national highways

Lower Thames Crossing

6.3 Environmental Statement Appendices
Appendix 12.2 – Operational Ventilation Noise Assessment: South Portal

APFP Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 6

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Lower Thames Crossing

Appendix 12.2 – Operational Ventilation Noise Assessment: South Portal

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1 Introduction

1.1 Project introduction

1.1.1 This Appendix presents the findings of the noise impact assessment completed in relation to the tunnel ventilation system at the South Portal building associated with the proposed 4.25km tunnel section of the Lower Thames Crossing ('the Project'). This Appendix supports Chapter 12 of the Environmental Statement (Application Document 6.1).

1.1.2 The assessment has been undertaken in accordance with the methodology and guidance of BS 4142:2014 (+A1:2019) 'Methods for rating and assessing industrial and commercial sound' (British Standards Institution, 2019).

1.1.3 The assessment is based upon background and ambient noise measurement surveys undertaken near the site of the South Portal building on the following dates, prior to any operational facility at the site:

a. 19 June 2018

b. 17 July 2018

c. 18 June – 26 June 2019

d. 30 January – 6 February 2020

1.1.4 Details regarding the assessment methodology employed, together with the results of the survey undertaken and the subsequent conclusions and recommendations, are presented within this Appendix.

1.2 Site location and setting

1.2.1 The proposed tunnel ventilation system at the South Portal site is to be located to the east of Gravesend, Kent approximately 2km south of the River Thames.

1.2.2 The approximate site location is shown below in Plate 1.1.

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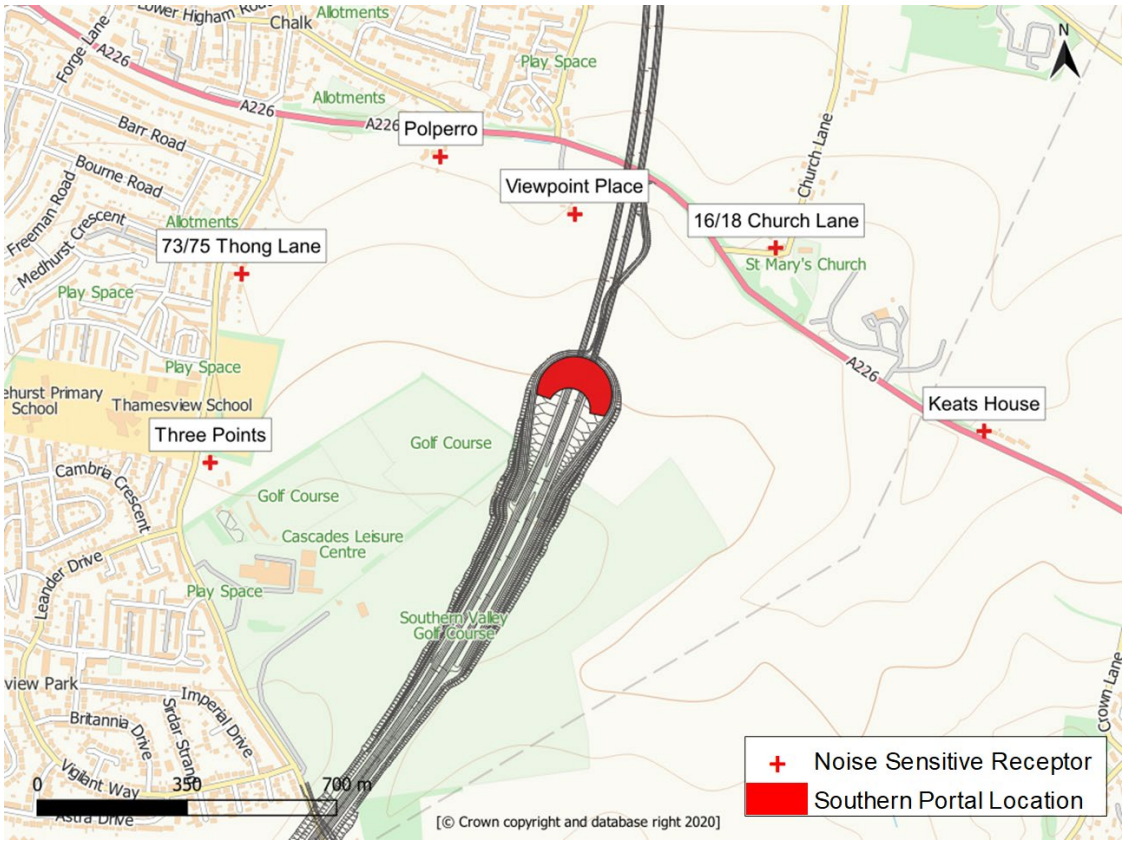
Plate 1.1 Site location plan



1.2.3 The surrounding area consists predominantly of farmland and open fields.

1.2.4 There are a number of residential properties and farm buildings within the vicinity of the site, with the settlement of Chalk located approximately 450m to the north-west of the portal building site.

1.2.5 The closest residential dwellings to the tunnel portal site are located on Rochester Road and Church Lane to the north, Gravesend Road to the east and Thong Lane to the west.

1.3 Noise study area

1.3.1 Noise impacts from the operation of the tunnel ventilation system have been considered at the closest identified sensitive receptors. Outside this immediate area, noise emissions from the ventilation plant are not anticipated to give rise to any significant impact.

1.3.2 The receptors considered in the ventilation assessment are presented on Plate 1.1, identified as Three Points, 73/75 Thong Lane, Polperro, Viewpoint Place, 16/18 Church Lane and Keats House.

1.4 Description of proposed tunnel portal development

1.4.1 As the operational Project includes a twin bore tunnel under the River Thames, there is a requirement for a permanent ventilation system to maintain airflow through the tunnel. As such, there is a potential for static plant noise emissions to impact upon existing nearby noise-sensitive receptors.

