Noise Assessment – Planning and Environmental Permitting

Kingsnorth Energy Hub, MedwayOne

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Making Sustainability Happen

Revision Record

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd. (SLR) has undertaken a noise impact assessment for an Energy from Waste development to meet the planning and Environmental Permit requirements. The proposed development is to be located at the former Kingsnorth Power Station, Rochester ME3 9NQ, within a wider development referred to as MedwayOne.

Operational sound levels associated with the EfW Facility have been predicted at the nearest noise-sensitive receptors using the calculation methodologies in ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*, using the proprietary sound modelling software CadnaA®.

An assessment has been undertaken in accordance with British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*.

1.1 Report Structure

This report presents:

- a description of the Site.
- a description of applicable guidance.
- the results of a baseline background sound survey at locations representative of the nearest noise-sensitive receptors to the proposed EfW site.
- sound modelling noise level predictions associated with the Site using the calculation methodologies in ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*.
- an assessment undertaken in accordance with British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* as required by the planning conditions (MC/21/0979) associated with the Site and the Environment Agency (EA) *Guidance Noise and vibration management: environmental permits*.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature; to assist the reader, a glossary of terminology is included in Appendix A.

1.2 Existing Site

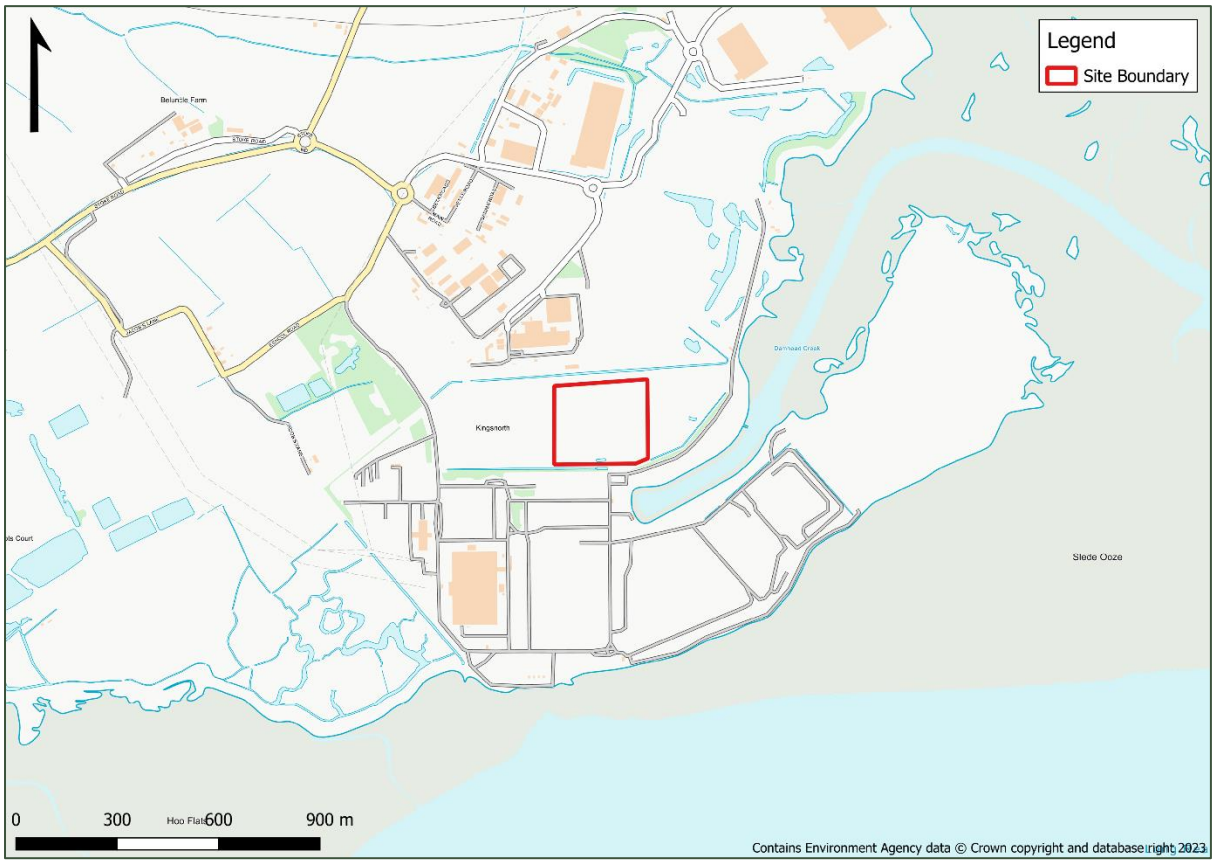
The Site is located at the former Kingsnorth Power Station, Rochester, ME3 9NQ. The site of the former Kingsnorth Power Station, which is the subject of the outline planning permission, is located on the Hoo Peninsula, which lies between the River Thames to the north and River Medway to the South. The site is located on the south side of the peninsula, around 2km east of Hoo St Werburgh and 15km north-east of Chatham. To the north of the Kingsnorth Site is the Damhead Creek Combined Cycle Gas Turbine (CCGT) electricity generating station and the Kingsnorth Industrial Estate which predominantly contains manufacturing uses. Other industrial/storage/distribution premises are located to the north-east of the Kingsnorth Industrial Estate associated with the London Medway Commercial Park, a modern commercial estate comprising industrial and storage and distribution uses, with a recent occupier being “Amazon”.

The site to which this noise impact assessment relates (the ‘proposed development plot’) lies within the northern part of the Kingsnorth Site, immediately south of the Damhead Creek Power Station.

For identification purposes, the former power station is located on national grid reference (NGR) TQ 81017 72049 whilst the proposed development plot is centred on NGR TQ 81164 72543. It lies wholly within the administrative area of Medway Council.

The position of the permitted EfW Facility (edged Red) in the context of the surrounding area can be seen in Figure 1-1.

Figure 1-1: Site Location



1.3 Proposed Development

Proposals for this development are to construct and operate a 49.9MW (around 460,000tpa) EfW facility. The outline planning permission (reference MC/21/0979) exists for *'the construction of flexible EG (iii)/B2/B8 use class buildings, sui generis uses for energy uses and a lorry park, together with servicing, parking, landscaping, drainage, remediation, demolition and earthworks'.*

The permitted development is shown in Figure 1.2 whilst the layout of the proposed EfW facility is shown in Figure 1-3.

