Noise & Vibration Consultants Ltd.

Suite 2717
37 Westminster Buildings
Theatre Square
Nottingham
NG1 6LG
Tel. No: 01773 603331

E-mail: nvc.acoustics@btinternet.com

Noise Impact Assessment
For Proposed
Thermal Waste Treatment Facility (TWTF) Development

at

Humber Gate
Grimsby
DN31 2TT

For

Fichtner Consulting
acting on behalf of
Humber Resources Group Ltd (HRG)

Report No.: R25.0301/DRK
Date: 2nd May 2025

Consultant: D.R. Kettlewell MSc MAE MIOA I.Eng

Noise & Vibration Consultants Ltd

Member of Institute of Acoustics
Member of Association of Noise Consultants
Member of Academy of Experts

Report prepared by:
D R Kettlewell MSc MIOA MAE I.Eng – Principal Consultant:

Date: 2nd May 2025

Summary

1. Humber Resources Group Limited (referred to hereafter as `HRG'), the Applicant is proposing to construct and operate a Thermal Waste Treatment Facility (`TWTF') at Humber Gate, Grimsby DN31 2TT.

2. At the request of Fichtner, acting on behalf of HRG, Noise & Vibration Consultants Ltd (`NVC') was commissioned to undertake a noise assessment to assess the impact and advise (where appropriate) on noise mitigation measures to meet planning guidance and noise standards.

3. Following a review of local maps and information provided by the appointed Ecologist for the project, the nearest sensitive receptors (`NSR') in respect of residential and ecology receptors were reviewed and determined.

4. The study benefits from a baseline sound monitoring study which was carried out over a typical weekday and weekend period to determine the representative background and residual ambient sound levels at NSR.

5. Site operational noise has been calculated using empirical noise data for similar sites operating in the UK to provide input into the TWTF noise model. The assessment has used ISO9613-2 prediction methodology and CadnaA noise modelling software for producing noise contours of the highest likely generated noise with all relevant plant operating.

6. An assessment of the resultant impacts has been undertaken by applying noise limits established from appropriate and relevant guidance and standards.

Conclusions

7. Following analysis of noise survey results our conclusions are as follows:

   (i) The results show that between 0700-2300 hours at the residential NSR monitoring position, the representative L_{A90} level was 59dB. During night-time periods (between 2300 to 0700 hours) the representative background level was shown to be 44dB L_{A90}.

   (ii) For the ecological NSR, the sound study showed a range of ambient levels between 30dB to 62dB L_{Aeq} for weekday daytime site operating periods (0700 to 2300 hours) with an average of 48dB to 50dB L_{Aeq}. For night-time operating periods (2300 to 0700 hours) the range of ambient $L_{Aeq's}$ was 34dB to 61dB with an average of 48dB to 56dB L_{Aeq}.

(iii) For the proposed construction hours, the survey showed ambient levels between 42dB to 58dB LAeq for the weekday daytime period (i.e. 0800 to 1800 hours) with an average of 48dB to 51dB L_{Aeq}. For Saturday construction hours (i.e. 0800 to 1300 hours) the range of ambient $L_{Aeq's}$ was 42dB to 58dB with an average of 52dB to 53dB L_{Aeq}. Associated L_{Amax} level range was shown to be between 52dB to 86dB during weekday and 54dB to 76dB on the Saturday.

(iv) The relevant guidance for the assessment of impact for residential development is established as being the methodology provided within BS4142:2014+A1:2019. For the assessment of impact on birds, following previous work at other UK sites adjacent to Rivers, estuaries and coastal site locations, reference is made to the EA INTERREG IVB-Project "Tidal River Development' TIDE `Waterbird Disturbance and Mitigation Toolkit': 2024 and the Natural England document `A review of the effects of noise on Birds' Version 1 was published in 2018 by NE (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony).

(v) The results of construction noise predictions at residential NSR, show that the BS5228 guidance threshold level would not be exceeded. The impact is shown to be **negligible** and a **neutral** level of effect and therefore **not significant**. The application of applying best practicable means in accordance with BS5228-1:2009+A1:2014 will assist in minimising impact from construction noise. A Construction Environmental Management Plan (CEMP) would be provided to the LPA prior to commencement of works for agreement.

(vi) In respect of the effects of construction noise relative to ecological NSR, with the adoption of an appropriate noise mitigation strategy and application of BPM, we would expect the resultant impact from construction noise to range between **negligible to slight and a neutral to minor effect** and **not significant**.

(vii) The impact from temporary construction traffic development is expected to be <1dB L_{A10} and in accordance with DMRB LA 111 guidance a **negligible impact** and **neutral effect** would occur, which is **not significant**.

(viii) In relation to construction vibration the impact would be **negligible to slight** and a **neutral to minor** level of effect and is therefore **not significant**. Where non-percussive vibration is used (i.e. CFA) the impact would then reduce to a **negligible impact** and neutral effect.

(ix) The range of predicted rating noise levels from the plant associated with the TWTF Site based on maximum operating conditions (with proposed mitigation) at the residential NSR are shown to vary between 33dB to 34dB $L_{Aeq,1hr}$.

(x) The results show that the noise rating level from maximum site operations with the assumed plant noise levels would be well below the representative background sound level during the daytime. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise from the Site would result in a **low impact** and **negligible impact** and **neutral effect** and **not significant** at NSR.

(xi) The range of predicted rating noise levels from the plant associated with the TWTF Site under maximum operating conditions during night-time operating periods is 32dB to 33dB $L_{Aeq,15mins}$ at NSR. This would be well below the representative background sound level during the night-time periods at NSR. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise impact from Site would be low. This would result in a **negligible impact** and **neutral** level of effect and **not significant** at NSR.

(xii) In relation to absolute levels during night-time periods, the maximum noise levels generated by the TWTF plant are well below sleep disturbance limits.

(xiii) The expected impact from operational road traffic development would be <1dB L_{A10} and in accordance with DMRB LA 111 guidance) would result in a **negligible impact** and a **neutral effect** and **not significant**.

(xiv) The results of empirical vibration levels undertaken at other similar sites in the UK show no significant vibration is likely at close range positions to associated plant (i.e. within 10m) and therefore no vibration would occur at NSR. The impact would be **negligible** and a **neutral** level of effect and therefore **not significant**.

(xv) No significant cumulative impacts are likely to occur as a result of any cumulative effects from proposed or permitted development in the area. In terms of operational noise we would expect a **negligible** impact in relation to cumulative effects and therefore **not significant.** If construction works from the more local approved sites to the TWTF occur at the same time, there may be a **slight** impact and **minor effect** but the scenario of peak noise works occurring together is unlikely.

8. The assessment concludes that the site can be designed to operate such that it complies with all appropriate and relevant noise standards and guidance. There is, therefore, no reason to refuse the Proposed Development on the grounds of noise or vibration.

CONTENTS

1.0 INTRODUCTION

1.1 Humber Resources Group Limited (referred to hereafter as `HRG'), the Applicant is proposing to construct and operate a Thermal Waste Treatment Facility (`TWTF') to be known as **Humber Gate Waste Treatment Facility** (`the Facility') at Humber Gate, Grimsby DN31 2TT.

1.2 At the request of Fichtner, acting on behalf of HRG, Noise & Vibration Consultants Ltd (NVC) was commissioned to undertake a noise assessment to assess the impact and advise (where appropriate) on noise mitigation measures to meet planning guidance and noise standards.

1.3 Following a review of local maps and information provided by the appointed Ecologist for the project, the nearest sensitive receptors (`NSR') in respect of residential and ecology receptors were reviewed and determined.

1.4 The study benefits from a baseline sound monitoring study which was carried out over a typical weekday and weekend period to determine the representative background and residual ambient sound levels at NSR.

1.5 Site operational noise has been calculated using empirical noise data for similar sites operating in the UK to provide input into the TWTF noise model. The assessment has used ISO9613-2 prediction methodology and CadnaA noise modelling software for producing noise contours of the highest likely generated noise with all relevant plant operating.

Sources of Information

1.6 Information used in this assessment has been obtained from the following sources:

- Ordnance Survey maps of the local area;
- Information relating to the site layout was provided by Howarth Litchfield;
- BS4142: 2014+A1:2019 `Methods for rating and assessing industrial and commercial sound';
- Guidelines for Community Noise – World Health Organisation: April 1999;
- Night Noise Guidelines for Europe: 2009 – World Health Organisation
- BS8233: 2014 `Guidance on sound insulation and noise reduction for buildings';
- National Planning Policy Framework – December 2024;
- National Planning Practice Guidance – July 2019;
- Noise Policy Statement for England (NPSE) – March 2010: Department for Communities and Local Government;
- Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Noise Impact Assessment' - 2014;
- EA – Guidance: Noise and Vibration Management: Environmental Permits (January 2022);
- EA INTERREG IVB-Project "Tidal River Development' TIDE `Waterbird Disturbance and Mitigation Toolkit': 2024;
- Natural England `A review of the effects of noise on Birds' Version 1: 2018 (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony);
- Design Manual for Roads and Bridges, LA 111 Noise and Vibration (Rev2) May 2020 (formerly HD 213/11); and

- ISO 9613-2:2024 Acoustics – Attenuation of Sound During Propagation Outdoors

Assessment Methodology

1.7 The aim of the survey was to provide information and advice on the following:

- provide information on typical operating noise levels from the TWTF plant;
- provide information on representative background and residual sound levels at the residential and ecological NSR during the most sensitive periods of operation;
- provide information on predicted noise levels during the construction and operational phase of the Proposed Development at NSR;
- provide information on any cumulative effects from proposed or permitted development in the local area; and
- advise on any operations that are shown to exceed appropriate and relevant noise criteria and, where appropriate, provide recommendations for mitigation.

1.8 Appendix 1 provides details of technical terms within the report, for ease of reference. There is also a chart showing typical everyday noise levels to assist in understanding the subjective level of noise in terms of decibels.

1.9 The Facility will comprise of a feed system, counter-current rotary kiln, and a vertical post-combustion chamber consisting of the following components:

Plant Enclosed Within Buildings

- HTI Building
- Waste Reception Building
- Steam Turbine Hall
- Bottom Ash Storage and APCR
- Tanker Offload
- Engineering Store & Workshop
- Storage Buildings (11)
- Water Treatment/Press House & Wet Scrubber Treatment
- IBC Washing Building
- Tank Farm Control Room
- Pump House
- Laboratory and Staff Welfare
- Drivers Dining & Welfare

External Plant

- HTI Stack
- Air Cooled Condenser
- Water Tanks
- Nitrogen Generator
- Liquid Nitrogen Tank
- Packaged Waste Tank Farm
- Packaged Solvent Processing Area
- Gas Storage
- Tank Farm (north and east)

- Diesel/Kerosene Tank
- Sub-stations (5)
- Weighbridge
- HGV's
- Weighbridge
- Parking for HGVs
- Staff welfare facility
- Freshwater Reservoir

2.0 SITE DESCRIPTION & SCHEME SUMMARY

2.1 Site Location

2.1.1 The "Site" comprises two vacant parcels of land on the Great Coates Business Park (also known as (Humber Gate) (plots I & C.) The Site is shown in Figure 2.1 below.

2.1.2 The grid reference for the centre of the Site is NZ 523644 412867. The Site will be located on approximately 24 acres of land.

Figure 2.1: Site Location

2.2 The Surroundings

2.2.1 The larger site consists of scrub and is relatively flat with levels between 2m and 4m AOD. It is bordered by more scrubland to the northeast and southeast and Oldfleet Drain to the northwest. Industrial installations lie to the southwest (Lenzing Fibers).

2.2.2 The site is approximately 350m southwest of the Humber Estuary and 4.5km to the northwest of the town of Grimsby.

2.2.3 The Humber Estuary (SSSI) is located circa 200m to the north of the Site.

2.2.4 The nearest residential properties are approximately 1.7km to the south and 1.9km to the southwest.

2.2.5 The village of Healing is located southwest of the Site at a distance of circa 2.2km and the village of Stallingborough at a distance of circa 2.9km.

2.3 Site Access

2.3.1 Access to the application site would be via the existing access off Energy Park Way into Great Coates Business Park with internal access roads leading to Plot C. New access roads would be constructed to serve the WTTF from Plot C to I.

2.4 Site Operation Hours

2.4.1 The TWTF would operate 24 hours a day and 7 days a week. Deliveries to the facility would occur during daytime periods with waste brought to the facility between the hours of 07.00 and 19.00 Monday to Friday and 08.00 to 13.00 hours on Saturday including Bank Holidays, except Christmas Day, Boxing Day and New Year's Day.

2.5 Receptors

Residential

2.5.1 The following nearest residential receptors identified in the area around the Site (see Figure 2.1 for ease of reference) are located off Marsh Lane, Healing at a distance of circa 1.8km (i.e. Receptor R1: Primrose Cottage).

Ecological Receptors

2.5.2 The nearest ecological receptors to the Site have been identified as:

a) Humber Estuary SPA to east of Site (grid reference: 523994 413140).
b) Arable field on functionally linked land to the north used by wintering curlew (grid reference 523486 413194).
c) Coastal salt marsh to northeast of Site (grid reference: 522940 414084)

2.5.3 The NSR to the Proposed Development operations and approximate distances are provided below in Table 2.1.

Table 2.1: NSR Approximate Distance to Proposed Development

NSR	Description (Direction)	Grid Reference (OSGB) X Y	Type	Approximate Distance to Site Boundary (m)	Approximate Distance to TWTF HTI Building (m)
R1	Primrose Cottage	522027 412083	Residential	1800	1850
R2	The Meadows	522057 411693	Residential	1900	1940
R3	Coastal Saltmarsh	522940 414084	Ecological	230	290
R4	Humber Estuary	523994 413140	Ecological	350	420
R5	Functionally linked land to north	523521 412989 523486 413194	Ecological	40-470	150-580
R6	Functionally linked land to southeast	524217 412429	Ecological	350	670
R7	Functionally linked land to southwest	523222 412344	Ecological	550	630

2.5.4 Figures 1 to 2 attached show the Site position relative to the nearest existing residential areas and ecological receptors, the baseline sound monitoring positions and the layout of the Site.

2.6 Scheme Summary

2.6.1 The main activities associated with the Facility will be the thermal treatment of incoming waste. The waste thermal treatment process will be based around process areas comprising the following facilities among others: waste reception and waste storage area, various waste feeding systems, counter-current rotary kiln furnace, high temperature secondary combustion zone, a steam turbine, dry and wet flue gas treatment (FGT) systems with the treated flue gases being monitored prior to release to atmosphere via a dedicated 47m stack. In addition, the Facility will include a control room, and offices and welfare facilities.

2.7 Site Noise Sources

2.7.1 In terms of noise generated by this type of development, the assessment has considered the following sources:

- Noise from construction phase works.
- Noise from the operation of the TWTF.

3.0 NOISE POLICY, STANDARDS AND CRITERIA

3.1 Introduction

3.1 Noise has been defined as sound that is unwanted by the recipient. The effects of noise on the neighbourhood are varied and complicated, including such things as interference with speech communication, disturbance of work, leisure or sleep. A further complicating factor is that in any one neighbourhood some individuals will be more sensitive to noise than others.

3.2 General Planning Guidance

National Planning Policy Framework – December 2024 (NPPF)

3.2.1 Chapter 15 of the National Planning Policy Framework (NPPF) relates to 'Conserving and enhancing the natural environment'.

3.2.2 Paragraph 187 e) refers directly to noise and states that: *"e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;"*

3.2.3 Paragraph 198 also states: *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

a) *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

b) *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*

c) *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."*

3.2.4 The Noise Policy Statement for England (NPSE) was published in March 2010. It specifies the following long-term vision in policy aims:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *Avoid significant adverse impacts on health and quality of life;*
- *Mitigate and minimise adverse impacts on health and quality of life; and*
- *Where possible, contribute to the improvement of health and quality of life."*

3.2.5 The NPSE introduced three concepts to the assessment of noise, which includes:

NOEL – No Observed Effect Level
This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observable Adverse Effect Level
This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level
This is the level above which significant adverse effects on health and quality of life occur.

3.2.6 The above categories are, however, undefined in terms of noise levels and for the SOAEL the NPSE indicates that the noise level will vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research is therefore required to establish what may represent a SOAEL. It is acknowledged in the NPSE that not stating specific SOAEL levels provides policy flexibility until there is further evidence and guidance.

3.2.7 The NPSE indicates how the LOAEL and SOAEL relate to the three aims listed above. The first aim of NPSE requires that:

"significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development."

3.2.8 The second aim of the NPSE (mitigating and minimising adverse impacts on health and quality of life) refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur.

3.2.9 The third aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development.

Planning Practice Guidance – July 2019

3.2.10 In October 2014, the Ministry of Housing, Communities & Local Government updated the Planning Practice Guidance ("PPG") on noise associated with Minerals, which provides guidance on the planning process. The main section of PPG was also updated in July 2019.

3.2.11 The PPG refers to the NPSE documents and under the heading 'How can noise impacts be determined?' it states:

"Plan-making and decision taking need to take account of the acoustic environment and in doing so consider:

- *whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved."*

3.2.12 At paragraph 004 the PPG includes a table summarising the noise exposure hierarchy, based on the likely response (reproduced at Table 3.1 below). Under the heading of *'example of outcome'* the '*present and not intrusive*' assessment of noise is defined as '*noise can be heard, but does not cause any change in behaviour, attitude or physiological response. Can slight affect the acoustic character of the area but not such that there is a change in the quality of life*'. The increasing effect level under these conditions is deemed to be '*no observed adverse effect*' level (NOAEL) and '*no specific measures are required'.*

3.2.13 The PPG explains this by stating:

> *"At the lowest extreme, when noise is not perceived to be present, there is by definition no effect. As the noise exposure increases, it will cross the 'no observed effect' level. However, the noise has no adverse effect so long as the exposure does not cause any change in behaviour, attitude or other physiological responses of those affected by it. The noise may slightly affect the acoustic character of an area but not to the extent there is a change in quality of life. If the noise exposure is at this level no specific measures are required to manage the acoustic environment.*
>
> *As the exposure increases further, it crosses the 'lowest observed adverse effect' level boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise).*
>
> *Increasing noise exposure will at some point cause the 'significant observed adverse effect' level boundary to be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is predicted to be above this level the planning process should be used to avoid this effect occurring, for example through the choice of sites at the plan-making stage, or by use of appropriate mitigation such as by altering the design and layout. While such decisions must be made taking account of the economic and social benefit of the activity causing or affected by the noise, it is undesirable for such exposure to be caused.*
>
> *At the highest extreme, noise exposure would cause extensive and sustained adverse changes in behaviour and / or health without an ability to mitigate the effect of the noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be avoided."*

3.2.14 The PPG includes a table summarising the noise exposure hierarchy, based on the likely average response. Table 3.1 below provides the perception, example of outcome, effect and action required relative to noise.

Table 3.1: Noise Exposure Hierarchy

Response	Examples of Outcomes	Increasing Effect Level	Action
Not present	No Effect	No Observed Effect (NOEL)	No Specific Measures Required
Present and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect (NOAEL)	No Specific Measures Required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/ awakenin loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Observed Adverse Effect	Prevent

BS4142: 2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

3.2.15 BS4142: 2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' is based on the measurement of background sound using L_{A90} noise measurements, compared to source noise levels measured in L_{Aeq} units. Once any corrections have been applied for source noise tonality, distinct impulses etc., the difference between these two measurements (i.e. known as the 'rating' level) determines the impact magnitude.

- Typically, the greater the difference, the greater the magnitude of the impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact (although this can be dependent on the context).
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

- 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact (although this can be dependent on the context).

3.2.16 In order to establish the rating level, corrections for the noise character need to be taken into consideration. The Standard states that when considering the perceptibility:

"Consider 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."

3.2.17 The subjective method adopted includes the following character corrections:

Table 3.2: BS4142:2014+A1:2019 Character Corrections

Level of Perceptibility	Correction for Tonal Character dB	Correction for Impulsivity dB	Correction for Intermittency dB	Correction for other character dB
Not Perceptible	0	0	0	0
Just perceptible	+2	+3	0	0
Clearly perceptible	+4	+6	+3*	+3*
Highly perceptible	+6	+9	+3*	+3*

*Standard defines this should be readily distinctive against the residual acoustic environment, it is interpreted therefore to be either clearly or highly perceptible as a character. If characteristics likely to affect perception and response are present in the specific sound, within the same reference period, then the applicable corrections ought normally to be added arithmetically. However, if any single feature is dominant to the exclusion of the others, then it might be appropriate to apply a reduced or even zero correction for the minor characteristics.

BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'

3.2.18 The British Standard BS8233 provides additional guidance on noise levels within buildings. These are based on the WHO recommendations and the criteria given in BS8233 for unoccupied spaces within residential properties.

3.2.19 The guidance provided in section 7.7 of BS8233 provides recommended internal ambient noise levels for resting, dining and sleeping within residential dwellings. Table 3.3 provides detail of the levels given in the standard.

Table 3.3: BS8233: 2014 Indoor ambient noise levels for dwellings

Activity	*Location*	*07:00 to 23:00*	*23:00 to 07:00*
Resting	Living Room	35 dB $L_{Aeq,16hours}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hours}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hours}$	30 dB $L_{Aeq,8hours}$

3.2.20 For a partially open window the standard refers to a reduction of approximately 15dB (Ref. Annex G: G.1). This would therefore indicate a noise level outside the window of approximately 50dB $L_{Aeq,16hours}$ for living rooms during daytime and 45dB $L_{Aeq,8\ hours}$ during night-time outside bedrooms.

World Health Organisation (WHO) Guidelines for Community Noise: April 1999

3.2.21 This document provides further updated information on noise and its effects on the community. The document for noise `*In Dwellings'* states "*The effects of noise in dwellings, typically, are sleep disturbance, annoyance and speech interference. For bedrooms the critical effect is sleep disturbance. Indoor guideline values for bedrooms are 30dB L_{Aeq} for continuous noise and 45dB L_{Amax} for single sound events. Lower noise levels may be disturbing depending upon the nature of the noise source."*

3.2.22 The WHO document also states "*To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35dB L_{Aeq}. To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50dB L_{Aeq}. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desirable sound level for new development."*

3.2.23 In 2009, the WHO published: 'Night Noise Guidelines for Europe', which it describes as an extension to the WHO 'Guidelines for Community Noise' (1999). It concludes that: *"Considering the scientific evidence on the thresholds of night noise exposure indicated by $L_{night,outside}$ as defined in the Environmental Noise Directive (2002/48/EC), an $L_{night,outside}$ of 40dB should be the target of the night noise guideline (NNG) to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. $L_{night,outside}$ value of 55dB is recommended as an interim target for those countries where the NNG cannot be achieved in the short term for various reasons, and where policy-makers choose to adopt a stepwise approach."*

3.3 Survey Techniques

3.3.1 The background sound survey monitoring has been carried out in accordance with appropriate measurement conditions as defined in BS4142: 2014+A1:2019 (see Section 4 for details).

3.4 Relevant Noise Criteria

3.4.1 The relevant guidance would be BS4142:2014+A1:2019. This is appropriate to apply in general terms to any plant operational noise generated by the Site. To achieve a **low** impact the Site rating level would not exceed the established representative background sound level. Where rating levels exceed representative background sound levels by around 5dB(A) then this would indicate an **adverse impact**. Where site rating levels exceed the representative background sound level by around 10dB(A) this would indicate a **significant adverse** impact.

3.4.2 Sleep disturbance criteria is set out in WHO `Night Noise Guidelines for Europe' 2009, which it describes as an extension to the WHO 'Guidelines for Community Noise' (1999) and a level of 40dB $L_{Aeq,8hrs}$ and BS8233:2014 for guidance inside a bedroom of 30dB $L_{Aeq,8hrs}$, which accords with an external level of circa 45dB with an open window (i.e. 15dB reduction through open window according to BS8233:2014).

3.5 Ecological Receptor Disturbance – Noise Guidance & Mitigation

3.5.1 Following previous work at other UK sites adjacent to Rivers, estuaries and coastal site locations, reference has been made in relation to the EA INTERREG IVB-Project "Tidal River Development' TIDE `Waterbird Disturbance and Mitigation Toolkit': 2024.

3.5.2 Table 3.4 provides an indication of where mitigation may be required and the level of noise that is likely to generate a flight response from birds.

3.5.3 The table contains a range of noise levels with the noise source at various distances from the receptors (in this case, birds). Taking the lowest of the suggested noise levels represents as a conservative approach the lowest suggested noise level where mitigation should be considered is 70dB(A). Similarly, the lowest level at which "a flight response is almost certain" is 86dB(A).

3.5.4 This guidance does not clearly state which noise parameter the levels refer to. Therefore, to provide a conservative approach the predicted L_{Amax} levels have been used in this assessment.

Table 3.4: TIDE `Waterbird Disturbance and Mitigation Toolkit': 2024 – Avian Disturbance Levels Review

CASCADE *Environment Agency Avian Disturbance Review* *Final*

Metres	dB(A)										
0.67	120	110	100	95	90	85	80	75	70	65	60
1.33	114	104	94	89	84	79	74	69	64	59	54
2.67	108	98	88	83	78	73	68	63	58	53	48
5.33	102	92	82	77	72	67	62	57	52	47	42
10.67	96	86	76	71	66	61	56	51	46	41	36
20.67	90	80	70	65	60	55	50	45	40	35	30
42.67	84	74	64	59	54	49	44	39	34	29	24
85.33	78	68	58	53	48	43	38	33	28	23	
170.67	72	62	52	47	42	37	32	27	22		
341.33	66	56	46	41	36	31	26	21			
682.66	60	50	40	35	30	25	20				
1365.32	54	44	34	49	24						

Table 4.1 Draft Noise Guidance Table (sound pressure level at receptor). Acceptable 'dose' levels are green; yellow to orange where mitigation may be required; and red where a flight response is almost certain

3.5.5 The Natural England document `A review of the effects of noise on Birds' Version 1 was published in 2018 by NE (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony). As it states in the introduction:

"This guidance note describes the nature of noise and explains how it is heard and measured. Variable and unpredictable noises often result in the greatest disturbance effects on birds and methods to make representative measurements of variable noise level are presented and discussed. Noise also has other more

subtle and less easily measured effects on birds, including masking important acoustic signals and potentially harmful physiological changes caused by increased stress. The available literature for a wide range of effects of different noise sources on birds has been reviewed and summarised, and a list of references for further reading is provided."

3.5.6 At section 4.3 the NE guidance state:

"What are the effects of industrial and construction noise?

A number of assessments of noise effects on waterbirds have been undertaken on the Humber Estuary, including the effects of hydraulic hammer or percussive piling, steam venting and other construction activities (Cutts et al. 2009, IECS 2004, 2008, Wright et al. 2010). General conclusions from these studies are that that the potential for bird disturbance increases as the difference between the highest discontinuous noise levels and simultaneous continuous noise levels increases, and that birds are more likely to be disturbed by sudden noises than a wide range of more steady, and predictable, noise levels."

3.5.7 In conclusion, the NE guidance state:

"Caution should be exercised when attempting to define a threshold based on noise levels alone. As described above, other factors such as noise 'peakiness, including rise time of a noise signal, and the frequency content of the noise source, should also be expected to affect bird behaviour.

As with other forms of disturbance, bird response varies with other factors such as degree of habituation to ambient noise levels, flock size and availability of resources such as foraging and roosting habitats. Additionally, Halfwerk et al. (2010) argue that knowledge of the spatial, temporal and spectral overlap between noise and species-specific acoustic behaviour are important for effective noise management. For example, road noise in the same range of frequencies as those of a bird's vocalizations (generally 2-4 kHz) has a much greater masking effect on the detection of acoustic signals than noises outside this range (Dooling & Popper 2007).

For all these reasons it seems clear that generic noise threshold levels are unlikely to offer a suitable approach for assessing the potential effects of noise on birds. A potentially more suitable approach might be the application of a threshold increase in noise levels, either continuous noise or sporadic noise. In the case of sporadic noise, a greater than 3 dBA increase in peak noise might be a useful and sufficiently precautionary rule-of-thumb when considering the likelihood of a significant effect (as described above, a difference of 3 dBA in similar types of noise is just distinguishable to people). Thus, as a general rule, if the noise source is no more than 3dB higher than existing noise levels it is unlikely to be significant, but noting that a 3dB increase in the average noise level could mask a significant increase in impulsive noise. Similarly, if considering the potential effect of chronic noise on breeding birds, the absence of a 3dB increase in the maximum level should not be used to exclude an impact linked to an increase in average baseline levels."

3.5.8 In summary, the guidance would indicate the following noise level thresholds to be appropriate:

a) Where L_{Amax} levels are likely to exceed 70dB L_{Amax}, then mitigation measures should be considered.

b) Where L_{Aeq} or L_{Amax} levels are likely to exceed the existing baseline levels by 3dB, then mitigation measures should be considered.

Mitigation Measures

3.5.9 In respect of mitigation measures the NE guidance provided in the report is replicated in Table 3.5 for ease of reference.

Table 3.5: Broad Mitigation Measures

	Mitigation measure	**Justification**
Sensitive timing	Timing of noise to avoid most sensitive times of the year	Bird sensitivity varies seasonally with the most sensitive period on estuaries generally from September to April (when peak aggregations of feeding or roosting birds occur). Habituation might be less likely during passage periods. For breeding birds, the sensitive period varies with species but for the majority it is April to July.
	At coastal sites restriction on noise (particular sudden loud noises) depending on the state of the tide.	Depending on the use of adjacent intertidal habitats by birds it might be important to avoid noisiest activities at high tide to reduce risk of disturbing roosting flocks, or at low tide to reduce risk of disturbing birds foraging on mudflats (although on wide mud flats the period of low tide might be the best time to work if birds are very distant).
	Short-term restriction of noisiest activities or cessation of work during prolonged hard weather conditions or when large aggregations of birds are present.	Periods of hard weather can reduce foraging efficiency and increase energy demands, particularly during periods of prolonged freezing temperatures. In such conditions it is particularly important to avoid sudden sporadic noise during periods of high sensitivity when large numbers of birds are present, e.g. high tide roosts or low tide foraging.
Increase noise attenuation	Acoustic screening and barriers at sensitive locations	Screening close to the noise source and/or acoustic barriers on the perimeter of the road or construction area can significantly reduce noise levels and thus the potential for bird disturbance. For examples of sound attenuation equipment see http://www.soundexsolutions.com/
Access restrictions	Prevent or minimise presence of plant and personnel in view of important roosting or foraging areas where possible.	Visual stimuli such a personnel (out of vehicles) and heavy plant moving on flood banks or adjacent to intertidal habitats can significantly increase risk of disturbance.

	Mitigation measure	**Justification**
Reduce cumulative effects	Consider timing of construction projects and other potential sources of disturbance in adjacent areas to reduce extent of overall disturbance.	Multiple sources of disturbance can interact to affect greater areas of adjacent habitat. Where possible timing of activities should be adjusted so that some key refuge areas for foraging/roosting remain available.
Provide replacement habitat	Create new areas, or improve suitability of existing areas, to accommodate birds displaced by noise disturbance.	Even temporary habitat creation or enhancement away from noise sources can provide a valuable refuge for displaced birds. thus offsetting the potentially harmful effects disturbance on bird fitness. This option is most likely to be suitable for roosting waterbirds.

4.0 IMPACT LEVEL AND SIGNIFICANCE OF EFFECT

4.1 Introduction

4.1.1 The level of an effect is a function of the sensitivity or importance of the receiver, or receptor, and the scale or magnitude of the effect. In the case of this assessment, the level of the effect has been determined by reference to existing guidance and standards that are explained below.

4.1.2 The following types of receptors have been identified:

- Residents of nearest existing houses to the Site who could experience site operational noise during daytime and night-time periods.
- Residents of nearest existing houses to the Site who could experience construction noise during daytime periods.
- Ecologically sensitive sites adjacent to the Site which could experience noise during construction during the daytime and operational noise during daytime and night-time.

4.2 Construction Noise

Construction Plant Noise

4.2.1 For the assessment of impacts from construction noise, the appropriate methodology is presented in the Design Manual for Roads and Bridges (DMRB), LA 111 Noise and Vibration guidance. This document sets out the requirements for assessing, reporting and management of environmental effects, specifically from the changes in noise and vibration from construction, operation and maintenance projects.

4.2.2 The DMRB LA 111 guidance provides a means of determining the magnitude of the impact, the observed effect level and the resultant significance of construction noise.

4.2.3 For the prediction of construction noise, the DMRB LA 111 guidance refers to BS5228-1. For residents of houses that could be exposed to construction noise, BS5228-1:2009+A1:2014 is therefore considered to be the appropriate standard. This standard requires ‘best practicable means’ (BPM) to be employed to control noise generation.

4.2.4 At this stage it is not possible to identify precise detail of what temporary construction plant would be required and where it would be sited and for how long. As a consequence, an indicative range of levels of noise and vibration from specific types of task at the closest and most distant approach to all the working areas within the Site have been used to calculate the range of highest likely noise and vibration conditions relative to the NSR.

4.2.5 The construction impact semantic scale is set out in DMRB LA 111 and provided in Table 4.1 (i.e. ref. Table 3.12 of LA 111). We have added in column 4 to show the range of threshold levels for ease of reference, which is referred to in column 3 of Table 3.4 and taken from BS5228-1:2009+A1:2014 Annex E.3.2. The threshold level is determined by measuring typical ambient noise at the NSR and comparing this with three threshold limits between the stated range (e.g. daytime weekday would be 65dB, 70dB or 75dB L_{Aeq}). The specific limit for the project is

determined by establishing whether the baseline noise level (rounded to the nearest 5dB) at NSR is either lower, equal to or higher than the three limits.

4.2.6 In order to relate the threshold level in terms of an effect level and an impact magnitude, the guidance compares the calculated noise level at the NSR with the measured baseline and the determined threshold limit. For example, if the calculated level is lower than the baseline level then it is considered to be a negligible impact (i.e. below the Lowest Observable Adverse Effect Level LOAEL). If the level is equal to or greater than +5dB above the threshold limit then it is considered to be a major impact (i.e. 5dB or greater than the Significant Observable Adverse Effect Level SOAEL). Table 4.2 provides the relative impact magnitude and how this is defined relative to the construction noise level.

Table 4.1: Construction Time Period – LOAEL and SOAEL

Time Period	LOAEL	SOAEL	Threshold Level $LAeq_{1hr}$ dB
Day (0700-1900 hours. Weekday and 0700-1300 Saturdays)	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	65-75
Night (2300-0700 hours)	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	45-55
Evening and weekends (time periods not covered above)	Baseline noise levels $L_{Aeq,T}$	Threshold level determined as per BS5228-1:2009+A1:2014 Section E3.2 and Table E.1 BS 5228-1:2009+A1:2014	55-65

4.2.7 The magnitude of impact for construction noise is outlined in Table 4.2 (as defined in DMRB LA 111).

Table 4.2: Magnitude of Impact for Construction Noise

Magnitude of Impact	Construction noise level
Negligible	Below LOAEL
Minor (Slight)	Above or equal to LOAEL and below SOAEL
Moderate	Above or equal to SOAEL and below SOAEL +5dB
Major (Substantial/Severe)	Above or equal to SOAEL +5dB

Construction Phase Traffic

4.2.8 According to the DMRB LA 111 guidelines, the magnitude of impact at noise sensitive receptors from construction traffic is set out in Table 4.3. The magnitude of impact is determined by establishing how much the existing baseline levels would increase by as a result of the temporary activity.

Table 4.3: Magnitude of impact at receptors

Magnitude of impact	Increase in basic noise level of closest public road used for construction traffic (dB)
Negligible	Less than 1.0
Minor (Slight)	Greater than or equal to 1.0 and less than 3.0
Moderate	Greater than or equal to 3.0 and less than 5.0
Major	Greater than or equal to 5.0

4.2.9 As this is a temporary activity, to establish whether a significant effect would occur at the NSR, the activity would have to be equal to or greater than an increase in 3dB and also occur for a relatively long period of time.

4.2.10 According to DMRB LA 111 (ref. paragraph 3.19 of the guidance) the period of time that this would occur is defined below:

"*Construction noise and construction traffic noise shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:*

1) 10 or more days or nights in any 15 consecutive days or nights;
2) a total number of days exceeding 40 in any 6 consecutive months."

Construction Phase – Vibration

Construction Phase – Vibration Impacts

4.2.11 In order to establish whether or not vibration generated by vibratory plant used during the construction phase would be significant it is necessary to predict the likely vibration level at the NSR.

4.2.12 The DMRB LA 111 guidance provides a means of determining the magnitude of the impact, the observed effect level and the resultant significance of construction vibration.

4.2.13 In order to relate the threshold level in terms of an effect level and an impact magnitude, the guidance compares the calculated noise level at the NSR with two threshold limits. The first threshold (i.e. 0.3mm/sec PPV) is the level at which vibration is said to be just perceptible and the threshold of LOAEL. At a vibration level below 0.3mm/sec would represent a negligible impact and the second threshold (i.e. 1mm/sec PPV) was set as the level at which construction vibration can be tolerated with prior warning and the threshold of SOAEL. Below this level would be a minor impact. At levels above 1mm/sec and below 10mm/sec PPV would relate to a moderate impact and above 10mm/sec PPV a major impact.

4.2.14 For construction phase vibration the LOAEL and SOAEL is set out in DMRB LA 111 and provided in Table 4.4.

Table 4.4: Construction Vibration LOAELs and SOAELs

Time Period	LOAEL	SOAEL
All time periods	0.3mm/sec PPV	1.0mm PPV

4.2.15 The magnitude of impact for construction vibration, shall be determined in accordance with Table 4.5 (as defined in DMRB LA 111).

Table 4.5: Magnitude of impact at receptors

Magnitude of impact	Vibration Level
Negligible	Below LOAEL
Minor (Slight)	Above or equal to LOAEL and below SOAEL
Moderate	Above or equal to SOAEL and below 10mm/s PPV
Major	Above or equal to 10mm/s PPV

4.2.16 As this is a temporary activity, to establish whether a significant effect would occur at the NSR, the activity would have to be equal to or greater than 1mm/sec and also occur for a relatively long period of time.

4.2.17 According to DMRB LA 111 (ref. paragraph 3.34) the period of time that this would occur is defined below:

"*Construction vibration shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding:*

1) 10 or more days or nights in any 15 consecutive days or nights;
2) a total number of days exceeding 40 in any 6 consecutive months."

Operational Noise

4.2.18 Table 4.6 below shows the proposed impact magnitude methodology considering the guidance contained within BS4142: 2014+A1:2019[5] for fixed and mobile plant noise.

Table 4.6: Impact Magnitude Scale – Site Operations

Rating* level above background noise dB(A) as BS4142:2014+A1:2019	Description of Effect	Impact Magnitude	PPG Effect Level
-10 to 0	No discernible effect on the receptor	Negligible	NOEL to NOAEL
+0.1 to +4.4	Non-intrusive – Noise impact can be heard but does not cause any change in behaviour or attitude. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	Slight	LOAEL
+4.5 to +9.4	Intrusive - Noise impact can be heard and causes small changes in behaviour and/or attitude. Affects the character of the area such that there is a perceived change in the quality of life. Potential for non-awakening sleep disturbance.	Moderate	LOAEL to SOAEL
+9.5 or greater	Disruptive – Causes a material change in behaviour and/or attitude e.g. avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty getting to sleep. Quality of life diminished due to change in character of the area.	Substantial	
Undefined**	Physically Harmful – Significant changes in behaviour and/or inability	Severe	

Rating* level above background noise dB(A) as BS4142:2014+A1:2019	Description of Effect	Impact Magnitude	PPG Effect Level
	to mitigate effect of noise leading to psychological stress or physiological effects e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm		

Note: The 'rating' level is the difference between the noise contribution from site and the existing background sound level allowing for any adjustments required for noise characteristics (i.e. tonal, impulsive or intermittent noise character). The Standard advises that rounding of numbers to one decimal place should relate to levels of 0.5dB or above, which is reflected in the table limits. The impact magnitude scales in Tables 4.6 and 4.7 are used in the assessment of operational noise impacts. *The intrusiveness depends on the context of the residual environment and therefore may fall into SOAEL if background and residual levels are similar. **Difficult to define physical harmful effect as this depends on numerous site-specific factors which may include type and character of noise source, location, human sensitivities, duration and receptor expectations etc.

4.2.19 The Institute of Environmental Management and Assessment (IEMA)[1] has provided 'Guidelines for Environmental Noise Impact Assessment'. The guidelines set out an example of how changes in noise level may be assessed in terms of residual LAeq. This assists in determining the impact of Site operational noise relative to the context of the noise climate, which is detailed in Table 4.7.

Table 4.7: Impact Magnitude Scale – General Site Noise

Change in sound levels L_{Aeq} dB	Description of Effect	Impact Magnitude	PPG Effect Level
< +2.9	No discernible effect on the receptor	Negligible	NOEL
+3.0 to +4.9 (high receptor sensitivity)	Non-intrusive - Noise impact can be heard but does not cause any change in behaviour or attitude. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	Slight	NOAEL
+5.0 to +9.9 (high receptor sensitivity)	Intrusive - Noise impact can be heard and causes small changes in behaviour and/or attitude. Affects the character of the area such that there is a perceived change in the quality of life. Potential for non-awakening sleep disturbance.	Moderate	LOAEL
10 or greater (high receptor sensitivity)	Disruptive – Causes a material change in behaviour and/or attitude e.g. avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty getting to sleep. Quality of life diminished due to change in character of the area.	Substantial	SOAEL
Undefined*	Physically Harmful – Significant changes in behaviour and/or inability to mitigate effect of noise leading to psychological stress or physiological effects e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm.	Severe	UOAEL

Operational Road Traffic Noise

4.2.20 To assess the likely impact on NSR from noise due to any increased traffic on the local road network associated with the Proposed Development, the CRTN calculation methodology would be appropriate.

[1] *Institute of Environmental Management and Assessment (IEMA) `Guidelines for Environmental Noise Impact Assessment: October 2014.*

4.2.21 The DMRB LA 111 provides guidance on the magnitude of change in terms of road traffic noise. The procedure for assessing noise impacts advises the use of a LA_{10} measurement index based on a daytime 18-hour time period (i.e. 0600 to 2400 hours) and night-time period (i.e. 0000-0600 hours). Further assessment of the impact would be required where changes of 1dB(A) or more are expected in the short-term and changes of 3dB(A) in the long term.

4.2.22 DMRB LA 111 defines the short term and long-term scenarios which are considered to represent the situation when a new road opens (short term) and 15 years after a road opens (long term). The magnitude of change criteria is set out in Table 4.8 for the short term and 4.9 for the long term.

Table 4.8: Magnitude of Change – Road Traffic Noise – Short-Term

Short Term Magnitude	Short Term Noise Change (dB $L_{A10,18hr}$ or L_{night})
Negligible	Less than 1.0
Minor (Slight*)	1.0 to 2.9
Moderate	3.0 to 4.9
Major (Substantial/Severe)	Greater than or equal to 5.0

*This has been amended by the author of this assessment to reflect the impact matrix

Table 4.9: Magnitude of Change – Road Traffic Noise – Long-Term

Long Term Magnitude	Long Term Noise Change (dB LA10,18hr or Lnight)
Negligible	Less than 3.0
Minor (Slight)	3.0 to 4.9
Moderate	5.0 to 9.9
Major (Substantial/Severe)	Greater than or equal to 10.0

Receptor Sensitivity and Overall Level of Effect

4.2.23 In order to determine the level of the effect, not only must the magnitude of this impact be determined but also the sensitivity of the receptors to the impact. For this assessment, the categories presented in Table 4.10 have been adopted.

Table 4.10: Receptor Sensitivity

Receptor Sensitivity	Type of Receptor
High	Dwellings / residential properties including houses, flats, old people's homes, hospitals, schools, churches, caravans and open spaces / conservation areas.
Moderate	Commercial premises including retails and offices etc.
Low	Industrial premises including warehouses and distribution etc.

4.2.24 Based upon the assessment of impact magnitude and the sensitivity of individual receptors, the matrix shown in Table 4.11 has been developed in order to provide an indication of the possible level of effect for each predicted noise impact. Given that there are many factors which may affect the level of the effect of an impact, not least, the character of the noise and timescales over which the noise operates, the overall level of effect must be assessed on an individual basis using professional judgement and experience. Therefore, whilst the matrix provides a useful indication of the likely significance it cannot be applied in all situations.

Table 4.11: Level of Effect Matrix

Impact Magnitude	Receptor Sensitivity		
	High	**Moderate**	**Low**
Severe	Major	Major/Moderate	Moderate/Minor
Substantial	Major/Moderate	Moderate	Minor
Moderate	Moderate	Moderate/Minor	Minor/Neutral
Slight	Minor	Minor/Neutral	Neutral
No significant impact (negligible)	Neutral	Neutral	Neutral

4.2.25 Where a level of effect is defined as Major or Major / Moderate then the effect is likely to be considered significant, i.e. an impact that is likely to be a key material factor in the decision-making process.

5.0 BASELINE SURVEY METHODOLOGY & RESULTS

5.1 Baseline Sound Monitoring (See Appendix 2 & Figure 1)

Instrumentation and Fieldwork Details

5.1.1 A detailed environmental baseline sound survey was carried out in the vicinity of the NSR to determine details of the sound climate.

5.1.2 The three monitoring positions for establishing typical background sound levels are provided in Figure 1. The noise monitoring positions are representative of NSR adjacent to the Proposed Development and provide broadband data of the existing sound climate at these receptors. Details of the instrumentation used for the survey are detailed below.

5.1.3 The existing baseline sound survey was undertaken over a weekday and weekend period, which was set up on Thursday 4th until Thursday 11th July 2024 at three fixed locations in proximity to NSR to the Site and is therefore considered to provide representative baseline sound levels.

5.1.4 The existing background sound survey was carried out in accordance with the advice given in BS4142: 2014+A1:2019.

5.1.5 The monitoring positions were as follows:

Position A (Southwest of Site) off Marsh Lane
(Grid reference: 521956 412134)

5.1.6 Monitoring position A is representative of the nearest residential receptors located to the southwest of the Site off Marsh Lane, Healing, which is circa 1.8km from the Site boundary. Noise levels at this location are dominated by regular local road traffic noise from the A180 road. The monitoring position was chosen on land adjacent to Primrose Cottage (Receptor R1). Refer to Figure 1 for location.

Position B (North of Site) – Adjacent to the Oldfleet Drain
(Grid reference: 523705 413042)

5.1.7 Position B was chosen as a suitable monitoring position to represent typical baseline levels in the vicinity of the ecological NSR relating to the functionally linked land (i.e. arable field to the north to northwest of Site (R2)). This ecological area is sensitive for wintering Curlew at a distance of circa 40m to 470m from the Site boundary and circa 150m to 580m from the HTI building. Noise levels at this location are formed in general by distant industrial noise and road traffic noise. The monitoring position was on land adjacent to the Oldfleet Drain representative of levels towards the centre of the arable field in terms of relative distance from the nearest industrial sites to the west. Figure 1 shows the location.

Position C (East of Site) – Adjacent to the sea wall
(Grid reference: 524030 413045)

5.1.8 This monitoring position is representative of the closest existing receptors southeast of the Site in proximity to Melville Drive (Receptor R3) in the field just to the south of the closest properties at circa 720m from the BESS plant compound. Noise levels at this location are generally formed by local and distant road traffic noise and birdsong. Figure 1 shows the location.

5.1.9 In consideration of the cross section of monitoring positions and locations in proximity to NSR and the baseline survey includes a weekend monitoring period, it is considered that the results represent a robust indication of existing background sound levels.

5.1.10 For noise measurements at the nearest sensitive receptor positions the following noise meters were used:

Table 5.1: Instrumentation

Manufacturer	*Description*	*Type*	*Calibration Due*	*Serial No.*
Cirrus	Real Time Sound Analyser	171A	July 2025	G061253
Norsonic	Integrating Sound Level Meter	116	January 2025	17127
Norsonic	Real Time Sound Analyser	140	October 2025	1402924
Cirrus	Electronic Calibrator	CR: 513A	May 2025	031523
Norsonic	Electronic Calibrator	1251	January 2025	18551

5.1.11 The following set-up parameters were used on the sound level meters during measurements:

Static Sound Monitoring:
Time Weighting: Fast
Frequency Weighting: `A'
Measurement Period: 15 minutes

Monitoring Period and Test Details

5.1.12 Measurements were recorded over a period of approximately 1 week. Data logging of L_{Aeq}, L_{A10}, L_{A90} and L_{Amax} were recorded at 15-minute contiguous intervals for information on the variation of sound levels (see Appendix 2 for details).