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1.4.2 The ventilation plant will be housed within a purpose-built portal building, the location of which is shown in Plate 1.2 and labelled as 'Head House Building'. The following static plant items will be contained within the portal building:

a. Two chiller units

b. Four pumps

c. Four air handling units

1.4.3 The design of the external building structure will be developed during the detailed design stage. However, for the purposes of this assessment the following preliminary design has been assumed:

a. Intensive green roof construction

b. Concrete walls or masonry with steel framing

1.4.4 The ventilation plant would be in operation 24 hours a day, seven days a week.

1.4.5 No plant will be located externally to the portal building other than the ventilation fans within the tunnels themselves. The tunnel ventilation fans will be located in banks of two fans over 30 rows, totalling 60 fans per tunnel.

1.4.6 The proposed layout of the tunnel portal is shown in Plate 1.2.

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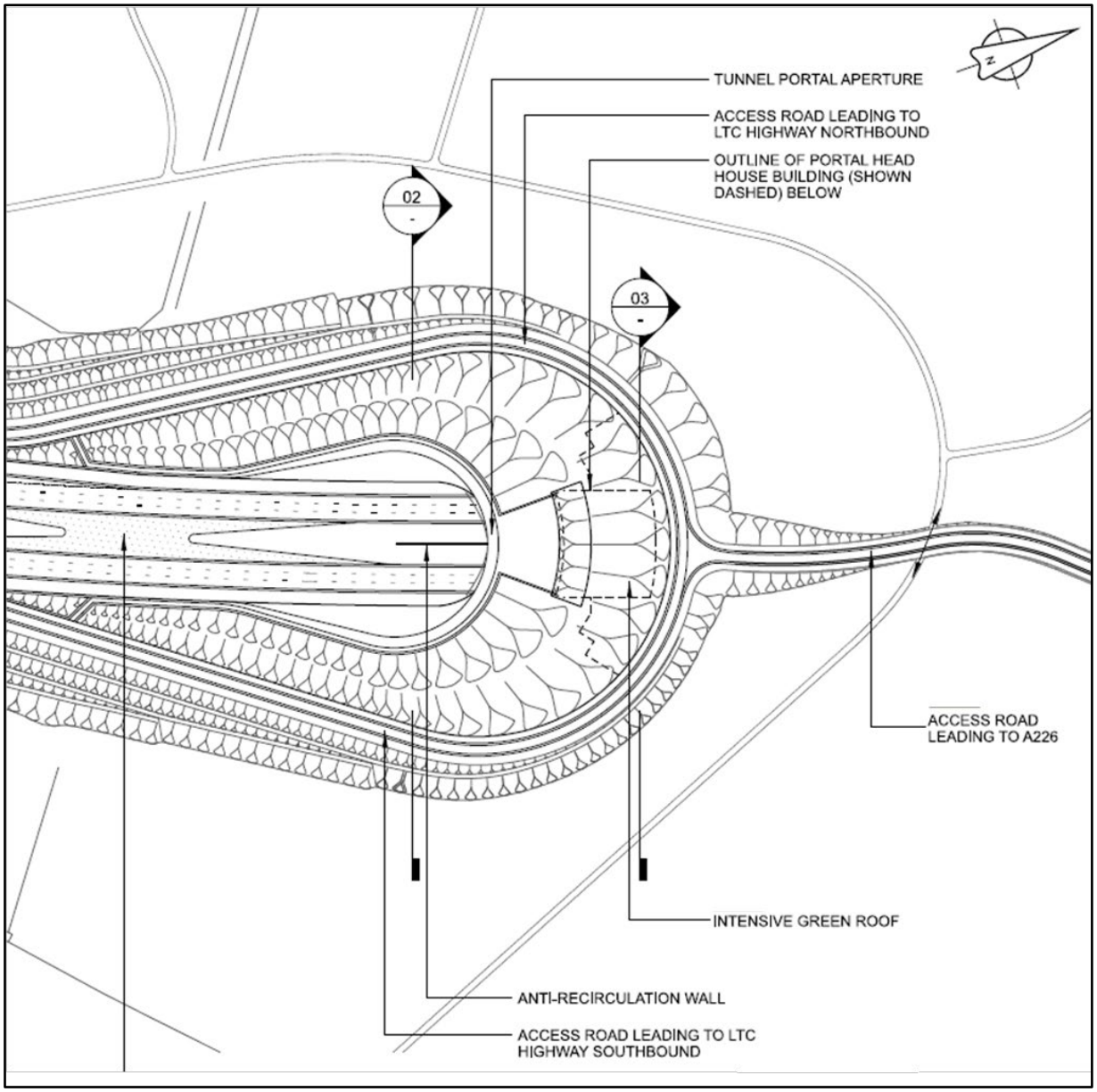
Plate 1.2 Proposed South Portal site layout



1.5 Scope of work

1.5.1 In order to assess the potential impacts from the proposed facility at the southern tunnel head site, a number of elements of work have been completed. These are detailed below:

a. Quantification of prevailing background and ambient noise levels at the nearest noise-sensitive receptors to the site

b. Noise modelling using SoundPLAN 8.0 software to calculate specific noise levels at the nearest receptors

c. Consideration of additional mitigation provision where necessary, and above that inherent within the design of the facility, to ensure appropriate limits are met at identified sensitive receptors

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2 Planning policy and guidance

2.1.1 The assessment of noise impacts associated with the South Portal tunnel building ventilation system has been undertaken in accordance with the following guidance methodology:

a. BS 4142:2014 (+A1:2019) Methods for rating and assessing industrial and commercial sound (British Standards Institution, 2019)

2.1.2 The assessment methodology used to determine potential noise impacts associated with the ventilation system plant is primarily based upon the guidance of BS 4142:2014 (+A1:2019) *Methods for rating and assessing industrial and commercial sound*. Further details relating to the guidance provided within this document are included below.

BS 4142:2014 (+A1:2019) Methods for rating and assessing industrial and commercial sound

2.1.3 The methods use outdoor sound levels to assess the likely effects of sound on people who might reside within a dwelling or other premises used for residential purposes upon which sound is incident.