Figure 1-2: Approved Development Layout

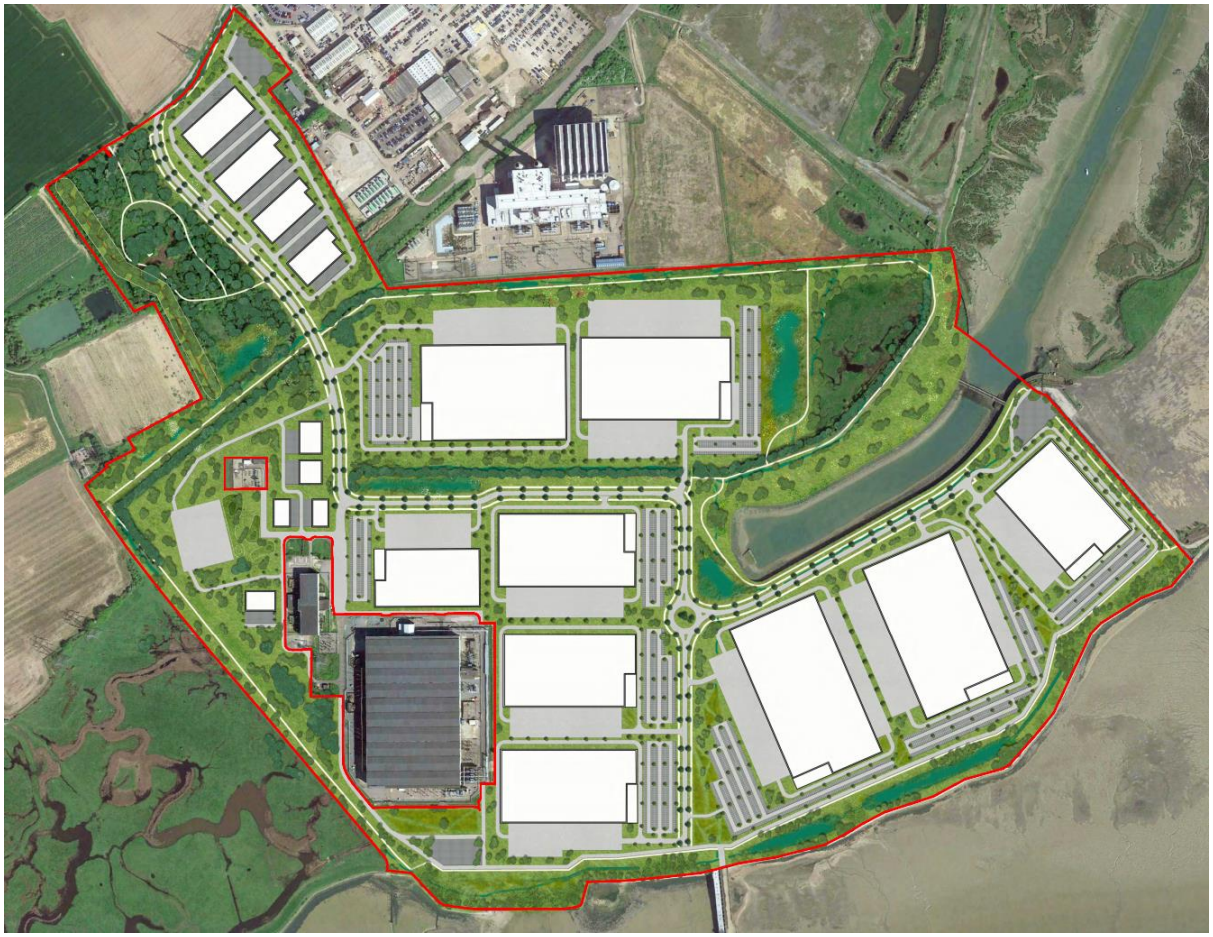
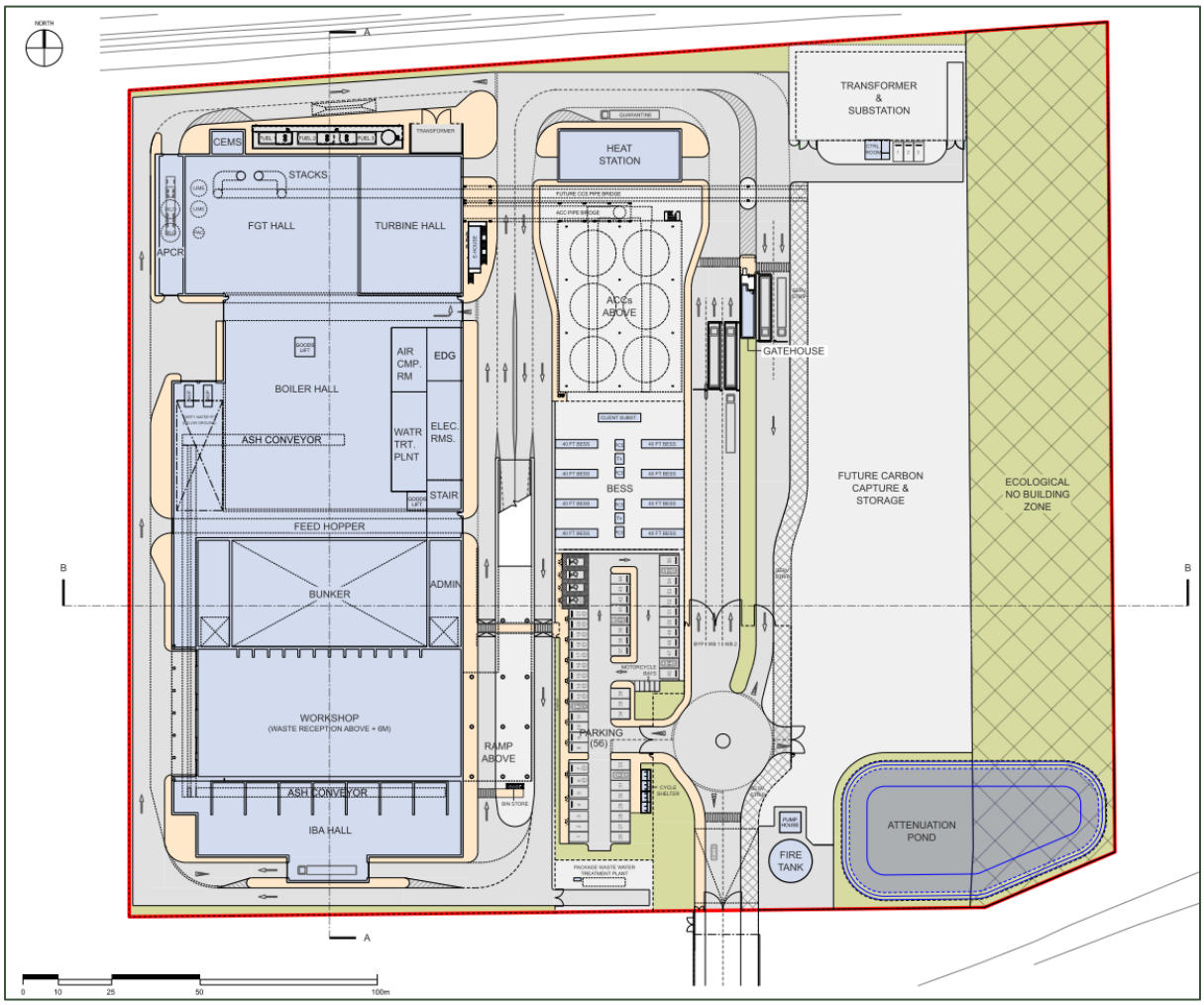


Figure 1-3: Proposed EfW Development



1.4 Noise Sensitive Receptors

The nearest noise sensitive receptors (NSR) and noise monitoring position (MP1) are shown in Figure 1-4 below.

Figure 1-4: Site and NSRs

Table 1.1 below presents the nearest noise sensitive receptors to the Site. The corresponding distance to the Site, and geo location is provided.