5.1.13 The noise meters were mounted on a tripod at a height of between 1.2 to 1.5 metres above ground level and fitted with a wind and rain shield.

Calibration

Calibration setting: 94dB

5.1.14 The noise meters were calibrated with the electronic calibrator prior to commencement and on completion of the survey. No significant drift in calibration was observed.

Survey Dates and Personnel

5.1.15 Static sound measurement positions (shown on Figure 1) were chosen to establish typical and representative background and ambient sound data in vicinity of NSR (see Appendix 2 for detailed information). D R Kettlewell, the NVC Principal Acoustic Consultant (with over 40 years' experience in the field of acoustics and noise control) set up the sound monitoring on the Thursday 4th July and removed the equipment on Thursday 11th July 2024.

Meteorological Conditions

5.1.16 Weather details have been established from a local weather station for the duration of the survey and the recorded data is detailed in Appendix 2.

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5.1.17 The climatic conditions were suitable for monitoring environmental noise levels in accordance with advice given in BS4142:2014+A1:2019.

5.2 Results

Background Sound

5.2.1 Background sound measurements taken adjacent to the nearest residential sensitive receptor and the nearest ecological sensitive receptors.

5.2.2 The results of measurements taken at the fixed monitoring positions at NSR are presented in Table 5.1 with detailed measurements in Appendix 2.

Table 5.1: Summary of Background & Residual Sound Levels

Position/Location	Time	Average $LAeq_{,T}$ dB	Average $LA90_{,T}$ dB	Representative LA90 dB	LAmax dB
Residential NSR Location					
A) Marsh Lane, Healing	0700-2300	64	60	**59**	57-79
	2300-0700	60	56	**44**	56-80
	0800-1800 (weekday)	65	62	**-**	65-79
	0800-1300 (Saturday)	64	61	**-**	70-77
Ecological NSR Location				**Range of LAeq levels**	**LAmax dB**
B) Adjacent to Arable Field	0700-2300	**50**	47	**33-61**	**41-92**
	2300-0700	**48**	46	**41-53**	**45-70**
	0800-1800 (weekday)	**51**	47	**46-58**	**54-92**
	0800-1300 (Saturday)	**53**	49	**46-56**	**59-74**
C) Adjacent to Sea Wall	0700-2300	**48**	43	**30-62**	**45-87**
	2300-0700	**46**	43	**34-61**	**42-83**
	0800-1800 (weekday)	**48**	44	**42-56**	**52-86**
	0800-1300 (Saturday)	**52**	45	**42-58**	**54-76**

[1]Representative taken as most commonplace, median or average. whichever is the lower.

5.2.3 The methodology detailed in the latest version of BS4142: 2014+A1:2019 provides an example of statistical analysis to determine the representative background sound level. Further detail of the measured background sound levels and analysis of representative background sound levels is provided in Appendix 2.

5.2.4 The above table shows the most common place, median or average value (whichever is lowest) for determining the representative background sound level. The results show that between 0700-2300 hours at the residential NSR monitoring position, the representative LA90 level was 59dB. During night-time periods (between 2300 to 0700 hours) the representative background level was shown to be 44dB LA90.

5.2.5 For the ecological NSR, the sound study showed a range of ambient levels between 30dB to 62dB LAeq for weekday daytime TWTF operating periods (0700 to 2300 hours) with the average ranging between 48dB to 50dB LAeq. For night-time operating periods (2300 to 0700 hours) the range of ambient LAeq's was 34dB to 61dB with the average ranging between 48dB to 56dB LAeq.

5.2.6 For proposed construction hours the survey showed ambient levels between 42dB to 58dB LAeq for weekday daytime TWTF construction period (0800 to 1800 hours) with the average ranging between 48dB to 51dB LAeq. For Saturday construction hours (i.e. 0800 to 1300 hours) the range of ambient LAeq's was 42dB to 58dB with the average ranging between 52dB to 53dB LAeq. Associated LAmax level range was shown to be 52dB to 86dB during weekday and 54dB to 76dB on the Saturday.

5.3 Source Noise Levels

5.3.1 Refer to section 7.2.3 for details of noise levels for the TWTF plant assumed for the noise prediction calculations.

6.0 CONSTRUCTION NOISE

6.1 Introduction

6.1.1 Typical planning consent conditions relating to construction noise will be based on the application of `best practicable means' in accordance with BS5228-1:2009+A1:2014 and restriction on operating hours.

6.2 Construction Activities

6.2.1 It is considered that excavators, HGVs, excavators, piling rigs, cranes, forklifts, telehandlers, dumper, roller, generators, concrete mixers, pumps, MEWPS and power tools etc. would at some point be required to construct the site.

6.2.2 The above noise sources and their associated activities will vary from day to day and may be in use at different stages of the development for varying time duration.

6.3 Construction Noise Prediction

Residential NSR

6.3.1 Below the assessment indicates the expected highest noise levels at the nearest residential receptors based on the creation of the development platform, piling works, concreting works, steelwork erection, building construction and M&E installation at the closest approach to NSR.

6.3.2 The calculations use the methodology given in BS 5228: Part 1, 2009. For this method the sound power level of the noise source is defined, and the attenuation is calculated between its location and the selected receiver, taking account of distance, ground attenuation and the time that a noise source will be operating.

6.3.3 The results of the likely range of noise levels are shown below in Table 6.1. Refer to Appendix 3 for noise contour mapping.

Table 6.1: Noise Predictions for Highest Likely Construction Noise (excluding mitigation measures)

NSR Position (Refer to Figure 1)	Approx. Distance to receptor (m)	Works	Residual Noise Levels L_{Aeq} dB	Noise Level Range at receptor, L_{Aeq1hr} dB	BS5228 Threshold Value L_{Aeq} dB Daytime
R1 & R2: Marsh Lane, Healing	1800	Development platform	64-65	31-34	70
	1800	Piling (CFA)	64-65	36-37	70
	1800	Piling (Driven)	64-65	51-52	70
	1800	Concreting Works	64-65	31-37	70
	1800	Steelwork Erection	64-65	32-37	70
	1800	Main Building Constr'n	64-65	39-40	70
	1800	M&E Installation	64-65	38-39	70
	1800	Internal M&E Works	64-65	29-30	70

6.3.4 The noise of activities during the construction of the site would vary throughout the day and would depend on the particular work being undertaken. The highest noise levels at residential NSR are likely to be created during piling works (if driven piles), mechanical installation and construction of buildings. This would be well within the level of noise normally found to be acceptable for an activity of this

type and duration. Noise mitigation measures are proposed applying best practical means.

6.3.5 In accordance with BS5228, best practical means would be employed to control the noise generation.

6.3.6 On the basis of the above predictions the level of noise, as a result of construction noise at residential NSR, the impact is predicted to be **negligible** and **not significant**, and the guidance threshold level would not be exceeded. Refer to Table 4.1 and 4.2 for impact and effect semantic tables.

6.3.7 The application of applying best practicable means in accordance with BS5228-1:2009+A1:2014 will assist in minimising impact from construction noise. A Construction Environmental Management Plan (CEMP) would be provided to the LPA prior to commencement of works for agreement.

6.3.8 Construction hours for noise generating activity proposed are as follows:
Monday to Friday: 0800 to 1800 hours.
Saturday: 0800 to 1300 hours
Sundays: No deliveries except for on-off abnormal loads or large vehicles such as cranes.

Ecological NSR

6.3.9 The predicted noise levels during daytime construction activities are compared with the range of L_{Aeq} and L_{Amax} levels, which are provided in Table 6.2. Refer to Appendix 4 for noise contour mapping (Maps 3 to 25).

Table 6.2: Daytime Noise Predictions for Highest Likely Construction Noise (excluding noise mitigation measures)

Ecological NSR Location	Activity	Predicted Noise Level Range L_{Aeq} dB	Predicted Noise Level Range L_{Amax} dB	Typical Ambient Noise Levels Range (Average) L_{Aeq} [L_{Amax}] dB	Exceedance of NE Guidance of L_{Aeq} +3dB	Exceedance of NE Guidance of L_{AFmax} +3dB & 70dB
R3: Coastal Saltmarsh	Development platform	45-48	50-56	42-56 (48) [52-86]	None	None
	Piling (CFA)	49-52	50-59	42-56 (48) [52-86]	**+3dB**	None
	Piling (Driven)	64-67	70-79	42-56 (48) [52-86]	**+16dB**	**+9dB**
	Concreting Works	37-39	42-47	42-56 (48) [52-86]	None	None
	Steelwork Erection	42-46	47-58	42-56 (48) [52-86]	None	None
	Main Building Constr'n	54	62	42-56 (48) [52-86]	**+3dB**	None
	M&E Installation	52	60	42-56 (48) [52-86]	**+1dB**	None
	Internal M&E Works	43	48	42-56 (48) [52-86]	None	None
R4: Humber Estuary	Development platform	41-47	46-55	42-56 (48) [52-86]	None	None
	Piling (CFA)	45-51	46-58	42-56 (48) [52-86]	None	None
	Piling (Driven)	59-65	64-77	42-56 (48) [52-86]	**+14dB**	**+7dB**
	Concreting Works	36-41	41-49	42-56 (48) [52-86]	None	None
	Steelwork Erection	41-47	46-59	42-56 (48) [52-86]	None	None
	Main Building Constr'n	54	62	42-56 (48) [52-86]	**+3dB**	None
	M&E Installation	47-51	55-59	42-56 (48) [52-86]	None	None
	Internal M&E Works	37-42	42-47	42-56 (48) [52-86]	None	None
R5: Functionally linked land to north	Development platform	42-59*	47-67	46-58 (51) [54-92]	**+5dB**	None
	Piling (CFA)	46-61*	47-68	46-58 (51) [54-92]	**+7dB**	None
	Piling (Driven)	61-75*	66-87	46-58 (51) [54-92]	**+21dB**	**+17dB**
	Concreting Works	39-51*	44-59	46-58 (51) [54-92]	None	None
	Steelwork Erection	42-55*	47-63	46-58 (51) [54-92]	**+1dB**	None
	Main Building Constr'n	52-63*	60-71	46-58 (51) [54-92]	**+9dB**	**+1dB**
	M&E Installation	50-61*	58-69	46-58 (51) [54-92]	**+7dB**	None
	Internal M&E Works	41-51*	46-56	46-58 (51) [54-92]	None	None

Ecological NSR Location	Activity	Predicted Noise Level Range L_{Aeq} dB	Predicted Noise Level Range L_{Amax} dB	Typical Ambient Noise Levels Range (Average) L_{Aeq} [L_{Amax}] dB	Exceedance of NE Guidance of L_{Aeq} +3dB	Exceedance of NE Guidance of L_{AFmax} +3dB & 70dB
R6: Functionally linked land to southeast	Development platform	39-44	44-52	46-58 (51) [54-92]	None	None
	Piling (CFA)	44-47	45-54	46-58 (51) [54-92]	None	None
	Piling (Driven)	58-61	63-73	46-58 (51) [54-92]	**+7dB**	**+3dB**
	Concreting Works	35-36	40-44	46-58 (51) [54-92]	None	None
	Steelwork Erection	40-43	45-51	46-58 (51) [54-92]	None	None
	Main Building Constr'n	48-49	56-57	46-58 (51) [54-92]	None	None
	M&E Installation	46-47	54-55	46-58 (51) [54-92]	None	None
	Internal M&E Works	37-40	42-45	46-58 (51) [54-92]	None	None

6.3.10 The above results are an indication of the highest likely construction noise activities (i.e. closest approach areas and noisiest activities) without any mitigation measures. The results show that the highest noise levels are likely to be during piling, development platform works, main building construction and M&E installation prior to cladding installation on buildings.

6.3.11 Exceedance of NE guidance thresholds relative to L_{Aeq} levels (before mitigation measures are to be considered) include:

a) Use of impulse/driven piling techniques (at all Ecological NSR) and to a lesser extent using CFA type techniques.
b) During development platform works at closest approach areas at Functionally Linked Land to the north (R5).
c) Steelwork erection for the Main Building (at R5).
d) Main building construction and M&E installation without cladding on building at R3, R4 & R5 ecological NSR.

6.3.12 Exceedance of NE guidance from L_{Amax} levels have been calculated which show the predicted noise levels exceed the NE guidance threshold at ecological NSR would generally only occur if impulsive/driven piling was to be used.

6.3.13 It is anticipated that piling works is likely to take between 6 to 10 weeks to complete.

Assessment of Significance

6.3.14 On the basis of the above predictions the level of noise, as a result of construction noise at ecological NSR, the impact (without mitigation) is predicted to range between **negligible to substantial** and **neutral to moderate/major** and **significant** as the guidance threshold level would at times, be exceeded.

6.3.15 The levels that are shown to potentially exceed the NE guidance will require consideration of mitigation measures. This is dealt with below.

Mitigation of Construction Levels at Ecological NSR

6.3.16 The above results indicate that the highest likely L_{Aeq} and L_{Amax} levels are shown to exceed the NE guidance and as such methods to reduce and minimise noise will be required.

6.3.17 The application of best practicable means (`BPM') in accordance with BS 5228-1: 2009+A1:2014 would assist in minimising impact from construction noise. Further mitigation measures are detailed in Section 6.4 to minimise the impact on ecological NSR. Noise maps including an example of the effect of screening mitigation measures are provided in Appendix 4.

6.4 Mitigation Measures During Construction Phase Works

Platform Development

6.4.1 The exceedance of guidance for ecological NSR (i.e. relative to R5 Functionally Linked Land to the North) during the platform development works may be required if occurring during sensitive bird wintering periods or other sensitive breeding periods could be reduced by introducing some form of solid screening (e.g. solid hoarding fence or earth mounds or combination of both) along the northwestern boundary to a height of circa 3.5m. Refer to Appendix 4 (noise map 3A which provides a noise map for screening to this height along boundary, during a peak noise event.

Piling Works

6.4.2 Wherever possible driven piles should not be used and CFA type or CMC (Controlled Modulus Columns) techniques are significantly lower in noise and vibration.

6.4.3 If percussive piling has to be used, avoidance of sensitive bird wintering or breeding season should be considered. Measures to reduce noise levels would be considered including local portable acoustic screening around the piling area or using `soft-start' works to avoid sudden noise by gradually increasing start-up noise levels to allow birdlife to habituate to the temporary noise.

6.4.4 Further protection of bird passage and wintering would involve avoiding peak impulse noise events (e.g. piling, infrastructure and building steelwork construction) during the sensitive period between September and March.

Steelwork Erection, Main Building Construction & M&E Installation (with no screening from clad building)

6.4.5 The use of hoarding screening or other solid screening along the northeastern and northwestern boundary or local screening to working area (if work is at ground level) may provide some screening benefit with reduction in airborne noise.

6.4.6 In accordance with BS5228-1:2009+A1:2014, best practical means (BPM) would be employed to control the noise generation (e.g. using equipment that is regularly maintained, where practicable use equipment fitted with silencers or acoustic hoods).

6.4.7 In consideration of the likely highest levels of construction noise, the following approach would be considered as part of any CEMP:

- Restriction of construction hours to non-sensitive times of day would normally form part of the planning consent conditions.

- Careful choice of piling rigs to minimise noise (e.g. non-percussive piling techniques).
- Avoid un-necessary plant operation and revving of plant or vehicles.
- Where practicable locate plant away from ecological NSR or in locations which provide optimum screening in the direction of NSR.
- Use of broadband noise reversing alarms (where practicable) on mobile plant (i.e. avoid tonal `beeper' type reversing alarms.
- Plant will be serviced regularly to minimise adverse noise impacts.
- All vehicles and mechanical plant used for the purpose of the works will be fitted with effective exhaust silencers and where practicable acoustic enclosures/hoodsand maintained in good efficient working order.
- Machines in intermittent use will be shut down in the intervening periods between work or throttled down to a minimum.
- Materials will be handled with care and be placed (e.g. not dropped into skips or lorries or dropped onto metal surfaces).
- Any ancillary plant if required, such as generators, compressors and pumps will be positioned so as to cause minimum noise disturbance, i.e. furthest from receptors or behind close boarded noise barriers. If necessary, acoustic enclosures and /or shielding will be provided.
- Implementation of site rules related to considerate construction practices.
- Consider using a one-way system/turning circle and/or use of a banksman to avoid/reduce the need for reverse alarms.
- Battery operated tools would be used rather than compressed air tools, wherever practicable.

6.4.8 The implementation of appropriate mitigation measures based on BPM would enable peak construction noise to be controlled to reasonable levels in accordance with BS5228.

Assessment of Significance (with mitigation measures)

6.4.9 In consideration of the options for mitigation and its effect on minimising noise levels, we would expect the resultant impact from construction noise at ecological NSR to range between **negligible to slight and a neutral to minor effect** and **not significant**.

Construction Road Traffic Noise onto Local Road Network

6.4.10 The construction of the proposed development is expected to last around 24 months. During this period, there will be journeys associated with the arrival and departure of site staff and the delivery of equipment and construction materials.

6.4.11 According to the Transport Assessment (TA) the associated construction work associated with raising the ground level is expected to take approximately 45 weeks. Assuming a 5.5 day working week, it is estimated that around 27 HGVs will be required daily, resulting in 54 two-way daily HGV movements and that deliveries are spread out evenly across the course of a day and deliveries limited generally between 0930 to 1500 hours to avoid peak hour movements.

6.4.12 It is anticipated that the number of trips during the building construction phase will not exceed the trips generated during the earthworks stage. The construction trips in relation to building the plant phase will only take place upon completion of the earthworks process.

6.4.13 There will also be additional trips associated with staff on site, these are not expected to be material during the earthworks stage.

Site Access

6.4.14 Access to the Site is to be taken via a private access road located to the southwest, which is accessed from the main Great Coates Business Park spine road. The access road also provides access to several other industrial units within the wider Great Coates Business Park.

6.4.15 The number of vehicles to be generated for the construction phase works is not considered to be significant for the following reasons:

(i) The hourly development flow would only be circa 9 two-way daily movements per hour, which is not considered to be significant.
(ii) The site is located in a well-established industrial area giving access to the A1173 and enables access onto the western section of the A180 and the A15 via the Barnetby Interchange.
(iii) The likely baseline flows on the local roads will be significantly higher than the development flow.
(iv) There is no significant residential development in the local area.

6.4.16 For the above reasons, the expected impact from temporary construction traffic development would be <1dB L_{A10} (which is in accordance with DMRB LA 111 guidance) a **negligible impact** and a **neutral effect** and **not significant** (refer to Table 4.3).

Construction Vibration Levels

Sources of Vibration

6.4.17 The highest levels of vibration generated by construction plant is likely to include:

- Piling rigs.
- Vibratory rollers and compactors.

6.4.18 The separation distance between the nearest construction work activity relative to ecological NSR is circa 110m to 260m and the levels of vibration from piling rigs or compaction works would be as indicated in Table 6.3:

Table 6.3: Vibration Levels During Construction Works

Ecological NSR	Approximate Distance (m)	Source	Receptor Sensitivity	Range of highest likely vibration (mm/sec)
R3: Coastal Saltmarsh	260	Driven Piling CFA Piling Vibratory plant	High	0.6 <0.1 <0.1
R5: Functionally linked land to the north	110	Driven Piling CFA Piling Vibratory plant	High	0.2 <0.1 <0.1

6.4.19 According to Table 4.4 and 4.5, the impact would be **negligible to slight** and a **neutral to minor** level of effect and is therefore **not significant**. Where non-percussive vibration is used (i.e. CFA) the impact would be **negligible**.

7.0 PLANT NOISE LEVEL PREDICTIONS

7.1 Introduction

7.1.1 Noise has been defined as sound, which is undesired by the recipient. The effects of noise on the neighbourhood are varied and complicated, including such things as interference with speech communication, disturbance of work, leisure or sleep. A further complicating factor is that in any one neighbourhood some individuals will be more sensitive to noise than others.

7.1.2 A measure that is in general use and is recommended internationally for the description of environmental noise is the equivalent continuous noise level or L_{Aeq} parameter.

7.1.3 In general, the level of noise in the local environs that arises from a development site will depend on a number of factors. The more significant of which are:-

(a) The sound power levels (SWL's) 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 or absence of screening effects due to barriers, or ground absorption.
(e) Any reflection effects due to the facades of buildings etc.

7.1.4 The empirical noise levels have been used for the plant equipment to assist in determining the likely noise contribution at nearest sensitive receptors for comparison with the requirements of BS4142: 2014+A1:2019 and BS8233:2014.

7.2 Prediction Methodology

Operational Noise

7.2.1 For site operational noise the assessment used ISO9613-2:2024 prediction modelling and CadnaA software for producing a noise map of the highest likely generated noise during peak noise operations. The Input settings for the noise model include:

Ground factor (G) = 0.5 (mixed ground absorption) for the intervening ground.
Temperature = 10degC
Relative humidity = 70%
Residential Receptor height = Assumed to be 4m above ground for daytime and night-time operational periods.
Maximum order of reflection = 1

Ecological Receptor height = Assumed to be 0.5m above ground level for birds.
Topography screening included by the inclusion of height contours from the topographical study of the area.

7.2.2 The methodology considers source position and distance to the NSR. The noise modelling assumes that during daytime periods all fixed plant operation and HGV vehicle movement are included within site boundary and therefore the noise predictions provide an indication of the highest likely noise level. During night-time (between 2300-0700 hours) all fixed plant is assumed to be in operation.

Site Building Heights & Grid References

7.2.3 The noise model includes the associated plant and storage buildings, with the following heights and stack grid reference for the HTI Stack.

- HTI Stack – height 47m (grid reference: x =523691, y = 412877)
- HTI Building - height: 27m (28.7m to ridge)
- Waste Reception Building – height 4.5m (5.5m to ridge)
- Steam Turbine Hall – height 7.95m
- Turbine cooler fans – height (assumed) 2m on roof of Turbine Hall.
- Bottom Ash Storage and APCR – height 8.76m (9.76m to ridge)
- Tanker Offload Building - height 7m (8m to ridge)
- Engineering Store & Workshop – height 6m (7m to ridge)
- Storage Buildings – height 4.5m (5.5m to ridge)
- Water Treatment/Press House & Wet Scrubber Treatment Building – height 10m (11m to ridge)
- IBC/Drum Washing Building – height 4.5m (5.5m to ridge)
- Pump House – height 4.5m
- Nitrogen Generator - height 11m
- Sub-stations - height 3.1m

Site Noise Sources & Assumed Noise Levels

7.2.4 The assumed source noise levels upon which the assessment has been based (with the proposed mitigation measures) that demonstrate the Proposed Development would comply with acceptable noise levels at NSR, include the following:

- HTI Building (internal reverberant sound pressure level (SPL) circa 85dB L_{Aeq}).
- Waste Reception Building (internal reverberant SPL of circa 80dB L_{Aeq})
- Steam Turbine Hall (internal reverberant SPL of circa 95dB L_{Aeq})
- Turbine cooler fans (SPL 80dB L_{Aeq} @ 1m)
- Bottom Ash Storage and APCR (internal reverberant SPL of circa 80dB L_{Aeq})
- Tanker Offload Building (internal reverberant SPL of circa 80dB L_{Aeq})
- Engineering Store & Workshop (internal reverberant SPL of circa 80dB L_{Aeq})
- Storage Buildings (internal reverberant SPL of circa 75dB L_{Aeq})
- Water Treatment/Press House & Wet Scrubber Treatment Building (internal reverberant SPL of circa 78dB L_{Aeq})
- IBC/Drum Washing Building (internal reverberant SPL of circa 75dB L_{Aeq})
- Pump House (emergency or test use only) to reduce noise levels to 75dB L_{Aeaq} @ 1m.
- HTI Stack (SPL at 1m/90deg to stack 78dB L_{Aeq})
- Air Cooled Condenser Fans (4 @ sound power level of 94dB(A) with wind screen above unit circa 3m high)
- Nitrogen Generator (assumed SPL 74dB L_{Aeq} @ 1m)
- Liquid Nitrogen Tank (Pumps SPL <70dB L_{Aeq} @ 1m)
- Tank Farm pumps (SPL <70dB L_{Aeq} @ 1m)
- Sub-stations (5) (assumed SPL 65dB L_{Aeq} @ 1m)
- HGV movement (sound power level of 103dB(A))

7.2.5 The plant noise levels are based on empirical data from similar sites operating in the UK.

Mitigation Measures

7.2.6 The following noise mitigation measures are included with the above assumed noise levels.

a) HTI Building cladding fitted with insulated roof and wall cladding to a minimum Rw=25dB (e.g. composite cladding).
b) Waste Reception Building cladding fitted with insulated roof and wall cladding to a minimum Rw=25dB (e.g. composite cladding).
c) Steam Turbine Hall fitted with insulated roof and wall cladding to a minimum Rw=37dB.
d) Bottom Ash Storage and APCR, Tanker Offload Building, Engineering Store & Workshop, Water Treatment/Press House & Wet Scrubber Treatment Building, IBC/Drum Washing Building with roof and wall cladding to minimum Rw=25dB.
e) All Storage Buildings with single skin cladding to Rw=23dB or greater.
f) HTI Stack fitted with a stack silencer which controls noise at the end of the stack and takes into account any peak noise from stack resonance and fan blade passage frequency to eliminate any tonal noise character.
g) Air Cooled Condenser Fans fitted with wind screen above unit circa 3m high.
h) Nitrogen Generator enclosed as required to comply with assumed noise levels.
i) Associated tank pumps to achieve noise levels by design or acoustically enclosed.
j) Sub-stations enclosed as required to achieve noise levels.

7.3 Results of Noise Predictions

Site Plant Noise Assessment: Residential NSR

7.3.1 Noise levels from fixed plant operating at the development site during daytime and night-time period has been assessed against BS4142: 2014+A1:2019. The results of the CadnaA software prediction modelling noise contours for site operations are provided in Appendix 3.

7.3.2 In respect of the consideration of noise character corrections (refer to paragraph 3.2.17) from the Proposed Development in accordance with BS4142:2014+A1:2019, the assessment of noise from the associated TWTF plant at the NSR is considered and our expert opinion in respect of its' relevance is provided below:

a) In terms of tonality, in view of the separation distance from the TWTF to residential NSR, proposed mitigation measures, predicted noise levels and the masking nature of the residual sound levels (i.e. ambient L_{Aeq} sound levels without the site in operation) any tonal noise would not be perceptible at the NSR. We would therefore conclude that a tonal noise character penalty is not required.

b) In terms of impulsivity, this would relate to works being undertaken inside the TWTF and Waste Reception building from the movement of waste by mobile plant. This would not be perceptible at NSR and therefore any noise character penalty is not deemed to be applicable.

c) In terms of intermittency the TWTF plant would work continuously and by its nature it does not normally operate with any intermittency. Noise from HGV movements is not an unusual noise source in the general noise

climate at NSR and therefore would not be distinctive in terms of intermittency.

7.3.3 In conclusion, in view of the noise contribution from the Site, residual sound levels, mitigation measures and separation distance to NSR, we would advise that a noise character penalty is not required to add to the calculated noise contribution from the fixed and mobile plant.

7.3.4 For the purpose of Environment Agency permitting (i.e. EA – Guidance: Noise and Vibration Management: Environmental Permits (January 2022) it states:

"For industrial noise impacts where the sound is neither impulsive nor tonal, but you can readily distinguish it against the usual residual acoustic environment, the environment agencies will expect you to apply a minimum character correction of +3 decibels (dB) 'other'. This is unless you can robustly justify that you do not need such a correction."

7.3.5 Although we do not expect noise character to be perceptible at the residential NSR the noise predictions include a +3dB character correction for robustness.

Noise Contribution Levels from the TWTF Site

Table 7.1: Predicted Noise from TWTF Site during Daytime (0700-2300 hrs)

Receptor Position (Refer to Figure 1)	Period	Representative Background Sound Level L_{A90} dB [L_{Aeq}]	Predicted highest rating[1] noise level $L_{Aeq,T}$ (dB)	Level Difference dB(A)*	Impact Magnitude BS4142
Daytime					
R1: Primrose Cottage	Daytime	59 [64]	34	-25	**Low**
R2: The Meadows	Daytime	59 [64]	33	-26	**Low**

*Note: Column 5 is the subtraction of column 4 from column 3.
[1] Although noise character is not deemed necessary, we have allowed for a +3dB general character correction in accordance with EA guidance.
The noise predictions assume the worst case i.e. all plant operating at 100% load and mobile plant and HGVs in operation.

7.3.6 Table 7.1 shows the range of predicted noise levels from the plant associated with the TWTF Site based on maximum operating conditions. The rating levels at the residential NSR are shown to vary between 33dB to 34dB $L_{Aeq,1hr}$.

7.3.7 The fifth column in Table 7.1 shows the difference between the predicted rating noise level and the background sound level at the NSR. The rating level in column 4 is therefore in accordance with the methodology found within BS 4142: 2014+A1:2019 for daytime impacts.

7.3.8 The results show that the noise contribution from maximum site operations with the assumed plant noise levels (as provided in section 7.2.3) would be well below the representative background sound level during the daytime. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise from the Site would result in a **low impact** and **negligible impact** (ref. Table 4.5) and **neutral effect** and **not significant** at NSR.

Night-time Operations

7.3.9 For night-time periods (i.e. 2300 to 0700 hours), in order to ensure protection of residential amenity and sleep disturbance, the `rating' noise level from the Site has been compared with the representative background sound level. An external absolute limit of 40dB or lower would also comply with internal bedroom guidance levels according to BS8233:2014 and WHO Guidelines (i.e. assuming a conservative reduction of 10dB for an open window).

7.3.10 Table 7.2 shows the results of the highest likely noise generation during the night-time period and include a +3dB noise character penalty as advised by the EA guidance for new development. Refer to Appendix 3 noise map 2.

Table 7.2: Predicted Noise from the TWTF Site Operations During Night-time

Receptor Position (Refer to Figure 1)	Representative Background Sound Level LA90 dB [LAeq]	Predicted highest rating[1] noise level $LAeq_{15mins}$ (dB)	Level Difference dB(A)*	Impact Magnitude BS4142	Noise change[2] LAeq dB
R1: Primrose Cottage	44 [60]	33	-11	**Low**	0
R2: The Meadows	44 [60]	32	-12	**Low**	0

*Note: Column 4 is the subtraction of column 3 from column 2.
[1] Although noise character is not deemed necessary, we have allowed for a +3dB general character correction in accordance with EA guidance .
[2] Note 3: Column 6 is calculated by the logarithmic addition of columns 3 and column 2 **Leq** level in [ ] and subtraction of the background **Leq** noise level (i.e. column 2 in [ ]).

7.3.11 Table 7.2 shows the range of predicted noise levels from the plant associated with the TWTF Site under maximum operating conditions. The predicted rating noise level at NSR are 32dB to 33dB $L_{Aeq,15mins}$ at NSR.

7.3.12 The results show that the noise contribution from maximum site operations with chosen mitigation measures would be well below the representative background sound level during the night-time periods at NSR. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise from the Site would result in a **low impact**. According to Table 4.6 and 4.7 this would result in a **negligible impact** and **neutral effect** and **not significant** at NSR.

7.3.13 In relation to absolute levels during night-time periods, the maximum noise levels generated by the TWTF plant are well below sleep disturbance limits and predicted levels within sensitive rooms with an open window would be 20dB L_{Aeq} (when allowing for a conservative 10dB drop through open window in accordance with BS8233: 2014 and WHO guidelines). This level is significantly lower than guidance limits provided within BS8233: 2014 within bedrooms of 30dB L_{Aeq}.

7.3.14 The maximum increase in ambient noise due to the Site operation is shown to be 0dB L_{Aeq}, and in accordance with the IEMA guidance would produce a **negligible** impact and **neutral effect** and **not significant**.

Operational Impacts on Ecological NSR

7.3.15 The predicted noise generated by the operation of the TWTF Site at ecological NSR is considered. The prediction includes all associated plant detailed in section 7.2.3 to be operating at the same time and at the closest approach to the NSR and as such are indicative of the highest likely noise levels.

7.3.16 The increase between the L_{Aeq} and L_{Amax} levels during the operation of the TWTF Site is not expected to be higher than +8dB based on empirical data from similar types of plant which operate relatively constantly and without any significant impulsive noise character.

7.3.17 The noise prediction during daytime or night-time operations for the highest likely predicted noise relative to the Proposed Development relative to the NE guidance threshold levels are presented in Table 7.3.

Table 7.3: Predicted Operational Noise Levels at Ecological NSR

Ecological NSR Location (Refer to Figure 1)	Predicted Noise Level Range L_{Aeq} [Range of L_{AFmax}] dB	Typical Ambient Sound Levels Range (Average) L_{Aeq} [Range L_{AFmax}] dB	Exceedance of NE Guidance of Ambient[1] L_{Aeq} +3dB	Exceedance of NE & TIDE Guidance of L_{AFmax} +3dB & 70dB
R3: Coastal Saltmarsh	**39 [47]**	Day: 30-62 (48) [45-87]	None	None
	38 [46]	Night:34-61 (46) [42-83]	None	None
R4: Humber Estuary	**36-38 [43-46]**	Day: 30-62 (48) [45-87]	None	None
	34-38 [42-46]	Night:34-61 (46) [42-83]	None	None
R5: Functionally linked land to north	**38-49 [46-57]**	Day: 33-61 (50) [41-92]	None	None
	38-49 [46-57]	Night:41-53 (48) [45-70]	None	None
R6: Functionally linked land to southeast	**37 [45]**	Day: 33-61 (50) [41-92]	None	None
	35 [42]	Night:41-53 (48) [45-70]	None	None

[1] Column 4 conclusion is a result of the level difference between column 2 L_{Aeq} levels and column 3 L_{Aeq} levels.
[2] Column 5 Column 4 conclusion is a result of the level difference between column 2 L_{AFmax} in [ ] levels and a threshold limit of L_{Amax} +3dB or 70dB L_{AFmax}.

7.3.18 The above table shows the range of predicted highest likely noise levels from the Proposed Development site operations at the NSR locations, which would occur during the daytime and night-time periods.

Assessment of Significance (with mitigation measures)

7.3.19 The results show **no significant impact** on bird disturbance and the predicted noise levels at the most sensitive NSR show Site noise L_{Aeq} and L_{Amax} levels to be below the NE sound threshold levels as indicated in the EA INTERREG IVB-Project Tidal River Development' TIDE `Waterbird Disturbance and Mitigation Toolkit': 2024 and the NE guidance `A review of the effects of noise on Birds' 2018.

7.3.20 In consideration of the results of noise predictions with the proposed mitigation, we conclude that the impact from operational noise at ecological NSR would be **negligible and a neutral effect** and **not significant**.

7.4 Operational Road Traffic Noise

7.4.1 According to the TA It is anticipated that the proposed development will generate a total of 38 HGV loads and 10 LGV loads (comprising 3.5 tonnes and 7.5 tonnes vehicles) per day which would equate to 6 vehicle loads per hour assuming an 8-

hour working day. This would equate to a total of 12 two-way HGV movements per hour.

7.4.2 Planning permission (DM/0455/14/OUT) was granted on 26th June 2015 and included land within the site as part of a broader development area. This approval allowed for the redevelopment of approximately 98,205 square metres (sqm) gross floor area (GFA) of employment, storage, and distribution uses. The net difference between the previously permitted HGV movements and the current HGV movements proposed with the revised development. It outlines a net reduction in peak-hour goods vehicle movements.

7.4.3 The number of vehicles to be generated for the operation phase works is not considered to be significant for the following reasons:

(i) The hourly development flow would only be circa 12 two-way daily movements per hour, which is not considered to be significant.
(ii) The previous permitted development included allowance for a higher development operational flow.
(iii) The site is located in a well-established industrial area giving access to the A1173 and enables access onto the western section of the A180 and the A15 via the Barnetby Interchange.
(iv) The likely baseline flows on the local roads will be significantly higher than the baseline development flow.
(v) There is no significant residential development in the local area.

7.4.4 For the above reasons, the expected impact from operational road traffic development would be <1dB L_{A10} (which is in accordance with DMRB LA 111 guidance) a **negligible impact** and a **neutral effect** and **not significant** (refer to Table 4.3).

7.5 Operational Vibration Levels

7.5.1 The results of empirical vibration levels undertaken at other similar sites in the UK show no significant vibration is likely at close range positions to associated plant (i.e. within 10m) and therefore no vibration would occur at NSR.

7.5.2 According to Table 4.4 and 4.5, the impact would be **negligible** and a **neutral** level of effect and therefore **not significant**.

7.6 Cumulative Effects

7.6.1 The approach to the cumulative assessment is to consider any proposed or permitted but not yet built projects in the vicinity of the TWTF Site.

7.6.2 The following paragraphs describe the information available and a summary of the likely noise contribution from the identified developments relative to the TWTF NSR.

(i) <u>Planning Ref: DM/1103/22/FUL</u>
Proposed tyre pyrolysis plant including 33m high flue, associated buildings, treatment and storage plant and tanks, conveyors, chillers, silo, ground mounted solar array, emergency flare, car parking, security fencing and landscaping.

The site is located immediately adjacent and southeast of the TWTF site. The submission includes a noise impact assessment report provided by Noise Air (Report ref. P7062-R1-V2) dated 31st January 2024. The predicted noise levels during construction are between 42dB to 46dB L_{Aeq} at the Humber Estuary NSR and 39dB to 47dB L_{Aeq} at functionally linked land to the northwest. The corresponding L_{Amax} level is 50dB for the Humber Estuary and 41dB to 52dB for the functionally linked land using CFA piling techniques. This Site is likely to be built prior to the TWTF but in the unlikely situation where both development construction works occur at the same time the cumulative effect would only be circa +1dB LAeq, which is not significant and best practicable means (BPM) would be applied to minimise noise.

In respect of operational noise, the levels at the Humber Estuary are shown to be 29dB L_{Aeq} and 23dB to 29dB L_{Aeq} at the functionally linked land. In terms of cumulative effects these levels are not significant as the predicted noise for pyrolysis plant would not increase noise from the TWTF Site (as the noise levels are at least 10dB lower and logarithmic addition would produce 0dB increase) and therefore there is no likelihood of significant cumulative impacts.

(ii) Planning Ref: DM/1070/18/FUL

Construction of an energy from waste (EfW) facility of up to 49.9MWe gross capacity including emissions stack(s), associated infrastructure including parking areas, hard and soft landscaping, the creation of a new access to South Marsh Road, weighbridge facility, and drainage infrastructure, on land at South Humber Bank Power Station.

This site is located circa 700m northwest of the TWTF and Chapter 8 of the ES deals with Noise and Vibration provided by EP SHB. The noise assessment provides predicted noise levels at the Humber Estuary and functionally linked field to the south. The predicted construction levels range between 49dB to 62dB L_{Aeq} at the Humber Estuary NSR and 42dB to 72dB L_{Aeq} at functionally linked land to the south.
The proposed mitigation of piling at the EfW site (as indicated) would reduce the construction noise at the functionally linked land NSR to 42dB to 47dB $L_{Aeq.}$ at the southern end of the land closest to the TWTF. In the unlikely event of both sites being constructed at the same time and proposed mitigation, the combined noise impact is unlikely to produce and significant cumulative impacts.

In respect of operational noise from the EfW the levels at the Humber Estuary they are shown to be 46dB to 47dB L_{Aeq} and 44dB to 62dB L_{Aeq} at the functionally linked land (with the lower predicted level being relevant to the southern end of the land and higher level to the north). In respect of operational noise from the TWTF the levels at the Humber Estuary are shown to vary between 34dB to 38dB L_{Aeq} and 38dB to 49dB L_{Aeq} at the functionally linked land.

In terms of operation noise levels at the Humber Estuary and the functionally linked land the EfW noise levels are likely to dominate the noise at the Estuary as we are comparing noise levels of circa 46-47dB with the TWTF contribution of 35dB-39dB, therefore a minimal increase. In respect of the functionally linked field we are likely to be considering contribution levels of 44dB with 49dB and 38dB with 62dB at either

boundaries of the field between both sites. This would result in either no increase or circa +1dB L_{Aeq}, which is not significant, and therefore there is no likelihood of any significant cumulative impacts.

(iii) DM/0898/22/FUL

Construction of an Energy to Waste Plant
Netherlands Way, Stallingborough, Grimsby, DN41 8DF
Variation of Condition 2 (Approved plans) attached to DM/0274/20/FUL for alterations to include addition of admin office windows, addition of louvre vents to boiler hall, roof pitch raised 3 degree on boiler hall, installation of 2 silencer stacks to boiler room, increase height of air cooled condenser to 24m, erection of extension to create tipping hall, erection of water treatment plant, installation of water silo, erection of storage bunker, erection of water treatment room and erection of fire water pump room. (amended Flood Risk Assessment)

The site is located circa 3km northwest of the TWTF site. The submission includes a noise impact assessment report provided by Nova Acoustics (Report ref. 2516NU) dated 4th July 2018.

There is no assessment of impact in relation to construction noise within the Nova Acoustics Assessment but in view of the separation distance we would not expect this to produce any cumulative impacts.

In terms of operational noise, taking into consideration the separation distance between the two sites and screening from buildings on intervening land to the south of the Energy to Waste Plant site, the predicted noise contribution from distance propagation is likely to result in a contribution of between 20dB to 26dB L_{Aeq}. This compares with predicted noise levels at ecological NSR closest approach of 35dB to 38dB L_{Aeq} and therefore no effective increase when calculating combined noise levels and no cumulative impacts.

(iv) DM/0105/18/FUL

Land Off Stallingborough Interchange Kiln Lane Stallingborough North East Lincolnshire

Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62ha Business Park comprising up to 120,176 sq.m for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution), associated infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations, pumping stations, drainage and landscaping. (Amended FRA and Drainage Strategy July 2018)

This application is circa 2.8km from the TWTF Site and no noise impact assessment is included in the planning submission. Based on the nature of the development in the form of mixed use commercial and general industrial and separation distance from the TWTF this would mean that any noise contribution would be too low to be of any contributory significance and therefore no likely cumulative impacts.

(v) Stallingborough CCGT CCP - EIA DCO - EN010161

The Combined Cycle Gas Turbine application is in it's early stages of the planning process being a DCO submission. There is therefore no information on noise predictions from the Site, which is located circa 400m to the northwest of the TWTF.

The scoping report does indicate that noise and vibration would include a Best Available Techniques approach to controlling noise and vibration (i..e minimising noise and vibration through the Environmental Permit process via the EA). We therefore expect all impacts to be controlled to an acceptable limit taking into account any cumulative impacts. We therefore conclude that this development would not result in any likely significant cumulative impacts.

7.6.3 In conclusion we do not expect any significant cumulative impacts to occur as a result of any cumulative effects from proposed or permitted development in the area. In terms of operational noise we would expect a **negligible** impact in relation to cumulative effects and **not significant.** If construction works from the more local approved sites to the TWTF occur at the same time, there may be a **slight** impact and **minor effect** but the scenario of peak noise works occurring together is unlikely.

7.7 Noise Prediction Uncertainties

7.7.1 A noise prediction model of the site has been developed based on the information detailed in the report and Appendix 2 which provides details of the baseline ambient sound levels at the NSR. The prediction model used includes the use of ISO9613-2:2024 which is a nationally recognised calculation method to provide good accuracy.

7.7.2 Within BS4142: 2014+A1:2019 section 10.3 deals with `uncertainty in calculation' and states:

"Uncertainty in calculating sound levels can arise from:

a) uncertainty in any measured sound levels used in the calculations;
b) uncertainty in the operation or sound emission characteristics of the specific sound source and any assumed sound power levels;
c) uncertainty in the calculation method;
d) simplifying the real situation to "fit" the model (user influence on modelling); and
e) error in the calculation process.

Where the sound power level is used for calculating sound pressure levels, it ought to be representative of the source and the conditions under which the source is expected to operate.
Where possible, use recognized standards to establish the sound power level and the uncertainty (e.g. BS EN ISO 3740 and BS EN ISO 3747). Where it is not possible to use appropriate standards, describe the method of establishing the sound power level, report the uncertainty and state the reasons for using this method.
Use a validated method of calculating sound levels, e.g. ISO 9613-2 or similar. If an alternative calculation method is used, fully describe the method and state the reasons for using this method.
Check the implementation of the calculation method for errors.
For simple cases, e.g. where the level of variability in sound propagation

resulting from changes in meteorological conditions is likely to be small, simple calculation methods might be sufficient."

7.7.3 In terms of the prediction calculations undertaken, the following points are noted:

(i) Baseline survey work has been carried out in vicinity of the NSR over weekdays and a weekend period to cover the operating time period when the Proposed Development was not operating, to determine representative sound levels for the assessment.

(ii) The measured baseline levels have been undertaken using appropriate monitoring equipment, suitably calibrated, under appropriate weather conditions and over periods of the week where baseline levels would be at their lowest likely (i.e. weekend).

(iii) Noise analysers and microphones have been tested and found to be within specification and measurements traceable to reference source calibrated to National Standards. The uncertainties are for a confidence probability of not less than 95%. Noise meters are Class 1 and the calibration within 2 years at the time of the survey.

(iv) For the assessment of construction noise the calculation methodology found within BS 5228-1: 2009+A1:2014 has been used and library data from measured plant noise levels referenced for the calculation input.

(v) For the assessment of operational noise at the Proposed Development a recognised international standard for calculation has been used with appropriate settings to give an accurate prediction (i.e. ISO9613-2:2024).

(vi) Input data for the Proposed Development operational phase is based on empirical noise data for similar site plant operating in the UK.

(vii) Detailed layout of the site and the surrounding landform contours has been used to inform the noise model.

(viii) The highest potential noise levels from plant operations during the daytime and night-time periods have been considered thereby providing a realistic view of impacts.

(ix) The assessment and noise model has been undertaken by a registered expert in Acoustics and Noise Control who has been assessing, measuring and controlling noise sources for over 40 years. They are a Member of the Institute of Acoustics, Member of the Association of Noise Consultants and have been involved in assessing, measuring or validating over 6000 different industrial sites over the last 40 years.

(x) ISO9613-2:2024 used for the purpose of the calculation. The typical accuracy range for ISO 9613-2 predictions can vary depending on several factors, including the specific environmental conditions and the complexity of the noise sources. Generally, the standard is known to provide reliable predictions within a range of +/-3 dB with this type of noise source. Factors such as atmospheric conditions, ground effects, and the presence of obstacles can influence the accuracy of the predictions. An allowance of +3dB has been included relative to residential receptors for noise character, which is not deemed to be necessary for robustness in

accordance with EA guidance.

(xi) The potential variation in predicted noise levels is likely to be as a result of sound propagation resulting from changes in meteorological conditions (e.g. atmospheric conditions, wind strength and temperature inversions). This is difficult to predict, and in the situation where there is a positive wind vector in the direction of nearest sensitive receptors the actual background noise level could, in any case, be higher than when measured under ideal conditions. We therefore would not consider this to be a significant factor due to the fact that when assessing the site for compliance this would be carried out in suitable meteorological conditions. The noise model assumes the wind direction is a positive vector. We therefore conclude that the assessment of site noise is accurate and uncertainty is minimised.

8.0 CONCLUSIONS

8.1 The Proposed Development, has been assessed in terms of noise impact during maximum operational conditions. This report has been undertaken to provide technical support to the planning application for the development.

8.2 The results show that between 0700-2300 hours at the residential NSR monitoring position, the representative L_{A90} level was 59dB. During night-time periods (between 2300 to 0700 hours) the representative background level was shown to be 44dB L_{A90}.

8.3 For the ecological NSR, the sound study showed a range of ambient levels between 30dB to 62dB L_{Aeq} for weekday daytime site operating periods (0700 to 2300 hours) with an average of 48dB to 50dB L_{Aeq}. For night-time operating periods (2300 to 0700 hours) the range of ambient $L_{Aeq's}$ was 34dB to 61dB with an average of 48dB to 56dB L_{Aeq}.

8.5 For the proposed construction hours, the survey showed ambient levels between 42dB to 58dB LAeq for the weekday daytime period (i.e. 0800 to 1800 hours) with an average of 48dB to 51dB L_{Aeq}. For Saturday construction hours (i.e. 0800 to 1300 hours) the range of ambient $L_{Aeq's}$ was 42dB to 58dB with an average of 52dB to 53dB L_{Aeq}. Associated L_{Amax} level range was shown to be between 52dB to 86dB during weekday and 54dB to 76dB on the Saturday.

