NOISE & VIBRATION MANAGEMENT PLAN

Aylesford Recycling Facility, New Hythe Lane, Aylesford, Kent ME20 7PA

London Mining Associates Ltd

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1 Introduction

1.1 Site history / background

1.1.1 Oaktree Environmental Ltd have been instructed by London Mining Associates Ltd to prepare a Noise & Vibration Management Plan (NVMP) which will outline the methods by which London Mining Associates Ltd will assess and minimise the potential impacts of noise generated through the operation of the site situated at Aylesford Recycling Facility, New Hythe Lane, Aylesford, Kent ME20 7PA.

1.1.2 As part of the NVMP an assessment with regards to the onsite activities as per BS4142:2014 and BS8233:2014 has been undertaken. Relevant findings of the assessments are incorporated into the management plan.

1.1.3 The plan addresses the impact of noise and the specific control measures required to mitigate the risk. These mitigation measures will be put in place by the management of London Mining Associates Ltd.

1.1.4 This permit variation application seeks a number of changes to the permit including the addition of sink-float tanks and an additional shredder with water treatment and ancillary activities. For full details of the proposed changes reference should be made to the Non-technical summary provided as part of the application.

1.1.5 The location of the site is shown on Drawing No LMA-AY-4359 and all references to 'the site' in this statement shall mean the land within the proposed permit boundary.

1.1.6 The mitigation measures outlined in this NVMP will be put in place by the management of London Mining Associates Ltd to ensure noise and vibration is controlled using best practicable means to ensure the receptors listed in Section 3.1 are not affected by the above proposals.

1.1.8 Contact details for Oaktree Environmental are as follows:

Oaktree Environmental Ltd	Contact:	Thomas Benson
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1.1.9 The previous Noise Impact Assessment and Post Mitigation Assessment undertaken by Peak Acoustics have been provided to Oaktree Environmental by the applicant and provide details of the background noise level, measurements of the plant/equipment and existing mitigation measures which will be used within the assessment and incorporated into the NVMP.

1.2 Site location

1.2.1 London Mining Associates Ltd currently operate a metal recycling yard at New Hythe Lane, Aylesford in the eastern portion of a large industrial estate. The nearest residential dwelling is located 350m from the western site boundary.

1.2.2 The site is located within a predominantly industrial setting with surrounding land uses comprising; the existing London Mining Associates Ltd site, civil engineering contractors, several vehicle repair and recovery workshops as well as numerous units which are used for a variety of commercial/industrial uses.

1.3 Facility overview

1.3.1 The site itself comprises a large external area which will be used for the processing of waste material via a variety of processes. External areas are also used for vehicle/plant manoeuvring, parking and storage of material.

1.3.2 Waste treatment processes on site may include the following:

- Sink float separation of shredded hazardous WEEE,
- Shredding (by using appropriate mechanical screening plant and equipment),
- Separation (by using appropriate mechanical screening plant and equipment),
- Washing (by using appropriate mechanical wash plant and equipment).

1.4 Hours of operation

1.4.1 The proposed development will operate 24 hours a day, Monday to Sunday, however the site may receive and dispatch waste during the following hours:

Monday to Friday	07:30 – 16:30
Saturday	07:00 – 13:00
Sunday/Bank holidays	Closed

1.4.2 Activities/operations undertaken at the site will likely vary throughout the course of the day. Further details with regards to which activities are undertaken during daytime/ night time are provided within Section 7.0.

2 Planning Policy

2.1 Noise Policy Statement for England

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

2.1.2 "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."

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

2.1.4 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".

2.1.5 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", 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.

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

2.2 National Planning Policy Framework

2.2.1 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.

2.2.2 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.

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

2.3 Planning Practice Guidance – Noise

2.3.1 Although this NVMP is being submitted to the Environment Agency, it is important to set out the appropriate guidance set out in the NPPF which 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.

2.3.2 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.

2.3.3 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 Sensitive Receptors

3.1 List of receptors

3.1.1 The receptors listed from the SRP are also shown in the table below with approximate distances to these residential properties.

Table 3.1 – Distances to Selected, Representative Sensitive Locations

Boundary	Receptor	Approximate distance from site boundary (m)
West	Residential dwellings off Papyrus Way	350m
West	Residential dwellings off Abery Drive	355m
West	Residential dwellings off New Hythe Lane	580m
West	Residential dwellings off Bellingham Way	665m
West	Residential dwellings off The Lakes	700m
West	Residential dwellings off Mercer Close	710m
West	Residential dwellings off Brookfield Avenue	730m

3.2 Other noise sources

3.2.1 Other industrial / commercial land uses which will contribute to the background noise level are tabulated below in the Table overleaf.

3.2.2 In addition to the noise sources listed in Table 3.2, many more industrial/commercial sources are present within 1km of the permit boundary.

3.2.3 The most relevant noise sources with regards to the existing background climate at the nearest noise receptors are likely to include; Pickering's Plant Ltd, Elliot, KCS Professional Services and Euro Car Parts due to their close proximity to the receptors.

Table 3.2 – Other Noise Emitting Operators

Company	Address	Type of Business	Approximate distance from site boundary (m)
TTS Logistics	Invicta Riverside Unit 2 – New Hythe Lane, Aylesford ME20 7FG	Warehousing facility	Adjacent
DFS-CDC	Unit 3 west point bussines park, New Hythe Ln, Ayleshford ME20 7PA	Warehousing facility	Adjacent
Aylesford Solar Park	Aylesford ME20 7FG	Solar park	80m E
Amazon UK Services Ltd	Invicta Riverside Unit 1, New Hythe Ln, Aylesford ME20 7FG	Warehousing facility	110m N
Elliott an Algeco Company	Central Road, Aylesford ME20 7FE	Portable building manufacturer	110m NW
Aylesford Wastewater Treatment Works	Bull Lane, Aylesford ME20 7HT	Sewage treatment works	180m E
Priory Office Supplies	2C, Aylesford Commercial Park, Aylesford ME20 7FE	Office supplies shop/warehouse	190m NW
FGS Plant	Ferry House, New Hythe Ln, Aylesford ME20 7PW	Plant storage and hire	215m N
KCS Professional Services	Unit 1 Papyrus Way, Aylesford ME20 7FE	Professional Services	230m NW
Allsand Supplies Ltd	Allsand House, New Hythe Ln, Larkfield ME20 6FF	Building materials supplier	280m N
Euro Car Parts	New Hythe Ln, Aylesford ME20 7TW	Car body parts supplier	290m NW
British Telecom	New Hythe Business Park, Papyrus Way, Maidstone, Aylesford ME20 7SX	BT fleet storage	330m W
Pickering's Plant	Unit 2 Papyrus Way, New Hythe Business Park, Larkfield, Aylesford ME20 7SX	Plant storage and hire	345m W

4 Site Operations

4.1 Waste deliveries

4.1.1 Waste is delivered to the site via an existing access from New Hythe Lane. Upon arrival, an operative will direct the driver to the relevant area on site.

4.1.2 Waste will arrive at the site primarily consisting of contractor's vehicles in the form of articulated lorries.

4.2 Site infrastructure

4.2.1 The site infrastructure is detailed on Drawing No. LML/1975/03 which is shown in Appendix I of this NVMP. The drawing illustrates the location of plant, machinery and stored wastes across the site.

4.3 Waste treatment and handling

4.3.1 Once the waste has been accepted at the site, the waste will be stored in the relevant waste bay prior to being treated by one or both of the following areas/processes:

- Separation via the flotation tank,
- Shredding by either the hammel shredder or the Bano Alumnium shredder,
- Separation by either the large downstream separation line or the small downstream processing line,
- Separation by either the refining line or grit plant (water tables),
- Washing via the wash plant.

4.3.2 Waste will be moved/loaded by either the material handler/grab or the shovel loader.

4.4 Mobile plant and equipment

4.4.1 Mobile plant and equipment along with their preventative maintenance are clearly detailed in the site's EMS and not considered necessary to duplicate as part of this NVMP.

5 Noise Assessment Criteria

5.1 General

5.1.1 In order to assess the impacts of existing road traffic and industrial noise on the proposed development, the following documents have been used:

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

5.2 BS8283:2014

5.2.1 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 5.1 - 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 $L_{Aeq, 16hour}$

5.3 BS4142:2014

5.3.1 BS4142:2014 provides a method for assessing and rating 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.

5.3.2 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.

5.3.3 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 5.2 - 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*

5.4 WHO Guidelines for Community Noise

5.4.1 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.

5.4.2 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.

5.4.2.1 The WHO document also recommends that steady, continuous noise levels should not exceed 55 dB (LAeq)on 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).

6 Existing Noise Climate and Background Levels

6.1 Existing Background Data

6.1.1 A Noise Impact Assessment has previously been undertaken by Peak Acoustics, document ref: IB2504172NR, dated 8th June 2017. The report provides a background noise level for the nearest noise sensitive receptors at Abery Drive and Papyrus Way.

6.1.2 Reference should be made to the report within Appendix I for full details of the background monitoring survey including; methodology, weather conditions and measurement equipment. In addition, electronic copies of the monitoring data can be provided upon request.

6.1.3 The measurements made during the background monitoring survey are tabulated below within Table 6.1.

Table 6.1 – Existing Background Data During Operating Times

Measurement Time	LA_{eq}	LA_{90}
05/05/2017 12:33	62.9	48.6
05/05/2017 13:33	63.5	52.0
05/05/2017 14:33	61.1	49.0
05/05/2017 15:33	60.9	49.3
05/05/2017 16:33	61.2	48.1
05/05/2017 17:33	60.0	46.4
05/05/2017 18:33	59.5	45
05/05/2017 19:33	65.5	50.4
05/05/2017 20:33	57.2	42.4
05/05/2017 21:33	54.3	40.5
05/05/2017 22:33	56	40.5
05/05/2017 23:33	53.7	39.1
06/05/2017 00:33	50.4	37.4

Measurement Time	**LA_{eq}**	**LA_{90}**
06/05/2017 01:33	49.5	36.5
06/05/2017 02:33	51.9	36.1
06/05/2017 03:33	40.8	35.6
06/05/2017 04:33	47.9	36.2
06/05/2017 05:33	48.3	37.7
06/05/2017 06:33	53.1	40.1
06/05/2017 07:33	53.3	41.5
07/05/2017 08:33	50.7	36.4
07/05/2017 09:33	50.3	39
07/05/2017 10:33	53.1	39.9
07/05/2017 11:33	55.9	40
07/05/2017 12:33	53.8	39.7
07/05/2017 13:33	54.8	38.8
07/05/2017 14:33	53.4	38
07/05/2017 15:33	54.7	37.3
07/05/2017 16:33	56	37.2
07/05/2017 17:33	51.9	38.9
07/05/2017 18:33	55.5	38.6
07/05/2017 19:33	53	37.9
07/05/2017 20:33	54	36.3
07/05/2017 21:33	53.6	38.1
07/05/2017 22:33	48.6	35.3
07/05/2017 23:33	56.1	34.8
08/05/2017 00:33	43.1	34.8
08/05/2017 01:33	46.1	34.9

Measurement Time	**LA_{eq}**	**LA_{90}**
08/05/2017 02:33	38.5	34.9
08/05/2017 03:33	49.5	35.5
08/05/2017 04:33	51.3	39.4
08/05/2017 05:33	49.8	40.7
08/05/2017 06:33	54.8	46.4
08/05/2017 07:33	60.5	47
08/05/2017 08:33	59.5	45.2
08/05/2017 09:33	60.2	47.2
08/05/2017 10:33	58.8	46.9
08/05/2017 11:33	58.2	46.6
08/05/2017 12:18	59.6	45.5

6.1.4 As can be seen from Table 6.1, background noise levels range from as high as 52.0 at mid-day on a weekday to 35.6 during night times. The log average of day time measurement (i.e 07:00-23:00) is 44.3dB (A) whilst the log average of nigh time measurements (i.e. 23:00-07:00) is 37.9dB (A).

6.1.5 BS4142:2014, Paragraph 8.1 confirms that "it is important to ensure that results are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods". Therefore, the log average has been used in the following noise assessments rather than the lowest background level.

7 Noise Impact Assessment

7.1 Introduction

7.1.1 In order to assess the impacts of the proposals, the noise associated with the proposed activities will be compared to the existing background level as per BS4142:2014.