Table 1-1: Noise Sensitive Receptors

Ref	Noise Sensitive Receptor	Distance (m)	Co-ordinates
1	Residential Dwellings on Jacobs Lane, Hoo	600	580288,172390
2	Abbots Court	1500	579362,172160
3	Residential Dwellings on Jacobs Lane, Hoo	860	580026,172708
4	Residential Dwellings on Saxon Shore Way, Hoo	1780	579362,172160
5	Residential Dwellings on Stoke Road	1300	580082,173395

2.0 Scope and Guidance

It is understood that the development has outline planning permission, reference MC/21/0979. As an outline planning permission, certain aspects have been 'reserved' for later submission of the detail (the 'reserved matters'). Work is ongoing in preparing a submission for the reserved matters for the Site, including details showing the design and layout of the proposed EfW. Through a Pre-application Advice process with Medway Council, it has been confirmed that no further assessment is required to support the Reserved Matters application.

Condition 45 of the decision notice for the outline planning permission relates to noise and states the following.

'The cumulative noise rating level (Lar) associated with the development site shall not exceed 43dB at any noise sensitive premises during the operation phase. The measurement and assessment shall be made according to BS 4142:2014+A1 2019.'

In addition to the planning requirement, a summary of the requirements outlined in BS4142:2014+A1:2019 and in the EA Guidance document are provided below.

2.1 British Standard 4142:2014+A1:2019

To meet the planning requirements, the assessment will need to comply with BS 4142:2014+A1 2019.

British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* is intended to be used to assess the potential adverse impact of sound, of an industrial and/or commercial nature, at nearby noise-sensitive receptor locations within the context of the existing sound environment.

Where the specific sound contains tonality, impulsivity and/or other sound characteristics, penalties should be applied depending on the perceptibility. For tonality, a correction of either 0, 2, 4 or 6dB should be added and for impulsivity, a correction of either 0, 3, 6 or 9dB should be added. If the sound contains specific sound features which are neither tonal nor impulsive, a penalty of 3dB should be added.

In addition, if the sound contains identifiable operational and non-operational periods, that are readily distinguishable against the existing sound environment, a further penalty of 3dB may be applied.

The assessment of impact contained in BS4142:2014+A1:2019 is undertaken by comparing the sound rating level, i.e. the specific sound level of the source plus any penalties, to the measured representative background sound level immediately outside the noise-sensitive receptor location. Consideration is then given to the context of the existing sound environment at the noise-sensitive receptor location to assess the potential impact.

Once an initial estimate of the impact is determined, by subtracting the measured background sound level from the rating sound level, BS4142:2014+A1:2019 states that the following should be considered:

- typically, the greater the difference, the greater the magnitude of the impact;
- a difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and
- the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant

adverse impact. It is an indication that the specific sound source has a low impact, depending on the context.

BS4142:2014+A1:2019 notes that:

"Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including consideration of the existing residual sound levels, location and/or absolute sound levels.

To account for the acoustic character of proposed sound sources, BS4142:2014+A1:2019 provides the following with respect to the application of penalties to account for *"the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention".*

- **Tonality** – *"For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible;*
- **Impulsivity** – *A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible;*
- **Intermittency** – *When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied; and*
- **Other Sound Characteristics** – *Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied."*

Finally, BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact, including consideration of the existing residual sound levels, location and/or absolute sound levels.

2.2 Noise and vibration management: Environmental Permit

To meet the permit requirements, the assessment will need to comply with *Noise and vibration management: environmental permits.*

The Environment Agency (EA) released the guidance document *Noise and vibration management: environmental permits* (NVM) in July 2021, replacing the previous guidance presented in *Horizontal Guidance for Noise (H3) parts 1 and 2*. The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment.

The NVM references BS4142:2014+A1:2019 as the appropriate assessment methodology.

The NVM outlines how context should be taken into account in the assessment and notes that *"Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an 'adverse impact')."*

Determining the outcome of the assessment the following should be considered:

- weekdays rather than weekends.
- what the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir.
- time of day.
- the absolute sound level.
- where the sound occurs.
- new industry or new residences.
- intrinsic links between the source and receptor, for example the source is the resident's place of work.
- local attitudes.
- the residual acoustic environment.
- the land use at the receptor (for example, gardens rather than yards).
- the exceedance (traditional BS 4142).
- whatever else might be particular to that individual situation.

Based on the results of the BS4142:2014+A1:2019 assessment the NVM has three distinct requirements as detailed in Table 2-1 below.

Table 2-1: NVM Assessment

NVM Result	BS4142 Descriptor	Next Stage
Unacceptable level of audible or detectable noise	The closest corresponding BS 4142 descriptor is 'significant adverse impact'	You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
Audible or detectable noise	The closest corresponding BS 4142 descriptor is 'adverse impact'	Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.
No noise, or barely audible or detectable noise	The closest corresponding BS 4142 descriptor is 'low impact or no impact'	Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority.

2.3 ISO 9613-2:1996

The levels of sound generated by the operation of the proposed Plant has been predicted in accordance with the prediction framework within ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*. This method of calculation takes into account the distance between the sound sources and the closest receptors, and the amount of attenuation due to atmospheric absorption. The methodology also assumes downwind propagation, i.e. a wind direction that assists the propagation of sound from the source to the receiver.

3.0 Baseline Sound Survey

3.1 2020 Survey

An environmental noise survey was undertaken at the former Kingsnorth Power Station Site by Sharps Acoustics between Friday 17th July and Monday 20th July 2020[1]. After analysis of the existing noise assessment and of the area surrounding the site, an additional noise survey is not required. In this respect, although the noise survey was undertaken during Covid, noise levels are deemed to be suitable due to the remote location of the survey, where change in the traffic noise is unlikely to have a significant impact of the background noise level at this location. Moreover, due to restrictions in place (as a result of the Covid pandemic), any measured noise levels would, if anything, be lower than exist today.

Details of the survey is provided within the Sharps Acoustics Report.

3.1.1 Weather Conditions

As stated within the Sharps Acoustics Report the weather during the survey was 'generally warm and dry with low wind speeds during the morning and night, with light winds from sea breezes in the afternoon'.

3.1.2 Survey Location

The noise monitoring location is seen to be suitable in representing the noise sensitive receptors.

The survey location is shown in Figure 1-4 above.

The following noise level indices were recorded:

- $L_{Aeq,T}$: The A-weighted equivalent continuous noise level over the measurement period.
- L_{A90}: The A-weighted noise level exceeded for 90% of the measurement period. This parameter is often used to describe background noise.
- L_{A10}: The A-weighted noise level exceeded for 10% of the measurement period. This parameter is often used to describe road traffic noise.
- L_{Amax}: The maximum A-weighted noise level during the measurement period.

[1] NOISE_IMPACT_ASSESSMENT-5742224' (Sharps Acoustics Report).

3.2 Baseline Sound Level Results

A summary of the survey results at Location One is shown in Table 3-2.

Table 3-1: Summary of Measured Sound Levels, free-field, dB

Start date	Time Period	L_{Aeq}	L_{AMax}	L_{A10}	L_{A50}	L_{A90}
Friday, July 17, 2020	08:15 - 19:00	41.1	67.8	43.1	35.0	31.2
	19:00- 23:00	37.4	64.2	40.2	34.8	30.5
	23:00 - 07:00	35.4	67.3	36.9	31.2	26.3
Saturday, July 18, 2020	07:00 - 19:00	41.7	68.3	44.7	38.1	32.4
	19:00- 23:00	33.9	60.6	35.4	29.4	25.5
	23:00 - 07:00	35.6	68.7	37.0	29.5	25.0
Sunday, July 19, 2020	07:00 - 19:00	39.6	77.0	39.6	34.2	30.7
	19:00- 23:00	37.3	71.0	36.5	32.1	29.6
	23:00 - 07:00	35.7	67.6	38.6	32.2	27.4
Monday, July 20, 2020	07:00 - 19:00	39.8	69.1	41.6	37.3	34.3
	19:00- 23:00	39.8	64.1	40.7	35.8	32.8
	23:00 - 07:00	37.4	67.9	39.9	29.6	26.3
Tuesday, July 21, 2020	07:00 - 07:59	40.1	71.1	39.7	37.3	35.6

The following baseline background sound levels will be used in the BS4142:2014+A1:2019 assessment:

- Daytime: 31 dB
- Evening: 26 dB
- Night-Time: 25 dB

The full survey results are presented in the Sharps Acoustics Report.

