NOISE IMPACT ASSESSMENT

Site:	Shelford MRF Permit Application
References:	51-864-R1
Date:	01 October 2025
Client:	Valencia Waste Management

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QUALITY ASSURANCE

Report references	51-864-R1

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01	First issue	1st October 2025
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EXECUTIVE SUMMARY

Site Address	Shelford Landfill, Shalloak Road, Canterbury CT2 0PU
Grid Reference	E 616347, N 160140
Proposed Development	Environmental Permit Application for the increase in throughput of tonnage of waste from 250,000 to 500,000 at the Materials Recycling Facility (MRF).
Surveys Completed	E3P have undertaken a full weekday and weekend background and ambient sound survey within the site boundaries considered representative of receptors to the south. On-site measurements of all noise producing activities and plant has been undertaken to inform the noise model.
Assessments Completed	A 3D noise model has been constructed to assess potential sound impact associated with the increased tonnage through the site and includes for existing activities and an increase in Heavy Goods Vehicle Movements. The model has been used to predict the Rating Level at the receptors which has been compared with the typical background sound level, accounting for any acoustic characteristics associated with the sound in accordance with BS 4142:2014+A1:2019.
Mitigation Recommended	The assessment has determined that there would be an exceedance of the background sound level by the predicted rating levels at one receptor, with the rating level falling below the background for most receptors, for the existing and proposed scenarios. The increase in noise levels due to the increased tonnage is not considered significant and, as such, no mitigation measures are required.
Conclusions and Discussions	This assessment has shown that no adverse impact is predicted at the receptors due to an increase in tonnage at the existing MRF site.

CONTENTS

1. INTRODUCTION

1.1. BACKGROUND

E3P was commissioned by Valencia Waste Management to undertake a Noise Impact Assessment to support an Environmental Permit application to the Environment Agency (EA) to increase the tonnage throughput at the Shelford Materials Recycling Facility (MRF), to be referred to hereafter as 'the Site'.

The increase in tonnage is from 250,000tpa to 500,000tpa with existing opening hours (7am – 6pm Mon-Sat) to remain unchanged. It is expected that this quantity of waste will not impact significantly on deliveries of waste to site as the majority of waste to be treated is currently accepted into the landfill. The permitted annual waste input to the landfill is 725,000tpa (non-hazardous and inert wastes).

The site typically accepts dense, heavy wastes, such as C&D wastes, which is estimated to be delivered by 65-85 vehicles per day.

There would be an increase in vehicle movements to take recyclate and RDF off site. Residual waste from the MRF which is not suitable for off site recovery is sent to the landfill.

1.2. LIMITATIONS

Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative, and reliable to inform an accurate assessment at the time.

E3P will endeavour to capture all existing and proposed sources of sound and vibration at the time of the surveys and/or assessments. However, should new sources of sound be introduced, existing sources modified/changed, or characteristics of the sound be altered following completion of such, E3P cannot be held accountable for this.

Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance, for either absolute levels or frequency content.

1.3. REPORT OBJECTIVES

The objectives of this report are as follows:

- Establish and measure the existing background sound levels at the closest receptors.
- Measure source noise levels on site for all noise producing operations and activities.
- Assess the impact of commercial sound upon the proposed development in accordance with BS 4142
- Provide advice on mitigation measures, where required.

2. ASSESSMENT METHODOLOGY

2.1. ENVIRONMENT AGENCY (2022) NOISE AND VIBRATION MANAGEMENT: ENVIRONMENTAL PERMITS

Environmental permits have conditions that require operators to control pollution – this includes controlling noise and vibration. E3P note that the following are required competencies and standards required in relation to Noise Assessments submitted as part of an Environmental Permit Application:

Noise impact assessments should be carried out to an appropriate standard and by competent personnel, for example, holders of either an Institute of Acoustics:

Diploma in Acoustics and Noise Control

Certificate of Competence in Environmental Noise Measurement, with relevant experience

Monitoring noise in the environment is a specialist field. Monitoring should be carried out by a qualified acoustician who can demonstrate competency in environmental work rather than, for example, occupational health and safety work.

