

Caulmert Limited

Engineering, Environmental & Planning
Consultancy Services



Corbriggs Wood Processing Facility

Silva Recycling Limited

Noise Management Plan

Prepared by:

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Document Reference: 5448-CAU-XX-XX-RP-V-0306.A0.C1

November 2023



APPROVAL RECORD

Site:	Corbriggs Wood Processing Facility
Client:	Silva Recycling Limited
Document Title:	Noise Management Plan
Document Ref:	5448-CAU-XX-XX-RP-V-0306.A0.C1
Report Status:	Final
Project Manager:	Andy Stocks
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Author	Samantha Hayden Senior Environmental Consultant	Date	02/11/2023
Reviewer	Andy Stocks Director of Environment	Date	06/11/2023
Approved	Andy Stocks Director of Environment	Date	06/11/2023

Revision Log			
Revision	Description of Change	Approved	Effective Date
C1	Initial Release	AS	10/11/2023

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Noise Management Plan

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DRAWINGS

5448-CAU-XX-XX-DR-V-1800	Sensitive Receptor Plan
12800_004 Phase 1	Site Layout Plan
12800_004 Phase 2	Site Layout Plan

APPENDICES

- Appendix 1** F003 - Amenity Complaint Form
- Appendix 2** F002 - Site Diary
- Appendix 3** F001 - Daily Site Inspection Form
- Appendix 4** Noise Impact Assessment (NIA)
- Appendix 5** Technical Note (accompanying NIA)

1.0 INTRODUCTION

1.1 Overview

- 1.1.1 Silva Recycling Limited ('the applicant') have appointed Caulmert Limited to prepare a Noise Management Plan (NMP) as part of a bespoke environmental permit application and application to discharge condition 18 of planning permission ref. CW4/1022/27, for Corbriggs Wood Processing Facility ('the site') on land at Mansfield Road, Corbriggs, Chesterfield, S41 0JW.
- 1.1.2 This NMP will provide thorough detail of appropriate measures that are required for effective noise management at the site and will outline proposed control measures, in accordance with EA guidance on 'Noise and vibration management: environmental permits' (last updated 31 January 2022).
- 1.1.3 This NMP has the aim of ensuring that potential noise emission sources are identified and controlled at source where possible. The NMP aims to minimise the risk of noise emission impacts on receptors outside of the site boundary. As a minimum this NMP will consider the following elements:
- An assessment of the risks of noise emissions at the site;
 - Identify the appropriate controls to manage the identified risks;
 - Monitoring to confirm effectiveness of control measures;
 - Complaints handling;
 - Identify actions, contingencies, and responsibilities when noise emissions arise; and,
 - Regular review of the effectiveness of the noise emissions control measures.

1.2 Site Description

- 1.2.1 The site will treat up to 75,000 tonnes per year of non-hazardous wood waste as a recovery activity, with the temporary storage of up to 6,000 tonnes of non-hazardous waste at any one time. The proposed activities will include the reception, screening, separating, shredding and storage of non-hazardous wood wastes prior to removal off-site, for manufacturing into chip-board based products.
- 1.2.2 The operating hours will be as follows:
- 07:00 – 19:00 for Waste processing and HGV movements except on Sundays and Bank Holidays.
 - 08:00-18:00 for Waste processing and HGV movements on Sundays and Bank Holidays.
 - End of processing – 20:00 for Housekeeping, including machine movements.
 - 06.00 – 22:00 site inspections, refuelling plant, maintenance and servicing.
 - 19:00 – 07:00 for up to 4 HGV movements in any such single period which involve an, articulated HGV exchanging an empty trailer for a preloaded trailer.

- 1.2.3 The site is located in an industrial estate on the eastern side of Mansfield Road, at Corbriggs, southeast Chesterfield, at postcode S41 0JW and National Grid Reference SK 41002 68251.
- 1.2.4 The closest residential properties to the site are within the Corbriggs area, located approximately 30m west (a traveller's site), 45m to the southwest and 75m south of the site boundary. The nearest watercourse is Calow Brook, located 110m to the southeast of the site. The site location is shown below in Figure 1.
- 1.2.5 The surrounding area is predominantly agricultural land to the north and east, with South Chesterfield Golf Club located 30m to the southwest and Grassmoor Country Park 130m to the south. In between the site and the fields to the north is the A617 dual carriageway. The settlement of Temple Normanton is located approximately 940m to the southeast and Grassmoor is located 910m to the southwest of the site.



Figure 1 – Site Location (source: Google Earth 2022)

1.3 Maintenance and Review of the NMP

- 1.3.1 This NMP has the aim of ensuring that potential noise emission sources on-site are identified and controlled at source where possible. The NMP aims to minimise the risk of noise impact on receptors outside of the site boundary.

- 1.3.2 This NMP will be reviewed by Site Management on a regular basis and at least annually, to ensure that the controls described are effective and reflect best available techniques. The management plan will also be reviewed following a number of complaints at the site or if there are relevant changes in the site operations or procedures.
- 1.3.3 The 'F003 - Amenity Complaint Form' (Appendix 1) will be completed, and notes made in the 'F002 - Site Diary' of records made (Appendix 2). Daily site inspections will be recorded on the 'F001 - Daily Site Inspection Form' (Appendix 3). The forms will be maintained free from damage and kept within the Site office and will be made available to the regulating authorities on request. The record keeping will form part of the site's Management System.
- 1.3.4 Site management shall be responsible for the satisfactory working of the whole site and operations to ensure full compliance with this Noise Management Plan (NMP).
- 1.3.5 Site management shall ensure that all personnel working at the site or visiting the site are aware of the need to comply with this Noise Management Plan.
- 1.3.6 Site management will be responsible for checking the meteorological conditions for that day and for ensuring the appropriate noise control measures are in place.
- 1.3.7 As part of the site Management System, staff will receive the necessary training and instruction in their duties relating to all operations, the potential sources of noise emissions on-site and the requirements of this NMP. Emphasis will be given to plant and equipment malfunctions and abnormal conditions. Refresher training will be offered by site management at least once a year, or if the operations on site are changed which requires the NMP to be updated or new site-specific noise control measures and procedures to be implemented.
- 1.3.8 Any persons on-site failing to comply with the requirements of the NMP and site procedures will be re-trained as necessary. External hauliers failing to abide by site rules in respect of vehicle operations and noise emissions will be reported and if required, asked to leave site.
- 1.3.9 Records of training, noise complaints and associated investigations will be maintained in accordance with the site's Management System, which be overseen by the Site Manager or nominated deputy.
- 1.3.10 The Site Manager or nominated deputy will ensure routine noise monitoring is undertaken as part of daily site inspections and that if noise is identified to be a potential issue on-site, that the source of the noise is investigated, and any additional actions or control measures implemented are recorded as per the Management System procedures.
- 1.3.11 A copy of this NMP should be kept in the Site Office at all times and is intended for use by site operatives and managers for the control of noise emissions at the site. Electronic copies will also be held on the company's database system

2.0 SENSITIVE RECEPTORS

2.1 Overview

2.1.1 An assessment of the potentially sensitive receptors to noise within 1000m (1km) of the site is presented below, with all distances measured from the site boundary. A plan showing the locations of sensitive receptors is attached as drawing ref. 5448-CAU-XX-XX-DR-V-1800.

2.2 Sensitive Receptors

2.2.1 The site is surrounded by agricultural land, with the closest residential receptors to the site (a traveller's site) located 30m west of the site on Mansfield Road. A residential property is also located approximately 45m to the southwest of the site and another row of houses is located 75m to the south. There are no schools or hospitals within 1km of the site.

2.2.2 A summary of the identified sensitive receptors is detailed in Table 1 below:

Table 1 – Summary of Sensitive Receptors within 1000m of the Site Boundary

Receptor	Receptor Type	Distance/Direction
Residences	Residential	30m W
South Chesterfield Golf Club	Recreational	30m SW
Construction Equipment Supplier	Industrial/Commercial	30m E
Residential Properties	Residential	45m SW
Plant & Machinery Hire Site	Industrial/Commercial	60m SE
Residential Properties	Residential	75m S
Winsick/Milehill residential area	Residential	90m NW
Corbriggs Marsh LWS	Habitat	100m SE
Calow Brook	Surface Water	110m SE
Grassmoor Country Park LWS	Habitat	130m S
Swimming Pool/Leisure Centre	Recreational	135m NW
Users of A617	Public Road	140m NE
Industrial Site/Scrap Yard	Industrial	150m W
Residential Properties	Residential	170m SE
Agricultural Fields	Agricultural	170m NNE, 180m E, 200m W
Garage/MOT Centre	Industrial/Commercial	220m NW
Maris Pumps Plant & Machinery Hire	Industrial/Commercial	440m E
Shed and Garden Centre	Industrial/Commercial	450m NW
Tableware Manufacturer	Industrial/Commercial	460m SE
Wynnholme residence	Residential	580m E
Allotments	Recreational	740m ESE

Receptor	Receptor Type	Distance/Direction
Old Manor Park	Recreational	780m SE
Residences off Hassocky Lane	Residential	810m NE
Farm residence	Residential	870m SW
Hasland residential area	Residential	910m NW
Grassmoor residential area	Residential	910m SW
Groundworks Contractors Yard	Industrial/Commercial	920m SE
Commercial/Industrial Units	Industrial/Commercial	920m SW
Temple Normanton residential area	Residential	940m SE
Residence with stables	Residential	980m SSE

2.2.3 Neighbouring dwellings and businesses are likely to be the most sensitive receptors to noise nuisances. Good relationships with neighbouring residents, landowners and businesses are essential in order to anticipate potential problems and avoid them, where possible, before official complaints are made. Silva Recycling Ltd will ensure the following:

- All the neighbours know how to contact the site if they consider noise to be a problem.
- That any complaints are recorded and that problems, where possible, are dealt with promptly.

2.3 Meteorological Setting

2.3.1 Noise emissions from the site are likely to be affected by local weather conditions, in particular by wind direction and strength.

2.3.2 The closest meteorological station to the site actively recording wind statistics is Selston weather station, located over 15km to the southeast of the site. Wind statistics from this weather station are considered to be representative of the typical conditions at the site (see Figure 2 below).

2.3.3 A review of the data recorded daily between April 2013 and October 2022 on the Windfinder.com website¹ indicates that the most dominant wind direction is from the west-southwest towards the east-northeast. The sensitive receptor plan shows that predominant wind conditions are likely to blow from the wood processing facility away from most of the nearest sensitive receptors towards the A617 and agricultural fields to the northeast.

¹ Windfinder website 2022, found here: <https://www.windfinder.com/windstatistics/selston>

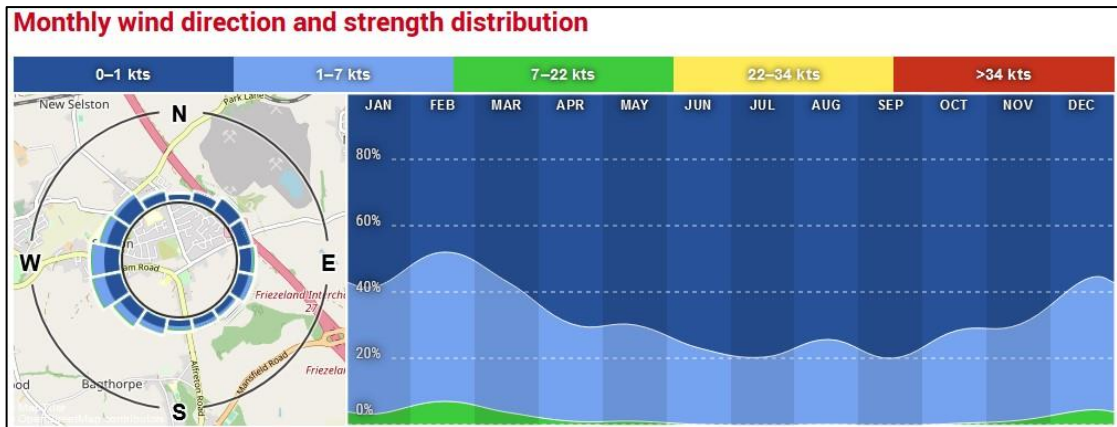


Figure 2 – Selston wind statistics – average wind direction & strength 2013 to 2022.

