NOISE IMPACT ASSESSMENT

Marlow, High Road, Thornwood Common, Epping, Essex, CM16 6LU

D Evans & Sons

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KALEX environmental consultants

Oaktree Environmental Ltd

Waste, Planning & Environmental Consultants

Oaktree Environmental Ltd, Lime House, 2 Road Two, Winsford, Cheshire, CW7 3QZ
Tel: 01606 558833 | Fax: 01606 861183 | E-Mail: sales@oaktree-environmental.co.uk | Web: www.oaktree-environmental.co.uk
REGISTERED IN THE UK | COMPANY NO. 4850754

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Key Technical Personnel & Qualifications

Author	Description
Jack Caton	BEng, AMIOA, CCENM + 7 years' experience
Josh Ulyatt	BSc, CCENM +1 year experience.

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1 Introduction

1.1 General

1.1.1 This Noise Impact Assessment (NIA) and subsequent Noise Management Plan (NMP) which will be sent in conjunction with this assessment has been produced as part of the permit variation application. This has been conducted upon request by the Environment Agency.

1.1.2 D Evans & Sons currently hold and operate an Environmental Permit (EP) for the following activities:

- Physical treatment of non-hazardous waste (referenced as 1.16.12 of the EPR charging tables).

1.1.3 As part of this variation (refer to NTS) the operator seeks to:

- Remove the restriction on waste/product storage awaiting disposal or recovery in bays/containers as detailed in Condition 1.1.1, Table 1.1 and Condition 2.1 of the existing permit, allowing the operator to store and treat the wastes/product/materials awaiting disposal or recovery in external free-standing stockpiles without the aforementioned containment; (the operator will implement the dust mitigation measures within an EMS, DEMP and the ERA which forms part of this application); discussions with the EA have confirmed that existing permit conditions will be revised and updated with modern conditions, and,
- Allow for the external storage/treatment of IBAA aggregate.
- Addition of crushing treatment activity.
- Retain current waste codes listed in the EP with the addition of codes listed within the SR2010 No.12. A full list of the existing and proposed codes are detailed in table 2.1 of the NTS which comprises existing codes and table 2.2 of the NTS which comprises proposed codes with existing codes highlighted in green.

1.1.4 The Environmental Permit is required for the storage (keeping) prior to removal, and treatment (all types of handling/processing) of waste i.e. CDE wastes. Waste treatment processes to typically be carried out on site may include the following:

- Sorting (with loading shovel / 360° excavator or by hand)
- Screening (by using appropriate mechanical screening plant and equipment)
- Separation (by using appropriate mechanical plant and equipment)
- Crushing (by using appropriate mechanical plant and equipment)
- Blending (by loading shovel / 360° tracked excavator)

1.2 Site Description and Proposed Development

1.2.1 The site is located just off High Road to the west just north of Thornwood the small town located in Essex. The site has been operating under the existing permit and waste management license since 2005. The site is currently situated in a predominantly agricultural setting with some residential properties located south in Thornwood town and to the north just off Upland Road. The site is approximately 1km away from the M11 road network with the AKM Airport being located 1.2km southeast of the site.

1.3 Hours of Operation

1.3.1 The site will be open during the following hours for the delivery and receipt of waste on site; including depositing, sorting, moving, storing and removing waste:

Monday to Friday	07:00 – 18:30
Saturday	07:00 – 13:30
Sundays, Bank/Public holidays	Closed

1.3.2 During times where the site is closed or not in operation, the site will be locked and secured to prevent unauthorised vehicular or pedestrian access.

2 Relevant Noise Guidance

2.1 Environment Agency Guidance

2.1.1 This document has been produced in accordance with the EA's guidance "Noise and vibration management: environmental permits" updated 31 January 2022.

2.2 Noise Policy Statement for England

2.2.1 The Noise Policy Statement for England (NPSE), March 2010, sets out the Government's long-term noise policy, the aims of which are:

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

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

2.2.2 The first aim of the NPSE is to avoid significant adverse effects, considering the shared UK principles of sustainable development.

2.2.3 The second aim provides guidance on the scenario when the potential noise impact falls between the LOAEL (Lowest Observed Adverse Effect Level) and the SOAEL (Significant Observed Adverse Effect Level), in which case it is stated*, "all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development".* However, it is also stated, *"This does not mean that such adverse effects cannot occur"*.

2.2.4 With regards to the SOAEL, the document states, "It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations", thus acknowledging that this is very much dependent on the noise source, the receptor, and the time of day. Therefore, the NPSE provides the necessary policy flexibility until further guidance / evidence is available.

2.2.5 Other guidance will need to be taken into account when applying the principles of the NPSE, as well the nature of the proposed development and its specific circumstances.

2.3 National Planning Policy Framework

2.3.1 The National Planning Policy Framework, revised in February 2019, states that 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:

- Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

2.3.2 Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

2.3.3 The revised document also makes reference to the Noise Policy Statement for England.

2.4 Planning Practice Guidance – Noise

2.4.1 Further to the guidance set out in the NPPF advises that the Local Authority should consider the following when decision making:

- 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.
- Whether or not a good standard of amenity can be achieved.

2.4.2 As previously discussed within the NPSE, the guidance discusses the LOAEL and SOAEL and provides scenarios that could be expected for the perception level of noise, plus the associated activities that may be required to bring about the desired outcome. Again, as with the NPSE, no objective noise levels are provided for LOAEL or SOAEL.

2.4.3 It is stated that "the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation". These factors include:

- The absolute noise level of the source and the time of day it occurs.
- Where the noise is non-continuous (intermittent), the number of noise events along with any patterns of occurrence.
- The frequency of content and acoustic characteristics (tonality etc.) of the noise.
- The effects of noise on the surrounding wildlife.
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design.
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

3 Noise Assessment Criteria

3.1 To assess the impacts of existing road traffic and industrial noise from the proposed development, the following documents have been used:

- BS8233:2014
- BS4142:2014+A1:2019
- World Health Organisation (WHO) Guidelines on Community Noise

3.2 BS8283:2014

3.2.1 This document provides guidance on the relevant level of sound insulation required by a variety of building types affected by general environmental noise and provides recommendations for appropriate internal ambient noise level criteria for a variety of different situations including residential dwellings. The table below includes the proposed noise criteria within BS8283:2014 with regards to residential properties:

Table 1 - BS8233:2014 Internal Criteria

Activity	Location	07:00 – 23:00	23:00 – 7:00
Resting	Living rooms	35 $L_{Aeq, 16hour}$	-
Dining	Dining room	40 $L_{Aeq, 16hour}$	-
Sleeping	Bedroom	35 $L_{Aeq, 16hour}$	30 $L_{Aeq, 16hour}$

3.3 BS4142:2014+A1:2019

3.3.1 BS4142:2014+A1:2019 (BS4142) provides a method for "assessing and rating industrial sound" of an industrial/commercial nature. The method described in the standard uses the rating level from a noise source and the existing background noise level to assess the potential effects of sound on the residential premises upon which sound is incident.

3.3.2 Using this method, the background sound level is subtracted from the rating level. The resulting figure is assessed using the following guidance from the document:

- The greater the difference between the background sound level and the rating level, the greater the impact on the receptor.
- An exceedance of the background level of around 10dB, or more, is likely to be an indication of a significant adverse impact, dependent on the context.
- An exceedance of the background level of around 5dB is likely to be an indication of an adverse impact, dependent on the context.
- The lower the rating level compared to the existing background level, the less likely an adverse impact, or a significant adverse impact. Where the rating level does not exceed the background level, this is indicative of a low impact, dependent on context.

3.3.3 The document introduces a requirement to consider and report the uncertainty in the data as well as also including guidance for applying a correction/penalty for certain adverse acoustic features such as tonality, impulsivity or intermittency. The following table summarises the corrections based on the subjective assessment of the noise.

Table 2 - BS4142:2014 Corrections and Penalties

	Tonality	**Impulsivity**	**Other characteristics**
Just perceptible	+ 2dB	+ 3dB	
Clearly perceptible	+ 4dB	+ 6dB	
Highly perceptible	+ 6dB	+ 9dB	
Readily Distinctive against Residual Environment			+ 3Db

3.4 WHO Guidelines for Community Noise

3.4.1 The WHO Guidelines (1999) recommends indoor night-time guidelines in order to avoid sleep disturbance, the document states these to be 30 dB (LAeq) and 45 dB (LA_{fmax}) for continuous and individual noise events respectively.

3.4.2 The document states that the number of noise events should also be considered and that individual noise events should not exceed 45 dB (LA_{fmax}) more than 10 – 15 times per night.

3.4.3 The WHO document also recommends that steady, continuous noise levels should not exceed 55 dB (LAeq) for outdoor living areas (balconies, terraces etc.). However, in order protect the majority of individuals from moderate annoyance, external noise levels should not exceed 50 dB (LAeq)

4 Background Noise Monitoring

4.1 Procedure and Monitoring Locations

4.1.1 It was decided that a longer-term unattended survey was to be conducted by NOVA Acoustics Ltd in order to gather a large range of data for the daytime and nighttime period. The locations were chosen in order to be representative of the nearest noise sensitive receptors. Whilst access could not be gained to the gardens at Noise Monitoring Positions 1 and 2 positions were chosen to be representative of the gardens closest to the site.

4.1.2 For the background monitoring to be representative of the existing noise climate within the vicinity the background needs to be taken in the absence of the site being operational. It was therefore agreed with site management that there would be pre-agreed shut down periods throughout the monitoring which are detailed in Tables 5 - 10. The site on Sundays is totally shutdown. The set up at MP 1 and MP 2 has been conducted in excess of 10m of away from the road to reduce the influence of road traffic on the sound levels measured.