7.1.2 The noise sources associated with the extension are:

- Movement of wastes via the material handler/grab and loading shovel,
- Operation of the Hammel and Bano Aluminium shredders,
- Operation of the large downstream separation line,
- Operation of the small downstream processing plant (fines plant),
- Operation of the refining line (water table),
- Operation of the grit plant (water table).
- Operation of the wash plant,
- Noise associated with the diesel generator.

7.1.3 Noise Sources

7.1.4 Table 7.1 overleaf includes the sound power levels for these activities, which have been provided by either; Peak Acoustics, the manufacturer, measurements taken onsite or figures that have been taken from the relevant literature.

7.1.5 The wash plant is a bespoke item of plant which is not yet operational at the site and therefore it is not possible to provide a noise level for this item of plant. However, based on subjective assessment of similar types of plant and the specifications of the proposed plant, it is considered that the noise levels associated with this would be lower to that of the water table (i.e. similar plant but no vibrating parts – just screws submerged under water). Therefore, a noise level of 65dB at 2.0m has been assumed. This can be confirmed with the EA once the plant is operational.

Table 7.1 – Noise levels Associated with External Operations

Activity	Noise Level (LAeq)	Source
Hammel shredder	81.3 at 4.6m	Peak Acoustics Report ref: KD2502196NR
Bano Aluminium shredder	80.3 at 2.1m	Peak Acoustics Report ref: IB2504172NR
Large down-stream separation line	79.6 at 4.7m	Peak Acoustics Report ref: IB2504172NR
Small down-stream processing line	69.3 at 4m	Onsite measurement provided to Oaktree Environmental
Refining line (water table)	76.5 at 2.0m	Peak Acoustics Report ref: IB2504172NR
Grit plant (Holman water table)	61.3m at 1.0m	Holman Table Noise Assessment
Wash Plant	65dB at 2.0m	See Section 1.1.49
Float/sink tanks	85.5 at 5m 82.5 at 10m (orientation dependent)	Measurements supplied by Manufacturer
Shovel loader	83.6 at 2.0m	Peak Acoustics Report ref: IB2504172NR
Material handler/grab	86.2 at 1.25	Peak Acoustics Report ref: IB2504172NR

7.1.6 As these noise sources will not be constant, a correction may be applied for averaged fraction of the hour these are expected to occupy. These times have been based on discussions with the site management and it is envisaged that the screener will be operated no more than 45 minutes at a time. These corrections are provided in Table 5.2.

7.1.7 Noise sources during evenings/nights are likely to be similar to daytime operations, however the shredding line will only be operated throughout the day.

7.1.8 Noise Impact Assessment

7.1.9 Table 7.2 overleaf includes the preliminary assessment of the typical daily external operations at the proposed development compared to the lowest background noise levels at the nearest residential receptors at Abery Drive/Papyrus Way.

7.1.10 All distances used in the calculations presented in Table 7.2 have been produced based on the location of the activity on the proposed site layout drawing. It should be noted that all distances are assumed to be worst case scenario.

7.1.11 Screening is provided to receptor to the northeast via the intervening commercial/industrial buildings. In order to simplify the value attributed to screening a 10dB figure has been used (as per BS5228).

Table 7.2 – Preliminary Worst-Case Assessment of Day Time Operations

Operation	Calculated noise level at Abery Drive/Papyrus Way (dB A)	Comments
Movement of waste using the material handler/grab	86.2+10log(20/60)= 81.4 81.4-20log(400/1.25)= 31.0	Worst case scenario of 20 minutes assumed although likely to be much less.
Movement of waste using the material loading shovel	83.6+10log(30/60)= 80.6 80.6-20log(400/2.0)= 34.5	Worst case scenario of 30 minutes assumed although likely to be much less.
Operation of the Hammel Shredder	81.3+10log(20/60)= 76.5 76.5-20log(455/4.6)= 36.6	Worst case scenario of 20 minutes assumed based on usual throughput.
Operation of the Bano Aluminium shredder	80.3+10log(20/60)= 75.5 75.5-20log(455/2.1)= 28.8	Worst case scenario of 20 minutes assumed based on usual throughput.
Operation of the large down-stream separation line	79.6+10log(30/60)= 76.6 76.6-20log(464/4.7)= 36.7	Worst case scenario of 20 minutes assumed based on usual throughput.
Operation of the small down-stream processing line	69.3+10log(30/60)= 66 66-20log(460/0.5)= 24.8	Worst case scenario of 20 minutes assumed based on usual throughput.
Operation of the refining line (water table)	76.5+10log(45/60)= 75.3 75.3-20log(495/2)= 27.4	Worst case scenario of 20 minutes assumed based on usual throughput.

Operation	Calculated noise level at Abery Drive/Papyrus Way (dB A)	Comments
Operation of the grit plant (Holman water table)	61.3+10log(45/60)= 60.0 60.0-20log(525/0.5)= 5.6	Worst case scenario of 20 minutes assumed based on usual throughput.
Operation of the wash Plant	65.0+10log(45/60)= 63.8 60.0-20log(525/2)= 15.4	Worst case scenario of 20 minutes assumed based on proposed throughput.
Operation of the float/sink tanks	82.5+10log(45/60)= 79.5 79.5-20log(460/10)= 46.2	Worst case scenario of 30 minutes assumed although likely to be much less.
Calculated sound level from typical site activity	10log ($10^{31.0/10}$ + $10^{34.5/10}$ + $10^{36.6/10}$ + $10^{28.8/10}$ + $10^{36.7/10}$ + $10^{24.8/}$10 + $10^{27.4/10}$ + $10^{5.6/10}$ +$10^{15.4/10}$ + $10^{46.2/10}$) = 47.5B	
Acoustic Correction Feature (BS4142:2014)	+5 as impulsivity and tonal properties are just perceptible	
Rating Level	52.5dB	
Impact of screening	-10 = 42.5	
Excess of Rating Level over average day time background Level	42.5-44.3= -1.8dB (A)	

7.1.12 Therefore, the preliminary assessment shows that the resultant rating level is 1.8dB below the log average of the lowest measured background level at the relevant noise sensitive receptors should each item of plant operate within the same hour. Based on the guidance within BS4142:2014 this is indicative of a low impact.

7.1.13 It should be noted that the rating levels discussed above are well within the within the WHO external noise criteria (50dB) as discussed within section 5.4.3. An assessment with regards to internal noise levels is provided further on within Section 7.2.

7.1.14 However, as previously stated, it should be noted that the assessment comprises a worst-case scenario due to the; “on times” used within the assessment and penalties being applied and therefore the impact has likely been overstated.

7.1.15 Of course, not all items of plant and machinery will be active at the same time. Indeed, as there are only two grabs, one telehandler and one loading shovel onsite a maximum of four items of plant will be operated at any one time (of course this would preclude any sorting/segregating of waste at this time).

7.1.16 In addition, as a method of noise management, the Hammel shredder and the Bano Aluminium shredder are not operating concurrently.

7.1.17 In order to more descriptively analyse the noise levels associated with operation of the site a matrix of site activities has been produced overleaf which represents the noise level over a typical hour which is more in keeping with operation of the site.

7.1.18 The combinations of activities have been produced based on conversations with site management. The same “on-time” has been assumed for each activity, however the tonal penalties will vary based on the combinations of plant.

7.1.19 As previously stated, staffing levels are lower during night times and therefore a lower level of activity is usually expected, this scenario is represented within the table below and is compared to the relevant background level (i.e. log average of 11-7 measurements as per Section 6.0). As no waste deliveries will be received during these times the level of sorting/segregation will generally be much lower and therefore an “on-time” of 10 minutes has been assumed for each of the relevant noise sources rather than those used in Table 7.2.

7.1.20 Due to the noise levels associated with the plant, site management will avoid operating the float/sink tanks during evenings and throughout the night. This will be included within the NMP and reflected overleaf in Table 7.3.

Table 7.3 – Matrix Assessment of External Noise Levels based on Likely Operation of the Site

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5 (night time)	Scenario 6 (night time)
Operation	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**
Movement of waste using the material handler/grab			**31.0**	**31.0**	**28.3**	
Movement of waste using the material loading shovel			**34.5**		**29.8**	
Operation of the Hammel Shredder	**36.6**		**36.6**			**36.6**
Operation of the Bano Aluminium shredder		**28.8**		**28.8**		
Operation of the large down-stream separation line	**36.7**		**36.7**	**36.7**	**36.7**	**36.7**
Operation of the small down-stream processing line	**24.8**	**24.8**				**24.8**
Operation of the refining line (water table)	**27.4**				**27.4**	
Operation of the grit plant (Holman water table)		**5.6**				**5.6**

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5 (night time)	Scenario 6 (night time)
Operation	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**	**Calculated noise level at Abery Drive/Papyrus Way (dB A)**
Operation of the float/sink tanks		**46.2**		**46.2**		
Calculated sound level from typical site activity	**40.0**	**46.1**	**41.2**	**46.8**	**38.4**	**39.8**
Acoustic Correction Feature (BS4142:2014)	**+3**	**+3**	**+5**	**+5**	**+5**	**+3**
Rating Level	**43.0**	**49.1**	**46.2**	**51.8**	**43.4**	**42.8**
Impact of screening	**-10**	**-10**	**-10**	**-10**	**-10**	**-10**
Excess over Over background	**33.0-44.3= 11.4dB (A) below the typical daytime background level**	**39.1-44.3= 5.2dB (A) below the typical daytime background level**	**36.2-44.3= 8.1dB (A) below the typical daytime background level**	**41.8-44.3= 2.5dB (A) below the typical daytime background level**	**33.4-37.9= 4.5dB (A) below the typical night time background level**	**32.8-37.9dB =5.1dB (A) below the typical night time level**

7.1.21 As can be seen from Table 7.3 the noise levels associated with the site will be below the typical daytime background level at all times. Scenario 4 comprises a worst-case scenario noise level based on the likely operation of the site and noise management controls. Based on this combination of plant the noise levels remain comfortably below the background level and therefore a low impact is assumed.

7.1.22 This is also the case for evenings and night times (scenarios 5 and 6). However, it should be noted that BS8233 may provide a more appropriate basis for assessing the noise impacts during night time (11-7) as internal sound levels are more relevant than those assessed under BS4142:2014.

7.2 BS:8233 2014 Assessment

7.2.1 In addition to the BS4142:2014 assessment, a BS8233:2014 may be undertaken in order to predict internal noise levels at NSRs as a result of activities on site.

7.2.2 The guidance in BS 8233:2014 suggests that internal noise limits are no greater than 30 dB *L*Aeq,8hr for bedrooms during night-time (23:00 – 07:00hrs) and no greater than 35 dB *L*Aeq,16hr (bedrooms and living rooms) and 40 dB *L*Aeq,16hr (dining rooms) during the daytime, as discussed previously within Section 3.2.

7.2.3 The WHO Guidelines for Community Noise suggest that a window left open for ventilation provides 15dB attenuation from external noise sources and therefore it is possible to calculate the worst-case scenario internal noise level at these properties as a result of the onsite activities.

7.2.4 Table 7.4 overleaf provides an assessment of both daytime and night time internal noise levels.

Table 7.4 – Assessment of predicted internal noise levels for Residential Apartments

Operation	Predicted façade level	Predicted internal noise level	Guideline limit (daytime bedroom/ living room value)
Scenario 1	33	33 -15 = 18	35
Scenario 2	39.1	39.1 -15 = 24.1	35
Scenario 3	36.2	36.2 -15 = 21.2	35
Scenario 4	41.8	41.8 -15 = 26.8	35
Scenario 5	33.4	33.4 -15 = 18.4	30
Scenario 6	32.8	32.8 -15 = 17.8	30

7.2.5 The assessment of the operations with regards to the guidance noise levels in BS 8233:2014 shows that noise associated with the site is predicted to fall below the guidance noise limits for internal spaces within residential dwellings for both daytime and night times. In terms of BS 8233:2014, the noise from the proposed site is not expected to cause unacceptable levels of disturbance.

7.2.6 It should also be noted that tonal/impulsive penalties have not been applied in this assessment. However, should the same tonal/impulsive penalties be applied as per the previous tables, the internal noise levels would still meet the relevant criteria.

8 Noise Management and Controls

8.1 Noise Sensitive Receptors

8.1.1 As discussed previously, the site lies within a heavily industrialised setting with the nearest noise sensitive residential receptors located 350m west of the site.