2.1.4 BS 4142 is based around the premise that the significance of the impact of an industrial/commercial facility can be derived from the numerical subtraction of the background noise climate level (not necessarily the lowest background level measured, but the typical background of the receptor) from the measured or calculated rating level of the specific sound under consideration. This comparison enables the impact of said sound to be concluded because typically, the greater this difference, the greater the magnitude of the impact. This difference is then considered as follows:

a. A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context

b. A difference of around +5dB or greater is likely to be an indication of an adverse impact, depending on context

c. Below +5dB 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 or significant adverse impact.

2.1.5 BS 4142 further states that '*where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact'*, again depending upon the specific context of the site. BS 4142 further qualifies the assessment protocol by outlining conditions to the comparative assessment and stating that '*not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact'*, implying that all sites should be assessed on their own merits and specifics.

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2.1.6 BS 4142 quantifies the typical reference periods (for the purpose of the standard) to be used in the assessment of noise:

Typical daytime	07:00 – 23:00	1hr assessment period
Typical night-time	23:00 – 07:00	15 min assessment period

2.1.7 BS 4142 also outlines a number of methods for defining appropriate '*character corrections*' within the rating level to account for tonal qualities, impulsive qualities, other sound characteristics and/or intermittency. These are the subjective method; the objective methods for tonality; and the reference method. It is noted that where multiple features are present, the corrections should be added in a linear fashion to the specific level.

2.1.8 The subjective method, which as a result of the current level of design detail of these facilities has been applied within the scope of this study, is based on the following corrections shown in Table 2.1.

Table 2.1 Subjective method rating corrections

Level of perceptibility	Tonal correction	Impulsivity correction	Correction for 'other sound characteristics'	Intermittency correction
No perceptibility	+0dB	+0dB	Where neither tonal nor impulsive but clearly identifiable +3dB	If intermittency is readily identifiable +3dB
Just perceptible	+2dB	+3dB		
Clearly perceptible	+4dB	+6dB		
Highly perceptible	+6dB	+9dB		

2.1.9 BS 4142 further qualifies that the assessment methodology provided is not intended for the derivation of internal noise levels arising from sound levels outside or '*where background sound levels and rating levels are low'*, however, no definition of 'low' is provided. Where these situations prevail, it may be appropriate to reference the absolute guidance levels provided in British Standard BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (British Standards Institution, 2014) and Guidelines for Community Noise (World Health Organisation 1999).

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3 Noise monitoring survey

3.1 Introduction

3.1.1 This section describes the specifics of the background and ambient noise surveys undertaken within the scope of the assessment. It should be noted that the baseline noise surveys could only be undertaken with the existing situation (i.e. without the Project). The ventilation system would only operate with the Project, where the baseline would be different. This situation is insoluble, but it is considered that using baseline data before the opening of the Project would be worst case as noise levels would be lower than with the Project open.

3.2 Survey details

3.2.1 The noise monitoring surveys were undertaken between on the dates listed below:

a. 19th June 2018

b. 17th July 2018

c. 18th June – 26th June 2019

d. 30th January – 6th February 2020

3.2.2 The monitoring locations are detailed within Plate 3.1. The monitoring locations are considered to represent the noise climate at the closest residential receptors to the ventilation building and were described as follows:

a. A-NML 5 – Polperro Property located on Rochester Road, Gravesend, DA12 4TD, Grid Reference: TQ 674 726 approximately 550m from the tunnel building. Microphone positioned at an approximate height of 1.5m above local ground level in the garden area of the property.

b. A-NML 4 – Property located on Gravesend Road, Shorne, Gravesend DA12 3JL, Grid Reference: TQ 687 720 approximately 900m from the tunnel building. Microphone positioned at an approximate height of 1.5m above local ground level on a public footpath opposite the cottages on Gravesend Road (A226).

c. LT-NML 3 – Property located at 7 Genesta Glade, Gravesend, DA12 4PR, Grid Reference: TQ 671 712 approximately 1,100m from the tunnel building. Microphone positioned at an approximate height of 1.5m above local ground level in the residential back garden of number 7.

d. LT-NML 4 – Property located at 17 Church Lane, Gravesend, DA12 2NL, Grid Reference: TQ 682 725 approximately 540m from the tunnel building. Microphone positioned at an approximate height of 1.5m above local ground level in the residential back garden of number 17.

e. LT-NML 5 – Property located at 82 Castle Lane, Gravesend, DA12 4TQ, Grid Reference: TQ 678 730 approximately 820m from the tunnel building. Microphone positioned at an approximate height of 1.5m above local ground level in the residential back garden of number 82.

3.2.3 Plate 3.1 presents the approximate positions of the monitoring locations.

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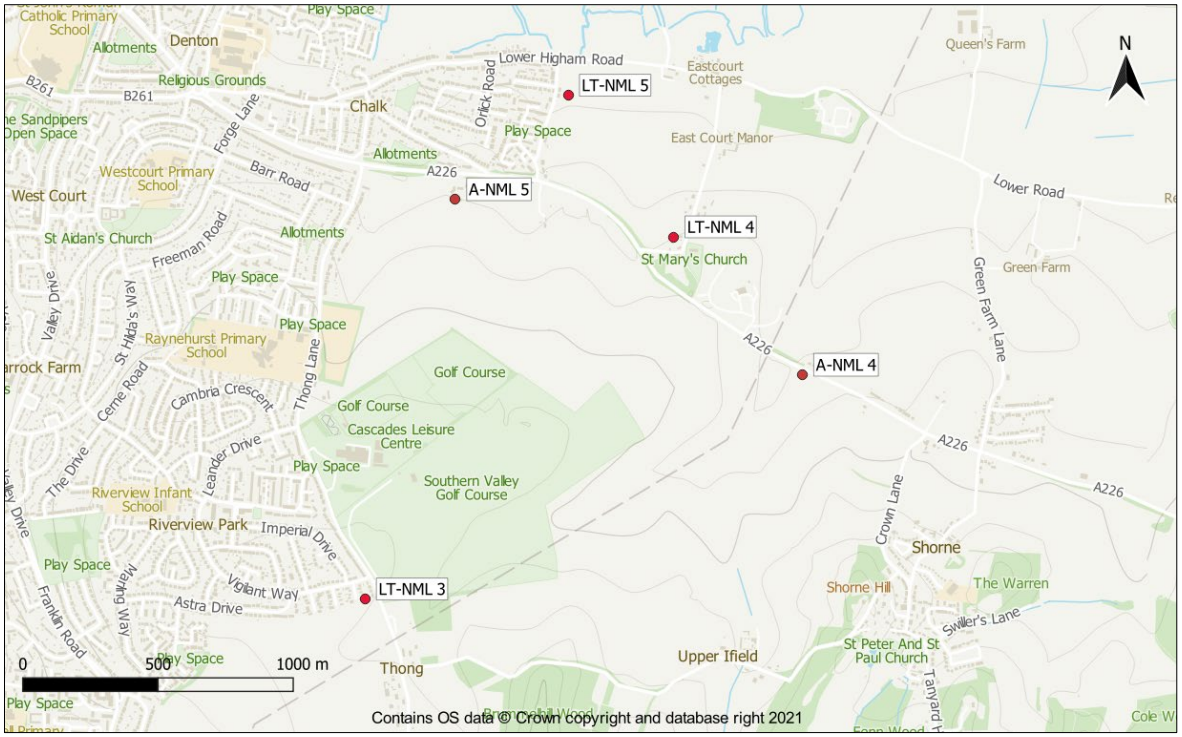
Plate 3.1 Noise monitoring survey locations



