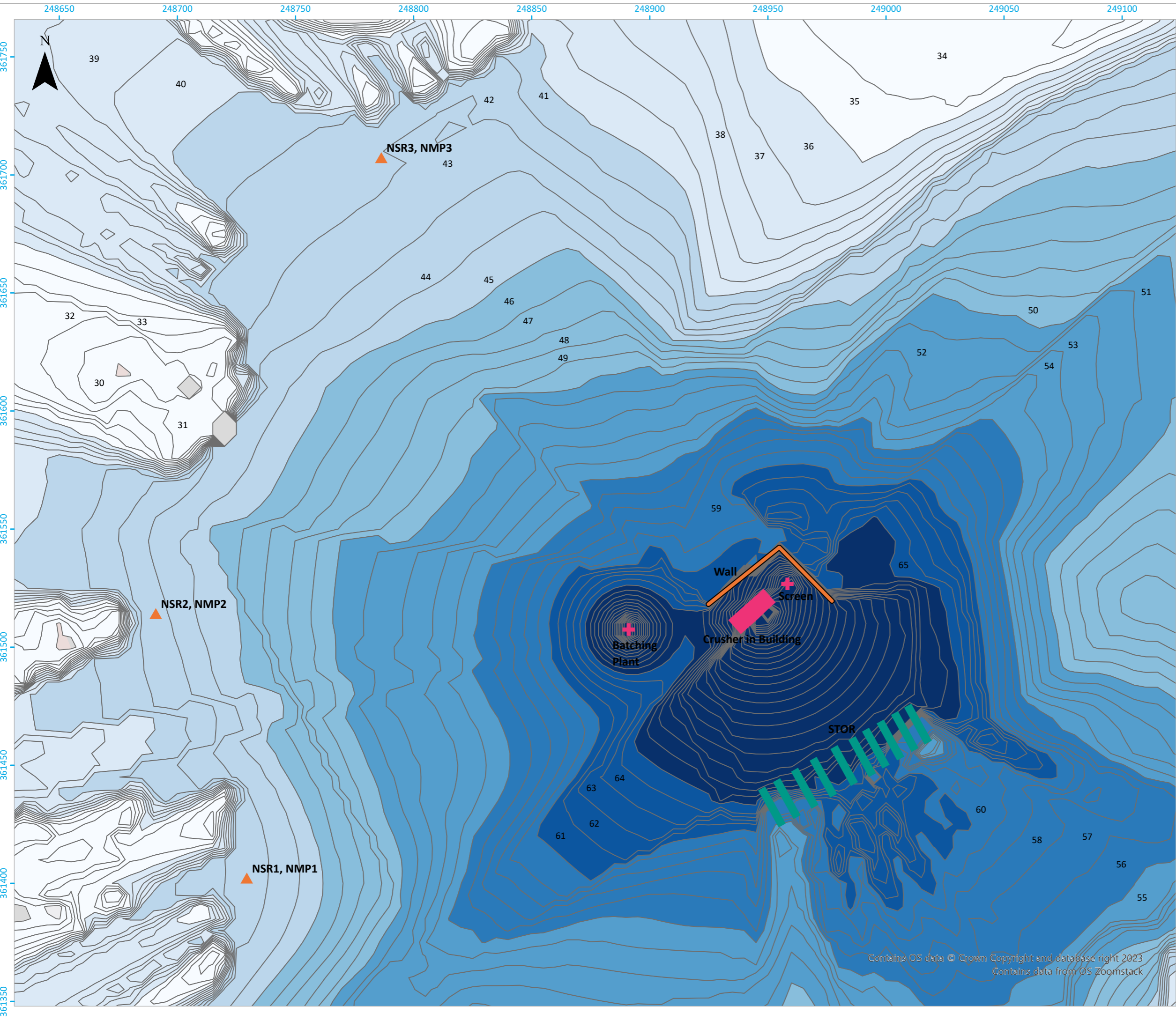


Seiont Redevelopment / 6446
 Noise Impact Assessment

Drawing 1
Study Area, NMPs, NSRs,
Proposed Plant and Proposed Wall

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 Contains data from OS Zoomstack

Date: 04/12/2023	Lead: RC	Review: SW	Version: 1.0
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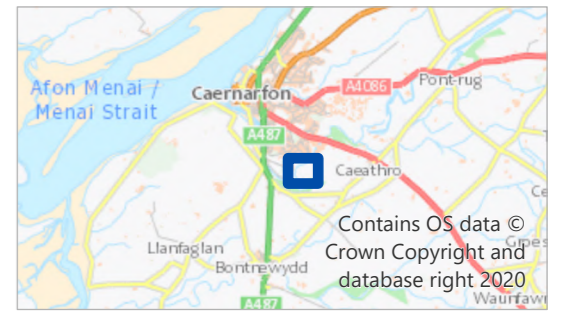


KEY

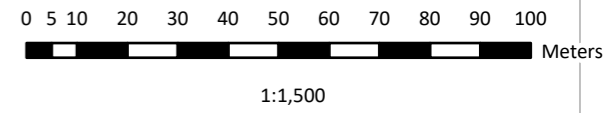
- ▲ NSRs / NMPs
- + Screen
- + Batching Plant
- Crusher in Shed
- STOR

Operational Specific Level, dB(A)