4.1.3 The measurement locations are shown in Figure 1, below:

Figure 1- Site location and noise monitoring position

4.2 Equipment Used During the Survey

4.2.1 Details of the equipment used during the survey conducted by NOVA Acoustics Ltd are detailed below together with the field calibrator drift value before and after the survey.

Table 3 - Survey Equipment and drift from field calibrator value.

Kit details	Make & Model	Serial No.	Pre-Calibration	Post Calibration
Leeds Kit 1	*CESVA SC250*	T252860	*94*	*94*
Leeds Kit 2	CESVA SC420	T246452	93.9	93.8
North London Kit 2	Svantek SV971	87159	94	93.97
North London Calibrator	Cesva CB006	901911	N/A	

4.3 Weather

4.3.1 The weather during the survey is summarised below the full weather data can be shown in Appendix II of this report. This has been collected by NOVA Acoustics using a Davis Vantage Pro which was installed on site to collected localised weather data. It must be noted that any weather that would likely affect the sound pressure levels recorded has been withdrawn from the assessment. Any results with an exceedance of the wind speed above 5m/s has been omitted from the assessment in line with BS7445 guidance.

Table 4 - Weather Conditions during noise monitoring

Date	Wind Speed (max)	Wind Direction	Temperature	Precipitation (Rain Rate mm/15min)
13/09/2024	4m/s	NW-W	16.9-6	0
14/09/2024	6.3m/s (omitted from assessment	WSW	19.3-5.4	0
15/09/2024	6.3m/s (omitted from assessment)	W	19.4-9.3	1.2 at 21:45 omitted from assessment
16/09/2024	5.8m/s omitted from assessment	NE	19.9-10.3	0
17/09/2024	10.3m/s omitted from assessment	NE	18.6-10.6	0

4.4 NOVA Acoustics Background Results

4.4.1 The results of the background noise monitoring survey are tabulated below in Table 5-10. Commentary on the background level and survey is included further on in Section 4.5. Below only displays the daytime data (07:00-23:00) as the site is not operational during the nighttime period. Highlighted in green is the times which the site was not operational as we had previously arranged pre agree shut down times which are the following: Friday 15:30-18:30, Saturday 11:30-13:30, Monday 11:00-12:00 and 16:30-18:30 and Tuesday 07:30-08:30. With Sundays the site not being operational and therefore all data is in lieu of sites operations. It is considered that the background levels measured at MP 2 are representative of the background at MP 4.

Table 5 - Weekday Background data for daytime hours (07:00-23:00). MP 1.

Measurement Time	**LA_{eq} (dB)**	**LA_{90} (dB)**	**Lowest background $La90_{1hour}$ (dB)**
13/09/2024			
09:00-10:00	69.0	65.5	65.0
10:00-11:00	68.8	64.0	63.0
11:00-12:00	68.0	63.8	63.0
12:00-13:00	68.8	61.3	56.0
13:00-14:00	67.9	59.8	56.0
14:00-15:00	67.1	62.0	61.0
15:00-16:00	67.1	60.8	58.0
16:00-17:00	67.5	62.3	60.0
17:00-18:00	67.5	61.5	61.0
18:00-19:00	67.3	61.5	60.0
19:00-20:00	67.3	60.5	58.0
20:00-21:00	65.5	54.5	53.0
21:00-22:00	65.3	52.5	52.0
22:00-23:00	61.5	52.5	52.0
16/09/2024			
07:00-08:00	69.5	66.3	65.0
08:00-09:00	69.0	65.8	65.0
09:00-10:00	68.8	65.0	65.0
10:00-11:00	68.3	65.0	65.0
11:00-12:00	68.3	63.8	63.0
12:00-13:00	68.1	63.0	62.0
13:00-14:00	68.5	63.0	62.0

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
14:00-15:00	68.3	62.5	62.0
15:00-16:00	68.3	64.3	64.0
16:00-17:00	68.8	64.5	63.0
17:00-18:00	69.0	63.0	61.0
18:00-19:00	68.8	64.3	64.0
19:00-20:00	67.0	61.3	58.0
20:00-21:00	65.5	55.8	54.0
21:00-22:00	65.1	54.5	54.0
22:00-23:00	64.6	54.3	52.0
17/09/2024			
07:00-08:00	69.5	67.0	66.0
08:00-09:00	69.8	66.3	66.0
10:00-11:00	68.5	64.0	63.0
Most frequently occurring LA90 background data value: 65dB			

Table 6 - Weekend Background data for daytime hours (07:00-23:00). MP 1.

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
14/09/2024			
07:00-08:00	67.4	55.3	53.0
08:00-09:00	67.5	56.5	53.0
09:00-10:00	67.3	60.3	59.0
10:00-11:00	66.5	58.3	55.0
11:00-12:00	65.1	55.8	53.0
12:00-13:00	65.6	57.5	54.0
13:00-14:00	71.4	58.8	58.0
14:00-15:00	66.8	60.3	60.0
15:00-16:00	66.6	59.0	55.0
16:00-17:00	66.5	60.0	60.0
17:00-18:00	69.6	61.3	59.0
18:00-19:00	68.2	62.5	60.0
19:00-20:00	66.5	62.3	60.0
20:00-21:00	65.8	57.8	55.0
21:00-22:00	64.5	51.0	48.0
22:00-23:00	64.1	51.0	48.0
15/09/2024			
07:00-08:00	64.1	48.0	45.0
08:00-09:00	66.6	52.5	51.0
09:00-10:00	70.7	58.8	55.0
10:00-11:00	67.6	63.0	62.0

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
11:00-12:00	67.8	62.5	61.0
12:00-13:00	67.8	63.0	63.0
13:00-14:00	67.6	61.8	61.0
14:00-15:00	67.3	62.3	62.0
15:00-16:00	66.8	58.5	54.0
16:00-17:00	68.1	62.0	61.0
17:00-18:00	67.3	61.8	60.0
18:00-19:00	71.3	59.8	56.0
19:00-20:00	66.3	59.0	57.0
20:00-21:00	65.5	54.5	48.0
21:00-22:00	64.8	48.8	46.0
22:00-23:00	63.1	45.8	44.0
Most frequently occurring LA90 background data value: 55dB			

Table 7 - Weekday Background data for daytime hours (07:00-23:00). MP 2.

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
13/07/2024			
10:00-11:00	74.0	63.4	62.0
11:00-12:00	73.6	63.1	62.0
12:00-13:00	72.1	61.8	60.5
13:00-14:00	69.7	59.8	57.5
14:00-15:00	70.1	59.3	58.0
15:00-16:00	70.0	60.4	59.5
16:00-17:00	70.3	60.5	59.5
17:00-18:00	69.8	59.8	59.5
18:00-19:00	70.4	59.8	58.5
19:00-20:00	71.2	60.1	59.5
20:00-21:00	70.9	58.6	58.0
21:00-22:00	69.1	55.1	54.5
22:00-23:00	68.9	53.9	53.5
16/07/2024			
07:00-08:00	75.1	65.3	64.5
08:00-09:00	74.5	64.1	61.0
09:00-10:00	74.4	64.9	64.0
10:00-11:00	73.8	64.4	63.5
11:00-12:00	73.5	62.8	61.0
12:00-13:00	73.0	62.5	61.5
13:00-14:00	73.1	62.8	62.0
14:00-15:00	73.6	62.5	62.0

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
15:00-16:00	73.3	62.4	61.5
16:00-17:00	73.8	64.1	63.5
17:00-18:00	74.1	65.8	64.5
18:00-19:00	73.7	63.3	62.5
19:00-20:00	73.0	62.3	60.5
20:00-21:00	71.4	58.3	56.5
21:00-22:00	70.8	55.9	55.0
22:00-23:00	69.5	53.0	52.5
17/07/2024			
07:00-08:00	75.3	65.8	65.5
08:00-09:00	73.4	65.3	64.5
Most frequently occurring LA90 background data value: 62dB			

Table 8 - Weekend Background data for daytime hours (07:00-23:00). MP 2.

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
14/09/2024			
07:00-08:00	69.6	52.5	50.0
08:00-09:00	71.5	55.9	54.5
09:00-10:00	74.7	60.8	59.0
10:00-11:00	74.2	62.6	62.0
11:00-12:00	74.1	63.1	63.0
12:00-13:00	74.8	64.3	62.5
13:00-14:00	74.3	62.5	61.5
14:00-15:00	73.7	62.9	60.5
15:00-16:00	73.2	60.8	59.5
16:00-17:00	73.6	62.0	61.0
17:00-18:00	73.5	62.5	61.5
18:00-19:00	73.3	61.4	61.0
19:00-20:00	72.1	59.8	59.5
20:00-21:00	71.9	58.3	55.0
21:00-22:00	71.2	55.3	51.5
22:00-23:00	70.1	54.0	51.5
15/09/2024			
07:00-08:00	75.1	65.3	64.5
08:00-09:00	74.5	64.1	61.0
09:00-10:00	74.4	64.9	64.0
10:00-11:00	73.8	64.4	63.5
11:00-12:00	73.5	62.8	61.0
12:00-13:00	73.0	62.5	61.5

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
13:00-14:00	73.1	62.8	62.0
14:00-15:00	73.6	62.5	62.0
15:00-16:00	73.3	62.4	61.5
16:00-17:00	73.8	64.1	63.5
17:00-18:00	74.1	65.8	64.5
18:00-19:00	73.7	63.3	62.5
19:00-20:00	73.0	62.3	60.5
20:00-21:00	71.4	58.3	56.5
21:00-22:00	70.8	55.9	55.0
22:00-23:00	69.5	53.0	52.5
Most frequently occurring LA90 background data value: 61dB			

Table 9 - Weekday Background data for daytime hours (07:00-23:00). MP 3.