8.1.2 The proposed operation and layout of the site has been planned in order to contain all the required operations and activities within the site, thus limiting the impacts from noise on the above receptors.

8.1.3 In terms of potential noise impact, whilst the development proposed will be operated using the Best Practicable Means at all times, this site-specific NVMP has been prepared in order to ensure the noise levels at the site can be managed appropriately and reduce any impact on the surrounding receptors.

8.2 Noise Sources

8.2.1 It is considered the most significant noise activities with regards to noise levels would comprise:

- Movement of wastes via the material handler/grab and loading shovel,
- Operation of the Hammel and Bano Aluminium shredders,
- Operation of the large downstream separation line,
- Operation of the small downstream processing plant (fines plant),
- Operation of the refining line (water table),
- Operation of the grit plant (water table).
- Operation of the wash plant.

8.2.2 A thorough noise assessment has been undertaken with regards to BS4142:2014, BS8233:2014 and the WHO external noise guidelines.

8.2.3 The noise assessment is based on the likely operation of the site and the relevant control measures and concludes that the noise levels associated with the operation of the site are considered to be low.

8.2.4 Notwithstanding the above, in order to further limit the potential for noise related impacts associated with the site, additional control measures associated with regards to these sources are included within the noise management table in Section 10.4 along with those discussed previously**.**

8.3 Overview of existing noise climate

8.3.1 The site is located in heavily industrialised area. As can be seen from Table 6.1, background noise levels at the nearest residential receptor range from as high as 52.0 at mid-day on a weekday to 35.6 during night times. The log average of day time measurement (i.e 07:00-23:00) is 44.3dB (A) whilst the log average of night time measurements (i.e. 23:00-07:00) is 37.9dB (A).

8.3.2 A site-specific NVMP table overleaf details the above noise sources and how the current and proposed infrastructure on site will reduce the impact of noise to surrounding properties.

8.3.3 In addition to the existing controls in this NVMP, the complaints procedure further discussed in Section 10 will be used in the event that any noise complaints are received. If a noise complaint is received and the applicant has been made aware, immediate action will take place reviewing and identifying whether any changes to existing procedures are required or if new procedures need to be put in place. Any changes which may be required will be implemented immediately.

Source(s)	Receptor(s)	Consequences	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Delivery vehicles travelling to and from the site for delivery/collection of products	As detailed in Section 3.1	Noise pollution	Medium	Traffic movements from vehicles will adhere to the hours specified in Section 1.4, site management will also aim to ensure that vehicle movements are spread out evenly throughout the day. All drivers are required to enter and exit the site with due consideration for neighbours. The existing access road to the site will be maintained in good state of repair to prevent unnecessary noise being generated. Implementation of a 5mph speed limit onsite. Engines to be switched off when not in use.	Low
Vehicles unloading waste deliveries into the waste reception areas/bays	As detailed in Section 3.1	Noise pollution	Low	The waste tipping areas are located within bays and surrounded by concrete perimeter walls which will offer some acoustic screening. Drivers must lower the tipper body before driving away from the tipping area. Drop heights will be kept to a minimum to reduce noise levels. Management will contact contractors to ensure that all vehicles involved in the tipping of waste operated are functioning and suitable i.e. vehicles must be well maintained and operated with silencers and moving parts to be regularly lubricated.	Very Low / Negligible
Loading of waste into relevant plant using waste handler (i.e. telehandler/ 360º excavator/ loading shovel)	As detailed in Section 3.1	Noise pollution	Medium	Drop heights will be kept to a minimum in order to reduce the produced levels of noise / vibration Management will ensure that all loading plant operated by London Mining Associates Ltd is functioning suitably i.e. moving parts to be regularly lubricated. The main plant treatment area is located at the furthest point from the closest residential receptors and is also screened by acoustic walls. Operatives will be informed to turn off engines when the plant is not in use and no revving of engines will be permitted at the site. Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative loading plant sourced.	Low

Source(s)	Receptor(s)	Consequences	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Operation of the Hammel Shredder	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum. The shredder will not be operated in conjunction with the Bano Aluminum shredder.	Low
Operation of the Bano Aluminum shredder	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum. The shredder will not be operated in conjunction with the Hammel shredder.	Low
Operation of the large down-stream separation line	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum. The plant is located within the northeastern corner and may be considered to be the most screened by the adjacent concrete walls and intervening buildings.	Low
Operation of the small down-stream processing line	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum. The plant is located in the south of the site and therefore at an increased distance from the residential receptors.	Low

Source(s)	Receptor(s)	Consequences	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Operation of the refining line (water table)	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum.	Low
Operation of the grit plant (Holman water table)	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum.	Low
Operation of the wash Plant	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum.	Low
Operation of the float/sink tanks	As detailed on Sensitive Receptors Plan	Noise pollution	Medium	Any malfunctions in plant i.e. missing screws/bolts which result in excessive noise will be de-commissioned until an alternative part of the plant is sourced or repaired. Drop heights into the loading conveyor will be reduced to a minimum. The shredder is only to be operating during 07:00-19:00 and will not be operated in conjunction with the Hammel shredder. The plant is completely bound by concrete bays to the north and south as well as being partially screened by the bays to the west. This will aid in the enclosure of noise levels associated with this plant.	Low

Source(s)	Receptor(s)	Consequences	Probability of noise disturbance	Remedial Action/ Recommendations/ Comments	Assessment Outcome following actions / recommendations
Loading waste into HGVs/skip wagons	As detailed in Section 3.1	Noise pollution	Medium	Drop / loading heights will be kept to a minimum to prevent excessive noise. The loading areas are surrounded by concrete perimeter walls which will offer acoustic screening. Plant operatives will be instructed / trained to not scrape or bang the loading shovel bucket on the floor creating noise/vibration prior to deposit.	Low
Manoeuvring of plant around external areas of the site	As detailed in Section 3.1	Noise pollution	Medium	Management will ensure that all site vehicles operated by London Mining Associates Ltd are functioning suitably i.e. vehicles must be well maintained and operated with silencers and moving parts to be regularly lubricated. The site will be surfaced with concrete and will be flat and maintained in good state of repair to prevent unnecessary banging of vehicles on uneven ground. A maximum speed limit of 5mph will be maintained. Drivers will be informed to turn off engines when the vehicle is not in use and no revving of engines will be permitted at the site. All vehicles will benefit from white noise reverse alarms.	Low
Small vehicles travelling to and from the site (e.g. staff and visitor's cars, courier van deliveries etc.)	As detailed on Sensitive Receptors Plan	Noise pollution	Low	All those working on and visiting the site to be made aware of need for considerate driving and keeping vehicles well maintained. Small vehicles will arrive marginally earlier than the main site operating hours.	Very Low / Negligible
Repairs	As detailed on Sensitive Receptors Plan	Noise pollution	Low	If repairs to the site are required, the work is to be undertaken with due regard for the possible noise nuisance and during daylight hours. In the event of major repair work being undertaken which is likely to cause significant noise and disruption, neighbouring residents and the EA will be notified in advance.	Very Low / Negligible

8.4 Monitoring and recording

8.4.1 **Assessment** - Site management i.e. The site manager, compliance manager or TCM will subjectively monitor noise levels in and around the entire site perimeter throughout the day. Should it be deemed necessary by site management, monitoring using an appropriate Type 1 Sound Level Meter will be carried at intervals out while the site is operational should it be observed that unacceptable levels of noise are being emitted from the site.

8.4.2 The results of monitoring exercises and any remedial action taken will be entered into the site's diary or log book which is available for the EA to inspect upon request. The name of the inspector will be stated in the site's diary / inspection form for each day of operation.

8.4.3 Should the monitoring conclude that a certain activity is giving rise to noise which is causing unacceptable impacts, steps will be made to reduce the impact of this activity and will be agreed with the EA prior to commencement.

8.4.4 Site management will be suitably trained to carry out these duties and delegate to operational staff. Further information regarding training and technical competence is provided within the site's EMS.

8.5 Monitoring

8.5.1 Operational staff will continuously monitor noise emissions whilst plant is in operation and will control noise levels using the procedures listed above, asking site management for advice as required. Work procedures will be stopped/adjusted should it be evident significant noise is being generated which has the potential to cause annoyance.

8.5.2 Site management will also be required to make a note of any unavoidable events such as plant failure, in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the EA or directly, any circumstances which led to that complaint as a result of elements outside of the

operator's control would be able to be attributed (or, at least, in part) to the cause of the complaint.

8.6 Emergencies

8.6.1 In the event of any unforeseen circumstances i.e. faulty equipment, the site manager will make an assessment of whether to cease activities/all operations with the main emphasis on site will be to reduce any noise impacts.

8.7 Additional Mitigation

8.7.1 As previously discussed, site management will ensure the float/sink tanks will not be operated throughout the evening in order to avoid undue levels of disturbance.

8.7.2 However, it is considered that should enclosures/housing be erected which ensure that the equipment does not exceed the night time background noise level at the nearest noise sensitive properties (37.9dB A) it would be possible to operate the plant throughout the evening without having a negative impact on the nearest dwellings.

9 Actions when complaints are received

9.1 Complaints procedure

9.1.1 If any noise complaints are received, the relevant operator will complete a 'complaints and events log' and detailed individually on the complaints form (in Appendix II), both of which will be kept for inspection on request by the LA, EA or third parties. Details of information to be completed are dates, nature of complaint, weather conditions at the time of the complaint, investigation details, action taken and a signature (as a minimum).

9.1.2 The operator would also be required to make a note of any unavoidable events plant/equipment malfunctions in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the Council/EA or third parties, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed to the cause of the complaint.

9.1.3 It must be noted that the site lies adjacent to several industrial uses, so in the event of a complaint, the operator will substantiate the complaint by carrying out noise monitoring to identify whether the complaint is valid. If the complaint is valid, the site will implement the complaint procedures check and if required, amend site operations.

9.1.4 If the source cannot be ascertained with 100% confidence, site management will either suspend or reduce the likely noise generating activities.

9.1.5 If the source is within the site's control, site management will take appropriate action to ensure the issue has been rectified. This may take the form of the following:

i) Investigating the source to prevent a re-occurrence.
ii) Suspending operations which are not being conducted using best-practice controls.
iii) Investigate noise mitigation measures

iv) Logging findings of a – c in the site diary / complaints form and also in the reporting template within the EP.

9.2 Complaints recording

9.2.1 Any complaints received in relation to noise and vibration will be recorded on the form shown in Appendix II. This form will normally be completed, signed and dated by the site manager, compliance manager or TCM, if they are not available, the office manager

9.3 Key responsibilities

9.3.1 The table below outlines the key responsibilities and the staff member responsible for each task.

Table 9.1 – Key Responsibilities

Task	Staff position responsible
Noise monitoring and ongoing assessment	Site manager + operative
Vehicle maintenance	Specialist contractor
Overseeing of deliveries	Site manager + operative

10 Training

10.1 Training regime

10.1.1 All employees and sub-contractors of London Mining Associates Ltd involved with potentially noisy operations will receive training in noise and vibration monitoring and complaint reporting.

10.1.2 Training will be given to all relevant persons to make sure they are competent in completing noise and vibration survey forms, noise and vibration complaint report forms and the site diary to ensure sufficient monitoring of noise and vibration can be carried out and any problems addressed correctly.

10.1.3 When selecting new plant and equipment, consideration shall be given to the need to meet all legislation and statutory guidance on noise levels and to minimise levels of noise from selected equipment.

10.2 Vehicle / plant preventative maintenance training

10.2.1 This training is provided specifically for the vehicle and plant operators in order to ensure that all plant and machinery is checked regularly to prevent any occurrences which may lead to any adverse impacts on the environment or human health.

10.2.2 Training will be based on the preventative maintenance schedule supplied by the plant/equipment manufacturer.

10.2.3 The same training will be provided to senior management enabling a dual-level maintenance programme.

10.3 Liaison with neighbours

10.3.1 In the extreme event of a significant, but temporary, increase in noise and vibration from the site, neighbours will be contacted to advise them of the occurrence and action being taken to remediate the issue on site.

10.3.2 An open-door policy will be encouraged by the operator to enable any complaints from neighbouring premises (if received) to be dealt with immediately. The complainant will then be supplied with remedial actions taken and any procedures or measures put in place by the operator to reduce or ideally eradicate the likelihood of a subsequent complaint.