3.2.4 The noise monitoring comprised the following attended and unattended surveys:

a. A-NML 5 consisted of a three-hour attended survey

b. A-NML 4 consisted of a three-hour attended survey

c. LT-NML 3 consisted of a seven-day unattended survey

d. LT-NML 4 consisted of an eight-day unattended survey

e. LT-NML 5 consisted of a seven-day unattended survey

3.2.5 The specific survey durations and timeframes are presented in Table 3.1.

Table 3.1 Monitoring survey details

Monitoring location	A-NML 5 (three hour attended)	A-NML 4 (three hour attended)	LT-NML 3 (seven days unattended)	LT-NML 4 (eight days unattended)	LT-NML 5 (seven days unattended)
Start time	19/06/2018 13:40	17/07/2018 10:00	30/01/2020 14:00	18/06/2019 15:00	18/06/2019 11:00
End time	19/06/2019 16:40	17/07/2018 13:00	06/02/2020 13:00	26/06/2019 15:00	25/06/2019 15:00

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3.3 Weather

3.3.1 The weather conditions during the survey periods were deemed to be acceptable for the measurement of environmental noise in accordance with the requirements of BS 7445:1-2003 Description and measurement of environmental noise, Part 1 Guide to quantities and procedures (British Standards Institution, 2003), and are described in Table 3.2.

Table 3.2 Weather details during noise monitoring

Location	Date/time	Temperature	Cloud cover	Wind	Rain
A-NML 5	19/06/2018 13:40	25°C	25%	<5m/s	No rain
A-NML 4	17/07/2018 10:00	18°C	10%	<5m/s	No rain
LT-NML 3	30/01/2020 14:00	1°C - 6°C	100%	<5m/s	Dry during survey, some rainfall prior to commencement
LT-NML 4	18/06/2019 to 25/06/2019	Weather data obtained at this location using Met Station			
LT-NML 5		Weather data obtained from LT-NML 4			

3.4 Monitoring equipment

3.4.1 The sound level meters were programmed to measure 0.1 second L_{Aeq} values, which were then used to process the dataset into the assessment periods necessary. The equipment used was set to record the following parameters:

a. L_{Aeq} in dB

b. L_{A10} in dB

c. L_{A90} in dB

3.4.2 The monitoring equipment used complies with the performance specifications for Class 1 devices in accordance with BS EN 61672-1:2013 Electroacoustics: Sound level meters – Specifications (British Standards Institution, 2013), and is presented in Table 3.3.

Table 3.3 Noise monitoring equipment

Equipment	Manufacturer	Type	Serial number	Calibration due date
Sound level meter	01dB	FUSION	11035	09/02/2020
Sound level meter	01dB	FUSION	11039	09/02/2020
Sound level meter	01dB	DUO	10516	20/05/2020
Sound level meter	01dB	DUO	10507	05/06/2020
Calibrator	RION	NC-74	35183003	16/11/2018
Calibrator	RION	NC-74	34936367	12/06/2020
Met Station	VAISALA Weather Transmitter	WXT530 Series	P1420148	-

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3.4.3 The following set-up parameters were used on the sound level meters during all of the measurements undertaken:

a. Time weighting: fast

b. Frequency weighting: “A”

3.4.4 The sound level meters were locally calibrated using an electronic calibrator prior to commencement and upon completion of each survey; no significant drift in calibration was observed. The external laboratory calibration documentation for the equipment used can be provided upon request.

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4 Noise survey results

4.1 Noise monitoring survey results

4.1.1 This section of the report summarises the results of the noise monitoring survey undertaken within the scope of this assessment. The full monitoring data is presented within Appendix 12.5 (Application Document 6.3).

4.1.2 Table 4.1 to Table 4.5 summarise the noise levels monitored in terms of daytime and night-time hourly average levels, as based upon the reference time periods detailed with BS 4142:2014 (+A1:2019).