You must use 'BS 4142: Methods for rating and assessing industrial and commercial sound' to quantify the level of environmental noise impact from industrial processes.

In rare circumstances, other methods may also be appropriate, for example, NANR45 for assessing existing low frequency sound inside a residential property.

If you want to assess impact using another method, you should discuss and agree this with your regulator before you start the assessment.

Where vibration is an issue, you should contact your regulator for specific advice.

E3P note from the above and the guidance that the EA require a BS 4142 assessment to be conducted.

2.2. BRITISH STANDARD BS 4142:2014+A1: 2019 – METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- Sound from industrial and manufacturing processes.
- Sound from fixed installations which comprise mechanical and electrical plant and equipment.
- Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

The procedure detailed in the standard compares the measured or predicted specific noise level from any of the above with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is typical.

The specific noise level also acknowledges the reference time intervals depending upon whether the noise source operates during daytime (1-hour) or night-time (15-minute) periods.

There are several 'penalties' which can be attributed to the specific sound level depending upon the 'acoustic features' of the sound level under investigation as follows:

TONALITY

- +2 dB: where the tonality is just perceptible.
- +4 dB: where the tonality is clearly perceptible; and
- +6 dB: where the tonality is highly perceptible.

IMPULSIVITY

- +3 dB: where the impulsivity is just perceptible.
- +6 dB: where the impulsivity is clearly perceptible; and
- +9 dB: where the impulsivity is highly perceptible.

INTERMITTENCY

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

In addition to the above, there is a penalty for 'other sound characteristics' of +3 dB where a sound exhibits characteristics that are neither tonal nor impulsive, though are readily distinctive against the acoustic environment. BS 4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

Assessment of the rating level relative to the background sound level can yield the following commentary:

- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

3. SURVEY RESULTS

E3P have conducted a full weekday and weekend background sound survey on the southern extremity of the site in a position considered representative of the closest residential receptors on Shalloak Road to the south east. Here the receptors are subject to noise from the railway line, which the Noise Measurement Position is equidistant from, Shalloak Road and the Shelford landfill and MRF site.

The NMP is considered worst case. Figure 1 details the NMP for the background sound measurement.

Figure 1 Background Sound Survey Position – NMP1

3.1. BACKGROUND SOUND SURVEY RESULTS

The survey was carried out over the following time periods:

- 12:00 Wednesday 24th September to 14:00 Monday 29th September 2025.

The following noise measurement position was chosen for the Background Sound Survey:

- Noise Measurement Position 1 (NMP1): Located on the southern boundary of the site ownership equidistant from the railway line as receptors to the south east of the site on Shalloak Road. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. The sound climate was dominated by occasional rail traffic, distant road traffic and commercial sound from the south and north.

A summary of the measured sound pressure levels from the Background Sound Survey are presented in Table 3.1.

Table 3.1 Background and Ambient Sound Levels – NMP1

DATE	TIME PERIOD	RANGE OF MEASURED BACKGROUND SOUND LEVELS, $L_{A90,T}$ (dB)	MEDIAN MEASURED BACKGROUND SOUND LEVELS, $L_{A90,T}$ (dB)	AVERAGE MEASURED AMBIENT SOUND LEVEL, $L_{Aeq,T}$ (dB)
Wednesday	07:00-18:00	48.3-50.4	49	52.7
	18:00-19:00	-	47	51.6
Thursday	07:00-18:00	48.6-51.1	50	53.2
	18:00-19:00	-	45	48.6
Friday	07:00-18:00	42.8-44.6	44	46.9
	18:00-19:00	-	44	46.3
Saturday	07:00-18:00	42.1-44.5	43	46.5
	18:00-19:00	-	42	45.1
Monday	07:00-14:00	47.1-50.5	49	53.4

To inform the assessment, the average measured background sound level between 18:00 and 19:00, when the site was not operational, has been used, specifically 45 dB.

