

APPENDIX ES13.1
NOISE IMPACT ASSESSMENT



Noise Assessment

Revised Restoration Landform at Cooks Hole Quarry and Thornhaugh Landfill Site, Peterborough





AUGEAN SOUTH LTD

R24.12065/1/AP
Date of Report: 06 February 2024

REPORT DETAILS

Client	Augean South Ltd
Report Title	Noise Assessment – Revised Restoration Landform
Site Address	Cooks Hole Quarry and Thornhaugh Landfill Site, Leicester Rd, Thornhaugh, Peterborough
Report Ref.	R24.12065/1/AP
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QUALITY ASSURANCE

Issue No.	Issue Date	Author	Technical Review
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COMPETENCY AND EXPERTISE

The Company

Vibroch Ltd is an established independent environmental consultancy who has been providing noise, dust and vibration consultancy services to industry since 1991. Vibrock Ltd is a member of the Association of Noise Consultants (ANC) and its Consultants are Associate or Corporate Members of the Institute of Acoustics (IOA).

The Authors

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NON-TECHNICAL SUMMARY

1. Augean South Ltd (Augean) operates the existing Cooks Hole Quarry and Thornhaugh Landfill Site in Peterborough. Augean are seeking planning permission for a revised restoration landform at the Sites. Vibrock Limited has been commissioned to conduct a noise impact assessment of the proposals.
2. This study benefits from a site inspection and noise emission monitoring undertaken in November 2023. Noise-sensitive premises in the vicinity of the Sites were also reviewed during the site visit.
3. Predicted noise levels associated with the proposed revised restoration proposals have been calculated at nearby noise-sensitive premises. These predictions are based on detailed information regarding the proposed working of the site and have been undertaken following calculation methods that are suitable for 'open sites' such as quarries and landfills.
4. The proposed development has been assessed with reference to the established noise limits outlined in the Sites extant planning permissions which have been set with reference to national planning guidance and have been effective in protecting residential amenity. This approach to the assessment was agreed with the Local Authority as part of the Scoping stage of the application.
5. The outcome of the assessment demonstrates that the proposed scheme is able to operate in accordance with the existing noise limits and there are not considered to be any significant or unacceptable adverse noise impacts.

CONTENTS

1.0	Introduction	1
2.0	Assessment Criteria	3
3.0	Potential Noise Emissions	5
4.0	Assessment	7
5.0	Cumulative Impacts	9
6.0	Summary	10
7.0	References	11

FIGURES

1	Location Plan
2	Revised Restoration Levels
3	Noise Assessment Locations

TABLES

1	Noise Source Details
2	Assessment of Noise from Short-Term Operations
3	Assessment of Noise from Normal Operations

APPENDIX

A	Acoustic Terminology and Definitions
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1.0 INTRODUCTION

1.1 Overview

- 1.1.1 Vibrock Limited is commissioned to undertake a noise impact assessment in regard to a planning application for a revised restoration landform at Cooks Hole Quarry and Thornhaugh Landfill Site in Peterborough.
- 1.1.2 This study benefits from a site inspection and sound level monitoring undertaken in November 2023.
- 1.1.3 An assessment of the potential impact of the proposals at the identified noise-sensitive premises within the vicinity of the proposed application area has been made by comparison of predicted site noise levels with the noise limits stipulated within extant planning conditions for the site. Where necessary suitable mitigation measures have been recommended.
- 1.1.4 Further explanation of the acoustic terminology used within this report is provided in Appendix 1.