Table 4.1 A-NML 5 – three-hour measured noise level data

Time period	$L_{A90, T}$	$L_{Aeq, T}$	$L_{A10, T}$
13:40 – 14:40	42.1	46.7	47.7
14:40 – 15:40	44.8	57.0	56.8
15:40 – 16:40	44.6	53.6	54.8

Table 4.2 A-NML 4 – three-hour measured noise level data

Time period	$L_{A90, T}$	$L_{Aeq, T}$	$L_{A10, T}$
10:00 – 11:00	48.5	58.7	62.3
11:00 – 12:00	49.2	58.9	62.3
12:00 – 13:00	48.7	58.9	62.3

Table 4.3 LT-NML 3 – seven-day measured noise level data

Time period	$L_{A90, T}$	$L_{Aeq, T}$	$L_{A10, T}$
Daytime (07:00 – 23:00)	46.2	50.4	50.2
Night (23:00 – 07:00)	42.8	46.5	46.8

Table 4.4 LT-NML 4 – eight-day measured noise level data

Time period	$L_{A90, T}$	$L_{Aeq, T}$	$L_{A10, T}$
Daytime (07:00 – 23:00)	46.2	53.9	54.9
Night (23:00 – 07:00)	36.6	51.9	49.2

Table 4.5 LT-NML 5 – seven-day measured noise level data

Time period	$L_{A90, T}$	$L_{Aeq, T}$	$L_{A10, T}$
Daytime (07:00 – 23:00)	39.2	48.5	48.9
Night (23:00 – 07:00)	34.7	46.4	43.9

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4.1.3 On site observations made during the survey indicated that at monitoring locations A-NML 5, A-NML 4, LT-NML 4 and LT-NML 5 the dominant noise source was noted to be background traffic noise from the A226 Rochester Road/Gravesend Road. Additionally, it was noted that at LT-NML 4, nearby commercial activities also contributed to the noise climate. At LT-NML 3 the dominant noise source was noted to be background traffic noise from the M2/A2 to the south.

4.1.4 In addition, other minor sources contributed to the background noise levels, including the following:

a. Aircraft noise

b. Birdsong and other natural noises including vegetation rustle

c. Distant rail noise

d. Road traffic from smaller nearby roads

e. Church bells

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5 Predictive noise modelling

5.1 Overview

5.1.1 As the tunnel building ventilation plant is not currently installed, it is necessary to undertake the prediction of noise associated with the new sources of noise.

5.1.2 As such a 3D noise model has been constructed using the proprietary SoundPLAN 8.0 noise modelling software package to predict the noise generated by the new plant installations and how this will propagate into the surrounding environment.

5.1.3 This section of the report details the calculation methodologies used, along with the assumptions embodied within the noise modelling.

5.2 Noise modelling protocols

5.2.1 Within the scope of this modelling exercise, acoustic propagation has been calculated in accordance with the following standard:

a. ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors: Part 2: General method of calculation (International Organisation for Standardisation, 1996).

5.2.2 The noise modelling was completed using the following information and assumptions:

a. Site layout and terrain information:

   i. Drawing no. HE540039-CJV-SAR-S05_PTN0000001-M2-AX-06210 and HE540039-CJV-SAR-S07_PTN0000001-M2-AX-06210

   ii. Ordnance Survey Commercial and Project-specific Digital Terrain Model data.

b. Noise levels associated with the ventilation plant installations have been based upon the guideline values provided by the design team as listed below:

   i. Pumps and chillers: 75dBA @ 3m per unit

   ii. Air handling units: 107dBA @ source (0m) per unit

   iii. Tunnel ventilation fans designed to have a *maximum permissible level of NR85 at any point in a plane 1.5m above the road surface* as defined in paragraph 5.85.1 of DMRB CD 352 ‘Design of road tunnels’ (National Highways, 2020)

c. The source height associated with the ventilation plant has been taken as 2m above the local surface

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d. The ground cover in the area has been assumed to be a mixture of hard ground (e.g. road surfaces, pavements) and grassed areas

e. The portal building consists of a masonry build-up with substantial green roof. Façade openings associated with plant air intakes/exhausts and ventilators have been accounted for within the model. Within the modelling the conservative assumption of a façade attenuation of Rw (Lab Tested Sound Reduction Index) 27dB has been made on all façade elements (including the roof).

5.3 Modelling outputs

5.3.1 Plate 5.1 summarises the modelling outputs used to inform the noise assessment. The image illustrates the predicted noise levels resulting from the proposed ventilation plant installations and how this propagates into the surrounding area.

5.3.2 It is noted that the facility operates at a constant output once operating and as such one model scenario represents the predicted levels for both the daytime and overnight assessments. The propagation model used in the assessment provides for the prediction of sound pressure levels based on worst case downwind conditions, with a relative humidity of 70%, an ambient temperature of 10°C and propagation over mixed ground.

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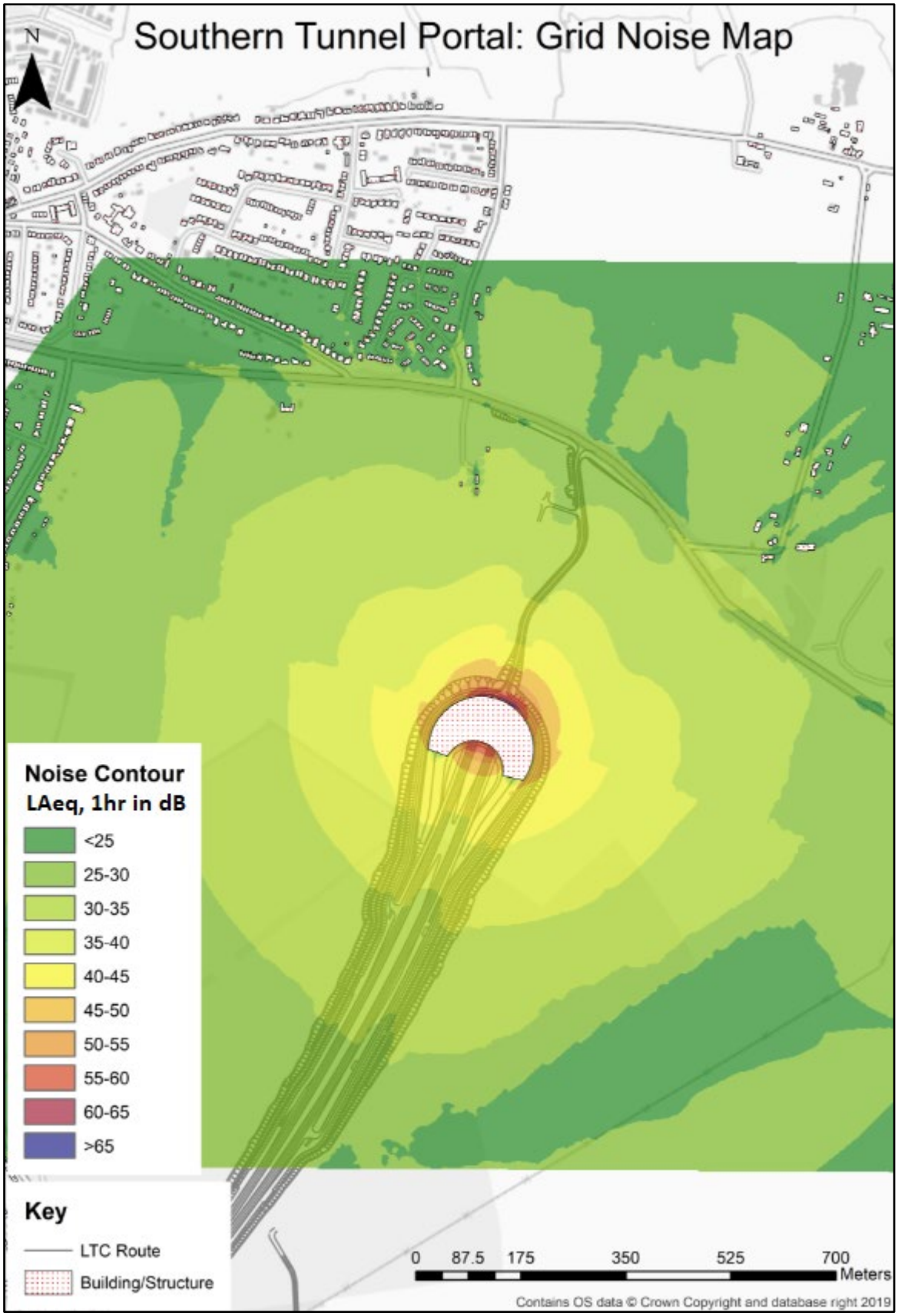
Plate 5.1 Noise contour for South Portal