- < 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- > 65



Coordinate System: British National Grid
 Projection: Transverse Mercator

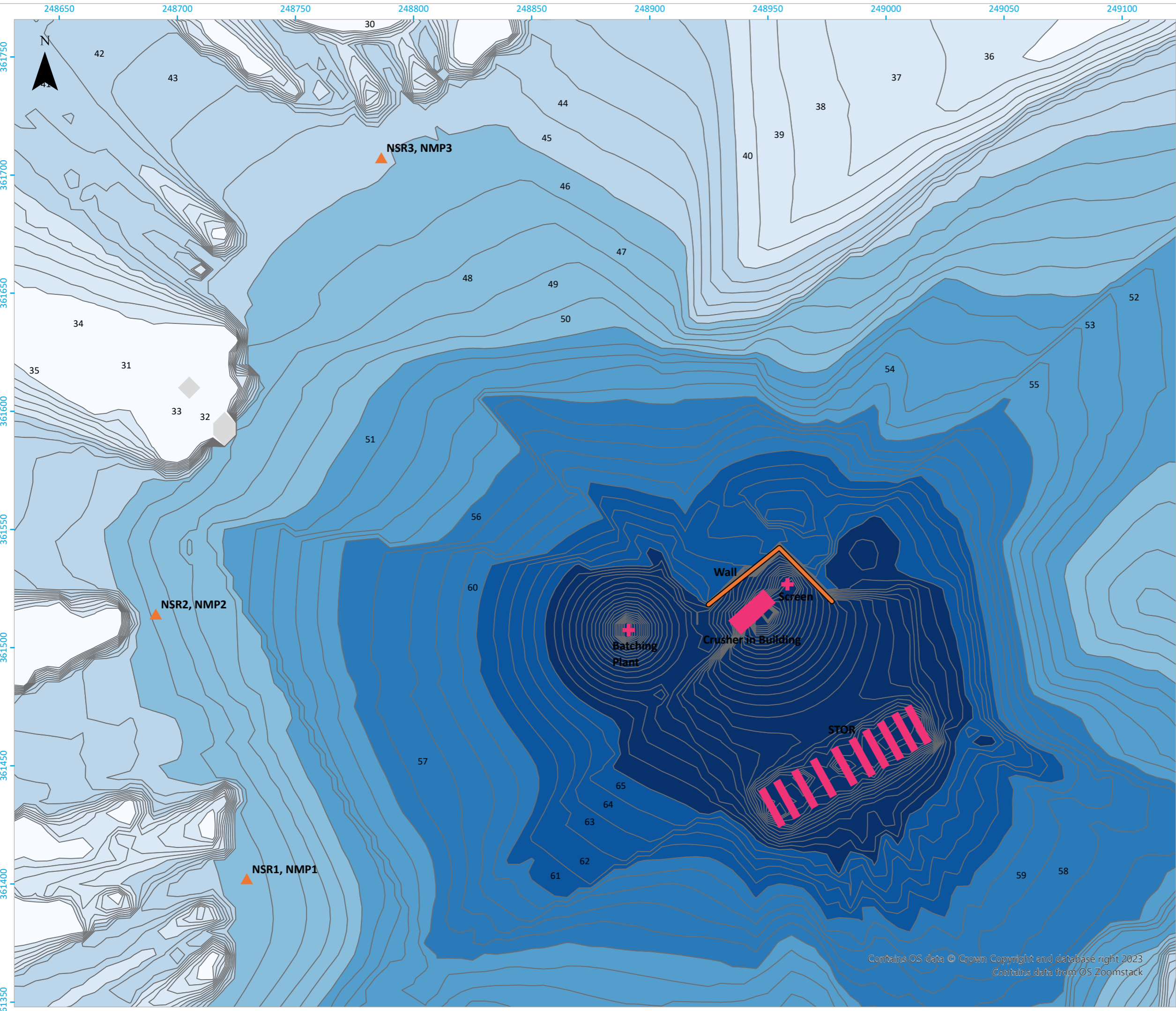


Seiont Redevelopment / 6446
 Noise Impact Assessment

Drawing 2
Noise Contours: Proposed Plant
(STOR not operating)

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Date: 04/12/2023	Lead: RC	Review: SW	Version: 1.0
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KEY

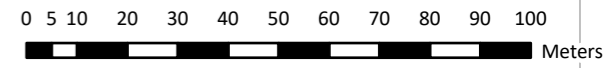
- ▲ NSRs / NMPs
- + Screen
- + Batching Plant
- Crusher in Shed
- ▨ STOR

Operational Specific Level, dB(A)

- < 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- > 65



Coordinate System: British National Grid
 Projection: Transverse Mercator



1:1,500



Seint Redevelopment / 6446
 Noise Impact Assessment

Drawing 3
Noise Contours: Proposed Plant and STOR

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Date: 04/12/2023	Lead: RC	Review: SW	Version: 1.0
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Appendix 1 – Consultation Correspondence

From: Ross Cullen

Sent: Thursday, November 30, 2023 1:10 PM

To: Moira Ann Duell Parri (AMG <REDACTED>)

Subject: RE: Noise consultation request - Seiont site (additional plant)

Good afternoon Moira,

Thank you for your prompt feedback, which is really appreciated. I'm pleased to provide you reassurance on these points.

Please respond to confirm approval of the methodology (if there are no further queries, of course).

ITPEnergised commissioned a baseline noise survey in March 2023, which was undertaken in accordance with the requirements of BS4142. Details of the measurements completed at representative noise monitoring positions (NMPs) are provided in the table below. The locations of the NMPs are shown in my previous email (below). **Please note that this included a long-term (4.5 day) survey covering day and night on weekend and weekdays (NMP4).** I have included NMP4 on the new image at the bottom of this email.

NMP ID and Location	Time and Duration	Representative of NSRs
NMP1 Seiont Mill Road	6 March 09:39-10:39 1 h	NSR1
NMP2 Car park of Ysbyty Eryri hospital	6 March 10:49-12:00 1 h 10 m	NSR2
NMP3 Sports pitch to south of Tyddyn Llwydyn	6 March 12:15-13:15 1 h	NSR3
NMP4 Jones Bros yard, to east of STOR	3 March 17:45 – 7 March 08:45 4.5 days	All NSRs

Regarding the assessment criterion, we propose to assess against the same background level which was measured in the absence of the STOR facility; that is, to assess the cumulative of all plant with **equally stringent** criteria as the STOR alone was assessed, thereby avoiding 'creeping background' from successive new noise sources.

In line with BS4142, maintaining levels at less than LA90+5dB has a low adverse impact. The noise report will additionally recommend the best practicable means to further reduce and control noise levels.








Our methodology includes modelling of the specific plant proposed for Seiont, including site visits to the applicant's other sites to measure operational noise levels of their own operation of the plant items. The noisiest plant item will be the jaw crusher Metso LT 106 (information sheet attached). There will be no ashplant plant or trummel.

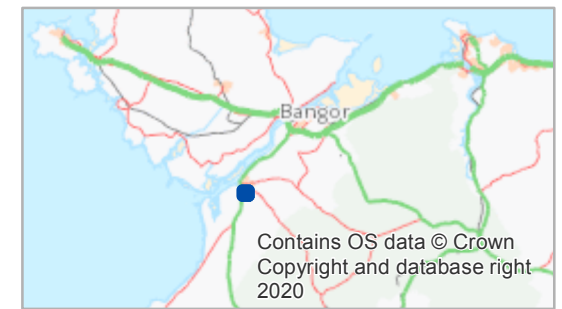
I would appreciate as quick a response as possible, since our client is keen to proceed. Thank you again for your help – please contact me with any further queries.

Best wishes,

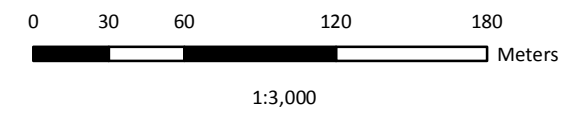
Ross



- KEY**
-  Study Area
 -  On-Site NMP
 -  NSRs / Off-Site NMPs
 -  Modelled Off-Site Buildings
 -  Modelled Engine Containers



Coordinate System: British National Grid
 Projection: Transverse Mercator



**Seiont Caernarfon Peaking Plant
 Noise Impact Assessment**

**Drawing 1
 Study Area, NMPs, NSRs,
 Modelled Noise Sources & Buildings**

Date: 21/04/2023	Lead: D.L.	Review: S.W.	Version: 1.0
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Ross Cullen (he/him, they/them) | Graduate Consultant | ITP Energised

REDACTED

From: Moira Ann Duell Parri (AMG) < REDACTED >

Sent: Thursday, November 30, 2023 10:52 AM

To: Ross Cullen < REDACTED >

Cc: Simon Waddell < REDACTED >

Subject: ATB/RE: Noise consultation request - Seiont site (additional plant)

This site has been on the list for review from a permitting stance for some time. It is apparent that the plant on site is no longer mobile and as such we would consider the plant to be fixed and require permitting. Indeed, this matter has rightly been considered as being included as a potential noise impact on receptors as you email notes.