1.2 The Site

- 1.2.1 Augean South Ltd (Augean) operates the existing Cooks Hole Quarry and Thornhaugh Landfill Site.
- 1.2.2 Cooks Hole Quarry (Cooks Hole) is a mineral extraction site which has been active since the 1950s. Thornhaugh accepts a range of non-hazardous waste, and stable non-reactive hazardous waste including asbestos which is used to restore the previous mineral workings. Throughout this report when referred to collectively Cooks Hole Quarry and Thornhaugh Landfill Site will be called 'the sites'.
- 1.2.3 The sites are located approximately 1km south west of the village of Thornhaugh and 10km west of Peterborough. Cooks Hole is to the south west of the A47 Leicester Road and Thornhaugh is adjacent to and south of the A47 Leicester Road. Both sites share the same access from the A47.
- 1.2.4 The operational hours for the sites will be consistent with the current operational hours for Thornhaugh: 0700 to 1800 Monday to Friday and 0700 to 1300 Saturdays.
- 1.2.5 The site boundaries and locations are shown on Figure 1 of this technical report.

1.3 Proposals

- 1.3.1 Augean is proposing to revise the restoration schemes for Cooks Hole and Thornhaugh to provide an integrated, coherent landform for both sites. The proposed restoration scheme would extend the habitats from Thornhaugh to Cooks Hole so that a wider mix of habitats is available across both sites.
- 1.3.2 The material that will be used to create the proposed landform at Cooks Hole will comprise clean, naturally occurring materials. Only clean naturally occurring materials, which have been extracted as part of the existing landfill construction operations and will be extracted as part of the future construction operations for the landfill at the East Northants Resource Management Facility (ENRMF) in King's Cliffe and as part of the landfill construction operations at Thornhaugh, will be used. Some of the additional void created at Thornhaugh will be filled with waste types already consented for disposal there.
- 1.3.3 Whilst Thornhaugh comprises an active landfill site the mineral extraction operations are now complete at Cooks Hole and no further mineral will be extracted. There are a number of stockpiles of mineral materials at Cooks Hole and there is mobile plant which is currently processing the material from the stockpiles and those materials arising from the construction operations at Thornhaugh.
- 1.3.4 The planning application will include the continuation of the mineral processing operations at Cooks Hole and the continuation of the existing operations at Thornhaugh (construction of phases, landfilling and processing of waste).

1.4 Local Authority Consultation / Scoping

- 1.4.1 The proposed development falls under Paragraph 13a and 13b of Schedule 2 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the EIA Regulations) as there is the potential for the proposed development to have significant effects on the environment so an Environmental Impact Assessment (EIA) is necessary.
- 1.4.2 A Scoping Opinion Request was submitted to Peterborough City Council in October 2023. The response in November 2023 included the following comments from Pollution Control which are relevant to this assessment.

'The existing conditions for noise and dust at the site provide sufficient protection therefore any assessments made are necessary to show that the proposed works will adhere to the current conditions. If the proposed works are unable to adhere to the existing conditions, details of further mitigation measures to ameliorate significant impacts will be required. As included in the scoping document, noise limits at the identified near sensitive receptors for the operations at Cooks Hole are specified planning permissions referenced 15/00229/MMFUL, 13/01372/WCMM and 13/01374/WCMM. Where the existing noise limits provide sufficient protection. As set out in Sections 5.14 - 5.17 of the document a noise assessment considering the noise impact of the proposed operations will be necessary. The results will be presented against the existing noise limits for the site.'