3.3 Uncertainty

In accordance with BS4142:2014+A1:2019 assessment the uncertainty associated with measured baseline sound levels requires discussion. Baseline sound level measurement uncertainty was minimised using the following steps:

- Measurement locations were representative of the nearest noise-sensitive receptors to the Site.
- Measurements were undertaken using a suitable logging period considered to provide representative background sound levels.
- The sound measurements included an extended period.
- Measurements were rounded to the nearest one decimal place before the final calculations; and
- Instrumentation was appropriate and in accordance with Section 5 of BS4142:2014+A1:2019.

4.0 Noise Model

4.1 Noise Model Assumptions

The sound predictions in this assessment have been undertaken using a proprietary software-based noise model, CadnaA, which implements the full range of UK noise-based calculation methods. The calculation algorithms set out in ISO 9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used and the model assumes:

- A ground absorption factor of 0.2.
- Contour Data to include OS terrain data.
- A reflection factor of 3.
- Internal Absorption: 0.1
- The sound insulation of the development will be no less than 23dB R_w. It should be noted that this has been based on the proposed façade build up. The spectrum used within the model is presented in Appendix B.
- The model includes the current topography of the area and does not include future development of the area. This is therefore seen to be the worst-case scenario.

4.2 Noise Sources

Noise sources used in the assessment are presented in Appendix B. Data from a similar project was used when appropriate comparisons were available. In cases where direct comparisons were not possible, estimated high dB L_{Aeq} values were used. These estimations are noted in Appendix B.

4.3 Operational Hours

It is understood that the Site will be operational 24hrs a day. Therefore, the predicted noise levels will be compared against the daytime, evening and night-time background noise levels.

4.4 Predicted Sound Levels

The predicted sound level of the proposed EfW facility at the nearest residential receptor locations is shown in Table 4.1 below.

Daytime and evening sound levels have been predicted at 1.5m above local ground level, which is the approximate height of a ground floor window. Night-time sound levels have been predicted at 4m above local ground level, which is the approximate height of a first-floor window.

Based on the accuracy of the prediction methodology, i.e., ISO9613-2, the uncertainty of the CadnaA model accuracy, i.e., barrier corrections for buildings, etc., it is considered that the results of the assessment are as accurate as reasonably practicable and considered to be within +/-3dB. It is considered that the results of the assessment are as accurate as reasonably practicable with downwind propagation and 100% on-time for all the plant.

Table 4-1: Predicted Specific Sound Levels of Proposed EfW, free field dB

NSR	Predicted Specific Sound Level, $L_{Aeq,T}$ dB		
	Daytime (07:00 – 19:00)	Evening (19:00 – 23:00)	Night-time (23:00 - 07:00)
1	23.3	23.3	23.4
2	22.8	22.8	23.1
3	16.4	16.4	16.4
4	12.6	12.6	12.6
5	27.0	27.0	27.1

A graphical image of the predicted specific sound level at the nearest noise sensitive receptors can be found in Figure 4-1.

It may be noted that the predicted noise levels are higher at NSR 5 than other receptors even though NSR 5 is further away, this is due to screening and topography of the area.