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6 Noise impact assessment

6.1 Baseline noise climate analysis

6.1.1 The measured baseline noise climate has been used as the basis of the assessment. With regard to this, reference has been made to the guidance of BS 4142:2014 (+A1:2019) which states that:

'*In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.*

Among other considerations, diurnal patterns can have a major influence on background sound levels and, for example, the middle of the night can be distinctly different (and potentially of lesser importance) compared to the start or end of the night time period for sleep purposes.'

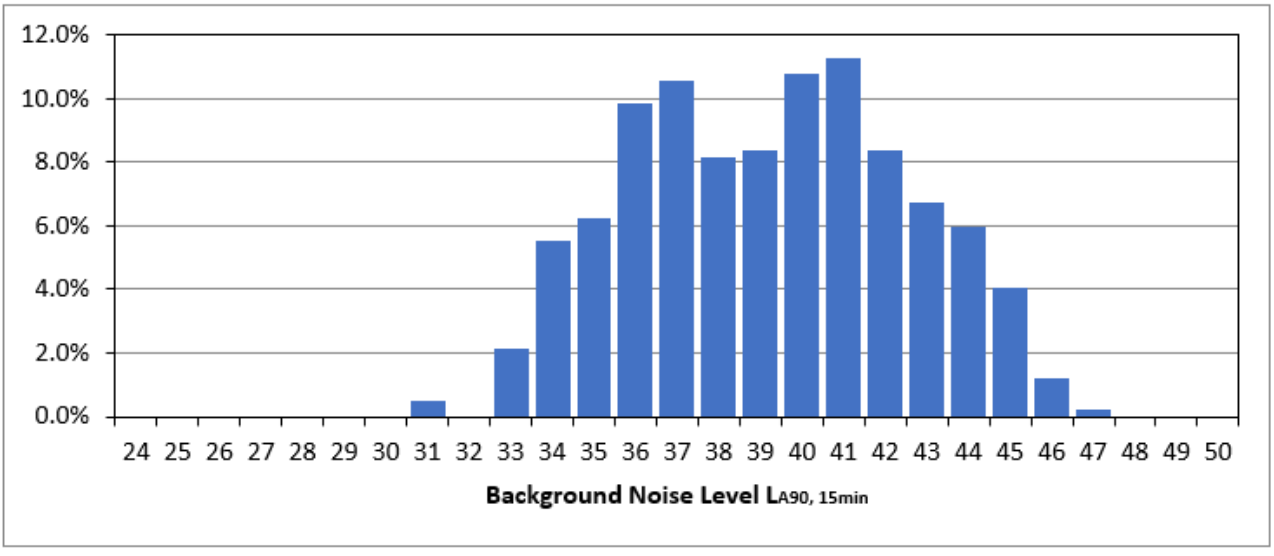
6.1.2 The assessment of the ventilation plant operational noise has been undertaken based upon the measured modal values of the existing background (L_{A90}) noise climate. This ensures that the typical noise climate at the receptor location is accounted for.

6.1.3 The background (L_{A90}) data collected during the site noise survey has been analysed to determine the modal value recorded at each of the following monitoring locations where sufficient data has been amassed. This has been done separately for the daytime and night-time and is based upon the data amassed at LT-NML 5 as this was considered to provide the most robust baseline for the purposes of assessment.