2.0 ASSESSMENT CRITERIA

2.1 The following conditions specify noise limits at premises within the vicinity of the sites.

Cooks Hole

13/01372/WCMM and 13/01374/WCMM Condition C5

<p>C 5 The development hereby approved shall take place in accordance with the scheme of noise mitigation measures set out the Supporting Statement (dated September 2010), Appendix A: "Proposed Noise Control Scheme".</p> <p>Except for temporary operations, the rating level of noise emitted from the site shall not exceed the limit specified below when measured at each location listed. Measurements taken to verify compliance shall have regard to the effects of extraneous noise and shall be corrected for such effects.</p>		
Location	(Mondays to Fridays)	(Saturdays)
Home Farm House	55 dB LAeq,1h	55 dB LAeq,1h
Leedsgate Farm	50 dB LAeq,1h	50 dB LAeq,1h
Nightingale Farm	50 dB LAeq,1h	46 dB LAeq,1h
Sibberton Lodge	51 dB LAeq,1h	51 dB LAeq,1h
Oaks Wood Cottage	55 dB LAeq,1h	55 dB LAeq,1h
Toll Cottage	55 dB LAeq,1h	55 dB LAeq,1h
<p>For temporary operations such as site preparation, soil stripping and replacement, and screen bund formation and removal, the free field noise level due to operations at the nearest point to each dwelling shall not exceed 70 dB LAeq,1hour(free field). Temporary operations shall not take place for more than eight weeks in any calendar year. In the event of a reasonable complaint as determined by the Local Planning Authority, the developer shall appoint a suitably qualified noise consultant to undertake noise monitoring in accordance with a scheme that shall be agreed beforehand with the Local Planning Authority. The scheme shall set out the timetable and methodology for undertaking the monitoring and producing a noise report. This report shall be provided to the Local Planning Authority.</p> <p>Reason: In order to safeguard the amenity of nearby residents in accordance with policy CS34 of the Cambridgeshire and Peterborough Minerals and Waste Core Strategy (July 2011).</p>		

15/00229/MMFUL Condition C5

<p>C 5 Except for temporary operations, the rating level of noise emitted from the site shall not exceed the limit specified below when measured at each location listed. Measurements taken to verify compliance shall have regard to the effects of extraneous noise and shall be corrected for such effects.</p>		
Location	(Mondays to Fridays)	(Saturdays)
Home Farm House	55 dB LAeq,1h	55 dB LAeq,1h
Leedsgate Farm	50 dB LAeq,1h	50 dB LAeq,1h
Nightingale Farm	50 dB LAeq,1h	46 dB LAeq,1h
Sibberton Lodge	51 dB LAeq,1h	51 dB LAeq,1h
Oaks Wood Cottage	55 dB LAeq,1h	55 dB LAeq,1h
Toll Cottage	55 dB LAeq,1h	55 dB LAeq,1h
<p>For temporary operations such as site preparation, soil replacement, and screen bund removal, the free field noise level due to operations at the nearest point to each dwelling shall not exceed 70 dB LAeq,1hour(free field). Temporary operations shall not take place for more than eight weeks in any calendar year. In the event of a reasonable complaint as determined by the Local Planning Authority, the developer shall appoint a suitably qualified noise consultant to undertake noise monitoring in accordance with a scheme that shall be agreed beforehand with the Local Planning Authority. The scheme shall set out the timetable and methodology for undertaking the monitoring and producing a noise report. This report shall be provided to the Local Planning Authority.</p> <p>Reason: In order to safeguard the amenity of nearby residents in accordance with policy CS34 of the Cambridgeshire and Peterborough Minerals and Waste Core Strategy (July 2011).</p>		

Thornhaugh

12/00463/MMFUL Condition C16 and C17

C16 Except for temporary operations the rating level of noise emitted from the site shall not exceed the specified noise criteria levels in Schedule 1. The noise levels shall be determined at the nearest noise sensitive properties as listed in Schedule 1. Measurements taken to verify compliance shall have regard to the effects of extraneous noise and shall be corrected for such effects. Within two months of the commencement of development a noise monitoring scheme shall be submitted to and agreed in writing by the Local Planning Authority. Noise monitoring shall thereafter be undertaken in accordance with the approved scheme.

Schedule 1

Location	Site Noise Limits/LAeq, 1 Hour (free field) during working hours	42dB LAeq, 5mins (free field) at any other time
Home Farm House	55	42
Leedsgate Farm	50	42
Nightingale Farm (Mon-Friday)	50	42
Nightingale Farm (Saturday)	46	42
Sibberton Lodge	51	42
Oaks Wood Cottage	55	42
Toll Cottage	55	42

20/01680/WCMM Condition C16

C16 Except for temporary operations the rating level of noise emitted from the site shall not exceed the specified noise criteria levels (measured as LAeq, 1 Hour (free field)) during working hours as set out below.