8.6 Typical site operating noise levels have been established from empirical data obtained from other similar sites operating in the UK to provide input data for the noise model.

8.7 The relevant guidance for the assessment of impact for residential development is established as being the methodology provided within BS4142:2014+A1:2019. For the assessment of impact on birds, following previous work at other UK sites adjacent to Rivers, estuaries and coastal site locations, reference is made to the EA INTERREG IVB-Project “Tidal River Development’ TIDE `Waterbird Disturbance and Mitigation Toolkit’: 2024 and the Natural England document `A review of the effects of noise on Birds’ Version 1 was published in 2018 by NE (Allan Drewitt, Emma Hawthorne, Richard Saunders & Sarah Anthony).

8.8 The results of construction noise predictions at residential NSR, show that the BS5228 guidance threshold level would not be exceeded. The impact is shown to be **negligible** and a **neutral** level of effect and therefore **not significant**. The application of applying best practicable means in accordance with BS5228-1:2009+A1:2014 will assist in minimising impact from construction noise. A Construction Environmental Management Plan (CEMP) would be provided to the LPA prior to commencement of works for agreement.

8.9 In respect of the effects of construction noise relative to ecological NSR, with the adoption of an appropriate noise mitigation strategy and application of BPM, we would expect the resultant impact from construction noise to range between **negligible to slight and a neutral to minor effect** and **not significant**.

8.10 The impact from temporary construction traffic development is expected to be <1dB L_{A10} and in accordance with DMRB LA 111 guidance a **negligible impact** and **neutral effect** would occur which is **not significant**.

8.11 In relation to construction vibration the impact would be **negligible to slight** and a **neutral to minor** level of effect and is therefore **not significant**. Where non-percussive vibration is used (i.e. CFA) the impact would then reduce to a **negligible impact** and neutral effect.

8.12 The range of predicted rating noise levels from the plant associated with the TWTF Site based on maximum operating conditions (with proposed mitigation) at the residential NSR are shown to vary between 33dB to 34dB $L_{Aeq,1hr}$.

8.13 The results show that the noise rating level from maximum site operations with the assumed plant noise levels would be well below the representative background sound level during the daytime. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise from the Site would result in a **low impact** and **negligible impact** and **neutral effect** and **not significant** at NSR.

8.14 The range of predicted rating noise levels from the plant associated with the TWTF Site under maximum operating conditions during night-time operating periods is 32dB to 33dB $L_{Aeq,15mins}$ at NSR. This would be well below the representative background sound level during the night-time periods at NSR. According to BS4142: 2014+A1:2019, the resultant assessment would conclude that noise impact from Site would be low. This would result in a **negligible impact** and **neutral** level of effect and **not significant** at NSR.

8.15 In relation to absolute levels during night-time periods, the maximum noise levels generated by the TWTF plant are well below sleep disturbance limits.

8.16 According to the TA It is anticipated that the operation of the Proposed Development will generate a total of 12 two-way HGV movements per hour. The expected impact from operational road traffic development would be <1dB L_{A10} and in accordance with DMRB LA 111 guidance) would result in a **negligible impact** and a **neutral effect** and **not significant**.

8.17 The results of empirical vibration levels undertaken at other similar sites in the UK show no significant vibration is likely at close range positions to associated plant (i.e. within 10m) and therefore no vibration would occur at NSR. The impact would be **negligible** and a **neutral** level of effect and therefore **not significant**.

8.18 In conclusion we do not expect any significant cumulative impacts to occur as a result of any cumulative effects from proposed or permitted development in the area. In terms of operational noise, we would expect a **negligible** impact in relation to cumulative effects and therefore **not significant.** If construction works from the more local approved sites to the TWTF occur at the same time, there may be a **slight** impact and **minor effect** but the scenario of peak noise works occurring together is unlikely.

8.19 The assessment concludes that the site can be designed to operate such that it complies with all appropriate and relevant noise standards and guidance. There is, therefore, no reason to refuse the Proposed Development on the grounds of noise or vibration.

REFERENCES

BS7445:2003 Description and measurement of environmental noise.

BS 4142: 2014+A1:2019 ` Methods for rating and assessing industrial and commercial sound'

BS 8233:2014 `Guidance on sound insulation and noise reduction for buildings'

Guidelines for Community Noise – World Health Organisation: April 1999

Night Noise Guidelines for Europe: 2009 – World Health Organisation

Noise Policy Statement for England (NPSE) – March 2010

Department for Communities and Local Government: National Planning Policy Framework: December 2024

National Planning Practice Guidance: July 2019

Design Manual for Roads and Bridges, LA 111 Noise and Vibration: Version 2 (May 2020)

Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Noise Impact Assessment' - 2014'

ISO 9613-2: 2024 Acoustics – Attenuation of Sound During Propagation Outdoors

FIGURES

Figure 1: Noise Measurement Locations, Residential Receptors & Site Position

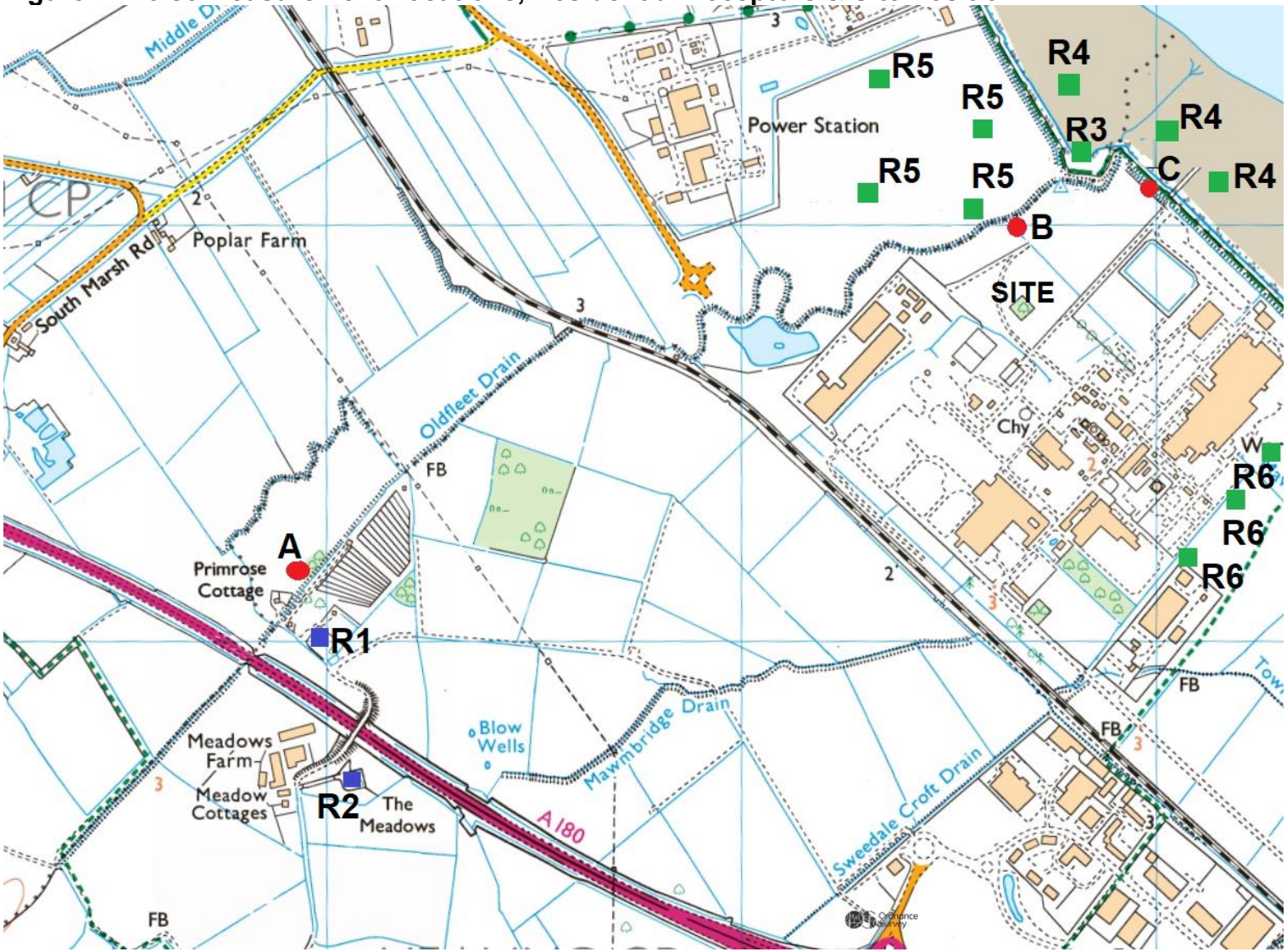


Figure 2: Proposed Site Location and Ecological Nearest Sensitive Areas

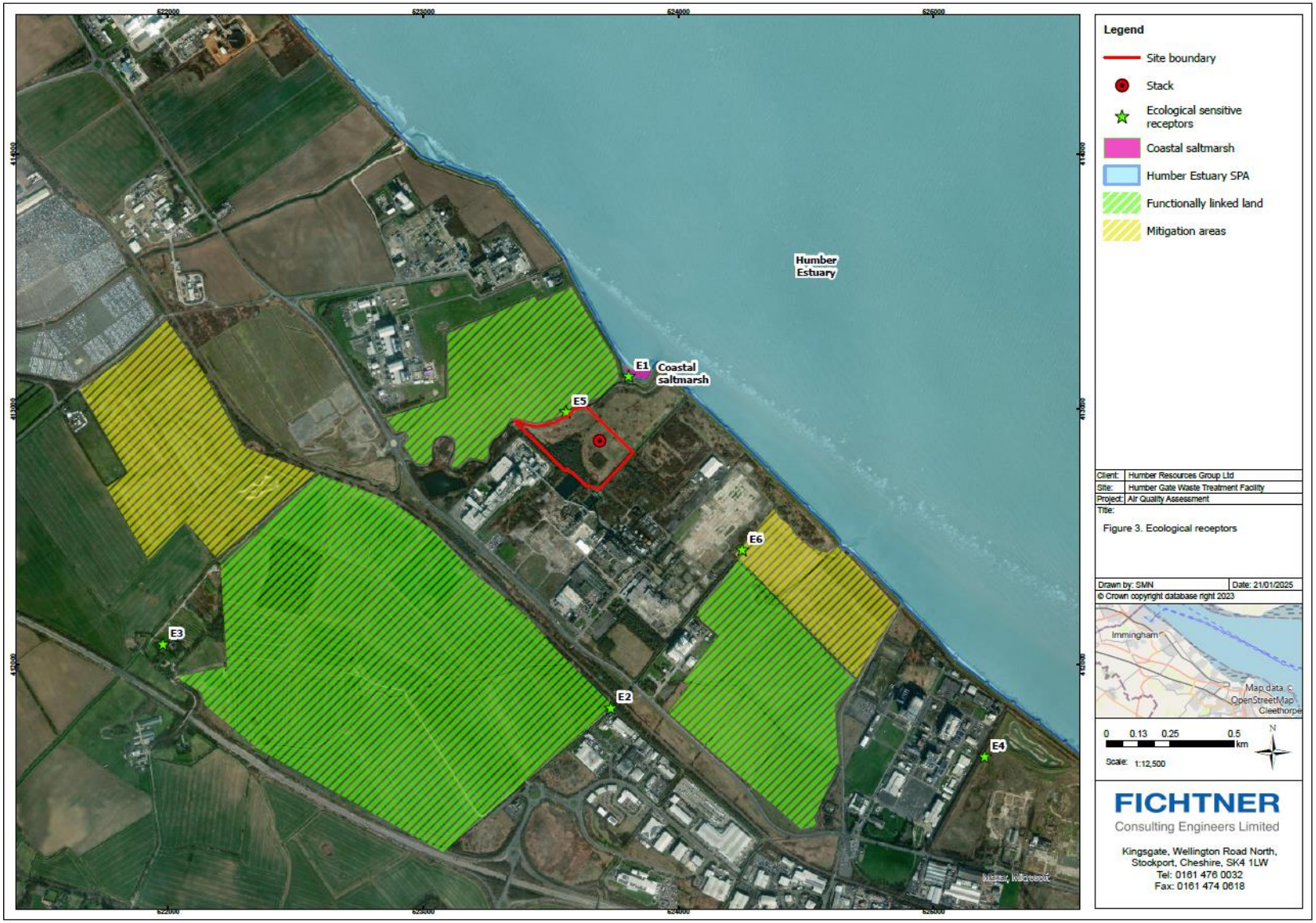


Figure 3: Proposed Site Layout

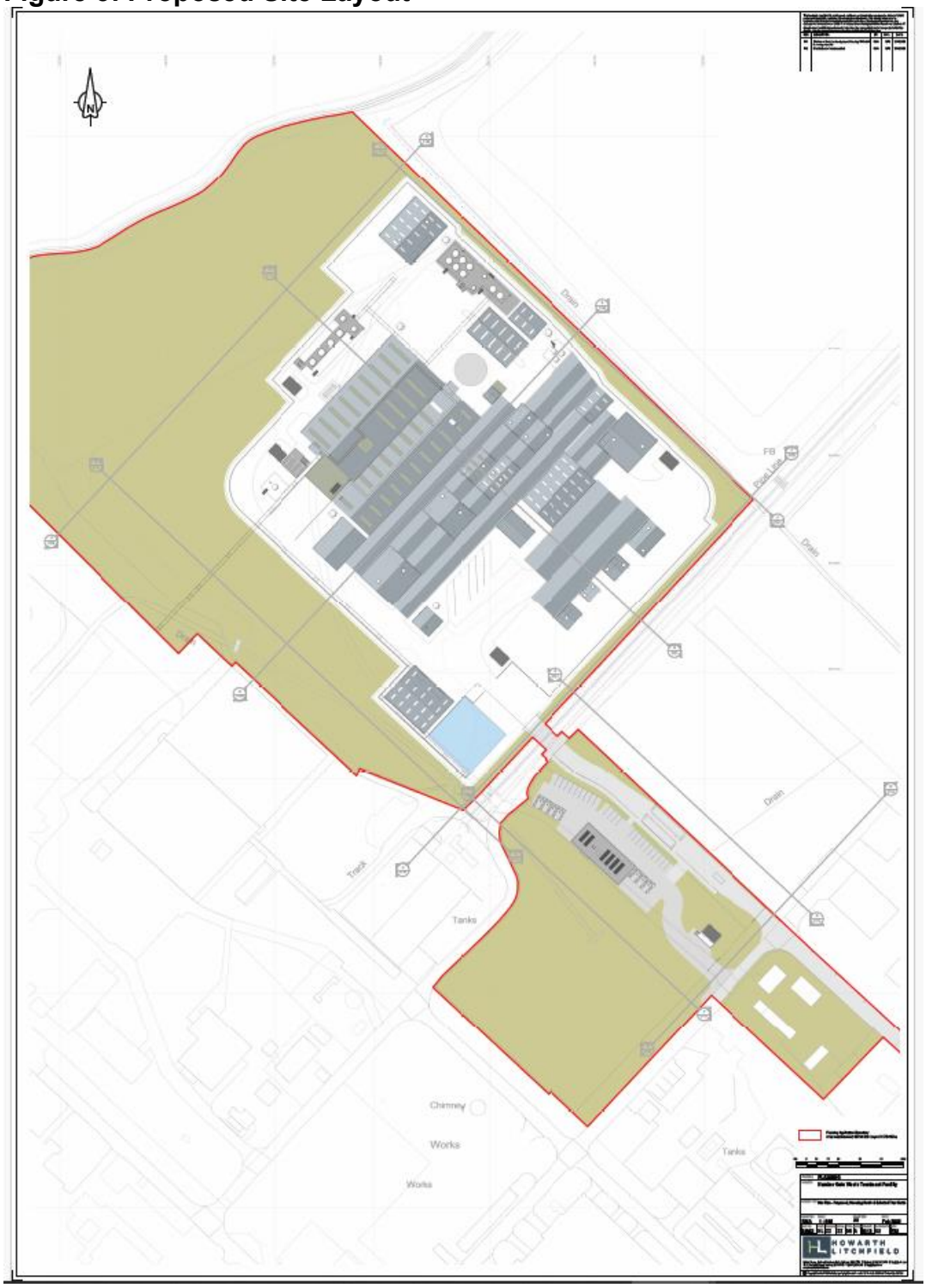
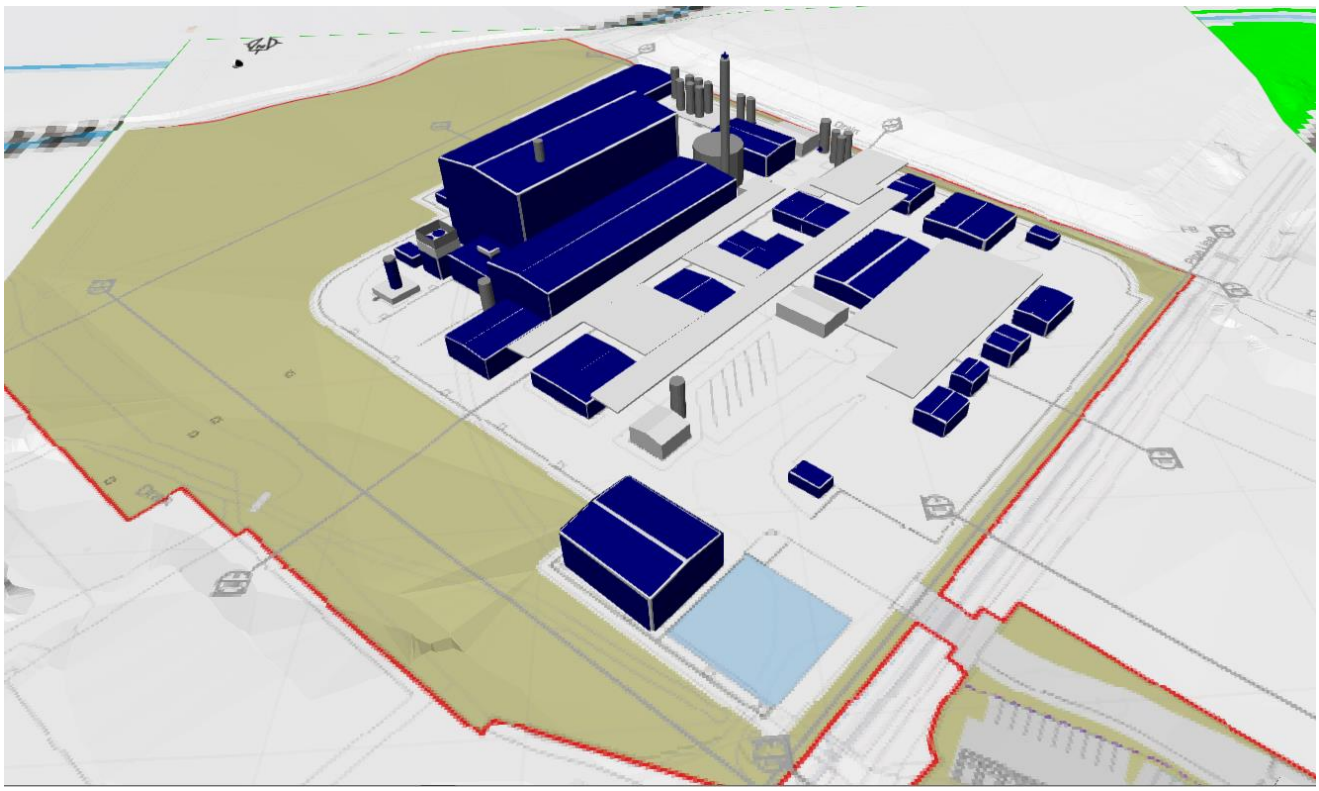


Figure 4: 3D Image of TWTF



Appendix 1

BASIC ACOUSTIC TERMINOLOGY

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air.

Sound Pressure Level is a measurement of the size of these pressure fluctuations. It is expressed in decibels (dB) on a logarithmic scale. Each 3 dB increase in sound pressure level represents a doubling of the sound energy. The threshold of hearing is approximately 0 dB.

The rate at which the pressure fluctuations occur determines the pitch or frequency of the sound. The frequency is expressed in Hertz (Hz), that is, cycles per second. The human ear is sensitive to sounds from about 20 Hz to 20,000 Hz. Although sound can be of one discrete frequency - a 'pure tone' - most noises are made up of many different frequencies.

The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same 'subjective' way. This is the basis of the A-weighted sound level dB(A), normally used to assess the effect of noise on people. The dB(A) weighting emphasises or reduces the importance of certain frequencies within the audible range.

Noise Measurement

The measurement of sound pressure level is only really meaningful where the level of noise is constant. In the typical industrial environment noise levels can vary widely and sometimes short duration high levels of noise are interspersed with periods of relative quiet. The most widely used means of 'averaging' the noise over a period of time is the Equivalent Continuous Sound Level. Normally written as L_{Aeq} this value takes into account both the level of noise and the length of time over which it occurs. There are many meters available which are capable of measuring L_{Aeq} by electronic integration over the measurement period.

The L_{Aeq} or A-weighted equivalent continuous noise level is a measure of the total noise energy over a stated time period and includes all the varying noise levels and re-expresses as an 'average', allowing for the length of time for which each noise level was presented.

The L_{An} parameters are defined as the noise levels which are exceeded for n% of the monitoring period, thus, for example, the L_{A90} parameter is the noise level exceeded for 90% of the 15-minute period, i.e. 13.5 minutes. The L_{A50} parameter is the noise level exceeded for 50% of the hourly period, i.e. 30 minutes, etc. The L_{max} parameter is the maximum RMS A-weighted noise level occurring during the measurement period.

The definition in layman's terms is given below for terminology used in the measurement and results obtained during the survey work.

A-weighting: Normal hearing covers the frequency (pitch) range from about 20Hz to 20,000 Hz but sensitivity of the ear is greatest between about 500Hz and 5000Hz. The "A-weighting" is an electrical circuit built into noise meters to mimic this characteristic of the human ear.

Ambient noise: The totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Attenuation: Noise reduction

Background noise: The general quiet periods of ambient noise when the noise source under investigation is not there.

Decibel (dB): The unit of measurement for sound based on a logarithmic scale. 0dB is the threshold of normal hearing; 140dB is the threshold of pain. A change of 1dB is only detectable under controlled laboratory conditions.

dB(A) [decibel A weighted]: Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) serves to distinguish sounds of different frequency (or pitch) in a similar way to how the human ear responds. Measurements in dB(A) broadly agrees with an individual's assessment of loudness. A change of 3dB(A) is the minimum perceptible under normal everyday conditions, and a change of 10dB(A) corresponds roughly to doubling or halving the loudness of sound.

dB(C): [decibel C weighted]: Frequency weighting which does not alter low frequency octave band levels by very much compared to `A' weighting. Similar to linear reading (i.e. linear does not alter frequency spectra at all)

Frequency (Hz): The number of sound waves to pass a point in one second.

L_{Aeq}: This is a noise index used to describe the "average" level of a noise that varies with time (T). It allows for the different sensitivities of the human ear to different frequencies (pitch), and averages fluctuating noise levels in a manner which correlates well with human perceptions of loudness.

$L_{A10,T}$: This noise index gives an indication of the upper limit or peak levels of the fluctuating noise. It is the "A weighted" noise level exceeded for 10 per cent of the specified measurement period (T). e.g. If the measurement period was over 10 hours and the L_{A10} reading was say 60dB, then this means that for 1 hour out of 10 the level went above 60dB.

$L_{A90,T}$: This noise index gives an indication of the lower limit or levels of the fluctuating noise. It is the "A weighted" noise level exceeded for 90 per cent of the specified measurement period (T). e.g. If the measurement period was over 10 hours and the L_{A90} reading was say 50dB, then this means that for 9 hours out of 10 the level went above 50dB.

L_{Amax}: This is the highest `A' weighted noise level recorded during a noise measurement period.

Residual noise: The ambient noise remaining at a given position in a given situation when the noise source under investigation is not there.

Specific noise: The noise source under investigation for assessing the likelihood of complaints

Examples of typical noise levels

Source/Activity	**Indicative noise level [dB(A)]**
Threshold of hearing	0
Rural night-time background	20-40
Quiet bedroom	35
Wind farm at 350m	35-45
Busy road at 5km	35-45
Car at 65km/h at 100m	55
Busy general office	60
Conversation	60
Truck at 50km/h at 100m	65
City Traffic at 5m	75-85
Pneumatic drill at 7m	95
Jet aircraft at 250m	105
Threshold of pain	140

Appendix 2

Baseline Sound Survey Results

Photographs of Monitoring Locations

Position A: Southwest of Site - Off Marsh Lane (Grid reference: 521956 412134)

Position B: North of Site – Adjacent to the Oldfleet Drain (Grid reference: 523705 413042)

Position C: East of Site – Adjacent to the sea wall (Grid reference: 524030 413045)

Sound Monitoring Results

Position A: Southwest of Site - Off Marsh Lane

Noise Survey Results

Date: Thursday 4th July 2024 **TABLE 1**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
19:00	15:00	67.3	69.7	63.0	76.2	Dominated by road traffic noise
19:15	15:00	65.8	68.3	61.2	76.5	from A180
19:30	15:00	65.8	68.1	62.4	74.8	
19:45	15:00	66.2	68.5	62.5	75.6	
20:00	15:00	64.1	66.8	58.9	76.4	
20:15	15:00	64.4	67.2	59.5	73.3	
20:30	15:00	65.0	67.5	60.5	75.9	
20:45	15:00	61.9	64.4	56.4	76.5	
21:00	15:00	64.1	66.1	61.0	73.6	
21:15	15:00	62.6	65.1	58.1	70.6	
21:30	15:00	62.6	65.3	58.3	70.1	
21:45	15:00	62.9	65.3	58.9	70.6	
22:00	15:00	61.9	64.8	56.1	72.2	
22:15	15:00	62.7	65.3	57.8	72.2	
22:30	15:00	61.7	64.3	56.2	73.5	
22:45	15:00	59.5	62.6	53.8	71.2	
Average 1900-2300		64.0	66.5	59.7	70-77	

Noise Survey Results

Date: Thursday 4th - Friday 5th July 2024 **TABLE 2**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	60.7	64.2	52.0	72.4	
23:15	15:00	59.6	62.6	53.0	69.3	
23:30	15:00	58.6	62.3	49.1	72.2	
23:45	15:00	59.8	62.9	52.7	72.1	
00:00	15:00	59.0	63.0	49.2	70.3	
00:15	15:00	59.8	62.8	51.2	73.5	
00:30	15:00	58.8	62.4	49.8	73.1	
00:45	15:00	57.3	61.2	46.9	69.5	
01:00	15:00	54.2	57.6	41.6	68.2	
01:15	15:00	54.9	59.1	41.5	71.0	
01:30	15:00	57.4	61.2	47.9	71.3	
01:45	15:00	58.4	62.0	48.3	70.4	
02:00	15:00	58.8	62.8	44.4	72.3	
02:15	15:00	56.2	60.7	39.5	71.3	
02:30	15:00	58.8	62.8	49.1	72.0	
02:45	15:00	59.7	62.9	52.0	73.9	
03:00	15:00	59.2	62.0	53.9	70.3	
03:15	15:00	59.4	63.1	46.1	71.6	
03:30	15:00	58.6	62.1	49.2	74.3	
03:45	15:00	59.7	63.2	51.9	69.2	
04:00	15:00	61.0	63.6	55.0	71.3	
04:15	15:00	62.0	64.9	54.8	71.5	
04:30	15:00	62.9	65.6	57.4	75.1	
04:45	15:00	62.8	65.5	58.9	72.6	
05:00	15:00	63.1	65.8	58.6	71.5	
05:15	15:00	65.8	67.7	62.9	73.2	
05:30	15:00	67.8	69.5	65.3	74.0	
05:45	15:00	67.4	69.4	64.2	74.6	
06:00	15:00	68.0	69.7	65.5	73.8	
06:15	15:00	67.9	69.6	65.6	73.1	
06:30	15:00	69.5	71.2	67.2	74.6	
06:45	15:00	68.9	70.6	66.5	74.2	
Average 2300-0700		63.2	65.6	59.6	68-75	
Average 1900-2300		64.0	66.5	59.7	70-77	

Noise Survey Results

Date: Friday 5th July 2024 **TABLE 3**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	68.7	70.3	66.6	74.8	
07:15	15:00	68.9	70.5	66.7	74.3	
07:30	15:00	69.6	71.0	67.7	74.0	
07:45	15:00	69.2	70.6	67.2	74.4	
08:00	15:00	68.5	70.1	66.1	75.0	
08:15	15:00	69.1	70.7	66.6	74.7	
08:30	15:00	69.2	71.0	66.5	74.5	
08:45	15:00	68.9	71.0	65.8	75.9	
09:00	15:00	67.7	69.9	64.2	75.1	
09:15	15:00	68.1	70.1	64.6	77.1	
09:30	15:00	68.3	70.4	65.1	75.7	
09:45	15:00	67.9	70.1	64.4	77.2	
10:00	15:00	68.4	70.3	65.2	79.0	
10:15	15:00	68.1	70.0	65.2	75.1	
10:30	15:00	67.8	69.8	64.2	75.3	
10:45	15:00	68.2	70.2	64.8	75.8	
11:00	15:00	67.8	69.8	64.6	77.8	
11:15	15:00	67.9	69.9	64.7	75.1	
11:30	15:00	67.9	70.0	64.6	78.3	
11:45	15:00	67.3	69.6	63.6	74.8	
12:00	15:00	67.9	70.1	64.2	75.8	
12:15	15:00	67.6	69.6	64.3	74.3	
12:30	15:00	66.7	68.6	63.8	74.5	
12:45	15:00	65.7	67.8	62.3	73.2	
13:00	15:00	66.0	68.3	61.9	75.7	
13:15	15:00	66.1	68.5	62.0	74.4	
13:30	15:00	65.8	69.2	60.2	74.4	
13:45	15:00	65.9	68.3	62.3	75.0	
14:00	15:00	65.4	68.0	61.2	75.2	
14:15	15:00	64.8	67.2	61.0	73.1	
14:30	15:00	64.5	67.3	59.8	72.1	
14:45	15:00	64.8	67.5	59.1	74.3	
Average 0700-1500		67.6	69.6	64.5	72-79	

Noise Survey Results

Date: Friday 5th July 2024 **TABLE 4**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	66.8	69.1	63.4	74.9	
15:15	15:00	65.3	68.3	57.0	75.3	
15:30	15:00	65.0	67.3	60.7	75.4	
15:45	15:00	62.9	65.9	58.5	72.6	
16:00	15:00	66.1	68.6	61.5	76.9	
16:15	15:00	64.7	67.2	60.6	74.0	
16:30	15:00	66.5	69.3	61.7	74.1	
16:45	15:00	64.7	67.0	60.4	73.1	
17:00	15:00	65.7	67.8	62.4	72.5	
17:15	15:00	65.1	67.9	60.4	73.0	
17:30	15:00	66.4	68.2	64.0	72.6	
17:45	15:00	64.0	65.8	61.4	71.9	
18:00	15:00	64.1	66.6	60.4	71.9	
18:15	15:00	63.7	66.3	59.3	72.2	
18:30	15:00	62.5	64.3	59.6	69.8	
18:45	15:00	59.9	62.2	56.8	68.7	
19:00	15:00	59.2	61.2	55.6	68.4	
19:15	15:00	59.4	61.8	54.6	67.0	
19:30	15:00	55.5	58.0	51.2	70.2	
19:45	15:00	57.0	59.5	52.8	65.1	
20:00	15:00	58.3	60.9	53.6	68.4	
20:15	15:00	58.1	60.5	53.1	77.6	
20:30	15:00	58.3	61.0	53.7	69.8	
20:45	15:00	57.3	59.9	51.8	64.9	
21:00	15:00	57.4	60.2	52.4	67.0	
21:15	15:00	55.1	58.3	49.3	64.9	
21:30	15:00	52.0	54.9	45.6	68.1	
21:45	15:00	52.9	56.1	45.8	64.1	
22:00	15:00	51.2	54.5	44.3	64.2	
22:15	15:00	51.9	55.1	45.5	62.1	
22:30	15:00	52.8	56.1	45.5	65.6	
22:45	15:00	52.5	56.0	40.5	68.8	
Average 1500-2300		62.4	64.8	58.3	62-78	

Noise Survey Results

Date: Friday 5th - Saturday 6th July 2024 **TABLE 5**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	54.3	57.5	45.7	68.0	
23:15	15:00	53.8	57.4	45.4	64.2	
23:30	15:00	52.2	55.7	43.6	63.3	
23:45	15:00	53.2	56.9	42.1	66.3	
00:00	15:00	51.8	56.1	39.1	67.7	
00:15	15:00	55.2	58.5	48.4	66.9	
00:30	15:00	54.9	58.2	47.1	66.8	
00:45	15:00	53.5	57.1	42.4	66.1	
01:00	15:00	52.7	56.4	40.6	64.3	
01:15	15:00	55.3	58.9	47.7	68.4	
01:30	15:00	56.8	60.0	49.4	68.1	
01:45	15:00	54.9	58.1	43.1	72.0	
02:00	15:00	52.5	56.8	39.1	68.0	
02:15	15:00	52.8	57.1	38.7	72.9	
02:30	15:00	55.3	59.4	40.3	68.1	
02:45	15:00	54.5	58.5	41.2	66.8	
03:00	15:00	55.3	58.8	40.2	73.4	
03:15	15:00	54.6	58.4	44.0	65.2	
03:30	15:00	56.2	60.1	41.4	70.9	
03:45	15:00	54.9	58.8	44.0	66.6	
04:00	15:00	54.0	57.8	44.1	64.2	
04:15	15:00	53.8	57.7	42.9	65.0	
04:30	15:00	54.5	57.8	46.6	65.6	
04:45	15:00	55.9	59.0	48.8	66.5	
05:00	15:00	56.6	59.7	49.5	65.6	
05:15	15:00	58.5	61.0	54.4	68.0	
05:30	15:00	61.2	63.9	56.3	69.6	
05:45	15:00	61.2	63.5	57.4	68.5	
06:00	15:00	63.0	65.9	57.4	72.4	
06:15	15:00	63.8	66.4	59.8	72.9	
06:30	15:00	65.3	68.0	60.5	75.5	
06:45	15:00	63.4	65.8	59.2	72.3	
Average 2300-0700		58.0	61.0	52.3	63-76	
Average 0700-2300		65.8	67.9	62.4	62-79	

Noise Survey Results

Date: Saturday 6th July 2024 **TABLE 6**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	57.8	59.6	55.3	65.3	
07:15	15:00	61.0	64.1	55.5	70.4	
07:30	15:00	64.6	67.2	59.7	73.7	
07:45	15:00	64.7	67.1	60.0	76.2	
08:00	15:00	62.9	65.4	58.6	73.3	
08:15	15:00	63.5	65.6	60.1	71.9	
08:30	15:00	63.3	65.7	59.1	72.7	
08:45	15:00	64.0	66.0	60.8	72.5	
09:00	15:00	64.3	66.4	61.0	73.6	
09:15	15:00	64.2	66.5	60.3	75.7	
09:30	15:00	63.8	66.1	60.2	76.5	
09:45	15:00	63.6	65.7	60.2	71.6	
10:00	15:00	63.0	65.2	59.8	70.0	
10:15	15:00	64.2	66.3	60.9	71.9	
10:30	15:00	64.5	66.5	61.5	72.1	
10:45	15:00	64.3	66.4	61.4	71.3	
11:00	15:00	64.3	66.4	60.8	73.9	
11:15	15:00	64.7	66.6	61.8	71.8	
11:30	15:00	64.3	66.3	61.4	70.5	
11:45	15:00	65.5	67.8	62.0	73.2	
12:00	15:00	65.0	67.1	61.9	72.1	
12:15	15:00	65.6	67.5	62.7	71.9	
12:30	15:00	65.0	67.1	61.8	72.8	
12:45	15:00	63.7	66.1	60.2	71.8	
13:00	15:00	64.0	66.4	60.2	72.1	
13:15	15:00	62.4	64.8	58.4	70.8	
13:30	15:00	62.4	64.9	58.3	73.0	
13:45	15:00	64.9	67.4	60.4	74.0	
14:00	15:00	61.2	64.5	55.7	70.7	
14:15	15:00	61.1	63.1	58.1	69.2	
14:30	15:00	60.9	63.4	56.6	71.4	
14:45	15:00	66.1	68.4	62.0	74.1	
Average 0700-1500		63.8	66.1	60.2	65-77	

Noise Survey Results

Date: Saturday 6th July 2024 **TABLE 7**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	66.7	68.9	63.3	76.3	Rain
15:15	15:00	66.8	69.1	63.3	75.2	Rain
15:30	15:00	68.8	70.9	65.4	75.3	Rain
15:45	15:00	68.0	70.3	64.1	77.3	Rain
16:00	15:00	67.9	70.2	64.4	75.2	Rain
16:15	15:00	67.8	69.8	64.7	75.7	Rain
16:30	15:00	67.1	68.9	64.2	74.9	Rain
16:45	15:00	67.1	69.0	63.9	75.4	Rain
17:00	15:00	65.8	68.1	61.7	76.6	Rain
17:15	15:00	65.3	67.6	61.1	76.2	Rain
17:30	15:00	65.6	68.1	61.6	74.9	Rain
17:45	15:00	65.0	67.2	61.0	77.2	Rain
18:00	15:00	65.4	67.7	61.5	76.1	
18:15	15:00	64.8	67.3	59.9	77.0	
18:30	15:00	64.6	67.6	58.8	76.4	
18:45	15:00	64.8	67.4	59.1	75.3	
19:00	15:00	64.8	67.4	60.0	76.2	
19:15	15:00	64.6	67.7	58.1	76.5	
19:30	15:00	62.0	64.9	56.3	73.1	
19:45	15:00	64.2	67.0	58.9	75.1	
20:00	15:00	64.8	67.5	59.4	75.5	
20:15	15:00	64.4	67.3	59.4	74.8	
20:30	15:00	63.7	66.1	59.5	74.9	
20:45	15:00	64.1	66.6	59.4	72.7	
21:00	15:00	63.6	66.0	59.1	72.9	
21:15	15:00	62.2	64.7	57.8	72.4	
21:30	15:00	61.2	64.3	53.3	71.8	
21:45	15:00	59.9	62.2	54.7	73.2	
22:00	15:00	57.8	60.4	53.1	66.3	
22:15	15:00	57.3	59.6	53.7	66.4	
22:30	15:00	56.5	59.1	52.3	67.2	
22:45	15:00	56.7	59.1	53.1	64.4	
Average 1500-2300		63.1	65.8	58.1	64-77	Excluding Rain

Noise Survey Results

Date: Saturday 6th - Sunday 7th July 2024 **TABLE 8**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	54.6	57.1	50.2	65.7	
23:15	15:00	53.5	56.2	48.2	61.3	
23:30	15:00	52.1	55.3	43.7	62.3	
23:45	15:00	52.9	55.8	47.2	63.1	
00:00	15:00	51.3	54.3	44.9	61.6	
00:15	15:00	51.9	55.1	44.6	63.0	
00:30	15:00	49.4	52.9	41.4	60.0	
00:45	15:00	50.1	53.1	44.0	59.9	
01:00	15:00	49.7	52.6	42.4	59.5	
01:15	15:00	51.6	54.5	46.0	62.3	
01:30	15:00	50.0	53.2	39.7	62.0	
01:45	15:00	49.0	52.5	38.2	61.7	
02:00	15:00	47.8	51.4	36.9	58.8	
02:15	15:00	47.7	51.4	34.8	60.3	
02:30	15:00	47.9	52.0	39.4	58.7	
02:45	15:00	47.0	50.4	37.8	59.2	
03:00	15:00	47.6	50.8	37.0	61.8	
03:15	15:00	49.2	52.9	31.0	60.5	
03:30	15:00	46.4	50.3	37.4	57.6	
03:45	15:00	45.5	49.4	28.9	57.4	
04:00	15:00	46.5	50.0	37.7	56.2	
04:15	15:00	48.0	51.5	40.1	60.4	
04:30	15:00	49.6	52.3	43.8	60.6	
04:45	15:00	48.7	51.5	41.4	59.2	
05:00	15:00	49.8	53.2	43.0	59.7	
05:15	15:00	53.0	55.5	48.2	63.5	
05:30	15:00	57.0	59.8	51.1	65.2	
05:45	15:00	57.2	59.5	53.3	65.4	
06:00	15:00	56.4	58.9	52.7	66.8	
06:15	15:00	57.2	59.6	53.4	64.9	
06:30	15:00	58.2	60.2	55.2	66.0	
06:45	15:00	56.4	58.5	52.5	66.1	
Average 2300-0700		52.6	55.3	47.6	56-67	
Average 0700-2300		63.6	66.0	59.5	64-77	

Noise Survey Results

Date: Sunday 7th July 2024 **TABLE 9**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	57.5	59.9	53.4	67.8	
07:15	15:00	58.6	61.2	53.8	66.5	
07:30	15:00	60.5	63.1	56.1	70.9	
07:45	15:00	60.5	63.1	55.4	70.3	
08:00	15:00	62.3	64.8	57.3	74.6	
08:15	15:00	63.1	65.7	59.1	71.3	
08:30	15:00	63.7	66.1	59.6	73.7	
08:45	15:00	62.3	64.8	57.9	71.1	
09:00	15:00	63.2	65.9	58.7	72.6	Rain
09:15	15:00	64.3	66.5	60.2	80.4	Rain
09:30	15:00	63.8	66.0	60.5	71.4	Rain
09:45	15:00	63.0	64.9	60.3	69.7	Rain
10:00	15:00	63.6	65.9	59.9	70.7	Rain
10:15	15:00	65.1	67.5	61.4	72.9	Rain
10:30	15:00	65.8	67.6	63.4	72.7	Rain
10:45	15:00	66.4	68.3	63.5	73.5	Rain
11:00	15:00	66.1	68.3	62.7	73.4	
11:15	15:00	66.5	68.3	63.9	74.7	
11:30	15:00	66.2	67.9	63.5	72.0	
11:45	15:00	65.4	67.1	62.9	71.2	
12:00	15:00	64.9	67.3	60.9	74.4	Rain
12:15	15:00	63.4	65.6	59.6	74.2	Rain
12:30	15:00	61.3	63.6	57.5	68.8	Rain
12:45	15:00	60.2	62.7	55.8	69.9	Rain
13:00	15:00	62.8	65.2	59.5	71.1	Rain
13:15	15:00	65.6	67.5	63.0	72.3	Rain
13:30	15:00	63.3	66.0	58.2	73.2	Rain
13:45	15:00	62.7	65.8	56.4	72.9	Rain
14:00	15:00	65.5	67.7	61.7	75.7	
14:15	15:00	66.2	68.2	63.5	74.4	
14:30	15:00	65.3	67.2	62.2	70.8	
14:45	15:00	63.3	65.6	58.9	69.4	
Average 0700-1500		64.0	66.1	60.6	57-70	Excluding Rain

Noise Survey Results

Date: Sunday 7th July 2024 **TABLE 10**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	60.7	62.6	57.9	66.3	
15:15	15:00	59.6	61.9	56.1	69.5	
15:30	15:00	58.2	60.0	55.3	67.8	
15:45	15:00	60.6	62.9	56.7	75.2	
16:00	15:00	62.7	65.0	59.2	76.9	
16:15	15:00	62.6	65.2	58.2	75.5	
16:30	15:00	61.1	63.2	55.2	77.4	
16:45	15:00	53.2	55.9	50.3	61.9	
17:00	15:00	52.0	53.7	49.5	61.5	
17:15	15:00	52.1	54.2	48.8	60.7	
17:30	15:00	52.4	54.8	48.7	60.0	
17:45	15:00	52.5	54.7	49.3	59.7	
18:00	15:00	54.7	56.9	50.9	60.0	
18:15	15:00	59.0	61.2	56.1	66.5	
18:30	15:00	60.8	62.6	58.0	69.3	
18:45	15:00	55.9	57.7	53.2	62.3	
19:00	15:00	58.0	60.7	52.9	65.6	
19:15	15:00	58.2	60.3	54.9	65.5	
19:30	15:00	58.9	61.1	55.3	68.2	
19:45	15:00	60.8	63.4	55.9	73.1	
20:00	15:00	61.9	64.6	57.3	71.8	
20:15	15:00	60.5	62.8	57.1	70.5	
20:30	15:00	60.9	63.1	57.7	72.3	
20:45	15:00	59.8	62.1	55.4	72.7	
21:00	15:00	61.4	64.3	56.2	71.2	
21:15	15:00	61.1	64.1	55.6	69.8	
21:30	15:00	61.3	64.5	55.5	71.6	
21:45	15:00	62.2	64.9	56.9	71.1	
22:00	15:00	61.1	63.7	56.5	70.6	
22:15	15:00	57.2	60.4	50.6	67.4	
22:30	15:00	58.1	61.3	51.4	70.7	
22:45	15:00	58.0	61.6	41.5	72.0	
Average 1500-2300		59.6	62.1	55.3	60-77	

Noise Survey Results

Date: Sunday 7th - Monday 8th July 2024 **TABLE 11**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	57.1	60.6	48.4	69.1	
23:15	15:00	59.7	62.5	52.7	70.6	
23:30	15:00	59.9	63.0	51.7	71.3	
23:45	15:00	57.4	61.2	48.7	68.1	
00:00	15:00	59.4	63.3	46.1	70.9	
00:15	15:00	57.9	61.5	47.5	71.7	
00:30	15:00	57.2	61.3	45.0	73.7	
00:45	15:00	56.7	60.6	43.7	71.8	
01:00	15:00	53.8	57.6	43.4	68.3	
01:15	15:00	57.2	61.7	43.8	68.7	
01:30	15:00	57.1	60.8	44.9	68.5	
01:45	15:00	55.9	60.2	39.3	72.6	
02:00	15:00	54.0	58.3	39.1	71.2	
02:15	15:00	57.4	61.4	42.6	69.1	
02:30	15:00	56.7	60.7	42.5	72.1	
02:45	15:00	57.4	60.9	45.1	70.2	
03:00	15:00	57.2	60.9	44.0	68.8	
03:15	15:00	61.3	65.1	50.2	70.9	
03:30	15:00	60.0	62.9	50.8	70.4	
03:45	15:00	61.1	64.3	54.5	70.4	
04:00	15:00	61.9	64.5	55.3	73.1	
04:15	15:00	63.2	65.7	58.5	72.2	
04:30	15:00	64.1	66.6	59.8	71.5	
04:45	15:00	64.8	67.3	59.8	75.0	
05:00	15:00	65.5	67.8	61.3	75.4	
05:15	15:00	67.0	68.9	63.9	72.7	
05:30	15:00	68.8	71.1	65.3	73.8	
05:45	15:00	68.2	70.1	65.3	75.9	
06:00	15:00	69.5	71.5	66.7	76.3	
06:15	15:00	69.7	71.5	67.2	78.6	
06:30	15:00	69.8	71.7	66.8	78.4	
06:45	15:00	69.2	71.0	66.7	77.0	
Average 2300-0700		64.0	66.3	60.2	68-79	
Average 0700-2300		61.6	63.9	57.9	57-77	

Noise Survey Results

Date: Monday 8th July 2024 **TABLE 12**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	67.4	69.7	64.5	74.4	
07:15	15:00	66.4	68.2	63.6	73.7	
07:30	15:00	66.8	68.8	64.1	73.6	
07:45	15:00	64.9	66.5	62.5	71.7	
08:00	15:00	64.8	66.5	62.3	71.9	
08:15	15:00	64.7	66.7	61.6	73.5	
08:30	15:00	64.4	66.4	61.3	75.1	
08:45	15:00	63.2	65.2	60.2	70.4	
09:00	15:00	61.7	63.8	58.7	69.7	
09:15	15:00	62.0	64.6	57.8	70.3	
09:30	15:00	60.0	61.8	57.4	67.6	
09:45	15:00	60.3	62.1	57.2	67.9	
10:00	15:00	60.6	62.9	56.9	68.9	
10:15	15:00	59.3	61.6	55.3	67.0	
10:30	15:00	60.8	62.8	57.5	69.1	
10:45	15:00	59.3	61.6	55.1	70.8	
11:00	15:00	59.7	62.7	54.8	67.4	
11:15	15:00	58.1	60.0	55.4	64.7	
11:30	15:00	61.6	64.0	57.7	69.2	
11:45	15:00	60.1	62.2	56.8	66.9	
12:00	15:00	60.5	63.2	56.3	69.6	
12:15	15:00	59.2	61.2	56.2	65.8	
12:30	15:00	60.4	62.6	56.4	67.3	
12:45	15:00	60.0	62.4	55.8	70.4	
13:00	15:00	58.3	60.4	55.0	67.5	
13:15	15:00	59.5	61.7	56.1	68.1	
13:30	15:00	59.5	61.4	56.7	69.9	
13:45	15:00	59.6	61.5	56.8	69.2	
14:00	15:00	59.5	61.6	56.4	66.1	
14:15	15:00	59.6	61.8	56.2	68.2	
14:30	15:00	59.0	61.2	55.6	68.6	
14:45	15:00	60.7	62.9	57.3	68.4	
Average 0700-1500		62.1	64.2	59.0	65-75	