3.0 NOISE SOURCES & PROCESSES

3.1 Noise Impact Assessment (NIA)

- 3.1.1 Bureau Veritas was instructed by Caulmert to undertake a Noise Impact Assessment (NIA) of the proposed waste wood processing site at the land at Mansfield Road, Corbriggs, Derbyshire and this report is attached as Appendix 4. An additional Technical Note was also produced in May 2023 by Bureau Veritas to accompany the NIA after a request for further information by the Environmental Agency, and this is attached as Appendix 5.
- 3.1.2 An assessment of the operational noise impact has been carried out in accordance with British Standard 4142: 2014+A1:2019 to consider the potential noise impact on the nearby residential receptors.
- 3.1.3 Due to the typically low vibration levels that are likely to be generated, primarily by on site vehicle movements, it is expected that operational activities would not result in perceptible vibration impacts on any of the sensitive receptors. Therefore, no further assessment of operational vibration was undertaken.
- 3.1.4 The impact assessment with respect to noise on the existing environment covers the following issues:
- Potential operational noise associated with fixed/mobile plant and vehicles (deliveries by HGV); and,
 - Potential increased in local road traffic noise due to vehicle movements generated by the development once operational.
- 3.1.5 The assessment of the noise impact of the site operation is based on the ambient sound levels (LAeq,T) and the background sound levels (LA90,T) measured/derived in June 2022. The sound levels of site operation at the nearest sensitive receptors are predicted by noise modelling, using CadnaA. Noise propagation was predicted using algorithms described in ISO 9613-2, as incorporated within the noise modelling software.
- 3.1.6 Based on the site layout and the proposed process in the development proposal, the significant operational sound sources comprise:
- Waste wood shredder; and,
 - Truck deliveries, vehicle movements and car parking.
- 3.1.7 The applicant has advised that waste reception will occur between 07:00-19:00 hours (i.e., 12 hours). It is proposed that the facility operates Monday to Sunday. The operating hours of wood processing (shredding / screening) is proposed to be an average of 6-7 hours during the daytime period 07:00 – 19:00.

- 3.1.8 The inbound and outbound vehicle movements for waste loads were calculated by Silva Recycling based on forecast split of load types and anticipated weights. For inbound traffic, there would be 110 loads (220 movements) per week, and for outbound traffic, there would be 66 loads (132 movements) per week.
- 3.1.9 The staff will work on a shift system. It is anticipated that there will be four shifts. The applicant has advised that a maximum of 10 employees will be on Site at once. The car parking is assumed to have 0.25 vehicle movements per hour per park space as a worst case.
- 3.1.10 Overall, the assessment concludes that the noise impact of the site operation would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors, meaning the noise may be present, but would not be intrusive. The operational traffic noise is also predicted to have negligible impact on the nearest residential receptors.

3.2 On-Site Noise Sources - Site Operations

- 3.2.1 The development comprises a new wood processing facility at an existing industrial site and the proposed activities will include the reception, shredding, screening, separating and storage of non-hazardous wood wastes prior to removal off-site for manufacturing into chip-board based products.
- 3.2.2 The site will accept and treat up to 75,000 tonnes per year of non-hazardous wood waste as a recovery activity, with the temporary storage of up to 6,000 tonnes wood at any one time.
- 3.2.3 The sorting, shredding, screening and temporary storage of unprocessed and processed waste wood and incidental contamination and production wastes will take place outside within the processing areas and storage bays on site.
- 3.2.4 It is considered that the primary noise sources associated with the operation of the site comprise:
- Waste wood shredder;
 - HGVs Unloading; and
 - HGV movements.
- 3.2.5 The operating hours of wood processing (shredding/screening) is proposed to be an average of 6-7 hours during the daytime period 07:00-19:00.
- 3.2.6 Activities associated with the site operation outside the core hours (19:00-07:00), include:
- Housekeeping – machine movements;
 - End of shift inspections, refuelling plant, maintenance/servicing;
 - Occasional HGV movements, articulated HGVs exchanging an empty trailer for a preloaded trailer; and,
 - Pre-start inspections, greasing machines, maintenance/servicing.

3.2.7 The worst-case scenario modelled sound emission rates of the noise sources on-site are outlined in the Noise Impact Assessment (attached in Appendix 4) and comprise the following:

- Shredder = 111dB L_{WA}, operating for 6-7 hours per day, at 1.5m above ground level.
- Truck delivery = 116 dB L_{WA}, operating during 07:00 and 19:00 hours per day, at 1m above ground level.
- HGV movements with 50 no. (two-way) per day.
- Sound power levels modelled using octave spectral distribution.

3.3 Off-Site Noise Sources

3.3.1 The adjoining industrial sites off Mansfield Road include a Construction Equipment Supplier located 30m east of the site and a Plant & Machinery Hire Site located 60m southeast of the site. There is the potential for site operations and associated vehicle movements that could give rise to noise emissions.

3.3.2 Background noise during a quiet daytime period was monitored in June 2022 and assessed in the Noise Impact Assessment (attached as Appendix 4).

3.4 Overview of Site Layout and Processes

3.4.1 Noise can only cause an impact when it is perceived at a receptor site. This NMP has identified that the key opportunities for release of noises are anticipated to be:

1. When wastes are delivered to site and removed.
2. When waste products are loaded and unloaded.
3. When the waste processing occurs.

3.4.2 The impacts of any noise released by Silva Recycling's activities will be linked to the receptors listed in Table 1 above. The receptors are more likely to be impacted upon by noise in the following conditions:

- Prevailing wind direction is towards receptors;
- Local weather conditions. Warm still weather will contribute to the perceived noise at receptors; and
- Cumulative impacts. It is anticipated that cumulative impacts will be minimal. The site is not in an area dominated by facilities which may cause additional noise.

3.4.3 The impacts of noise from the site are anticipated to be minimal, given the nature of the operation and the location within an industrial setting. However, this will be confirmed regularly with monitoring and communication with neighbours.

3.4.4 The proposed activities to be carried out at the site are as follows:

- Delivery and reception of wood wastes with strict Waste Acceptance Procedures.

- Temporary storage outside of unprocessed wood wastes will be to a maximum of 4m high, within designated storage bays constructed of 5m modular movable concrete walls, allowing a 1m freeboard above stockpile. Wood wastes delivered to site are expected to predominantly bulky items of wood. Initial sorting of unprocessed wastes is to segregate loads with a high content of MDF chipboard into a separate storage bay for later processing.
- Shredding of wood wastes and removal of ferrous metals – unprocessed wood waste is fed into the shredder(s) with over-band magnets. Ferrous metal output into a storage bay or skip awaiting removal off-site.
- Screening of waste wood to remove fines– shredded wood is sent through Screener Plant. Fines are ejected from the screener into a designated concrete storage bay for removal off-site.
- Removal of non-ferrous metals using Eddy Current Separator – this removes non-ferrous metals on a conveyor belt using a powerful magnetic field, with final good quality wood chip output sent to a designated concrete storage bay pending removal off-site. Non-ferrous metals output is into a separate concrete storage bay or skip awaiting removal off-site.
- Storage of good quality woodchip will be in designated 5m high concrete bays pending collection for manufacturing off-site into chipboard. Stockpiles are to be no more than 4m high, allowing a 1m freeboard between tops of stockpiles and tops of walls.
- The processing area where the Shredders, Screener Plant and Eddy Current Separator are to be located (when operationally required) will have a smooth, easy to maintain impermeable yard surface, which will be routinely inspected for wear and tear during daily site inspections and kept in a clean and tidy condition.

3.4.5 The site will be operated in a phased approach, with the initial site plan operated as the layout shown in attached drawing ref. '12800_004 Phase 1'. This will be for the pre-shredding of wood and limited storage of wood wastes prior to transfer off-site for recycling. Once the site is processing at a greater capacity and the temporary storage of larger volumes of wood waste is required, the operator proposes to use the site layout plan as shown in the drawing ref. '12800_004 Phase 2'. Both plans show the proposed locations of the weighbridge, processing area, quarantine area, storage bays, site entrances, parking areas and other site infrastructure at each operational stage.

4.0 NOISE CONTROL MEASURES

4.1 Overview

4.1.1 This section details the control measures and routine noise monitoring that will be undertaken on site to mitigate and monitor noise from site activities. The control measures set out in this NMP are commensurate with the noise potential of the site operations.

4.2 Management of Noise

4.2.1 Management measures to control noise release at the site will include:

- **Reducing the loading/unloading time on site.** As part of the site's Management System, information on the loading/unloading on site will be recorded via operations, including arrival time on site. Minimal handling will ensure that noise is not exacerbated.

If the Site Manager deems that noise is causing a disturbance, the Site Manager will log this as an incident, using the appropriate forms from the Management System and will take corrective action.

The site management will liaise with the contractors/hauliers and transport contractors, with a view to minimising noise emissions relating to delivery and unloading of waste material.

- **Unanticipated noises.** Any unexpected noise shall be recorded as to composition, date and time received and cause of noise.
- **Containment and abatement.** Given the nature of the operations on site, it is not considered necessary to implement containment and abatement techniques, other than in line with the recommendations of the submitted Noise Assessment.

4.3 Site Specific Control Measures

4.3.1 The following site specific control measures will be implemented:

- Adhere strictly to the stated operating hours of the site;
- All plant and equipment should comply with recommended noise emission limits;
- Ensure machinery is regularly well maintained;
- The use of silent or low-noise alternatives to audible alarms at the site (such as on fixed plant).
- Avoid unnecessary horn usage and revving of engines;
- Switch off equipment when not required;
- When hiring or procuring, select plant and equipment which is inherently quiet where appropriate. For example, compressors should be sound reduced models with sealed acoustic linings, pneumatic tools should be fitted with manufacturer specified silencers or mufflers. Machinery to be fitted with SMART beepers to reduce the impact of noise;

- Where reasonably practicable, select quiet working methods should there be a suitable alternative with a lower noise impact;
- Keep internal haul routes well maintained;
- Minimise drop heights of materials where possible;
- Operatives should be trained to employ appropriate techniques to keep site noise to a minimum and should be effectively supervised to ensure that best working practice in respect of noise reduction is followed.

- 4.3.2 The site layout has been designed by the operator to minimise noise impacts on nearby receptors, including considering the heights and orientations of storage bay walls to reduce the amplification of noises in certain directions.
- 4.3.3 A noise attenuating perimeter bund will be constructed from spoil, along with perimeter walls, as part of Phase 1 of the development to contain and reduce noise leaving site to nearby receptors.
- 4.3.4 All plant and machinery will be maintained in accordance with manufacturer's specifications, to ensure the smooth and effective running of the plant and to detect and fix any faults or defects which may increase noise or vibration emissions.
- 4.3.5 All site staff and visitors given a Site Induction covering noise and vibration awareness and reporting of noise and vibration emissions.
- 4.3.6 Shredding, screening and separating activities will be undertaken in specialised plant which meets all legislation and guidance on noise and vibration levels and minimising these where possible.
- 4.3.7 Any new/replacement plant will be selected to meet all legislation and statutory guidance on noise levels and to minimise noise levels from selected equipment and maintained to reduce noise emissions where possible.

5.0 MONITORING & ACTION PLAN

5.1 Overview

5.1.1 To ensure that the noise control measures set out in Section 4.0 are being effective, Silva Recycling will ensure routine noise monitoring is in place and communication with potential receptors is maintained.