11 Conclusion

11.1 Summary & Recommendations

11.1.1 Oaktree Environmental Ltd has undertaken a NVMP including a full noise impact assessment in line with BS4142: 2014, BS8233:2014 and relevant WHO guidance for the proposed activities to take place at the site which is located at Aylesford Recycling Facility, New Hythe Lane, Aylesford, Kent ME20 7PA.

11.1.2 A noise measurement survey has been provided by Peak Acoustics Ltd for representative periods and a comparison has been made with the noise levels associated with the proposed activity.

11.1.3 The assessment with regards to the onsite activities reveals a likely low impact based on comparison of the noise levels associated with the plant to the existing background level and with regards to internal noise levels at the residential dwellings.

11.1.4 This NVMP also produced by Oaktree Environmental Ltd will contain the relevant control measures required in order to further minimise the noise levels associated with the operation of the site as well as providing a methodology for responding to and investigating noise complaints.

Appendix I

Drawings

Legend

Site Location

Received - 9 September 2011
Planning Applications Group

Rev:	Date:	Amendment:	Name:	Checked:

Data Source: RPS 2011, OS

Status: Final

RPS
Conrad House Beaufort Square Chepstow Monmouthshire NP16 5EP
T 01291 621821 F 01291 627827 E rpssw@rpsgroup.com W www.rpsgroup.com

Client: AMC

Project: Metal Recycling Facility

Title: Location Plan

Scale: A3 @ 1:50,000
0 1,000 2,000 Meters
N

Date: 22/08/11 Datum: OSGB36 Projection: BNG

Drawn: GG Checked: SH Job Ref: JER5195

Figure No: **JER5195-001** Revision: -

Project Ref: J:\Drawings\JER5195

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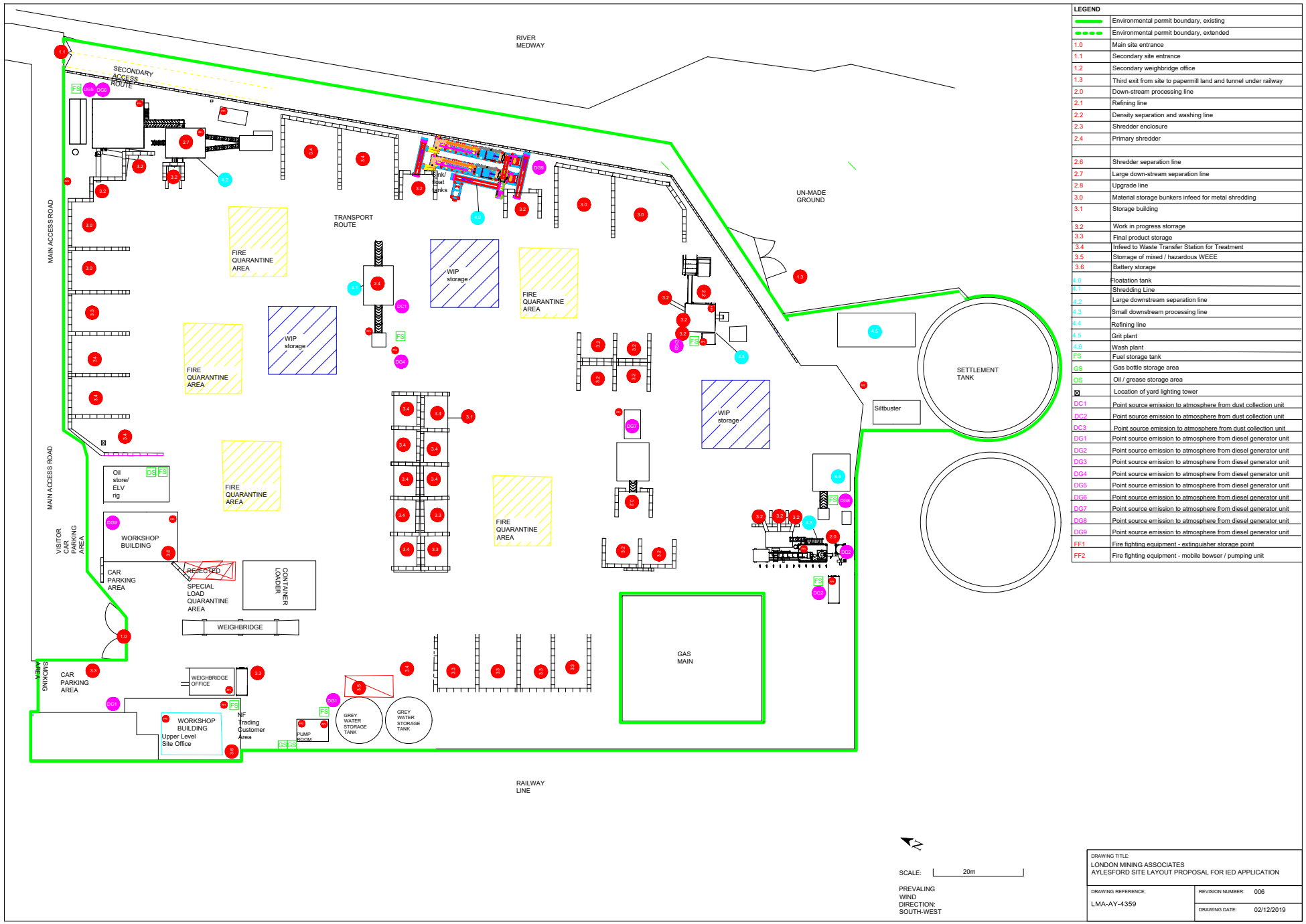

LEGEND	
	Environmental permit boundary, existing
	Environmental permit boundary, extended
1.0	Main site entrance
1.1	Secondary site entrance
1.2	Secondary weighbridge office
1.3	Third exit from site to papermill land and tunnel under railway
2.0	Down-stream processing line
2.1	Refining line
2.2	Density separation and washing line
2.3	Shredder enclosure
2.4	Primary shredder
2.6	Shredder separation line
2.7	Large down-stream separation line
2.8	Upgrade line
3.0	Material storage bunkers infeed for metal shredding
3.1	Storage building
3.2	Work in progress storage
3.3	Final product storage
3.4	Infeed to Waste Transfer Station for Treatment
3.5	Storrage of mixed / hazardous WEEE
3.6	Battery storage
4.0	Floatation tank
4.1	Shredding Line
4.2	Large downstream separation line
4.3	Small downstream processing line
4.4	Refining line
4.5	Grit plant
4.6	Wash plant
FS	Fuel storage tank
GS	Gas bottle storage area
OS	Oil / grease storage area
⊠	Location of yard lighting tower
DC1	Point source emission to atmosphere from dust collection unit
DC2	Point source emission to atmosphere from dust collection unit
DC3	Point source emission to atmosphere from dust collection unit
DG1	Point source emission to atmosphere from diesel generator unit
DG2	Point source emission to atmosphere from diesel generator unit
DG3	Point source emission to atmosphere from diesel generator unit
DG4	Point source emission to atmosphere from diesel generator unit
DG5	Point source emission to atmosphere from diesel generator unit
DG6	Point source emission to atmosphere from diesel generator unit
DG7	Point source emission to atmosphere from diesel generator unit
DG8	Point source emission to atmosphere from diesel generator unit
DG9	Point source emission to atmosphere from diesel generator unit
FF1	Fire fighting equipment - extinguisher storage point
FF2	Fire fighting equipment - mobile bowser / pumping unit

SCALE: 20m

PREVALING WIND DIRECTION: SOUTH-WEST

DRAWING TITLE:
LONDON MINING ASSOCIATES
AYLESFORD SITE LAYOUT PROPOSAL FOR IED APPLICATION

DRAWING REFERENCE: LMA-AY-4359

REVISION NUMBER: 006

DRAWING DATE: 02/12/2019

Appendix II

Relevant Noise Assessments and Measurements

Rev. 0 08/06/2017

Noise Impact Assessment

Project Reference Number: PA269

Report Reference Number: IB2504172NR

Client: Lawrence Gruijters

Site: London Mining Associates, New Hythe Lane, Aylesford, Kent, ME20 7PA

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Project Information

Peak Acoustics have been commissioned to undertake the assessment detailed within this report. Below is a summary of pre-commencement requirements and comments as communicated to Peak Acoustics by involved parties, this information forms the basis of the assessment and report.

Client Contact	Lawrence Gruijters on 25/04/2017.
Client Requirement	A noise assessment has been requested to determine the noise impact of existing and proposed noise sources on the nearest sensitive receptors (NSRs) and to specify mitigation, if required and viable.
Site details as communicated by client.	A metal recycling site (Aylesford Metals Company) has been developed at New Hythe Lane, Aylesford, Kent, ME20 7PA.
Selected Methodology	To assess the noise impact of a the recycling processes on the nearest sensitive receptor, Peak Acoustics will undertake measurement and assessment using BS4142:2014.
Methodology Justification	'BS4142:2014 – Methods for rating and assessing industrial and commercial sound' is a recognised standard for assessing the noise impact of fixed plant machinery via relation of noise emissions to current background noise levels.
Local Authority Contact	N/A
Local Authority Consultation	N/A
Local Authority Guidance/Unitary Development Plans/Unique or bespoke standards	N/A

Assessment Summary

A noise assessment has been undertaken at London Mining Associates, New Hythe Lane, Aylesford, Kent, ME20 7PA. This is to assess the impact of a metal recycling site (Aylesford Metals Company) on the nearest Noise Sensitive Receptors (NSRs).

Two NSRs have been identified, residential dwellings located at the intersection of Abery Drive / Papyrus Way (NSR_1) and Corporation Cottages (NSR_2).

Due to changes in the surrounding noise climate, a 3-day confirmation background measurement has been undertaken to obtain the noise levels at a representative location to NSR_1 and to compare it to background measurements as documented within a previous report for the site by RPS. Background measurements were found to be lower than previously recorded with the lowest noise level measured during operating times as **45.2dB $L_{A90,\ 1hr}$**. Previous measurements by RPS at NSR_2 give a background noise level of **54.8dB $L_{A90,5mins}$**.

The specific sound level has been calculated at the NSRs using SoundPLAN™ with the resulting sound rating levels and noise impact ratings given in the table below. Mitigation has been recommended in the form of enclosing the loudest noise source (Hammel Shredder) and an operation/noise management plan to ensure that the Hammel Shredder and Mobile Trommel do not operate concurrently in order to maintain a **Low Impact** rating in line with guidance from BS4142:2014.

Table 1: Results of Worst Case Sound Rating Levels and BS4142:2014 Outcomes

Receptor	Background, dB $L_{A90,T}$	Duration, T	Sound Rating Level, dB L_{Ar}	Difference, dB	BS4142:2014 Rating
Current					
NSR_1 (2nd Floor)	45.2	1 hour	51.4	6.2	Adverse Impact
NSR_2 (1st Floor)	54.8	5 minutes	53.0	-1.8	Low Impact
With Mitigation					
NSR_1 (2nd Floor)	45.2	1 hour	48.6	3.4	Marginally Low Impact
NSR_2 (1st Floor)	54.8	5 minutes	49.6	-5.2	Low Impact