Noise Survey Results

Date: Monday 8th July 2024 **TABLE 13**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	61.1	63.2	58.1	68.9	
15:15	15:00	62.2	64.4	59.0	69.4	
15:30	15:00	62.5	64.7	59.7	70.0	
15:45	15:00	62.1	64.0	59.1	70.7	
16:00	15:00	63.0	65.0	60.3	69.5	
16:15	15:00	63.4	65.5	60.5	72.0	
16:30	15:00	62.5	64.7	59.2	71.8	
16:45	15:00	62.8	64.9	59.4	75.2	
17:00	15:00	63.9	65.7	61.2	73.1	
17:15	15:00	63.9	65.9	61.1	70.1	
17:30	15:00	63.9	66.0	60.5	72.4	
17:45	15:00	64.3	66.0	61.4	74.1	
18:00	15:00	64.0	65.8	61.5	72.0	
18:15	15:00	62.8	64.9	59.4	71.3	
18:30	15:00	63.0	65.3	59.0	76.1	
18:45	15:00	62.1	64.5	58.1	71.0	
19:00	15:00	62.1	64.4	58.2	71.6	
19:15	15:00	60.7	63.1	56.6	69.9	
19:30	15:00	60.5	62.9	56.8	70.8	
19:45	15:00	59.9	62.7	55.0	70.4	
20:00	15:00	59.1	61.6	54.0	69.9	
20:15	15:00	59.0	61.5	54.0	68.9	
20:30	15:00	58.1	60.8	53.6	69.3	
20:45	15:00	57.1	59.6	52.2	72.0	
21:00	15:00	57.8	60.5	53.1	70.5	
21:15	15:00	56.7	59.7	49.1	69.1	
21:30	15:00	57.4	60.5	50.1	70.2	
21:45	15:00	57.2	60.1	50.9	69.9	
22:00	15:00	56.6	59.7	49.6	69.6	
22:15	15:00	55.7	58.6	49.3	67.7	
22:30	15:00	54.4	57.8	45.2	69.8	
22:45	15:00	51.2	55.1	39.0	66.1	
Average 1500-2300		61.3	63.5	57.8	66-76	

Noise Survey Results

Date: Monday 8th - Tuesday 9th July 2024 **TABLE 14**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	52.2	55.7	42.7	68.4	
23:15	15:00	51.3	54.9	40.4	64.8	
23:30	15:00	51.7	55.3	39.5	65.9	
23:45	15:00	53.1	56.9	40.8	66.1	
00:00	15:00	52.3	55.9	36.5	70.0	
00:15	15:00	54.2	57.3	43.5	73.1	
00:30	15:00	53.3	56.7	37.5	70.8	
00:45	15:00	49.6	53.3	36.6	68.0	
01:00	15:00	51.8	55.1	38.0	68.3	
01:15	15:00	48.3	52.2	34.2	69.1	
01:30	15:00	51.5	55.5	36.1	68.2	
01:45	15:00	51.0	54.3	37.8	69.5	
02:00	15:00	52.2	56.4	38.3	69.7	Rain
02:15	15:00	51.5	54.8	38.1	69.2	Rain
02:30	15:00	51.7	55.3	40.5	68.4	Rain
02:45	15:00	51.3	54.6	36.4	67.3	Rain
03:00	15:00	49.9	53.5	36.6	67.5	Rain
03:15	15:00	51.4	55.2	40.5	67.2	Rain
03:30	15:00	51.9	55.4	42.1	66.9	Rain
03:45	15:00	53.3	56.4	43.9	67.3	Rain
04:00	15:00	54.6	57.8	45.9	67.4	Rain
04:15	15:00	56.2	59.1	50.0	69.8	Rain
04:30	15:00	56.7	59.7	50.4	70.1	Rain
04:45	15:00	58.1	60.9	52.4	71.0	Rain
05:00	15:00	58.0	60.6	52.9	69.1	Rain
05:15	15:00	60.0	62.3	55.7	72.2	Rain
05:30	15:00	60.8	63.0	56.7	70.1	Rain
05:45	15:00	61.3	63.4	58.1	68.2	Rain
06:00	15:00	61.4	63.4	57.7	72.7	Rain
06:15	15:00	62.4	64.0	60.1	72.7	Rain
06:30	15:00	63.1	64.7	60.9	71.3	Rain
06:45	15:00	63.2	64.9	60.8	70.7	**Rain**
Average 2300-0700		58.5	60.8	54.9	65-73	**Excluding Rain**
Average 0700-2300		61.7	63.9	58.5	65-76	

Noise Survey Results

Date: Tuesday 9th July 2024 **TABLE 15**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	63.3	65.0	60.8	70.4	Rain
07:15	15:00	63.9	65.5	61.4	70.6	Rain
07:30	15:00	64.1	65.7	61.6	70.7	Rain
07:45	15:00	64.8	66.4	62.6	70.9	Rain
08:00	15:00	64.0	65.8	61.6	69.7	Rain
08:15	15:00	64.4	66.1	62.3	70.6	Rain
08:30	15:00	64.4	66.0	62.0	71.8	Rain
08:45	15:00	64.0	65.7	61.6	73.9	Rain
09:00	15:00	63.6	65.4	61.1	69.7	Rain
09:15	15:00	63.7	65.5	61.1	71.3	Rain
09:30	15:00	62.9	64.8	60.0	71.9	Rain
09:45	15:00	62.3	64.3	59.2	69.9	Rain
10:00	15:00	62.8	64.6	60.0	72.0	Rain
10:15	15:00	63.1	64.9	60.3	71.2	Rain
10:30	15:00	62.8	64.8	59.4	70.8	Rain
10:45	15:00	62.6	64.5	59.8	71.3	Rain
11:00	15:00	62.6	64.6	59.6	70.1	
11:15	15:00	62.2	64.2	59.0	72.9	
11:30	15:00	63.0	65.1	59.6	71.2	
11:45	15:00	62.2	64.3	59.1	70.5	
12:00	15:00	61.5	63.6	57.6	69.1	
12:15	15:00	61.1	63.1	57.8	69.7	
12:30	15:00	61.3	63.3	58.3	70.0	
12:45	15:00	60.1	62.2	57.2	68.3	
13:00	15:00	60.3	62.6	56.6	69.7	
13:15	15:00	58.7	60.6	55.6	66.3	
13:30	15:00	58.8	60.9	55.7	66.8	
13:45	15:00	59.9	62.1	56.6	67.9	
14:00	15:00	60.0	62.1	56.6	67.6	
14:15	15:00	60.1	62.2	57.2	68.2	
14:30	15:00	59.9	62.0	56.6	70.2	
14:45	15:00	60.3	62.3	57.4	72.0	
Average 0700-1500		62.4	64.3	59.6	66-73	Excluding Rain

Noise Survey Results

Date: Tuesday 9th July 2024 **TABLE 16**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	61.3	63.5	57.6	72.7	
15:15	15:00	60.9	63.4	56.6	72.6	
15:30	15:00	61.1	63.2	57.8	73.6	
15:45	15:00	60.8	62.9	57.8	71.1	
16:00	15:00	61.2	63.3	58.1	68.6	
16:15	15:00	60.9	62.9	57.4	73.9	
16:30	15:00	61.0	62.7	57.3	77.5	
16:45	15:00	59.8	61.8	56.6	75.4	
17:00	15:00	60.9	63.0	57.7	68.6	Rain
17:15	15:00	59.9	61.7	56.9	66.4	Rain
17:30	15:00	60.4	62.3	57.6	70.0	Rain
17:45	15:00	60.3	62.2	57.6	66.9	Rain
18:00	15:00	59.7	62.0	56.0	73.5	Rain
18:15	15:00	59.8	62.4	55.1	71.5	Rain
18:30	15:00	59.3	61.2	55.4	74.3	Rain
18:45	15:00	58.2	60.9	53.5	72.1	Rain
19:00	15:00	57.4	59.7	53.4	68.1	Rain
19:15	15:00	56.9	59.4	52.1	65.6	Rain
19:30	15:00	56.2	58.7	52.1	68.0	Rain
19:45	15:00	54.9	57.8	48.5	65.1	Rain
20:00	15:00	55.1	57.7	49.7	68.4	
20:15	15:00	54.7	57.8	48.6	68.3	
20:30	15:00	54.1	57.0	47.1	65.4	
20:45	15:00	52.4	55.4	42.9	67.1	
21:00	15:00	50.2	53.3	41.7	64.6	
21:15	15:00	50.2	53.6	38.9	65.9	
21:30	15:00	48.6	52.3	37.0	65.3	
21:45	15:00	50.1	53.6	37.4	64.8	
22:00	15:00	51.7	54.8	44.6	66.8	
22:15	15:00	49.2	53.0	35.5	63.3	
22:30	15:00	49.4	53.1	38.3	62.8	
22:45	15:00	47.7	51.7	33.7	62.2	
Average 1500-2300		58.2	60.4	54.4	62-78	Excluding rain

Noise Survey Results

Date: Tuesday 9th - Wednesday 10th July 2024 **TABLE 17**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	48.1	51.7	32.2	65.0	
23:15	15:00	46.1	50.1	29.2	64.5	
23:30	15:00	45.2	48.9	32.0	62.7	
23:45	15:00	47.0	50.6	32.8	66.0	
00:00	15:00	44.2	47.6	29.8	62.8	
00:15	15:00	45.5	49.2	28.9	61.3	
00:30	15:00	45.2	49.8	28.2	64.8	
00:45	15:00	41.0	44.6	27.2	57.5	
01:00	15:00	46.6	50.2	35.4	61.2	
01:15	15:00	47.6	51.3	35.5	66.7	
01:30	15:00	50.2	53.7	38.8	65.2	
01:45	15:00	49.6	53.3	36.7	65.7	
02:00	15:00	48.9	53.4	32.5	63.9	
02:15	15:00	50.5	54.9	38.2	63.3	
02:30	15:00	50.3	54.6	33.6	62.8	
02:45	15:00	49.8	53.5	32.2	66.6	
03:00	15:00	52.0	56.5	33.3	68.3	
03:15	15:00	51.7	55.4	41.4	66.4	
03:30	15:00	53.1	56.5	43.5	71.1	
03:45	15:00	54.1	57.2	48.4	65.3	
04:00	15:00	55.9	58.8	49.0	66.5	
04:15	15:00	56.9	59.6	52.2	66.4	
04:30	15:00	57.8	60.7	52.3	70.2	
04:45	15:00	59.5	61.8	55.7	70.9	
05:00	15:00	60.2	62.4	55.5	69.8	
05:15	15:00	61.5	63.6	58.3	70.4	
05:30	15:00	63.1	65.3	59.3	70.1	
05:45	15:00	62.5	64.2	59.9	70.7	
06:00	15:00	62.9	64.7	60.3	77.1	
06:15	15:00	63.6	65.2	61.3	73.8	
06:30	15:00	64.4	66.0	62.1	70.2	
06:45	15:00	64.8	66.4	62.5	70.5	
Average 2300-0700		58.0	60.1	54.7	58-77	
Average 0700-2300		59.5	61.6	56.0	62-78	

Noise Survey Results

Date: Wednesday 10th July 2024 **TABLE 18**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	65.1	66.4	63.2	70.7	
07:15	15:00	65.8	67.4	63.2	73.5	
07:30	15:00	66.2	67.8	63.9	73.0	
07:45	15:00	66.5	68.1	64.2	71.2	
08:00	15:00	65.8	67.3	63.7	71.8	
08:15	15:00	65.7	67.3	63.5	72.1	
08:30	15:00	65.7	67.2	63.7	71.2	
08:45	15:00	65.1	66.6	63.0	69.7	
09:00	15:00	64.7	66.3	62.4	69.9	
09:15	15:00	64.2	65.8	61.9	69.4	
09:30	15:00	64.4	66.1	62.2	70.8	
09:45	15:00	64.2	66.0	61.5	70.8	
10:00	15:00	63.6	65.4	60.8	69.7	
10:15	15:00	64.0	65.6	61.7	72.4	
10:30	15:00	64.2	65.8	61.4	77.7	
10:45	15:00	64.2	65.8	61.8	69.3	
11:00	15:00	64.4	66.2	62.1	69.9	
11:15	15:00	64.1	65.9	61.5	71.6	
11:30	15:00	64.6	66.1	62.0	75.6	
11:45	15:00	64.7	66.2	62.5	71.1	
12:00	15:00	64.2	66.0	62.0	69.8	
12:15	15:00	64.5	66.2	61.7	78.4	
12:30	15:00	64.2	65.8	62.0	70.6	
12:45	15:00	63.4	65.1	61.2	68.8	
13:00	15:00	63.6	65.3	61.0	70.2	
13:15	15:00	64.4	66.2	62.0	71.0	
13:30	15:00	64.0	65.6	61.7	71.9	
13:45	15:00	64.5	66.2	61.7	78.2	
14:00	15:00	63.9	65.5	61.4	72.0	
14:15	15:00	64.0	65.9	61.1	76.6	
14:30	15:00	64.0	65.9	61.2	71.0	
14:45	15:00	64.2	66.0	60.9	71.2	
Average 0700-1500		64.6	66.2	62.2	69-78	

Noise Survey Results

Date: Wednesday 10th July 2024 **TABLE 19**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	67.0	69.6	63.3	74.4	
15:15	15:00	68.6	70.4	66.0	75.3	
15:30	15:00	69.2	71.0	66.6	77.8	
15:45	15:00	68.7	70.4	66.5	75.3	
16:00	15:00	69.9	71.7	67.4	75.9	
16:15	15:00	69.3	71.0	66.8	75.4	
16:30	15:00	68.4	70.4	65.5	77.2	
16:45	15:00	68.4	70.2	65.7	74.4	
17:00	15:00	69.6	71.1	67.4	75.3	
17:15	15:00	68.8	70.5	66.4	75.8	
17:30	15:00	69.5	71.3	66.5	77.7	
17:45	15:00	68.4	70.0	65.9	74.0	
18:00	15:00	68.1	70.1	65.2	75.9	
18:15	15:00	67.3	69.4	64.2	74.8	
18:30	15:00	67.4	69.5	64.4	75.3	
18:45	15:00	66.3	68.6	62.5	74.4	
19:00	15:00	66.3	68.5	63.0	74.8	
19:15	15:00	65.2	67.7	61.0	73.9	
19:30	15:00	64.6	67.1	60.6	73.3	
19:45	15:00	63.6	66.3	57.3	72.0	
20:00	15:00	62.6	65.1	57.6	72.0	
20:15	15:00	60.0	63.1	54.2	72.6	
20:30	15:00	57.4	60.8	50.0	67.7	
20:45	15:00	56.9	59.9	47.5	72.8	
21:00	15:00	58.5	61.4	53.2	67.8	
21:15	15:00	55.8	59.0	46.9	67.3	
21:30	15:00	57.4	60.1	45.4	78.7	
21:45	15:00	56.2	59.7	47.1	74.1	
22:00	15:00	57.7	61.3	49.3	69.1	
22:15	15:00	57.8	61.3	49.9	70.8	
22:30	15:00	55.4	58.8	46.4	66.2	
22:45	15:00	56.4	60.1	46.7	68.1	
Average 1500-2300		66.2	68.2	63.2	66-79	

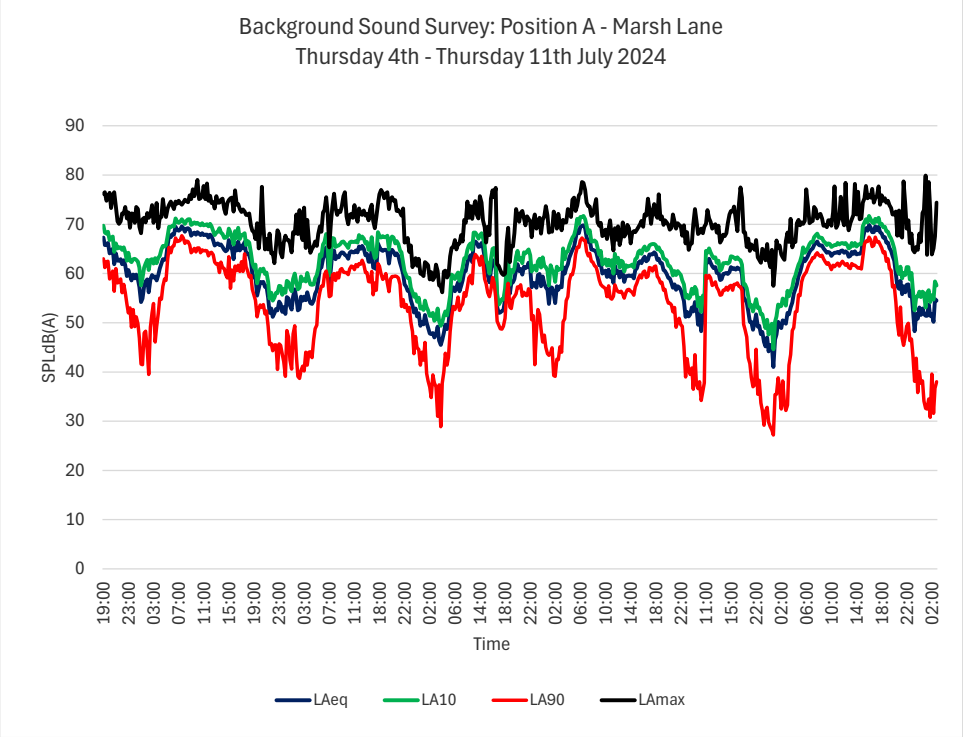
Noise Survey Results

Date: Wednesday 10th - Thursday 11th July 2024 **TABLE 20**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position A - Marsh Lane (Primrose Cottage)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

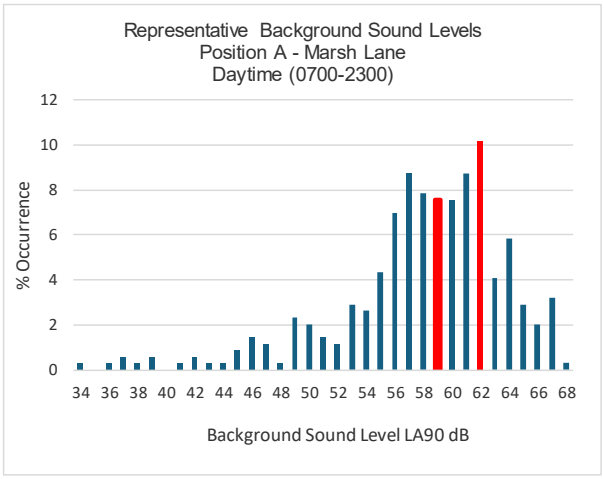
Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	52.7	56.6	43.3	64.8	
23:15	15:00	48.3	52.5	38.1	64.3	
23:30	15:00	51.8	55.3	42.8	65.4	
23:45	15:00	50.8	55.3	35.8	64.8	
00:00	15:00	53.1	56.3	40.1	68.1	
00:15	15:00	51.6	55.2	37.7	66.4	
00:30	15:00	52.9	56.3	38.2	72.3	
00:45	15:00	51.8	56.0	34.1	72.9	
01:00	15:00	51.4	53.1	32.6	79.9	
01:15	15:00	51.4	56.0	32.5	63.8	
01:30	15:00	53.7	56.6	34.5	78.6	
01:45	15:00	51.4	54.2	30.8	73.0	
02:00	15:00	51.8	55.6	39.6	63.9	
02:15	15:00	50.2	54.7	31.6	65.1	
02:30	15:00	54.8	58.4	36.7	67.5	
02:45	15:00	54.5	57.6	38.0	74.4	
03:00	15:00	50.1	51.0	41.4	72.8	Rain
03:15	15:00	45.1	47.3	41.7	55.4	Rain
03:30	15:00	47.6	50.0	43.5	59.3	Rain
03:45	15:00	47.3	49.4	43.5	57.9	Rain
04:00	15:00	49.5	51.7	44.8	64.8	Rain
04:15	15:00	51.4	54.4	46.5	61.7	Rain
04:30	15:00	51.0	53.3	47.3	61.7	Rain
04:45	15:00	54.5	57.3	49.7	64.1	Rain
05:00	15:00	55.3	57.9	50.7	67.0	Rain
05:15	15:00	55.2	57.5	51.9	68.9	Rain
05:30	15:00	55.6	57.4	52.5	70.3	Rain
05:45	15:00	56.8	59.3	52.7	71.6	Rain
06:00	15:00	59.1	61.7	54.9	69.8	Rain
06:15	15:00	60.6	63.0	55.8	73.5	Rain
06:30	15:00	55.8	57.7	53.2	64.7	Rain
06:45	15:00	56.4	58.2	53.7	64.1	**Rain**
Average 2300-0700		53.9	56.7	48.3	64-80	**Excluding Rain**
Average 0700-2300		65.4	67.2	62.6	66-79	

Overall Average	**60.3**	**62.7**	**56.4**	**56-80**	**Excluding Rain**
Overall Average	**63.8**	**65.9**	**60.4**	**57-79**	**Excluding Rain**

Av. 0800-1800 Weekday	**65.0**	**67.0**	**61.9**	**65-79**	**Excluding Rain**
Av. 0800-1300 Saturday	**64.2**	**66.3**	**60.9**	**70-77**	**Excluding Rain**

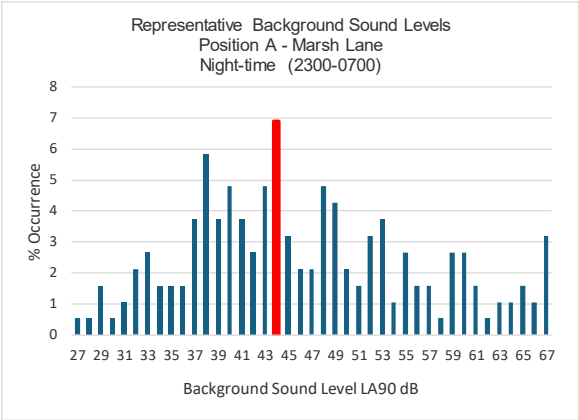


LA90	% Occurrence
34	0.3
35	0.0
36	0.3
37	0.6
38	0.3
39	0.6
40	0.0
41	0.3
42	0.6
43	0.3
44	0.3
45	0.9
46	1.5
47	1.2
48	0.3
49	2.3
50	2.0
51	1.5
52	1.2
53	2.9
54	2.6
55	4.4
56	7.0
57	8.7
58	7.8
59	**7.6**
60	7.6
61	8.7
62	**10.2**
63	4.1
64	5.8
65	2.9
66	2.0
67	3.2
68	0.3



LA90	% Occurrence
27	0.5
28	0.5
29	1.6
30	0.5
31	1.1
32	2.1
33	2.7
34	1.6
35	1.6
36	1.6
37	3.7
38	5.9
39	3.7
40	4.8
41	3.7
42	2.7
43	4.8
44	**6.9**
45	3.2
46	2.1
47	2.1
48	4.8
49	4.3
50	2.1
51	1.6
52	3.2
53	3.7
54	1.1
55	2.7
56	1.6
57	1.6
58	0.5
59	2.7
60	2.7
61	1.6
62	0.5
63	1.1
64	1.1
65	1.6
66	1.1
67	3.2

50.0



Position B: North of Site – Adjacent to the Oldfleet Drain

Noise Survey Results

Date: Thursday 4th July 2024 **TABLE 21**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
19:00	15:00	57.2	58.8	49.6	87.5	Distant road traffic and industrial noise from industrial estate
19:15	15:00	50.6	52.9	47.6	61.2	
19:30	15:00	49.1	50.5	47.1	61.2	
19:45	15:00	50.8	53.0	47.7	63.1	
20:00	15:00	51.3	53.9	47.5	65.2	
20:15	15:00	50.5	52.9	47.4	64.5	
20:30	15:00	48.8	50.4	47.0	57.6	
20:45	15:00	47.0	48.2	45.6	52.9	
21:00	15:00	46.8	47.9	45.4	50.3	
21:15	15:00	46.4	47.5	45.1	51.3	
21:30	15:00	46.8	47.8	45.6	51.3	
21:45	15:00	47.3	48.4	46.0	51.6	
22:00	15:00	47.3	48.6	45.4	58.3	
22:15	15:00	47.0	48.0	45.7	52.5	
22:30	15:00	46.6	47.8	45.3	58.8	
22:45	15:00	45.8	47.1	44.3	51.0	
Average 1900-2300		49.9	51.7	46.6	50-88	

Noise Survey Results

Date: Thursday 4th - Friday 5th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 22**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	47.0	48.4	45.2	55.5	
23:15	15:00	46.7	47.9	45.4	51.2	
23:30	15:00	46.6	47.7	45.2	54.0	
23:45	15:00	46.9	48.0	45.6	50.4	
00:00	15:00	47.5	48.7	45.8	54.3	
00:15	15:00	48.2	49.6	46.1	57.0	
00:30	15:00	47.9	49.6	46.0	54.3	
00:45	15:00	46.8	48.1	45.2	51.9	
01:00	15:00	46.1	47.3	44.4	51.8	
01:15	15:00	46.6	48.0	45.0	52.9	
01:30	15:00	47.3	48.5	45.9	52.1	
01:45	15:00	47.2	48.6	45.5	56.0	
02:00	15:00	47.0	48.3	45.3	54.5	
02:15	15:00	47.0	48.5	45.1	54.2	
02:30	15:00	47.6	49.0	45.8	55.1	
02:45	15:00	47.9	49.3	45.9	56.6	
03:00	15:00	47.6	49.0	45.8	60.1	
03:15	15:00	47.5	48.9	45.6	52.9	
03:30	15:00	47.4	48.8	45.8	52.4	
03:45	15:00	47.7	48.9	46.1	52.4	
04:00	15:00	48.1	49.4	46.6	54.4	
04:15	15:00	47.9	49.2	46.3	54.2	
04:30	15:00	48.0	49.4	46.4	56.5	
04:45	15:00	48.5	49.7	46.9	56.8	
05:00	15:00	48.3	49.6	46.7	58.2	
05:15	15:00	49.3	50.4	47.5	60.6	
05:30	15:00	51.1	52.2	49.5	61.5	
05:45	15:00	50.3	51.3	49.0	57.0	
06:00	15:00	50.2	51.2	49.2	54.9	
06:15	15:00	50.2	51.1	49.1	58.1	
06:30	15:00	50.7	51.8	49.6	54.6	
06:45	15:00	50.5	51.2	48.9	69.9	
Average 2300-0700		48.2	49.4	46.7	50-70	
Average 1900-2300		49.9	51.7	46.6	50-88	

Noise Survey Results

Date: Friday 5th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 23**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	49.8	50.8	48.6	56.5	
07:15	15:00	49.5	50.8	48.1	59.9	
07:30	15:00	49.6	50.6	48.4	58.3	
07:45	15:00	49.4	50.3	47.9	62.1	
08:00	15:00	50.8	51.6	47.8	69.1	
08:15	15:00	49.3	50.6	47.7	61.4	
08:30	15:00	50.2	52.0	48.2	61.1	
08:45	15:00	49.9	51.5	47.8	59.5	
09:00	15:00	49.2	50.5	47.5	57.5	
09:15	15:00	56.3	54.5	48.5	90.9	
09:30	15:00	50.1	52.1	47.9	59.8	
09:45	15:00	57.6	54.8	48.4	92.2	
10:00	15:00	54.0	57.0	49.7	67.6	
10:15	15:00	53.0	55.9	48.7	65.2	
10:30	15:00	52.1	54.8	48.5	62.8	
10:45	15:00	53.2	55.9	48.6	67.4	
11:00	15:00	52.7	55.7	48.5	63.3	
11:15	15:00	52.2	54.5	48.8	69.1	
11:30	15:00	54.4	56.4	49.4	76.3	
11:45	15:00	53.0	55.5	48.6	66.8	
12:00	15:00	51.2	53.1	47.7	69.7	
12:15	15:00	55.9	53.9	47.7	77.1	
12:30	15:00	49.2	50.8	47.4	63.4	
12:45	15:00	49.9	51.7	47.4	64.3	
13:00	15:00	49.5	51.1	47.2	65.7	
13:15	15:00	49.3	51.0	47.3	61.4	
13:30	15:00	50.7	52.0	47.3	72.2	
13:45	15:00	50.0	50.8	47.4	71.8	
14:00	15:00	50.3	51.6	46.5	65.4	
14:15	15:00	52.0	52.9	47.7	75.1	
14:30	15:00	53.7	56.7	47.1	77.4	
14:45	15:00	49.9	50.6	46.2	65.8	
Average 0700-1500		52.1	53.4	48.0	57-92	

Noise Survey Results

Date: Friday 5th July 2024 **TABLE 24**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	50.6	51.9	47.7	67.3	
15:15	15:00	49.6	51.3	45.7	66.0	
15:30	15:00	52.1	54.1	46.9	71.5	
15:45	15:00	51.2	51.7	46.4	68.6	
16:00	15:00	48.0	49.5	46.2	59.2	
16:15	15:00	48.6	50.5	46.0	66.4	
16:30	15:00	52.5	55.9	46.9	67.4	
16:45	15:00	50.1	49.9	45.9	63.1	
17:00	15:00	51.8	53.4	46.6	69.0	
17:15	15:00	49.2	51.8	45.8	63.5	
17:30	15:00	51.1	52.8	46.7	64.9	
17:45	15:00	48.6	50.7	45.8	62.4	
18:00	15:00	46.3	47.2	45.3	54.4	
18:15	15:00	47.5	47.6	44.4	62.3	
18:30	15:00	45.2	46.2	43.6	55.7	
18:45	15:00	45.4	46.3	44.5	49.8	
19:00	15:00	45.4	46.9	42.2	51.6	
19:15	15:00	41.4	43.1	37.5	52.8	
19:30	15:00	41.6	43.4	38.9	48.4	
19:45	15:00	42.5	43.0	38.7	67.0	
20:00	15:00	42.2	43.4	40.7	47.4	
20:15	15:00	42.7	43.6	41.4	59.8	
20:30	15:00	43.0	43.9	41.5	60.8	
20:45	15:00	41.9	43.0	39.8	57.4	
21:00	15:00	40.1	41.3	38.3	56.5	
21:15	15:00	35.7	38.4	31.9	54.2	
21:30	15:00	33.5	34.3	31.3	58.6	
21:45	15:00	33.2	34.7	31.7	45.4	
22:00	15:00	33.4	34.9	31.8	41.5	
22:15	15:00	33.0	34.5	31.4	40.8	
22:30	15:00	34.7	36.4	32.8	43.6	
22:45	15:00	36.9	39.2	33.9	50.3	
Average 1500-2300		47.2	48.9	43.6	41-72	

Noise Survey Results

Date: Friday 5th - Saturday 6th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 25**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	41.1	44.0	35.1	47.6	
23:15	15:00	44.4	45.6	43.1	48.5	
23:30	15:00	45.0	45.9	43.8	47.7	
23:45	15:00	45.5	46.7	44.1	49.1	
00:00	15:00	46.1	47.3	44.6	49.1	
00:15	15:00	46.7	47.8	45.4	50.5	
00:30	15:00	46.8	47.9	45.5	50.8	
00:45	15:00	46.7	47.9	45.4	50.3	
01:00	15:00	46.4	47.3	45.3	49.1	
01:15	15:00	47.0	48.0	45.7	53.9	
01:30	15:00	45.9	47.2	44.6	50.1	
01:45	15:00	46.0	47.5	43.8	51.0	
02:00	15:00	44.4	45.7	42.7	50.8	
02:15	15:00	45.1	46.6	43.3	50.4	
02:30	15:00	44.9	46.0	43.6	50.1	
02:45	15:00	45.0	46.0	43.8	49.5	
03:00	15:00	44.6	45.8	43.4	47.7	
03:15	15:00	44.2	45.0	43.1	47.8	
03:30	15:00	44.7	45.7	43.6	49.1	
03:45	15:00	44.4	46.1	42.3	53.0	
04:00	15:00	42.8	45.0	39.9	50.1	
04:15	15:00	42.3	44.2	39.9	49.2	
04:30	15:00	44.1	45.5	40.5	67.7	
04:45	15:00	44.2	46.0	42.0	59.5	
05:00	15:00	45.5	47.2	43.1	51.8	
05:15	15:00	45.8	47.2	44.0	52.7	
05:30	15:00	46.4	47.7	44.7	50.4	
05:45	15:00	47.5	48.8	45.9	52.3	
06:00	15:00	47.4	49.0	45.6	53.9	
06:15	15:00	45.4	46.6	43.8	51.0	
06:30	15:00	45.8	46.8	44.3	53.2	
06:45	15:00	49.6	47.8	44.1	68.1	
Average 2300-0700		45.6	46.7	43.8	48-68	
Average 0700-2300		50.3	51.7	46.3	41-92	

Noise Survey Results

Date: Saturday 6th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 26**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	51.7	55.6	43.1	66.6	
07:15	15:00	53.3	55.2	44.8	74.3	
07:30	15:00	49.1	51.2	45.8	58.5	
07:45	15:00	46.4	47.8	44.8	54.0	
08:00	15:00	51.1	53.8	44.6	66.3	
08:15	15:00	51.1	53.5	47.1	63.4	
08:30	15:00	50.2	52.0	47.6	61.8	
08:45	15:00	50.5	51.8	48.5	67.8	
09:00	15:00	50.2	51.9	47.6	61.3	
09:15	15:00	51.7	54.0	48.4	63.7	
09:30	15:00	55.1	58.1	49.6	69.1	
09:45	15:00	55.3	58.5	50.6	71.5	
10:00	15:00	56.1	58.4	52.2	67.6	
10:15	15:00	55.3	57.6	51.7	67.2	
10:30	15:00	54.0	55.9	50.6	69.1	
10:45	15:00	54.1	57.4	48.7	66.8	
11:00	15:00	53.0	55.8	48.1	69.7	
11:15	15:00	53.3	55.1	47.8	73.5	
11:30	15:00	53.8	56.0	48.7	74.1	
11:45	15:00	53.5	56.0	48.8	68.6	
12:00	15:00	48.0	49.3	45.0	67.5	
12:15	15:00	46.3	47.4	44.7	58.5	
12:30	15:00	46.2	47.4	44.7	61.8	
12:45	15:00	46.0	47.1	44.5	63.2	
13:00	15:00	46.2	47.2	44.9	61.8	
13:15	15:00	45.1	46.7	43.1	52.4	
13:30	15:00	44.8	46.0	43.0	58.4	
13:45	15:00	45.1	46.4	42.5	57.6	
14:00	15:00	45.8	47.3	43.7	54.2	
14:15	15:00	47.2	49.2	43.0	64.0	
14:30	15:00	46.7	47.3	44.6	67.7	
14:45	15:00	46.4	47.5	44.8	58.0	
Average 0700-1500		51.4	53.8	47.3	52-74	

Noise Survey Results

Date: Saturday 6th July 2024 **TABLE 27**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	53.9	56.1	47.2	84.3	Rain
15:15	15:00	55.4	55.3	46.7	89.6	Rain
15:30	15:00	50.0	51.4	48.5	60.2	Rain
15:45	15:00	49.7	51.1	48.1	57.0	Rain
16:00	15:00	50.5	52.0	48.8	57.1	Rain
16:15	15:00	50.4	51.5	49.1	62.0	Rain
16:30	15:00	50.4	51.6	48.9	58.6	Rain
16:45	15:00	49.9	51.1	48.5	55.5	Rain
17:00	15:00	49.0	50.1	47.6	57.5	Rain
17:15	15:00	51.9	55.0	47.2	64.7	Rain
17:30	15:00	52.2	54.9	48.5	64.0	Rain
17:45	15:00	59.0	56.7	48.9	90.8	Rain
18:00	15:00	54.1	56.7	49.2	81.4	
18:15	15:00	51.2	52.9	47.2	68.0	
18:30	15:00	50.9	52.3	47.3	80.6	
18:45	15:00	49.6	51.5	47.4	58.6	
19:00	15:00	54.6	54.5	48.2	87.7	
19:15	15:00	55.3	55.6	48.5	85.6	
19:30	15:00	51.9	54.4	47.8	71.0	
19:45	15:00	49.7	51.5	47.4	60.8	
20:00	15:00	49.4	51.0	47.3	58.1	
20:15	15:00	48.2	49.3	46.8	57.2	
20:30	15:00	47.5	48.7	46.1	58.9	
20:45	15:00	47.6	48.6	46.5	51.6	
21:00	15:00	47.0	48.2	45.7	51.3	
21:15	15:00	47.7	48.8	46.5	53.1	
21:30	15:00	47.5	48.5	46.1	52.1	
21:45	15:00	47.4	48.5	46.3	54.6	
22:00	15:00	47.4	48.5	46.1	52.5	
22:15	15:00	47.3	48.2	46.2	51.0	
22:30	15:00	47.2	48.3	46.1	52.6	
22:45	15:00	48.5	49.5	47.2	53.1	
Average 1500-2300		50.4	51.7	47.0	51-88	Excluding Rain

Noise Survey Results

Date: Saturday 6th - Sunday 7th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 28**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	48.1	49.2	47.0	54.9	
23:15	15:00	48.1	49.2	46.9	51.7	
23:30	15:00	47.4	48.5	46.2	51.3	
23:45	15:00	47.6	48.7	46.2	56.9	
00:00	15:00	47.7	48.8	46.5	54.5	
00:15	15:00	47.7	48.7	46.5	51.3	
00:30	15:00	47.4	48.4	46.2	53.7	
00:45	15:00	47.6	48.6	46.4	51.1	
01:00	15:00	47.0	48.1	45.8	50.7	
01:15	15:00	47.9	49.0	46.6	52.4	
01:30	15:00	47.9	49.1	46.6	52.6	
01:45	15:00	47.7	49.1	46.1	55.9	
02:00	15:00	46.6	47.6	45.4	50.1	
02:15	15:00	47.0	48.2	45.7	54.9	
02:30	15:00	46.7	47.9	45.2	58.3	
02:45	15:00	46.7	47.9	45.3	53.5	
03:00	15:00	46.8	48.0	45.3	52.3	
03:15	15:00	47.2	48.4	46.1	51.6	
03:30	15:00	46.9	48.1	45.3	57.5	
03:45	15:00	46.7	47.9	45.2	58.1	
04:00	15:00	46.8	47.8	45.7	51.3	
04:15	15:00	47.2	48.4	45.7	52.1	
04:30	15:00	47.6	48.4	46.1	60.7	
04:45	15:00	48.1	49.0	46.4	63.4	
05:00	15:00	48.2	49.3	46.9	58.9	
05:15	15:00	48.8	50.1	47.1	60.3	
05:30	15:00	50.5	51.9	48.7	56.1	
05:45	15:00	50.5	51.4	48.9	68.4	
06:00	15:00	49.2	50.6	47.6	60.1	
06:15	15:00	49.1	50.2	47.8	52.2	
06:30	15:00	50.0	51.2	48.5	54.9	
06:45	15:00	49.6	50.9	48.2	54.3	
Average 2300-0700		48.0	49.1	46.6	50-68	
Average 0700-2300		51.1	53.1	47.2	51-88	

Noise Survey Results

Date: Sunday 7th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 29**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	48.0	49.5	46.3	56.6	
07:15	15:00	47.2	48.3	45.7	54.7	
07:30	15:00	47.0	48.1	45.7	53.2	
07:45	15:00	46.5	47.5	45.5	51.5	
08:00	15:00	46.7	47.9	45.4	52.9	
08:15	15:00	46.9	48.2	45.3	52.1	
08:30	15:00	46.8	48.1	45.3	56.6	
08:45	15:00	47.7	48.9	45.6	66.3	
09:00	15:00	47.4	48.8	45.9	53.2	Rain
09:15	15:00	47.7	49.1	46.1	55.0	Rain
09:30	15:00	47.0	48.3	45.6	52.6	Rain
09:45	15:00	47.2	48.3	45.9	52.7	Rain
10:00	15:00	47.6	48.7	46.0	67.2	Rain
10:15	15:00	47.6	48.7	46.2	56.2	Rain
10:30	15:00	48.3	49.5	46.9	55.0	Rain
10:45	15:00	48.6	49.9	47.2	52.6	Rain
11:00	15:00	47.7	49.0	46.3	53.3	
11:15	15:00	48.2	49.5	46.7	55.0	
11:30	15:00	48.1	49.3	46.6	63.3	
11:45	15:00	48.0	49.4	46.4	58.1	
12:00	15:00	47.3	48.6	45.7	55.3	Rain
12:15	15:00	47.8	49.5	45.7	53.9	Rain
12:30	15:00	46.7	48.0	44.9	68.9	Rain
12:45	15:00	46.9	48.1	45.4	50.8	Rain
13:00	15:00	47.3	48.3	45.7	67.3	Rain
13:15	15:00	47.3	48.4	45.8	58.0	Rain
13:30	15:00	47.1	48.4	45.8	53.3	Rain
13:45	15:00	47.2	47.7	45.6	67.2	Rain
14:00	15:00	47.2	48.4	45.7	55.3	
14:15	15:00	48.7	50.5	46.7	54.5	
14:30	15:00	48.1	49.2	46.8	56.5	
14:45	15:00	48.9	49.9	47.9	52.4	
Average 0700-1500		47.6	48.9	46.1	52-66	Excluding Rain

Noise Survey Results

Date: Sunday 7th July 2024 **TABLE 30**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	48.2	49.3	47.0	52.1	
15:15	15:00	45.9	47.0	44.8	57.2	
15:30	15:00	46.0	47.0	44.8	50.1	
15:45	15:00	46.7	48.1	45.1	54.0	
16:00	15:00	46.9	48.2	45.4	54.8	
16:15	15:00	50.3	48.4	45.5	79.0	
16:30	15:00	60.8	57.5	46.1	92.1	
16:45	15:00	46.0	47.3	44.5	52.6	
17:00	15:00	43.9	44.8	42.6	63.7	
17:15	15:00	43.7	44.4	42.0	61.2	
17:30	15:00	43.1	43.8	41.8	67.5	
17:45	15:00	44.9	46.3	42.5	63.3	
18:00	15:00	44.1	45.4	42.4	52.6	
18:15	15:00	45.6	47.3	44.1	50.8	
18:30	15:00	48.2	49.2	47.1	51.8	
18:45	15:00	45.7	46.8	44.3	54.7	
19:00	15:00	45.2	46.1	44.2	52.7	
19:15	15:00	45.7	46.5	44.6	58.0	
19:30	15:00	45.6	46.5	44.5	53.5	
19:45	15:00	46.4	47.3	45.1	54.9	
20:00	15:00	47.6	48.5	46.3	60.1	
20:15	15:00	47.3	48.5	46.0	51.1	
20:30	15:00	48.1	49.2	45.9	60.9	
20:45	15:00	47.9	48.9	46.6	56.6	
21:00	15:00	47.0	48.0	45.9	53.1	
21:15	15:00	47.9	49.0	46.7	53.5	
21:30	15:00	48.5	49.5	47.4	53.6	
21:45	15:00	48.3	49.4	47.2	53.5	
22:00	15:00	48.5	49.4	47.5	51.8	
22:15	15:00	47.3	48.3	45.9	50.3	
22:30	15:00	46.4	47.6	44.8	57.0	
22:45	15:00	46.4	47.6	45.0	53.0	
Average 1500-2300		49.2	48.7	45.3	50-82	

Noise Survey Results

Date: Sunday 7th - Monday 8th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 31**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	47.2	48.3	46.0	55.3	
23:15	15:00	46.4	47.4	45.1	50.7	
23:30	15:00	46.7	48.0	45.3	51.4	
23:45	15:00	48.1	49.2	46.8	67.2	
00:00	15:00	48.0	49.0	47.0	51.6	
00:15	15:00	46.6	47.8	45.3	50.0	
00:30	15:00	46.0	47.1	44.8	50.1	
00:45	15:00	46.0	47.0	44.9	48.9	
01:00	15:00	45.7	46.7	44.6	49.6	
01:15	15:00	45.6	46.5	44.6	48.3	
01:30	15:00	45.5	46.4	44.5	50.3	
01:45	15:00	45.4	46.3	44.5	51.5	
02:00	15:00	45.6	46.6	44.5	49.2	
02:15	15:00	45.8	46.8	44.7	51.4	
02:30	15:00	46.1	47.1	44.8	49.6	
02:45	15:00	46.6	47.5	45.2	68.6	
03:00	15:00	45.4	46.4	44.5	48.8	
03:15	15:00	46.2	47.1	45.1	51.5	
03:30	15:00	48.0	47.8	45.5	69.3	
03:45	15:00	47.0	47.9	46.1	51.4	
04:00	15:00	46.6	47.7	45.5	50.4	
04:15	15:00	50.5	53.7	46.3	66.8	
04:30	15:00	48.7	50.3	46.7	58.1	
04:45	15:00	50.5	52.5	47.9	60.8	
05:00	15:00	49.2	50.4	47.8	55.4	
05:15	15:00	50.2	51.5	48.6	57.8	
05:30	15:00	50.2	51.3	48.8	62.0	
05:45	15:00	50.1	51.7	48.5	57.6	
06:00	15:00	49.3	50.4	48.2	53.8	
06:15	15:00	53.0	54.6	51.0	63.5	
06:30	15:00	51.2	52.5	49.6	58.6	
06:45	15:00	52.0	53.2	50.4	59.6	
Average 2300-0700		48.3	49.7	46.7	48-69	
Average 0700-2300		48.7	48.8	45.6	50-92	

Noise Survey Results

Date: Monday 8th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 32**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	50.5	52.0	48.8	58.6	
07:15	15:00	55.3	52.0	47.5	76.0	
07:30	15:00	47.7	48.5	46.9	53.0	
07:45	15:00	47.5	48.4	46.5	53.1	
08:00	15:00	46.9	48.0	45.8	53.6	
08:15	15:00	47.2	47.9	45.9	60.2	
08:30	15:00	46.2	47.1	45.3	54.9	
08:45	15:00	46.8	47.8	45.3	61.5	
09:00	15:00	46.3	47.5	45.0	55.2	
09:15	15:00	49.4	50.1	45.4	68.4	
09:30	15:00	49.9	51.2	46.3	67.9	
09:45	15:00	50.1	51.7	46.3	63.8	
10:00	15:00	50.8	53.0	46.7	68.2	
10:15	15:00	51.7	53.6	46.7	76.3	
10:30	15:00	47.8	49.2	46.0	60.6	
10:45	15:00	49.2	51.0	46.1	64.0	
11:00	15:00	50.4	51.3	46.4	72.2	
11:15	15:00	48.2	50.6	45.6	61.2	
11:30	15:00	48.4	49.9	45.8	62.5	
11:45	15:00	47.2	49.0	45.0	60.6	
12:00	15:00	49.6	52.3	41.6	68.5	
12:15	15:00	51.6	53.6	43.0	71.2	
12:30	15:00	47.1	49.1	44.5	55.8	
12:45	15:00	48.7	50.5	44.1	69.2	
13:00	15:00	47.3	48.4	39.2	68.5	
13:15	15:00	46.3	48.1	38.8	69.7	
13:30	15:00	49.2	52.0	44.1	62.8	
13:45	15:00	50.8	52.0	45.5	72.6	
14:00	15:00	49.5	51.5	45.2	67.0	
14:15	15:00	49.4	51.3	44.5	66.9	
14:30	15:00	51.2	52.5	45.0	75.5	
14:45	15:00	49.7	52.9	44.0	67.7	
Average 0700-1500		49.5	50.8	45.4	53-76	