5.2 Routine Noise Monitoring

5.2.1 The following activities are regularly undertaken to ensure continuous improvement:

- Site inspections by the site manager to include noise monitoring around site;
- Site audits conducted by the company's management;
- Site audits and inspections by the Environment Agency.

5.2.2 All site personnel will be responsible for reporting any noise problems immediately to the site manager (or deputy).

5.2.3 Routine noise monitoring as part of daily site inspections will be undertaken whilst the site is operational (for example when the shredder is active), including at locations around the site perimeter. All routine noise monitoring and the monitoring results will be recorded as per management system procedures.

5.3 Noise Action Plan

5.3.1 Elevated levels of noise may be identified either by receipt of a noise complaint from a third party suggesting that there is excessive noise from the site, or by detection of noise as a result of the routine monitoring by site personnel. This section details the contingency measures in place to identify the source of elevated noise levels, bring noise levels back under control and minimise their impact.

5.3.2 If noise is detected to be an issue at the site during routine noise monitoring, or if a noise complaint is received and this is judged to be a moderate or unacceptable noise impact, then the Site Manager and Management Team will be informed immediately, and corrective actions will be determined and implemented. Additional on-site noise monitoring and potentially off-site noise monitoring at nearby sensitive receptors may be undertaken where deemed necessary by Site Management to determine the cause of the noise and the impact on nearby sensitive receptors.

5.3.3 Silva Recycling recognise that persistent noise can be a concern for neighbours and particularly for residential areas. Every complaint is a trigger for management to take action to investigate the cause of a complaint.

5.3.4 The site will have a legible signboard giving contact details for the Environment Agency and the operator. These numbers can be used in order to make a complaint. All complaints will be treated seriously by Silva Recycling and recorded.

5.3.5 As part of any noise complaint investigation the site manager will ensure that:

- The complaint is investigated to identify the cause, if necessary, this may involve direct communication with the complainant.
- In the event of elevated noise being detected, the presence of 'abnormal' onsite activity is assessed and if necessary, preventive action is taken that will prevent a reoccurrence of the same problem.
- The complainant will be contacted and given information on the investigations conducted and actions taken as appropriate.
- All complaints are reported to General Manager or Director and discussed at site meetings.
- Details of other complaints are sent to the other company personnel as appropriate.
- If the investigation indicates that the complaint has not been justified this will be clearly recorded on the incident report. All complaints will be logged.

5.4 Elevated Noise Levels

5.4.1 If any elevated levels of noise are identified the following procedure will be implemented:

- The site manager will investigate the source of the noise and carry out a range of checks at the identified source of the elevated levels if it is found to be operating within the site. As part of these checks, the site manager will consider the need for quantitative noise monitoring around the site and at nearby receptors.
- The results of any noise monitoring will determine whether the site is causing an unacceptable impact at the receptor in question.
- The site manager will then ensure the plant is being operated to the manufacturer's specification, and within the requirements of this management plan and ensure that any improvements required to minimise the noise levels are made.

5.4.2 If operational failings are identified, the re-training of employees will take place to ensure that all employees operate to the required standards. If the failings are identified as part of the operating techniques, then the problem will be raised as part of the review of control measures and the Management System.

6.0 COMPLAINTS REPORTING

6.1 Engagement with the Community

6.1.1 As part of this Noise Management Plan, engagement with the local community will be undertaken.

6.1.2 Typically, any complaints received at the site are likely to be through the Environment Agency or Local Authority although the operator is willing to deal directly with the complainants and where necessary the following can be implemented:

- Information can be provided to the local community (via the Local Authority) regarding the point and method of contact for the site in the event that noise from the site has been detected or they want to discuss any activities at the site;
- Complainants can be advised that any complaints/concerns will be addressed immediately following identification/notification and contingency action measures implemented;
- Complainants can be advised of any corrective action and a follow up call carried out by the Site Manager if required.

6.1.3 The primary point of contact at the site for complaints and liaison with the local community is the Site Manager, who will ensure that the recording, investigation and close-out of any complaints is undertaken as described as below and in accordance with company management procedures. Typically feedback for noise complaints will be provided to the complainant by the Site within 48 hours of receiving the complaint.

6.2 Reporting of Complaints

6.2.1 In the event of a noise complaint being received by the Local Authority the complaint is passed to the Operator for investigation. Every complaint will be recorded as per the company's Complaint Reporting Procedure, an 'F003 - Amenity Complaint Form' (Appendix 1) will be completed and an entry made in the 'F002 - Site Diary' (Appendix 2) to include the following information:

- Date and time of complaint;
- Extent of complaint;
- Meteorological conditions at time of complaint;
- The complainant's contact details including name and contact telephone;
- Name of person filling out 'F003 - Amenity Complaint Form'/'F002 - Site Diary';
- Action taken to resolve complaint or investigate complaint further;

- Depending on the severity, the complaint can be escalated to senior management for even further investigation if necessary.

6.2.2 Any complaints received directly by the site or via the regulatory bodies, will be recorded on the 'F003 - Amenity Complaint Form' (Appendix 1) and will instigate noise monitoring at the location of the complaint and on-site to determine the extent and location of the noise and the source of the noise will be identified. If necessary, monitoring will also be carried out at the nearest sensitive receptors to the site and the monitoring results recorded.

6.2.3 If a number of complaints are received at the site for noise, then the matter will be escalated and a further review of the site operations, cause of the noise and remedial actions will be undertaken by Site Management or their nominated deputy. If necessary, site operations will be stopped, where appropriate, in order to allow for noise emissions to cease and possible causes to be identified. All complainants will be informed of actions taken and whether this has improved the situation.

6.3 Management Responsibilities

6.3.1 Any significant noise emissions occurring with the potential to travel beyond the site boundary will be reported to the Site Manager/designated person who will be responsible for investigating the cause and taking immediate action to minimise further emissions.

6.3.2 Site management (or designated persons) will also be responsible for daily checks which will be carried out as part of their normal operational procedures monitoring of noise levels and conditions associated with the potential for fugitive emissions of noise. In particular, this is in relation to:

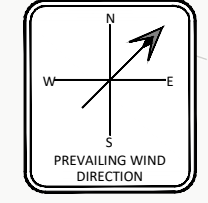
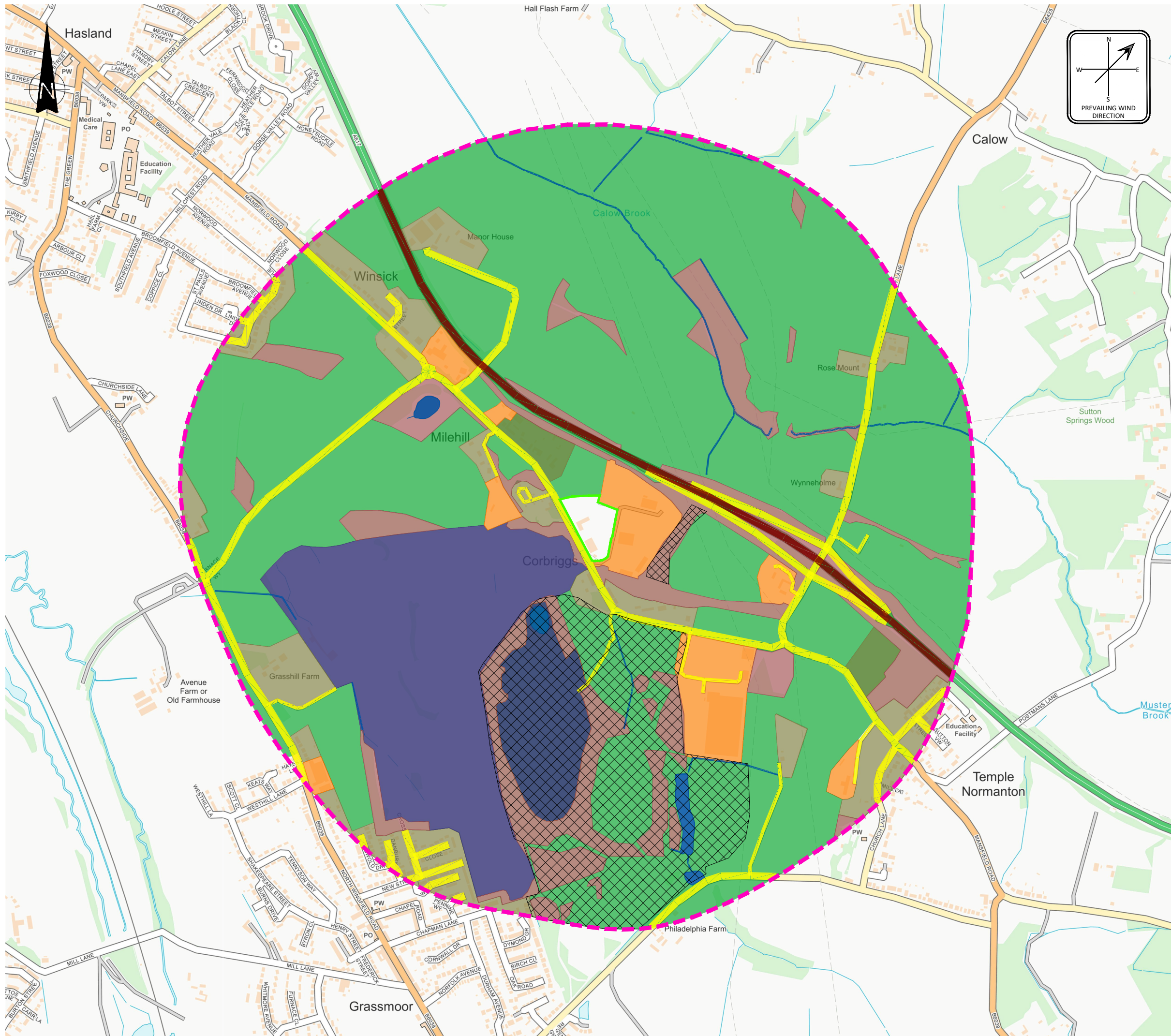
- Any part of the site where movement of vehicles or operation of equipment such as shredder, screener or other mobile plant may generate excessive noise.
- Transport and handling of material on-site.

6.3.3 If a complaint regarding noise emission is received, the company 'F003 - Amenity Complaint Form' will be completed and any corrective and preventative actions will be recorded.

6.3.4 Complaints will be handled by the Site Manager, who will ensure that the recording, investigation and close-out of any complaints is undertaken as described above and in accordance with company management procedures.