Location	Site Noise Limits
Home Farm House	55
Leedsgate Farm	50
Nightingale Farm (Mon-Friday)	50
Nightingale Farm (Saturday)	46
Sibberton Lodge	51
Oaks Wood Cottage	55
Toll Cottage	55

At the locations listed above, the noise emitted from the site shall not exceed 42dB, LAeq, 5mins (free field) at any other time.

The noise levels shall be determined at the nearest noise sensitive properties as listed above. Measurements taken to verify compliance shall have regard to the effects of extraneous noise and shall be corrected for such effects.

The development hereby approved shall be carried out in complete accordance with the Noise Monitoring Scheme dated April 2013 as set out at Annexe 6 of the Environmental Statement.

12/00463/MMFUL and 20/01680/WCMM Condition C17

C17 For temporary operations such as site preparation, soil stripping and replacement and screen bund formation and removal, the free field noise level due to operations determined at the nearest noise sensitive dwellings (as listed in condition 16) shall not exceed 70dB LAeq, 1 hour (free field). Temporary operations shall not take place for more than eight weeks in any calendar year.

3.0 POTENTIAL NOISE EMISSIONS

3.1 Introduction

3.1.1 The level of sound in the local environs that arises from a site will depend on a number of factors. The more significant of which are:

- (a) the sound level output of the plant or equipment used on site;
- (b) the periods of operation of the plant on site;
- (c) the distance between the source noise and the receiving position;
- (d) the presence of screening due to barriers;
- (e) the reflection of sound;
- (f) soft ground attenuation.

3.1.2 Potential noise levels from the proposed scheme have been predicted at nearby noise-sensitive locations based on the following methodology and assumptions.

3.2 Prediction Methodology

3.2.1 Noise level calculations have been undertaken in accordance with Annex F of BS 5228-1:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites. Part 1: Noise*'. This guidance details methods to estimate noise from 'open sites' which can include quarries, waste disposal sites and long-term construction projects.

3.2.2 The attenuation due to any screening between the noise source and the receptor has been calculated in accordance with F.2.2.2.1 of BS 5228-1.

3.2.3 The ground absorption coefficient has been estimated according to the combination of soft and hard ground conditions present between the source and receiver position. 'Soft' ground is taken to refer to surfaces which are absorbent to sound, e.g. grassland, cultivated land or plantations as opposed to 'hard' ground surfaces which reflect sound such as paving, asphalt and surface water.

3.2.4 In accordance with BS 5228 methodology, the attenuation from screening and soft ground attenuation have not been combined (where applicable). Instead, either the attenuation from screening and hard ground propagation, or the attenuation provided by soft ground alone has been included in the calculation, whichever is the greater of the two.

3.2.5 Noise level predictions at each assessment location have been made to a height of 1.5 metres above ground level and at least 3.5 metres from any reflecting surface other than the ground. All predictions made are 'free-field' sound levels to allow for an appropriate comparison with the noise limits outlined in the extant planning conditions.

3.2.6 All noise level predictions have been calculated with the combinations of plant working at the closest point to the assessment location. The predictions are therefore worst-case scenarios which may be of relatively short duration, however, they indicate the potential highest $L_{Aeq,1h}$ noise level to which a particular property or group of properties may be exposed during the working of the site. This worst-case situation may occur intermittently over the lifetime of the site, but the longer-term noise levels perceived outside of the site boundary would normally be significantly less.

3.3 Noise Sources

3.3.1 Information regarding the proposed working of the site has been based on discussions with the applicant. A list of plant and activities from which the noise predictions have been made is presented in Table 1 along with a number of assumptions regarding activity ‘on-times’ and vehicle movements.

3.3.2 The noise emission levels used within this assessment are based on measurements of plant and activities made by Vibrock Ltd at the existing sites in November 2023 and supplemented by noise emission data from similar mineral and waste sites across the UK.