Noise Survey Results

Date: Monday 8th July 2024 **TABLE 33**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	52.6	54.3	43.7	76.2	
15:15	15:00	48.3	49.5	42.7	69.0	
15:30	15:00	51.2	54.2	43.4	68.6	
15:45	15:00	50.3	52.3	45.1	70.5	
16:00	15:00	50.3	51.6	45.3	70.7	
16:15	15:00	49.9	51.3	45.1	70.9	
16:30	15:00	49.1	50.4	44.2	68.4	
16:45	15:00	49.5	51.8	44.0	69.7	
17:00	15:00	48.4	50.5	43.8	66.9	
17:15	15:00	48.7	50.2	44.5	66.1	
17:30	15:00	48.9	50.3	44.1	71.8	
17:45	15:00	54.9	50.6	44.6	83.1	
18:00	15:00	55.7	52.5	44.8	84.7	
18:15	15:00	49.7	49.8	43.5	73.0	
18:30	15:00	45.7	46.0	43.3	61.1	
18:45	15:00	54.8	45.7	43.6	83.1	
19:00	15:00	44.8	45.5	42.7	61.6	
19:15	15:00	43.5	44.4	42.6	51.1	
19:30	15:00	43.4	44.7	42.0	53.4	
19:45	15:00	42.3	43.0	41.6	50.1	
20:00	15:00	42.9	44.3	41.6	55.4	
20:15	15:00	43.1	44.1	41.6	56.8	
20:30	15:00	42.3	42.6	41.4	68.1	
20:45	15:00	42.9	43.5	41.5	58.7	
21:00	15:00	42.0	42.7	41.4	45.2	
21:15	15:00	42.3	43.1	41.5	47.1	
21:30	15:00	42.6	43.5	41.5	61.9	
21:45	15:00	44.2	44.9	42.2	73.9	
22:00	15:00	43.4	44.1	41.8	57.2	
22:15	15:00	42.8	43.7	41.9	45.5	
22:30	15:00	42.8	43.5	42.1	47.0	
22:45	15:00	43.0	43.5	42.1	66.6	
Average 1500-2300		48.9	48.9	43.1	45-85	

Noise Survey Results

Date: Monday 8th - Tuesday 9th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 34**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	42.1	42.7	41.3	60.9	
23:15	15:00	41.3	41.8	40.7	49.1	
23:30	15:00	41.7	42.3	41.0	51.9	
23:45	15:00	42.3	43.1	41.5	45.7	
00:00	15:00	42.7	43.4	42.0	44.8	
00:15	15:00	42.7	43.3	41.9	45.5	
00:30	15:00	43.1	43.7	42.3	45.8	
00:45	15:00	43.1	44.0	42.1	51.3	
01:00	15:00	43.3	44.1	42.4	45.8	
01:15	15:00	44.2	45.2	43.1	47.3	
01:30	15:00	45.4	46.4	44.2	49.6	
01:45	15:00	46.0	47.1	44.7	51.5	
02:00	15:00	46.4	47.5	45.1	50.0	Rain
02:15	15:00	46.2	47.4	44.9	60.8	Rain
02:30	15:00	45.6	46.6	44.5	48.7	Rain
02:45	15:00	44.7	45.8	43.5	47.9	Rain
03:00	15:00	44.4	45.3	43.5	47.5	Rain
03:15	15:00	43.4	44.4	42.3	50.6	Rain
03:30	15:00	42.7	44.0	41.6	48.3	Rain
03:45	15:00	42.7	44.2	41.4	48.2	Rain
04:00	15:00	43.2	44.1	42.3	46.6	Rain
04:15	15:00	43.0	43.7	42.1	47.2	Rain
04:30	15:00	42.7	43.5	42.0	46.6	Rain
04:45	15:00	43.4	44.3	42.4	64.3	Rain
05:00	15:00	46.2	48.8	43.4	51.8	Rain
05:15	15:00	46.5	48.4	44.2	58.6	Rain
05:30	15:00	47.9	50.6	44.8	58.8	Rain
05:45	15:00	48.8	50.9	46.9	55.0	Rain
06:00	15:00	48.2	49.5	46.8	56.8	Rain
06:15	15:00	49.1	50.6	47.2	56.0	Rain
06:30	15:00	51.2	52.2	49.9	60.4	Rain
06:45	15:00	51.5	52.8	50.0	65.1	**Rain**
Average 2300-0700		46.8	48.2	45.2	45-61	**Excluding Rain**
Average 0700-2300		49.2	50.0	44.4	45-85	

Noise Survey Results

Date: Tuesday 9th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 35**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	52.2	53.7	50.2	57.3	Rain
07:15	15:00	50.9	52.0	49.1	68.4	Rain
07:30	15:00	51.9	53.2	49.8	69.7	Rain
07:45	15:00	52.9	55.0	50.2	67.3	Rain
08:00	15:00	52.6	54.8	49.5	66.9	Rain
08:15	15:00	52.6	53.7	49.0	75.4	Rain
08:30	15:00	51.6	53.6	48.2	66.2	Rain
08:45	15:00	52.6	55.1	48.4	70.3	Rain
09:00	15:00	49.9	51.7	47.6	60.9	Rain
09:15	15:00	52.4	54.5	48.7	70.5	Rain
09:30	15:00	52.0	53.0	48.8	73.9	Rain
09:45	15:00	53.2	55.2	49.7	73.3	Rain
10:00	15:00	53.1	54.2	50.6	74.2	Rain
10:15	15:00	53.3	54.8	50.5	67.5	Rain
10:30	15:00	52.8	54.4	50.4	67.8	Rain
10:45	15:00	50.8	52.0	49.1	65.5	Rain
11:00	15:00	50.6	52.6	47.8	64.1	
11:15	15:00	50.8	52.3	47.6	72.0	
11:30	15:00	50.1	51.5	47.2	74.3	
11:45	15:00	50.0	51.7	46.8	68.9	
12:00	15:00	50.4	51.8	46.8	67.5	
12:15	15:00	50.1	51.8	46.8	65.2	
12:30	15:00	49.8	51.1	46.5	70.5	
12:45	15:00	50.6	50.8	45.5	71.9	
13:00	15:00	55.3	56.9	46.7	72.3	
13:15	15:00	52.3	54.3	45.9	73.4	
13:30	15:00	50.2	52.1	46.5	66.6	
13:45	15:00	47.6	49.2	44.5	60.2	
14:00	15:00	47.6	48.9	45.8	60.8	
14:15	15:00	50.1	51.3	47.3	65.9	
14:30	15:00	49.9	51.0	48.3	65.0	
14:45	15:00	51.6	53.2	48.1	66.9	
Average 0700-1500		51.6	53.2	48.3	60-74	Excluding Rain

Noise Survey Results

Date: Tuesday 9th July 2024 **TABLE 36**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	51.1	51.0	47.7	70.4	
15:15	15:00	51.5	53.6	47.7	64.8	
15:30	15:00	50.1	51.8	47.6	63.5	
15:45	15:00	53.8	56.8	48.8	73.1	
16:00	15:00	51.5	52.7	48.4	70.1	
16:15	15:00	50.4	52.2	47.6	64.9	
16:30	15:00	50.4	52.1	47.5	69.4	
16:45	15:00	51.5	52.7	47.7	72.7	
17:00	15:00	50.8	51.9	48.2	69.8	Rain
17:15	15:00	51.4	52.0	47.8	74.8	Rain
17:30	15:00	51.0	52.1	47.9	69.9	Rain
17:45	15:00	50.8	51.9	47.7	72.5	Rain
18:00	15:00	49.6	50.6	47.3	68.3	Rain
18:15	15:00	49.3	50.4	46.8	68.4	Rain
18:30	15:00	48.1	48.6	46.0	65.6	Rain
18:45	15:00	47.1	48.3	45.9	50.9	Rain
19:00	15:00	47.1	48.3	45.6	53.6	Rain
19:15	15:00	47.3	48.5	45.9	51.8	Rain
19:30	15:00	47.3	48.4	46.0	53.5	Rain
19:45	15:00	46.7	47.8	45.2	60.6	Rain
20:00	15:00	46.4	47.5	45.2	50.9	
20:15	15:00	47.1	48.2	45.6	57.2	
20:30	15:00	46.9	48.1	45.6	52.2	
20:45	15:00	46.7	47.8	45.4	52.1	
21:00	15:00	47.2	48.0	45.3	66.7	
21:15	15:00	46.3	47.5	45.0	57.5	
21:30	15:00	46.5	47.6	45.2	51.3	
21:45	15:00	47.1	48.3	45.6	59.3	
22:00	15:00	47.4	48.5	46.1	51.5	
22:15	15:00	47.6	48.9	46.2	52.1	
22:30	15:00	47.7	48.9	46.3	51.5	
22:45	15:00	47.5	48.7	46.2	51.5	
Average 1500-2300		49.3	50.6	46.7	51-73	Excluding rain

Noise Survey Results

Date: Tuesday 9th - Wednesday 10th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 37**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	47.4	48.5	46.1	51.6	
23:15	15:00	47.5	48.6	46.2	51.0	
23:30	15:00	47.9	49.1	46.4	51.3	
23:45	15:00	47.9	49.2	46.4	52.1	
00:00	15:00	47.9	49.1	46.4	53.8	
00:15	15:00	47.8	48.9	46.4	51.7	
00:30	15:00	47.6	48.7	46.3	52.2	
00:45	15:00	47.6	48.8	46.1	51.8	
01:00	15:00	47.8	49.0	46.3	51.6	
01:15	15:00	47.8	49.1	46.2	52.2	
01:30	15:00	48.0	49.3	46.3	53.4	
01:45	15:00	48.0	49.3	46.3	52.8	
02:00	15:00	48.2	49.5	46.7	53.0	
02:15	15:00	48.6	49.8	47.1	52.3	
02:30	15:00	48.5	49.7	47.0	56.9	
02:45	15:00	48.5	49.7	47.0	53.4	
03:00	15:00	48.5	49.7	47.2	53.7	
03:15	15:00	48.6	49.8	47.1	52.9	
03:30	15:00	48.1	49.2	46.7	53.7	
03:45	15:00	48.2	49.3	46.8	52.0	
04:00	15:00	48.6	49.8	47.3	52.3	
04:15	15:00	48.9	50.1	47.6	53.2	
04:30	15:00	49.0	50.1	47.7	58.0	
04:45	15:00	49.1	50.2	47.8	53.7	
05:00	15:00	49.6	51.0	47.7	62.0	
05:15	15:00	49.9	51.1	48.4	55.5	
05:30	15:00	50.3	51.6	48.8	54.9	
05:45	15:00	50.3	51.4	49.1	54.9	
06:00	15:00	50.2	51.2	49.0	54.3	
06:15	15:00	50.4	51.3	49.2	55.0	
06:30	15:00	50.2	51.2	49.1	54.2	
06:45	15:00	50.6	51.6	49.5	57.8	
Average 2300-0700		48.7	49.9	47.3	51-62	
Average 0700-2300		50.1	51.7	46.8	51-74	

Noise Survey Results

Date: Wednesday 10th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 38**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	50.5	51.5	49.3	56.4	
07:15	15:00	50.9	51.9	49.7	56.0	
07:30	15:00	51.3	52.3	49.9	63.0	
07:45	15:00	51.7	52.5	50.0	71.1	
08:00	15:00	51.0	52.2	49.4	66.9	
08:15	15:00	50.6	51.6	49.2	62.9	
08:30	15:00	50.7	51.9	49.2	64.5	
08:45	15:00	50.6	51.6	48.9	68.1	
09:00	15:00	49.7	51.0	48.0	62.2	
09:15	15:00	51.3	52.7	48.6	65.1	
09:30	15:00	51.7	54.5	48.3	65.7	
09:45	15:00	52.2	54.8	48.7	64.0	
10:00	15:00	51.4	53.9	48.1	62.5	
10:15	15:00	50.0	51.0	48.5	62.2	
10:30	15:00	50.5	51.7	48.3	62.8	
10:45	15:00	50.8	52.5	48.5	63.5	
11:00	15:00	51.3	52.8	48.7	66.0	
11:15	15:00	51.3	52.5	48.6	68.0	
11:30	15:00	52.1	53.4	48.2	70.4	
11:45	15:00	52.6	55.0	48.8	66.6	
12:00	15:00	51.8	54.5	48.3	64.8	
12:15	15:00	52.0	54.5	48.6	67.1	
12:30	15:00	51.5	52.3	48.8	72.5	
12:45	15:00	50.4	51.5	48.4	65.0	
13:00	15:00	49.8	51.0	48.0	64.8	
13:15	15:00	50.3	51.6	48.5	66.6	
13:30	15:00	51.9	51.9	48.3	78.7	
13:45	15:00	50.7	51.8	49.1	66.3	
14:00	15:00	52.1	53.2	49.0	67.0	
14:15	15:00	52.2	53.9	49.8	61.8	
14:30	15:00	52.0	52.8	49.8	76.1	
14:45	15:00	52.0	53.9	49.5	64.7	
Average 0700-1500		51.2	52.7	48.8	56-79	

Noise Survey Results

Date: Wednesday 10th July 2024 **TABLE 39**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	51.9	53.7	49.4	65.7	
15:15	15:00	52.6	53.8	49.3	68.6	
15:30	15:00	54.2	55.8	49.3	70.3	
15:45	15:00	51.9	53.2	48.8	71.3	
16:00	15:00	51.2	52.7	49.3	62.2	
16:15	15:00	50.7	52.1	49.1	61.4	
16:30	15:00	50.5	52.0	48.8	59.3	
16:45	15:00	50.8	52.3	49.0	59.7	
17:00	15:00	52.3	54.8	49.1	65.8	
17:15	15:00	50.4	51.8	48.6	58.1	
17:30	15:00	51.9	54.1	49.3	62.4	
17:45	15:00	50.6	52.1	48.6	66.7	
18:00	15:00	51.2	53.1	48.9	62.0	
18:15	15:00	50.0	51.9	47.8	58.6	
18:30	15:00	49.7	51.6	47.6	59.1	
18:45	15:00	50.0	51.4	47.6	64.6	
19:00	15:00	49.3	50.6	47.5	58.5	
19:15	15:00	48.7	49.9	47.5	53.6	
19:30	15:00	48.6	49.6	47.0	63.8	
19:45	15:00	48.0	49.0	46.8	56.2	
20:00	15:00	48.2	49.3	46.8	56.4	
20:15	15:00	48.0	48.4	46.0	65.6	
20:30	15:00	47.5	48.7	45.9	63.0	
20:45	15:00	47.4	48.4	46.1	54.1	
21:00	15:00	47.4	48.5	46.0	55.2	
21:15	15:00	46.9	48.0	45.6	52.4	
21:30	15:00	46.3	47.3	45.2	50.3	
21:45	15:00	46.5	47.4	45.6	49.5	
22:00	15:00	46.8	47.7	45.8	49.5	
22:15	15:00	47.2	48.0	46.3	50.0	
22:30	15:00	47.4	48.3	46.4	51.5	
22:45	15:00	47.3	48.4	46.2	50.6	
Average 1500-2300		49.9	51.4	47.7	50-71	

Noise Survey Results

Date: Wednesday 10th - Thursday 11th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 40**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position B - Ecological Area (northwest of Site)**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

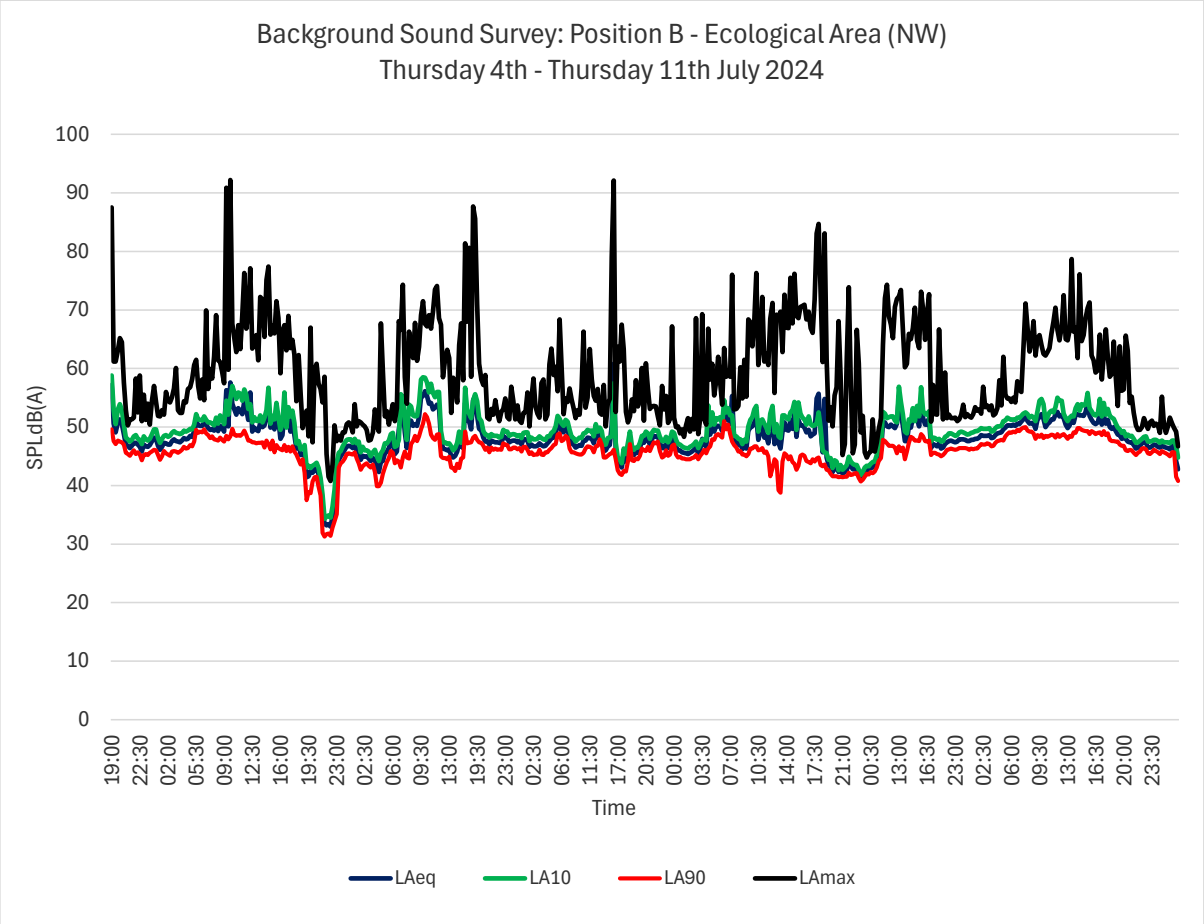
Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	46.5	47.5	45.5	49.7	
23:15	15:00	46.5	47.5	45.4	50.8	
23:30	15:00	46.7	47.6	45.7	51.1	
23:45	15:00	47.0	47.8	46.1	50.2	
00:00	15:00	46.9	47.8	45.9	50.6	
00:15	15:00	46.6	47.6	45.7	50.3	
00:30	15:00	46.5	47.3	45.4	49.0	
00:45	15:00	46.9	47.7	45.9	55.2	
01:00	15:00	46.6	47.4	45.7	50.5	
01:15	15:00	46.5	47.4	45.5	49.0	
01:30	15:00	46.4	47.4	45.3	50.1	
01:45	15:00	46.2	47.2	45.0	51.6	
02:00	15:00	46.8	47.7	45.7	50.6	
02:15	15:00	46.8	47.7	45.7	49.8	
02:30	15:00	44.2	46.7	41.5	49.2	
02:45	15:00	42.8	44.8	40.8	46.7	
03:00	15:00	41.1	42.9	39.7	45.6	Rain
03:15	15:00	40.7	41.5	39.8	47.5	Rain
03:30	15:00	41.7	43.1	40.2	50.7	Rain
03:45	15:00	42.6	44.0	40.7	67.8	Rain
04:00	15:00	46.5	45.5	41.2	73.8	Rain
04:15	15:00	44.2	44.0	41.0	72.7	Rain
04:30	15:00	41.8	42.9	40.8	51.8	Rain
04:45	15:00	50.8	45.1	41.5	77.9	Rain
05:00	15:00	50.1	48.9	42.1	71.7	Rain
05:15	15:00	47.3	50.2	42.3	63.5	Rain
05:30	15:00	48.0	50.7	43.0	66.1	Rain
05:45	15:00	48.1	50.9	43.2	62.2	Rain
06:00	15:00	49.5	50.9	42.3	67.3	Rain
06:15	15:00	52.3	50.7	42.8	73.2	Rain
06:30	15:00	47.1	50.3	42.1	58.8	Rain
06:45	15:00	58.2	61.6	50.2	73.0	**Rain**
Average 2300-0700		48.3	50.1	44.2	47-55	**Excluding Rain**
Average 0700-2300		50.6	52.2	48.2	50-79	

Overall Average	**47.7**	**48.9**	**46.2**	**45-70**	**Excluding Rain**
Overall Average	**50.1**	**51.5**	**46.6**	**41-92**	**Excluding Rain**

Av. 0800-1800 Weekday	**51.1**	**52.6**	**47.3**	**54-92**	**Excluding Rain**
Av. 0800-1300 Saturday	**52.6**	**55.1**	**48.5**	**59-74**	**Excluding Rain**

Average 0800-1800 LAmax 67dB
Average 0800-1300 LAmax 67dB

Range: $LAeq_{15mins}$ (daytime) = 33dB to 61dB $LAeq_{15mins}$ (night-time) = 41dB to 53dB
Range: $LAmax_{15mins}$ (daytime) = 41dB to 92dB $LAmax_{15mins}$ (night-time) = 45dB to 70dB


Background Sound Survey: Position B - Ecological Area (NW)
Thursday 4th - Thursday 11th July 2024
SPLdB(A)
100
90
80
70
60
50
40
30
20
10
0
19:00
22:30
02:00
05:30
09:00
12:30
16:00
19:30
23:00
02:30
06:00
09:30
13:00
19:30
23:00
02:30
06:00
11:30
17:00
20:30
00:00
03:30
07:00
10:30
14:00
17:30
21:00
00:30
13:00
16:30
23:00
02:30
06:00
09:30
13:00
16:30
20:00
23:30
Time
LAeq
LA10
LA90
LAmax

Position C: East of Site – Adjacent to the sea wall

Noise Survey Results

Date: Thursday 4th July 2024 **TABLE 41**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
19:00	15:00	61.6	56.4	46.5	87.1	Noise from sea, distant noise from road traffic and indusrial sites in the local area
19:15	15:00	46.6	48.4	44.3	54.3	
19:30	15:00	51.4	50.2	44.0	81.8	
19:45	15:00	52.0	50.5	44.7	82.8	
20:00	15:00	49.7	48.9	43.3	81.7	
20:15	15:00	48.9	48.7	43.8	82.5	
20:30	15:00	44.9	46.4	43.1	52.7	
20:45	15:00	43.7	45.5	41.9	51.2	
21:00	15:00	44.5	45.7	42.9	53.9	
21:15	15:00	45.5	46.4	42.8	64.0	
21:30	15:00	43.9	45.2	42.4	49.3	
21:45	15:00	44.6	45.9	42.9	56.4	
22:00	15:00	45.3	46.6	43.4	56.3	
22:15	15:00	45.2	46.3	43.8	52.5	
22:30	15:00	44.3	45.7	42.6	50.1	
22:45	15:00	43.7	45.1	42.1	54.2	
Average 1900-2300		51.4	48.9	43.5	49-87	

Noise Survey Results

Date: Thursday 4th - Friday 5th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 42**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	44.9	46.6	43.0	53.0	
23:15	15:00	44.2	45.6	42.5	54.1	
23:30	15:00	43.8	45.4	41.8	50.1	
23:45	15:00	44.4	45.8	42.7	49.4	
00:00	15:00	44.5	46.0	42.7	51.1	
00:15	15:00	45.6	47.2	43.3	59.3	
00:30	15:00	50.5	47.4	42.6	83.2	
00:45	15:00	47.2	45.5	41.9	82.3	
01:00	15:00	42.8	44.3	40.8	51.7	
01:15	15:00	43.0	44.7	41.1	48.2	
01:30	15:00	44.3	45.8	42.5	50.9	
01:45	15:00	44.4	45.8	42.7	50.9	
02:00	15:00	44.5	46.1	42.5	51.1	
02:15	15:00	43.9	45.4	42.1	49.0	
02:30	15:00	44.9	46.6	42.6	52.3	
02:45	15:00	45.0	46.5	43.1	52.1	
03:00	15:00	44.7	46.0	43.1	50.6	
03:15	15:00	44.8	46.4	42.9	53.0	
03:30	15:00	44.9	46.4	43.2	50.4	
03:45	15:00	45.6	47.0	43.9	51.7	
04:00	15:00	46.0	47.4	44.2	55.8	
04:15	15:00	45.9	47.3	44.2	53.0	
04:30	15:00	54.9	59.3	44.6	72.4	
04:45	15:00	56.0	51.1	44.6	74.0	
05:00	15:00	46.2	48.1	44.0	59.2	
05:15	15:00	50.8	49.3	45.9	72.8	
05:30	15:00	49.7	50.3	47.4	74.3	
05:45	15:00	48.9	50.2	47.4	57.8	
06:00	15:00	60.6	62.3	47.6	78.5	
06:15	15:00	48.5	49.7	47.1	57.5	
06:30	15:00	49.0	50.2	47.6	57.4	
06:45	15:00	49.0	49.5	46.7	67.4	
Average 2300-0700		49.9	51.2	44.3	48-83	
Average 1900-2300		51.4	48.9	43.5	49-87	

Noise Survey Results

Date: Friday 5th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 43**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	47.3	48.2	46.0	69.0	
07:15	15:00	58.2	62.1	45.5	74.7	
07:30	15:00	47.3	48.6	45.9	54.3	
07:45	15:00	46.9	48.3	45.2	54.7	
08:00	15:00	54.3	56.5	45.5	72.5	
08:15	15:00	53.5	50.4	45.0	81.6	
08:30	15:00	49.7	49.0	44.8	83.0	
08:45	15:00	46.6	48.7	44.3	57.7	
09:00	15:00	46.2	47.8	44.4	56.0	
09:15	15:00	48.5	49.2	45.2	79.2	
09:30	15:00	46.3	47.8	44.2	58.2	
09:45	15:00	49.6	49.8	44.6	83.1	
10:00	15:00	56.3	52.2	46.5	85.1	
10:15	15:00	52.3	51.5	45.4	82.2	
10:30	15:00	53.4	50.4	45.4	84.4	
10:45	15:00	52.9	49.4	44.8	83.3	
11:00	15:00	49.6	49.7	44.7	82.3	
11:15	15:00	48.9	49.1	44.6	81.1	
11:30	15:00	48.9	50.6	44.6	77.7	
11:45	15:00	48.8	51.1	44.4	75.8	
12:00	15:00	46.6	48.4	43.9	64.7	
12:15	15:00	54.6	48.5	42.7	81.9	
12:30	15:00	47.1	47.0	42.8	81.1	
12:45	15:00	44.8	46.4	42.6	60.4	
13:00	15:00	44.6	46.5	41.5	58.0	
13:15	15:00	45.0	47.6	40.8	58.3	
13:30	15:00	44.8	46.4	41.7	57.2	
13:45	15:00	44.6	46.3	42.4	54.3	
14:00	15:00	49.0	47.9	41.6	82.0	
14:15	15:00	45.5	47.5	41.5	60.7	
14:30	15:00	44.3	46.2	41.0	60.2	
14:45	15:00	47.6	47.4	39.9	76.6	
Average 0700-1500		50.7	51.3	44.1	54-85	

Noise Survey Results

Date: Friday 5th July 2024 **TABLE 44**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	44.1	45.8	40.3	62.9	
15:15	15:00	42.4	45.8	37.0	53.3	
15:30	15:00	49.9	46.7	41.1	73.5	
15:45	15:00	43.1	45.7	39.7	54.2	
16:00	15:00	42.7	44.3	40.2	59.2	
16:15	15:00	43.0	44.7	40.7	59.4	
16:30	15:00	47.1	47.2	41.1	66.9	
16:45	15:00	42.9	45.0	40.4	53.2	
17:00	15:00	43.5	45.4	39.7	58.6	
17:15	15:00	44.2	45.6	39.6	66.9	
17:30	15:00	40.8	43.0	37.6	51.7	
17:45	15:00	47.1	46.8	40.0	72.4	
18:00	15:00	39.3	40.2	35.1	54.7	
18:15	15:00	49.2	44.0	36.8	70.1	
18:30	15:00	38.7	40.7	35.2	46.7	
18:45	15:00	38.6	40.1	36.9	49.5	
19:00	15:00	37.1	39.2	33.7	53.5	
19:15	15:00	41.6	37.2	31.8	76.0	
19:30	15:00	32.7	33.5	31.3	50.2	
19:45	15:00	35.3	36.0	31.8	58.7	
20:00	15:00	38.1	37.2	34.0	61.4	
20:15	15:00	37.0	37.9	32.2	58.7	
20:30	15:00	37.1	38.5	34.5	53.0	
20:45	15:00	36.6	38.7	34.5	52.0	
21:00	15:00	34.7	35.8	32.1	51.4	
21:15	15:00	41.0	32.9	29.4	72.1	
21:30	15:00	32.0	32.9	29.6	48.2	
21:45	15:00	30.4	31.1	29.0	45.2	
22:00	15:00	30.2	30.9	28.2	46.9	
22:15	15:00	30.0	30.7	27.6	47.6	
22:30	15:00	31.1	32.5	29.3	46.6	
22:45	15:00	33.2	34.4	30.3	50.2	
Average 1500-2300		42.4	42.4	36.9	45-76	

Noise Survey Results

Date: Friday 5th - Saturday 6th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 45**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	34.0	36.0	31.2	44.0	
23:15	15:00	38.1	39.7	36.1	43.6	
23:30	15:00	38.2	39.7	36.3	44.1	
23:45	15:00	39.2	40.7	37.2	52.3	
00:00	15:00	39.3	40.6	37.7	47.4	
00:15	15:00	40.5	42.2	38.6	52.8	
00:30	15:00	41.2	42.4	40.0	46.5	
00:45	15:00	41.5	42.9	39.9	45.1	
01:00	15:00	40.5	41.8	39.1	46.0	
01:15	15:00	41.3	42.6	39.7	51.7	
01:30	15:00	42.7	44.2	41.1	51.3	
01:45	15:00	40.7	43.1	37.5	45.7	
02:00	15:00	37.6	38.9	36.2	46.4	
02:15	15:00	39.3	40.9	37.4	51.5	
02:30	15:00	39.7	40.8	38.4	45.9	
02:45	15:00	39.7	40.5	38.7	46.0	
03:00	15:00	39.5	40.6	38.4	43.9	
03:15	15:00	38.8	40.0	37.5	44.9	
03:30	15:00	38.6	40.0	36.3	45.0	
03:45	15:00	35.9	37.2	34.5	42.4	
04:00	15:00	36.9	38.4	34.7	51.4	
04:15	15:00	40.0	41.2	38.1	53.1	
04:30	15:00	39.9	41.1	38.0	52.0	
04:45	15:00	38.6	40.3	36.0	52.6	
05:00	15:00	40.7	43.5	36.3	51.0	
05:15	15:00	40.9	43.6	37.2	55.0	
05:30	15:00	42.1	44.2	36.9	49.6	
05:45	15:00	44.4	46.0	42.5	50.7	
06:00	15:00	46.0	47.9	44.0	53.1	
06:15	15:00	43.6	45.3	42.2	52.9	
06:30	15:00	44.1	45.4	42.3	52.6	
06:45	15:00	47.9	46.2	42.1	70.9	
Average 2300-0700		41.3	42.6	39.0	42-71	
Average 0700-2300		48.2	48.8	41.9	45-85	

Noise Survey Results

Date: Saturday 6th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 46**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	50.2	53.9	40.9	64.1	
07:15	15:00	50.8	52.6	42.2	66.8	
07:30	15:00	57.8	53.0	43.2	62.0	
07:45	15:00	44.1	45.8	42.3	50.0	
08:00	15:00	48.6	51.8	41.9	68.9	
08:15	15:00	54.6	58.4	44.8	66.8	
08:30	15:00	54.4	51.8	44.9	64.0	
08:45	15:00	50.0	48.8	45.1	70.7	
09:00	15:00	46.9	49.1	44.1	59.5	
09:15	15:00	48.7	51.3	45.3	62.2	
09:30	15:00	47.3	52.8	44.6	67.4	
09:45	15:00	51.5	54.2	46.9	69.9	
10:00	15:00	53.9	53.4	48.4	65.1	
10:15	15:00	57.6	52.8	48.5	68.8	
10:30	15:00	53.3	51.5	47.3	71.1	
10:45	15:00	55.4	53.0	45.6	69.2	
11:00	15:00	52.7	49.3	44.3	72.1	
11:15	15:00	50.2	49.1	44.0	75.3	
11:30	15:00	50.5	50.6	44.5	76.1	
11:45	15:00	48.0	50.2	44.0	70.0	
12:00	15:00	43.8	44.9	40.8	69.5	
12:15	15:00	41.7	42.7	40.1	53.5	
12:30	15:00	44.9	42.0	39.7	65.0	
12:45	15:00	43.9	43.3	39.9	61.4	
13:00	15:00	41.1	41.9	39.6	60.3	
13:15	15:00	40.2	42.1	37.4	50.7	
13:30	15:00	40.5	42.6	36.5	56.8	
13:45	15:00	39.2	40.8	36.9	55.1	
14:00	15:00	40.4	42.8	38.7	55.8	
14:15	15:00	45.9	45.5	38.1	66.0	
14:30	15:00	40.2	41.9	38.4	70.1	
14:45	15:00	42.9	40.8	38.7	60.4	
Average 0700-1500		50.9	50.7	43.6	50-76	

Noise Survey Results

Date: Saturday 6th July 2024 **TABLE 47**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	51.6	52.9	40.9	62.5	Rain
15:15	15:00	48.9	49.2	39.3	62.1	Rain
15:30	15:00	42.8	45.9	39.8	58.7	Rain
15:45	15:00	47.5	43.7	42.3	55.3	Rain
16:00	15:00	42.4	46.0	41.1	55.5	Rain
16:15	15:00	45.1	46.3	43.1	59.5	Rain
16:30	15:00	44.8	45.8	43.6	60.2	Rain
16:45	15:00	44.5	42.4	42.7	57.5	Rain
17:00	15:00	46.2	46.5	44.9	57.3	Rain
17:15	15:00	48.7	51.0	43.6	70.1	Rain
17:30	15:00	49.2	51.1	44.7	70.8	Rain
17:45	15:00	55.4	52.8	45.4	67.8	Rain
18:00	15:00	50.4	51.9	45.6	70.3	
18:15	15:00	44.2	45.9	37.0	71.4	
18:30	15:00	52.6	48.7	39.7	72.7	
18:45	15:00	43.1	46.0	39.0	61.4	
19:00	15:00	47.8	48.3	40.6	73.4	
19:15	15:00	47.0	47.9	40.0	72.1	
19:30	15:00	52.1	48.5	42.1	74.5	
19:45	15:00	46.9	47.9	44.7	60.6	
20:00	15:00	46.2	47.0	43.7	63.5	
20:15	15:00	45.2	45.5	43.0	64.0	
20:30	15:00	43.9	44.8	42.6	61.9	
20:45	15:00	43.9	43.8	42.0	51.5	
21:00	15:00	41.7	43.9	40.4	54.8	
21:15	15:00	42.3	43.3	40.3	49.1	
21:30	15:00	52.8	43.0	43.6	54.7	
21:45	15:00	45.9	47.1	44.6	58.0	
22:00	15:00	44.6	44.9	43.4	55.3	
22:15	15:00	44.1	44.2	42.6	48.5	
22:30	15:00	44.2	44.5	42.3	55.1	
22:45	15:00	44.9	45.6	43.7	56.6	
Average 1500-2300		47.6	46.7	42.5	49-73	Excluding Rain

Noise Survey Results

Date: Saturday 6th - Sunday 7th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 48**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	44.4	44.4	42.6	50.9	
23:15	15:00	41.0	41.2	43.0	54.3	
23:30	15:00	41.1	42.6	39.2	54.7	
23:45	15:00	40.8	42.5	38.7	53.3	
00:00	15:00	41.4	42.8	39.6	57.7	
00:15	15:00	40.9	42.0	39.6	49.6	
00:30	15:00	41.2	42.8	39.4	56.0	
00:45	15:00	42.0	43.1	40.9	46.8	
01:00	15:00	41.8	43.1	40.3	45.5	
01:15	15:00	42.0	43.5	40.4	49.3	
01:30	15:00	42.2	43.7	40.6	50.4	
01:45	15:00	44.5	46.1	42.6	57.1	
02:00	15:00	41.3	43.2	39.1	44.8	
02:15	15:00	40.2	41.4	39.0	50.5	
02:30	15:00	40.9	42.2	39.3	59.4	
02:45	15:00	41.5	42.7	40.1	49.3	
03:00	15:00	41.5	42.5	40.2	55.1	
03:15	15:00	42.1	43.2	40.5	49.1	
03:30	15:00	41.5	43.1	39.7	60.0	
03:45	15:00	40.6	42.2	37.9	61.6	
04:00	15:00	44.0	44.2	42.5	51.1	
04:15	15:00	44.0	44.4	42.1	57.5	
04:30	15:00	44.6	44.6	42.3	67.5	
04:45	15:00	44.5	45.1	42.9	66.4	
05:00	15:00	44.5	44.5	43.3	58.8	
05:15	15:00	44.0	46.4	40.3	56.3	
05:30	15:00	45.6	48.3	41.9	58.7	
05:45	15:00	46.2	47.9	41.1	71.8	
06:00	15:00	46.1	47.8	44.2	58.5	
06:15	15:00	42.6	44.7	39.4	55.0	
06:30	15:00	43.2	45.0	40.9	52.4	
06:45	15:00	41.3	43.2	39.7	56.8	
Average 2300-0700		42.9	44.3	41.0	45-72	
Average 0700-2300		49.9	49.5	43.2	49-76	

Noise Survey Results

Date: Sunday 7th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 49**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	48.2	43.6	40.6	60.1	
07:15	15:00	38.3	38.4	36.3	50.7	
07:30	15:00	39.8	41.1	37.8	55.8	
07:45	15:00	42.4	41.3	38.8	54.9	
08:00	15:00	41.0	42.2	36.2	50.4	
08:15	15:00	41.0	42.8	38.3	54.6	
08:30	15:00	41.5	43.8	40.0	60.1	
08:45	15:00	42.3	43.4	39.4	62.3	
09:00	15:00	52.7	43.3	43.4	55.8	Rain
09:15	15:00	46.2	47.7	44.4	58.4	Rain
09:30	15:00	44.2	44.7	42.9	55.4	Rain
09:45	15:00	44.0	44.3	42.3	50.2	Rain
10:00	15:00	44.6	44.9	42.2	69.7	Rain
10:15	15:00	44.0	44.8	42.7	59.7	Rain
10:30	15:00	44.6	44.7	43.3	51.0	Rain
10:45	15:00	41.5	41.9	40.2	55.2	Rain
11:00	15:00	41.4	43.1	39.3	56.7	
11:15	15:00	41.4	43.3	39.2	51.4	
11:30	15:00	41.8	43.3	39.7	66.5	
11:45	15:00	41.2	42.7	39.5	56.4	
12:00	15:00	41.1	43.0	38.9	57.6	Rain
12:15	15:00	42.2	44.0	40.2	49.6	Rain
12:30	15:00	41.5	43.0	39.4	63.7	Rain
12:45	15:00	41.0	42.6	39.2	47.7	Rain
13:00	15:00	41.6	42.9	39.7	65.1	Rain
13:15	15:00	44.1	45.4	42.3	59.2	Rain
13:30	15:00	41.8	44.0	39.5	48.0	Rain
13:45	15:00	40.4	40.9	39.1	62.8	Rain
14:00	15:00	41.4	42.7	39.8	56.4	
14:15	15:00	43.5	45.3	41.5	50.3	
14:30	15:00	42.8	43.7	40.6	59.3	
14:45	15:00	43.8	44.7	41.3	49.9	
Average 0700-1500		42.6	43.0	39.5	50-67	Excluding Rain

Noise Survey Results

Date: Sunday 7th July 2024 **TABLE 50**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	42.8	44.3	40.8	54.6	
15:15	15:00	39.8	41.3	37.5	60.7	
15:30	15:00	37.5	38.1	36.0	46.1	
15:45	15:00	41.0	42.4	35.9	51.5	
16:00	15:00	41.0	42.8	38.4	57.3	
16:15	15:00	45.0	44.1	40.2	75.2	
16:30	15:00	55.4	52.0	39.9	68.8	
16:45	15:00	51.3	41.8	42.0	55.2	
17:00	15:00	42.4	43.4	40.9	67.1	
17:15	15:00	40.9	40.8	39.3	64.0	
17:30	15:00	39.9	39.8	38.2	65.0	
17:45	15:00	42.1	42.7	39.8	63.1	
18:00	15:00	40.9	41.4	38.8	58.0	
18:15	15:00	42.6	43.5	40.3	57.6	
18:30	15:00	44.6	45.3	42.4	54.8	
18:45	15:00	42.0	42.0	40.7	54.6	
19:00	15:00	42.0	42.1	40.6	58.1	
19:15	15:00	42.7	42.7	40.8	64.8	
19:30	15:00	42.0	42.6	41.0	56.5	
19:45	15:00	42.7	42.5	41.5	54.8	
20:00	15:00	44.8	44.9	43.6	59.9	
20:15	15:00	44.1	44.5	42.4	56.5	
20:30	15:00	45.1	45.4	42.1	67.7	
20:45	15:00	44.3	45.0	43.1	59.6	
21:00	15:00	43.3	43.2	41.6	53.0	
21:15	15:00	43.6	45.5	38.9	52.7	
21:30	15:00	45.4	46.7	44.0	52.0	
21:45	15:00	46.9	48.3	45.6	52.7	
22:00	15:00	46.7	48.1	43.8	53.7	
22:15	15:00	45.6	46.9	43.9	49.7	
22:30	15:00	44.7	46.0	42.8	59.8	
22:45	15:00	44.9	45.9	42.8	50.5	
Average 1500-2300		45.5	44.9	41.4	46-75	

Noise Survey Results

Date: Sunday 7th - Monday 8th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 51**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	44.0	44.3	42.4	60.7	
23:15	15:00	43.4	43.6	41.3	57.5	
23:30	15:00	43.1	44.1	41.8	54.4	
23:45	15:00	45.3	45.6	44.1	70.0	
00:00	15:00	44.8	45.0	43.4	49.1	
00:15	15:00	42.3	44.3	37.5	49.2	
00:30	15:00	42.9	44.3	41.4	48.5	
00:45	15:00	44.6	45.9	43.3	48.1	
01:00	15:00	43.9	45.4	41.2	51.5	
01:15	15:00	42.8	42.9	40.2	48.1	
01:30	15:00	42.3	42.4	40.9	55.7	
01:45	15:00	42.4	42.5	40.7	58.3	
02:00	15:00	42.0	42.7	40.4	52.2	
02:15	15:00	42.1	42.0	40.5	51.3	
02:30	15:00	42.9	43.1	41.2	55.0	
02:45	15:00	43.6	43.7	41.4	75.4	
03:00	15:00	41.8	42.5	40.5	51.8	
03:15	15:00	42.5	42.3	41.5	51.4	
03:30	15:00	45.2	44.2	42.8	69.1	
03:45	15:00	43.8	43.9	42.5	56.8	
04:00	15:00	43.6	43.9	41.7	57.2	
04:15	15:00	46.9	49.8	42.8	69.8	
04:30	15:00	45.0	45.5	43.1	58.0	
04:45	15:00	46.2	49.0	40.1	60.0	
05:00	15:00	46.1	47.6	44.4	53.8	
05:15	15:00	48.8	50.4	47.0	57.0	
05:30	15:00	48.4	50.0	47.2	63.9	
05:45	15:00	48.4	50.3	46.5	57.0	
06:00	15:00	47.6	48.8	46.2	56.6	
06:15	15:00	51.5	52.9	48.8	61.0	
06:30	15:00	48.0	48.5	46.0	64.0	
06:45	15:00	49.0	49.4	46.6	66.4	
Average 2300-0700		45.6	46.7	43.6	48-75	
Average 0700-2300		44.8	44.3	40.9	46-75	

Noise Survey Results

Date: Monday 8th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 52**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	46.9	48.1	45.3	61.6	
07:15	15:00	52.5	48.4	44.8	78.8	
07:30	15:00	44.5	44.5	43.3	50.5	
07:45	15:00	43.2	44.9	38.7	52.3	
08:00	15:00	43.8	45.2	42.4	52.0	
08:15	15:00	45.8	46.8	44.3	59.4	
08:30	15:00	44.4	45.8	43.7	56.8	
08:45	15:00	45.1	46.4	43.3	60.9	
09:00	15:00	44.6	45.9	43.0	58.0	
09:15	15:00	47.9	48.4	43.2	65.9	
09:30	15:00	46.3	47.3	42.8	70.9	
09:45	15:00	46.8	46.3	42.1	65.8	
10:00	15:00	45.3	47.2	41.9	69.6	
10:15	15:00	47.5	49.2	42.5	78.3	
10:30	15:00	43.2	44.5	40.8	55.6	
10:45	15:00	47.9	45.6	41.1	67.2	
11:00	15:00	48.3	47.5	41.8	70.4	
11:15	15:00	43.1	45.3	40.8	59.7	
11:30	15:00	43.5	45.3	40.1	60.8	
11:45	15:00	42.9	45.6	38.5	59.0	
12:00	15:00	43.7	46.7	36.0	66.0	
12:15	15:00	46.2	49.1	38.0	72.8	
12:30	15:00	45.8	45.4	39.6	57.8	
12:45	15:00	42.2	45.1	37.9	71.6	
13:00	15:00	43.8	41.7	33.1	70.9	
13:15	15:00	44.0	44.9	32.5	73.2	
13:30	15:00	45.6	48.1	40.6	65.8	
13:45	15:00	47.1	47.2	41.9	72.5	
14:00	15:00	46.7	47.9	42.5	66.8	
14:15	15:00	46.2	47.3	40.9	72.3	
14:30	15:00	48.2	48.7	41.2	82.3	
14:45	15:00	46.1	49.0	40.5	70.7	
Average 0700-1500		46.1	46.8	41.6	51-82	

Noise Survey Results

Date: Monday 8th July 2024 **TABLE 53**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	48.9	49.5	40.1	76.1	
15:15	15:00	44.0	46.0	34.9	68.2	
15:30	15:00	48.1	51.4	40.0	67.0	
15:45	15:00	48.9	51.2	43.5	69.7	
16:00	15:00	48.5	50.3	43.7	72.6	
16:15	15:00	48.2	49.9	43.1	70.3	
16:30	15:00	47.4	48.8	42.2	71.2	
16:45	15:00	48.0	50.1	41.8	67.2	
17:00	15:00	45.2	46.5	40.2	72.3	
17:15	15:00	45.7	46.4	40.7	72.9	
17:30	15:00	45.3	46.4	40.6	74.8	
17:45	15:00	52.1	47.0	41.9	85.9	
18:00	15:00	52.5	48.5	41.2	82.2	
18:15	15:00	45.4	46.3	35.7	72.2	
18:30	15:00	42.6	43.2	39.9	59.5	
18:45	15:00	53.4	44.6	42.0	82.3	
19:00	15:00	43.0	44.2	41.1	63.5	
19:15	15:00	40.7	40.8	38.2	50.9	
19:30	15:00	40.2	40.7	38.4	58.8	
19:45	15:00	39.3	39.2	37.8	56.9	
20:00	15:00	39.3	40.4	38.1	58.4	
20:15	15:00	39.4	39.3	38.0	56.7	
20:30	15:00	39.1	38.6	37.8	73.5	
20:45	15:00	39.9	39.7	37.7	65.5	
21:00	15:00	38.4	38.8	36.3	48.2	
21:15	15:00	38.6	38.3	36.7	47.0	
21:30	15:00	39.8	39.9	38.0	61.7	
21:45	15:00	41.0	40.9	38.6	79.3	
22:00	15:00	40.4	40.3	38.0	64.0	
22:15	15:00	39.2	39.8	37.2	48.5	
22:30	15:00	39.1	38.7	36.8	46.9	
22:45	15:00	38.7	40.0	34.3	65.8	
Average 1500-2300		46.3	46.0	39.8	47-86	