DRAWINGS

5448-CAU-XX-XX-DR-V-1800	Sensitive Receptor Plan
12800_004 Phase 1	Site Layout Plan
12800_004 Phase 2	Site Layout Plan



- LEGEND**
- - - PROPOSED PERMIT BOUNDARY
 - - - 1000m OFFSET
 - SURFACE WATER
 - WOODLAND / SCRUBLAND
 - RECREATIONAL
 - COMMERCIAL / INDUSTRIAL
 - RESIDENTIAL
 - MAJOR ROAD
 - MINOR ROAD
 - RAIL
 - AGRICULTURAL
 - LOCAL WILDLIFE SITES

P03	CLIENT COMMENTS INCORPORATED	EJD	SH	SH	02.12.22
P02	BOUNDARY UPDATED	EJD	SH	SH	09.11.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	01.11.22
REV	MODIFICATIONS	BY	RE	AP	DATE
PURPOSE OF ISSUE					STATUS
FOR INFORMATION					S2

CLIENT:
SILVA RECYCLING LTD

PROJECT:
CORBRIGGS WOOD PROCESSING FACILITY

TITLE:
SENSITIVE RECEPTORS PLAN

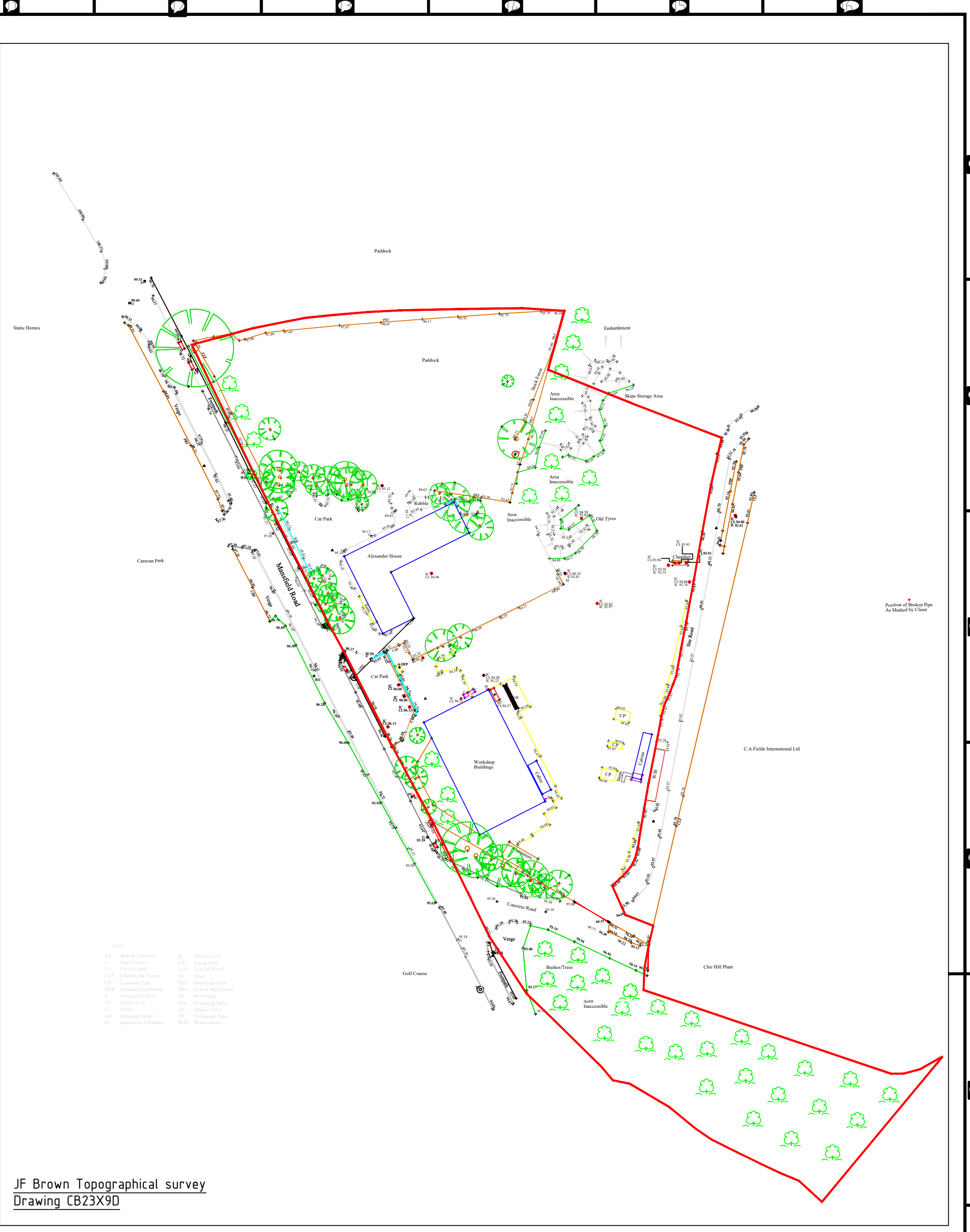
DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH
DATE	SCALE @ A3	JOB REF:	REVISION
01.11.2022	1:10,000	5448	P03

DRAWING NUMBER
5448-CAU-XX-XX-DR-V-1800



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JF Brown Topographical survey
Drawing CB23X9D

- Legend**
- Perimeter fence - Linear: 557m
Area : 16,450m²
 - Purchased land boundary
 - Quarantine area & overnight parking for HGV & mobile plant
 - Processing plant
 - Overnight parking for HGV & mobile plant

PHASE 1

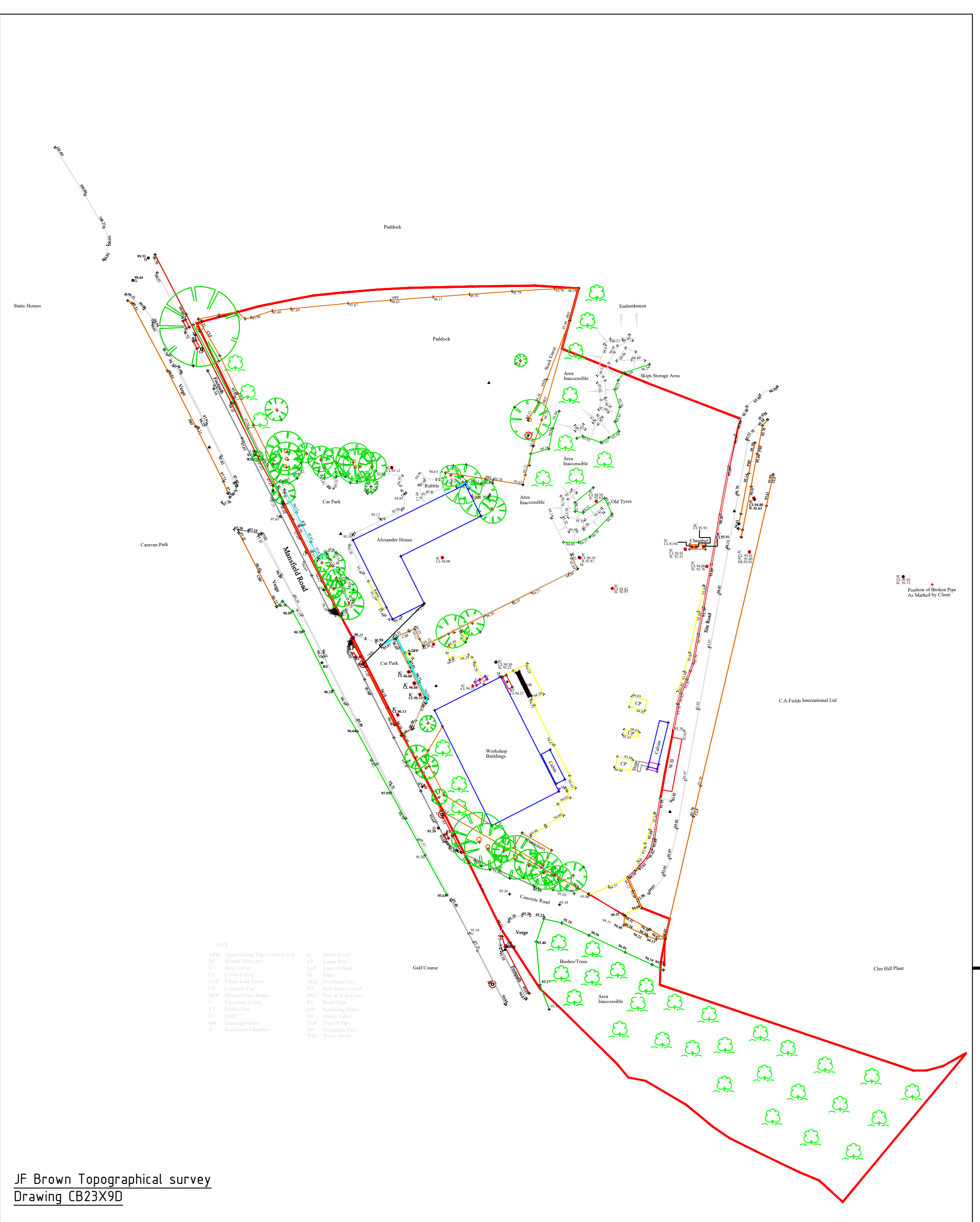
KRONOSPAN STATUS		
Date: 13.10.2022		
STATUS	DATE	BY
CERTIFIED	17.10.2022	A. Hilditch
DISTRIBUTION	06.10.2022	A. Hilditch
BOUNDARY UPDATE	10.10.2022	A. Hilditch
BOUNDARY UPDATE	06.10.2022	A. Hilditch
ELECTRICAL BOX	03.10.2022	A. Hilditch

D	Stock pile layout	17.10.2022	A. Hilditch
C	Boundary update	10.10.2022	A. Hilditch
B	Boundary update	06.10.2022	A. Hilditch
A	Electrical box	03.10.2022	A. Hilditch

Status	Date	Name	Size	Scale
Project leader	31.05.2022	J. Arkley	A1	1:200
Drawn	31.05.2022	A. Hilditch	origin	1:100
Checked	30.09.2022	C. Emery		ISO

 Xylo Technologies AG Rübfußstrasse 1 CH-9002 Niederfeulen Schweiz Kronospan Ltd Hasegwyn Farm LLN SMI Clark, Wrexham United Kingdom	Description G.A. Stock piles Recycling Centre, Corbriggs Drawing number 12800_004
Index	D
Sheet/Number	1/2

Proposed site layout



Legend

- Perimeter fence - Linear: 557m
Area : 16,450m²
- Purchased land boundary
- Quarantine area & overnight parking for HGV & mobile plant
- Processing plant
- Overnight parking for HGV & mobile plant

PHASE 2

KRONOSPAN STATUS Date: 17.10.2022	
STATUS	MANAGEMENT
KRONOSPAN	YYYY-MM-DD
YYYY-MM-DD	YYYY-MM-DD
DISTRIBUTION	STATUS APPROVAL
YYYY-MM-DD	YYYY-MM-DD
WARNING	
CERTIFIED	YYYY-MM-DD

E	Stock pile layout	17.10.2022	A. Hilditch
D	Purchase land boundary updated	10.10.2022	A. Hilditch
C	Position of purchase land boundary updated	07.10.2022	M. Welch
B	Paddock concrete wall amendment	06.10.2022	A. Hilditch
A	Paddock concrete wall amendment	03.10.2022	A. Hilditch

Status	Date	Name	Size	Scale
Project leader	31.05.2022	J. Arkley	A1	1:200
Drawn	31.05.2022	A. Hilditch	origin	1:100
Checked	30.09.2022	C. Emery		ISO
Project number	Project name			

Xylo Technologies AG
Rübelstrasse 1
CH-9052 Niederfeulen
Schweiz

Kronospan Ltd
Hatzosyn Farm
LLN SMI Clark, Wrexham
United Kingdom

G.A. Stock piles
Recycling Centre, Corbriggs

Drawing number: **12800_004**

Index: **E** Sheet/Number: **1/2**

APPENDIX 1

F003 - Amenity Complaint Form

APPENDIX 2

F002 - Site Diary

APPENDIX 3

F001 - Daily Site Inspection Form

DAILY SITE INSPECTION FORM

WEEK STARTING:



DAILY SITE INSPECTION	DAY							NOTES / REFERENCE
	M	Tu	W	Th	F	Sa	Su	
SITE ENTRANCE / NOTICE BOARD								
SECURITY - PERIMETER FENCING & GATES								
SECURITY - PORTACABINS & STORES								
EXTERIOR CONDITION - PORTACABINS & STORES								
INTERIOR CONDITION - OFFICES								
INTERIOR CONDITION - STORES								
INTERIOR CONDITION - WELFARE FACILITIES								
WEIGHBRIDGE								
GENERAL HOUSEKEEPING								
FUEL TANK / BUND								
SITE ROADS / SURFACES								
DRAINAGE (CATCH PIT & INTERCEPTOR)								
WASTE STORAGE								
WASTE TYPES: - QUANTITY - QUALITY	Unprocessed Wood							
	Woodchip							
	Wood Fines							
	Ferrous Metal							
	Non Ferrous Metal							
	General Waste							
	Quarantine Area							
AMENITY CHECKS:	Debris / Litter							
	Dust							
	Noise / Vibration							
	Odour							
	Pests / Vermin							
SPILL KITS								
FIRE EXTINGUISHERS (Weekly)								
FIRE ALARM SYSTEM TEST (Weekly)								(All radios working)
FIRST AID KITS								
OTHER								
INSPECTION CARRIED OUT BY:								
FIREWATCH COMPLETED BY:								
NOTES / ACTIONS (CONTINUE ON A SEPARATE SHEET IF NECESSARY):								
CHECKED BY:				SIGNATURE:				
POSITION:				DATE:				
Sheet				of				