Weather conditions were monitored throughout the survey via weather forecasts and observations at installation and collection. Weather conditions were conducive to the measurement of environmental noise for the duration.

The hourly data from each operational day are shown in Appendix III.

3.2. SOURCE NOISE SURVEY – ON-SITE OPERATIONS

E3P has conducted attended measurements of existing operations. The main sources of sound were noise break-out from the building which included the sorting of material, loading of HGVS and delivery of material.

The survey was carried out prior to the installation of the background sound position above. Measurements were conducted over 10 minute duration, where the sound source permitted.

Table 3.2 details the measured sound pressure levels for each operation.

The below data is used to calibrate each source in the noise model based on measurement distance and type of sound source.

Table 3.2 Source Noise Level Data

OPERATION/ SOURCE	MEASURED SPECIFIC SOUND LEVEL, $L_{Aeq,T}$ (dB)	DISTANCE TO SOURCE (m)	OBSERVED ON TIME (Minutes)
Dump truck being loaded inside	73.4	10	6
Compressor and power pack for shredder – external	80.0	5	60
End door with HGVs entering and processing of waste	75.8	5	60
Middle door with HGVs entering and processing of waste	76.0	5	60
End door with processing waste	73.9	10	60
Gas incinerators	64.3	4.3	60

The equipment outlined in Table 3.3 was used for the noise survey.

Table 3.3 Noise Measurement Equipment and Calibration Dates

MEASUREMENT POSITION	EQUIPMENT DESCRIPTION	MANUFACTURER AND TYPE NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
NMP1 and Source	Sound Level Meter	Fusion	14616	10th July 2026
	Pre-amplifier	Pre22	20951	
	Microphone	40CD	494264	
	Calibrator	CR 515	99206	5th August 2026

The sound level meter was field calibrated before and after measurements with no significant drift witnessed.

4. DESCRIPTION OF WORKS AND SOURCES OF NOISE

The proposals are to increase the tonnage through the MRF from 250,000tpa to 500,000tpa. The existing noise sources and operational hours are to remain unchanged, however, the number of HGV movements are to increase.

The main source of noise associated with the site is noise break-out from the building and, to a lesser extent, external vehicle movements to and from the site.

As such, all existing sound sources and are included in the existing and proposed scenario with a doubling of HGV movements to allow for the doubling of the tonnage throughput.

5. NOISE IMPACT ASSESSMENT

This section considers the likely rating levels from the operations in accordance with BS 4142 and advice given in the Noise and Vibration Management guidance from the EA.

For the purposes of the assessments, E3P has used noise modelling software, CadnaA 2025 MR2, to determine the impact of noise from the on-site sound sources.

The following inputs have been included in the model:

- Site Boundary Plan SHF118 Rev A.
- Ground elevations around the site have been taken as existing by way of a 1 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- Existing buildings have been included in the model and assumed to have a smooth façade.
- A reflection order of two has been used in all calculations.
- Ground absorption is set at 0.9.
- Noise levels generated using ISO 9613-2:2024 "Acoustics – Attenuation of sound during propagation outdoors" as incorporated into CadnaA software.
- Specific noise levels are calculated within external amenity areas or at the façade, whichever is closer.

Each source is inputted as follows:

- Compressor – Point source at 106 dB L_{wA}.
- Gas incinerators – Point sources at 93 dB L_{wA}.
- HGV movements – Moving point source at 94.7 dB L_{wA} with 45 movements for the baseline line and 85 movements for the proposed.
- Noise break-out from open sided building including shredder, trommel, conveyors and 360 excavator – vertical area source at 80 dB L_{wA} with open area of 63.8 m^2 (worst-case).
- Noise break-out from building on solid facades – vertical area source at 59 dB L_{wA} with open area of 202 m^2.
- Noise break-out from the roof - – area source at 70 dB L_{wA} .

All sound sources are calibrated to the measured noise values at the measured distances via nominal receivers to mimic the measurement positions.