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
13/09/2024			
10:00-11:00	56.7	52.4	51.1
11:00-12:00	57.0	53.6	53.1
12:00-13:00	57.9	53.6	52.6
13:00-14:00	55.7	51.6	50.2
14:00-15:00	55.4	52.3	51.0
15:00-16:00	53.9	48.8	45.8
16:00-17:00	54.2	47.0	46.1
17:00-18:00	54.1	46.6	45.2
18:00-19:00	51.6	45.1	43.5
19:00-20:00	54.2	47.8	46.4
20:00-21:00	54.3	49.5	49.1
21:00-22:00	53.2	47.8	46.9
22:00-23:00	51.0	46.6	46.3
16/09/2024			
07:00-08:00	58.1	55.7	55.3
08:00-09:00	58.5	56.4	55.9
09:00-10:00	58.6	55.8	55.2
10:00-11:00	57.7	54.4	53.5
11:00-12:00	56.3	52.9	52.0
12:00-13:00	56.2	52.0	51.7
13:00-14:00	56.9	52.8	51.8
14:00-15:00	57.1	53.2	53.0
15:00-16:00	56.4	52.5	52.2
16:00-17:00	56.7	53.0	52.0

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
17:00-18:00	56.8	52.7	51.3
18:00-19:00	57.8	54.0	53.5
19:00-20:00	57.0	53.7	53.1
20:00-21:00	55.1	50.3	49.3
21:00-22:00	55.3	49.7	48.9
22:00-23:00	53.8	48.9	48.6
17/09/2024			
07:00-08:00	60.3	58.1	57.4
08:00-09:00	60.1	57.8	56.5
09:00-10:00	57.6	54.8	53.8
10:00-11:00	57.9	53.9	53.5
Most frequently occurring LA90 background data value: 53dB			

Table 10 - Weekend Background data for daytime hours (07:00-23:00). MP 3.

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
14/07/2024			
07:00-08:00	53.1	47.2	46.7
08:00-09:00	52.1	45.6	45.2
09:00-10:00	51.3	45.6	44.5
10:00-11:00	52.0	45.0	43.1
11:00-12:00	50.1	44.0	43.6
12:00-13:00	52.5	42.7	42.0
13:00-14:00	50.6	43.9	42.9
14:00-15:00	51.6	43.9	43.5
15:00-16:00	52.8	44.9	43.6
16:00-17:00	52.0	44.2	43.7
17:00-18:00	51.5	44.6	43.9
18:00-19:00	52.2	45.4	43.7
19:00-20:00	53.1	47.3	45.3
20:00-21:00	51.9	45.5	43.7
21:00-22:00	50.2	42.5	40.9
22:00-23:00	49.5	41.3	40.7
15/07/2024			
07:00-08:00	50.0	41.2	40.3
08:00-09:00	51.0	44.3	42.1
09:00-10:00	52.4	46.0	45.5
10:00-11:00	51.6	46.3	46.0
11:00-12:00	51.1	46.6	45.6
12:00-13:00	53.9	46.8	46.6

Measurement Time	LA_{eq} (dB)	LA_{90} (dB)	Lowest background $La90_{1hour}$ (dB)
13:00-14:00	52.6	46.1	45.3
14:00-15:00	54.6	46.1	45.3
15:00-16:00	53.3	45.3	44.3
16:00-17:00	52.7	46.1	43.7
17:00-18:00	54.1	47.1	46.3
18:00-19:00	53.4	45.9	45.4
19:00-20:00	52.2	45.0	43.6
20:00-21:00	52.1	45.1	44.4
21:00-22:00	51.1	43.7	42.5
22:00-23:00	48.5	37.9	36.5
Most frequently occurring LA90 background data value: 43dB			

4.4.2 Should It be required, photographs and videos can be provided, along with the noise measurement files to corroborate the above observations. These are available upon request by the EA and other parties i.e the Local Authority.

4.4.3 In terms of the representative background levels for thew weekday and weekend background survey results these have been displayed in Tables 5-10 above.

4.5 Existing Noise Climate

4.5.1 The general description of the noise climate at the site included noise arising from road traffic via the B1393 is the dominant source in the area, with vehicle movement constant, with any small gaps in traffic passing via this road dominated with distant motorway noise from the M11 located directly to the east. Occasional noise coming from the site located just north of MP 2.

4.6 Control of Uncertainty

4.6.1 Uncertainty in this assessment was controlled via the following precautions/procedures:

- Both the sound level meter and calibrator have a traceable laboratory calibration, and the meter was field-calibrated both before and after the measurements. The field calibrator is set to 94.0Db at a frequency of 1kHz, which at the time of monitoring THE sound meters used had drifted from this calibrated value at the most by 0.1Db shown in Table 3 above.
- The measurement locations are considered representative of the existing noise climate outside the nearest residential dwellings to the proposed development.
- Background monitoring was undertaken during favourable weather conditions (e.g. dry and under 5m/s wind speed).

5 Noise Impact Assessment

5.1 Introduction

5.1.1 It is considered the most significant noise sources associated with the development are:

- Wheel loading shovel (loading/unloading)
- 360^0 Excavator (loading/unloading)
- Tippers (loading/unloading)
- Dumpers (loading/unloading)
- Screener (screening soil, crushed bricks etc.)
- Crusher (Crushing bricks, concrete etc.)
- Road sweepers (cleaning site surface and haul road)
- Manoeuvring of mobile plant around external areas of the site
- Small vehicles travelling to and from the site (e.g. staff and visitor's cars, courier van deliveries etc.)
- Repairs/servicing of vehicles within plant maintenance area.

5.1.2 Reference should be made to Drawing No. 2616-003-03 for the locations of the reception, production and product stockpile area. These sources are also detailed in within Table 11, along with "on times" and notes on the calculation method within the model (point or area source height etc.).

5.2 Background Levels

5.2.1 With regards to background levels, BS4142:2014 states that "the objective is not simply to ascertain a lowest measured background sound level, but to quantify what is typical during particular time periods" and also "In practice there is no "single" background sound level as this is a fluctuating parameter. However, the level for the assessment should be representative of the period being assessed".

5.2.2 The assessment will utilise the most frequently occurring value in Tables 5-10. As stated previously, site management agreed to cease operations during the shutdown times mentioned and highlighted in Section 4.4.

5.2.3 From review of the measured background levels, the LA90 levels are markedly higher during the weekday operations than those taken for the weekend operations. It is anticipated that this is due to the other adjacent business's south of the D Evans site being operational during the weekday. It is anticipated that at MP 3 in particular the background here is significantly less due to the distance from the road being in excess of 70m and therefore the impact from road traffic here is marginal.

5.3 BS4142: Assessment

5.3.1 The CadnaA noise models were constructed using OS mapping Opendata and Google Earth satellite imagery, whilst topographical data was imported as a digital terrain model obtained from DEFRA.

5.3.2 The main contributors to the rating levels at the NSRs shown in Figure 1 comprise the crushing and screening operations.

5.3.3 The following assumptions/parameters are made within the models:

- The intervening land between the site boundary and residential properties was modelled with G = 1.0 as it was considered that the land is predominantly acoustically absorbent. This is with the exception of the concrete pad which has been modelled as 0.0.
- Noise sources were not assumed to be constant, Table 6.0 details the assumed "on-times" as well as the assumptions with regards to geometry of the noise source (height, point or area source etc.).
- Buildings were set as acoustically reflective, with a reflection loss of 0.6 dB and a absorption coefficient of 0.1 dB. A maximum order of reflection of 3.0 has been assumed.
- Receiver heights have been placed at 1.5m (ground floor) and 4.0m (first floor) as per EA guidance. The receivers have been snapped to the facades of the NSRs at a distance >3.5m in order to minimise reflection on resulting SPLs.
- The predicted grid noise levels were free-field, A-weighted, sound pressure levels. The noise contours generated within the model had been generated at a height 1.5m and 4.0m based on the above point.
- Surrounding residential properties were modelled at a height of between 7.0m for the majority of residential dwellings. Commercial building heights have been taken from observations and information taking from planning public access where available.
- Barrier heights, perimeter walls and waste storage bays have also been modelled based on the proposals within this document and within documents supported under the

relevant permitting applications. These have been modelled as being hard and reflective (I.e. concrete) with an absorption coefficient of 0.11.

- Any moving point sources (line sources) have been added with a single on time correction which is regarding the on time for the worst-case hour.
- Any temporary structures on site including the use of stockpiles have not been included in the modelling.
- On site buildings have been modelled at heights using Google Earth Pro and locations of onsite operations have been added based on correspondence with the site operators.

5.3.4 Table 11 below includes the measured noise levels for the anticipated activities, which have either been measured by Oaktree Environmental Ltd or provided by the manufacturer.

Table 11 - Measured levels of activities

Activity	Sound Power Level (L_w)	On time	Source/comments
Loading shovel	93.8	Operating as a source in steady state.	Measurement has been taken by Oaktree at a similar site. Modelled as a point source at a height of 1.5m. Octave bands have been utilised within the model.
Excavator (360^0)	103.1	Operating as a source in steady state.	Modelled as a line source at a height of 1.0m. Movement of material around the site. Octave bands utilised within the modelling.
Tippers	104.0	Modelled as 5 minutes within the worst-case hour.	Modelled as a point source within the bays on site located on the north boundary at a height of 0.5m. Tipping of soil.
Dumpers	92.0	Operating as a source in steady state.	Measurement has been taken of similar dump truck. Octave bands have been utilised within the model. Modelled as a point source at a height of 1.5m. Located in the centre of the site as a worst-case scenario.
Screener (Terex or similar)	104.1	Operating time for the worst-case hour would be 30 minutes in the hour.	Oaktree measurement taken on a different site.