1. Subjective Impressions

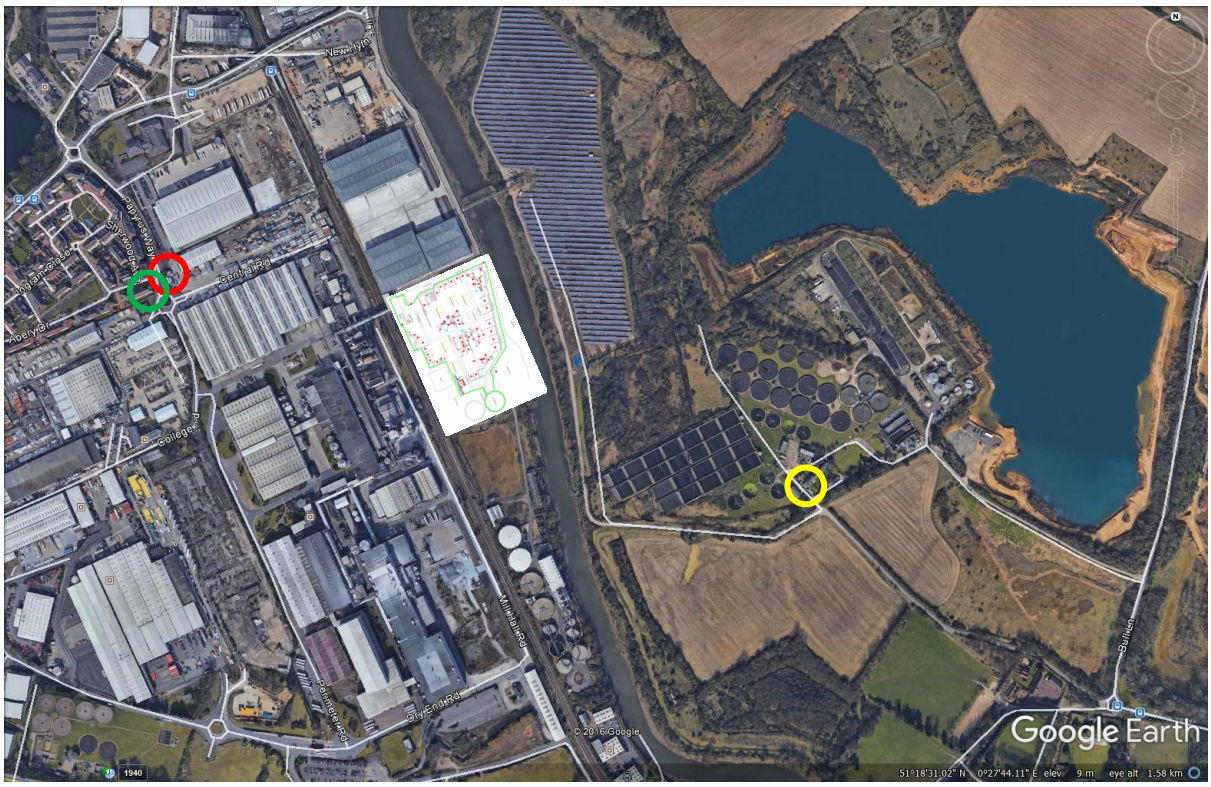
1.1 Background noise levels were measured at a representative location to the residential dwellings located at the intersection of Abery Drive and Papyrus Way (NSR_1). The primary noise sources at NSR_1 were identified as commercial road traffic using Papyrus Way due access to the commercial premises.

1.2 Primary noise sources on site were noted as industrial noise from machines on site with additional industrial noise from nearby commercial premises. There were a variety of sources located on site which all emitted continuous noise and the equipment operated intermittently. While on site most equipment was in use at the time (apart from the Mobile Trommel) and it was noted that two sources in particular (the Hammel Shredder and Titech ECS) were significant contributors to the overall noise climate.

2. Area Location

2.1 The measurement and NSR locations are shown below.

2.2 Site plan and noise model input are shown in **Appendix H**.



Site location

Background measurement location

NSR_1 location (approximately 350m from the site boundary)

NSR_2 location (approximately 500m from the site boundary)

3. Measurement Equipment

3.1 Measurement equipment used complies with accuracy requirements for common environmental noise measurement standards. A detailed equipment list is given in **Appendix B** with calibration information in **Appendix D**.

4. Weather Conditions

4.1 Weather conditions were deemed acceptable for environmental noise measurement; detailed weather conditions are given in **Appendix C**.

5. Measurement Procedure

5.1 Due to the nearby papermill ceasing operations and the potential decrease in residual noise levels resulting from this, background noise measurements were conducted along Papyrus Way at a representative location to NSR_1 over a 3 day weekend period from 5th – 8th May 2017. Full measurement times and durations can be found in **Appendix A** and measurements are shown graphically in **Appendix E**.

5.2 Background noise measurements were obtained in 5-minute time intervals at a distance of at least 1m from any reflective surface.

5.3 Various noise sources were measured on site at Aylesford Metals Company and measurement distances from each source were taken on site using a laser distance measure. Sources were measured independently of each other.

6. Background Measurement Results

6.1 Operating times of the development are currently 07:30 to 18:30 with equipment operating between 07:30 to 17:30 Monday – Friday. Additionally, the office is open 08:00-12:00 Saturday.

6.2 Background noise levels were measured at their lowest as **45.2dB $L_{A90,1hr}$** during the equipment operating times, 07:30 – 08:30 on Monday 08/05/17.

6.3 Background noise levels have previously been measured by RPS (as taken from RPS Noise and Vibration Assessment dated 23/12/2011) from 23/02/2011 – 03/03/2011 and were measured between 07:00 – 08:00 as 49.2dB $L_{A90,1hr}$, 49.2dB $L_{A90,1hr}$, 50.12dB $L_{A90,1hr}$ and 48.12dB $L_{A90,1hr}$ Monday – Thursday.

6.4 Comparing the background measurements shows that there has been a decrease in the background noise level by around 4/5dB.

6.5 A 2-hour attended noise measurement was undertaken by RPS on Friday 09/12/17 between 13:20 – 15:20 with the lowest measured background level of 54.8dB $L_{A90,5mins}$.

7. Noise Source Measurement Results

7.1 Noise sources within Aylesford Metals Company were measured as follows:

Table 2: Measured Noise Sources (Aylesford Metals Company)

Source	Measured Noise Level dB L_{Aeq}	Duration (mm:ss)	Measurement Distance (m)
Titech ECS	79.0	04:34	9.6
Titech ECS (Large Downstream Separation Line)	79.6	01:28	4.7
Hammel Shredder	89.9	03:00	5.5
Mobile Trommel	91.0	01:35	2.3
Bano Aluminium Shredder	80.3	01:41	2.1
Water Table	76.5	01:34	2.0
Shovel Loader	83.6	00:04	2.0
Material Handler / Grab	86.2	00:14	1.25

7.2 In addition to the noise sources measured on site, noise data was used for fork lift truck and telescopic handler activity (data taken from SoundPLAN libraries). Two noise sources (density separation line and upgrade line) are yet to be installed and noise levels for these has been assumed to be equivalent to the measured noise level of the Water Table and Titech ECS (Large Downstream Separation Line) respectively based on information provided by the client. Full details of all noise source sound power levels, heights and operating times can be found in **Appendix F**.

8. Noise Modelling

8.1 The noise sources outlined in section 7 have been inputted into industry standard software SoundPLAN. SoundPLAN considers all standard acoustic corrections such as distance, atmospheric absorption, barriers, reflection etc. in accordance with 'ISO9613-2: Attenuation of sound during propagation outdoors'.

8.2 The following assumptions have been made for the purposes of noise modelling:

- The noise level of the proposed density separation and upgrade lines have been assumed to be equal to current machinery on site as the processes are similar.
- The height of the warehouse located directly to the north of the site was measured on site using a laser measure. The heights of all other buildings modelled has been determined based on comparison with this warehouse.
- The height of noise sources has been assumed based on site observations during the site visit.

9. Specific Sound Level

9.1 The specific sound level at the NSRs has been calculated as follows:

Table 3: Specific Sound Levels

Receptor	Floor	Noise Level, dB L_{Aeq}
NSR_1 (Abery Drive)	GF	45.7
	FF	46.9
	SF	48.3
NSR_2 (Corporation Cottages)	GF	46.6
	FF	50.0

10. Sound Rating Level

10.1 The equivalent continuous noise level has been measured as 59.6dB L_{Aeq} at NSR_1 between 07:30 – 08:30. While the primary noise sources located at NSR_1 (commercial vehicle access) may not have the same sound characteristics as the noise sources located within Aylesford Metals Company, this will provide a degree of acoustic masking. The notable sound characteristic at NSR_1 was impulsivity with HGV braking, reversing and engine ignition.

10.2 Noise sources on site predominantly emitted continuous noise with many sources having identifiable on/off conditions. It was noted on site that subjectively no noise source emitted a perceptible tone.

10.3 The specific sound level is to be corrected for intermittency as equipment is not used continuously.

10.4 A +3dB intermittency penalty is applied to the specific sound level.

10.5 The sound rating levels at the corresponding NSR locations are tabulated below.

Table 4: Sound Rating Levels

Receptor	Floor	Noise Level, dB L_{Ar}
NSR_1 (Abery Drive)	GF	48.7
	FF	49.9
	SF	51.3
NSR_2 (Corporation Cottages)	GF	49.6
	FF	53.0

11. BS4142:2014 Assessment Outcome

11.1 Comparing the worst case (SF) sound rating level with the lowest measured background noise level at NSR_1 of 45.2dB $L_{A90,1hr}$ would be **6.1dB** above the background level and be classed as **Adverse Impact** in accordance with BS4142:2014.

11.2 Comparing the worst case (FF) sound rating level with the lowest measured background noise level at NSR2 of 54.8dB $L_{A90,5mins}$ would be **1.8dB** below the background level and be classed as **Low Impact** under BS4142:2014.

12. Mitigation

12.1 It has been determined that the most effective way of reducing the noise impact and hence reducing the noise emissions from the site would be to reduce the noise of the loudest measured noise source, the Hammel Shredder. The second loudest source was the Mobile Trommel.

12.2 It is recommended to keep the Hammel Shredder within an enclosure which provides a minimum 12dB insertion loss and to ensure that the Hammel Shredder and Mobile Trommel are not operated concurrently. This reduces the sound rating level to the following:

Table 5: Specific Sound Levels & Sound Rating levels with Mitigation

Receptor	Floor	Noise Level, dB L_{Aeq}	Noise Level, dB L_{Ar}
Scenario 1 – Hammel Shredder enclosed with Mobile Trommel not operating			
NSR_1 (Abery Drive)	GF	41.3	44.3
	FF	42.9	45.9
	SF	44.9	47.9
NSR_2 (Corporation Cottages)	GF	42.2	45.2
	FF	45.1	48.1
Scenario 2 – Mobile Trommel with enclosed Hammel Shredder not operating			
NSR_1 (Abery Drive)	GF	42.4	45.4
	FF	43.8	46.8
	SF	45.6	48.6
NSR_2 (Corporation Cottages)	GF	43.4	46.4
	FF	46.6	49.6

12.3 With the above mitigation, the specific sound level would be reduced to roughly equal to or below the background level at both NSRs, the sound rating level would be marginally above the background at the first and second floors of NSR_1.

12.4 It is noted that within the noise model (without mitigation) used it is assumed that all equipment is operating concurrently throughout the working day. This represents a worst-case scenario when in practice the noise levels emitted from the site will likely be lower for regular periods throughout a day, however it is also noted that the worst-case is more likely to occur for one hour during the day.

12.5 Background measurements taken during operating hours, Monday – Friday, range from 45.2dB L_{A90} – 52.2dB L_{A90} (see **Appendix E**). It was measured as above 48.6dB L_{Ar} (the highest sound rating level with mitigation, NSR_1 SF) for four of the ten hours.

12.6 The equivalent noise level at NSR_1 is significantly higher than the background due to the operation of the adjacent commercial premises, this provides a degree of acoustic masking.

12.7 Based on the above it is therefore determined that, with the mitigation measures in place, the noise impact of the site would be *Low Impact*.

13. Uncertainty

13.1 The monitoring equipment is subject to a 1dB error margin, however calibration before and after measurements allows the drift within the margin to be monitored and thus demonstrates that minimal drift occurred throughout the measurement.