Table 1: Noise Sources Details

Plant/Activity	Sound Power Level dB(A)	On-time Assumptions (relative to 1h reference time)
Weighbridge Office Generator	90	100%
Vehicle On Weighbridge	92	25%
Gas Flare	66	100%
Vehicle using Wheelwash	99	25%
Leachate Being Collected by Tanker	101	50%
RoRo Skip – Off loading	105	25%
Telehandler Unloading Articulated Lorry	101	50%
Mobile Mineral Processing Plant	107	100%
Excavator Loading Dump Truck	104	50%
Dozer	106	75%
Excavator	104	75%
Tipping Fill	105	25%
Water Pumping	99	100%
HGV movements*	100	21 movements per hour Speed=10mph
Dump Truck movements*	101	16 movements per hour Speed=10mph
Tractor and Bowser*	103	4 movements per hour Speed=10mph

* Drive-by maximum sound level in L_{max} (octave bands) and L_{Amax} (overall level)

4.0 ASSESSMENT

- 4.1 Summaries of the predicted worst-case noise levels associated with the proposed scheme are shown in the tables below, together with a comparative assessment against the noise limits stipulated within the extant planning conditions for the sites.

Short-Term Operations

- 4.2 PPG permits a temporary daytime noise limit of 70 dB(A) $L_{Aeq, 1h}$ (free field) for periods of up to 8 weeks in a year to facilitate short-term activities which include essential site preparation, restoration, soil-stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, construction of new permanent landforms and aspects of site road construction and maintenance.
- 4.3 In terms of short-term operations, it is considered that some aspects of final restoration work, such as the capping of landfill cells, are likely to have the highest noise impact due to their potential occurrence at or close to the site boundary and potentially being unscreened from residential dwellings.
- 4.4 Table 2 below presents an assessment of noise from these temporary activities associated with the proposed scheme.

Table 2: Assessment of Short-Term Operations

Location	Predicted Worst Case Site Noise Level dB $L_{Aeq, 1h}$ (free-field)	Criterion dB $L_{Aeq, 1h}$ (free-field)
Home Farm House	54	70
Leedsgate Farm	43	70
Nightingale Farm	49	70
Sibberton Lodge	46	70
Oaks Wood Cottage	51	70
Toll Cottage	55	70

- 4.5 Potential noise levels from short-term activities are expected to remain within the temporary daytime limit of 70 dB as stipulated within the extant planning conditions.

Normal Operations

4.6 Table 3 below presents an assessment of noise from the revised restoration operations and compares the results against the extant noise limits.

Table 3: Assessment of Normal Operations

Location	Period	Noise Limit	Predicted Worst Case Site Noise Level dB LAeq,1h	Difference between Site Noise and Noise Limit
Home Farm House	Mon-Fri	55	49	-6
	Saturday	55	49	-6
Leedsgate Farm	Mon-Fri	50	39	-11
	Saturday	50	39	-11
Nightingale Farm	Mon-Fri	50	45	-5
	Saturday	46	45	-1
Sibberton Lodge	Mon-Fri	51	43	-8
	Saturday	51	43	-8
Oaks Wood Cottage	Mon-Fri	55	48	-7
	Saturday	55	48	-7
Toll Cottage	Mon-Fri	55	45	-10
	Saturday	55	45	-10

4.7 The results of the assessment demonstrate that potential noise levels from normal operations associated proposed development are not expected to exceed the limits outlined within the extant planning conditions.