For the BS 4142:2014 assessments, penalties are applied to the specific sound level to provide the rating level. These penalties relate to the acoustic features of the sound source. Accordingly, the following objective and subjective features have been accounted for in the assessment, in accordance with the subjective method detailed in BS 4142:2014, for the Site as a whole operation.

Table 5.1 Acoustic Features

ACOUSTIC FEATURE	APPLICABLE?	ATTRIBUTABLE PENALTY	COMMENT
Tonality	No	-	No tonality is expected due to the distance
Intermittency	No	-	Due to rail movements and road traffic sound, vehicle movements at the site would not be noticeable
Impulsivity	No	-	Deliveries and plant are internal.
Other	Yes	+3 dB	As the noise from internal processes is dominant, this is included here although not tonal or impulsive.

5.1. EXISTING DAYTIME ASSESSMENT – 07:00–18:00

Figure 2 details the grid is calculated at 1.5 m height to show garden noise levels.

Table 5.2 Calculation of Rating Level and Comparison with Background Sound Level – Daytime - Existing

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
Shalloak Road SE	38	41	45	-4
Proposed receptors to east	37	40		-5
Vauxhall Road	46	49		**+4**
Headcorn Drive	37	40		-5
Alcroft Grange	27	30		-15
Shalloak Road NE	34	37		-8

The assessment has determined that the predicted rating level from the existing operations and 250,000tpa would fall below the background sound level at most receptors. A minor exceedance is predicted at receptors to the immediate south on Vauxhall Road but the level of exceedance nor the absolute specific noise level are not considered significant.

5.2. PROPOSED DAYTIME ASSESSMENT – 23:00–07:00

Figure 3 should be used to view the daytime specific noise level with the increased HGV movements.

Table 5.3 Calculation of Rating Level and Comparison with Background Sound Level – Day with increased HGVs

RECEPTOR	CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,T}$ (dB)	CALCULATED RATING LEVEL $L_{A,r}$ (dB)	BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB)	DIFFERENCE +/- (dB)
Shalloak Road SE	38	41	45	-4
Proposed receptors to east	37	40		-5
Vauxhall Road	46	49		**+4**
Headcorn Drive	37	40		-5
Alcroft Grange	28	31		-14
Shalloak Road NE	34	37		-8

The assessment has determined that the predicted rating level from the fixed plant items would not exceed the background sound level at any plot during the night-time period.

As such, no mitigation measures are required.

5.3. PREDICTED CHANGE IN NOISE LEVELS

Table 5.4 below compares the existing and proposed scenarios.

Table 5.4 Comparison of Assessment Outcomes

RECEPTOR	EXISTING DIFFERENCE BETWEEN BACKGROUND AND RATING LEVEL (dB)	PROPOSED DIFFERENCE BETWEEN BACKGROUND AND RATING LEVEL (dB)	CHANGE IN NOISE LEVEL, +/- (dB)
Shalloak Road SE	-4	-4	0
Proposed receptors to east	-5	-5	0
Vauxhall Road	**+4**	**+4**	0
Headcorn Drive	-5	-5	0
Alcroft Grange	-15	-14	**+1**
Shalloak Road NE	-8	-8	0

A change of +1 dB is predicted at the receptor on Alcroft Grove to the north west. However, considering the difference between the rating level and background sound level, this minor increase is not considered significant.

5.4. CONTEXT AND UNCERTAINTY

In order to determine the final outcome of the assessment, the context must be considered, in accordance with BS 4142:2014+A1:2019, Section 11. The factors to be considered are discussed below:

Baseline conditions

As can be seen in the assessments above, the increase in tonnage does result in an increase in noise levels at receptors to the xxxxx.

However, the increase is considered minor and imperceptible to the human ear, especially considering the dominance of noise from activities at the MRF. As such, no adverse impact is considered. Indeed, all receptors are already subject to commercial sound and this minor, imperceptible increase is not considered significant.