Appendices

APPENDIX A - Measurement Details					
Measurement	Kit	Start Date	Start Time	End Date	End Time
M1	A2	05/05/2017	11:39	08/05/2017	12:19

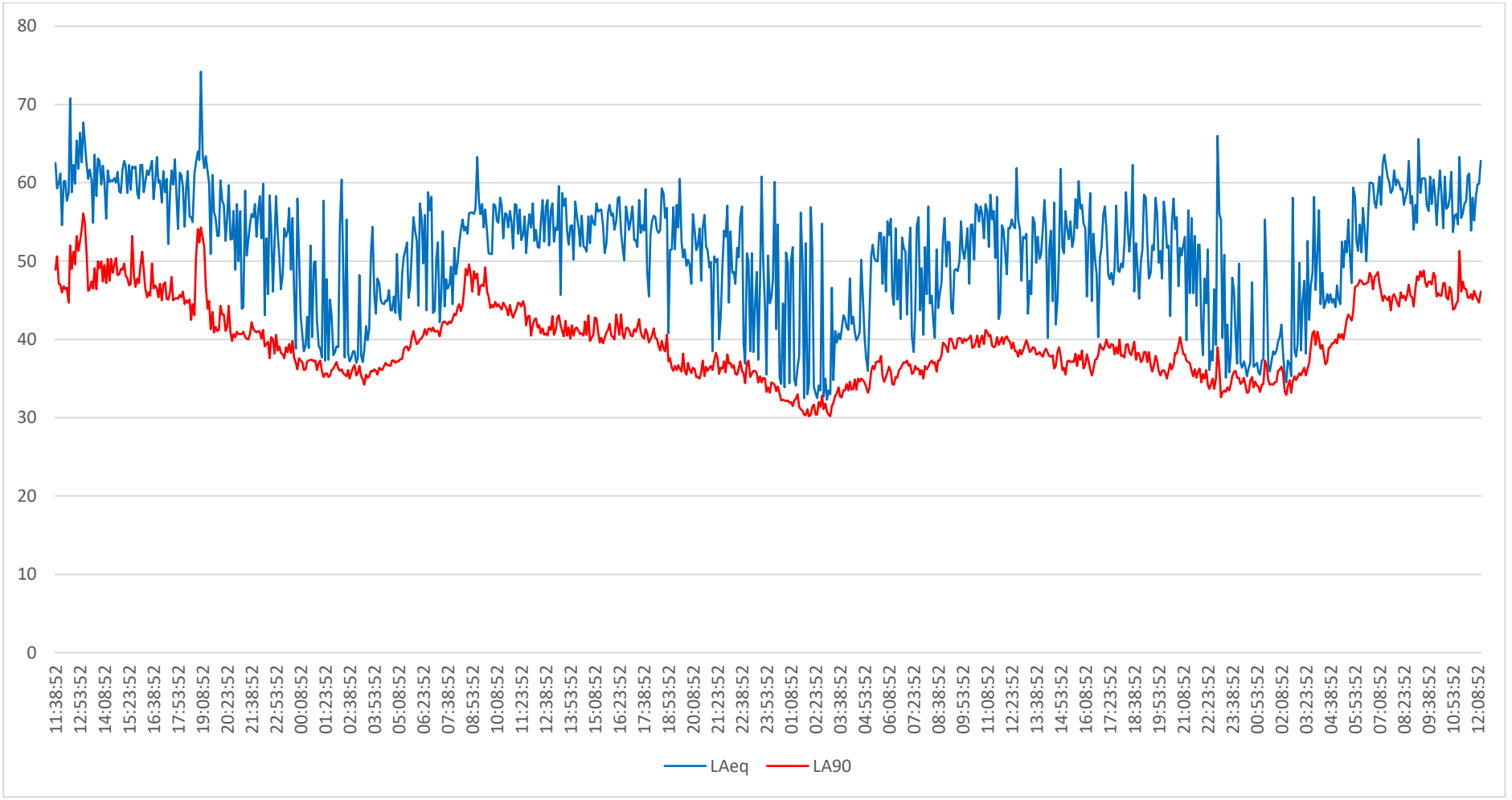
APPENDIX B - Equipment Details					
Kit	Equipment	Make	Model	Class	Serial Number
A2	Sound Meter	Svantek	971	1	40305
A2	Pre-Amp	Svantek	SV12L	1	32484
A2	Calibrator	Svantek	SV31	1	43806

APPENDIX C - Meteorology Details							
Measurement	Date	Temp C	Wind Speed m/s	Wind Direction	Humidity %	Precipitation mm	Cloud Cover (Oktas)
M1	05/05/2017	11	6.1	NE	75	0.0	6/8
M1	06/05/2017	12	5.0	N	75	0.0	5/8
M1	07/05/2017	12	3.3	N	72	0.0	4/8
M1	08/05/2017	9	5.0	N	77	0.0	8/8

APPENDIX D - Calibration Details					
Measurement	Calibrator Ref Level (dB)	Level Before (dB)	Deviation Before (dB)	Level After (dB)	Deviation After (dB)
M1	113.0	112.23	0.77	112.18	0.82

APPENDIX E – Background Noise Measurement Details

Measured Background Noise Levels, Graph: 5th – 8th May 2017



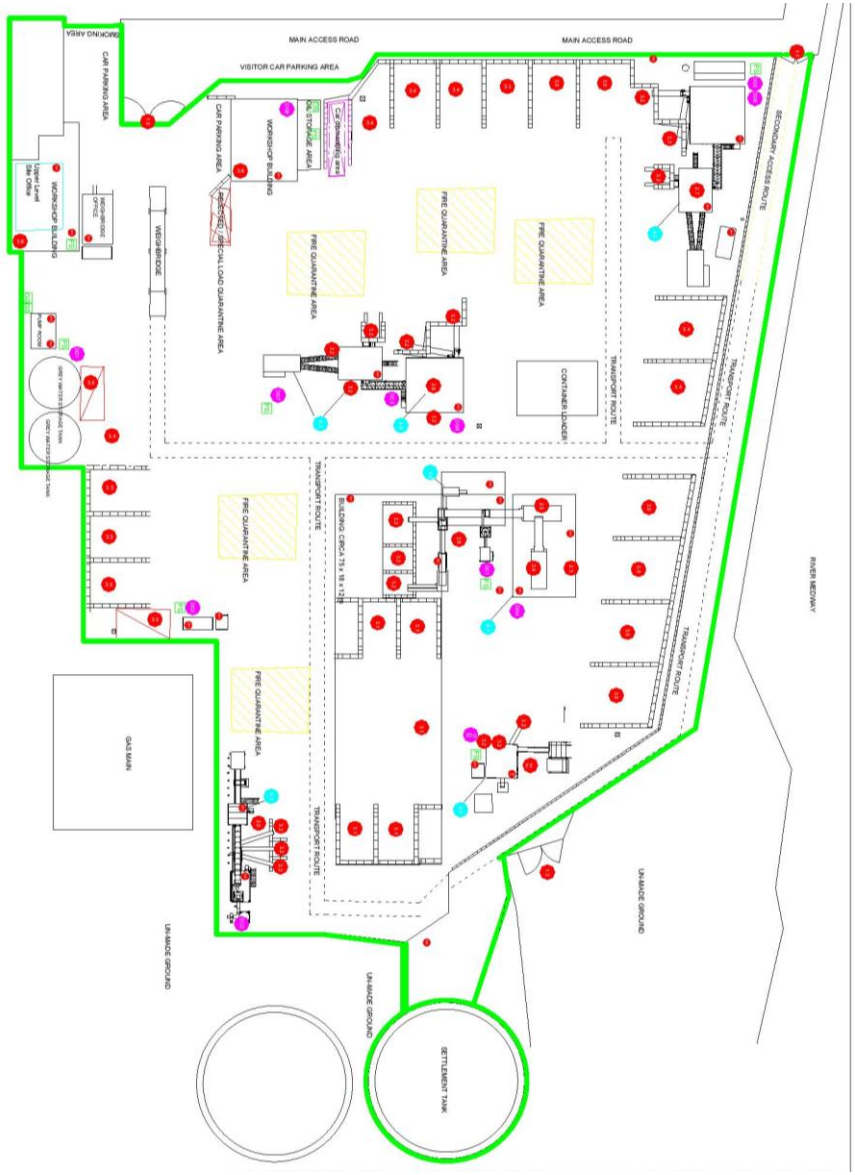
Measured Background Noise Levels, Graph: 5th and 8th May 2017 (During Operating Hours)

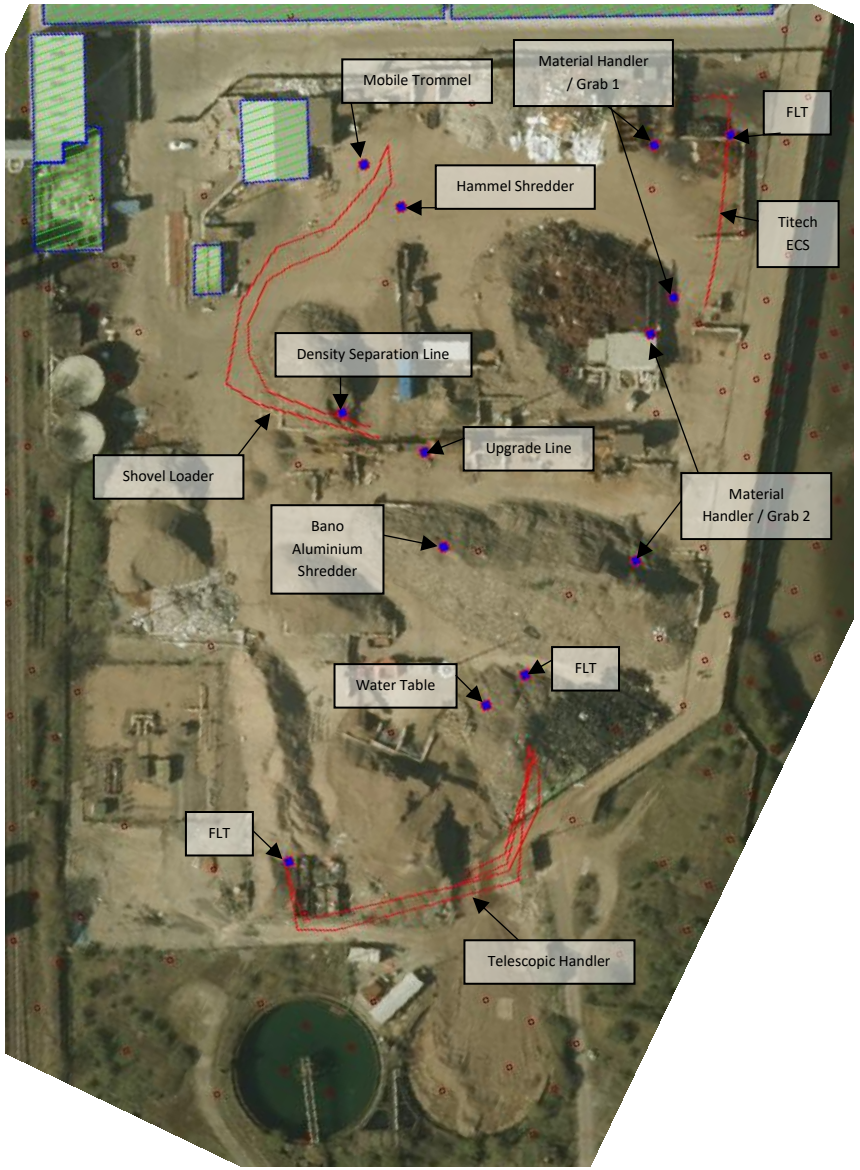
Day / Time	Date	dB L_{Aeq}	dB L_{A90}	Duration
Friday / (12:30 - 13:30)	05/05/2017	63.7	52.2	1 hour
Friday / (13:30 - 14:30)	05/05/2017	60.9	48.8	1 hour
Friday / (14:30 - 15:30)	05/05/2017	60.8	48.7	1 hour
Friday / (15:30 - 16:30)	05/05/2017	61.1	48.7	1 hour
Friday / (16:30 - 17:30)	05/05/2017	60.2	46.7	1 hour
Monday / (07:30 - 08:30)	08/05/2017	59.6	45.2	1 hour
Monday / (08:30 - 09:30)	08/05/2017	60.3	47.1	1 hour
Monday / (09:30 - 10:30)	08/05/2017	58.8	47	1 hour
Monday / (10:30 - 11:30)	08/05/2017	58.1	46.5	1 hour
Monday / (11:30 - 12:19)	08/05/2017	59.5	45.6	50mins