5.0 CUMULATIVE IMPACTS

- 5.1 The cumulative impact of development is capable of being a material planning consideration when determining individual planning applications and it is therefore necessary to consider the cumulation of the impact with the impact of other existing and/or approved development.
- 5.2 A review of the area surrounding the application site shows that the restoration of Cross Leys Quarry could take place simultaneously with proposed operations at Thornhaugh and Cooks Hole. Cross Leys Quarry (planning ref. 19/01530/WCMM, 19/01370/WCMM and 19/01365/MMFUL dated 10 December 2020) is located in excess of 1.4 km to the west of the site and given this separation distance there are not considered to be any potentially significant cumulative impacts associated with this scheme.
- 5.3 In addition there is permission for mineral and waste operations on land immediately adjacent to the south-east boundary of the application site. This area includes a number of planning permissions, namely Thornhaugh II (ref. M25/1/3 – M25/1/6 (97P0071) dated 8 February 1999 and APP/J0540/A/12/2179541/NWF dated 8 May 2013) and Thornhaugh IIB (14/01716/MMFUL dated 10 April 2015). It is understood that operations in the main part of Thornhaugh II ceased a number of years ago and that operations at Thornhaugh IIB are due to be completed by 2026. There are therefore not considered to be any potentially significant cumulative impacts associated with these schemes and the proposed revised restoration proposals at Thornhaugh and Cooks Hole.
- 5.4 There are no other operational or consented mineral/waste operations, or other large scale development projects that could present a significant noise source, that are close enough to require further consideration in relation to the cumulative effects of noise.

6.0 SUMMARY

- 6.1 Vibrock Limited has been commissioned to undertake a noise impact assessment in regard to a planning application for a revised restoration landform at Cooks Hole Quarry and Thornhaugh Landfill Site in Peterborough.
- 6.2 Proposed development plans have been studied and a series of noise level predictions have been made at noise-sensitive locations within the vicinity of the application site. These potential noise levels have been assessed against the noise limits stipulated within the extant planning conditions for the sites.
- 6.3 The results of the assessment demonstrate that the proposed development can be implemented by the Operator whilst adhering to these noise limits. It is therefore considered unlikely that the proposed development would result in any significant or unacceptable adverse impacts at noise-sensitive premises in the vicinity.

7.0 REFERENCES

1. ANC Guidelines: *Environmental Sound Measurement Guide*. May 2021.
2. British Standard 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites. Part 1: Noise*. British Standards Institution 2014.
3. British Standard 7445-1:2003 *Description and measurement of environmental noise – Part 1 Guide to quantities and procedures*. British Standards Institution 2003.
4. *Guidelines for Environmental Noise Impact Assessment*, v1.2. Institute of Environmental Management & Assessment. November 2014.
5. National Planning Policy Framework – Department for Levelling Up, Housing and Communities. March 2012 last updated December 2023.
6. Noise Policy Statement for England. Department for Environment, Food and Rural Affairs. March 2010.
7. Planning Practice Guidance: Minerals – Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government. October 2014.
8. Planning Practice Guidance: Noise – Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government. March 2014 last updated July 2019.
9. Planning Practice Guidance: Waste – Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government. October 2015.