DAILY SITE INSPECTION FORM

WEEK
STARTING:



NOTES/ACTIONS (CONTINUATION SHEET):

CHECKED BY:		SIGNATURE:	
POSITION:		DATE:	
Sheet		of	

APPENDIX 4

Noise Impact Assessment (NIA)



Caulmert

Land at Mansfield Road, Corbriggs

Noise Impact Assessment

UK.15174559/02 – October 2022

Move Forward with Confidence



**BUREAU
VERITAS**





Document Control Sheet

Identification	
Client	Caulmert
Document Title	Noise Impact Assessment – Land at Mansfield Road, Corbriggs
Bureau Veritas Ref No.	UK.15174559/02

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Configuration				
Version	Date	Author	Reason for Issue/Summary of Changes	Status
00	11/08/22	Y Hao	Draft for discussion	Superseded
01	20/10/22	Y Hao	Change of Site layout	Superseded
02	21/10/22	Y Hao	Updated TS and comments from client	Live

	Name	Job Title	Signature
Prepared By	Y Hao MIOA	Principal Consultant (Acoustics & Vibration)	
Approved By	R Cope MIOA	Technical Director (Acoustics & Vibration)	

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Registered Office: Suite 206, Fort Dunlop, Fort Parkway, Birmingham, B24 9FD

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3 Details of Development	2
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5 Baseline Sound Levels	8
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Appendix One – Glossary of Acoustic Terminology	15
Appendix Two – Site Location	16
Appendix Three – Site Layout	17
Appendix Four – Sound Levels and operation time	18

Executive Summary

Bureau Veritas was instructed by Caulmert to undertake an environmental noise assessment of the proposed waste wood processing site at the land at Mansfield Road, Corbriggs, Derbyshire.

An assessment of the operational noise impact has been carried out in accordance with British Standard 4142: 2014 to consider the potential noise impact on the nearby residential receptors.

To establish the current levels of ambient and background sound level at the site, an attended noise measurement survey was conducted during a quiet daytime period at a monitoring location representative for the receptors in June 2022 to obtain the background noise levels to be used in the assessment.

Existing ambient noise levels at the nearest noise sensitive receptors are dominated by the noise from Mansfield Road and the A617 dual carriageway. In the absence of local traffic noise, birdsong also contributed to the acoustic climate.

A computational noise model of the proposed development was assembled and populated with the noise emission data of the new sound sources. Standard noise propagation calculations were used to predict the site operation noise levels at the nearest residential receptors.

The assessment concludes that the noise impact of the site operation would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors, and that operational traffic generated by the development would have a negligible noise impact.

Introduction

- 1.1 Bureau Veritas was instructed by Caulmert Ltd to undertake an environmental noise assessment of the proposed waste wood processing site at Mansfield Road, Corbriggs, Derbyshire.
- 1.2 A glossary of acoustic terminology is included in Appendix One.

Site location

- 2.1 The proposed site is located in the village of Corbriggs off Mansfield Road, which links to Chesterfield to the northwest. A617 runs approx. 120 m to the northeast of the site. An industrial site is located to the immediate east of the site. The nearest residential dwellings are approx. 45 m to the south of the site. Grassland covers most of the areas to the west of the site. A travellers' site is to the northwest of the site, with Mansfield Road running between. Further residential dwellings are approx. 90 m to the northwest of the site.
- 2.2 The nearest noise sensitive receptors (NSRs) are identified as residential dwellings to the south (NSR1), travellers' site (NSR2) and residential dwellings to the northwest (NSR3).
- 2.3 The site location and the locations of the NSRs are shown in Appendix Two

Details of Development

- 3.1 The development related to the waste wood processing is proposed as below:
 - The demolition of existing derelict offices and workshop buildings;
 - The construction of site office off Mansfield Road, Weighbridge & Office;
 - Mobile Plant;
 - Stockpiling spaces, staff and visitor parking and pedestrian walkway;
 - The installation of perimeter fences, fire water storage tank, fire water equipment container, fire water containment wall, etc.
- 3.2 The proposed layout of the development for the assessment is shown in Appendix Three.

Criteria for Assessment

Assessment Methodology

- 4.1 The sounds caused by the proposed development are all considered as industrial noise, therefore British Standard 4142: 2014+A1: 2019 is the main guidance for the assessment, along with the other relevant references, to assess the potential noise impact on the nearby sensitive receptors.
- 4.2 The relevant guidance documents are listed below:
 - National Planning Policy Framework (NPPF) 2021; and the supplementary Planning Practice Guidance for Noise (PPG(N)) Dec 2014;

- British Standard 4142: 2014, “Methods for rating and assessing industrial and commercial sound” (BS4142);
- British Standard 8233: 2014, “Guidance on sound insulation and noise reduction for buildings”;
- The Design Manual for Roads and Bridges Vol 11; and
- ISO 9613-2:1996 ‘Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation’

Planning Policy

National Planning Policy Framework, 2021

- 4.3 The Revised NPPF (July 2021) sets out the Government’s planning policies for England. It states:

“174. Planning policies and decisions should contribute to and enhance the natural and local environment by: ...

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

- 4.4 It goes on to state:

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

- a) *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life [NPSE – see below];*
- b) *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and...*”

- 4.5 The terms ‘significant adverse impact’ and other adverse impacts are defined in the explanatory notes of the ‘Noise Policy Statement for England (NPSE), which states:

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur

- 4.6 It should be noted that specific noise limits for LOAEL and SOAEL have not yet been specifically defined, and would be specific to different sectors. However, guidance from other acoustic standards may be employed to determine suitable levels within the overall principle of the NPPF.
- 4.7 The Planning Practice Guidance for Noise (PPGN) provides further detail about how the effects of noise can be categorised. Table 4.1 summarises the noise exposure hierarchy.

Table 4.1: National Planning Practice Guidance Noise Exposure Hierarchy

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

Technical Guidance

British Standard 4142: 2014+A1: 2019 'Methods for rating and assessing industrial and commercial sound'

- 4.8 The Standard provides a method for assessing whether a sound from industrial or commercial premises (e.g. fixed mechanical and electrical (M&E) plant, loading activities etc.) is likely to cause a disturbance to persons living in the vicinity of the site.
- 4.9 BS 4142 assesses potential significance of effect by comparing the 'specific sound level' of an industrial source to the typically representative background sound level (L_{A90}). Certain acoustic features can increase the potential for a sound to attract attention, and therefore increase its relative significance than that expected from a simple comparison between the specific sound level and the background sound level. In particular, BS 4142 identifies noise that contains discrete impulses and/or audible tonal qualities and in these cases recommends that a correction be added to the specific sound level. The specific sound level along with any applicable correction is referred to as the 'rating level'.
- 4.10 The greater the difference between the rating level and the background sound level; the greater the likelihood of complaints. The assessment criteria given by BS 4142 are as follows:
- A difference of +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - A difference of +5 dB could be an indication of an adverse impact, depending on the context.
 - The lower the rating level is relative to the measured background sound level, the less likely it is that there will be 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, depending on the context.
 - Also to take into account the absolute level, risk that it will cause annoyance/interference with everyday activities, context of the sound, frequency and temporal variations to the sound.
- 4.11 During the daytime and evening, BS 4142 requires that sound levels are assessed over 1-hour periods. During the night-time, because sleep disturbance is the important issue and individual sound events are, therefore, more important, sound levels are assessed over 15-minute periods.

British Standard 8233: 2014 Guidance on Sound Insulation and Noise Reduction for Buildings

- 4.12 BS 8233:2014 provides guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use.
- 4.13 With regards to external sound sources affecting habitable residential spaces, Table 4 of BS 8233:2014 provides guideline values that it is desirable to not exceed during daytime and night-time periods. These guideline values are reproduced in Table 4.2.

Table 4.2: Indoor ambient sound levels for dwellings

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

- 4.14 For traditional external areas that are used for amenity space, such as gardens and patios, BS8233 states that it is desirable that the external sound level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.

The Design Manual for Roads and Bridges Vol 11

- 4.15 The Highways Agency guidance document *Design Manual for Roads and Bridges* (DMRB) (Vol. 11, 2011, Rev.1) includes guidance on the interpretation of changes in road traffic noise levels ($L_{A10,18hr}$) for determining the potential magnitude of effect. The suggested criteria for short-term (immediate at point of opening) effects are presented in Table 4.3.

Table 4.3 DMRB Classification of Magnitude of Traffic Noise Impacts in the Short Term

Noise Change $L_{A10,18h}$	DMRB Magnitude of Impact
0	No change
0.1 - 0.9	Negligible
1.0 - 2.9	Minor
3.0 - 4.9	Moderate
5+	Major

Source: DMRB HD213/11 Table 3.1

ISO 9613-2:1996 ‘Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation’

- 4.16 ISO 9613-2:1996 specifies methods for the description of sound outdoors in community environments. ISO 9613 can be applied to a wide variety of sound sources and includes methods to determine most of the major mechanisms of sound attenuation, such as:
- Geometric divergence (A_{div}) – spherical spreading of sound energy;
 - Atmospheric absorption (A_{atm}) – attenuation of sound due to interaction with the air (dependant on frequency of sound and negligible at short distances);
 - Ground effect (A_{gr}) – sound reflecting by the ground surface interfacing with the sound propagating directly from source to receiver;
 - Reflection from surfaces (image source method, included in A_{gr} calculation) – sound is reflected from hard surfaces such as building facades due to atmospheric impedance of the surface. This effect increases the sound level when compared to a location free of buildings (i.e. free field); and
 - Screening by obstacles (A_{bar}) – Hard obstacles such as close-boarded timber fences and varying topography, including hills attenuate the sound from a source due to the insertion loss properties of the obstacle. However, there is an element of the sound which will diffract around the obstacle,

especially at lower frequencies. The diffraction effect is determined using the path differences between the direct and diffracted sound. It should be noted that the screening effect provided by trees and foliage is negligible in the majority of cases; the exception is large areas of dense forest or plantations.

Local Planning Policy

Adopted North East Derbyshire local Plan 2014 to 2034

4.17 The North East Derbyshire Local Plan 2014-2034 was formally adopted by the Council on 29th November 2021 and is used to guide decisions on planning applications and areas where investment should be prioritised.

4.18 *Policy SDC13: Environmental Quality:*

1. All development proposals will be assessed in relation to their impact on air, light, noise, ground and water pollution. Planning permission will be refused for any proposal where pollution would pose an unacceptable risk to public health, quality of life or the environment.

...

3. Planning applications for development with the potential to pose a risk of pollution should be accompanied by an assessment of the likely impact of the development on environmental quality. Assessments of the risk of air, light, noise, ground or water pollution should relate to all stages of development."

4.19 It is also stated in the section Noise and tranquillity that:

"Man-made sources which is excessive, causes disturbance or annoyance, and can affect wildlife and sensitive areas, including areas known for their tranquillity. It often occurs as a result of industrial operations, transportation, or roads. National Policy and the NPPF acknowledge that good planning should aim to prevent the adverse effects of noise from being unacceptable, both in identifying locations for new noise sensitive and noise generating development."

Consultation

4.20 Prior to commencing the assessment work, Bureau Veritas discussed and agreed the scope of work and assessment methodology with Russell Smith, Environmental Protection Officer of North East Derbyshire District Council.