Figure 4-1: Daytime/Evening (1.5m) - Noise Map

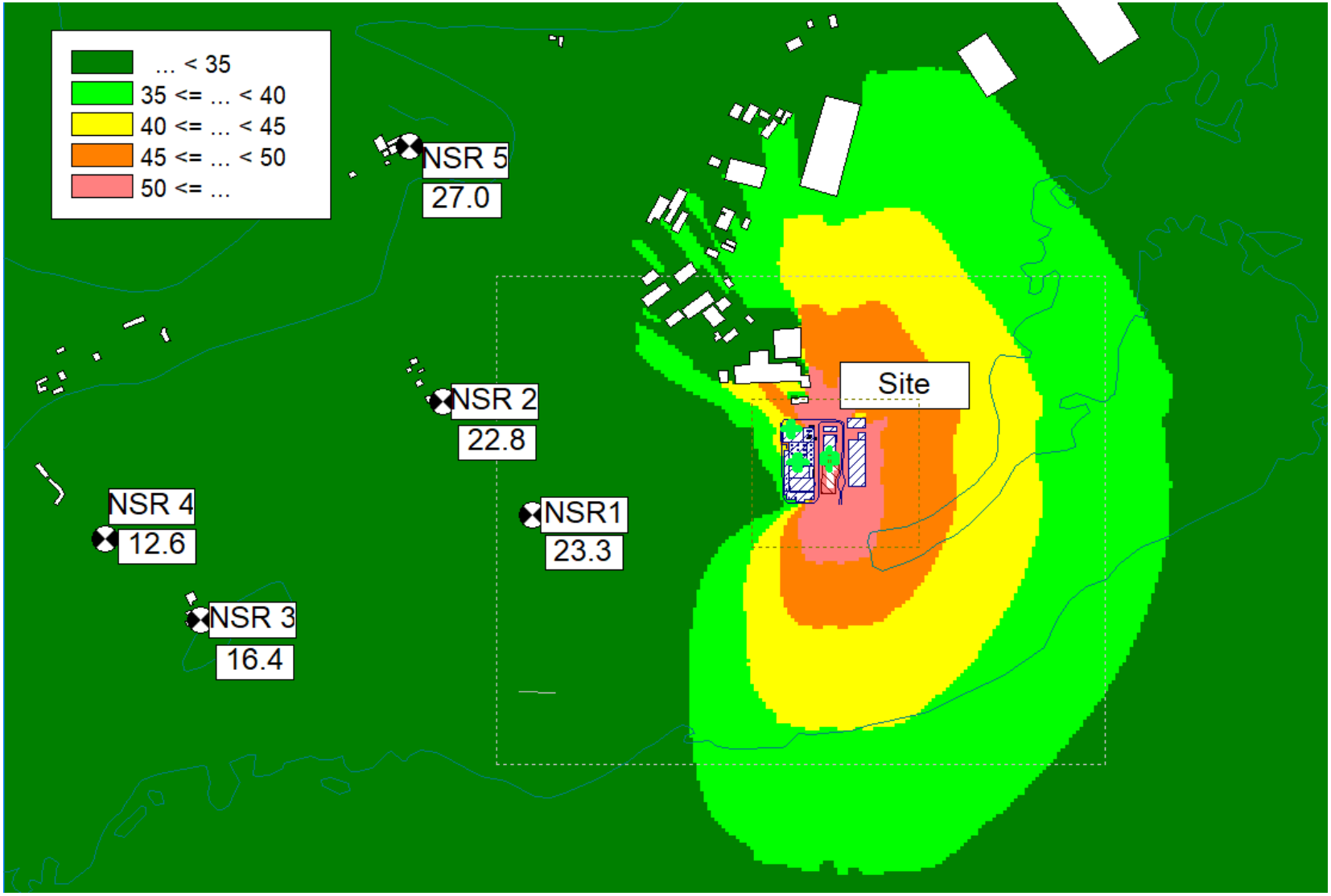
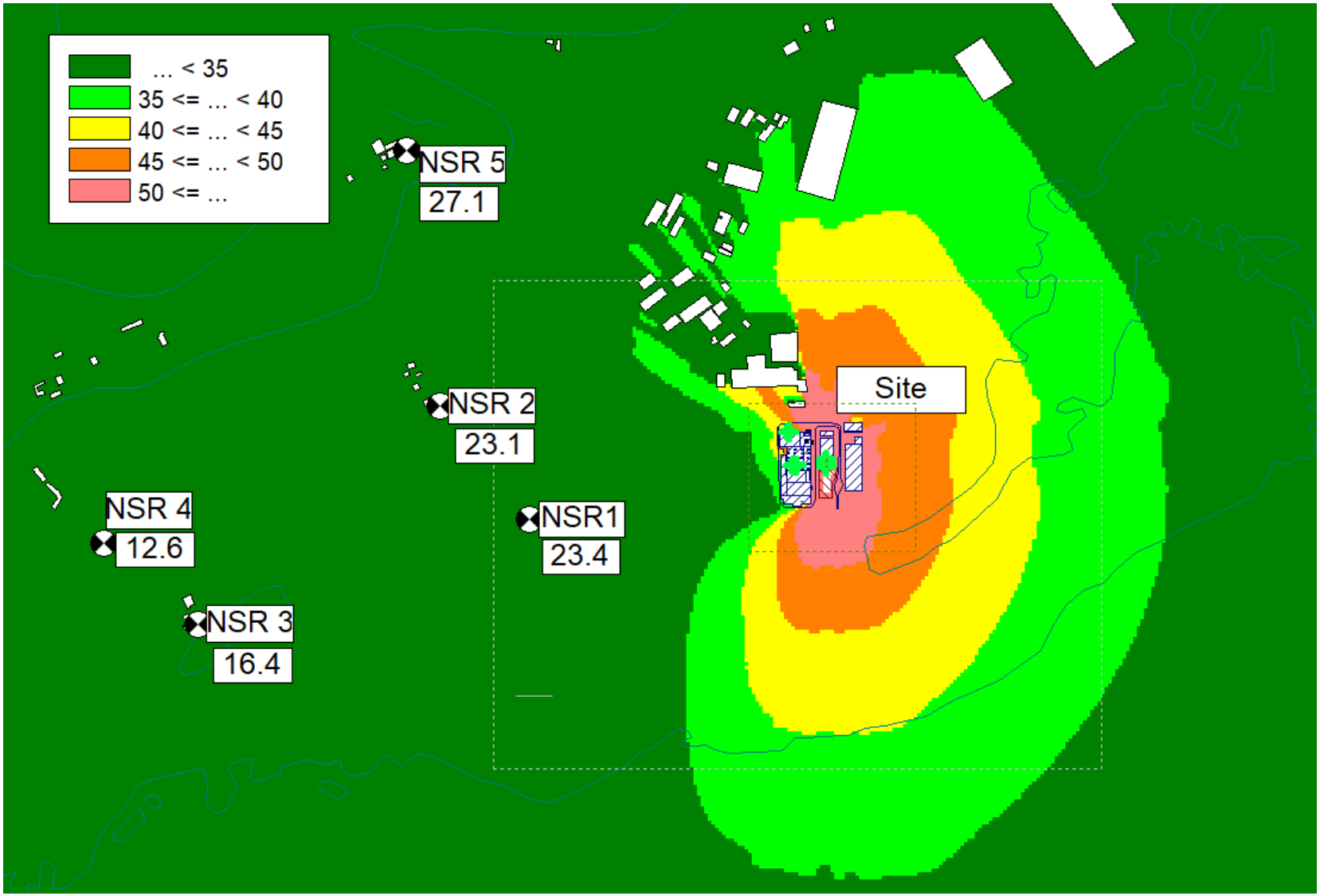


Figure 4-2: Night-time (4m) - Noise Map



5.0 BS4142:2014+A1:2019 Assessment

5.1 Sound Character Corrections

The character of each noise source and the character correction that will be applied in the BS4142:2014+A1:2019 assessment are detailed below:

- **Tonality**: SLR has not undertaken the BS4142:2014+A1:2019 *Objective method for assessing the audibility of tones* of the plant included in the model but is not expected that the sounds would be tonal. Therefore, no tonal correction is required.

- **Impulsivity**: It is not anticipated that any of the noise sources would be impulsive at the Noise Sensitive Receptor position provided equipment is well maintained.

- **Other sound characteristics**: As the surrounding area of the site is in a very quiet area, a correction of 3dB will be added.

- **Intermittentness**: As site will be operational 24/7, no intermittency correction will be added.

Based on the above, a 3dB character correction is applicable to the predicted specific sound level at the nearest noise-sensitive receptors to derive the corresponding rating levels.

5.2 Planning Assessment Results

As described in the Section 2.0, the planning condition relating to noise states the following.

'The cumulative noise rating level (Lar) associated with the development site shall not exceed 43dB at any noise sensitive premises during the operation phase. The measurement and assessment shall be made according to BS 4142:2014+A1 2019.'

Based on the above, the planning rating limit used within the assessment is 43 dB(A).

The character corrections described in Section 5.1 have been added to the predicted specific levels, to derive the rating levels at each of the nearest noise-sensitive receptors.

Table 5-1 presents the predicted rating levels at the nearest noise sensitive receptors compared against the planning rating limit of 43 dB(A).

Table 5-1: Planning Assessment

Receptor		Predicted Specific Sound Level (dB $L_{Aeq,T}$)	Predicted Rating Level (dB $L_{Ar,T}$)	Planning Rating Limit (dB L_{Ar})	Difference (dB)
1	Daytime (07:00 – 19:00)	23	26	43	-17
	Evening (19:00 – 23:00)	23	26	43	-17
	Night-time (23:00 – 07:00)	23	26	43	-17
2	Daytime (07:00 – 19:00)	23	26	43	-17
	Evening (19:00 – 23:00)	23	26	43	-17
	Night-time (23:00 – 07:00)	23	26	43	-17
3	Daytime (07:00 – 19:00)	16	19	43	-24
	Evening (19:00 – 23:00)	16	19	43	-24
	Night-time (23:00 – 07:00)	16	19	43	-24
4	Daytime (07:00 – 19:00)	13	16	43	-27
	Evening (19:00 – 23:00)	13	16	43	-27
	Night-time (23:00 – 07:00)	13	16	43	-27
5	Daytime (07:00 – 19:00)	27	30	43	-13
	Evening (19:00 – 23:00)	27	30	43	-13
	Night-time (23:00 – 07:00)	27	30	43	-13

As shown in the Table above, the predicted rating levels are significantly below the rating limit within the planning condition.

5.3 Permit Assessment Results

The character corrections described in Section 5.1 above have been added to the predicted specific sound levels to derive the rating levels at each of the nearest noise-sensitive receptors.

The rating levels have then been compared against the derived background noise levels measured by Sharps and assessed accordingly.

The results of the Environmental Permit Assessment are shown in Table 5-2. It must be noted that the rating levels and the representative background noise levels have been rounded to the nearest decibel.