FIGURE 1

Location Plan

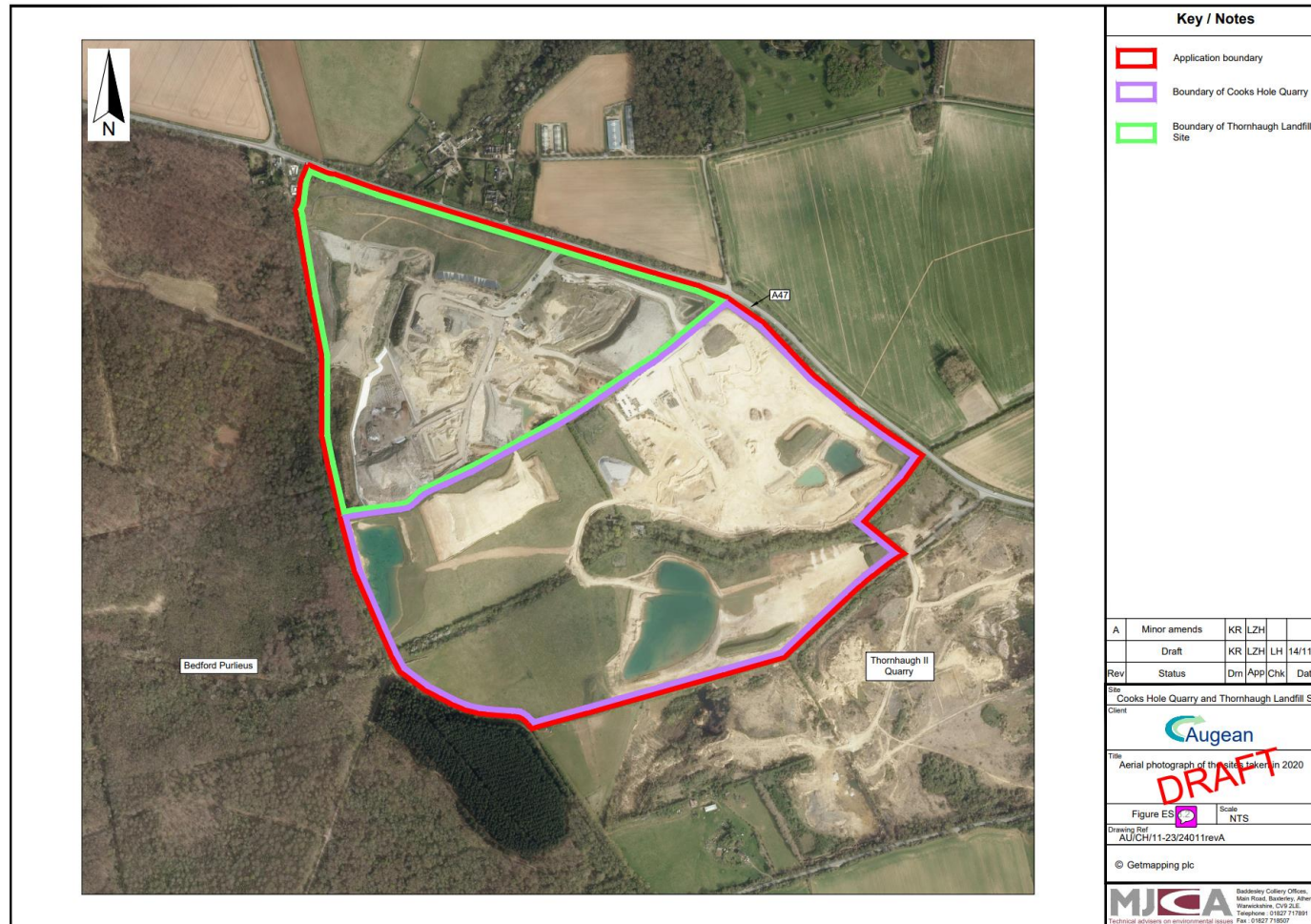
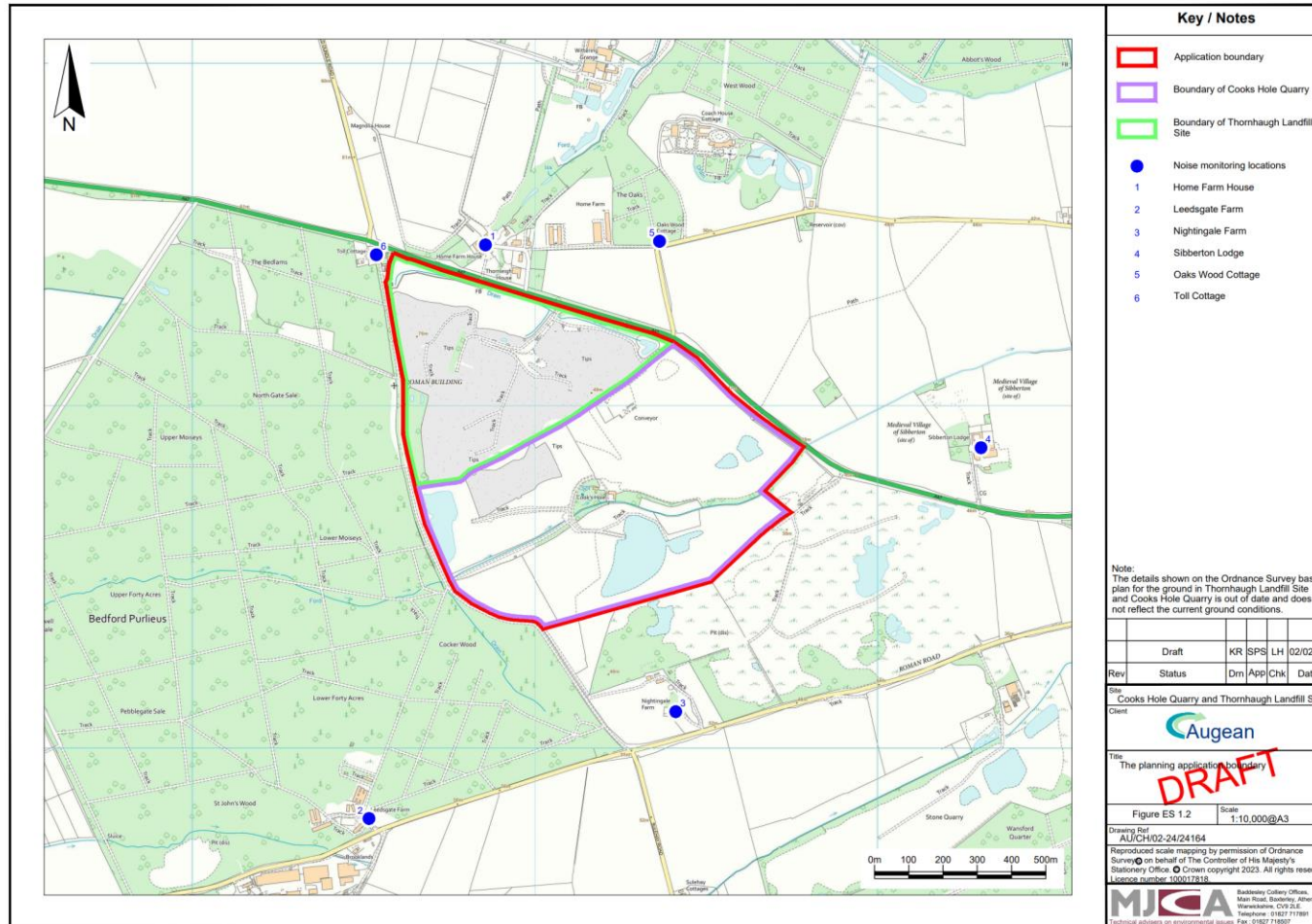