Noise Survey Results

Date: Monday 8th - Tuesday 9th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 54**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	39.0	39.9	37.9	59.3	
23:15	15:00	39.9	40.7	37.9	48.3	
23:30	15:00	39.9	41.0	38.4	53.8	
23:45	15:00	40.6	41.7	39.5	45.1	
00:00	15:00	41.0	41.8	39.5	47.6	
00:15	15:00	41.2	41.6	39.7	43.0	
00:30	15:00	39.9	39.7	38.7	51.2	
00:45	15:00	40.1	40.2	38.3	58.1	
01:00	15:00	39.7	40.2	37.1	48.8	
01:15	15:00	41.4	41.6	39.8	50.1	
01:30	15:00	42.2	42.4	40.6	47.1	
01:45	15:00	41.7	43.6	36.9	50.7	
02:00	15:00	43.3	44.7	41.7	48.4	Rain
02:15	15:00	44.8	46.3	43.3	60.0	Rain
02:30	15:00	43.8	45.3	41.1	50.6	Rain
02:45	15:00	43.0	44.4	41.5	47.3	Rain
03:00	15:00	42.7	43.7	41.5	50.3	Rain
03:15	15:00	41.9	42.7	40.1	48.1	Rain
03:30	15:00	39.1	40.1	37.5	51.3	Rain
03:45	15:00	39.4	38.8	37.2	50.2	Rain
04:00	15:00	37.7	38.3	37.5	48.0	Rain
04:15	15:00	38.8	39.3	37.9	49.2	Rain
04:30	15:00	39.1	39.6	38.5	49.6	Rain
04:45	15:00	39.7	39.5	38.8	64.2	Rain
05:00	15:00	43.4	45.2	40.7	51.6	Rain
05:15	15:00	43.3	44.4	40.6	64.0	Rain
05:30	15:00	44.9	46.8	41.0	65.6	Rain
05:45	15:00	45.2	47.0	43.4	58.0	Rain
06:00	15:00	44.5	44.7	43.2	56.7	Rain
06:15	15:00	44.8	47.1	39.4	55.2	Rain
06:30	15:00	48.1	49.4	46.5	58.8	Rain
06:45	15:00	50.1	51.7	48.4	64.3	**Rain**
Average 2300-0700		44.0	45.4	42.1	43-59	**Excluding Rain**
Average 0700-2300		46.2	46.4	40.8	47-86	

Noise Survey Results

Date: Tuesday 9th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 55**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	50.4	52.4	48.6	59.2	Rain
07:15	15:00	49.2	50.6	47.1	67.8	Rain
07:30	15:00	50.2	51.6	47.8	72.5	Rain
07:45	15:00	51.4	53.3	48.0	64.8	Rain
08:00	15:00	49.4	50.8	45.9	72.3	Rain
08:15	15:00	49.6	49.9	45.2	82.2	Rain
08:30	15:00	48.0	49.7	44.7	69.2	Rain
08:45	15:00	49.8	51.5	45.7	73.1	Rain
09:00	15:00	46.7	47.7	44.0	58.4	Rain
09:15	15:00	48.1	51.0	40.9	69.7	Rain
09:30	15:00	48.9	50.2	45.4	72.3	Rain
09:45	15:00	51.8	54.1	48.1	72.5	Rain
10:00	15:00	51.3	52.9	49.0	76.1	Rain
10:15	15:00	50.5	51.2	47.8	67.3	Rain
10:30	15:00	49.6	50.4	46.8	73.2	Rain
10:45	15:00	47.8	48.2	45.3	72.3	Rain
11:00	15:00	47.0	48.7	44.3	67.1	
11:15	15:00	47.1	47.5	44.0	71.9	
11:30	15:00	46.9	47.5	43.6	79.7	
11:45	15:00	47.0	47.9	43.0	75.7	
12:00	15:00	46.8	47.9	43.3	70.5	
12:15	15:00	46.4	47.0	43.2	65.1	
12:30	15:00	47.0	47.5	43.8	70.3	
12:45	15:00	47.4	46.8	41.9	77.3	
13:00	15:00	52.3	53.1	42.9	79.1	
13:15	15:00	48.7	50.4	42.4	76.4	
13:30	15:00	46.5	47.3	42.9	66.5	
13:45	15:00	43.3	45.7	36.7	59.4	
14:00	15:00	44.5	46.1	42.4	59.2	
14:15	15:00	48.7	50.2	45.7	65.1	
14:30	15:00	48.1	49.7	46.7	66.9	
14:45	15:00	49.9	51.8	46.1	66.3	
Average 0700-1500		48.8	50.2	45.4	59-80	Excluding Rain

Noise Survey Results

Date: Tuesday 9th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 55**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	50.4	52.4	48.6	59.2	Rain
07:15	15:00	49.2	50.6	47.1	67.8	Rain
07:30	15:00	50.2	51.6	47.8	72.5	Rain
07:45	15:00	51.4	53.3	48.0	64.8	Rain
08:00	15:00	49.4	50.8	45.9	72.3	Rain
08:15	15:00	49.6	49.9	45.2	82.2	Rain
08:30	15:00	48.0	49.7	44.7	69.2	Rain
08:45	15:00	49.8	51.5	45.7	73.1	Rain
09:00	15:00	46.7	47.7	44.0	58.4	Rain
09:15	15:00	48.1	51.0	40.9	69.7	Rain
09:30	15:00	48.9	50.2	45.4	72.3	Rain
09:45	15:00	51.8	54.1	48.1	72.5	Rain
10:00	15:00	51.3	52.9	49.0	76.1	Rain
10:15	15:00	50.5	51.2	47.8	67.3	Rain
10:30	15:00	49.6	50.4	46.8	73.2	Rain
10:45	15:00	47.8	48.2	45.3	72.3	Rain
11:00	15:00	47.0	48.7	44.3	67.1	
11:15	15:00	47.1	47.5	44.0	71.9	
11:30	15:00	46.9	47.5	43.6	79.7	
11:45	15:00	47.0	47.9	43.0	75.7	
12:00	15:00	46.8	47.9	43.3	70.5	
12:15	15:00	46.4	47.0	43.2	65.1	
12:30	15:00	47.0	47.5	43.8	70.3	
12:45	15:00	47.4	46.8	41.9	77.3	
13:00	15:00	52.3	53.1	42.9	79.1	
13:15	15:00	48.7	50.4	42.4	76.4	
13:30	15:00	46.5	47.3	42.9	66.5	
13:45	15:00	43.3	45.7	36.7	59.4	
14:00	15:00	44.5	46.1	42.4	59.2	
14:15	15:00	48.7	50.2	45.7	65.1	
14:30	15:00	48.1	49.7	46.7	66.9	
14:45	15:00	49.9	51.8	46.1	66.3	
Average 0700-1500		48.8	50.2	45.4	59-80	Excluding Rain

Noise Survey Results

Date: Tuesday 9th - Wednesday 10th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 57**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	44.6	44.9	43.4	54.4	
23:15	15:00	44.3	44.6	42.6	48.5	
23:30	15:00	43.6	45.6	38.6	50.5	
23:45	15:00	44.8	46.4	43.0	50.5	
00:00	15:00	46.5	48.0	44.8	53.0	
00:15	15:00	46.0	47.6	44.8	53.6	
00:30	15:00	44.8	45.1	43.6	52.0	
00:45	15:00	44.4	44.8	42.5	57.2	
01:00	15:00	44.8	45.2	42.5	58.4	
01:15	15:00	44.2	45.2	42.7	55.2	
01:30	15:00	44.3	44.5	42.7	53.3	
01:45	15:00	44.8	45.3	42.7	58.2	
02:00	15:00	45.2	45.7	42.9	59.8	
02:15	15:00	45.0	45.9	43.6	55.3	
02:30	15:00	44.8	44.9	43.4	56.8	
02:45	15:00	45.7	46.1	44.3	53.2	
03:00	15:00	45.3	45.7	43.6	59.1	
03:15	15:00	45.6	46.0	43.3	59.7	
03:30	15:00	44.5	45.3	43.2	56.7	
03:45	15:00	44.5	44.5	43.2	51.9	
04:00	15:00	44.3	46.3	39.5	51.5	
04:15	15:00	45.8	47.3	44.2	51.6	
04:30	15:00	47.6	49.0	46.1	57.2	
04:45	15:00	47.3	48.9	46.2	55.6	
05:00	15:00	47.9	49.6	45.7	61.4	
05:15	15:00	48.2	49.5	46.4	58.3	
05:30	15:00	48.8	49.9	46.6	52.4	
05:45	15:00	47.1	47.4	45.5	60.3	
06:00	15:00	47.2	47.4	45.2	61.1	
06:15	15:00	46.8	47.4	45.7	58.0	
06:30	15:00	47.4	47.6	46.4	57.0	
06:45	15:00	47.4	47.6	45.9	55.3	
Average 2300-0700		45.9	46.8	44.2	49-60	
Average 0700-2300		47.3	48.5	43.7	49-80	

Noise Survey Results

Date: Wednesday 10th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 58**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
07:00	15:00	46.2	48.0	41.5	55.6	
07:15	15:00	47.8	49.1	46.3	54.4	
07:30	15:00	49.9	51.2	48.3	62.2	
07:45	15:00	49.9	51.2	48.4	73.0	
08:00	15:00	47.4	48.3	45.9	69.9	
08:15	15:00	46.9	46.8	45.6	62.8	
08:30	15:00	47.9	48.3	46.5	64.3	
08:45	15:00	47.4	47.6	45.3	73.5	
09:00	15:00	46.7	47.2	44.2	69.0	
09:15	15:00	47.7	48.8	45.1	68.1	
09:30	15:00	48.0	49.7	44.7	65.6	
09:45	15:00	47.9	51.3	40.9	63.2	
10:00	15:00	48.3	51.1	44.7	60.9	
10:15	15:00	48.6	49.9	46.9	61.4	
10:30	15:00	48.7	50.4	46.7	64.7	
10:45	15:00	49.1	51.1	46.5	62.9	
11:00	15:00	49.6	51.2	46.7	68.8	
11:15	15:00	49.8	50.8	46.4	65.5	
11:30	15:00	48.9	49.4	44.6	75.8	
11:45	15:00	49.6	51.2	45.0	73.4	
12:00	15:00	48.2	50.6	44.8	67.8	
12:15	15:00	49.2	50.9	45.9	69.9	
12:30	15:00	48.3	48.3	45.2	70.0	
12:45	15:00	46.1	48.0	40.6	64.2	
13:00	15:00	46.7	48.2	44.6	63.2	
13:15	15:00	48.9	50.5	46.9	65.8	
13:30	15:00	50.1	50.6	46.7	80.6	
13:45	15:00	47.9	48.2	46.4	66.1	
14:00	15:00	48.9	49.2	45.4	72.4	
14:15	15:00	49.2	50.1	46.0	68.6	
14:30	15:00	48.4	48.9	46.3	79.1	
14:45	15:00	48.3	49.1	45.9	64.6	
Average 0700-1500		48.4	49.7	45.7	54-81	

Noise Survey Results

Date: Wednesday 10th July 2024 **TABLE 59**
Location: Great Coates Busniess Park, Humber Gate, Stallingborough
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
15:00	15:00	48.7	49.7	45.8	71.1	
15:15	15:00	49.6	50.0	45.5	75.4	
15:30	15:00	50.6	51.9	45.8	73.3	
15:45	15:00	48.2	48.4	45.2	71.2	
16:00	15:00	48.4	49.1	46.6	62.0	
16:15	15:00	47.5	48.1	45.5	66.8	
16:30	15:00	47.5	48.2	45.0	66.1	
16:45	15:00	47.2	48.4	45.5	62.7	
17:00	15:00	48.6	50.0	45.5	65.7	
17:15	15:00	46.1	48.3	40.8	57.3	
17:30	15:00	48.8	51.3	45.9	60.8	
17:45	15:00	49.2	51.0	47.0	65.9	
18:00	15:00	49.4	51.8	47.3	63.9	
18:15	15:00	48.3	50.5	45.8	58.0	
18:30	15:00	48.0	50.0	45.6	61.9	
18:45	15:00	48.5	49.7	45.4	62.1	
19:00	15:00	46.1	46.6	43.9	63.9	
19:15	15:00	45.7	46.1	43.7	60.4	
19:30	15:00	45.0	45.7	43.5	66.8	
19:45	15:00	45.2	45.4	44.1	59.0	
20:00	15:00	45.0	45.3	43.2	53.9	
20:15	15:00	43.7	44.9	38.2	64.8	
20:30	15:00	44.4	45.9	42.5	61.4	
20:45	15:00	46.0	47.3	44.5	53.3	
21:00	15:00	45.6	47.2	44.4	57.1	
21:15	15:00	45.2	46.6	43.6	51.8	
21:30	15:00	44.6	45.7	43.2	53.1	
21:45	15:00	45.0	45.7	43.4	47.0	
22:00	15:00	43.2	43.8	41.7	52.5	
22:15	15:00	43.9	42.6	42.1	52.0	
22:30	15:00	41.9	42.5	40.2	52.9	
22:45	15:00	43.1	44.0	42.0	52.6	
Average 1500-2300		47.0	48.2	44.5	47-75	

Noise Survey Results

Date: Wednesday 10th - Thursday 11th July 2024
Location: Great Coates Busniess Park, Humber Gate, Stallingborough **TABLE 60**
Client: G P Planning Ltd
Project: Waste Treatment & Transfer Facility (WTTF)
Data: **Baseline Sound Survey: Position C - Ecological Receptor Sea Wall**
Instrumentation: Cirrus 171A Real Time Analyser (G061253)
Calibration: 94dB

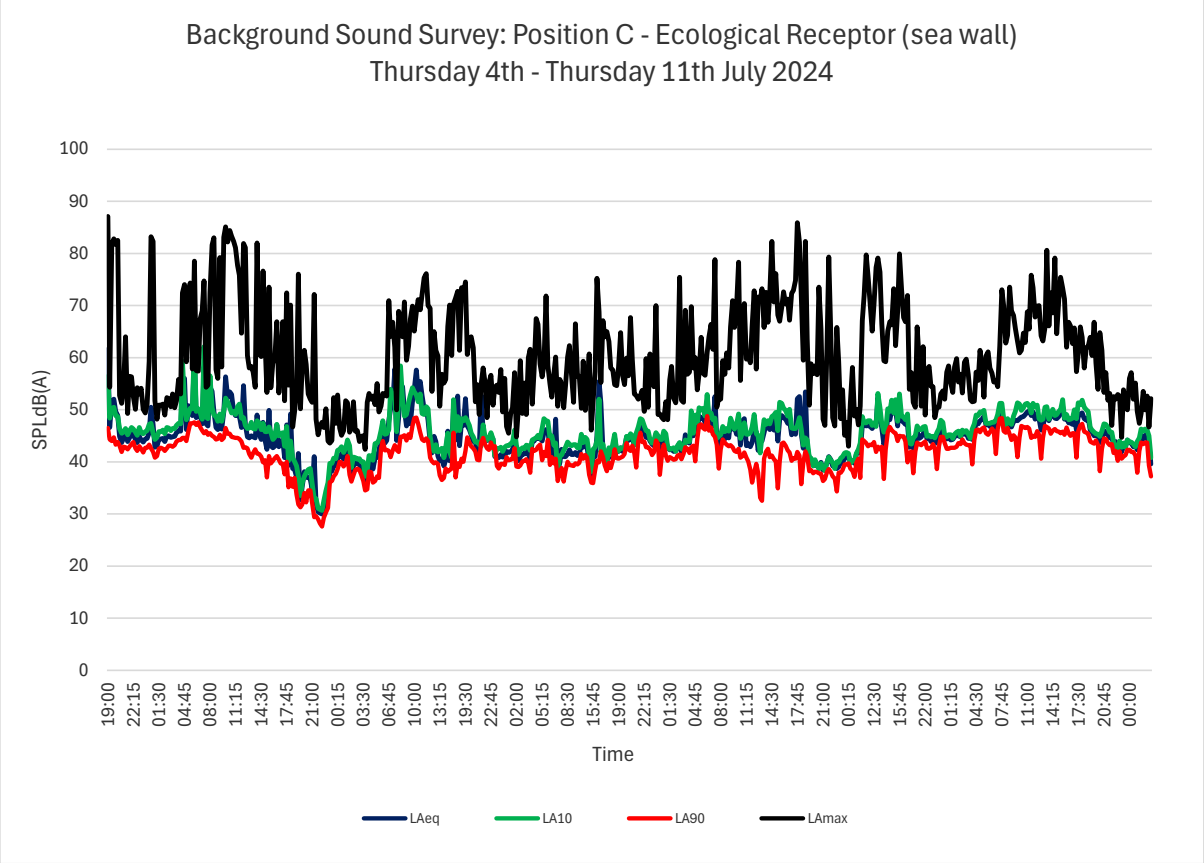
Start Time	Run Time (mins.)	LAeq (dB)	LA10 (dB)	LA90 (dB)	LAmax (dB)	Observations
23:00	15:00	41.9	42.8	40.6	44.7	
23:15	15:00	42.9	43.6	41.0	53.8	
23:30	15:00	43.0	42.8	41.3	51.0	
23:45	15:00	44.2	44.2	42.3	50.0	
00:00	15:00	43.7	43.8	42.3	56.0	
00:15	15:00	43.6	43.8	41.9	57.1	
00:30	15:00	42.9	43.4	41.9	52.0	
00:45	15:00	43.2	42.9	41.2	55.1	
01:00	15:00	42.3	43.9	37.9	49.7	
01:15	15:00	43.4	44.6	42.1	47.4	
01:30	15:00	45.0	46.3	43.7	49.3	
01:45	15:00	44.4	45.9	43.4	53.5	
02:00	15:00	45.1	46.3	43.7	50.0	
02:15	15:00	45.1	46.1	43.7	52.6	
02:30	15:00	42.7	45.0	39.3	46.7	
02:45	15:00	39.6	40.8	37.2	52.1	
03:00	15:00	41.9	43.6	40.7	48.9	Rain
03:15	15:00	42.8	44.5	40.9	50.2	Rain
03:30	15:00	45.7	46.9	41.6	52.9	Rain
03:45	15:00	45.2	44.8	43.6	53.2	Rain
04:00	15:00	43.6	44.2	40.9	56.3	Rain
04:15	15:00	44.6	45.0	42.1	55.9	Rain
04:30	15:00	43.8	45.9	43.6	59.8	Rain
04:45	15:00	45.0	46.8	43.5	55.6	Rain
05:00	15:00	46.4	47.2	44.3	52.9	Rain
05:15	15:00	44.9	45.2	42.0	56.8	Rain
05:30	15:00	44.2	44.9	42.5	51.1	Rain
05:45	15:00	45.7	46.0	42.8	52.2	Rain
06:00	15:00	45.3	45.8	42.5	55.3	Rain
06:15	15:00	46.2	47.1	44.8	52.2	Rain
06:30	15:00	45.9	46.3	43.8	56.0	Rain
06:45	15:00	47.2	50.1	45.8	58.9	**Rain**
Average 2300-0700		44.3	45.3	42.4	47-57	**Excluding Rain**
Average 0700-2300		47.7	49.0	45.0	47-81	

Overall Average	**45.8**	**47**	**42.7**	**42-83**	**Excluding Rain**
Overall Average	**47.9**	**48.2**	**42.9**	**45-87**	**Excluding Rain**

Av. 0800-1800 Weekday	**48.1**	**48.8**	**43.7**	**52-86**	**Excluding Rain**
Av. 0800-1300 Saturday	**51.7**	**51.7**	**44.9**	**54-76**	**Excluding Rain**

Average 0800-1800 LAmax 69dB
Average 0800-1300 LAmax 67dB

Range: $LAeq_{15mins}$ (daytime) = 30dB to 62dB $LAeq_{15mins}$ (night-time) = 34dB to 61dB
Range: $LAmax_{15mins}$ (daytime) = 45dB to 87dB $LAmax_{15mins}$ (night-time) = 42dB to 83dB


Background Sound Survey: Position C - Ecological Receptor (sea wall)
Thursday 4th - Thursday 11th July 2024
SPLdB(A)
100
90
80
70
60
50
40
30
20
10
0
19:00
22:15
01:30
04:45
08:00
11:15
14:30
17:45
21:00
00:15
03:30
06:45
10:00
13:15
19:30
22:45
02:00
05:15
08:30
15:45
19:00
22:15
01:30
04:45
08:00
11:15
14:30
17:45
21:00
00:15
12:30
15:45
22:00
01:15
04:30
07:45
11:00
14:15
17:30
20:45
00:00
Time
LAeq
LA10
LA90
LAmax

Weather Conditions

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
04/07/2024	18:00	16.6	4.1	W	742.8	0
04/07/2024	18:30	17.8	3.8	W	757.9	0
04/07/2024	19:00	17.3	3.7	W	761.1	0
04/07/2024	19:30	16.8	3.8	W	755.4	0
04/07/2024	20:00	17.7	3.9	WSW	755.6	0
04/07/2024	20:30	18	4	WSW	755.5	0
04/07/2024	21:00	15.1	4	WSW	755.7	0
04/07/2024	21:30	15.3	4	WSW	755.7	0
04/07/2024	22:00	15.2	3.8	WSW	755.7	0
04/07/2024	22:30	14.9	3.7	WSW	755.7	0
04/07/2024	23:00	14.7	4.2	WSW	755.5	0
04/07/2024	23:30	14.4	3.7	WSW	755.6	0
05/07/2024	00:00	14	3.7	SW	755.5	0
05/07/2024	00:30	13.6	3.7	SW	755.6	0
05/07/2024	01:00	13.2	3.8	SW	755.4	0
05/07/2024	01:30	12.8	3.8	SW	755.4	0
05/07/2024	02:00	12.6	3.8	SW	755.4	0
05/07/2024	02:30	12.4	3.7	SW	755.4	0
05/07/2024	03:00	12.3	3.7	SW	755.2	0
05/07/2024	03:30	12.2	3.6	SW	755	0
05/07/2024	04:00	11.9	4.0	SW	754.9	0
05/07/2024	04:30	11.8	3.2	SW	754.9	0
05/07/2024	05:00	11.8	2.4	SW	754.9	0
05/07/2024	05:30	11.8	3.2	SW	754.9	0
05/07/2024	06:00	11.9	3.2	SW	754.8	0
05/07/2024	06:30	12.2	4.0	SW	755	0
05/07/2024	07:00	12.7	4.0	W	754.9	0
05/07/2024	07:30	13.2	4.0	W	754.9	0
05/07/2024	08:00	13.9	4.0	W	766.5	0
05/07/2024	08:30	15.7	3.2	WNW	766.5	0
05/07/2024	09:00	15.1	2.4	WNW	766.9	0
05/07/2024	09:30	14.9	2.4	WNW	767	0
05/07/2024	10:00	15.1	3.2	WNW	766.9	0
05/07/2024	10:30	15.4	3.2	WNW	767	0
05/07/2024	11:00	16.4	2.4	NW	766.9	0
05/07/2024	11:30	16.8	4.0	NW	766.7	0
05/07/2024	12:00	17.6	4.0	WNW	766.6	0
05/07/2024	12:30	17.6	3.2	WNW	766.7	0
05/07/2024	13:00	18.1	3.2	WNW	766.8	0
05/07/2024	13:30	18	3.2	WNW	766.6	0
05/07/2024	14:00	17.9	3.2	WNW	766.4	0
05/07/2024	14:30	17.8	3.2	WNW	766.5	0
05/07/2024	15:00	17.3	3.2	WNW	766.4	0
05/07/2024	15:30	16.7	3.2	WNW	766.4	0
05/07/2024	16:00	16.2	2.4	W	766.2	0
05/07/2024	16:30	15.9	1.6	W	765.9	0
05/07/2024	17:00	15.8	1.6	W	765.6	0
05/07/2024	17:30	15.3	1.6	W	765.4	0
05/07/2024	18:00	15.3	2.4	W	765.3	0
05/07/2024	18:30	14.6	2.4	W	764.8	0
05/07/2024	19:00	14.2	2.4	W	764.7	0
05/07/2024	19:30	14.4	3.2	W	764.4	0
05/07/2024	20:00	13.9	3.2	W	764.3	0
05/07/2024	20:30	13.2	2.4	W	763.9	0
05/07/2024	21:00	12.6	2.4	W	763.6	0
05/07/2024	21:30	12.2	3.2	W	763.5	0
05/07/2024	22:00	11.8	2.4	WSW	763.4	0
05/07/2024	22:30	11.4	2.4	WSW	763.7	0
05/07/2024	23:00	11.1	2.4	WSW	763.3	0
05/07/2024	23:30	10.2	2.4	WSW	763.2	0
06/07/2024	00:00	9.5	2.4	WSW	763	0

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
06/07/2024	00:30	9.2	3.2	SW	762.8	0
06/07/2024	01:00	9.4	3.2	SW	762.4	0
06/07/2024	01:30	9.9	3.2	SW	762.3	0
06/07/2024	02:00	10.2	4.0	SW	761.9	0
06/07/2024	02:30	10.1	4.0	SW	761.9	0
06/07/2024	03:00	10	3.6	SW	761.5	0
06/07/2024	03:30	9.8	3.4	SW	761.4	0
06/07/2024	04:00	9.8	3.4	SW	761.2	0
06/07/2024	04:30	9.8	3.6	SW	761.2	0
06/07/2024	05:00	9.8	3.5	SW	761.1	0
06/07/2024	05:30	9.9	3.5	SW	761	0
06/07/2024	06:00	10.4	3.7	SW	761	0
06/07/2024	06:30	10.4	3.6	SW	761.1	0
06/07/2024	07:00	10.8	3.8	SW	761.2	0.51
06/07/2024	07:30	10.7	3.5	SW	761.4	1.02
06/07/2024	08:00	10.4	3.6	SW	761.6	1.78
06/07/2024	08:30	10.3	3.4	SW	761.6	1.27
06/07/2024	09:00	10.8	3.9	WSW	761.8	0.25
06/07/2024	09:30	10.8	3.5	WSW	762.1	0.76
06/07/2024	10:00	11.3	3.4	WSW	762.3	0.51
06/07/2024	10:30	11.6	3.4	WSW	762.5	0.51
06/07/2024	11:00	11.8	3.4	SW	762.8	0.51
06/07/2024	11:30	12.1	3.5	SW	763.1	0
06/07/2024	12:00	13.3	3.3	WSW	763.5	0
06/07/2024	12:30	13.3	3.3	WSW	763.7	0
06/07/2024	13:00	14	3.2	WSW	764	0
06/07/2024	13:30	13.3	3.2	WSW	764.3	0
06/07/2024	14:00	13.9	3.1	SW	764.5	0
06/07/2024	14:30	15.8	3.5	SW	764.7	0
06/07/2024	15:00	16.3	4.2	WSW	765	0.2
06/07/2024	15:30	16.4	3.4	W	765.3	0.4
06/07/2024	16:00	16.1	3.4	W	765.3	0.8
06/07/2024	16:30	15.9	2.6	WSW	765.4	1.2
06/07/2024	17:00	15.1	2.6	WSW	765.5	0.8
06/07/2024	17:30	16.1	2.6	W	765.3	0.4
06/07/2024	18:00	16.6	3.4	SW	765.3	0
06/07/2024	18:30	15.4	1.8	SW	765.5	0
06/07/2024	19:00	16.5	3.2	SW	765.8	0
06/07/2024	19:30	17.6	4.0	SW	765.9	0
06/07/2024	20:00	17.2	4.0	SW	766	0
06/07/2024	20:30	15.9	3.8	SW	766	0
06/07/2024	21:00	14.3	4.0	SW	766	0
06/07/2024	21:30	13.2	3.8	SW	766.1	0
06/07/2024	22:00	12.1	3.4	SW	766.1	0
06/07/2024	22:30	10.9	3.4	SW	766.3	0
06/07/2024	23:00	10.4	3.6	SW	766.3	0
06/07/2024	23:30	9.8	3.6	SW	766.4	0
07/07/2024	00:00	9.7	3.6	SW	766.3	0

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
07/07/2024	00:30	9.4	**Wind**	SW	766.3	0
07/07/2024	01:00	9.4	**Run**	SW	766.3	0
07/07/2024	01:30	9.6	3.8	SW	766.4	0
07/07/2024	02:00	9.3	3.0	SW	766.3	0
07/07/2024	02:30	9.3	3.0	SW	766.2	0
07/07/2024	03:00	9.6	3.2	SW	766.2	0
07/07/2024	03:30	9.1	3.0	SW	766.2	0
07/07/2024	04:00	9.3	2.8	SW	766.3	0
07/07/2024	04:30	9	2.8	WSW	766.4	0
07/07/2024	05:00	8.5	2.5	WSW	766.3	0
07/07/2024	05:30	8.8	2.5	WSW	766.4	0
07/07/2024	06:00	9.8	2.4	WSW	766.4	0
07/07/2024	06:30	10.8	2.6	WSW	766.5	0
07/07/2024	07:00	11.4	2.7	WSW	766.6	0
07/07/2024	07:30	11.7	3.1	WSW	766.8	0
07/07/2024	08:00	11.9	3.0	SW	767	0
07/07/2024	08:30	12.1	3.1	SW	767.3	0
07/07/2024	09:00	12	3.2	SW	767.1	0.4
07/07/2024	09:30	11.8	2.8	SW	767.4	0.45
07/07/2024	10:00	12.2	2.7	SW	767.6	0.51
07/07/2024	10:30	12.4	2.4	SW	767.7	0.2
07/07/2024	11:00	12.8	2.6	S	767.7	0
07/07/2024	11:30	13.1	2.4	ESE	768.1	0
07/07/2024	12:00	14.7	2.2	ESE	768.1	0.2
07/07/2024	12:30	15.4	2.7	ESE	768	0.3
07/07/2024	13:00	14.9	2.8	ESE	768.2	0.3
07/07/2024	13:30	14.6	3.2	ESE	768.2	0.2
07/07/2024	14:00	15.8	2.8	ESE	768.3	0
07/07/2024	14:30	15.8	2.5	ESE	768.5	0
07/07/2024	15:00	17.2	2.2	ESE	768.7	0
07/07/2024	15:30	17.9	2.1	ESE	768.8	0
07/07/2024	16:00	17.3	1.8	ESE	769.1	0
07/07/2024	16:30	17.3	1.5	ESE	769.1	0
07/07/2024	17:00	17.2	2.2	ESE	769.1	0
07/07/2024	17:30	16.8	2.2	ESE	769.1	0
07/07/2024	18:00	17.1	1.8	ESE	769.3	0
07/07/2024	18:30	17.6	1.8	ESE	769.3	0
07/07/2024	19:00	17.5	1.8	ESE	769.4	0
07/07/2024	19:30	17.7	1.8	ESE	769.6	0
07/07/2024	20:00	16.7	2.7	ESE	769.9	0
07/07/2024	20:30	14.6	2.2	ESE	770.1	0
07/07/2024	21:00	13.9	1.8	ESE	770.4	0
07/07/2024	21:30	13.2	1.3	ESE	770.7	0
07/07/2024	22:00	12.5	1.8	ESE	771	0
07/07/2024	22:30	12.5	1.3	ESE	771	0
07/07/2024	23:00	12.6	1.3	ESE	771.2	0
07/07/2024	23:30	12.2	1.3	ESE	771.2	0
08/07/2024	00:00	11.9	0.9	ESE	771.4	0

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
08/07/2024	00:30	11.6	0	ESE	771.6	0
08/07/2024	01:00	10.4	0	SE	771.8	0
08/07/2024	01:30	9.6	0	SE	771.8	0
08/07/2024	02:00	9.1	0.4	SSE	771.8	0
08/07/2024	02:30	8.4	0.4	SSE	771.8	0
08/07/2024	03:00	7.9	0.4	ESE	771.7	0
08/07/2024	03:30	7.4	0.6	ESE	771.9	0
08/07/2024	04:00	7.6	0.6	ESE	772.1	0
08/07/2024	04:30	8.2	0.5	E	772.2	0
08/07/2024	05:00	7.8	0.4	E	772.3	0
08/07/2024	05:30	7.4	0.7	E	772.3	0
08/07/2024	06:00	7.2	0.7	E	772.5	0
08/07/2024	06:30	8.2	0.5	E	772.6	0
08/07/2024	07:00	9.6	0.4	E	772.9	0
08/07/2024	07:30	10.6	0.4	E	773	0
08/07/2024	08:00	12.2	0.4	E	773	0
08/07/2024	08:30	14.2	0.4	ESE	773.1	0
08/07/2024	09:00	15.8	0.9	ESE	773.4	0
08/07/2024	09:30	15.9	0.4	ESE	773.4	0
08/07/2024	10:00	16.6	0.9	ESE	773.6	0
08/07/2024	10:30	17.5	0.9	ESE	773.5	0
08/07/2024	11:00	17.9	0.9	ESE	773.5	0
08/07/2024	11:30	18.5	1.3	SE	773.4	0
08/07/2024	12:00	19.3	1.3	SE	773.3	0
08/07/2024	12:30	25.1	0.9	SE	773.3	0
08/07/2024	13:00	27.1	1.8	SE	773.2	0
08/07/2024	13:30	18.3	1.3	SE	767.2	0
08/07/2024	14:00	18.2	0.9	S	757.7	0
08/07/2024	14:30	16.7	1.3	S	769.1	0
08/07/2024	15:00	18.6	1.3	S	761.3	0
08/07/2024	15:30	18.5	2.2	S	761.3	0
08/07/2024	16:00	18.8	1.8	S	761.1	0
08/07/2024	16:30	18.9	1.3	ENE	761.1	0
08/07/2024	17:00	18.7	1.3	ENE	761.1	0
08/07/2024	17:30	18.4	2.7	ENE	761.1	0
08/07/2024	18:00	18.6	2.7	ENE	761.1	0
08/07/2024	18:30	17.9	1.8	ENE	761.2	0
08/07/2024	19:00	17.6	1.8	ENE	761.3	0
08/07/2024	19:30	17.2	1.8	ENE	761.2	0
08/07/2024	20:00	16.9	1.8	ENE	761.2	0
08/07/2024	20:30	16.7	1.3	ENE	761.3	0
08/07/2024	21:00	16.2	1.8	ENE	761.2	0
08/07/2024	21:30	15.8	1.3	ENE	761.2	0
08/07/2024	22:00	15.7	2.2	ENE	761.3	0
08/07/2024	22:30	15.7	1.3	ENE	761.3	0
08/07/2024	23:00	15.2	1.3	ENE	761.3	0
08/07/2024	23:30	14.5	1.8	ENE	761.2	0
09/07/2024	00:00	14.1	0.9	ENE	760.8	0

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
09/07/2024	00:30	13.8	0.9	ENE	760.8	0
09/07/2024	01:00	13.7	1.8	ENE	760.9	0
09/07/2024	01:30	13.5	1.3	ENE	760.6	0
09/07/2024	02:00	13.3	1.3	ENE	760.3	0.51
09/07/2024	02:30	13.2	1.3	ENE	760	0.76
09/07/2024	03:00	13	0.9	E	759.6	0.76
09/07/2024	03:30	12.8	0.9	E	759.2	1.27
09/07/2024	04:00	12.7	0.9	ENE	758.8	0.76
09/07/2024	04:30	12.7	0.4	E	758.5	1.02
09/07/2024	05:00	12.8	0.4	E	758.1	1.8
09/07/2024	05:30	12.9	0.4	ESE	757.8	1.78
09/07/2024	06:00	13	0.4	E	757.6	3.2
09/07/2024	06:30	13.1	3.1	E	757.4	3.1
09/07/2024	07:00	13.2	1.3	E	757.3	2.29
09/07/2024	07:30	13.4	0.4	ENE	757	1.02
09/07/2024	08:00	13.6	1.3	ENE	756.8	1.02
09/07/2024	08:30	13.8	0.4	ENE	756.8	0.51
09/07/2024	09:00	14	0.4	ESE	756.7	0.51
09/07/2024	09:30	14.3	2.7	ESE	756.6	0.51
09/07/2024	10:00	14.7	2.2	ESE	756.5	0.4
09/07/2024	10:30	15.1	2.2	ESE	756.3	0.51
09/07/2024	11:00	15.4	1.8	SE	756.3	0
09/07/2024	11:30	15.7	1.8	SE	756.3	0
09/07/2024	12:00	15.9	1.8	SE	756.3	0
09/07/2024	12:30	16.6	1.8	SSE	756.3	0
09/07/2024	13:00	17.1	2.7	SSE	756.3	0
09/07/2024	13:30	17.1	2.2	SSE	756.3	0
09/07/2024	14:00	18.1	1.8	S	756.1	0
09/07/2024	14:30	18.4	1.3	S	756.1	0
09/07/2024	15:00	18.3	1.8	S	756	0
09/07/2024	15:30	18.3	1.3	S	755.9	0
09/07/2024	16:00	19.1	1.3	SSE	755.8	0
09/07/2024	16:30	18.6	1.3	SSE	755.7	0
09/07/2024	17:00	18.1	0.9	SSE	755.6	0.51
09/07/2024	17:30	17.9	1.3	SSE	755.8	1.02
09/07/2024	18:00	17.7	0.9	SSE	755.8	2.6
09/07/2024	18:30	16.9	2.7	SSE	755.7	1.9
09/07/2024	19:00	17.1	2.2	SSE	755.7	0.51
09/07/2024	19:30	17.3	2.2	SSE	755.7	0.25
09/07/2024	20:00	17.3	3.1	SSE	755.6	0
09/07/2024	20:30	17.1	3.1	SSE	755.8	0
09/07/2024	21:00	17	3.1	SSE	755.8	0
09/07/2024	21:30	16.7	2.7	SSE	756	0
09/07/2024	22:00	16.3	2.2	SSE	756.1	0
09/07/2024	22:30	15.9	4.5	SSE	756.1	0
09/07/2024	23:00	15.7	3.6	SSE	756.1	0
09/07/2024	23:30	15.7	3.6	S	756.2	0
10/07/2024	00:00	15.7	2.2	S	756	0

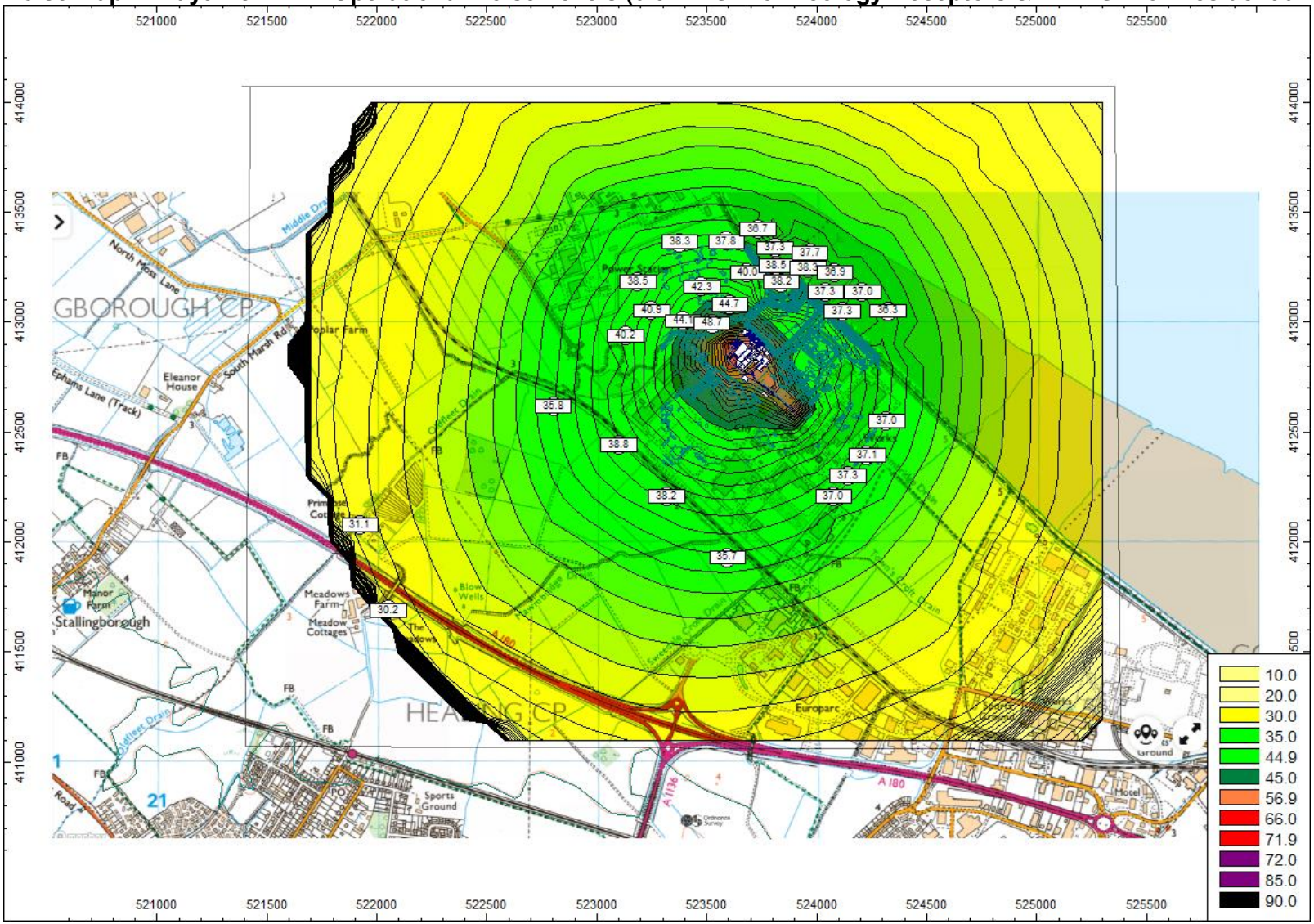
Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
10/07/2024	00:30	15.5	0.4	S	756	0
10/07/2024	01:00	15.4	0.4	S	755.9	0
10/07/2024	01:30	15.2	0.4	S	755.8	0
10/07/2024	02:00	15.1	0.9	SSW	755.6	0
10/07/2024	02:30	14.9	0.4	SSW	755.7	0
10/07/2024	03:00	14.8	0.9	SSW	755.5	0
10/07/2024	03:30	14.8	0.9	SSW	755.5	0
10/07/2024	04:00	14.8	0.9	SSW	755.4	0
10/07/2024	04:30	14.8	1.3	SSW	755.3	0
10/07/2024	05:00	14.8	1.3	SSW	755.4	0
10/07/2024	05:30	14.8	0.9	SSW	755.5	0
10/07/2024	06:00	14.9	1.8	SSW	755.6	0
10/07/2024	06:30	14.9	1.3	SSW	755.7	0
10/07/2024	07:00	14.9	0.9	SSW	755.8	0
10/07/2024	07:30	14.9	1.3	SSW	756	0
10/07/2024	08:00	14.9	1.3	SSW	756.1	0
10/07/2024	08:30	15.2	2.2	SSW	756.3	0
10/07/2024	09:00	15.4	0.4	SSW	756.4	0
10/07/2024	09:30	15.6	0.4	SSW	756.6	0
10/07/2024	10:00	15.4	0.4	SSW	756.8	0
10/07/2024	10:30	15.9	0.9	SSW	757	0
10/07/2024	11:00	16.3	0.4	SW	757.2	0
10/07/2024	11:30	16.8	0.9	SW	757.3	0
10/07/2024	12:00	16.8	0.9	SW	757.3	0
10/07/2024	12:30	16.8	0.9	SW	757.4	0
10/07/2024	13:00	16.8	1.3	SW	757.6	0
10/07/2024	13:30	17.1	1.3	SW	757.6	0
10/07/2024	14:00	18.1	0.9	SW	757.8	0
10/07/2024	14:30	17.8	1.8	SW	758	0
10/07/2024	15:00	17.3	1.3	SW	758.1	0
10/07/2024	15:30	17.5	0.9	SW	758.1	0
10/07/2024	16:00	17.3	1.3	SW	758.3	0
10/07/2024	16:30	17.2	1.3	SW	758.3	0
10/07/2024	17:00	17.1	0.4	SW	758.6	0
10/07/2024	17:30	16.6	0.4	SW	758.9	0
10/07/2024	18:00	16.2	0.4	SW	759	0
10/07/2024	18:30	15.6	0.9	SW	759.2	0
10/07/2024	19:00	15.6	0.4	WSW	759.1	0
10/07/2024	19:30	15.6	0.9	WSW	759.1	0
10/07/2024	20:00	15.6	0.9	WSW	759.3	0
10/07/2024	20:30	15.4	0.9	WSW	759.3	0
10/07/2024	21:00	15.1	1.3	WSW	759.4	0
10/07/2024	21:30	15	1.3	WSW	759.6	0
10/07/2024	22:00	14.8	0.9	WSW	759.8	0
10/07/2024	22:30	14.6	1.8	WSW	760	0
10/07/2024	23:00	14.6	1.3	WSW	760.2	0
10/07/2024	23:30	14.4	0.9	WSW	760.4	0
11/07/2024	00:00	14.3	1.3	WSW	760.5	0

Date	Time	Temp Out	Wind Speed	Wind Dir	Bar	Rain
11/07/2024	00:30	14.3	1.8	WSW	760.5	0
11/07/2024	01:00	14.1	1.3	WSW	760.5	0
11/07/2024	01:30	14	1.3	WSW	760.6	0
11/07/2024	02:00	13.9	2.7	W	760.6	0
11/07/2024	02:30	13.8	2.2	W	760.7	0
11/07/2024	03:00	13.6	1.8	NW	760.8	0.22
11/07/2024	03:30	13.4	2.1	NW	760.9	0.3
11/07/2024	04:00	13.3	2	NNW	761	0.35
11/07/2024	04:30	13.2	1.8	NNW	761	0.45
11/07/2024	05:00	13.1	1.6	NNW	761.1	0.6
11/07/2024	05:30	13.1	2.1	NNW	761.4	0.76
11/07/2024	06:00	12.7	2.4	N	761.5	0.25
11/07/2024	06:30	12.5	2.2	N	761.8	0.2

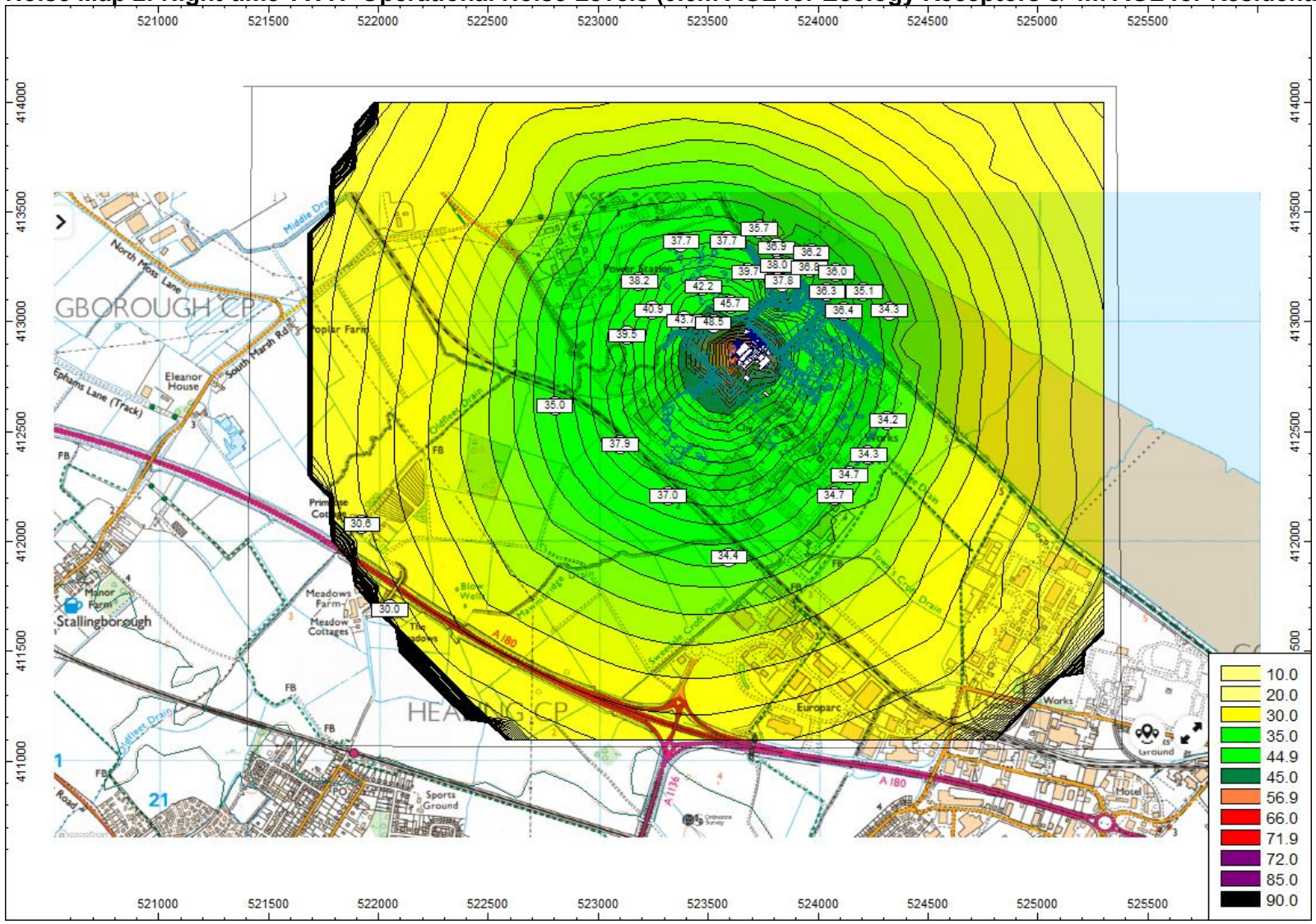
Appendix 3

Noise Mapping Results

Noise Map 1: Daytime TWTF Operational Noise Levels (0.5m AGL for Ecology Receptors & 4m AGL for Residential Receptors)