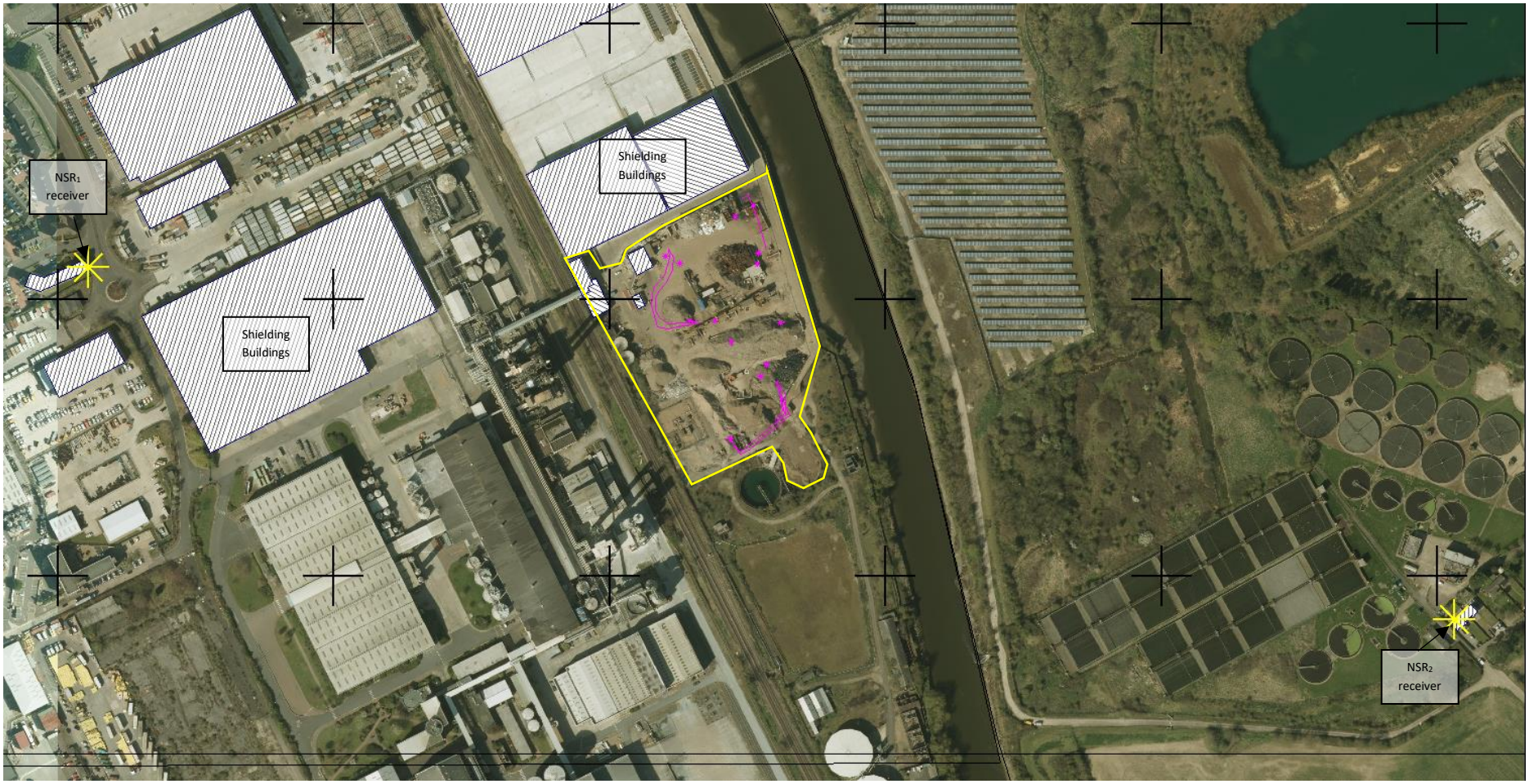
APPENDIX F – Noise Source Details

Source	Sum, dB L_w	31Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	Source Height (m)	Operating Times	Duration (Hours)
Titech ECS	116.7	111.9	108.4	101.0	98.2	103.9	102.8	105.4	108.9	107.8	2.5	07:30 - 17:30	10.0
Hammel Shredder	124.5	113.0	119.7	119.4	114.8	113.4	111.4	109.1	108.7	104.7	3.5	07:30 - 17:30	10.0
Mobile Trommel	117.0	101.1	111.7	107.2	111.0	109.5	106.2	100.9	98.9	97.7	4.0	07:30 - 17:30	10.0
Bano Aluminium Shredder	107.4	105.4	98.1	96.2	94.0	91.4	90.5	89.2	93.7	91.2	2.5	07:30 - 17:30	10.0
Water Table	108.3	103.3	105.6	96.1	93.5	91.5	88.5	85.6	85.6	82.7	1.5	07:30 - 17:30	10.0
Shovel Loader	92.5	91.8	74.8	70.6	69.8	68.6	78.8	79.7	72.7	57.1	3.0	07:30 - 17:30	10.0
Material Handler / Grab 1	105.7	90.3	103.2	92.5	97.1	95.3	94.2	91.5	89.3	83.2	2.5	07:30 - 17:30	5.0
Material Handler / Grab 2	105.7	90.3	103.2	92.5	97.1	95.3	94.2	91.5	89.3	83.2	2.5	07:30 - 17:30	8.0
Telescopic Handler	86.2	NA	85.0	79.0	69.0	67.0	64.0	62.0	56.0	47.0	1.5	07:30 - 17:30	10.0
Upgrade line (From Large Downstream Separation Line Measurement)	109.0	106.0	100.7	93.2	92.9	92.8	93.1	94.9	99.3	99.0	2.0	07:30 - 17:30	10.0
Density Separation Line (From Water Table Measurement)	108.3	103.3	105.6	96.1	93.5	91.5	88.5	85.6	85.6	82.7	1.5	07:30 - 17:30	10.0
Fork Lift Truck Average Work (Diesel)	109.6	NA	107.7	101.7	98.2	95.8	95.6	92.4	87.6	84.7	1.0	07:30 - 17:30	10.0