Activity	Sound Power Level (L_w)	On time	Source/comments
			Modelled as a point source to the centre of the site at a height of 3.0m.
Crusher (Terex Finley 883 or similar)	111.6	Operating time for the worst-case hour would be 30 minutes in the hour	Oaktree measurement taken on a different site. Modelled as a point source to the centre of the site at a height of 2.0m.
Tanker/HGV	71.4	Single correction feature at 1 per hour for existing/weekend and 2 per hour for the proposed operations.	Modelled as a moving point source at a height of 1m. Oaktree measurement taken at a similar site and octave bands have been utilised within the model.
Road sweepers	92.6	Operating time is around 5 minutes of the hour for the worst-case hour.	Oaktree measurement taken from another site. Octave bands have been utilised. Modelled as a moving point source at a height of 1.0m.

5.3.5 With regards to penalties/acoustic correction features as per BS4142, it is considered that the impulsive nature of the noise emanating from the site would warrant a +3dB penalty at MP 1 coming from the tipping activities and road sweepers area the rest of the site's operations are more tonal in nature which at MP 1 would warrant A +4Db penalty which would be considered clearly perceptible at NMP 1. Overall penalty of +7dB at this location.

5.3.6 With regards to penalties for the monitoring location NMP 2 it is likely that at this location it is likely that the impulsive nature of site is not audible at the distance NMP 2 is away from the site, however, would warrant a tonal correction feature which would warrant a +2dB penalty indicative of just being perceptible at NMP 2. Overall a penalty of +2Db at this location.

5.3.7 The penalty for the location at NMP 3, would warrant an impulsive penalty of +3db which is indicative of just being perceptible at the NMP 3. In regard to the tonal penalty at NMP 3 it is likely that the noise emanating from the site warrants a +2Db penalty which is indicative of just being perceptible at the NMP 3. The overall penalty at this location is

+5Db. This is due to the location being within proximity to a road and therefore the majority of the tonal nature of the noise is likely to be masked by the road traffic on Upland Road.

5.3.8 Another location at MP 4 shown on Figure 1 above is the location for - Planning Application: EPF/0332/22, which constitutes the building of 62 residential properties. The background results taken are considered to be indicative of the background results that will be likely at this location. It is deemed that the nature of the noise emanating from the site perceived at these proposed dwellings is likely to be tonal in nature however considered to just be perceptible (+2) as the adjacent business 'Camfaud' will generate noise of a tonal nature. In terms of the impulsivity nature of the noise perceived at this location it is considered that based similarly to the tonal nature that this will likely be just perceptible at the location therefore a +3 penalty will be added to the residual sound level, this is due to the proposed dwellings here not having a direct line of site to the site as the business 'Camfaud' is between these dwellings and the site.

5.3.9 Table 12 below details the predicted noise levels in comparison to background associated with the application site for the proposed operations. These are based on the results of the modelling detailed below Figure 2 grid with 1.5m indicative of the ground floor of the residential dwellings within the area. The contour spacing for the below models is 2.0m spacing. Figure 3 with 4.0m spacing indicative of the first floor of the residential dwellings.

5.3.10 The sources mentioned in the above Table 11 will be moved around the site based on where they're needed, they're placed within the model for the majority of the sources in the centre of the site in order to be worst case for all of the monitoring positions.

5.3.11 In terms of the existing site the existing site is permitted to undertake the screening, tipping and vehicle movements mentioned in Table 11 above. The only difference between the proposed operations at the site is that they will be adding the crushing operation to the permit this will therefore lead to a slight increase in the "on times" for particularly the tipping vehicle on site and excavator.

Figure 2 - Modelling of typical daytime noise sources associated with the site as per the proposed layout (all sources active), 1.5m height

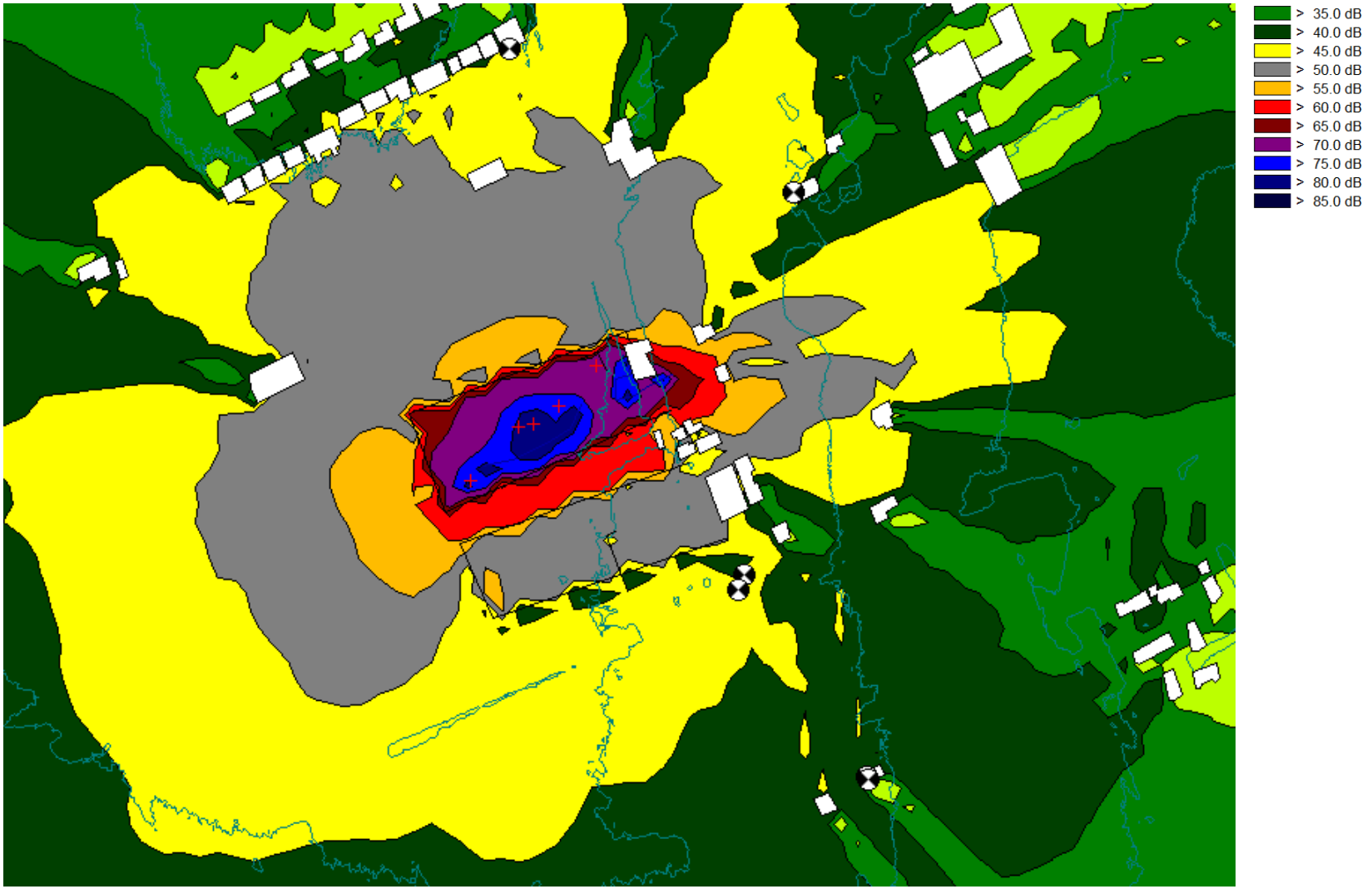


Figure 3 - Modelling of typical daytime noise sources associated with the site as per the proposed layout (all sources active), 4.0m height