Noise Map 2: Night-time TWTF Operational Noise Levels (0.5m AGL for Ecology Receptors & 4m AGL for Residential Receptors)



Appendix 4

Construction Plant Inventory –

Assumed Plant Noise Levels & Noise Prediction Contours

Assumed Plant Noise Levels for Construction

Scenario A – Development Platform

No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
2	22-ton excavators	C4.63	108	100
1	Bomag D211 D-5 roller	C2-40	101.5	100
1	Dozer	LIBRARY	108	100
12	HGV Tipper Lorries	LIBRARY	103	12 per hour

Scenario B - Piling

No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
2	Driven Piling (Worst case)	Library	126	100
2	Continuous Flight Auger Piling Rig	C3-21	109.5	100
2	Tracked Excavator	C3-24	102	100
2	Concrete Pump	C3-25	106	100
4	HGVs	Library	103	4 per hour

Scenario C - General concrete / shuttering / reinforcement / placement works

No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
1	Tower crane	C4.48	104	50
2	Concrete mixer trucks	C4.18	103	100
1	Concrete pump	C3.25	106	100
2	Site dumper	C4.6	107	50
2	Site forklift / telehandler	C2.35	99	50
1	Mobile generator	C3.32	101	100
5	Operatives - disc cutters	C4.72	107	10
2	Operatives - Angle grinders	C4.93	108	10
4	HGVs	LIBRARY	103	4 per hour

Scenario D - General concrete / shuttering / reinforcement placement + Steelwork erection

No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
2	Tower crane	C4.48	104	50
4	MEWPS – 20 m access	C4.57	95	10
4	Concrete mixer trucks	C4.20	108	10
1	Concrete pump	C3.25	103	50
2	Site dumper	C4.06	107	50
2	Site forklift / telehandler	C2.35	99	50
1	Mobile generator	C3.32	101	100
5	Disc cutters	C4.72	107	50
2	Angle grinders	C4.93	108	30
1	100 Tonne mobile crane	C4.41	99	100
8	Operatives – bolting	LIBRARY	110	15
8	Operatives – slinging	LIBRARY	94	25

Scenario E – Main Building Erection & Plant Installation

No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
2	100 Tonne mobile crane	C4.41	99	50
1	800 Tonne crawler crane	C4.50	105	50
2	Tower crane	C4.48	104	100
2	Site forklift / telehandler	C4.55	98	100
1	Mobile generator	C4.78	94	100
30	Operatives – welding	C3.31	101	50
6	Operatives – grinding	C4.93	108	30
20	Operatives – fitters	C4.95	101	70
8	Operatives – slinging	C4.62	94	30

Scenario F – M&E installation

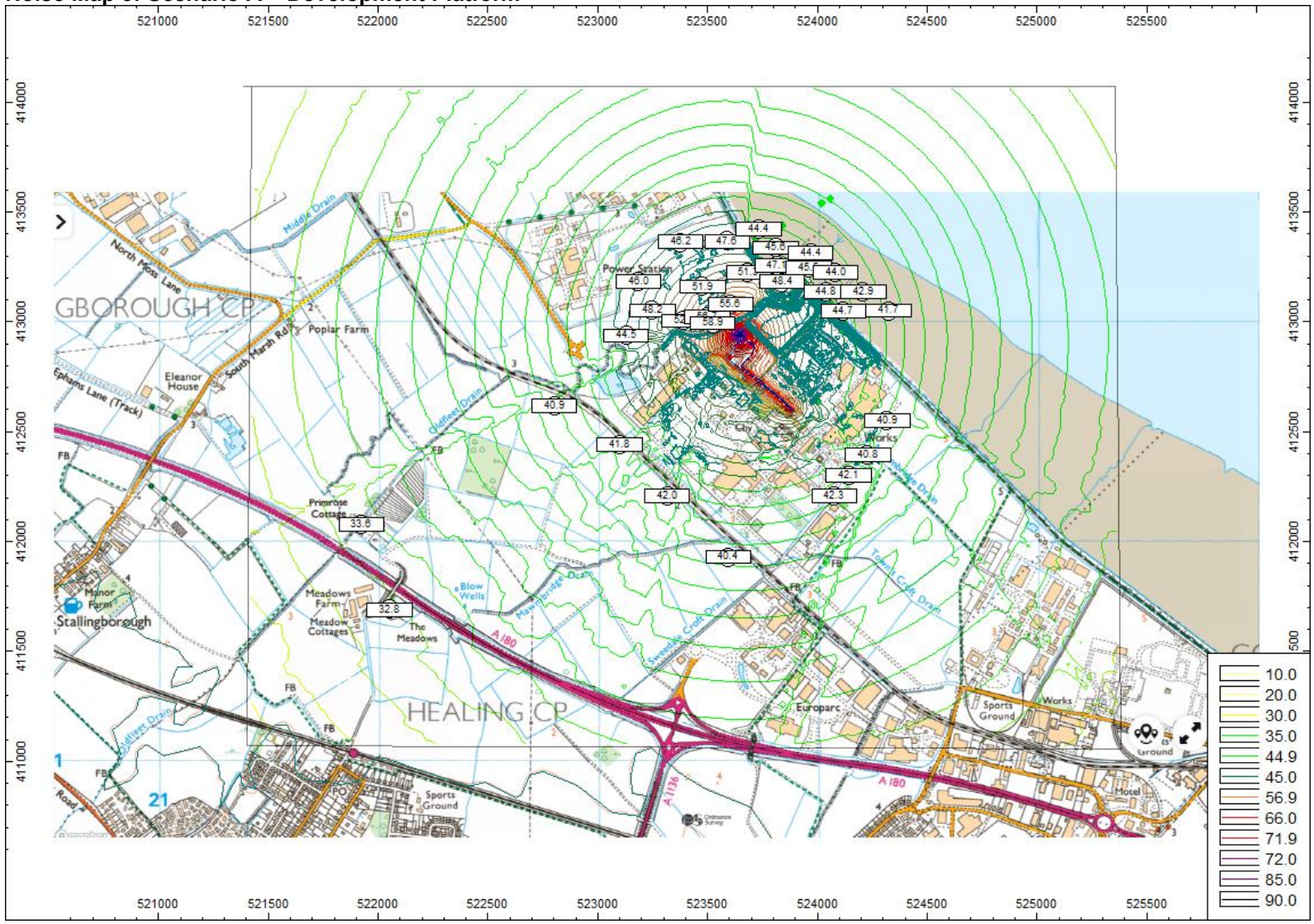
No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
1	Tower crane	C4.48	104	50
2	100 Tonne mobile crane	C4.41	99	100
2	200 Tonne mobile crane	C4.50	105	100
6	MEWPS – 20 m access	C4.57	95	10
2	Mobile generator	C4.78	94	100
2	Forklift/Telehandler	C4.55	98	100
15	Operatives – fitters	C4.95	101	70
5	Operatives – grinding	C4.93	108	10
30	Operatives – welding	C3.31	101	50
30	Operatives – lagging / cladding	LIBRARY	88	80
30	Operatives – cabling pulling	LIBRARY	88	10
30	Operatives – cable terminations	LIBRARY	88	10

Scenario G – M&E completion (building facades constructed – 10 dB(A) reduction)

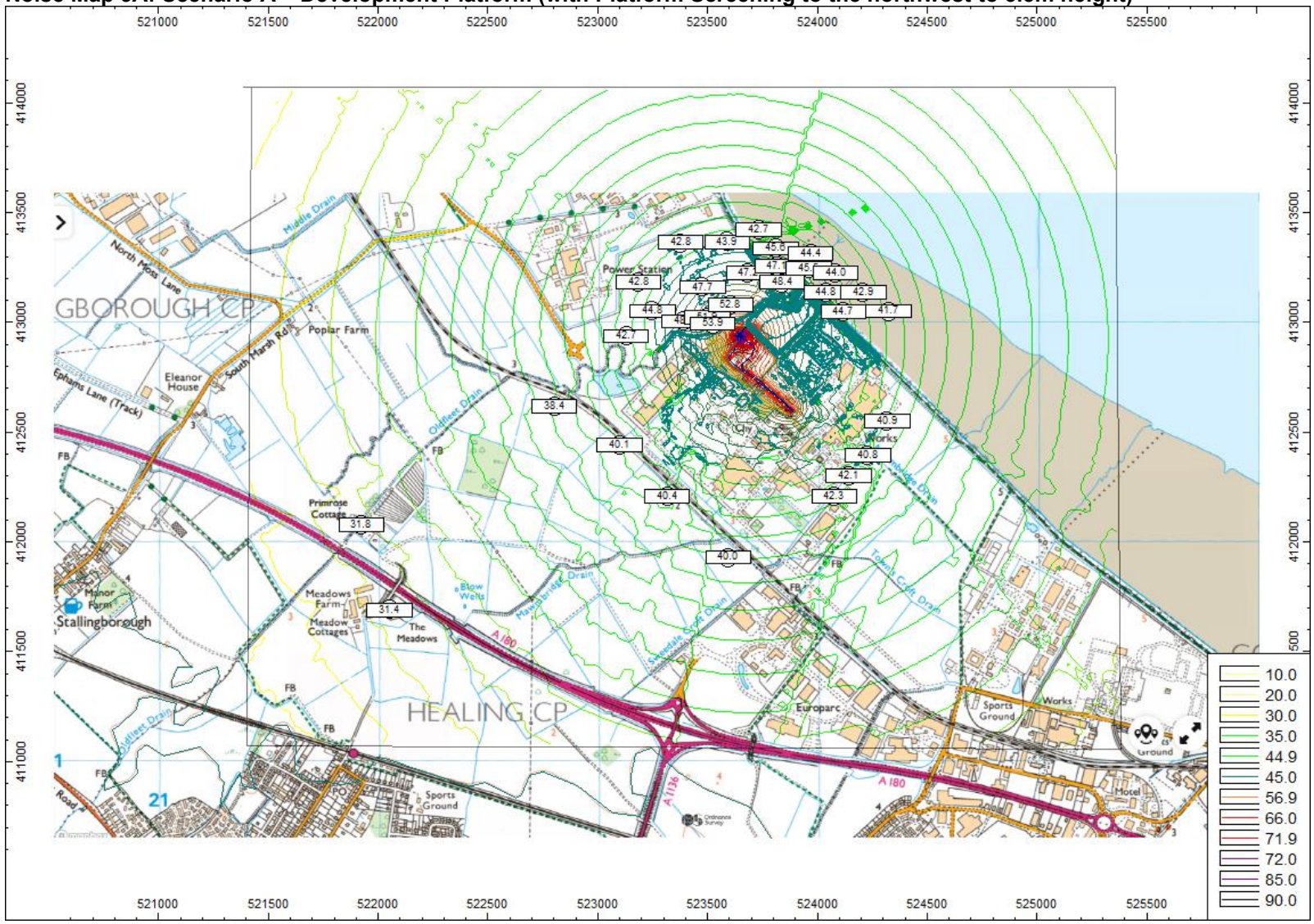
No.	Item	BS5228 ref	Sound Power Level dB(A)	% on time per item
1	Tower crane	C4.48	94	50
2	100 Tonne mobile crane	C4.41	89	100
2	200 Tonne mobile crane	C4.50	95	100
6	MEWPS – 20 m access	C4.57	85	10
2	Mobile generator	C4.78	84	100
2	Forklift/Telehandler	C4.55	98	100
15	Operatives – fitters	C4.95	91	70
5	Operatives – grinding	C4.93	98	10
30	Operatives – welding	C3.31	91	50
30	Operatives – lagging / cladding	LIBRARY	78	80
30	Operatives – cabling pulling	LIBRARY	78	10
30	Operatives – cable terminations	LIBRARY	78	10

Construction – Noise Mapping Contours

Noise Map 3: Scenario A – Development Platform

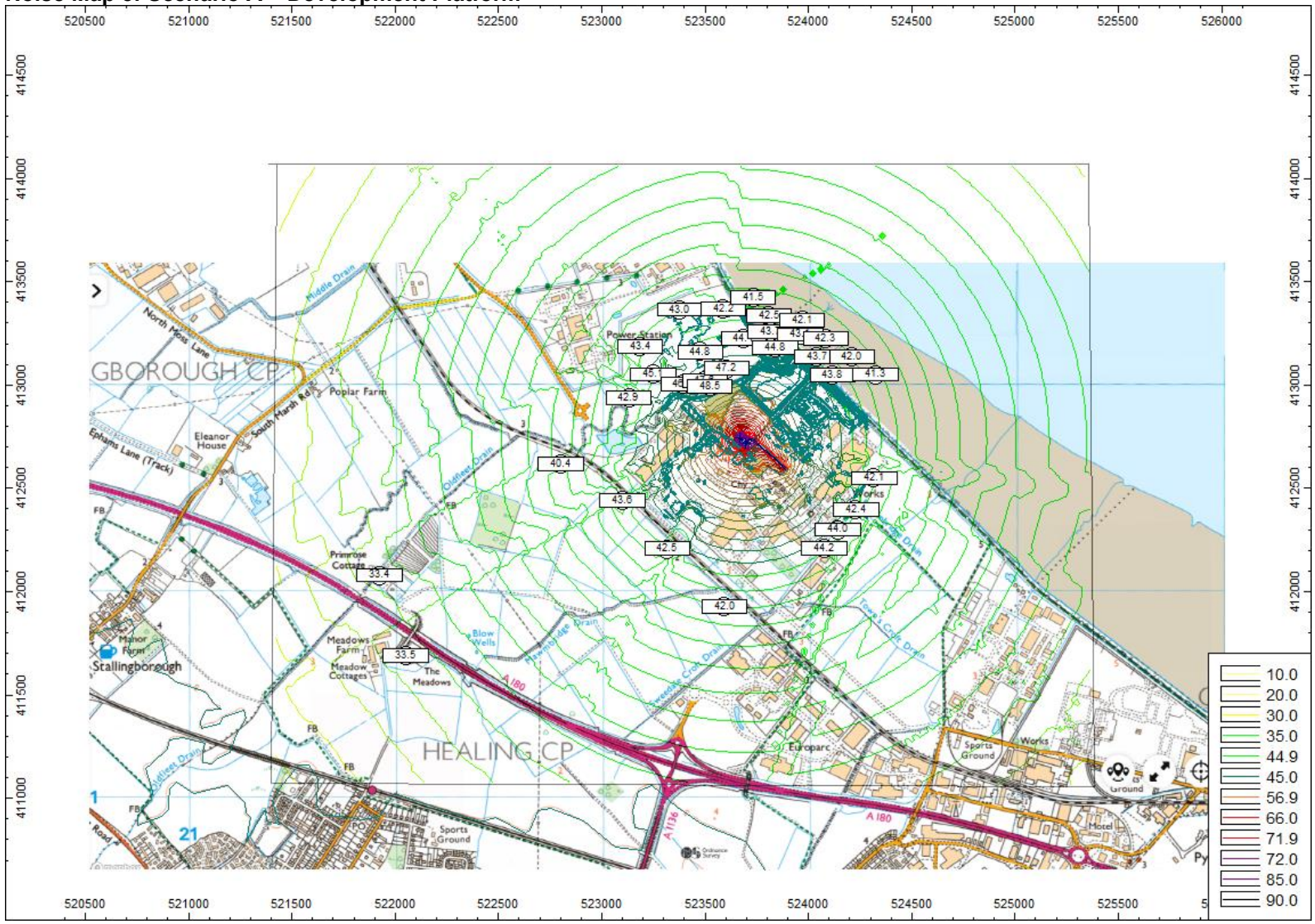


Noise Map 3A: Scenario A – Development Platform (with Platform Screening to the northwest to 3.5m height)

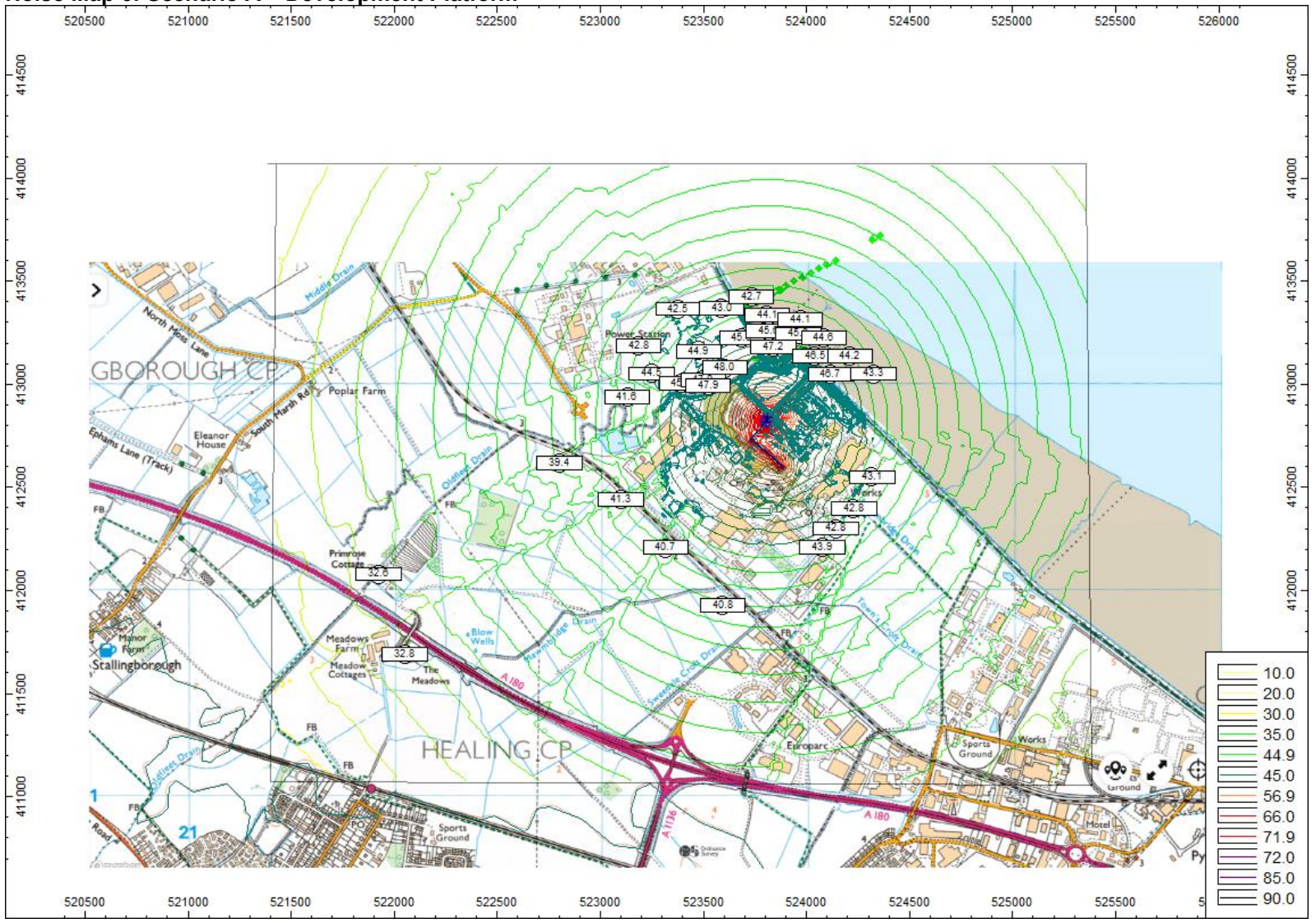


Noise Map 4: Scenario A – Development Platform

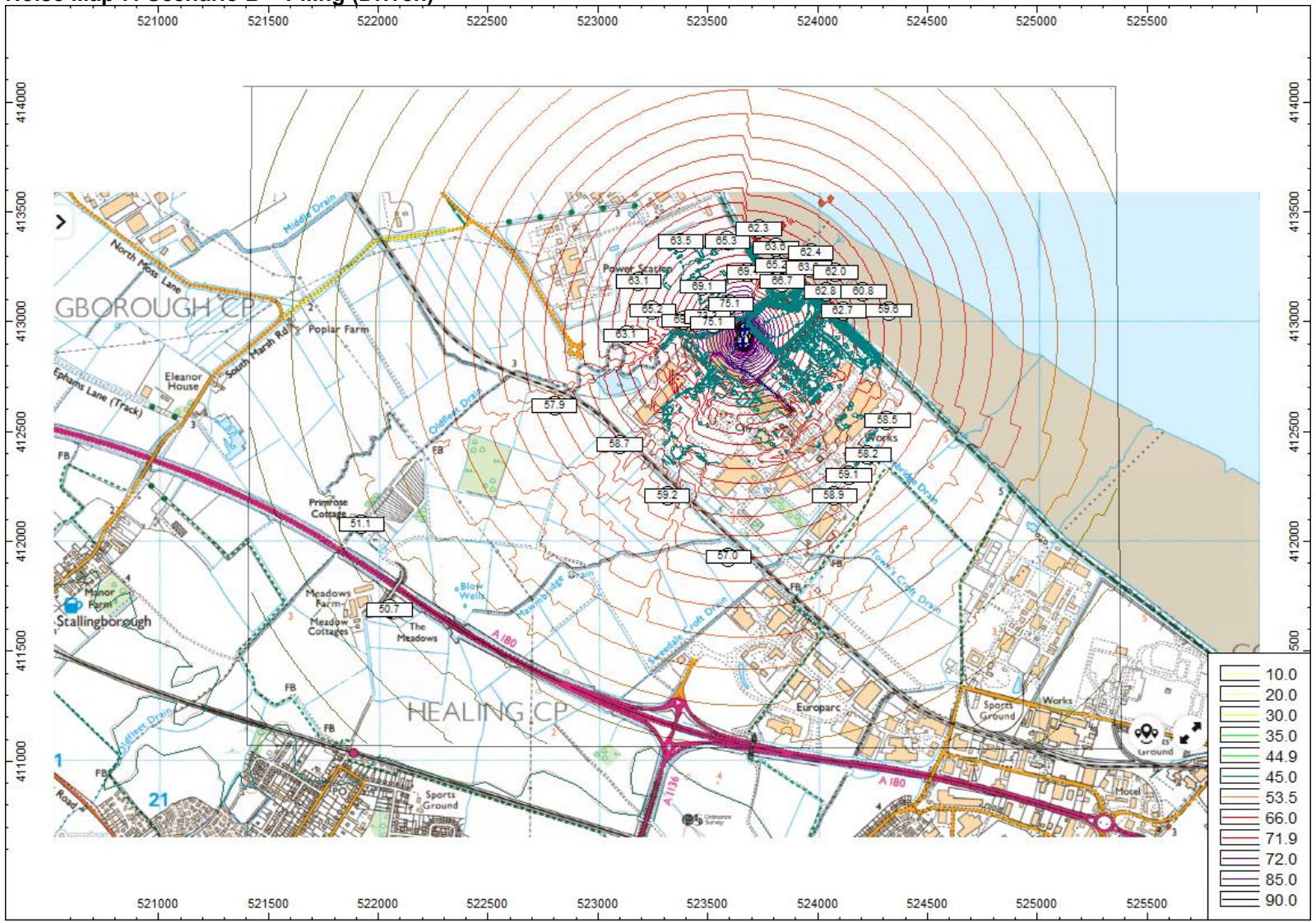
Noise Map 5: Scenario A – Development Platform



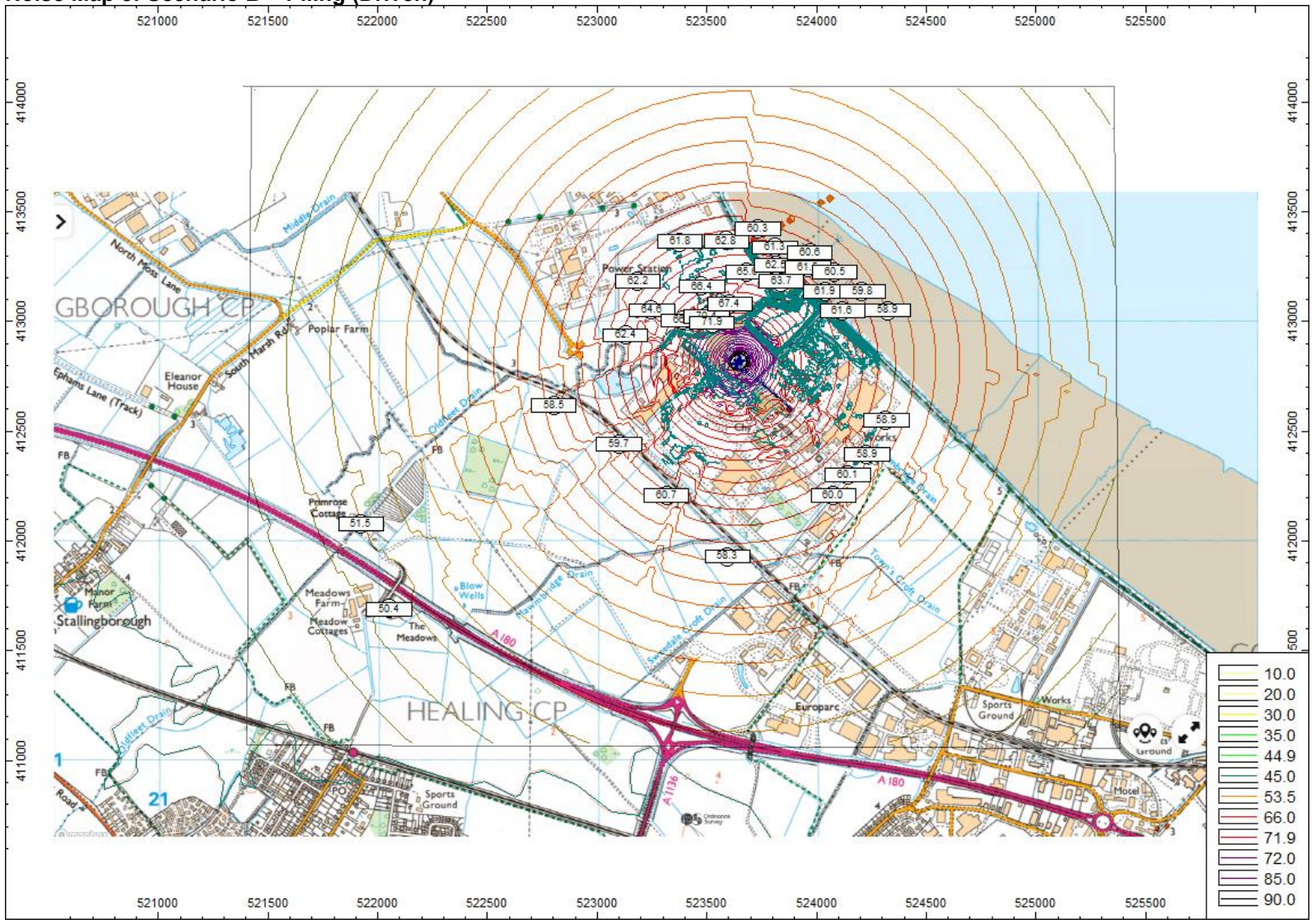
Noise Map 6: Scenario A – Development Platform



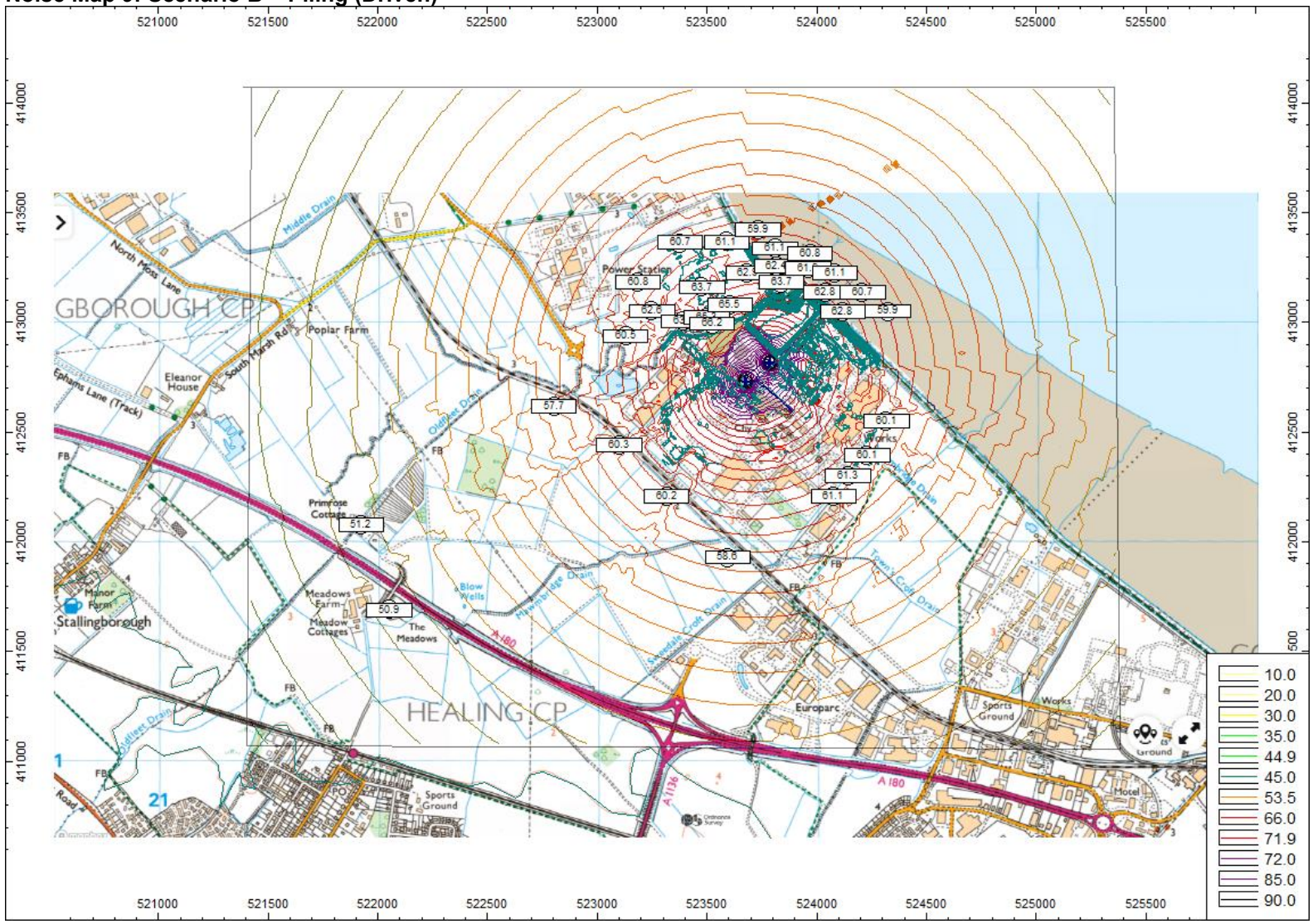
Noise Map 7: Scenario B – Piling (Driven)



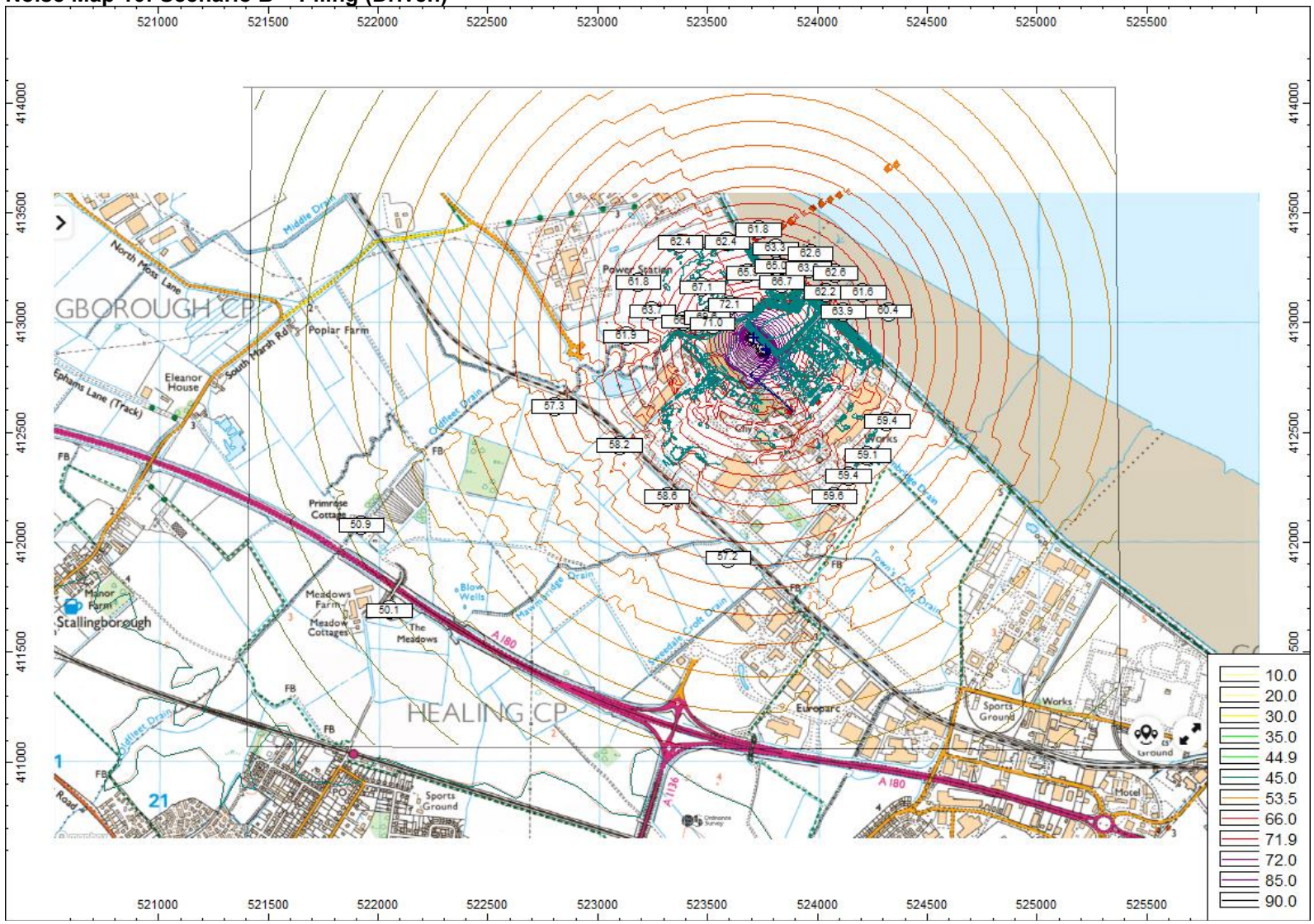
Noise Map 8: Scenario B – Piling (Driven)



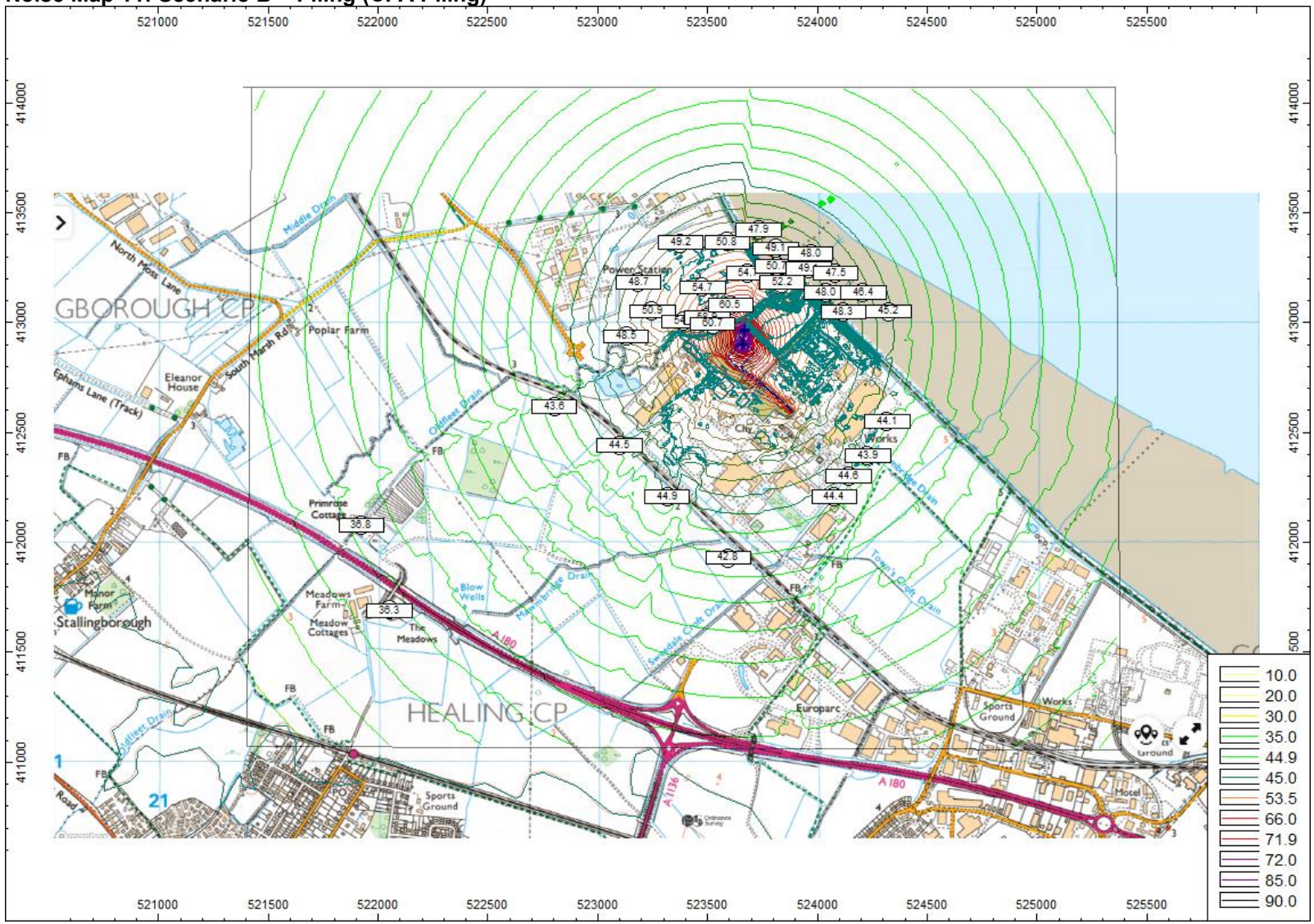
Noise Map 9: Scenario B – Piling (Driven)



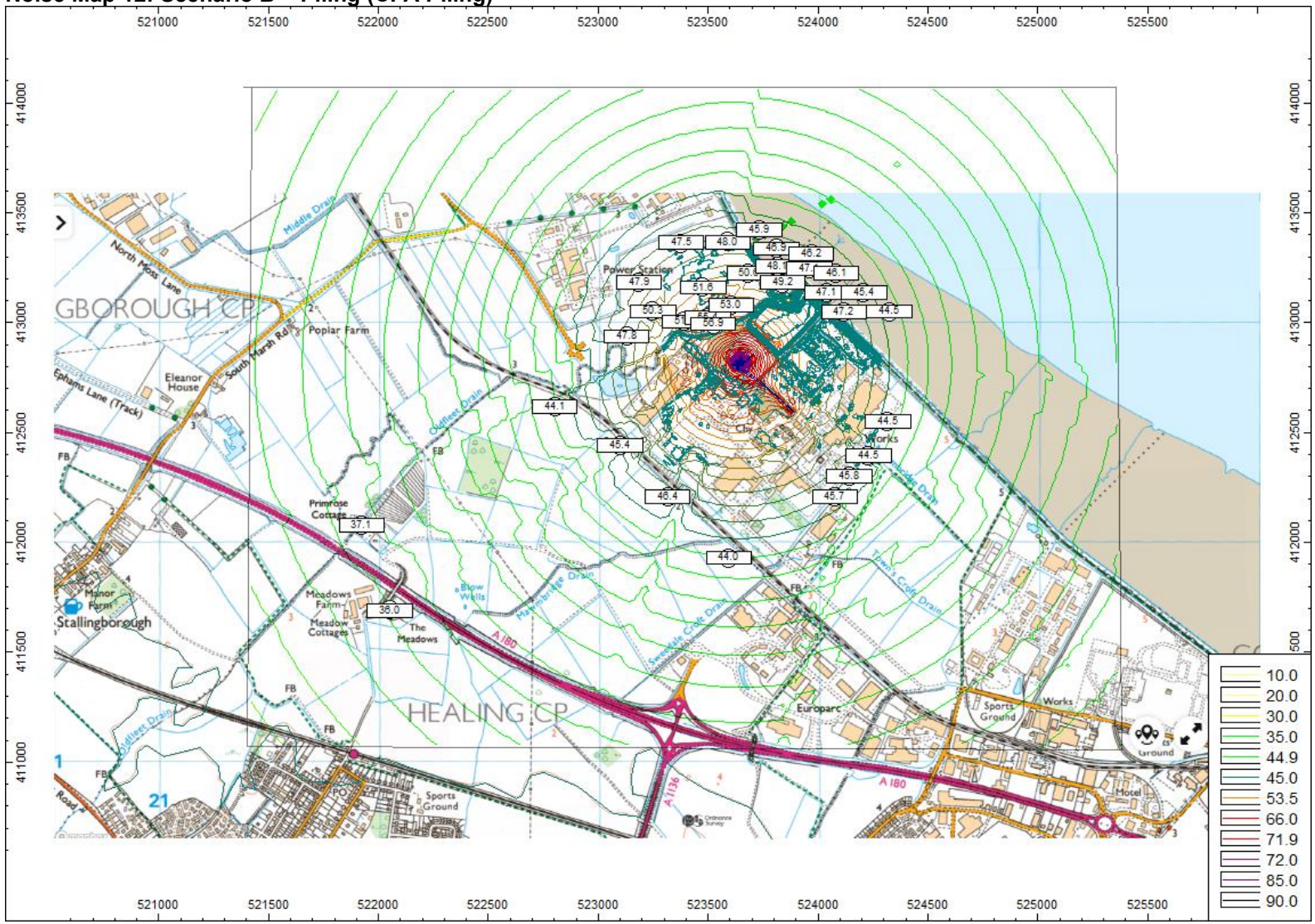
Noise Map 10: Scenario B – Piling (Driven)



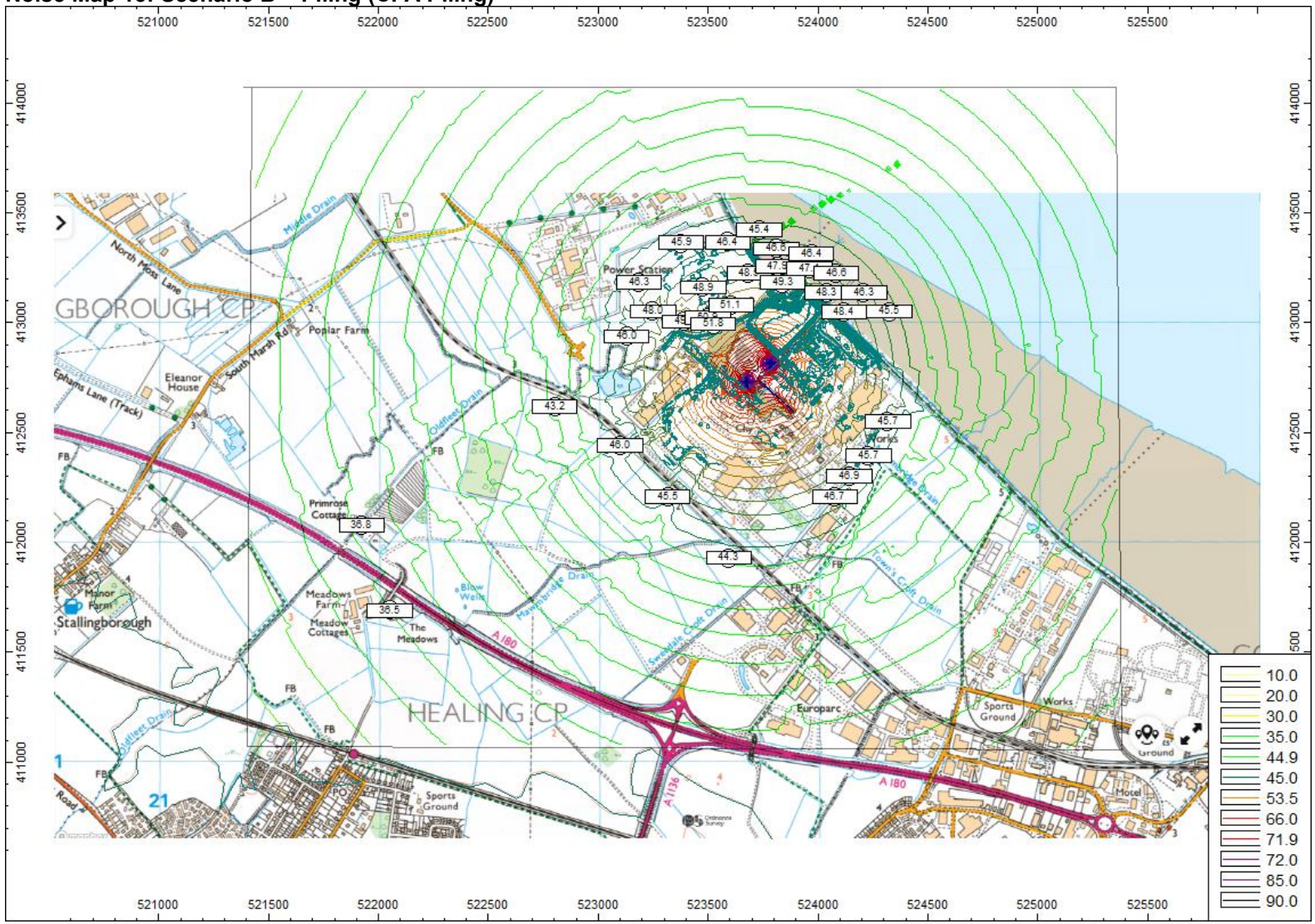
Noise Map 11: Scenario B – Piling (CFA Piling)