You have made reference to a previous background noise survey and it is likely that a shorter background survey would have been accepted given the temporary nature of the then proposed development. Please forward or provide the reference for the report you wish to use as the background survey so that I may assess its suitability for the proposal in hand.

LA90 + 5 dB seems to be rather high, given the increase and permanent nature of the plant proposed, I am concerned that LA90 + 5 dB does not take into account background creep, perhaps a proposed rating level of the plant/process, when measured in accordance with BS4142:2014, should, where practicable, be no greater than the existing background levels when measured in accordance with BS4142? It is clear that this site may evolve as the demands increase and I feel it important to seek some reassurance that any conditions should be suitable and give a degree of reassurance to those living in close proximity to the site. If this is not attainable, the noise report should explain why, and how best practicable means will be implemented to control noise in order to satisfy the Planning authority that the development is acceptable.

The modelled/calculated site noise levels at the dwellings will depend on the method of working and the sound power levels of the plant chosen as much as the distance to the properties and the effects of intervening ground. A clear description would ensure that any modelled levels are not vitiated and should include all aspects of the work flow.

You could also reference BS 8233 for noise outside dwellings and amenity areas, and/or the World Health Organisation (WHO) "Guidelines for Community Noise" although these are health based guidelines.

Could you confirm the number and types of plant proposed, and whether there will be an ashplant plant or trummel (for cleaning) also proposed or just a concrete batch plant and crusher/screen?

Moira Duell-Parri

Swyddog Iechyd yr Amgylchedd/Environmental Health Officer

REDACTED



Oddi wrth: Ross Cullen < REDACTED >

Anfonwyd: Dydd Mawrth, 28 Tachwedd 2023 12:47

At: Moira Ann Duell Parri (AMG) < REDACTED >

Copi/Cc: Simon Waddell < REDACTED >

Pwnc: Noise consultation request - Seiont site (additional plant)

Rhybudd / Caution: Mae'r neges hon yn tarddu o du allan i'r sefydliad. Cymerwch bwyll wrth glicio unrhyw ddolen neu atodiad. This message originated outside your organisation. Exercise caution when clicking links or opening attachments.

Dear Moira,

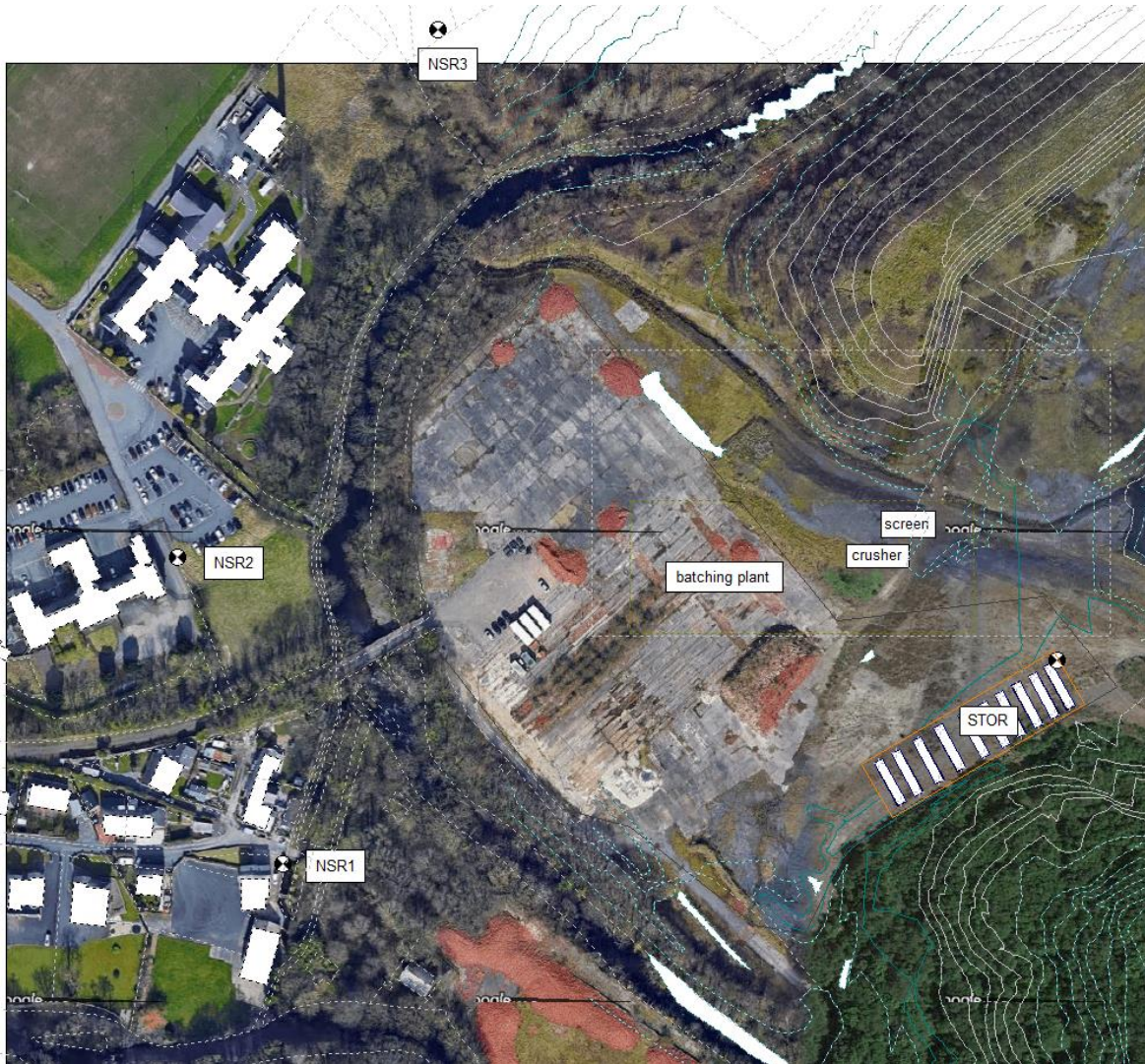
Following on from the Noise Impact Assessment (NIA) for a Short Term Operating Reserve (STOR) at the Seiont site, we have additionally been appointed to undertake a NIA for a proposal to operate additional plant at the same site. This additional plant comprises a concrete batching plant, crusher and screen, for which we understand that temporary planning consent had previously been granted during the construction of the bypass.

Please would you review the methodology below **and respond** to confirm its suitability or raise any queries?

All the additional plant would be to the north-west side of the STOR and therefore closer to the previously-agreed noise sensitive receptors (NSR1, NSR2 and NSR3) than the STOR is. On this basis we consider it a robust methodology to assess the impacts on these three NSRs and take compliance at these to indicate compliance at more distant NSRs. We intend to:

- use the previously-conducted baseline survey at these NSRs as indicative of background levels (please note: the survey was conducted in accordance with BS7445:2003 and BS4142:2014+A1:2019 standards, in March 2023);
- assess the reasonable noisiest-case scenario for the cumulative noise of all the plant operations (batching, crushing, screening, STOR) against the measured background levels, using noise modelling software CadnaA, with plant modelled in their intended locations;
- consider background LA90 + 5 dB to be indicative of a low adverse impact, in accordance with BS4142;
- specify appropriate mitigation, should rating levels exceed the 'background +5 dB' criterion.