Baseline Sound Levels

- 5.1 To establish the ambient and background sound levels at the nearest receptors, attended baseline monitoring was carried out at a representative monitoring location during a quiet daytime period on 30th June 2022.
- 5.1 Monitoring location was approx. 8.2 m from the roadside of Mansfield Road, which has a similar distance to Mansfield Road as the NSRs. The monitoring location is shown in Appendix Two.
- 5.2 All measurements were undertaken in free-field conditions at a height of approximately 1.2 m above ground. The noise monitoring equipment was calibrated at the beginning and end of the assessment period using an acoustic calibrator, which had itself been calibrated against a reference set traceable to National and International Standards. No shift in calibration level was observed.
- 5.3 During the daytime measurement survey, the meteorological conditions were a slight (1-2 m/s) breeze from NW. The temperature was 15-16 °C, with 65% humidity and an atmospheric pressure of 1010 mb.
- 5.4 Existing ambient noise levels at the nearest noise sensitive receptors was dominated by the road traffic on Mansfield Road and the A617 dual carriageway. In the absence of local traffic noise, birdsong also contributed to the acoustic climate.
- 5.5 Table 5.1 presents a summary of the sound level survey results.

Table 5.1: Summary of Derived Sound Levels at the baseline monitoring location

Date	Start time	Sound Pressure Level, dB re: 20µPa (Fast, Free-field)			
		L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
30/06/2022	10:15	65	79	69	46
	10:30	64	76	69	48
	10:45	65	78	70	48
	11:00	65	79	70	47
	11:15	64	80	69	44
	11:30	64	78	69	47

- 5.6 The lowest daytime L_{A90,T} of the measured sound levels is 44 dB (see Table 5.1) and the average daytime L_{Aeq,T} is 65 dB.
- 5.7 The median background sound level during the surveyed quiet daytime period was determined to be **47** dB L_{A90} is considered to be the representative background sound level for the NSRs during daytime and **65** dB L_{Aeq} is representative ambient sound level.

Noise and Vibration Assessment

Introduction

- 6.1 For the Development, the impact assessment with respect to noise on the existing environment covers the following issues:
- Potential operational noise associated with fixed/mobile plant and vehicles (deliveries by HGV); and
 - Potential increase in local road traffic noise due to vehicle movements generated by the development once operational.
- 6.2 The assessment of the noise impact of the site operation is based on the ambient sound levels ($L_{Aeq,T}$) and the background sound levels ($L_{A90,T}$) measured/derived in June 2022. The sound levels of site operation at the nearest sensitive receptors are predicted by noise modelling, using CadnaA.
- 6.3 Noise propagation was predicted using algorithms described in ISO 9613-2, as incorporated within the noise modelling software.
- 6.4 Due to the typically low vibration levels that are likely to be generated, primarily by on site vehicle movements, it is expected that operational activities would not result in perceptible vibration impacts on any of the sensitive receptors. Therefore, no further assessment of operational vibration was undertaken.

Operational Noise

Identification of Sound Sources

- 6.5 Based on the site layout and the proposed process in the development proposal, the significant operational sound sources comprise:
- Waste wood shredder; and
 - Truck delivery, vehicle movements and car parking.
- 6.6 The operating hours of wood processing (shredding / screening) is proposed to be an average of 6-7 hours during the daytime period 07:00 – 19:00.
- 6.7 There are two proposed car parking plots for employees and visitors (17no. car parking spaces) and one quarantine area & overnight parking for HGV & mobile plant, one area for processing plant and one area for HGV and mobile plant overnight parking.
- 6.8 It is proposed that all HGV arrival and departure movements are via a new access formed on the concrete road located immediately south of the application Site.
- 6.9 The staff will work on a shift system. It is anticipated that there will be four shifts. The applicant has advised that a maximum of 10 employees will be on Site at once. The car parking is assumed to have 0.25 vehicle movements per hour per park space as a worst case.
- 6.10 The inbound and outbound vehicle movements for waste loads were calculated by Silva Recycling based on forecast split of load types and anticipated weights. For inbound traffic, there would be 110 loads (220 movements) per week, and for outbound traffic, there would be 66 loads (132 movements) per week.
- 6.11 The applicant has advised that waste reception will occur between 0700-1900 hours (i.e., 12 hours). It is proposed that the facility operates Monday to Sunday.

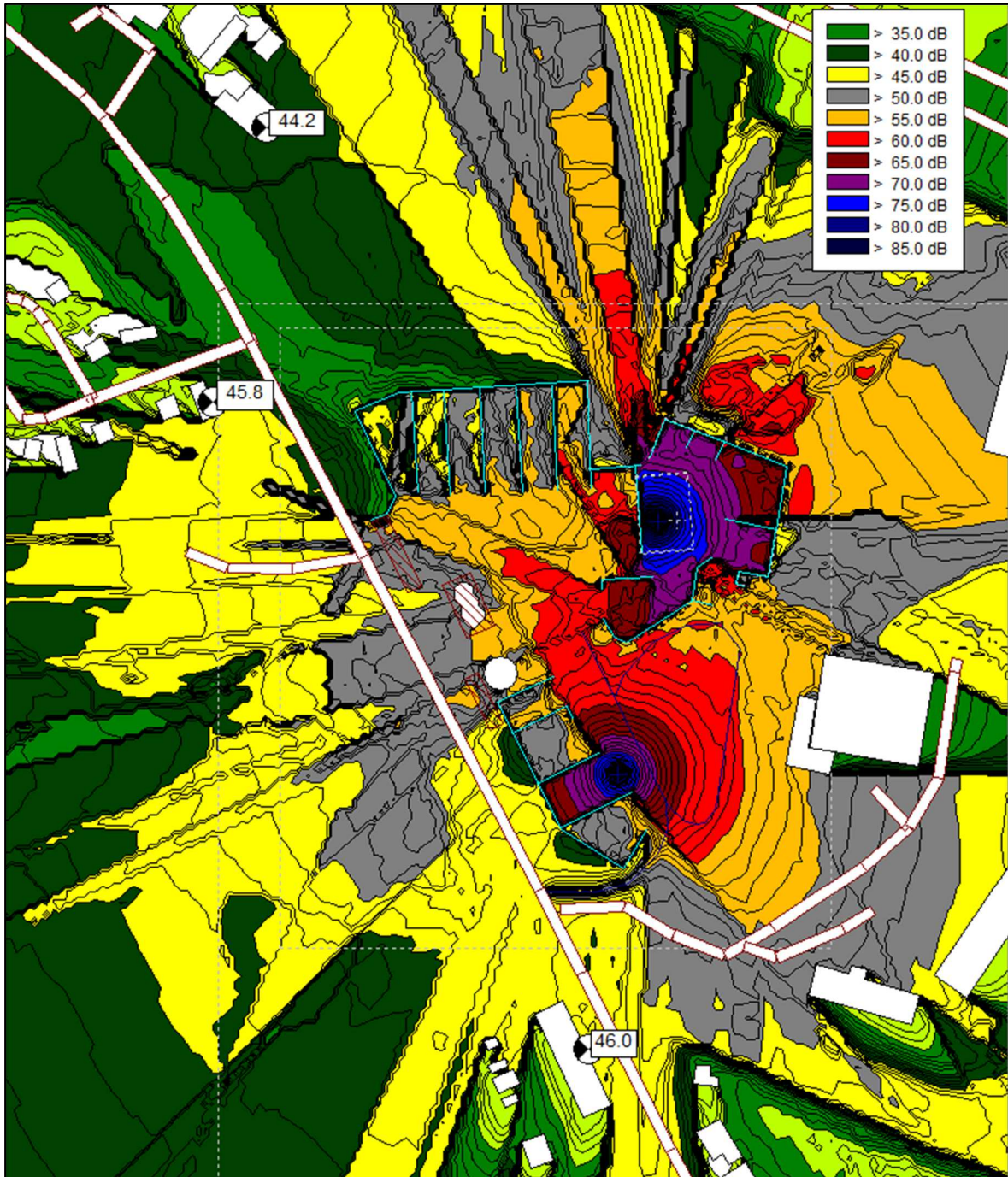
- 6.12 Worst-cases are used to allow the greatest level of flexibility in the development. The sound levels of the sound sources were assumed based on the BS 5228-1 sound level database and best practice on similar schemes. Appendix Four shows the assumptions of the acoustic data of the sound sources and the acoustic performance data for the proposed shredder. The modelled sound emission rates comprise:
- Shredder (electric, with diesel generator) = 111 dB L_{WA}, operating 6-7 hrs/day, at 1.5 m above ground.
 - Truck delivery = 116 dB L_{WA}, operating during 7 am to 7 pm, at 1 m above ground, weekdays only;
 - HGV movements with 50no. (two-way) per day, weekdays and weekends.
 - Sound power levels modelled using octave spectral distribution.
- 6.13 The heights of the point noise sources are assumed as the centre of each noise source.
- 6.14 As illustrated in the site layout (ref. 12800_004 PHASE 2 REV E-A1 - GA), the height of the walls for storage is 5 m. The storage walls are also included in the model.
- 6.15 The predicted specific sound levels at the nearest receptors during the daytime operation are shown in Table 6.1 below.

Table 6.1: Summary of Predicted Sound Levels on the nearest facades (day)

Receptor(s)	Sound Pressure Level, dB L _{Aeq,T} (Ground floor façade)
NSR1	46
NSR2	46
NSR3	44

- 6.16 Figure 6.1 shows the predicted sound propagation grids at 1.5 m at daytime.

Figure 6.1: Indicative Prediction of Specific Sound Level (Day) – 1.5 m above ground



BS4142:2014 Assessment

6.17 The indicative assessments to BS 4142:2014 are provided in Table 6.2 below:

Table 6.2: Indicative BS 4142:2014 Assessment - Daytime

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 46$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	47	8.1 and 8.2	The background noise levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 49 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	+2 dB (NSR1) +2 dB (NSR2) +0 dB (NSR3)		
Assessment of impact: Assessment indicates low impact due to plant noise at the receptors		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB. The background sound levels at the receptors are decided based on the short-term noise monitoring conducted during a quiet daytime period, avoiding peak commuting and lunch-time periods.

6.18 The results in Table 6.2 indicate that, during the daytime period, the predicted sound levels generated by the site would result in a low adverse impact at the nearest residential receptors.

6.19 Therefore, in reference to the noise hierarchy in Table 4.1, the noise may be present, but would not be intrusive, and therefore the operation noise of the site would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors.

Operational Traffic noise

- 6.20 An increase of traffic flow in and out the site will bring about an increase in traffic noise levels of local roads. An increase in traffic flows in excess of 25% can bring about increases in noise levels above 1 dB.
- 6.21 According to the Transport Statement by Ashley Helm Associates (ref. 674/2/D) traffic flow data for Mansfield Road is following:
- AM peak hour: 410 vehicles (two-way), and
 - PM peak hour: 500 vehicles (two-way).
- 6.22 The current average daily HGV movements to the Site is 50 no. (two-way), which is mainly via Mansfield Road. The percentage increase in total vehicles on Mansfield Road would be below 25% (less than 1dB increase).
- 6.23 As traffic data provided by Silva Recycling, with regards to staffing, this would be dependent upon shift patterns, however, in relation to traffic movements coinciding with peak hours, it was expected as the following, which is considerably low numbers:
- AM peak hour: 4 arrival and 0 departure
 - PM peak hour: 0 arrival and 5 departure
- 6.24 The noise impact, based on the number of vehicle movements generated and the potential traffic noise change is therefore assessed as negligible.