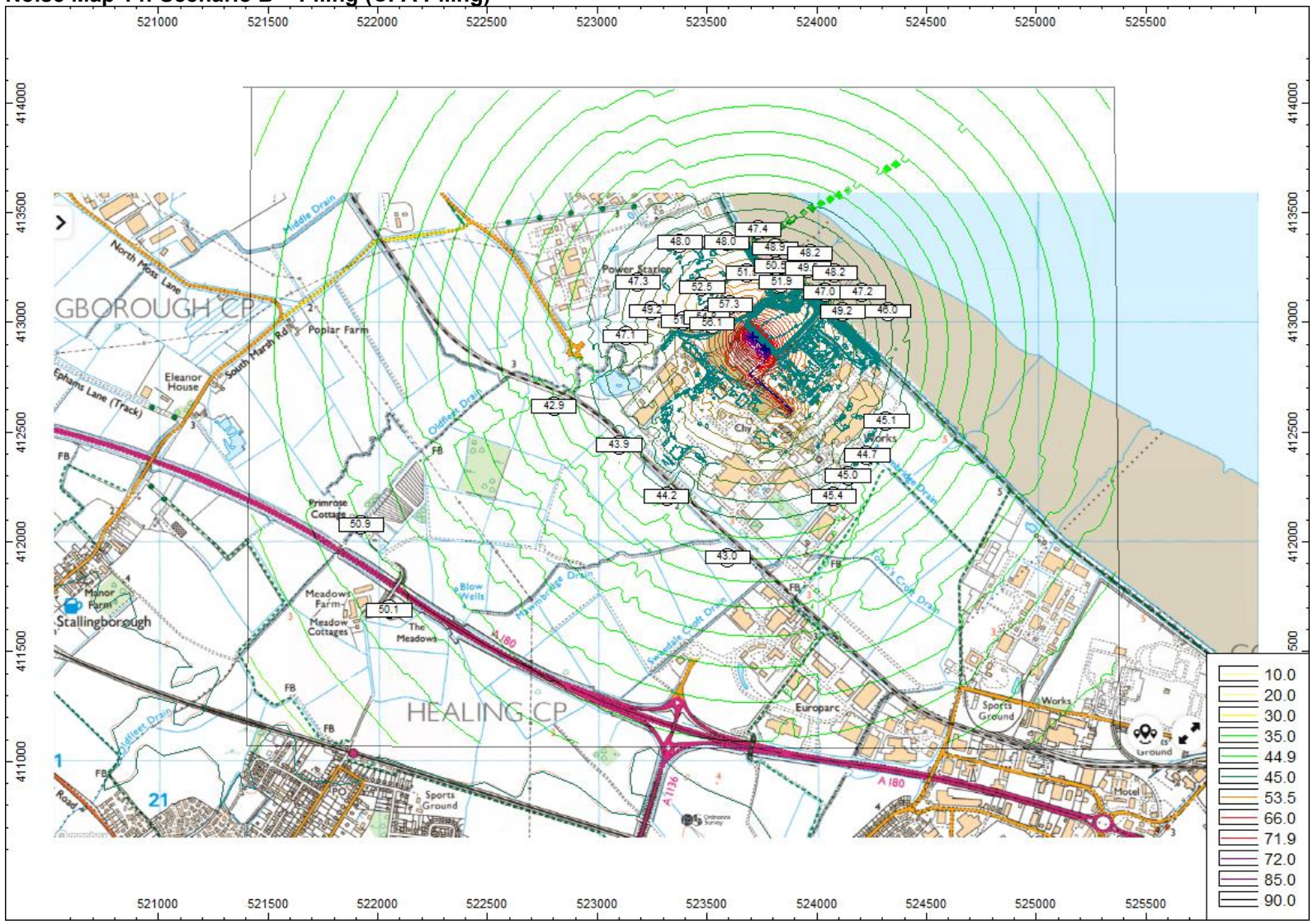
Noise Map 12: Scenario B – Piling (CFA Piling)



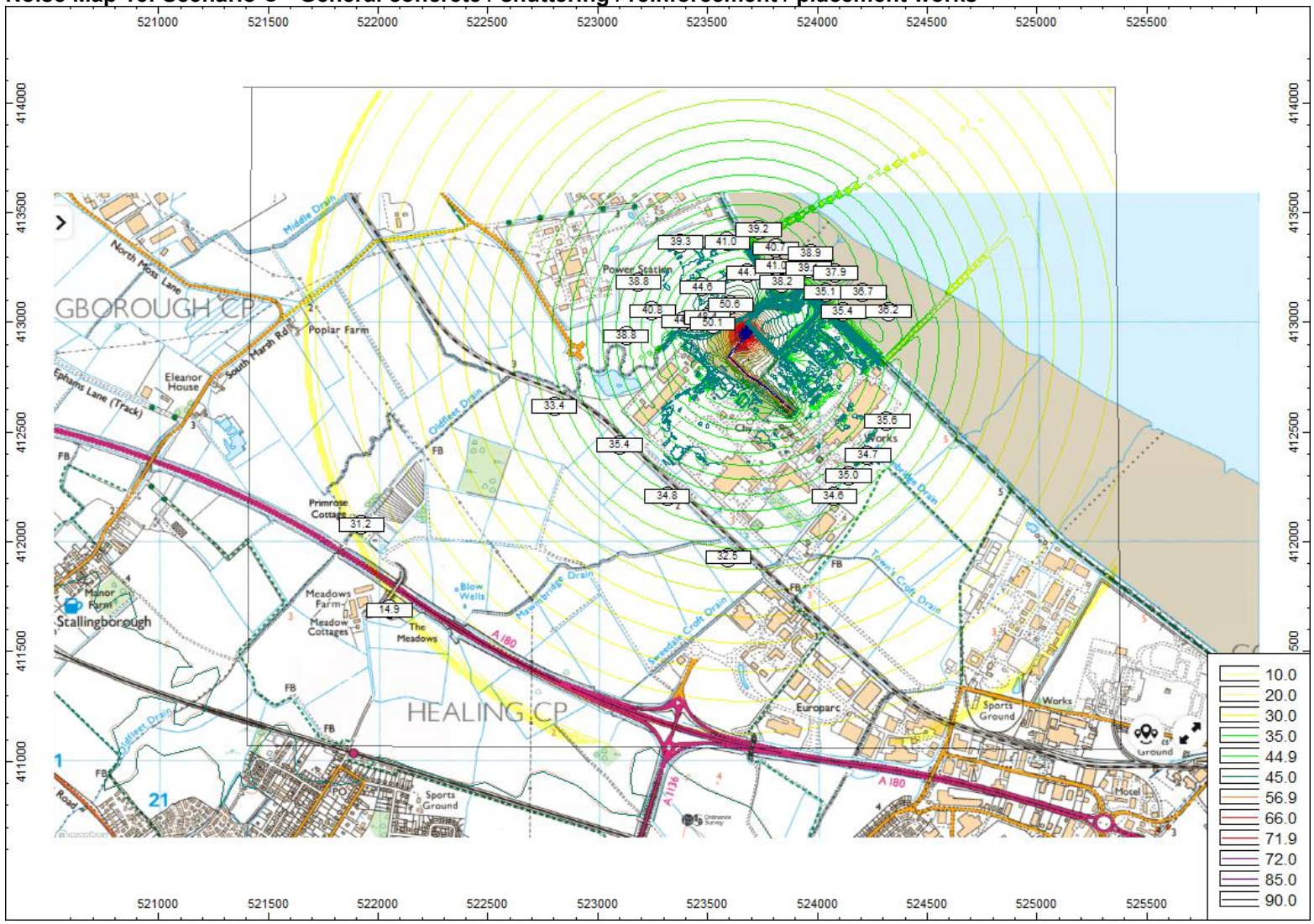
Noise Map 13: Scenario B – Piling (CFA Piling)



Noise Map 14: Scenario B – Piling (CFA Piling)

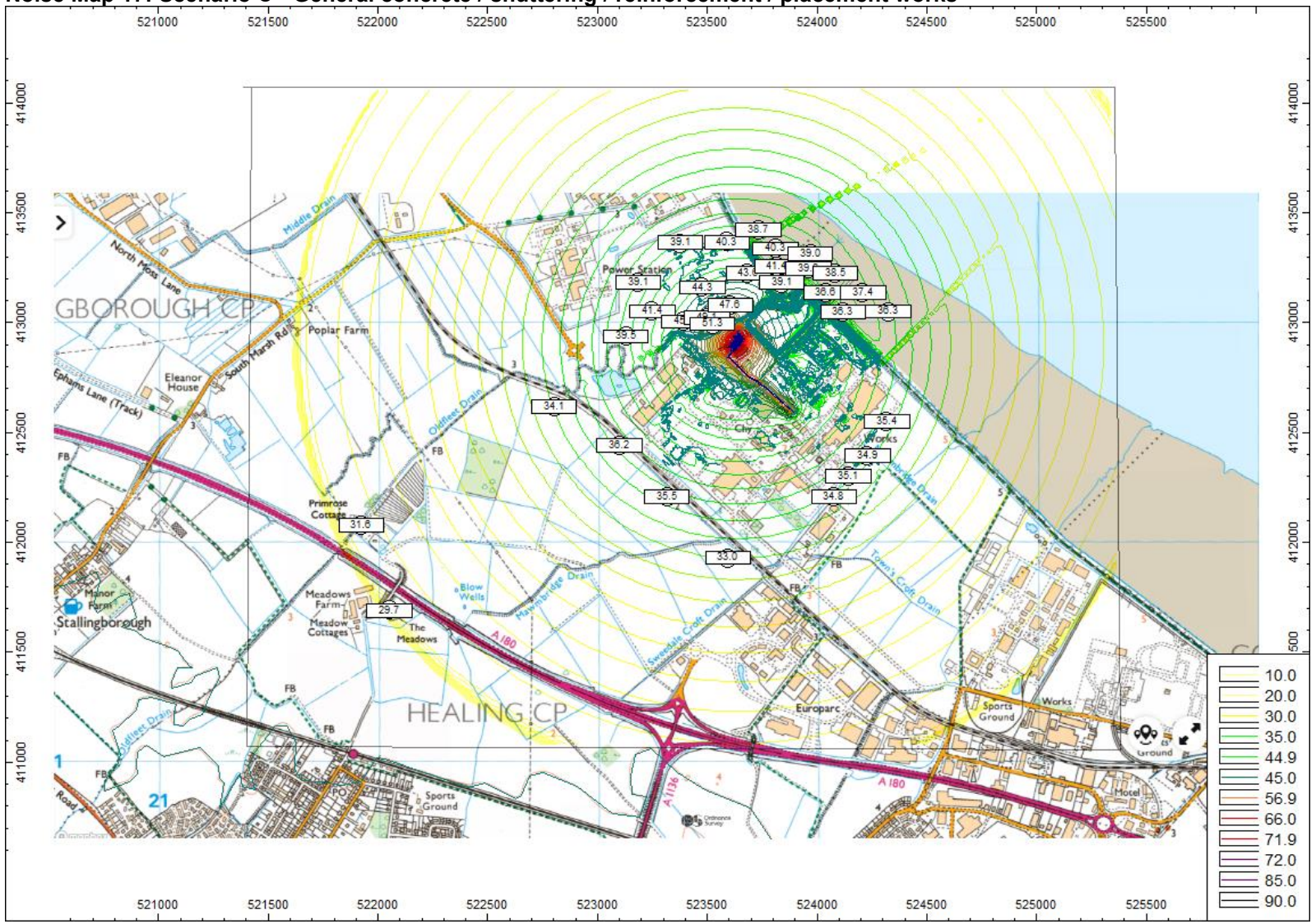


Noise Map 15: Scenario C - General concrete / shuttering / reinforcement / placement works

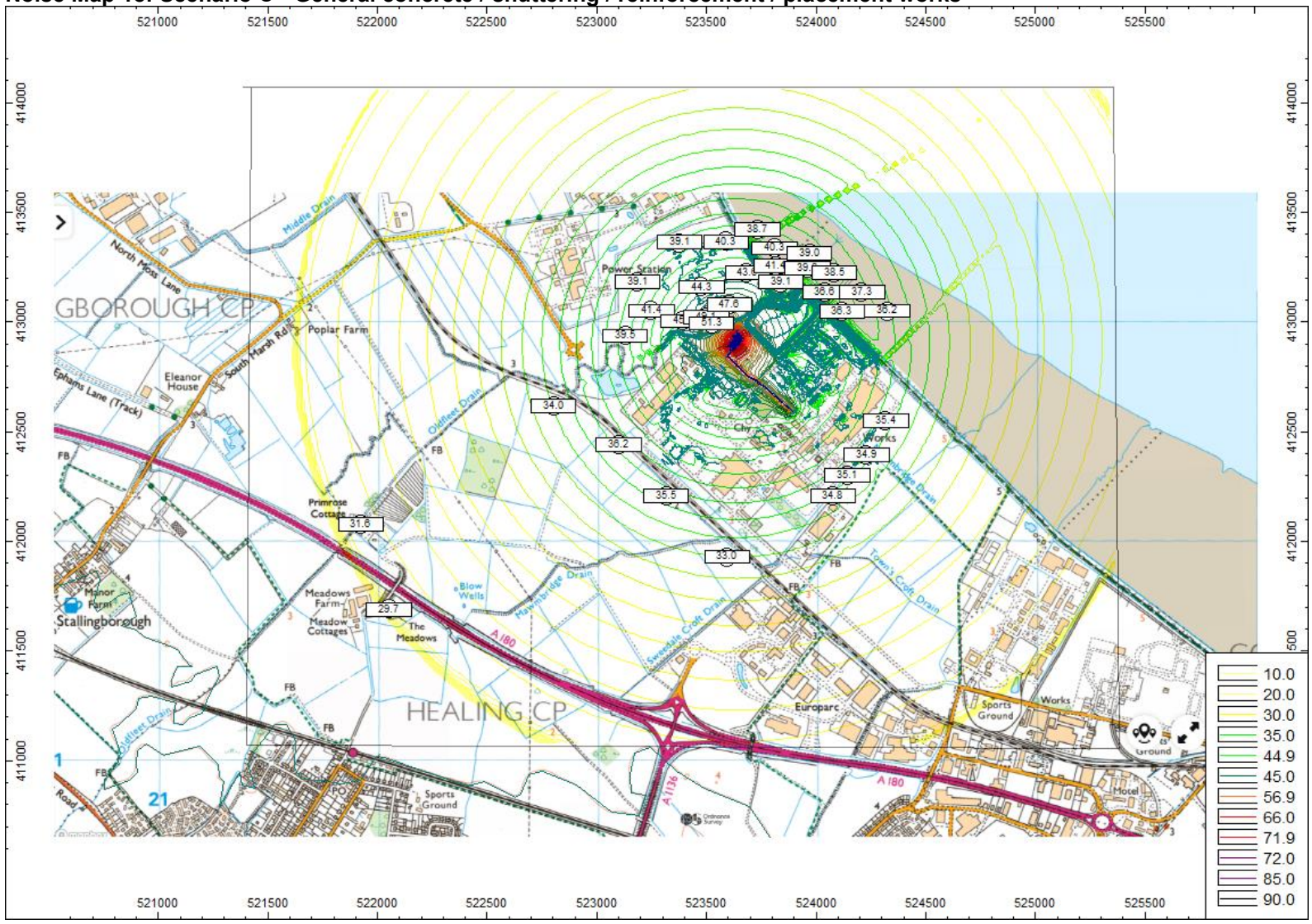


Noise Map 16: Scenario C - General concrete / shuttering / reinforcement / placement works

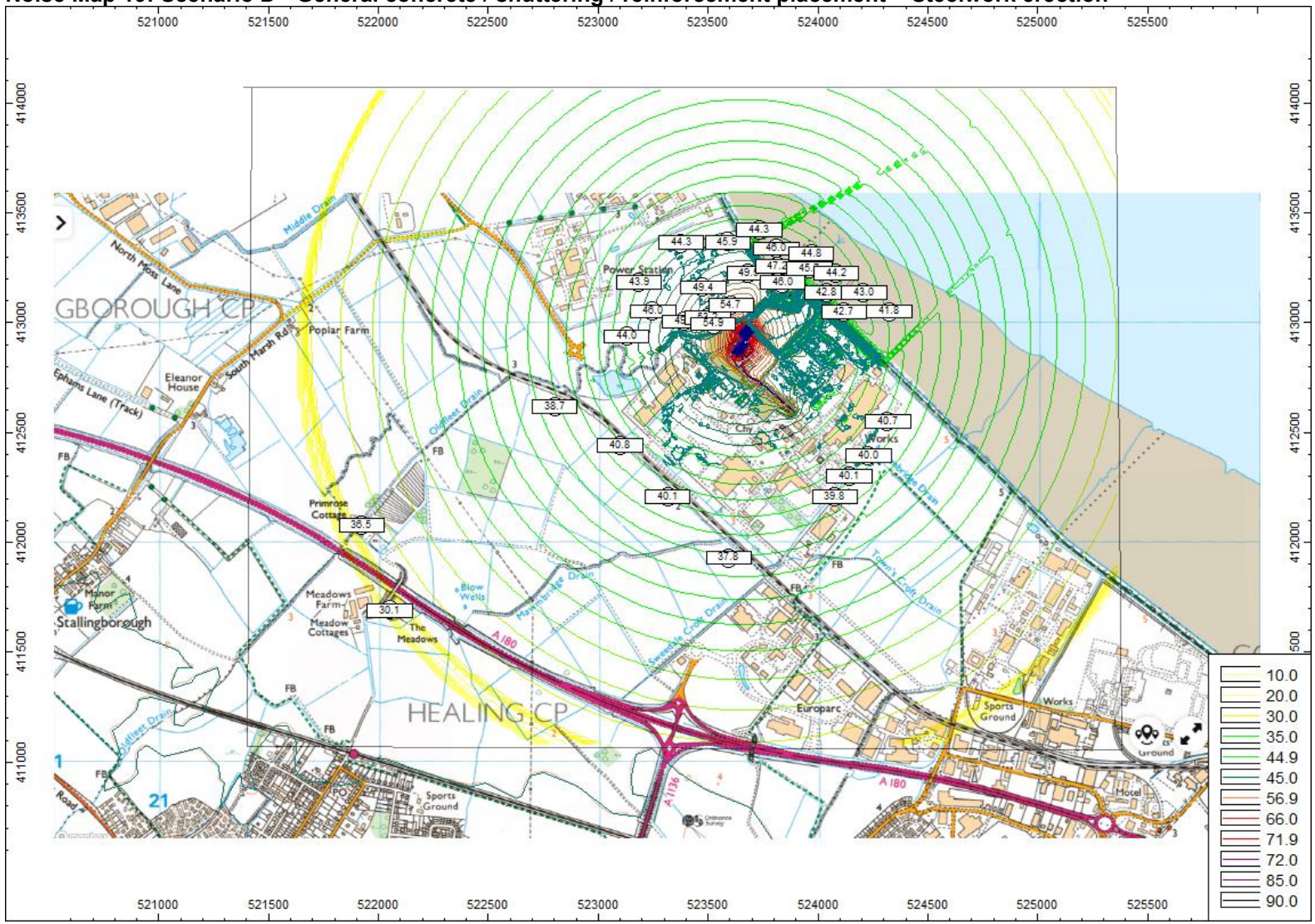
Noise Map 17: Scenario C - General concrete / shuttering / reinforcement / placement works



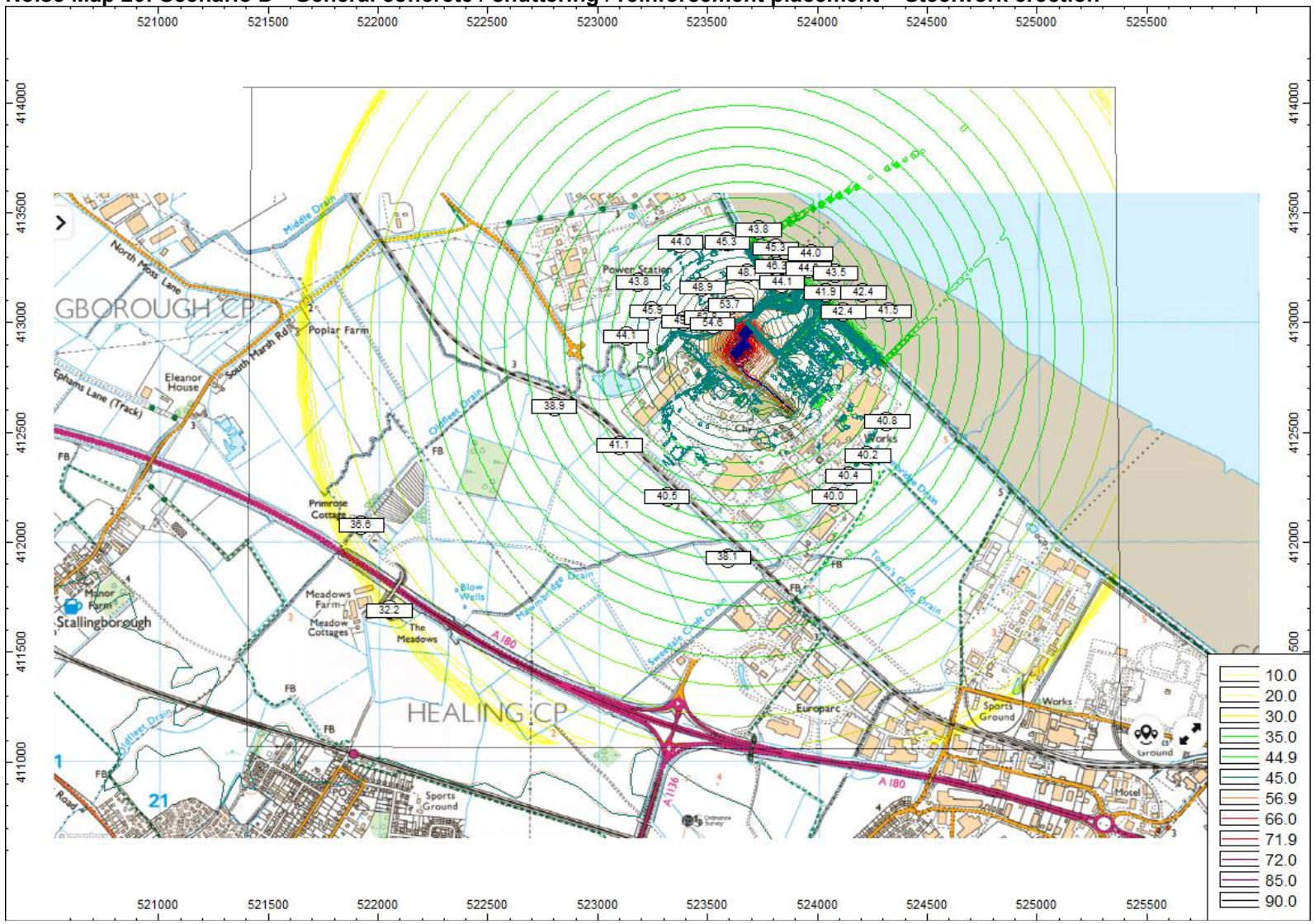
Noise Map 18: Scenario C - General concrete / shuttering / reinforcement / placement works



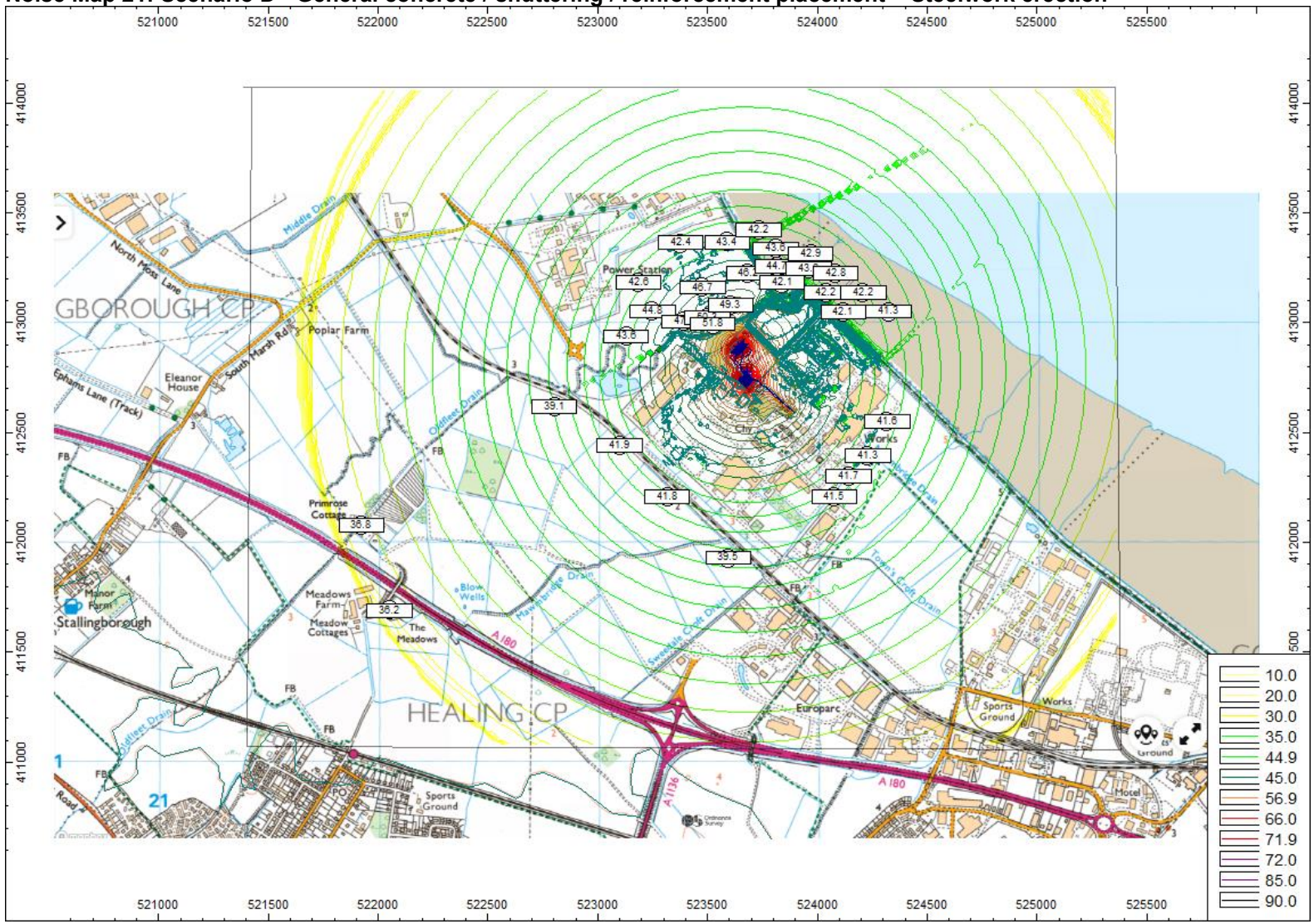
Noise Map 19: Scenario D - General concrete / shuttering / reinforcement placement + Steelwork erection



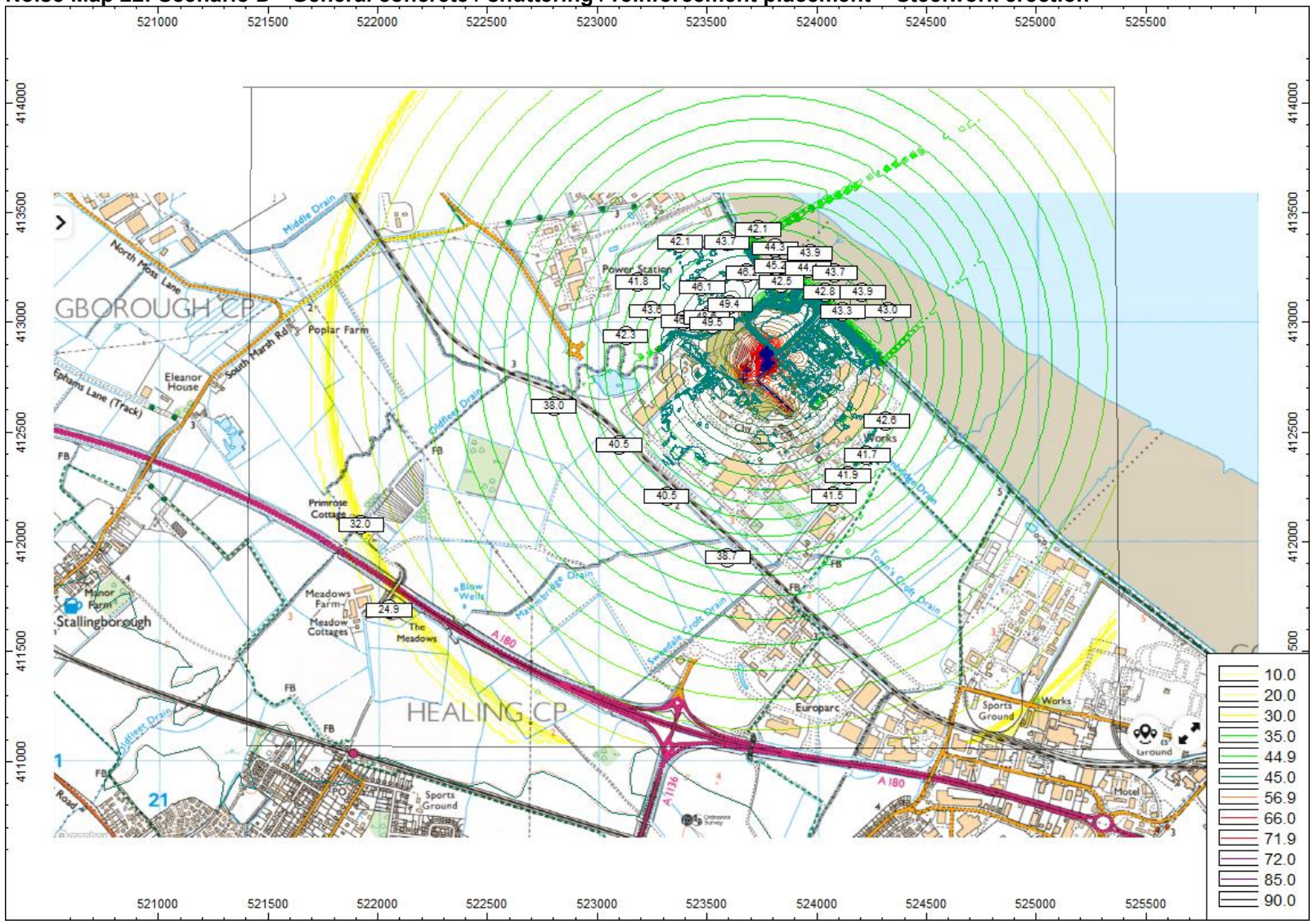
Noise Map 20: Scenario D - General concrete / shuttering / reinforcement placement + Steelwork erection



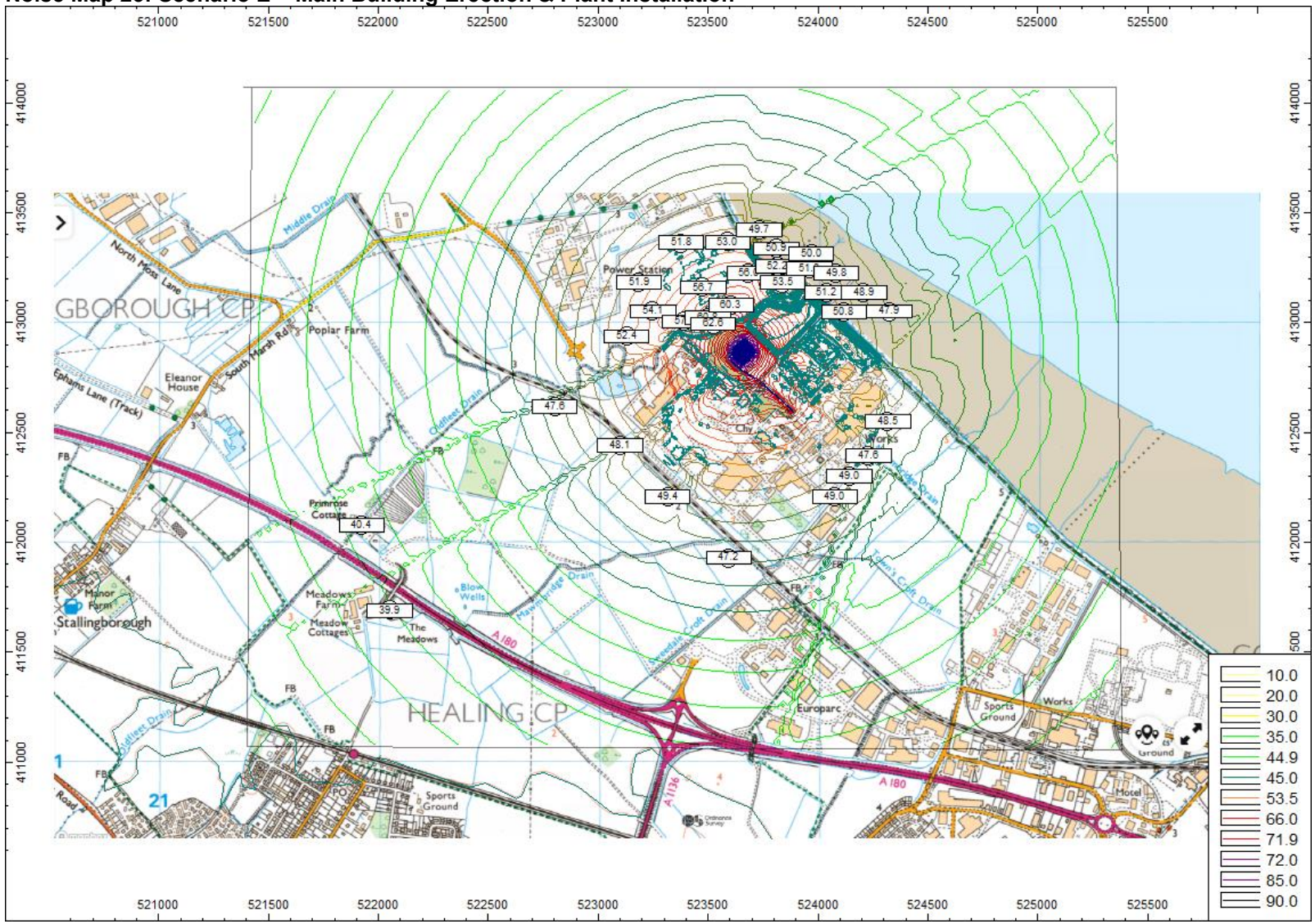
Noise Map 21: Scenario D - General concrete / shuttering / reinforcement placement + Steelwork erection



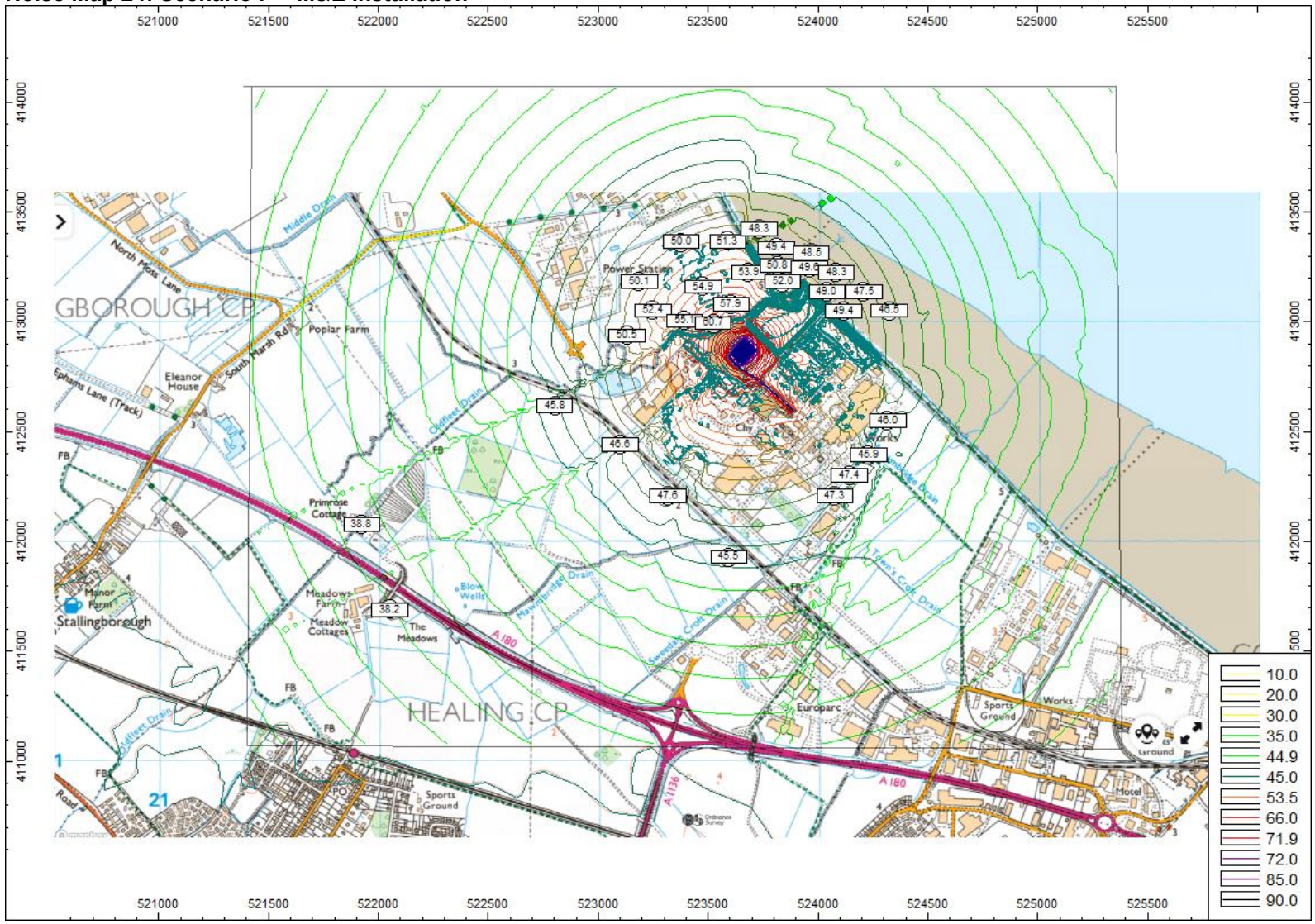
Noise Map 22: Scenario D - General concrete / shuttering / reinforcement placement + Steelwork erection



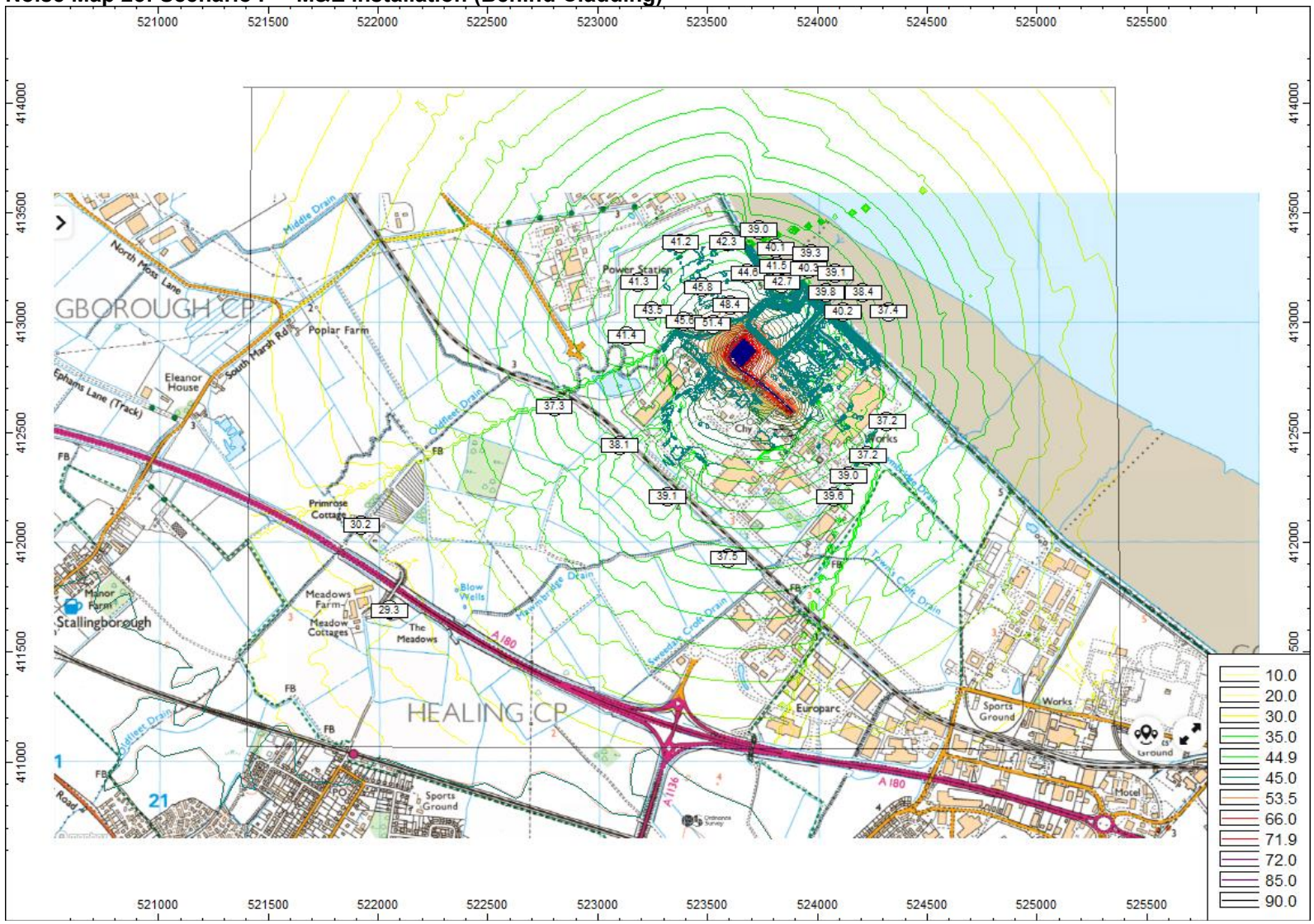
Noise Map 23: Scenario E – Main Building Erection & Plant Installation



Noise Map 24: Scenario F – M&E installation



Noise Map 25: Scenario F – M&E installation (Behind Cladding)



Appendix 5

Vibration Terminology

Ground Borne Vibrations

For any source of vibration on or near the surface of the ground, energy propagates away from the source via:

a) Elastic body (or compression) waves – which radiate energy into the ground in all directions
b) Surface (or shear) waves – which carry energy along the ground surface, caused when body waves are reflected back into the ground at the ground-surface interface

Thus, at any point away from that source, the ground motion is the sum of all the wave motions at that point. When wave motion has been generated, the waves will be attenuated as they travel away from the source. The two main mechanisms for attenuation are:

a) Enlargement of the wavefront as the distance from the source increases, and
b) Internal damping of the transmitting medium (the ground)

Ground borne vibration is therefore made up of a combination of different waves, travelling in different directions, at different speeds and at different frequencies. The frequency component of the vibration will affect the rate at which attenuation occurs since the internal damping of the ground is frequency dependent.

Since vibration enters buildings through the foundations, the hard structure of the building is normally affected to a greater degree than by air borne vibration. Often ground borne vibrations are more noticeable when standing or sitting near the middle of suspended wooden floors.

Ground Borne Vibration Measurement Units

Ground borne vibration is caused when the individual particles making up the strata are caused to oscillate by the passage of a pressure wave. The resulting vibration can be summarized in terms of 4 main parameters:

a) **Velocity** – how fast the particles move when they are oscillating. Since the velocity of these particles continually change as the pressure wave passes the most useful value that is often reported is the maximum or peak particle velocity (PPV). PPVs are usually expressed in terms of ms^{-1} or mms^{-1}.

b) **Acceleration** – is the rate at which the particle velocity changes during oscillation. It is usually measured in ms^{-2} mms^{-2} or "g's". 1g is that acceleration imparted to an object by the earth's gravitational pull and is approximately 9.81 ms^{-2}.

c) **Displacement** – is the distance moved by oscillating particles. This is usually very small and measured in mm or even µm.

d) **Frequency** – is the number of oscillations per second which a particle undergoes due to the passage of a vibration wave. It is measured in cycles per second or Hertz (Hz).

The movement of particles induced to oscillate by vibration waves are usually measured in three mutually perpendicular directions to fully describe the vibration intensity, as particles will be oscillating in three dimensions. These are:

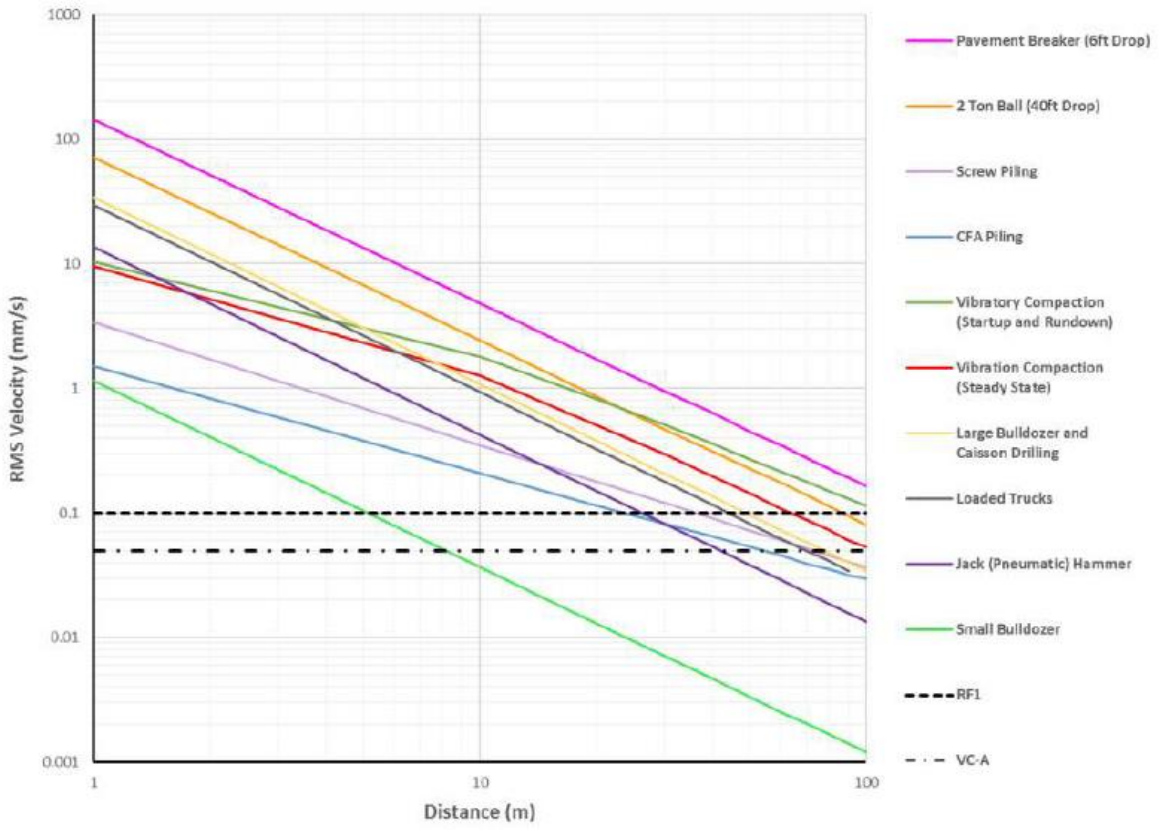
a) **Longitudinal** – back and forth particle movement in the same direction that the vibration wave is travelling.

b) **Vertical** – up and down movement perpendicular to the direction the vibration wave is travelling.

c) **Transverse** – left and right particle movement perpendicular to the direction the vibration wave is travelling.

Appendix 6

Vibration Levels from a Range of Construction Activities



Appendix 7

Consultant's Experience & Qualifications

Consultant: Dean Robert Kettlewell - MSc MIOA MAE I.Eng
(Director - Principal Acoustic Consultant)

Précis

As Director and Principal Acoustic Consultant with Noise & Vibration Consultants Ltd, Dean has over 40 years background experience in a wide range of issues relating to environmental, industrial and commercial noise and vibration assessment. He currently manages corporate and unit specific contracts for:

- Assessment of Environmental & Industrial Noise
- Environmental Noise Impact Assessments
- Expert Witness representation for Planning Appeals
- Integrated Pollution Prevention and Control (IPPC) Applications
- Industrial Noise Assessment and Control
- Planning Issues for Residential and Commercial Development
- Noise at Work Regulations Assessments
- Building Acoustics and Sound Insulation Tests
- Wind Farm Noise Impact Assessments
- Entertainment Noise Assessment and Control
- Architectural Acoustics
- Specialist knowledge in the Design of Noise Control Systems
- Ground borne vibration measurement and assessment
- Project Management of Noise Control Systems

Relevant Work Experience

Director & Principal Consultant - Noise & Vibration Consultants Ltd	2001- to date
Senior Acoustic Consultant - Vibrock Limited	1998 - 2001
Associate & Principal Acoustic Consultant - John Savidge & Associates	1994 - 1998
Technical Manager – LBJ Limited (Noise Control Division)	1990 - 1994
Technical Engineer/Technical Manager (1988) - Vibac (Noise Control) Ltd	1982 - 1990

Qualifications and Education

M.Sc. Applied Acoustics (Derby University – Distinction)
HNC Electrical & Electronic Engineering
IOA Diploma in Acoustics & Noise Control
IOA Certificate in Law and Administration
Certificate of Competence in Workplace Noise Assessment
Certificate of Competence in Ground Vibration Monitoring

Affiliations: Member of Institute of Acoustics (MIOA)
Member of Academy of Experts (MAE)
Member of Association of Noise Consultants (ANC)
Incorporated Engineer (I.Eng)


NVC
Noise &
Vibration
Consultants Ltd.