The noise monitoring positions were at the three NSRs (black-and-white circle symbol) shown in the image below. The proposed approximate locations of plant are also labelled.



I look forward to hearing further from you at the earliest opportunity. Please do contact me with any queries.

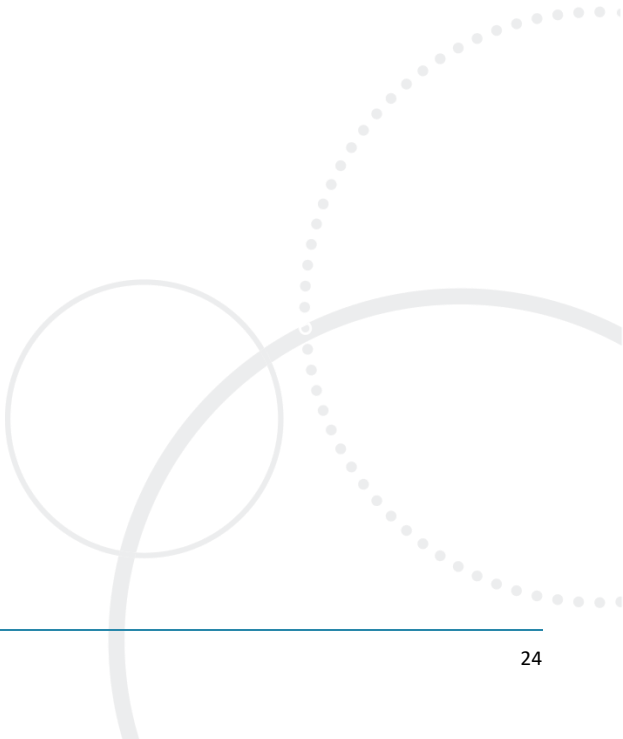
Best wishes,

Ross Cullen

REDACTED



Appendix 2 – Data Sheets



Basic dimensions LT106			
C106 jaw crusher			
	Feed opening	1 060 x 700 mm	42 x 28"
Feed hopper			
	Standard	6 m ³	8 yd ³
	With extensions	9 m ³	12 yd ³
	Loading height	3.9 m	12' 10"
Feeder			
	Width	1 170 mm	46"
	Length	4 340 mm	140"
Main conveyor			
	Width	1 000 mm	39"
	Discharge height (standard)	2 800 mm	9' 7"
	Discharge height (optional)	3 900 mm	12' 9"
Engine			
	Caterpillar C9.3	224 kW (1 800 rpm)	300 hp
Transport dimensions			
	Length	15 200 mm	49' 9"
	Width	2 800 mm	9' 2"
	Height	3 400 mm	11' 2"
	Weight	41 tons	90 400 lbs
Noise emissions			
	L _{WA} (EN ISO 9614)*	124 dB	
	L _{pA} (EN ISO 11202)**	99 dB	
Options			
Screen module, long main conveyor, side conveyor, active setting control for crusher (ASC), crusher wear plates for recycling and quarry, hammer and boom, magnetic separator, automatic lubrication unit, radio remote control, conveyor dust covers and discharge hoods, high pressure water spraying system, belt protection plate, additional side plates for hopper, rubber bottom for feeder, hydraulic generator, hydraulic power takeoff, additional service platform, pre-heater for engine, interlocking cable, hot and cold climate kits.			

*L_{WA} =A-weighted sound power level

**L_{pA} =A-weighted sound pressure level at the workstation



Appendix 3 – Baseline Survey



Survey Record

Monitoring Equipment:

The equipment used for the survey is as follows:

Location	Item Description	Serial Number
Onsite	Svantek SV307A Class 1 Sound Level Meter	116137
Off-site	Svantek SV307A Class 1 Sound Level Meter	116148
All	Svantek SV36 Acoustic Calibrator	122250

Weather Conditions:

During installation, collection and offsite measurements there was negligible wind and generally dry although there was a light shower in the final measurement period at Location 3. There was also a few periods of rain over the weekend but does not appear to have significantly impacted on background sound levels.

Noise Climate – subjective impressions:

On-site (NMP4)

During installation and collection there were no site activities occurring and not anticipated over the weekend but may have occurred at times on the Monday. Therefore the climate consisted of birdsong and distant road traffic.



Off-site

Location 1 (NMP1)

Birdsong

River water

Aircraft

Very faint distant traffic

Car revving a lot in nearby carpark.

Occasionally a pedestrian



Location 2 (NMP2)

Birdsong main source

Distant traffic

Wind in trees although only light wind

Audible noise from site (pecker or similar?)



Location 3 (NMP3)