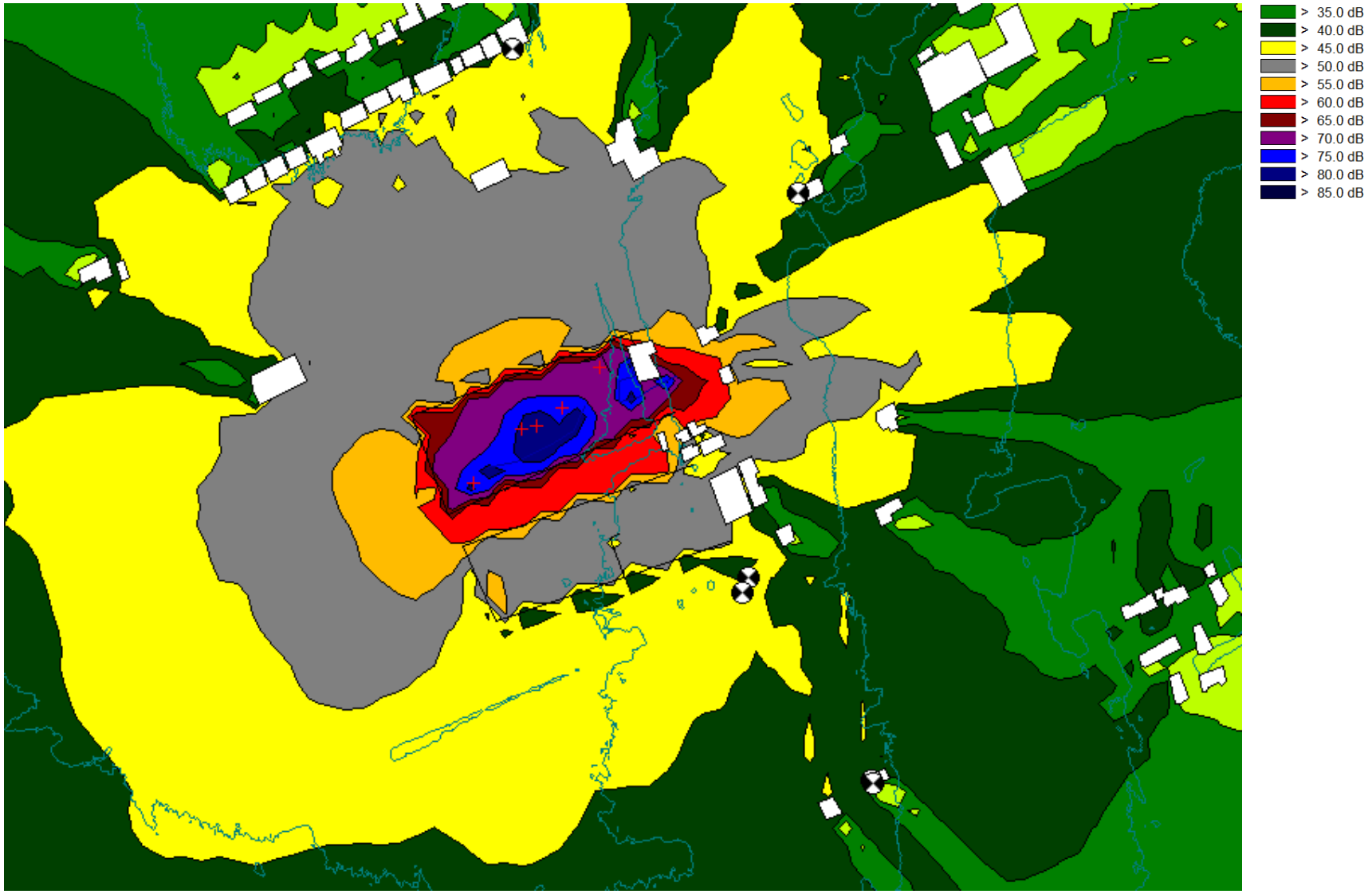


Table 12 - Assessment of typical daytime noise sources associated with the site (proposed layout) as per BS4142:2014 derived from Figures 2 and 3.

Noise sensitive receptor name	Sound pressure level at receiver (dB A)	Penalty added	Rating level (dB A)	Background weekday (dB A)	Difference with background weekday (dB A)	Assessment of impact as per BS4142. Red=+10 Amber=5-10 Green =<5 No impact<0
MP 1 (Ground floor)	46.5	7	53.5	65	-11.5	No impact
MP 1 (First floor)	47.9	7	54.9	65	-10.1	No impact
MP 2 (Ground floor)	45.1	2	47.1	62	-14.9	No impact
MP 2 (First floor)	46.1	2	48.1	61	-12.9	No impact
MP 3 (Ground floor)	47.0	5	52	53	-1.0	No impact
MP 3 (First floor)	48.8	5	53.8	53	+0.8	Green
MP 4 (Ground floor)	45.3	5	50.3	62	-11.7	No impact
MP 4 (First floor)	51.1	5	56.1	61	-4.9	No impact

5.3.12 As per Table 12, following the additional mitigation measures mentioned in Section 6.0, the rating level for the most part is below the background level however at MP 3 the exceedance is at 0.8db above. The exceedance here is indicative of a low impact as per BS4142.

5.3.13 It should of course be observed that the assessment comprises a potential over estimation of the rating level, with numerous worst-case assumptions being made, for example the orders of reflection and “on times” assumed within the model are unlikely to be representative of the typical day to day operation of the site. In particular the crushing and screening operations which are the principal contributors to the sound pressure levels received at the noise sensitive receptors (NSR’s).

5.3.14 Considering the mitigation mentioned in Section 6.0 with the proposed site layout and operations and the marginal exceedance of the background level the impact is deemed acceptable.

5.4 Existing Scenario

5.4.1 In order to demonstrate the improvements made to the site and the reduction in noise levels that the revised site layout will provide, an acoustic model was also produced for the existing scenario. Figure 4 details the modelling for the existing scenario with 1.5m contour spacing whilst Figure 5 details modelling for the exiting scenario with 4.0m contour spacing.

5.4.2 Table 13 details the predicted noise levels (in dB A) associated with the current layout of the application site at the relevant receptors and provides an assessment as per BS4142:2014.

Table 13 - Assessment of typical daytime noise sources associated with the site (existing layout) as per BS4142:2014. Figures 4 and 5.

Noise sensitive receptor name	Sound pressure level at receiver (dB A)	Penalty added	Rating level (dB A)	Background weekday (dB A)	Difference with background (Weekday)	Assessment of impact as per BS4142. Red=+10 Amber=5-10 Green=<5 No impact<0
MP 1 (Ground floor)	45.1	7	52.1	65	-12.9	No impact
MP 1 (First floor)	47.1	7	54.1	65	-10.9	No impact
MP 2 (Ground floor)	40.4	2	42.4	62	-19.6	No impact
MP 2 (First floor)	42.0	2	44.0	61	-17.0	No impact
MP 3 (Ground floor)	45.8	5	50.8	53	-2.2	No impact
MP 3 (First floor)	46.8	5	51.8	53	-1.2	No impact
MP 4 (Ground floor)	44.7	5	49.7	62	-12.3	No Impact
MP 4 (First floor)	48.1	5	53.1	61	-7.9	No impact

5.4.3 As can be seen from Table 13 above and Table 14 below, the proposed amendments to the site layout and additional mitigation in place (Construction of concrete lego block wall on the north boundary 4.0m in height) will result in similar sound pressure levels in terms of the rating level when experienced at the nearest residential dwellings (NSRs).

5.4.4 Table 14 below details the changes from the existing vs proposed shows the difference in the predicted sound pressure levels at those sensitive receptors. As can be seen from the Table below the proposed changes make at most a +4.7 difference in the SPLs at the receivers. This being said the proposed model includes specific noise mitigation measures which have been predicted in the model and include those mentioned in Section 6.0 of this report.

Table 14 - Proposed noise levels with comparison to existing levels received at the nearest sensitive receptors

Noise sensitive receptor name	Rating level Proposed (dB A)	Rating level Existing (dB A)	Difference between proposed and existing (dB A)
MP 1 (Ground floor)	53.5	52.1	+1.4
MP 1 (First floor)	54.9	54.1	+0.8
MP 2 (Ground floor)	47.1	42.4	+4.7
MP 2 (First floor)	48.1	44.0	+4.1
MP 3 (Ground floor)	52	50.8	+1.2
MP 3 (First floor)	53.8	51.8	+2.0
MP 4 (Ground floor)	50.3	49.7	+0.6
MP4 (First floor)	56.1	53.1	+3.0

5.4.5 An additional model has been produced and is shown in Figure 6 below which details the weekend operations for the site which does not include any processing (crushing and

screening). The below Table shows the comparison of the weekend operations at the site with the predicted rating levels.

Table 15 - Assessment of typical daytime noise sources associated with the site (weekend) as per BS4142:2014. Figure 6.

Noise sensitive receptor name	Sound pressure level at receiver (dB A)	Penalty added	Rating level (dB A)	Background weekend (dB A)	Difference with background (Weekend)	Assessment of impact as per BS4142. Red=+10 Amber=5-10 Green=<5 No impact<0
MP 1 (Ground floor)	43.2	7	50.2	55	-4.8	No impact
MP 1 (First floor)	45.0	7	52	55	-3.0	No impact
MP 2 (Ground floor)	41.3	2	43.3	61	-17.7	No impact
MP 2 (First floor)	42.8	2	44.8	61	-16.2	No impact
MP 3 (Ground floor)	43.9	5	48.9	43	+5.9	Amber
MP 3 (First floor)	44.9	5	49.9	43	+6.9	Amber
MP 4 (Ground floor)	42.6	5	47.6	61	-13.4	No impact
MP 4 (First floor)	47.6	5	52.6	61	-8.4	No impact

5.4.6 As can be shown from the above Table when comparing the weekend background data with the predicted rating level the highest exceedance is shown at first storey height for the NSR labelled MP 3. This being said with the rating level within the amenity area of the residential located east of the site (MP 3) is below the lower threshold of 50Db which is highlighted in the WHO Criteria for external amenity areas. The rating level in lieu of any penalties or acoustic corrections features also meets BS8233 internal criteria assuming 15Db reduction for an open window as shown in table below.

5.4.7 It is worth noting that at present the operator is currently permitted for vehicle movements and the operation of the screener on the weekdays and weekend with limited noise control

restrictions, as part of this variation, the operator will no longer operate on weekends and has also proposed mitigation measures i.e. concrete block wall along the northern perimeter which will provide increased mitigation compared to the existing situation, these measures will reduce potential noise levels further and therefore result in a betterment. Should the EA decide that the proposed measures and this assessment as whole are still unacceptable, these aspects i.e. vehicle movements and screening would still be permitted to operate.

Table 16 - BS8233 Internal Criteria

Operation	Predicted façade level	Predicted internal noise level with open window	Guideline limit (living room, bedroom, dining room)
MP 3 (Elmcroft Guest House)	43.9	-15 = 28.9	35/35/40-28.9= 6.1 to 11.1 below limit

5.4.8 This is reflected in the revised Environment Agency guidance which also advises that context should be taken into account, stating that: "*context in which a noise occurs is critical to assessing the severity of the pollution. Not every receptor will have the same response to the same noise pollution"*. Although the EA guidance differs to planning guidance, it is considered important to use in this contextual argument.

5.4.9 BS4142 allows the context of the situation to inform the assessment outcome. Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an 'adverse impact').

5.4.10 The EA guidance lists 12no. factors that may impact the context of a noise source, these are listed below with an associated comment as to their applicability:

- *Weekdays rather than weekends*

  The proposed hours are listed within Section 1.3 and confirm that waste processing activities (i.e. the loudest operations) will only take place between Monday to Friday, with Saturdays comprising loading/unloading and maintenance day and the site being closed on Sundays and Bank Holidays.