The absolute level of the sound

Since the assessment relates to a future noise source, it is not possible at present to compare the Specific Noise Level with the residual sound, as discussed within the standard. However, the absolute noise level at the façade of the most affected receptor is 47 dB $L_{Aeq,1hr}$. Assuming 13 dB for attenuation provided by an open window, this would result in the internal noise level falling below the daytime criterion by 1 dB.

As such, this would not cause adverse impact.

The character and level of the residual sound compared to the character and level of the specific sound

As the actual sources of noise would remain unchanged, there would be no impact due to a change of the character of the noise as this will remain unchanged.

It has been found that the increased tonnage would result in a +1 dB increase at certain receptors. Even considering the location of the receptor, the worst-case background used and the absolute noise levels, the impact is not considered significant.

The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.

The receptors are residential, assumed to be permanent and are therefore considered to be sensitive. Given that details of the existing receptors are not known, it is assumed that no design measures are incorporated, i.e. open windows. Based on the absolute noise levels at the façade, the internal noise levels would be below BS 8233:2014 criteria and would be acceptable when the windows are open

Given the contextual factors discussed above in accordance with BS 4142:2014+A1:2019, it is concluded that the sound sources proposed are likely to not have an adverse impact during the daytime periods at all receptors and, as such, no mitigation measures are required.

6. CONCLUSIONS AND DISCUSSION

E3P have undertaken a full weekday and weekend background and ambient sound survey within the site boundaries considered representative of receptors to the south. On-site measurements of all noise producing activities and plant has been undertaken to inform the noise model.

A 3D noise model has been constructed to assess potential sound impact associated with the increased tonnage through the site and includes for existing activities and an increase in Heavy Goods Vehicle Movements.

The model has been used to predict the Rating Level at the receptors which has been compared with the typical background sound level, accounting for any acoustic characteristics associated with the sound in accordance with BS 4142:2014+A1:2019.

The assessment has determined that there would be an exceedance of the background sound level by the predicted rating levels at one receptor, with the rating level falling below the background for most receptors, for the existing and proposed scenarios.

The increase in noise levels due to the increased tonnage is not considered significant and, as such, no mitigation measures are required.

This assessment has shown that no adverse impact is predicted at the receptors due to an increase in tonnage at the existing MRF site.

END OF REPORT

Appendix I: Limitations

GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P “Terms of Business” or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.

3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.

4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

NOISE AND VIBRATION IMPACT ASSESSMENTS

5. Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative and reliable in order to inform an accurate assessment.

6. Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance.

7. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.

8. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.

9. E3P does not warrant work/data undertaken/provided by others.

Appendix II: Glossary

NOISE

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source. The most widely used weighting mechanism that best corresponds to the response of the human ear is the “A”-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or LAeq, LA90 etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective but, as a general guide, a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A Typical Sound Pressure Levels

SOUND PRESSURE LEVEL	LOCATIONS/EXAMPLE
0	Threshold of hearing
20-30	Quiet bedroom at night
30-40	Living room during the day
40-50	Typical office
50-60	Inside a car
60-70	Typical high street
70-90	Inside a factory
100-110	Burglar alarm at 1 m away
110-130	Jet aircraft on take off
140	Threshold of pain

ACOUSTIC TERMINOLOGY

Table B Terminology

DESCRIPTOR	EXPLANATION
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
LAeq, T	LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.
LAmax	LAmax is the maximum A-weighted sound pressure level recorded over the period stated. LAmax is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the "fast" sound level meter response.
L10 and L90	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the "average maximum level". Similarly, L90 is the "average minimum level" and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Fast	A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant.
Slow	A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant.
dB (decibel)	The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