Birdsong

Dog barking in distance

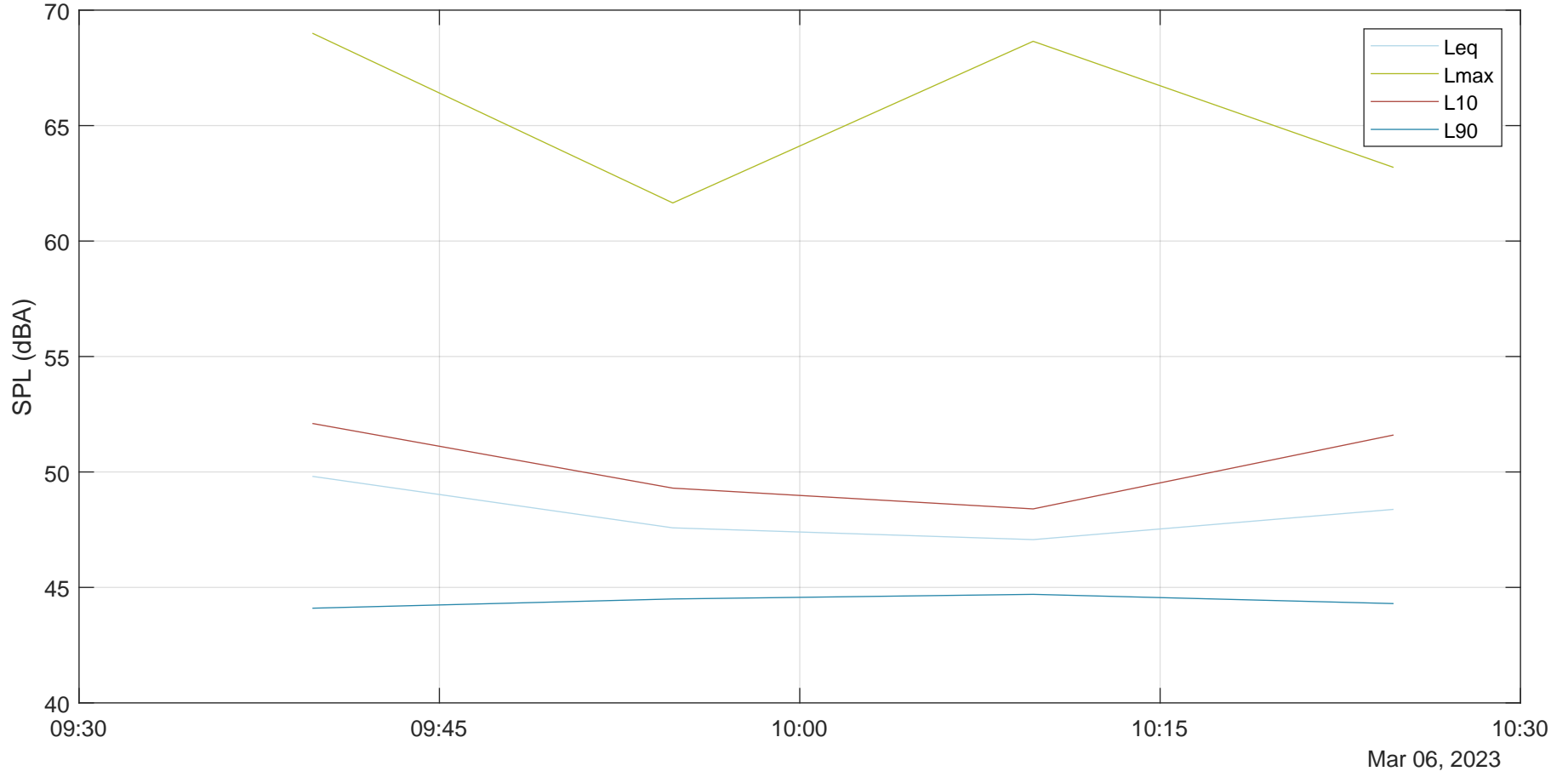
Distant traffic

Wind in trees although only light wind

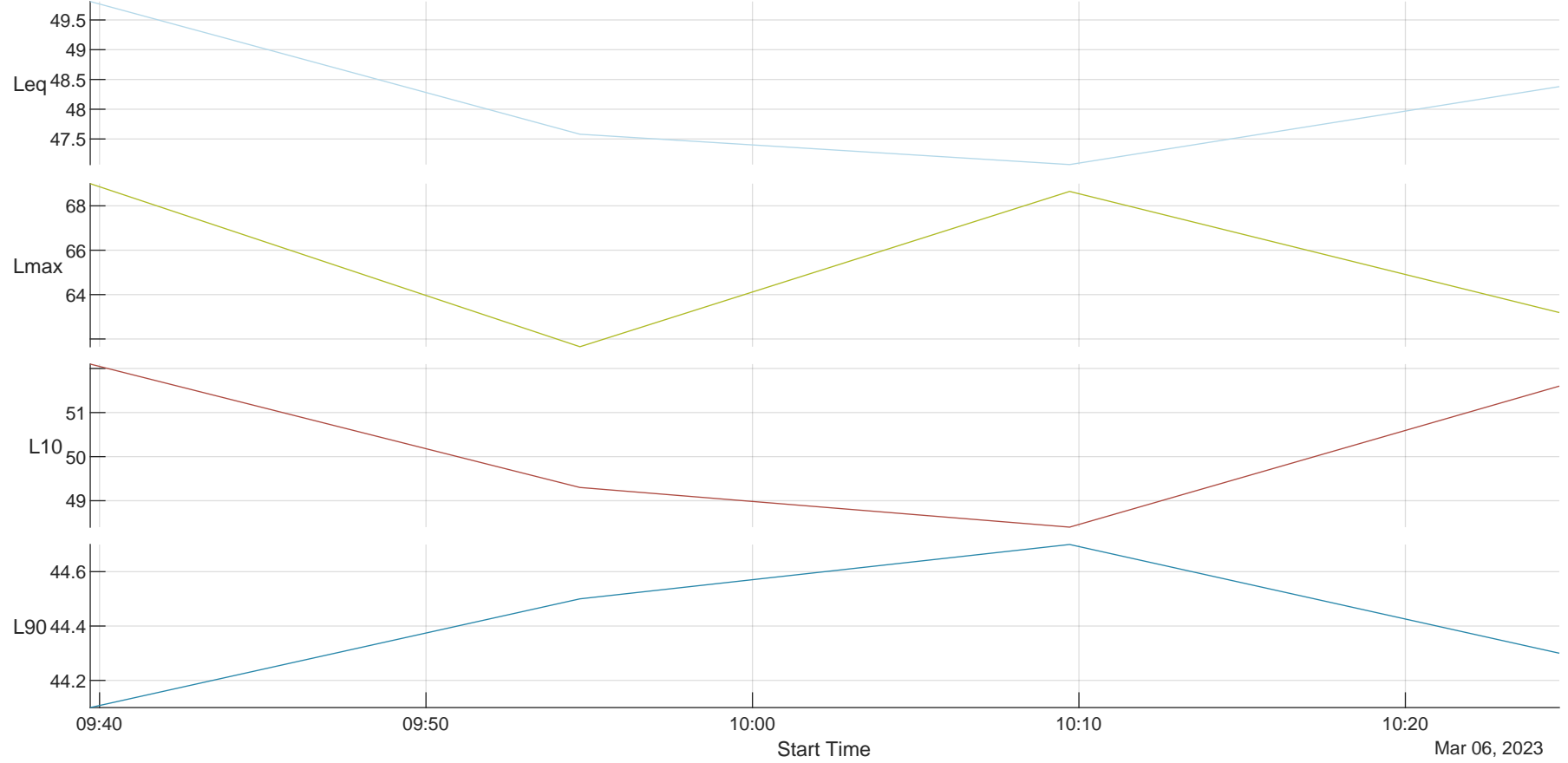




Measured Sound Levels - NMP1