- *What the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir*

  The noise associated with the operations has been assessed with the penalties added, the noise from the principal noise sources for the weekend model comprise of vehicle movements which are more tonal in nature and are considered less invasive.

- *Time of day*

  As described previously, onsite operations are limited to between the hours detailed within Section 1.3. These hours would not be considered unsociable or unreasonable.

- *Where the sound occurs*

  The sounds occur within an established industrial area east of High Road. While the surrounds are of an agricultural nature, the onsite activities have been present for some time.

- *New industry or new residences*

  The site has been used for similar waste/commercial activities for in excess of 25 years. A brief review of the history of the area via Google Earth confirms this.

- *Intrinsic links between the source and receptor, for example the source is the resident's place of work*

  There is no established link between the source and the surrounding receptors.

- *Local attitudes*

  No formal assessment of surrounding residents has been undertaken.

- *The residual acoustic environment*

  The existing noise climate is discussed within Section 4.5. As detailed previously, the nature of the sounds is distinguishable from those of the surrounding area, thus the application of the 5dB penalty at (MP3).

- *The land use at the receptor (for example, gardens rather than yards)*

  The surrounding residential dwellings appear to contain established amenity areas, with the nearest residential gardens being located to east (MP3).

- The exceedance (traditional BS 4142)

  This is provided within Table 15. Noise levels rise above the 5dB+ threshold during the day on weekdays. This is indicative of a potential adverse impact, dependent on

context. The EA guidelines consider that the contextual/subjective argument may higher or lower this band (i.e. to low impact or to significant adverse).

5.4.11 The EA guidance also considered that these elements are likely to make a situation more sensitive:

- *More houses in the location*

  Whilst there are a number of dwellings within the vicinity of the site, these are generally sparingly distributed. In addition, these are generally located away from the revised location of site activities.
- *Noise during antisocial hours and at weekends*

  As discussed previously, noisy activities will be limited to between the hours detailed in Section 1.3, with Saturday comprising a maintenance and housekeeping day.
- *A well-used amenity area and private rear gardens*

  Reference should be made to the previous section.
- *The natural soundscape*

  Reference should be made to the previous Section.
- *A new industry*

  The noise source is associated with a long-standing operation within an established industrial plot.
- *A highly sensitive receptor*

  None of the receptors within the vicinity of the site would be considered particularly more sensitive than a typical residential dwelling.

5.4.12 The subjective/contextual assessment of noise discussed above confirms that the resultant impacts are likely to be lower than comparing the rating level to the representative background level. Considering the mitigation measures and the contextual detail above the adverse impact presented in Table 15, is acceptable. Also of note is that MP 3 (Elmcroft House) is located adjacent to Happy Grow Industry a large nursery for plants which is considered to contribute to the noise climate at MP 3.

Figure 4 - Modelling of typical daytime noise sources associated with the site as per the existing layout (1.5m height)

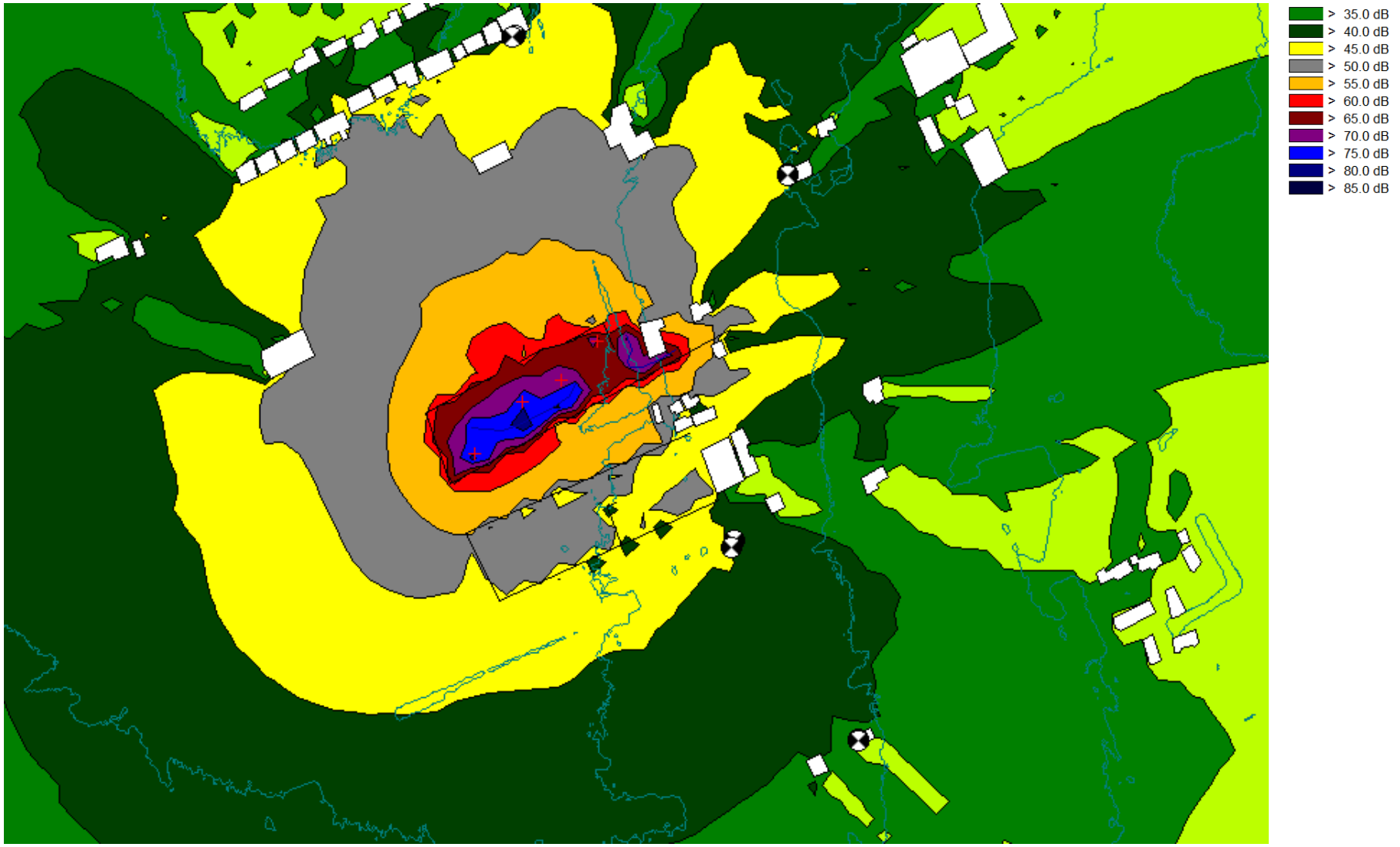


Figure 5 - Modelling of typical daytime noise sources associated with the site as per the existing layout (4.0m height)