Table 5-2: Permit Assessment

Receptor	Time Period	Predicted Specific Sound Level, (dB $L_{Aeq,T}$)	Predicted Rating Level, (dB $L_{Ar,T}$)	Derived Background Sound Level (dB L_{A90})	Difference (dB)
1	Daytime (07:00 -19:00)	23	26	30	- 4
	Evening (19:00 – 23:00)	23	26	26	0
	Night-time (23:00 – 07:00)	23	26	25	+1
2	Daytime (07:00 -19:00)	23	26	30	- 4
	Evening (19:00 – 23:00)	23	26	26	0
	Night-time (23:00 – 07:00)	23	26	25	+1
3	Daytime (07:00 -19:00)	16	19	30	-11
	Evening (19:00 – 23:00)	16	19	26	-7
	Night-time (23:00 – 07:00)	16	19	25	-6
4	Daytime (07:00 -19:00)	13	16	30	-14
	Evening (19:00 – 23:00)	13	16	26	-10
	Night-time (23:00 – 07:00)	13	16	25	-9
5	Daytime (07:00 -19:00)	27	30	30	0
	Evening (19:00 – 23:00)	27	30	26	+4
	Night-time (23:00 – 07:00)	27	30	25	+5

As shown in the table above, the background noise level is exceeded by no more than 1dB at Receptors 1 – 4 during the day evening and night-time.

At Receptor 5, during the evening and night-time period, background noise levels are exceeded by no more than 5dB.

5.3.1 Context Discussion

The concept of "context" has been notably emphasised in Section 11 of BS 4142 when considering numerical impacts established from applying the standard.

A difference of around +5dB or more is likely to be an indication of an adverse impact, depending on the context. It is relevant to consider the absolute level of predicted plant emissions at the receptor. Notably from the standard it is stated:

"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."

The context the predicted noise level at Receptor 5 is as follows;

- It is likely that at Receptor 5, background noise levels are higher than at the monitoring position of the initial survey due to the proximity of Stoke Road to the south and a railway line to the north.
- Based on the contextual argument, as the change in the ambient sound level is expected to be low.
- BS 4142: 1997 states that *'For the purposes of this standard, background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low'.* Please note this is an older version of the British Standard.

Based on the above, the proposed development is seen to have a low impact on the surrounding area and the nearest noise sensitive receptors based on the BS 4142 descriptor stated in Table 2-1.

5.4 Boundary Noise Levels

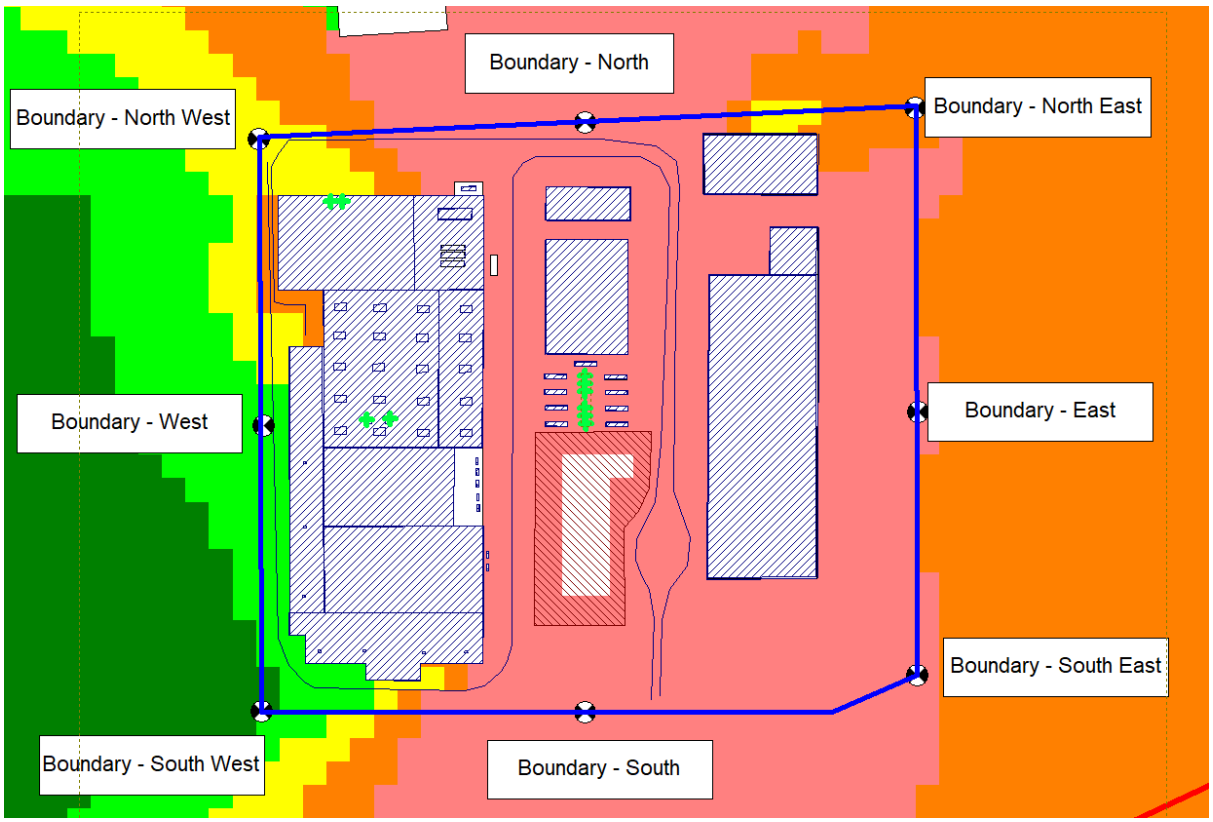
The predicted noise levels at the boundary of the site during each time period have been calculated within the noise model. The predicted boundary noise levels are presented within Table 5-3.

Table 5-3: Boundary Noise Levels

Boundary Location	Boundary Limit (dB)
Boundary – North	52
Boundary – North East	47
Boundary – East	50
Boundary – South East	50
Boundary – South	59
Boundary – South West	34
Boundary – West	39
Boundary – North West	42

The boundary locations described in Table 5-3, are shown in Figure 5-1.

Figure 5-1: Boundary Locations



Based on the analysis of the noise assessment predictions described earlier in this section, the predicted noise levels at the boundary of the site are seen to be suitable boundary noise limits.

6.0 Conclusion

SLR has undertaken a noise impact assessment for an Energy from Waste (EfW) development to meet the planning and environmental permit requirements of the Medway Council and the Environment Agency respectively. The proposed development is to be located at the former Kingsnorth Power Station, Rochester ME3 9NQ.

Operational sound levels associated with the EfW Facility have been predicted at the nearest noise-sensitive receptors using the calculation methodologies in ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*, using the proprietary sound modelling software CadnaA®.

An assessment has been undertaken in accordance with British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*.

Under the extant outline planning permission it has been concluded that;

- The predicted rating levels meet the 43 dB(A) rating level planning requirement at all receptors.