Appendix III: Measured Sound Pressure Levels

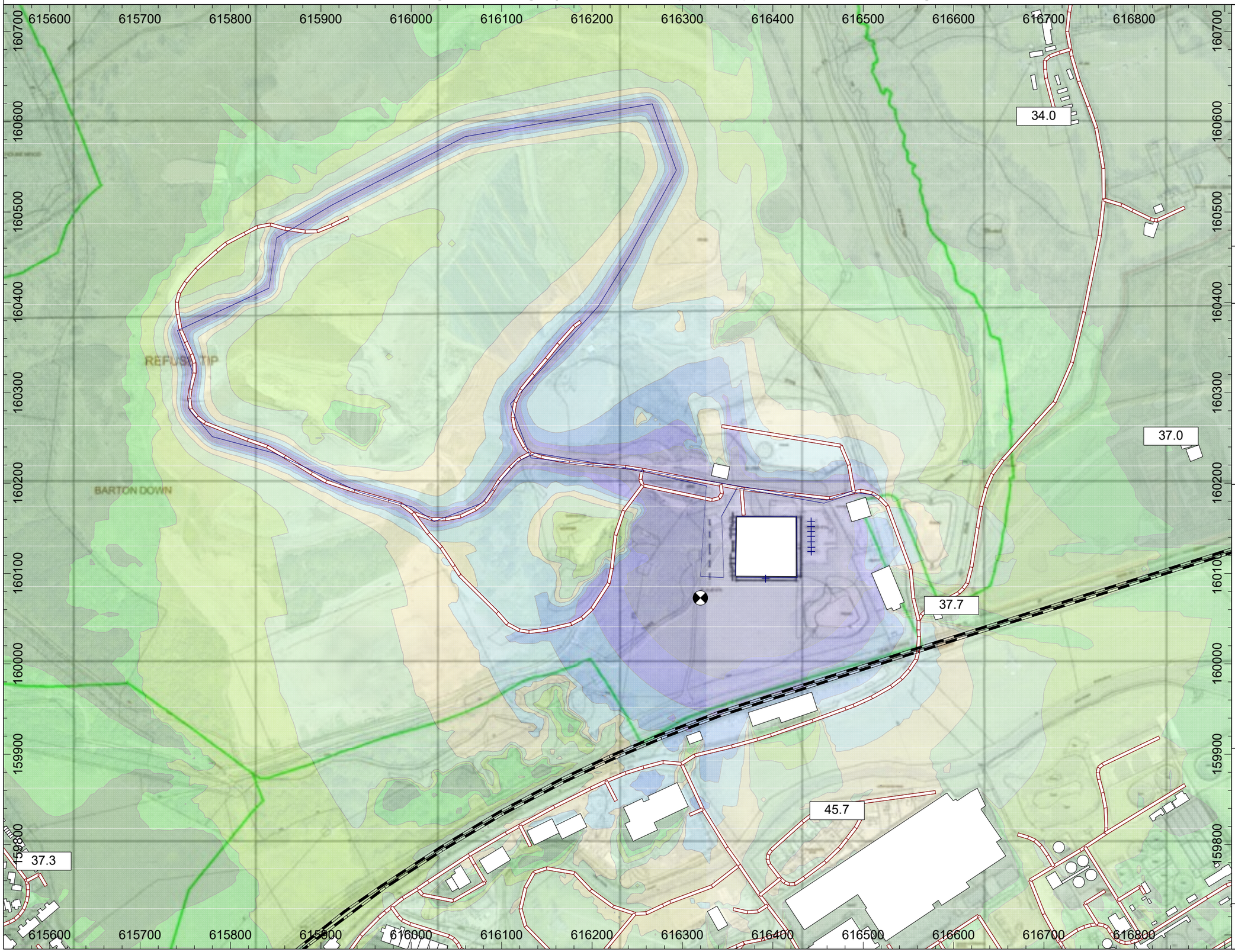
Table A.1 Background and Ambient Sound Levels – NMP1