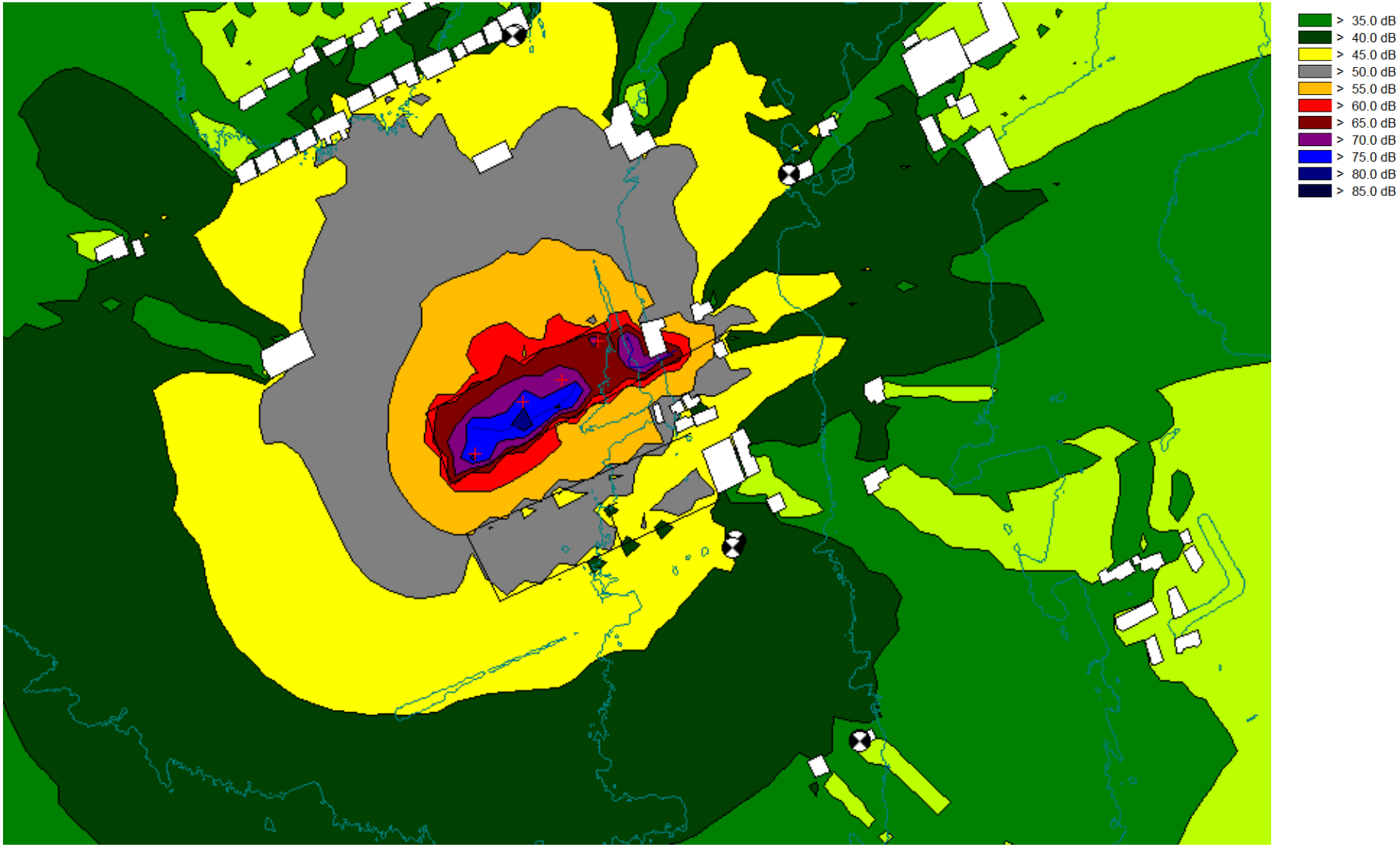
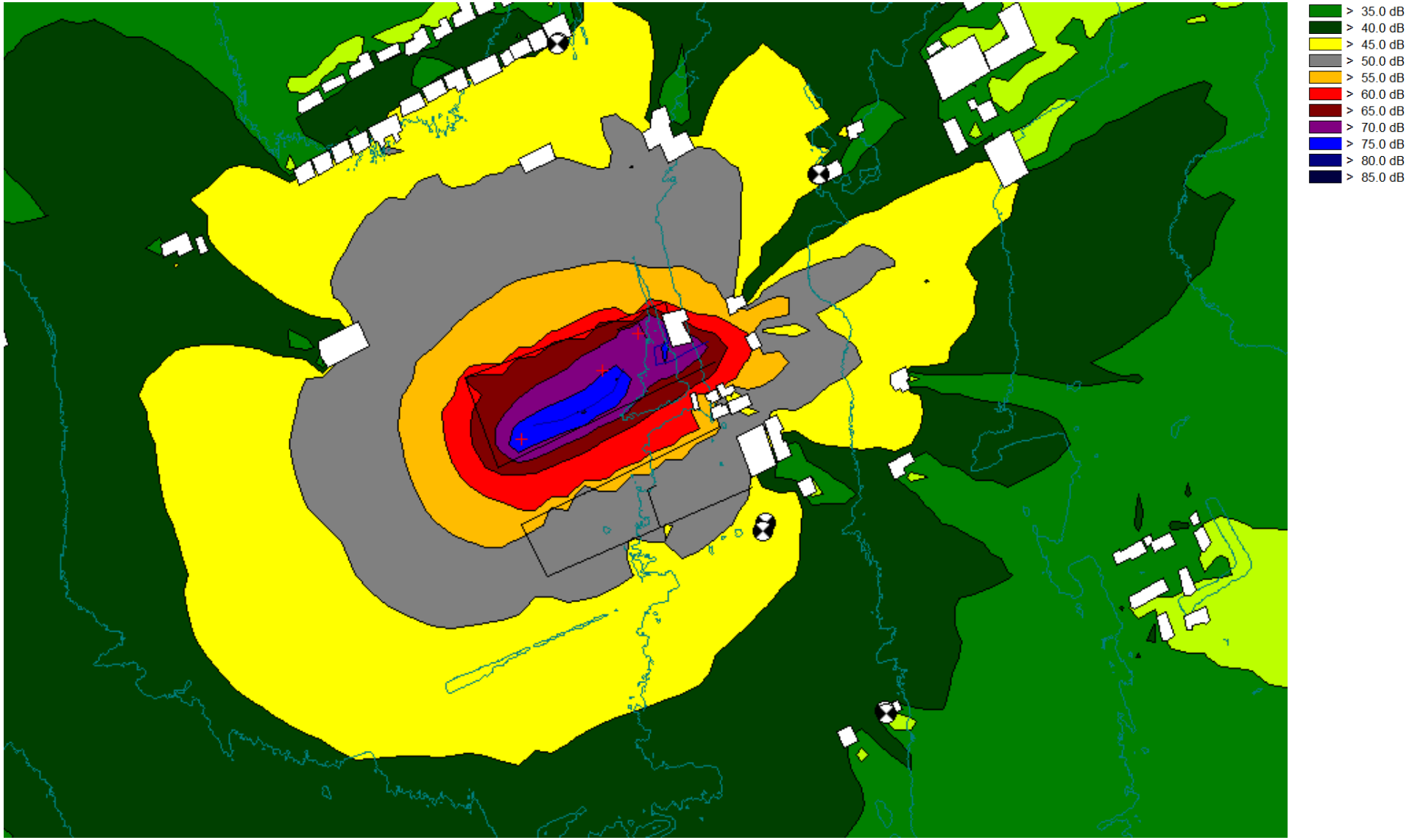


Figure 6 - Modelling of typical daytime noise sources associated with the site as per the weekend operations. (Excluding processing operations).



6 Best Available Techniques

6.1 Summary & Recommendations

6.1.1 The following will be considered when operating the site:

- Prevent generation of noise by good design and maintenance
- Daily maintenance checks – operational and maintenance staff
- Preventative maintenance schedule – based on manufactures guidance and historical data, experience. Pro-active and pre-emptive
- Noise monitoring and audits – noise monitoring as part of the daily site inspection any abnormal findings are recorded in the site log and reported to the site supervisor. Rattles, hums, squeaks, relief valves, irregular sounds etc
- Prioritising maintenance activities – short and long-term action plans, monitor reliability.
- Critical spares or supplier identified – spares available on demand.
- Daily operational checks - external doors are closed when not in use, hatchways or access doors left open, acoustic hoods not attached/fixed correctly, engines idling when not in use, suitable PPE being used as required.
- Daily operational checks – perimeter checks to assess noise levels, changes in level tone, intermittent noise, nuisance noise. This noise assessment is subjective, dependent on experience, familiarisation.
- Records – site logs record operational and maintenance issues/findings.
- Communication – open 2-way communication, listen to concerns raised, investigate as required and feedback to group or individual.
- Procurement – equipment selection, noise rating, inclusive attenuation, replacement policy, life cycle of product
- Signage – Appropriate signage denoting noise control areas and quite zones.

Site Specific Noise Control Measures:

6.1 Site specific noise control techniques, include the following:

- The predominant noise sources on site affecting the sound pressure levels (SPLs) at all of the NSRS are the crusher, screener, excavator and Dump Truck noise. These are predominantly tonal in nature and mor broad band in terms of the frequency of the sound and therefore it is proposed that an acoustic barrier would be the most effective form of attenuation in regard to noise.
- An acoustic screen to the north boundary i.e. Lego block wall to provide screening to the screener and associated crushing operations. This boundary to the north will be 4.0m in height.
- As the weekend background levels are at times significantly less than the weekday operations it has been agreed with site management that there will be no processing (crushing and screening) during the weekend operations as this will incur a +10Db difference between the predicted rating level and the background which is indicative of a significantly adverse effect and therefore it is strongly suggested that this remains the case. However, it must be noted that the operator is currently permitted to operate the screener on weekends without any restriction, this option is therefore providing a significant betterment compared to the existing operations.

7 Conclusion

7.1 Summary & Recommendations

7.1.1 Oaktree Environmental Limited have undertaken an NIA for the site situated at Marlow, High Road, Thornwood Common, Epping, Essex, CM16 6LU.

7.1.2 The primary receptors are those located north (MP 1), south (MP 2) and east (MP3 - Elmcroft House).

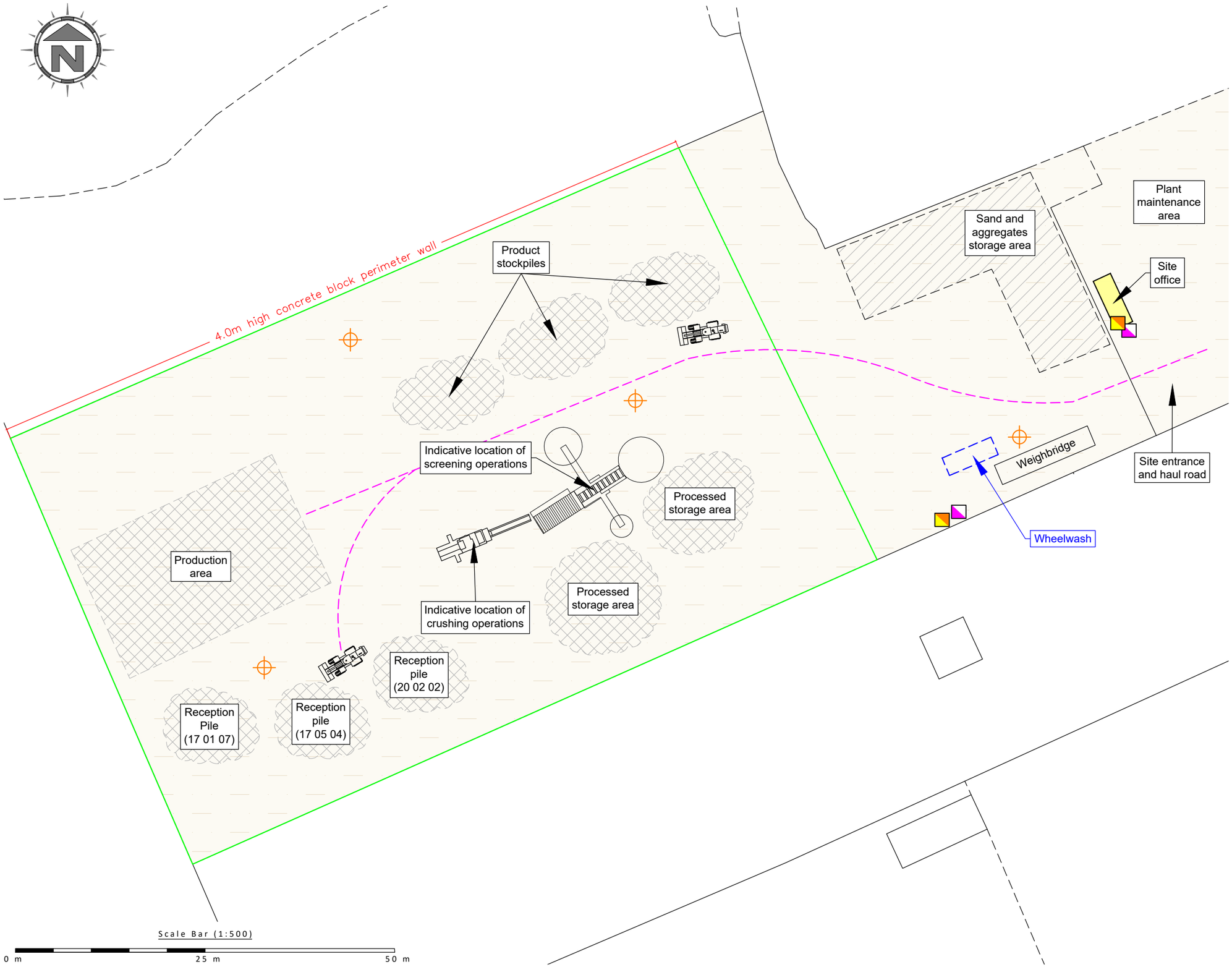
7.1.3 The document includes details of the revised layout of the site which has been reconsidered and mitigation measures changes discussed in Section 6.0 will be implemented within a suitable timescale once agreed with the EA.