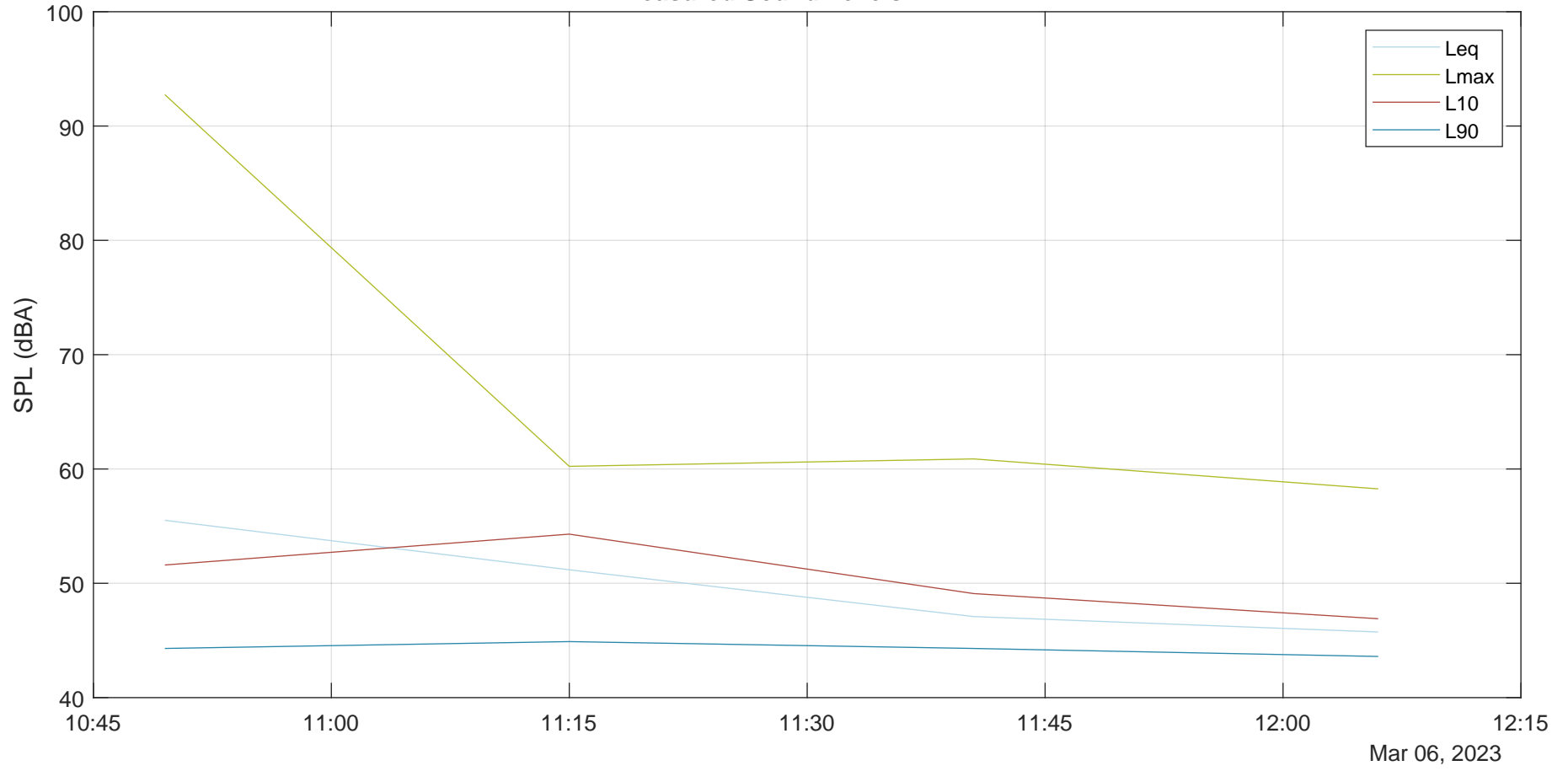


Measured Sound Levels (dBA) - NMP1

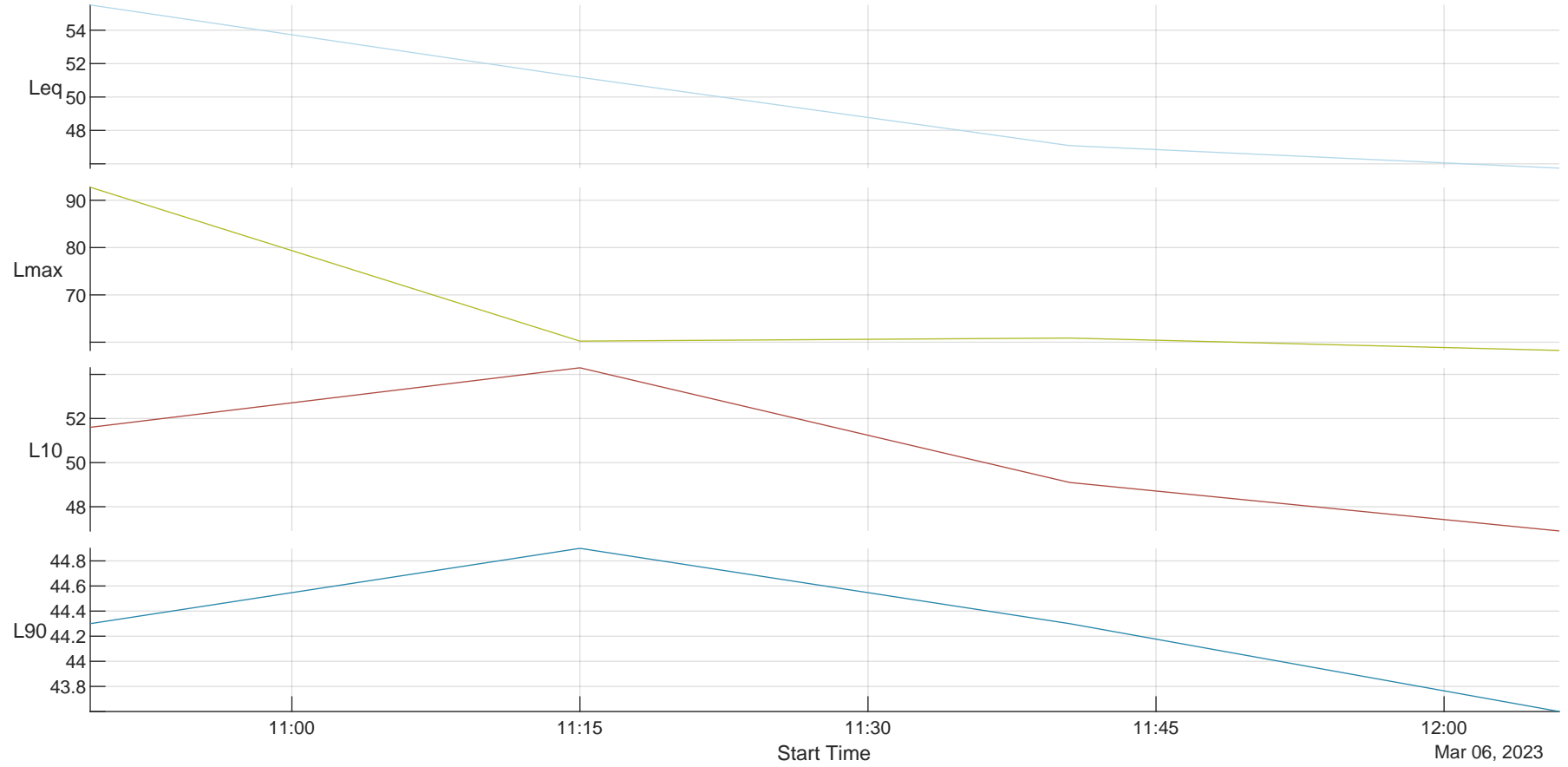




Measured Sound Levels - NMP2



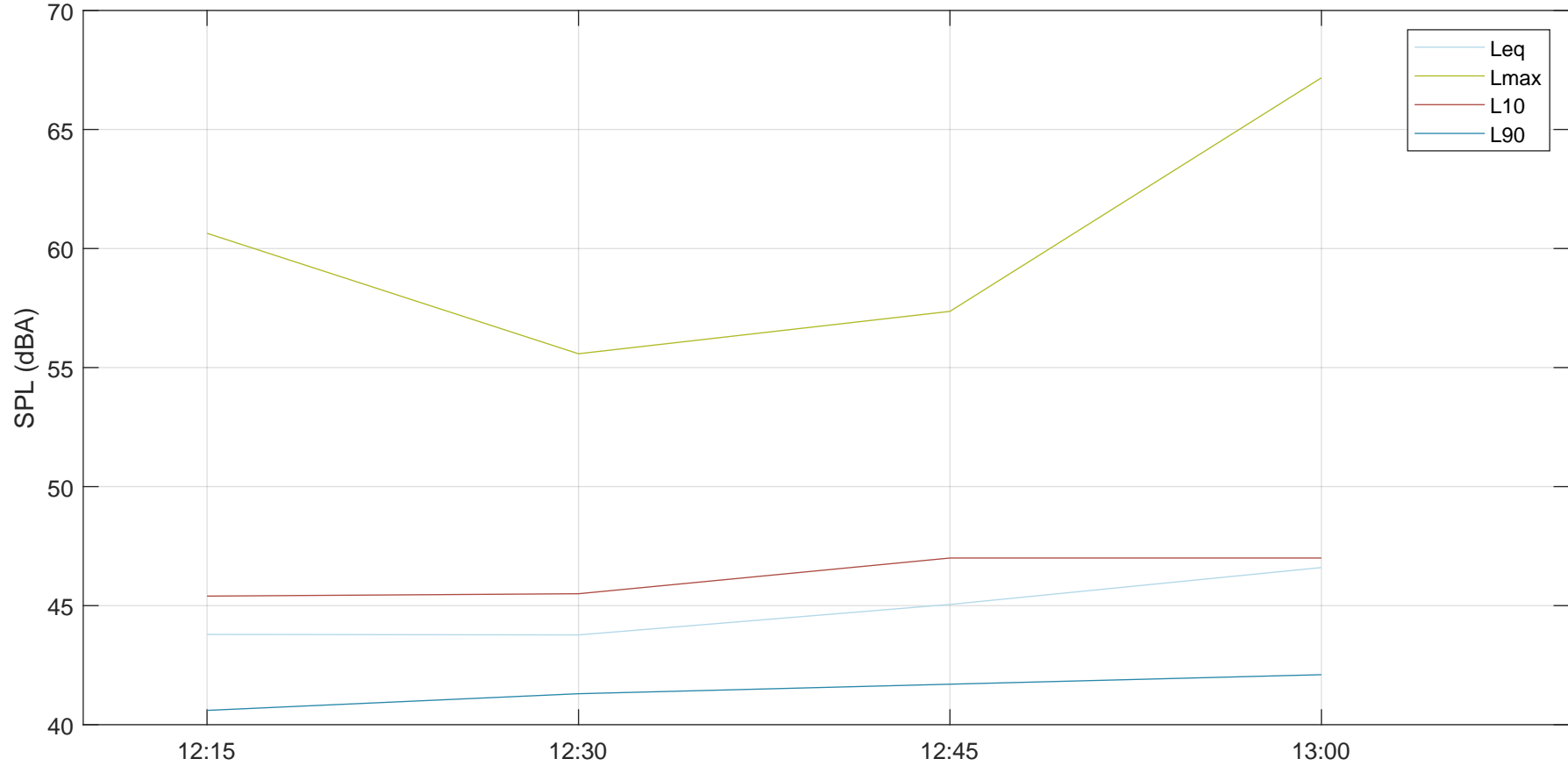