For the environmental permit application it has been concluded that:

- During the daytime, the predicted rating levels are equal to or below the measured background noise levels at all receptors.
- During the evening period, the predicted rating levels are equal to or below the measured background noise level at receptors 1 – 4.
- During the night-time, the predicted rating levels are 1 dB above the background noise level or below at receptors 1 – 4.
    - Although at 2 locations, predicted rating levels are exceeded by 1 dB, this is seen to be an insignificant difference and is considered to have a low impact on the surrounding area.
- At receptor 5 the predicted rating levels during the evening and the night-time are 4dB and 5dB above the measured background noise level respectively.
    - Although, rating levels exceed the measured background noise level, it is likely that background noise levels at receptor 5 are higher than at the monitoring position due to the proximity of the road and the railway line.
- BS 4142: 1997 states that *'For the purposes of this standard, background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low'.* Please note this is an older version of the British Standard.
- Therefore, the predicted noise levels at nearest noise sensitive receptors, are considered to be very low and as such, have a low impact on the surrounding area.

Appendix A - Acronyms and Abbreviations

Kingsnorth ERF - Noise Assessment

Low Carbon W2E2 Ltd

SLR Project No.: 403.064755.00001

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A-2: Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft on take off
140 dB(A)	Threshold of Pain

A.1 - Acoustic Terminology

dB (decibel) The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 µPa).

dB(A) A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

$L_{Aeq, T}$ $L_{Aeq, T}$ is defined as the notional steady sound level which, over a stated period T, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

$L_{A10, T}$ & L_{A90} If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence LA10 is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, LA90 is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the LA10 index to describe traffic noise.

$L_{Amax(F)}$ $L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response

Appendix B – Noise Sources

Kingsnorth ERF - Noise Assessment

Low Carbon W2E2 Ltd

SLR Project No.: 403.064755.00001

Source Type - Point Source

Name	Resultant Sound Power Level (dB)	Source	Frequency (Hz)							
			63	125	250	500	1k	2k	4k	8k
PCS	87.0	Existing Project	Single Figure							
Tx	81.0	Existing Project	Single Figure							
PCS	87.0	Existing Project	Single Figure							
PCS	81.0	Existing Project	Single Figure							
Tx	81.0	Existing Project	Single Figure							
PCS	87.0	Existing Project	Single Figure							
PCS	80.0	Existing Project	Single Figure							
PCS	80.0	Existing Project	Single Figure							
Boiler Vent	56.1	Existing Project	85.6	74.5	68.6	56.6	46.6	46.0	27.9	14.0
Boiler Vent	56.1	Existing Project	85.6	74.5	68.6	56.6	46.6	46.0	27.9	14.0

Area Sources

Name	Sound Reduction		SWL/SPL	Resultant Noise Level (dB)	Source	Frequency (Hz)								
	Name	Area				63	125	250	500	1k	2k	4k	8k	
ACC_TOP	10	1694.22	Li	112.2	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0	
ACC_BOTTOM	Lexan_Insul	1693.91	Li	106.2	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0	
BUNKER	Lexan_Insul	1836.44	Li	85.5	Existing Project	46.6	49.4	49.7	51.4	51.3	48.7	43.3	34.3	
BOILER_HALL	Lexan_Insul	3227.54	Li	77.7	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
WORKSHOP	Lexan_Insul	2459.05	Li	63.7	Existing Project	46.0	48.8	49.1	50.8	50.7	48.1	42.7	33.7	
ASH_CONVEYOR_IBA_HALL	Lexan_Insul	1854.41	Li	64.7	Existing Project	48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9	
WATER_TREATMENT_PLANT	Lexan_Insul	1244.62	Li	82.4	Existing Project	53.1	51.8	56.3	58.1	62.9	64.5	61.3	58.4	

TURBINE_HALL	Lexan_Insul	1168.04	Li	55.5	Existing Project	45.8	43.8	43.2	41.9	41.3	36.8	30.2	30.4	
FGT_HALL	Lexan_Insul	2305.41	Li	85.1	Existing Project	66.4	64.9	56.4	54.0	55.6	55.7	53.7	48.5	
ASH_CONVERYOR	Lexan_Insul	1608.34	Li	62.6	Existing Project	46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5	
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								

Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Transformer	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	

Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Boiler Vent	NA	NA	Lw	56.1	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9	
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
IBA HALL VENT	NA	NA	Lw	57.0		48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9	
IBA HALL VENT	NA	NA	Lw	57.0		48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9	
IBA HALL VENT	NA	NA	Lw	57.0		48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9	
IBA HALL VENT	NA	NA	Lw	57.0		48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9	
Ash conveyor vent	NA	NA	Lw	55.6		46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5	
Ash conveyor vent	NA	NA	Lw	55.6		46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5	
Ash conveyor vent	NA	NA	Lw	55.6		46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5	

Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Air Conditioning Units	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure								
Substation	Lexan_Insul	1193.23	Li	71.0		62.9	67.9	62.9	62.9	56.9	45.9	40.9	62.9	
Carbon Capture	Lexan_Insul	5808.89	Li	94.6	Est. Max Noise Level	Single Figure								
Carbon Capture	Lexan_Insul	386.00	Li	82.9	Est. Max Noise Level	Single Figure								
Heat Station	Lexan_Insul	493.77	Li	83.9	Est. Max Noise Level	Single Figure								

Vertical Area Sources

Name	**Sound Reduction**		**SWL/SPL**	**Noise Level (dB)**		**Frequency (Hz)**							
	R	**Area (m^2)**			**Source**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
BOILER	Lexan_Insul	775.05	Li	71.5	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9
AREA_NEXT_TO_BOILER	Lexan_Insul	3008.30	Li	66.7	Existing Project	53.1	51.8	56.3	58.1	62.9	64.5	61.3	58.4
WORKSHOP	Lexan_Insul	1022.88	Li	54.7	Existing Project	46.0	48.8	49.1	50.8	50.7	48.1	42.7	33.7
ASH_CONVEYOR_IBA_HALL	Lexan_Insul	345.66	Li	57.4	Existing Project	48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9
FGT_HALL	Lexan_Insul	1407.81	Li	74.5	Existing Project	66.4	64.9	56.4	54.0	55.6	55.7	53.7	48.5

FGT_HALL	Lexan_Insul	2015.28	Li	57.8	Existing Project	66.4	64.9	56.4	54.0	55.6	55.7	53.7	48.5
TURBINE_HALL	Lexan_Insul	589.52	Li	52.5	Existing Project	45.8	43.8	43.2	41.9	41.3	36.8	30.2	30.4
FGT_HALL	Lexan_Insul	672.14	Li	71.3	Existing Project	66.4	64.9	56.4	54.0	55.6	55.7	53.7	48.5
BOILER	Lexan_Insul	282.52	Li	44.9	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9
ASH_CONVEYOR	Lexan_Insul	4452.67	Li	67.1	Existing Project	46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5
ASH_CONVEYOR_IBA_HALL	Lexan_Insul	1893.46	Li	59.6	Existing Project	48.2	51.0	51.3	53.0	52.9	50.3	44.9	35.9
FGT_HALL	Lexan_Insul	599.19	Li	70.8	Existing Project	66.4	64.9	56.4	54.0	55.6	55.7	53.7	48.5
BOILER	Lexan_Insul	428.84	Li	68.9	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9
WORKSHOP	Lexan_Insul	255.85	Li	53.8	Existing Project	46.0	48.8	49.1	50.8	50.7	48.1	42.7	33.7
ASH_CONVERYOR	Lexan_Insul	277.57	Li	55.0	Existing Project	46.8	49.6	49.9	51.6	51.5	48.9	43.5	34.5
WORKSHOP	Lexan_Insul	809.05	Li	53.7	Existing Project	46.0	48.8	49.1	50.8	50.7	48.1	42.7	33.7
BOILER_HALL	Lexan_Insul	675.66	Li	70.9	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9
BUNKER	Lexan_Insul	473.72	Li	57.1	Existing Project	46.6	49.4	49.7	51.4	51.3	48.7	43.3	34.3
BOILER	Lexan_Insul	384.96	Li	68.5	Existing Project	74.5	68.6	56.6	46.6	46.0	27.9	14.0	9.9
TURBINE	Lexan_Insul	736.58	Li	53.5	Existing Project	45.8	43.8	43.2	41.9	41.3	36.8	30.2	30.4
TURBINE	Lexan_Insul	796.14	Li	53.8	Existing Project	45.8	43.8	43.2	41.9	41.3	36.8	30.2	30.4
ACC	NA	NA	Lw	84.9	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0
ACC	NA	NA	Lw	84.9	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0