FIGURE 3

Noise Assessment Locations



APPENDIX A

Acoustic Terminology and Definitions

Acoustic Environment

Sound from all sound sources as modified by the environment.

Sound Power Level (L_{WA})

The total amount of sound energy per unit of time generated by a particular sound source independent of the acoustic environment that it is in. It is a logarithmic measure of the sound power in comparison to a specified reference level.

Equivalent Continuous A-weighted Sound Pressure Level ($L_{Aeq,T}$)

Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T , has the same mean square sound pressure as a sound under consideration whose level varies with time.

A-weighting

A-weighting is used to replicate this sensitivity by modifying the electrical response of a sound level meter with frequency in approximately the same way as the sensitivity of the human hearing system. Measurements in dB(A) broadly agree with people's assessment of loudness.

Ambient Sound Level

Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Normally expressed as the equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$).

Specific Sound Level (also referred to as 'site noise')

Sound in the neighbourhood of a site that originates from the site i.e. the sound being assessed.

Background Sound Level ($L_{A90,T}$)

A-weighted sound pressure level of the residual sound at the assessment position with no operation occurring at the proposed site. Defined in terms of the $L_{A90,T}$ which is the "A weighted" noise level exceeded for 90 per cent of the specified measurement period (T).

Free-field

External sound field in which no significant sound reflections occur (apart from the ground).

NOTE Measurements made 1.2 metres to 1.5 metres above the ground and at least 3.5 metres away from other reflecting surfaces are usually regarded as free-field.

Noise-Sensitive Premises

Any occupied premises outside a site used as a dwelling (including gardens), place of worship, educational establishment, hospital or similar institution, or any other property likely to be adversely affected by an increase in noise level.