MEASUREMENT START TIME	MEASURED BACKGROUND SOUND LEVELS, $L_{A90,T}$ (dB)	AVERAGE MEASURED AMBIENT SOUND LEVEL, $L_{Aeq,T}$ (dB)
24/09/2025 12:00	53.7	50.3
24/09/2025 13:00	52.0	48.5
24/09/2025 14:00	53.4	50.4
24/09/2025 15:00	53.7	50.3
24/09/2025 16:00	51.8	48.5
24/09/2025 17:00	51.5	48.3
24/09/2025 18:00	51.6	47.3
25/09/2025 06:00	49.6	44.2
25/09/2025 07:00	53.4	50.2
25/09/2025 08:00	53.9	51.1
25/09/2025 09:00	54.0	51.0
25/09/2025 10:00	52.5	49.2
25/09/2025 11:00	52.4	48.6
25/09/2025 12:00	54.2	51.0
25/09/2025 13:00	53.2	48.9
25/09/2025 14:00	52.9	49.5
25/09/2025 15:00	53.7	49.7
25/09/2025 16:00	52.5	49.0
25/09/2025 17:00	52.4	48.7
25/09/2025 18:00	48.6	45.0
27/09/2025 06:00	45.3	43.3
27/09/2025 07:00	47.3	44.4
27/09/2025 08:00	46.9	43.6
27/09/2025 09:00	48.2	44.6
27/09/2025 10:00	47.3	44.1
27/09/2025 11:00	47.5	43.5
27/09/2025 12:00	46.6	43.6
27/09/2025 13:00	46.8	43.4
27/09/2025 14:00	46.9	43.8
27/09/2025 15:00	46.3	43.3
27/09/2025 16:00	46.2	42.8
27/09/2025 17:00	46.0	43.0

MEASUREMENT START TIME	MEASURED BACKGROUND SOUND LEVELS, $L_{A90,T}$ (dB)	AVERAGE MEASURED AMBIENT SOUND LEVEL, $L_{Aeq,T}$ (dB)
27/09/2025 18:00	46.3	43.5
28/09/2025 06:00	46.3	43.0
28/09/2025 07:00	47.1	44.5
28/09/2025 08:00	46.2	42.2
28/09/2025 09:00	45.1	42.1
28/09/2025 10:00	48.3	43.5
28/09/2025 11:00	47.2	42.9
28/09/2025 12:00	45.6	42.3
28/09/2025 13:00	46.1	42.5
28/09/2025 14:00	47.0	42.7
28/09/2025 15:00	47.3	42.8
28/09/2025 16:00	46.4	42.4
28/09/2025 17:00	45.4	42.1
28/09/2025 18:00	45.1	42.0
29/09/2025 06:00	49.7	42.1
29/09/2025 07:00	53.3	49.2
29/09/2025 08:00	54.4	50.5
29/09/2025 09:00	53.5	50.4
29/09/2025 10:00	51.8	47.1
29/09/2025 11:00	52.9	49.5
29/09/2025 12:00	52.9	49.1
29/09/2025 13:00	55.3	48.1

Appendix IV: Figures

Figure 2 - Existing Daytime Grid Noise Map (BS 4142) - Calculation at 1.5 m above ground level



Project:
Shelford MRF

Project-No:
51-864

Client:
Valencia Waste

Specifc Noise Level, LAeq,1hr (dB)