Modal analysis of noise monitoring location LT-NML 5

6.1.4 The statistical analysis of the daytime background (L_{A90}) noise data at LT-NML 5 is presented in Plate 6.1.

Plate 6.1 Modal Analysis Daytime Period (07:00 – 23:00)



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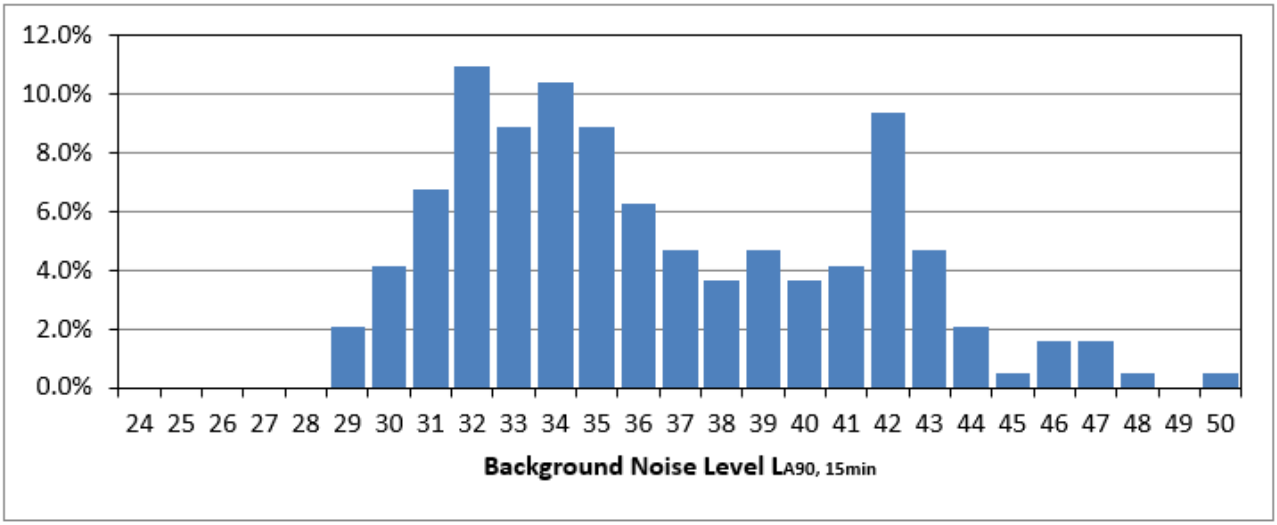
6.1.5 The analysis of the L_{A90} data indicates that the minimum L_{A90} for the daytime period (07:00 – 23:00) was measured at 31dB, however the modal value was measured at 40/41dB with around 22% of the rounded dataset reporting these values. Additional data spikes were noted at 36/37dB with around 21% of the rounded dataset reporting these values. Although the modal value is 40/41dB there is little difference in terms of percentage between that and the 36/37dB grouping. Therefore, to examine a worst case situation, a model value of 36dB has been chosen for the assessment.

6.1.6 The statistical analysis of the night-time background (L_{A90}) noise data at LT-NML 5 is presented in Plate 6.2.

Plate 6.2 Modal analysis night-time period (23:00 – 07:00)



6.1.7 The analysis of the L_{A90} data indicates that the minimum L_{A90} for the entire night-time period (23:00 – 07:00) was measured at 29dB, however the modal value for the period was measured at 32dB with 10.9% of the rounded dataset reporting this value.

6.1.8 Table 6.1 presents a summary of the modal background noise levels at noise monitoring location LT-NML 5.

6.1.9 These values will be used as the basis of the assessment.

Table 6.1 Summary of measured background noise Levels at LT-NML 5

Time Period	Modal $L_{A90,T}$ (dB)	Range $L_{A90,T}$ (dB)
Daytime (07:00 – 23:00)	36	31 - 47
Night-time (23:00 – 07:00)	32	29 - 50

6.2 Character corrections

6.2.1 Within the methodology of BS 4142:2014 (+A1:2019) it is necessary to calculate a specific external sound level at the sensitive receptor location from the operations under consideration. This specific sound level then requires

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converting to a 'Rating' level in order to take account of tonal or noticeable characteristics of the specific sound source.

6.2.2 Table 6.2 presents the character corrections which have been applied for the operational ventilation plant noise emissions, as based on the subjective assessment methodology described within Section 9.2 of BS 4142:2014 (+A1:2019).

Table 6.2 BS 4142 character corrections, operational ventilation plant

Characteristic	Subjective perception	Justification	BS 4142 correction
Tonality	Potentially	Whilst specific product selections have not yet been made, due to the type of plant under consideration, there is the potential for low level of tonality. A correction of +2dB which relates to tonality being 'just perceptible' is considered appropriate due to the separation distances involved.	+2dB
Impulsivity	None	No correction is proposed for this type of characteristic as there is no impulsivity associated with the operation of the ventilation plant.	0dB
Other characteristics	None	No 'other' noise characteristics have been identified with the operation of the ventilation plant.	0dB
Intermittency	None	The plant is expected to operate continuously and hence a correction for intermittency is not considered necessary.	0dB
Total character correction			+2dB

6.3 Assessment locations

6.3.1 Assessment of the potential noise impact from the ventilation plant has been undertaken at the nearest existing sensitive receptor locations as detailed below and identified on Plate 6.3:

a. Polperro property on Rochester Road, Gravesend, DA12 4TD, Grid Reference: TQ 674 727

b. Keats House on Gravesend Road, Shorne, Gravesend DA12 3JL, Grid Reference: TQ 691 717

c. Three Points on Thong Lane, Gravesend, DA12 4LF, Grid Reference: TQ 669 720

d. 16/18 Church Lane, Gravesend, DA12 2NL, Grid Reference: TQ 682 725

e. Viewpoint Place on Rochester Road, Gravesend, DA12 4TU, Grid Reference: TQ 677 726