APPENDIX G – Site Map & Noise Model Input

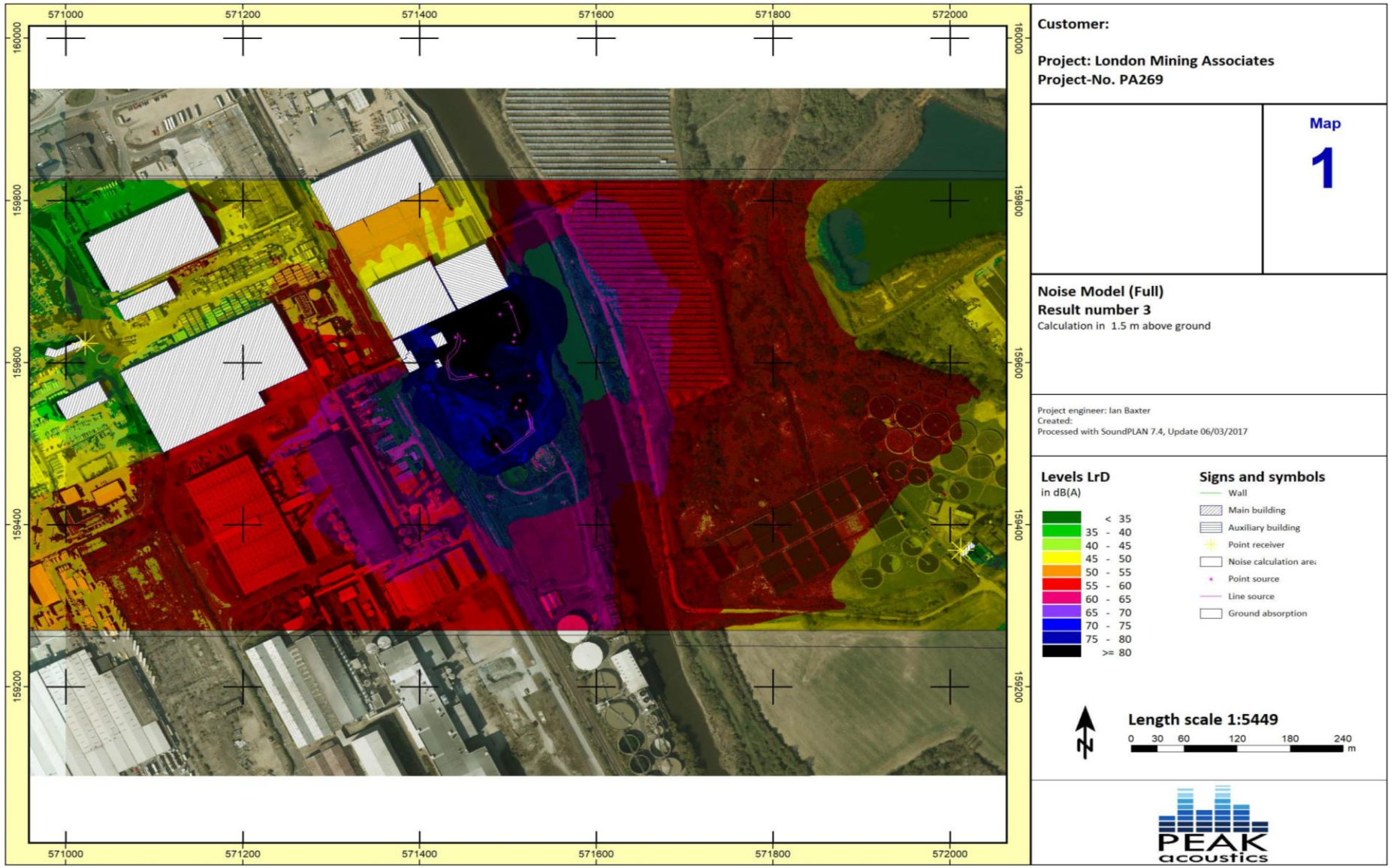




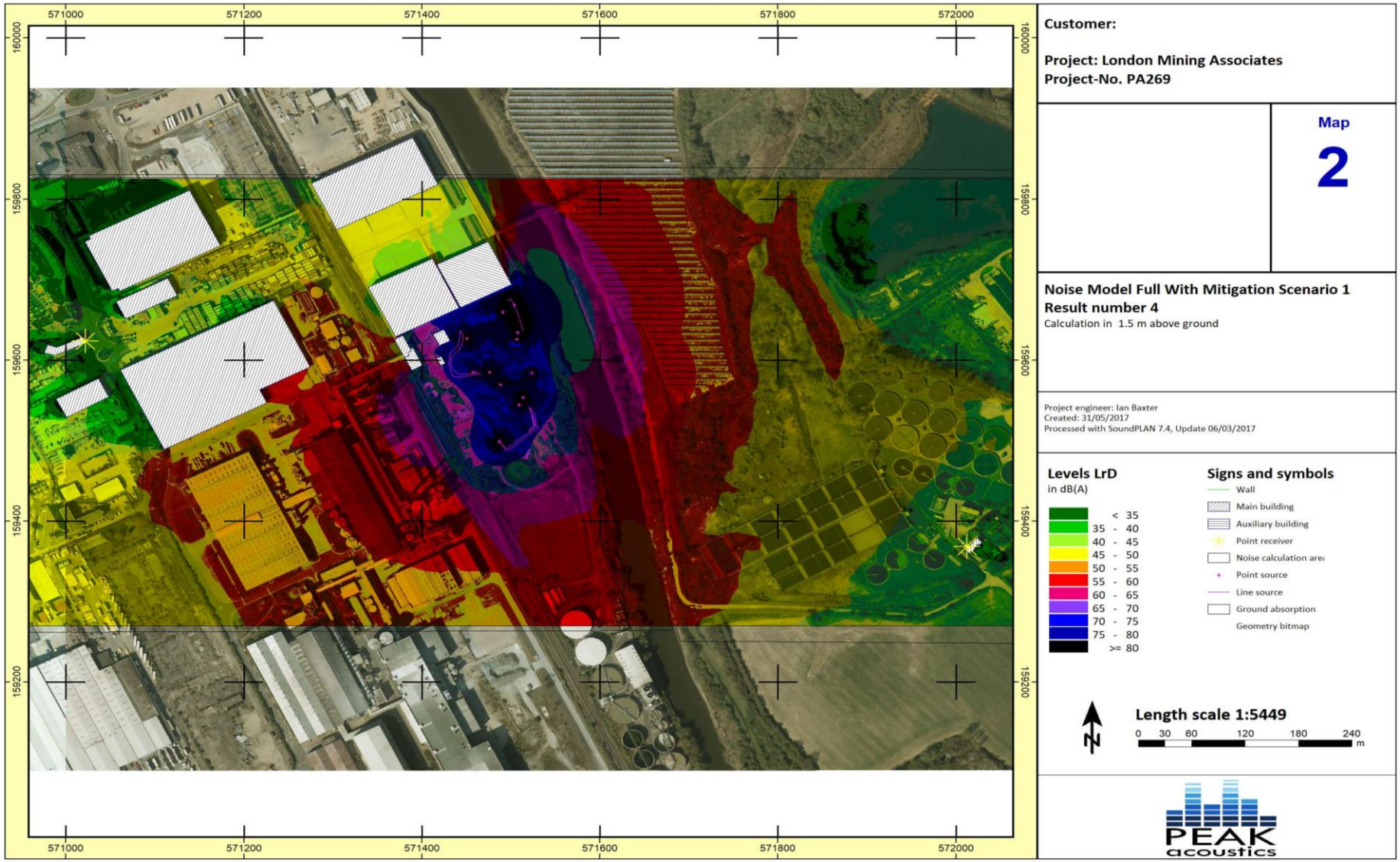


Site Location Containing Noise Sources

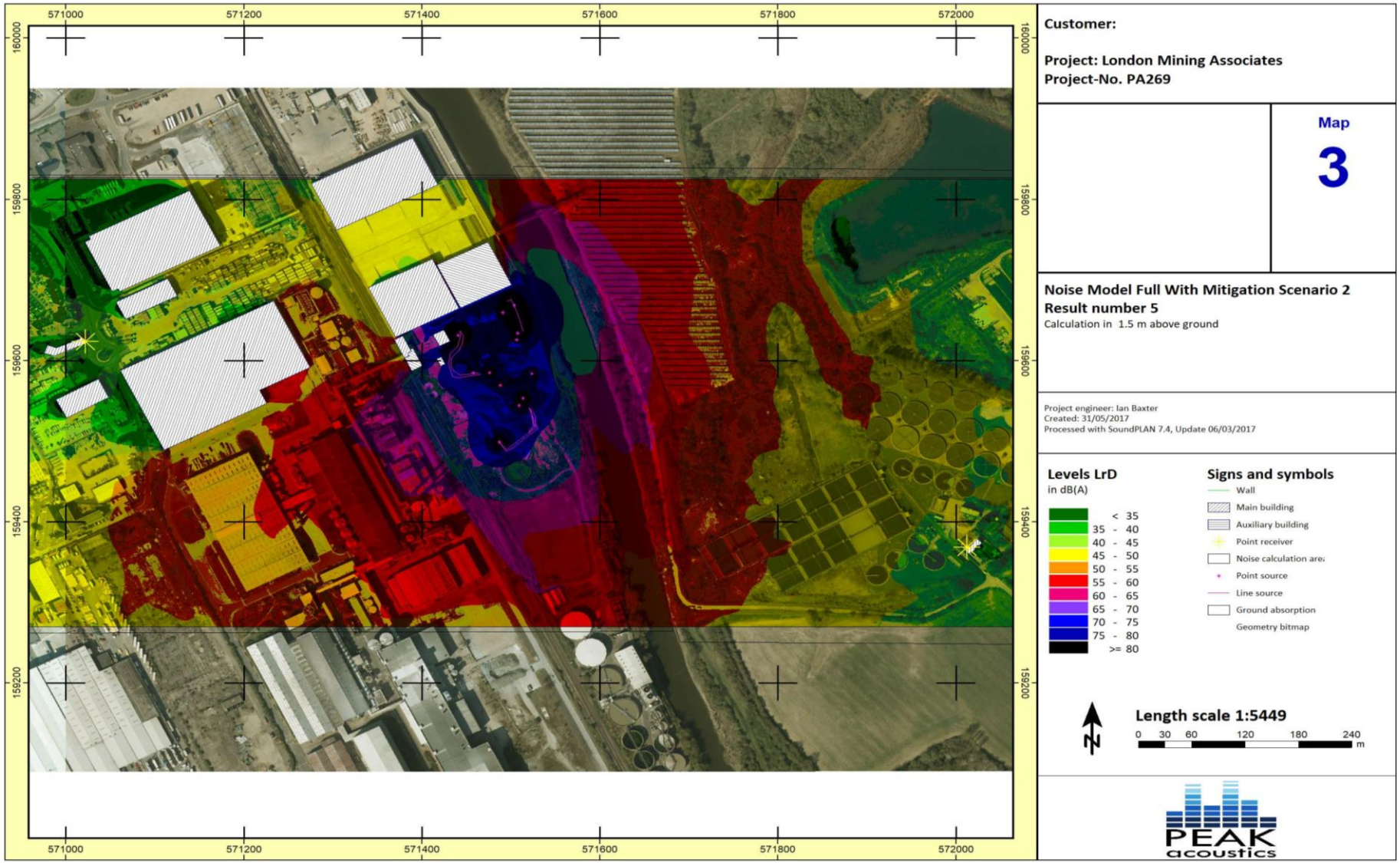
APPENDIX H – Noise Maps ;Noise Map 1 (No Mitigation)



Noise Map 2 With Mitigation (Scenario 1)



Noise Map 3 With Mitigation (Scenario 2)



APPENDIX I – Grid References

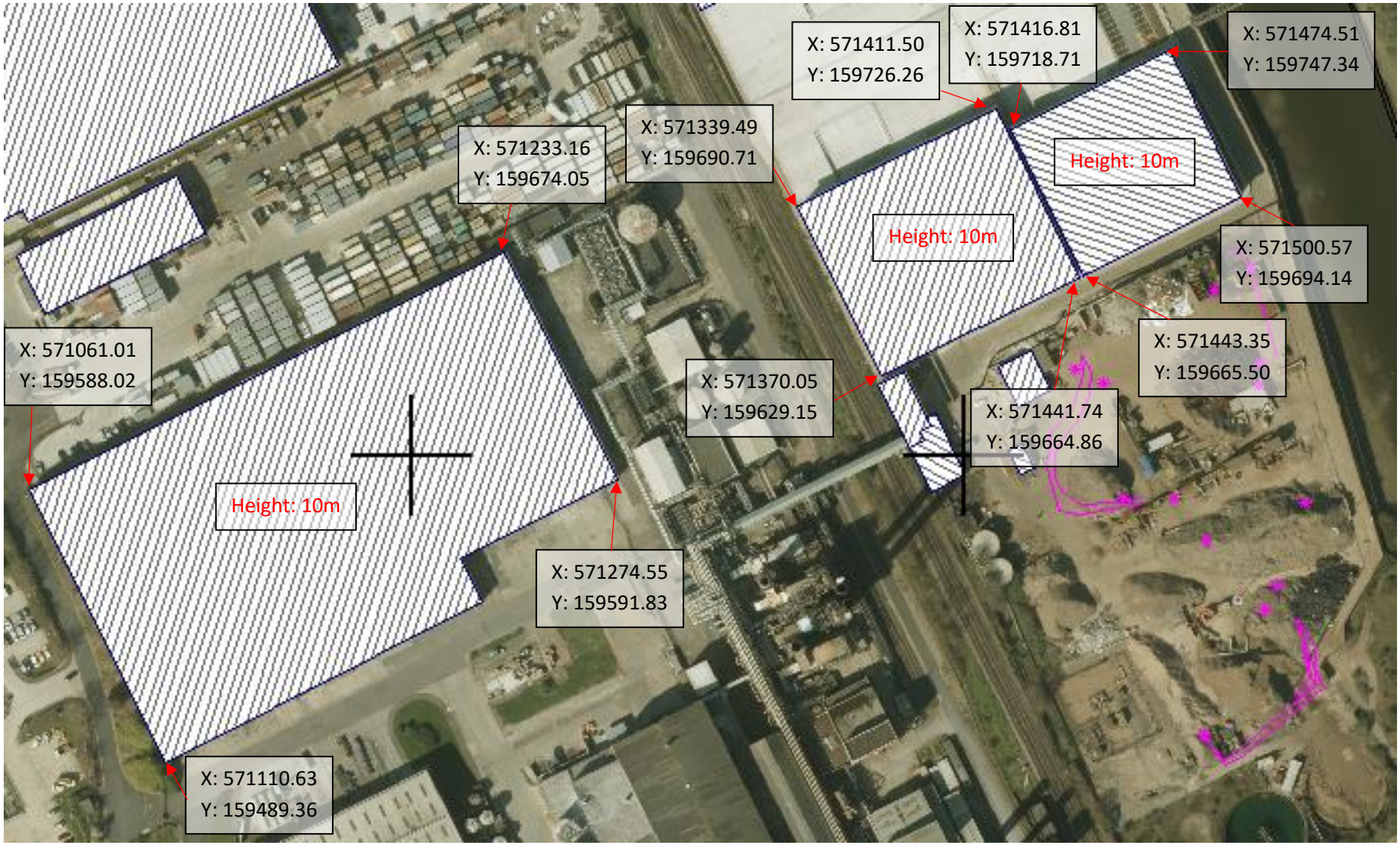
Noise Sources

	Coordinates, m	
Source	**X**	**Y**
Titech ECS (Start)	571495.82	159673.50
Titech ECS (End)	571513.78	159635.87
Hammel Shredder	571450.62	159626.88
Mobile Trommel	571440.32	159631.45
Bano Aluminium Shredder	571487.91	159569.39
Water Table	571509.19	159544.55
Shovel Loader (Start)	571466.31	159583.58
Shovel Loader (End)	571442.70	159636.95
Material Handler / Grab 1 (Position 1)	571490.84	159659.96
Material Handler / Grab 1 (Position 2)	571507.74	159634.16
Material Handler / Grab 2 (Position 1)	571523.73	159583.66
Material Handler / Grab 2 (Position 2)	571506.61	159625.69
Telescopic Handler (Start)	571487.30	159498.20
Telescopic Handler (Middle)	571519.48	159512.18
Telescopic Handler (End)	571521.88	159540.96
Upgrade line (From Titech ECS Measurement)	571476.19	159584.95
Density Separation Line (From Water Table Measurement)	571457.81	159584.94
Fork Lift Truck Average Work (Diesel), Location 1	571503.83	159668.51
Fork Lift Truck Average Work (Diesel), Location 2	571487.21	159499.30
Fork Lift Truck Average Work (Diesel), Location 3	571513.62	159553.42

Receptors

	Coordinates, m	
Source	**X**	**Y**
NSR_1	571021.85	159623.60
NSR_2	572012.45	159368.46

Buildings Affecting Sound Propagation to Receptors



X: 571424.27
Y: 159638.25
X: 571378.25
Y: 159630.76
X: 571412.25
Y: 159632.26
X: 571431.39
Y: 159624.43
X: 571368.88
Y: 159625.92
X: 571388.02
Y: 159611.44
Height: 3.5m
X: 571389.68
Y: 159615.25
Height: 10m
X: 571420.17
Y: 159617.98
X: 571416.57
Y: 159602.36
X: 571421.43
Y: 159604.70
Height: 4m
Height: 2.5m
X: 571380.53
Y: 159603.01
X: 571425.83
Y: 159596.08
X: 571388.48
Y: 159587.22
X: 571400.36
Y: 159593.73
X: 571420.89
Y: 159593.35

Appendix III

Complaints Procedure and Recording Form

COMPLAINTS PROCEDURE

1) Any complaints received in relation to noise and vibration will be recorded on the form below. This form will normally be completed, signed and dated by the site operator, if they are not available, the Office Manager will complete the form.

2) The name, address and telephone number of the caller will be requested.

3) Each complaint will be given a reference number.

4) The caller will be asked to give details of:
   - the nature of the complaint;
   - the time;
   - how long it lasted;
   - how often it occurs;
   - is this the first time the problem has been noticed; and,
   - what prompted them to complain.

5) The person completing the form will then, if possible, make a note of:
   - the weather conditions at the time of the problem (rain snow fog etc.)
   - strength and direction of the wind; and,
   - the activity on the site at the time the noise was detected, particularly anything unusual.

6) The reason for the complaint will be investigated and a note of the findings added to the report.

7) The caller will then be contacted with an explanation of the source of the complaint if identified and the action taken to prevent a recurrence of the problem in future.

8) If the caller is unhappy about the outcome or unwilling to identify themselves the caller will be referred to the EA.

9) Following any complaint the complaints procedure will be reviewed to see if any changes are required or if new procedures need to be put in place.

Complaints Report Form	
Date Recorded	Reference Number
Name and address of caller	
Telephone number of caller	
Time and Date of call	
Nature of complaint (noise, vibration) (date, time, duration)	
Weather at the time of complaint (rain, snow, fog, etc.)	
Wind (strength, direction)	
Any other complaints relating to this report	
Any other relevant information	
Potential reasons for complaint	
The operations being carried out on site at the time of the complaint	
Follow Up	
Actions taken	
Date of call back to complainant	
Summary of call back conversation	
Recommendations	
Change in procedures	
Changes to Written Management System	
Date changes implemented	
Form completed by	
Signed	
Date completed	