Conclusions

- 7.1 Bureau Veritas was instructed by Caulmert to undertake an environmental noise assessment of the proposed waste wood processing site at the land at Mansfield Road, Corbriggs, Derbyshire.
- 7.2 An assessment of the operational noise impact has been carried out in accordance with British Standard 4142: 2014+A1:2019 to consider the potential noise impact on the nearby residential receptors.
- 7.3 The assessment concludes that, the noise impact of the site operation would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors. The operational traffic noise is also predicted to have negligible impact on the nearest residential receptors.

Appendix One – Glossary of Acoustic Terminology

Sound power level	A logarithmic measure of the power of a sound relative to a reference value.
"A" Weighting (dB(A))	The human ear does not respond uniformly to different frequencies. "A" weighting is commonly used to simulate the frequency response of the ear. It is used in the assessment of the risk of damage to hearing due to noise.
Decibel (dB)	The range of audible sound pressures is approximately 2×10^{-5} Pa to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB.
Ambient sound level, $L_{Aeq,T}$	equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T. NOTE The ambient sound level is a measure of the residual sound and the specific sound when present.
Background sound level, $L_{90,T}$	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.
Maximum sound level, $L_{Amax,T}$	The maximum RMS A-weighted sound pressure level occurring within a specified time period.
Noise	Unwanted sound.
Ambient sound	Totally encompassing sound in a given situation at any given time composed of noise from many sources, near and far.
Residual sound	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Rating level	Specific sound level plus any adjustment for the characteristic features of the sound.

Appendix Two – Site Location



Appendix Three – Site Layout



Appendix Four – Sound Levels and operation time

Plant/noise source	Assumption of the noise emission levels			Plant reference
	% On-time	dB L _{Aeq} @ 10m	dB L _{WA}	
Electric shredder, powered by a diesel generator	80	83	111	Provided by client
Truck delivery	35	79	116	BS 5228, C8.20

APPENDIX 5

Technical Note (accompanying NIA)

Technical Note

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Environment Agency

To response to the Request for Further Information (RFI) - Corbriggs Wood Processing Facility - EPR/DP3642YM/A001, Bureau Veritas (BV) provide the required information for the noise impact assessment of Mansfield Road, Corbriggs. This technical note should be read in conjunction with the previous BV report (Ref. UK.15174559-02 - Mansfield Road, Corbriggs - Noise Assessment, dated 21 October 2022).

The information has been provided in line with EA guidance on Noise impact assessments involving calculations or modelling.

Background Sound Levels

To establish the ambient and background sound levels at the nearest receptors, long-term noise monitoring was carried out at a representative location from 13th to 20th April 2023. The measurement location [X(Eastings): 440967, Y(Northings): 368302] is shown in **Appendix One**.

All measurements were undertaken in free-field conditions at a height of approximately 1.2 m above ground. The noise monitoring equipment was calibrated at the beginning and end of the assessment period using an acoustic calibrator, which had itself been calibrated against a reference set traceable to National and International Standards. A shift of 0.1 dBA in calibration level was observed.

The sound level meter was set to record in 15-minute interval values for the measurement period, for the L_{Aeq} , L_{Amax} and L_{A90} indices (in line with Section 8.1.3 of BS4142). The raw data of the survey is provided in an excel file along with the submission of this Technical Note.

The predominant sound source was road traffic on Mansfield Road, with occasional vehicle movements and industrial noise from the industrial site to the east. The road traffic noise from A617 was also audible.

A weather station was set up next the noise monitoring equipment in line with the methods stated in Section 6.4 of BS4142. During the long-term monitoring, the temperature was 0-16 °C, with maximum wind speed of 1.6 m/s. Rain occurred during the monitoring periods of 14th April daytime and 17th April night. The meteorological data at the monitoring location was used to expurgate the noise data measured at the site when the wind speed was higher than 5 ms⁻¹ and when rain occurred. The full long-term weather data is shown in **Appendix Two**.

Table 1 presents a summary of the sound level survey results. The full long-term measurement data is shown in **Appendix Two**.

Table 1: Summary of Derived Sound Levels at the long-term monitoring location

Weekday /Weekend	Date	Period	Sound Pressure Level, dB re: 20µPa (Fast, Free-field)			
			L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
Weekday	13-14/04/23 17-20/04/23	07:00 - 08:00 (Early Morning)	57 – 63 Average 59	65- 80 Average 73	60 – 65 Average 62	52 – 59 Mode 55
		08:00 - 17:00	55– 63 Average 59	65- 85 Average 73	57 – 67 Average 61	51 – 59 Mode 55
		17:00 - 19:00 (Early Evening)	66 – 76 Average 59	66 – 76 Average 71	59– 63 Average 62	51 – 59 Mode 55
Weekend	15-16/04/23	07:00 - 08:00 (Early Morning)	53 – 56 Average 54	63- 77 Average 70	56 – 59 Average 57	46– 48 Mode 47
		08:00 - 17:00	53 – 61 Average 56	61- 89 Average 70	56 – 65 Average 58	46 – 53 Mode 49
		17:00 - 19:00 (Early Evening)	53 – 58 Average 55	65 – 79 Average 70	56– 62 Average 58	47 – 50 Mode 47

During the long-term monitoring, during weekdays, the modal daytime L_{A90,T} of the measured sound levels is **55** dB during 07:00 – 08:00 (Early Morning), 08:00 – 17:00, and 17:00 – 19:00 (Early Evening) (see Table 1), which is considered to be the representative background sound level for the time periods.

During the long-term monitoring, during weekend, the modal daytime L_{A90,T} of the measured sound levels is **47** dB during 07:00 – 08:00 (Early Morning) and 17:00 – 19:00 (Early Evening), **49** dB during 08:00 – 17:00 (see Table 1), which are considered to be the representative background sound levels for the time periods.

Sound Sources during Core Hours (0700-1900)

It has been further confirmed by the client that the daytime fixed and mobile plants in the site include:

- 1no. Waste wood shredder [X(Eastings): 441035, Y(Northings): 368258];
- Truck delivery [X(Eastings): 441021, Y(Northings): 368175];
- Car parking; and
- HGV movements.

The operating hours of wood processing (shredding / screening) is proposed to be an average of 6-7 hours during the daytime period 07:00 – 19:00.

There are two proposed car parking plots for employees and visitors (17no. car parking spaces) and one quarantine area & overnight parking for HGV & mobile plant, one area for processing plant and one area for HGV and mobile plant overnight parking.

It is proposed that all HGV arrival and departure movements are via a new access formed on the concrete road located immediately south of the application site.

The staff will work on a shift system. It is anticipated that there will be four shifts. The applicant has advised that a maximum of 10 employees will be on Site at once. The car parking is assumed to have 0.25 vehicle movements per hour per park space as a worst case.

It is estimated that circa 87% of the waste wood imported to site will be wood outputs moved to Chirk, with the remainder being recovered metals and incidental contamination sent to local recyclers. If the site is operating at its maximum design capacity of 75,000 tonnes per annum, this would generate up to 2,600 loads to be moved on articulated HGVs. This equates to an average of 50 loads per week (average of 7 – 10 per day, depending on whether the operation is working 5 or 7 days a week). Most loads would ordinarily be undertaken between 07:00 – 19:00 hours, however, there is potential for 1 or 2 loads to be undertaken at night.

The applicant has advised that waste reception will occur between 0700-1900 hours (i.e., 12 hours). It is proposed that the facility operates Monday to Sunday.

Worst-cases are used to allow the greatest level of flexibility in the development. The sound levels of the sound sources were assumed based on the BS 5228-1 sound level database and best practice on similar schemes. **Appendix Three** shows the assumptions of the acoustic data of the truck delivery and the acoustic performance data for the proposed shredder. The modelled sound emission rates comprise:

- Shredder (electric, with diesel generator) = 111 dB L_{WA} , operating an average 6-7 hrs/day during 7 am to 7 pm, at 1.5 m above ground, weekdays and weekends;
- Truck delivery = 106 dB L_{WA} , operating during 7 am to 7 pm, at 1 m above ground, weekdays and weekends; and
- HGV movements with 50no. (two-way) per day, weekdays and weekends.

Sound power levels modelled using octave spectral distribution. As illustrated in the site layout (ref. 12800_004 PHASE 2 REV E-A1 - GA), the height of the walls for storage is 5 m. The storage walls are also included in the model.

The predicted specific sound levels at the nearest receptors during the daytime operation are shown in Table 2 below.

Table 2: Summary of Predicted Sound Levels on the nearest façades (day)

Receptor(s)	X (Easting)	Y (Northing)	Sound Pressure Level, dB $L_{Aeq,T}$ (Ground floor façade)
NSR1	441003	368081	46
NSR2	440872	368294	46
NSR3	440902	368385	44

BS4142 Assessment

The BS4142 impact assessments are updated to include separate assessments during the week and weekend with corresponding background sound levels that are representative of the entire range of proposed operating hours for the site.

The noise contour map of the modelling is shown in **Appendix Four**.

The indicative assessments to BS 4142:2014 are provided in Table 3 to Table 8 below for different time periods:

Table 3: Indicative BS 4142:2014 Assessment – 07:00 - 08:00 Weekday

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	55	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	-6 dB (NSR1) -8 dB (NSR2) -8 dB (NSR3)		
Assessment of impact: Assessment indicates no impact due to plant noise at the receptors		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 3 indicate that, during the time period 07:00-08:00 weekdays, the predicted sound levels generated by the site would result in no adverse impact at the nearest residential receptors.

Table 4: Indicative BS 4142:2014 Assessment – 08:00 - 17:00 Weekday

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	55	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	-6 dB (NSR1) -8 dB (NSR2) -8 dB (NSR3)		
Assessment of impact: Assessment indicates no impact due to plant noise at the receptors		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 4 indicate that, during the time period 08:00-17:00 weekdays, the predicted sound levels generated by the site would result in no adverse impact at the nearest residential receptors.

Table 5: Indicative BS 4142:2014 Assessment – 17:00 - 19:00 Weekday

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	55	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	-6 dB (NSR1) -8 dB (NSR2) -8 dB (NSR3)		
Assessment of impact: Assessment indicates no impact due to plant noise at the receptors		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 5 indicate that, during the time period 17:00-19:00 weekdays, the predicted sound levels generated by the site would result in no adverse impact at the nearest residential receptors.

Table 6: Indicative BS 4142:2014 Assessment – 07:00 - 08:00 Weekend

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	47	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	+2 dB (NSR1) +0 dB (NSR2) +0 dB (NSR3)		
Assessment of impact: Assessment indicates low impact due to plant noise at NSR1 and no impact at NSR2 and NSR3.		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 6 indicate that, during the time period 07:00 - 08:00 Weekend, the predicted sound levels generated by the site would result in a low adverse impact at NSR1, and no impacts at NSR2 and NSR3.

Table 7: Indicative BS 4142:2014 Assessment – 08:00 - 17:00 Weekend

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	49	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	+0 dB (NSR1) -2 dB (NSR2) -2 dB (NSR3)		
Assessment of impact: Assessment indicates no impact due to plant noise at the receptors		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 7 indicate that, during the daytime period 08:00 - 17:00 weekends, the predicted sound levels generated by the site would result in no adverse impact at the nearest residential receptors.

Table 8: Indicative BS 4142:2014 Assessment – 17:00 - 19:00 Weekend

Description	Result	Relevant Clauses of BS 4142:2014	Commentary
Specific Sound Level (free-field)	$L_{Aeq,T} = 46$ dB (R1) $L_{Aeq,T} = 44$ dB (R2) $L_{Aeq,T} = 44$ dB (R3)	7.3.6	Predicted level (free-field) at ground floor level at the nearest receptor. Determined by calculation using CadnaA.
Background sound level	47	8.1 and 8.2	The background sound levels (free-field) were measured at the monitoring locations close to the noise-sensitive receptors.
Acoustic features correction	+3 dB	9.2	A penalty of 3 dB for intermittency of operation of the shredder and HGV movements
Rating Level	49 dB (NSR1) 47 dB (NSR2) 47 dB (NSR3)		
Excess of Rating Level over Background Sound Level	+2 dB (NSR1) +0 dB (NSR2) +0 dB (NSR3)		
Assessment of impact: Assessment indicates low impact due to plant noise at NSR1 and no impact at NSR2 and NSR3.		11	
Context: The dominant road noise at the receptor reduces the likelihood of an adverse impact from the wood processing site.			
Uncertainty of the assessment		10	The specific noise level has been predicted by CadnaA, which utilises ISO9613 calculations, which have a claimed uncertainty of +/- 3 dB.