f. 73/75 Thong Lane, Gravesend, DA12 4LE, Grid Reference: TQ 670 724

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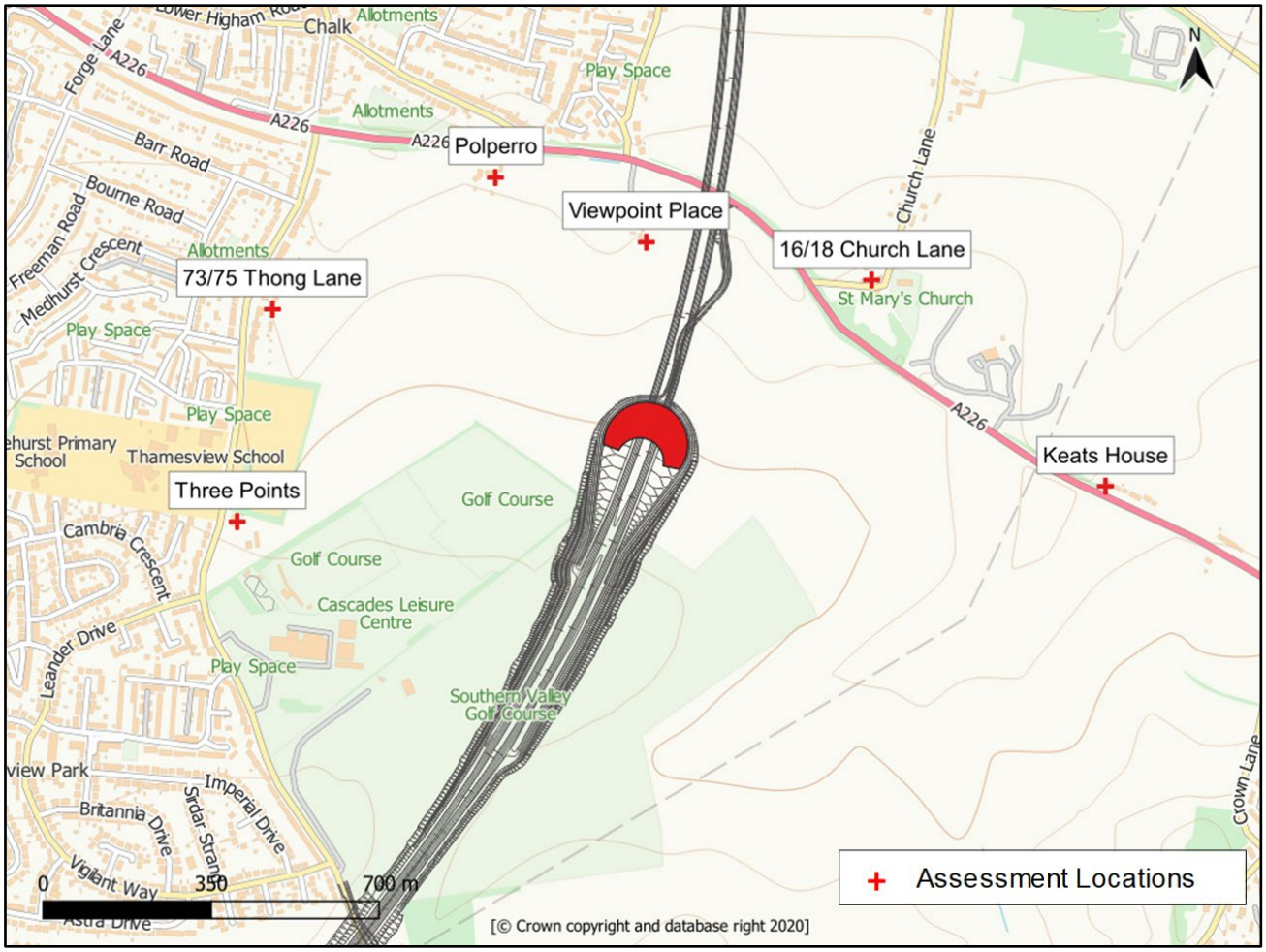
Plate 6.3 Assessment locations



6.4 Assessment results

6.4.1 The assessment results presented below are based on the operational assumptions set out above and utilising the modal values of the measured background (L_{A90}) noise levels established during the baseline surveys. The dataset measured at LT-NML 5 has been used as it is considered to be the most representative of the assessment locations and provide the most robust assessment.

6.4.2 The results of the assessment are presented within Table 6.3 and allow for 'total' predicted noise levels. These levels assume noise generation from all ventilation plant units operating simultaneously, with 100% on-time.

6.4.3 There are no additional mitigation measures included within the scope of this assessment beyond those already inherent within the design, relating to façade attenuation measures, plant selection and earth works screening. As such the noise levels presented in Table 6.3 are representative of the highest noise levels predicted from the ventilation plant.

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Table 6.3 Assessment summary of noise levels at LT-NML 5

Location and time period	Modal measured $L_{90,T}$, 'background' noise level (dB)	Predicted BS 4142 specific noise level (dB)	Corrected BS 4142 rating level (dB)	Difference (dB)	Likelihood of complaints
Daytime period (0700 – 2300)					
Three Points	36	23	25	-11	Indication of the specific sound source having a low impact
73/75 Thong Lane		25	27	-9	
Polperro		26	28	-8	
Viewpoint Place		30	32	-4	
16/18 Church Lane		29	31	-5	
Keats House		22	24	-12	
Night-time period (2300 – 0700)					
Three Points	32	23	25	-7	Indication of the specific sound source having a low impact
73/75 Thong Lane		25	27	-5	
Polperro		26	28	-4	
Viewpoint Place		30	32	0	
16/18 Church Lane		29	31	-1	
Keats House		22	24	-8	

6.4.4 It can be seen from Table 6.3 above that predicted noise levels arising from the operation of the ventilation plant would be rated by BS 4142:2014 (+A1:2019) as follows:

a. Between -4dBA and -12dBA below the existing daytime background noise climate

b. Between 0dBA and -8dBA relative to the existing night-time background noise climate

6.4.5 Under BS 4142:2014 (+A1:2019) assessment protocol, where the rating level does not exceed the background sound level, then this is a positive indication that the specific sound source would have a low noise impact.

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7 Conclusions

7.1.1 An assessment has been undertaken to consider the potential noise impacts related to the ventilation plant located at the South Portal building associated with the Lower Thames Crossing Project.

7.1.2 Within the scope of Chapter 12 of the Environmental Statement (Application Document 6.1), baseline noise levels have been quantified within the vicinity of the South Portal site.

7.1.3 Noise levels generated by the ventilation plant have been assessed in line with appropriate guidance of British Standard BS 4142:2014 (+A1:2019) Methods for rating and assessing industrial and commercial sound.

7.1.4 Consideration in line with the defined BS 4142:2014 (+A1:2019) criteria indicates that the predicted rating noise levels generated by the ventilation plant would have a low impact. Therefore, the assessment concludes a negligible impact at the closest noise sensitive receptors.

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