Measured Sound Levels (dBA) - NMP2





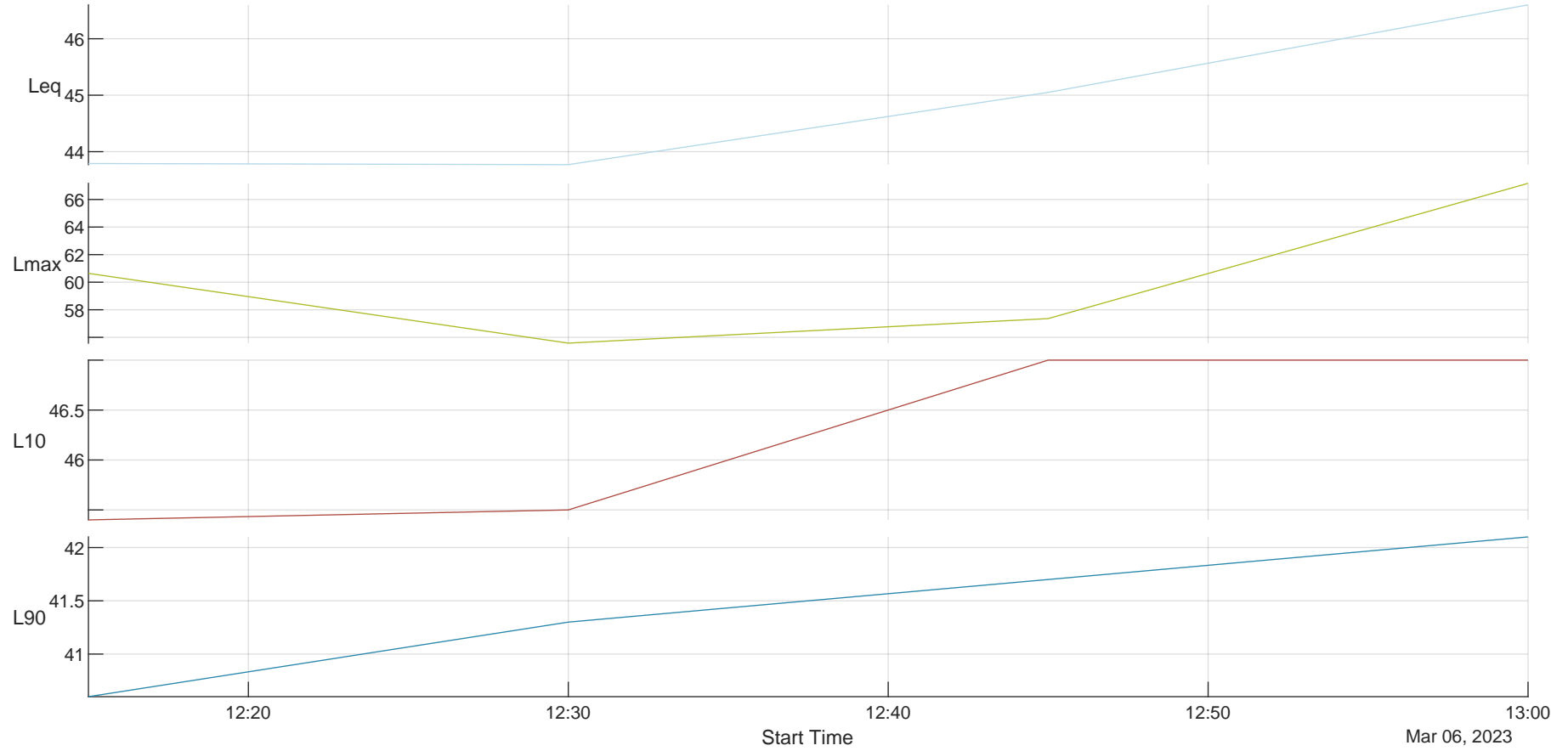


Measured Sound Levels - NMP3



Mar 06, 2023

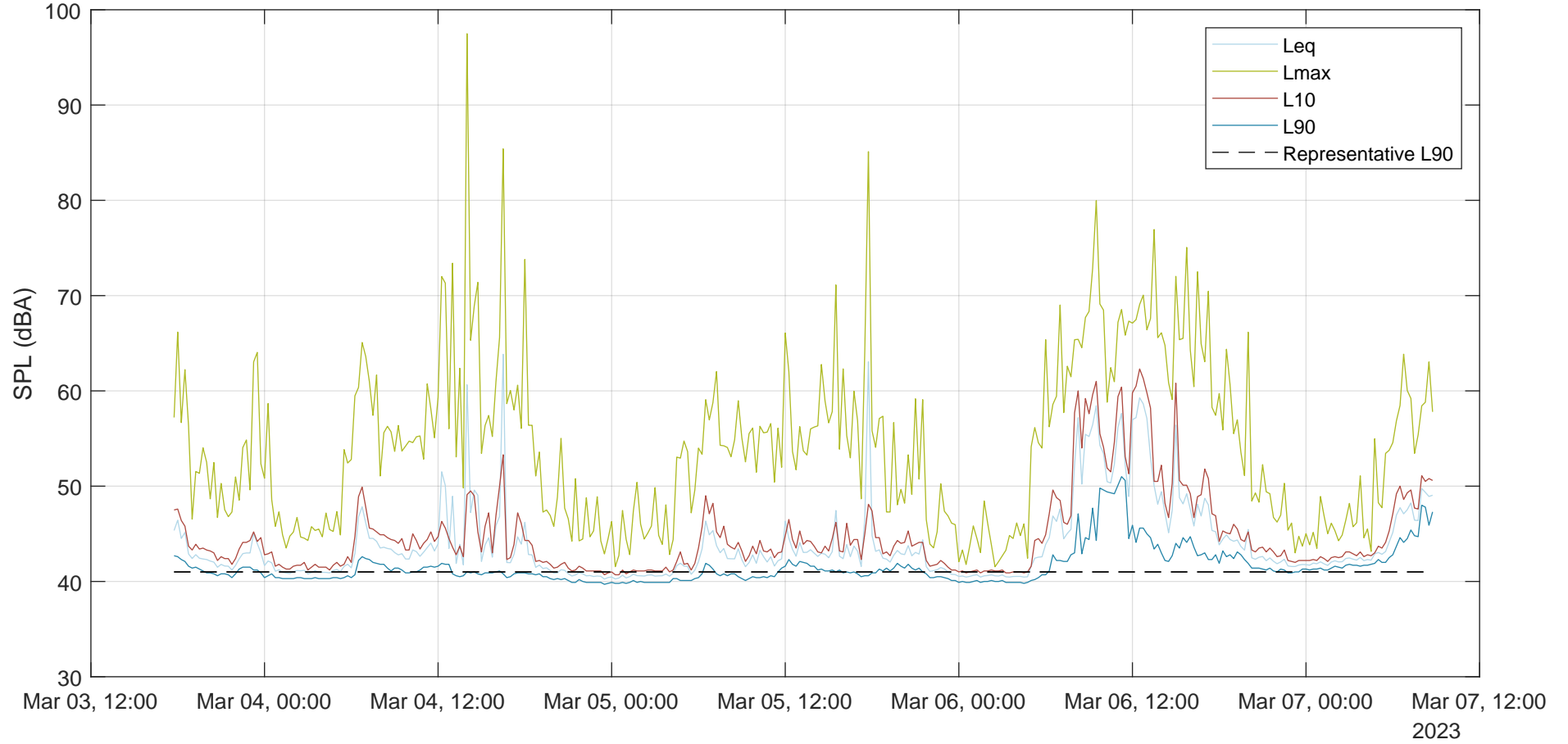