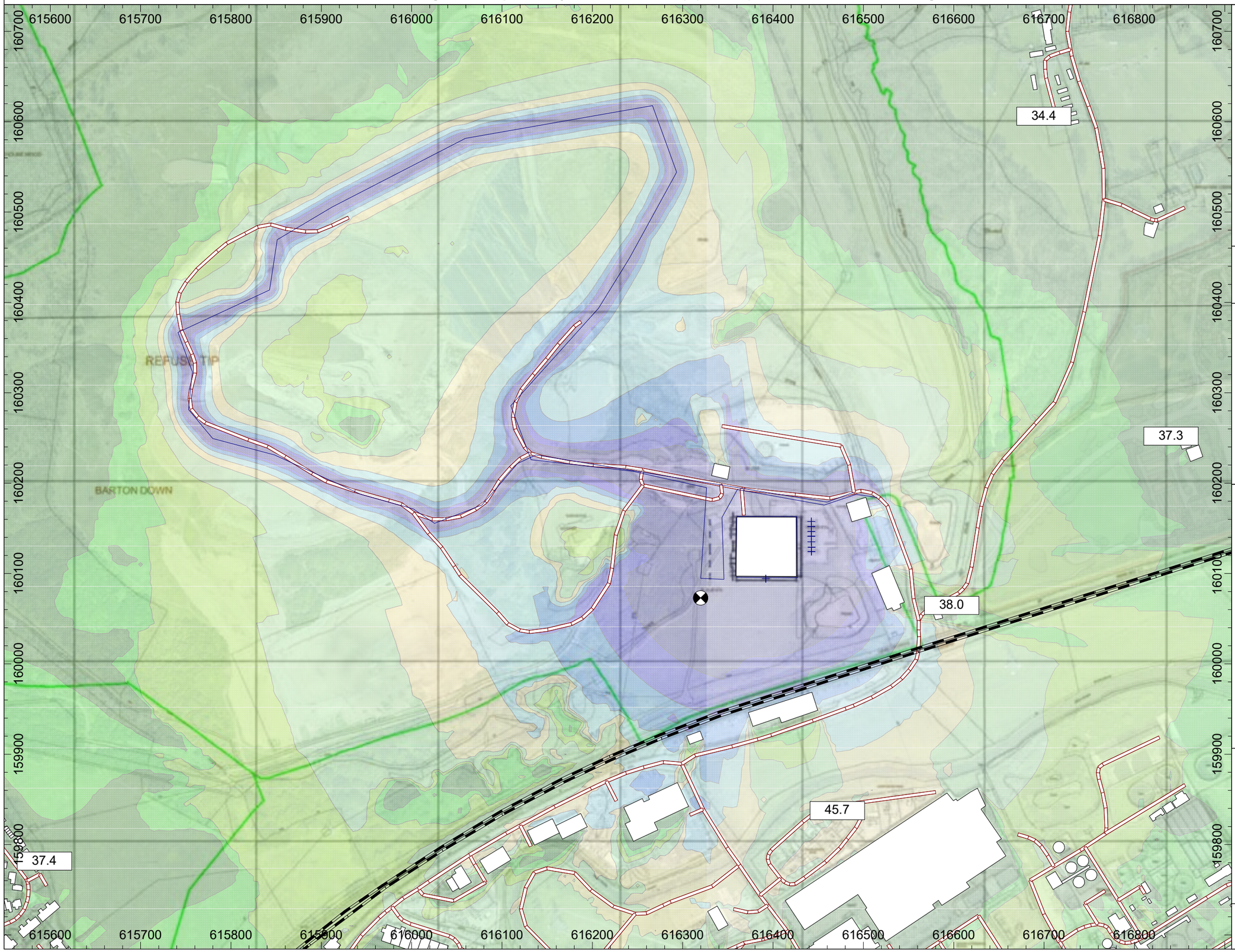
- ... <= 38
- 38 < ... <= 40
- 40 < ... <= 42
- 42 < ... <= 45
- 45 < ... <= 48
- 48 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 55
- 55 < ...

Noise Map Objects

- Point Source
- Line Source
- Area Source
- vert. Area Source
- Road
- Parking Lot
- Railway
- Building
- Barrier
- Embankment
- Receiver
- Calculation Area

Project Engineer: L Faulkner
Date: 01/10/2025

Figure 3 - Proposed Daytime Grid Noise Map (BS 4142) - Calculation at 1.5 m above ground level



Project:
Shelford MRF

Project-No:
51-864

Client:
Valencia Waste

Specifc Noise Level, LAeq,1hr (dB)

- ... <= 38
- 38 < ... <= 40
- 40 < ... <= 42
- 42 < ... <= 45
- 45 < ... <= 48
- 48 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 55
- 55 < ...

Noise Map Objects

- Point Source
- Line Source
- Area Source
- vert. Area Source
- Road
- Parking Lot
- Railway
- Building
- Barrier
- Embankment
- Receiver
- Calculation Area

Project Engineer: L Faulkner
Date: 01/10/2025