7.1.4 The proposed layout of the site and the changes to operations on site have been designed with acoustic issues in mind, the site has been assessed with regards to BS4142 and in conjunction with BS8233 for external amenity areas. The impacts associated with the NSRs for the majority are considered negligible/low impact. However, for the NSR labelled MP 3 the impact here is considered to be adverse according to BS 4142 when comparing the predicted rating level to the background level. However, as discussed, a simple comparison of the rating level to the background isn't considered representative of the noise impact for the receptor and therefore upon the discussion of context the impact here whilst not being downplayed should be considered less based on context. With the mitigation measures and changes in operations discussed in Section 6.0 the impact at the NSRs is deemed acceptable.

7.1.5 The noise levels associated with the proposed operation of the site are considered to be acceptable. In addition, noise emissions will be controlled and regulated via the Noise Management Plan also produced by Oaktree Environmental. The NMP comprises a standalone document to be used in the regulation and management of the site by both site management and he Environment Agency.

Appendix I

Drawings



NOTES

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REVISION HISTORY

Rev:	Date:	Init:	Description:
-	11.05.22	IA	Initial drawing
A	27.07.22	IA	Client comments
B	08.09.22	IA	EA comments
C	26.09.24	IA	Layout amendments

KEY:

- Permit boundary
- Hardstanding surfaces (free-draining)
- Storage areas
- Spill kit, absorbent pads, booms, granules etc..
- Firefighting equipment
- Indicative dust monitoring locations
- Site access and haul routes

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
SITE LAYOUT PLAN

CLIENT
D Evans & Sons

PROJECT/SITE
Land at Marlow, High Road, Thornwood, Epping, CM16 6LU

SCALE @ A3	CLIENT NO	JOB NO
1:500	2616	005

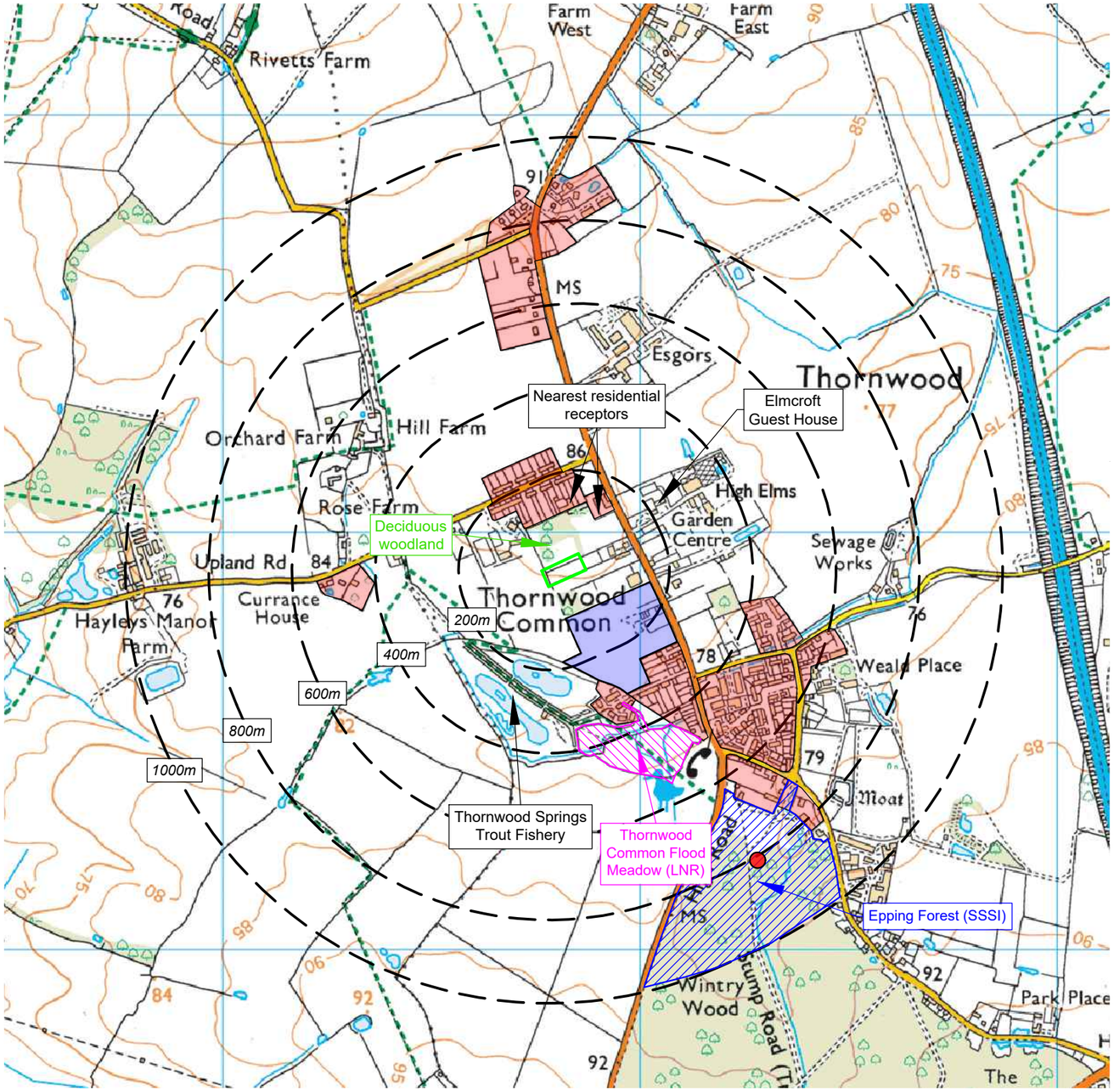
DRAWING NUMBER	REV	STATUS
2616-005-03	C	Issued

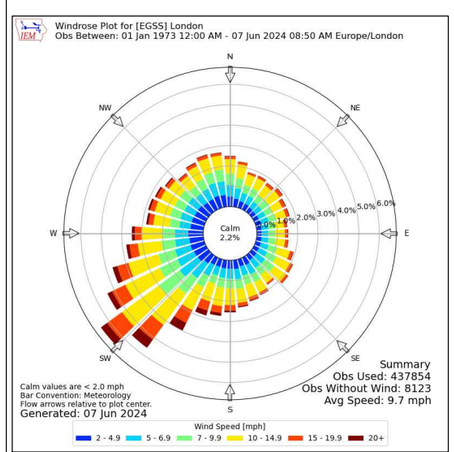
DRAWN BY	CHECKED	DATE
IA	KLX	26.09.24

Lime House, Road Two, Winsford, Cheshire, CW7 3QZ
t: 01606 558833 | e: sales@oaktree-environmental.co.uk

KEY:

- Permit boundary
- Main River
- Surface water body (river / stream / pond / pool / lake)
- Workplaces (includes agriculture industry, commerce and retail)
- Areas with mix of residential, retail and commercial properties
- Residential blocks
- Class A roads
- Class B roads
- Class C roads
- Nearest fire hydrant
- Railway line
- School
- Woodland areas including Deciduous woodland
- Protected sites (Ramsar, SSSI, SPA, SAC)
- Nature reserves
- Approximate location of housing development (EPF/0332/22)
- Indicative location of Protected Species (Great Crested Newt)





Compass Wind Rose for London Stansted Airport (EGSS) Period 1973-2024
- source: Iowa State University

NOTES

1. Boundaries are shown indicatively.
2. Wind rose data shows the prevailing wind direction to be Southerly.

REVISION HISTORY

Rev:	Date:	Init:	Description:
-	03.09.24	IA	Initial drawing
A	12.11.24	IA	Amendments

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants

DRAWING TITLE
RECEPTOR PLAN

CLIENT
D Evans & Sons

PROJECT/SITE
Land at Marlow, High Road, Thornwood, Epping, CM16 6LU

SCALE @ A3	CLIENT NO	JOB NO
1:12,500	2616	005

DRAWING NUMBER	REV	STATUS
2616-005-04	A	Issued

DRAWN BY	CHECKED	DATE
IA	KLX	12.11.24

Lime House, Road Two, Winsford, Cheshire, CW7 3QZ
t: 01606 558833 | e: sales@oaktree-environmental.co.uk