ACC	NA	NA	Lw	82.5	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0
ACC	NA	NA	Lw	82.5	Existing Project	88.6	91.4	88.7	85.7	93.3	88.7	84.9	80.0
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	79.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1

Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	71.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	81.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	70.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	68.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Transformers	NA	NA	Lw	76.0	Existing Project	41.7	48.8	54.4	59.3	59.5	58.0	52.7	45.1
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure							

Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure

Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Air Conditioning Unit	NA	NA	Lw	80.0	Est. Max Noise Level	Single Figure
Carbon Capture	Lexan_Insul	2380.49	Li	90.8	Est. Max Noise Level	Single Figure

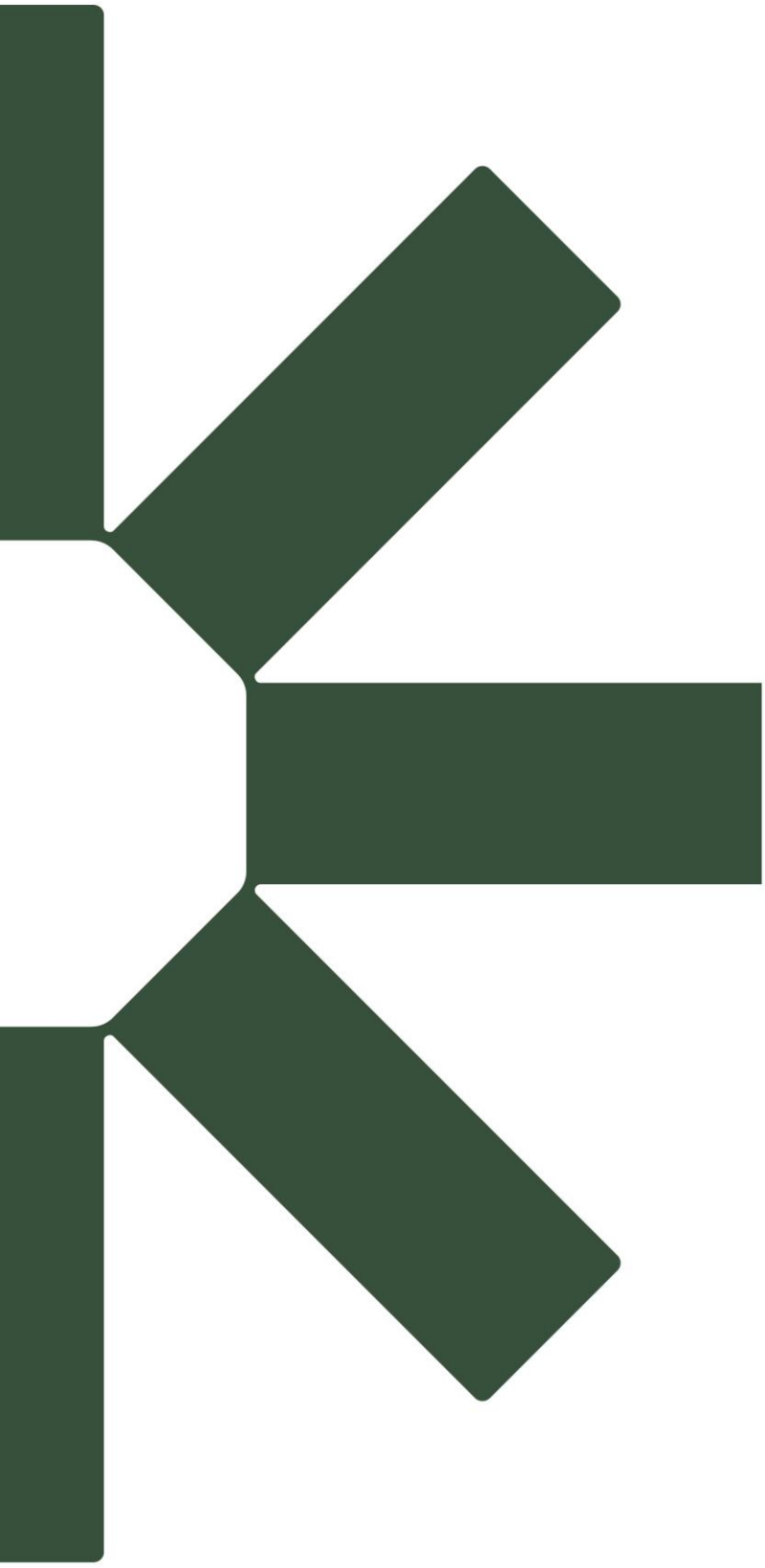
Carbon Capture	Lexan_Insul	2069.82	Li	90.2	Est. Max Noise Level	Single Figure							
Carbon Capture	Lexan_Insul	751.86	Li	85.8	Est. Max Noise Level	Single Figure							
Carbon Capture	Lexan_Insul	731.57	Li	85.6	Est. Max Noise Level	Single Figure							
Substation	Lexan_Insul	327.51	Li	78.1	Existing Project	Single Figure							
Heat Station	Lexan_Insul	574.14	Li	84.6	Est. Max Noise Level	Single Figure							
Heat Station	Lexan_Insul	228.98	Li	80.6	Est. Max Noise Level	Single Figure							
Heat Station	Lexan_Insul	576.42	Li	84.6	Est. Max Noise Level	Single Figure							
Heat Station	Lexan_Insul	229.63	Li	80.6	Est. Max Noise Level	Single Figure							
Substation	Lexan_Insul	338.08	Li	65.6	Existing Project	62.9	67.9	62.9	62.9	56.9	45.9	40.9	33.9
Substation	Lexan_Insul	181.88	Li	62.9	Existing Project	62.9	67.9	62.9	62.9	56.9	45.9	40.9	33.9
Substation	Lexan_Insul	338.80	Li	65.6	Existing Project	62.9	67.9	62.9	62.9	56.9	45.9	40.9	33.9
Substation	Lexan_Insul	183.69	Li	62.9	Existing Project	62.9	67.9	62.9	62.9	56.9	45.9	40.9	33.9

Lines Sources

Name	Lw / Li	Resultant Sound Power Level	Source	Frequency (Hz)							
				63	125	250	500	1k	2k	4k	8k
HGV	PWL-Pt	44.7	BS 5228	82.0	76.0	75.0	74.0	68.0	68.0	64.0	55.0
HGV	PWL-Pt	44.7	BS 5228	82.0	76.0	75.0	74.0	68.0	68.0	64.0	55.0

Sound Insulation

Name	Frequency (Hz)							
	63	125	250	500	1k	2k	4k	dB R_w
Lexan Insul	8.0	10	14	19	24	29	34	23



Making Sustainability Happen