Measured Sound Levels (dBA) - NMP3



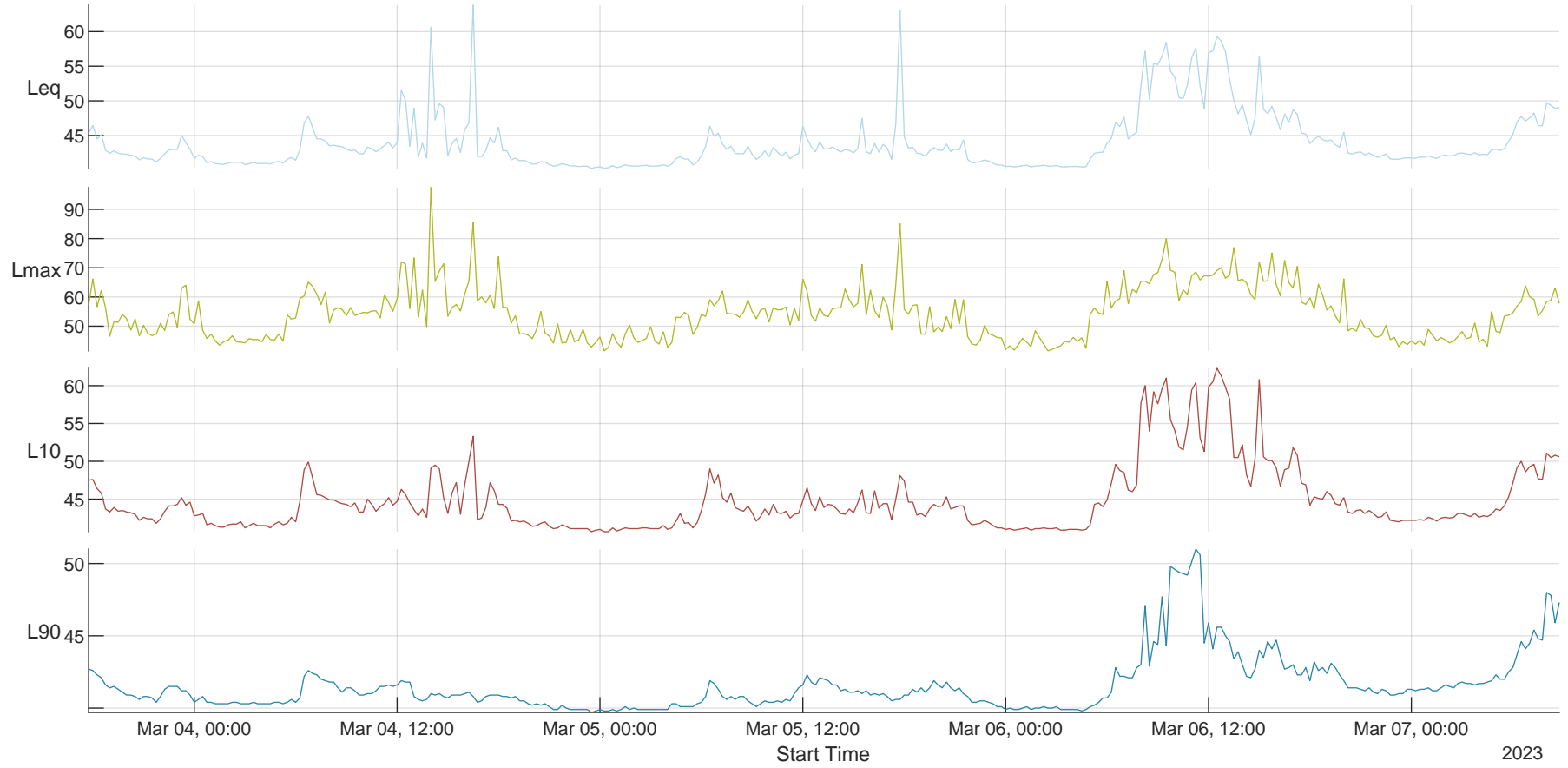




Measured Sound Levels - NMP4



Measured Sound Levels (dBA) - NMP4









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