The results in Table 8 indicate that, during the time period 17:00 - 19:00 weekends, the predicted sound levels generated by the site would result in a low adverse impact at NSR1, and no impacts at NSR2 and NSR3.

Site Activities outside of Core Hours

There are site activities associated with the site operation outside the core hours (1900-0700), including:

- 19:00 – 20:00 Housekeeping – machine movements;
- 20:00 – 22:00 End of shift inspections, refuelling plant, maintenance/ servicing;
- 19:00 – 07:00 Occasional HGV movements, articulated HGVs exchanging an empty trailer for a preloaded trailer;
- 06:00 – 07:00 Pre-start inspections, greasing machines, maintenance/ servicing

The site activities during 20:00 - 22:00 and 06:00 – 07:00 will not generate significant noise, which are scoped out of the noise assessment. The noise assessment therefore focuses on the machine movements (19:00-20:00) and HGV movements (19:00 – 07:00).

Regarding housekeeping, the machine (i.e., Volvo L120H wheeled loading shovel) will be mostly moved within the processing area, except for parking the machines up for the night outside the weighbridge or site office. There will be occasional tracking of the Terex Ecotec TDS 820E shredder to facilitate clearance of material around it, while the shredding chamber will not be used.

The wheeled loading shovel will be expected to move around the processing area for approximately 50% of the time. It is expected there will be two movements of the shredder for each tracking, i.e., one movement to track out from the processing position, one movement to track back into position after the area is cleared of material. Each movement will take approximately one minute.

Housekeeping would be required at the end of any full shift of processing material, weekdays and weekends.

Regarding HGV movements, as stated above, most loads would ordinarily be undertaken during the time 07:00 – 19:00, however, there is potential for 1 or 2 loads to be undertaken at night. The exchanging will occur in the HGV parking area outside the weighbridge or the site office.

Table 9 presents a summary of the sound level survey results during 19:00 – 7:00, weekdays and weekends. Three time periods are considered, i.e., 19:00 – 20:00, 19:00 – 23:00 and 23:00 – 07:00, to represent the baseline sound climate for housekeeping and HGV movements.

The full long-term measurement data is shown in **Appendix Two**.

Table 9: Summary of Derived Sound Levels at the long-term monitoring location

Weekday /Weekend	Date	Period	Sound Pressure Level, dB re: 20µPa (Fast, Free-field)			
			L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
Weekday	13-14/04/23 17-20/04/23	19:00 - 20:00	54 – 60 Average 58	64- 79 Average 71	57 – 63 Average 60	48 – 55 Mode 53
		19:00 – 23:00	46 – 60 Average 54	57- 80 Average 66	49 – 63 Average 56	38 – 55 Mode 44
		23:00 – 07:00 (Night-time)	37 – 63 Average 49	51 – 83 Average 62	41– 67 Average 51	24 – 58 Mode 40
Weekend	15-16/04/23	19:00 - 20:00	53 – 56 Average 55	64- 72 Average 68	57 – 60 Average 58	46 – 49 Mode 47
		19:00 – 23:00	44 – 58 Average 51	57- 73 Average 64	48 – 60 Average 55	33 – 49 Average 44*
		23:00 – 07:00 (Night-time)	40 – 71 Average 48	53 – 91 Average 62	43 – 69 Average 51	26 – 55 Average 39*

* The average value is more representative than mode value here

Housekeeping noise assessment (19:00-20:00)

According to the results in Table 9, the representative background sound levels are **53 dB** L_{A90,T} during weekdays and **47 dB** L_{A90,T} during weekends.

Given the low occurrence of shredder tracking and short time length of each movement (one minute), the noise of shredder tracking is very unlikely to have a significant impact on the NSRs.

The Volvo L120H wheeled loading shovel has a quiet cab, with a sound pressure level of 68 dB at the operator. The weight of L120H wheeled loading shovel is 20.7 t. The acoustic data is not specified in its technical specification, so it is assumed that its sound power level is similar to the loading shovel in Table C.10.2 in BS5228-1, of which the sound pressure level is 76 dB at 10 m.

The predicted loading shovel noise levels at the NSRs are presented in Table 10, considering the 50% operation time.

Table 10: Predicted loading shovel noise levels

Receptor(s)	X (Easting)	Y (Northing)	Sound Pressure Level, dB L _{Aeq,T} (Ground floor façade)
NSR1	441003	368081	46
NSR2	440872	368294	46
NSR3	440902	368385	45

The values are determined, assuming that the activity is located at the nearest point of the processing area to the NSRs without any noise barriers, and therefore represent the worst-case scenario. The noise levels would be expected to reduce as the loading shovel moves further from the NSRs.

The results in Table 10 indicate that the housekeeping noise levels are below the background sound levels and will have no adverse impacts on the NSRs during the time period 19:00 -20:00, for either weekdays or weekends, according to BS4142 assessment.

HGV noise assessment (19:00-07:00)

The HGV noise assessment is undertaken for time periods of 19:00 - 23:00 (evening time) and 23:00 – 07:00 (night-time).

According to the results in Table 9, the representative background sound level during 19:00 – 23:00 is **44** dB L_{A90,T} during weekdays and weekends.

The representative background sound levels during 23:00 – 07:00 are **40** dB L_{A90,T} during weekdays and **39** dB L_{A90,T} during weekends.

There are only 1-2 HGV movements (SWL @ 94 dBA when departure and arrival and SWL @ 91 dBA when idling) during 19:00 – 07:00.

It is assumed the departure/arrival will last for one minute and idling will last for 14 minutes over 15 minutes of BS4142 assessment as the worst case.

The predicted HGV movement noise levels at the NSRs are presented in Table 11.

Table 11: Predicted HGV movement noise levels

Receptor(s)	X (Easting)	Y (Northing)	Sound Pressure Level, dB L _{Aeq,T} (Ground floor façade)	Sound Pressure Level, dB L _{Aeq,T} (1 st floor façade)
NSR1	441003	368081	37	40
NSR2	440872	368294	29	30
NSR3	440902	368385	23	26

During time 19:00 – 23:00 weekdays and weekends, the HGV movement noise levels at the NSRs are well below the background sound level **44** dBA. As such, the HGV movements have no adverse impacts on the NSRs according to BS4142.

During time 23:00 – 07:00 weekdays, the HGV movement noise levels at the NSRs are no more than the background sound level **40** dBA and therefore, cause no adverse impacts at NSRs.

During time 23:00 – 07:00 weekends, the HGV movement noise levels at the NSR1 is 1 dB more than the background sound level **39** dBA and therefore cause low adverse impacts. While the noise levels at NSR2 and NSR3 are much lower than the background sound level.

It is noted that the dominant sound source is traffic noise from Mansfield Road, therefore no acoustic feature correction is applied for the HGV movement noise according to the BS4142 assessment.

Conclusions

The noise associated with the site operation was assessed for both the core hours (07:00 – 19:00) and outside of the core hours (19:00 – 07:00).

The site operation during the core hours has low adverse noise impacts at NSRs. The housekeeping on the site during 19:00 – 20:00 has no adverse impacts at the NSRs. The HGV movements on the site have no adverse impacts during 19:00 – 23:00 and low adverse impacts during 23:00 – 07:00.

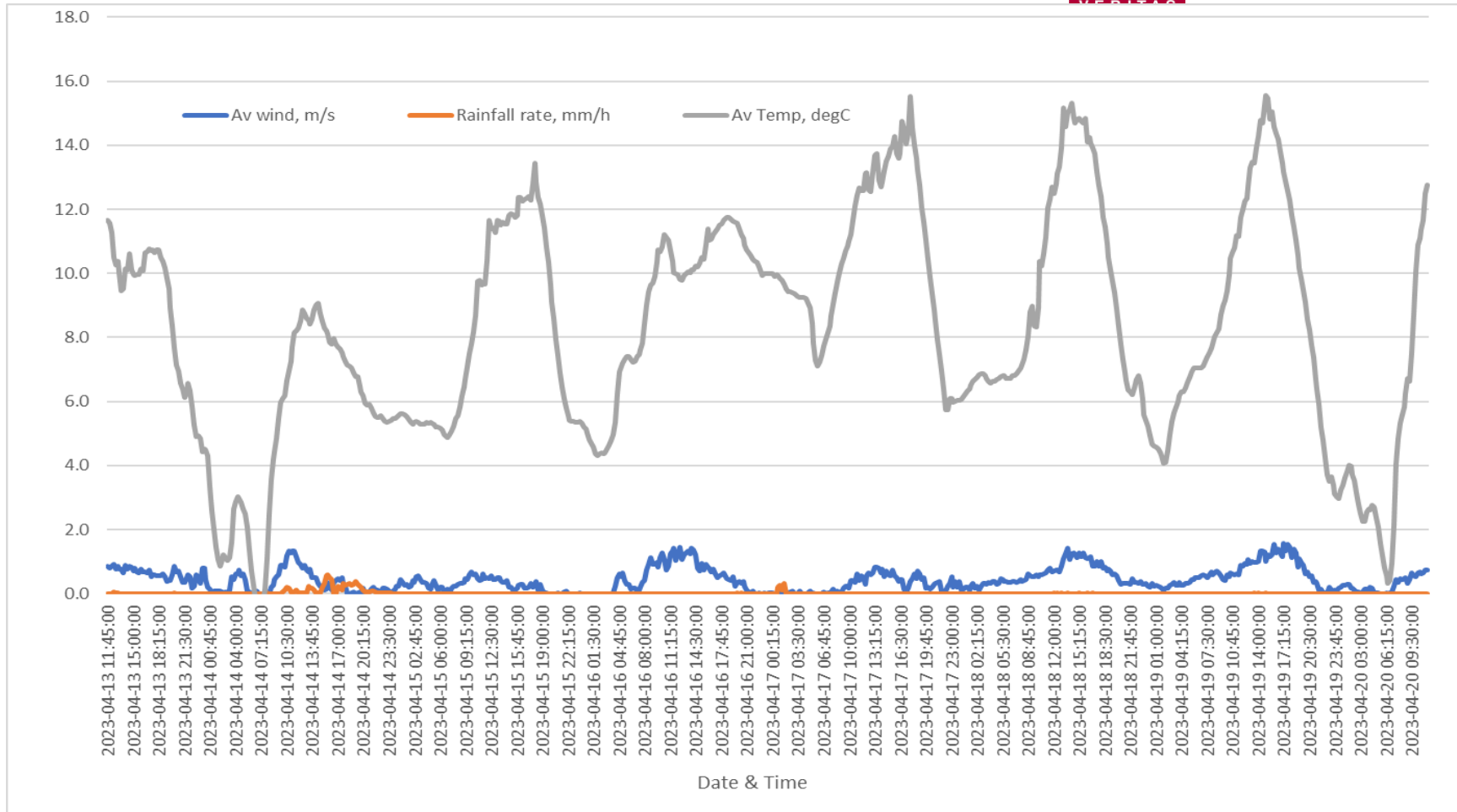
Therefore, in reference to the noise hierarchy in The Planning Practice Guidance for Noise (PPGN), the noise may be present, but would not be intrusive, and therefore the operation noise of the site would be below the Lowest Observed Adverse Effect Level at the nearest residential receptors. No further noise mitigation measures are required.

Appendix One Monitoring Location



Appendix Two Long-term Baseline Monitoring Data

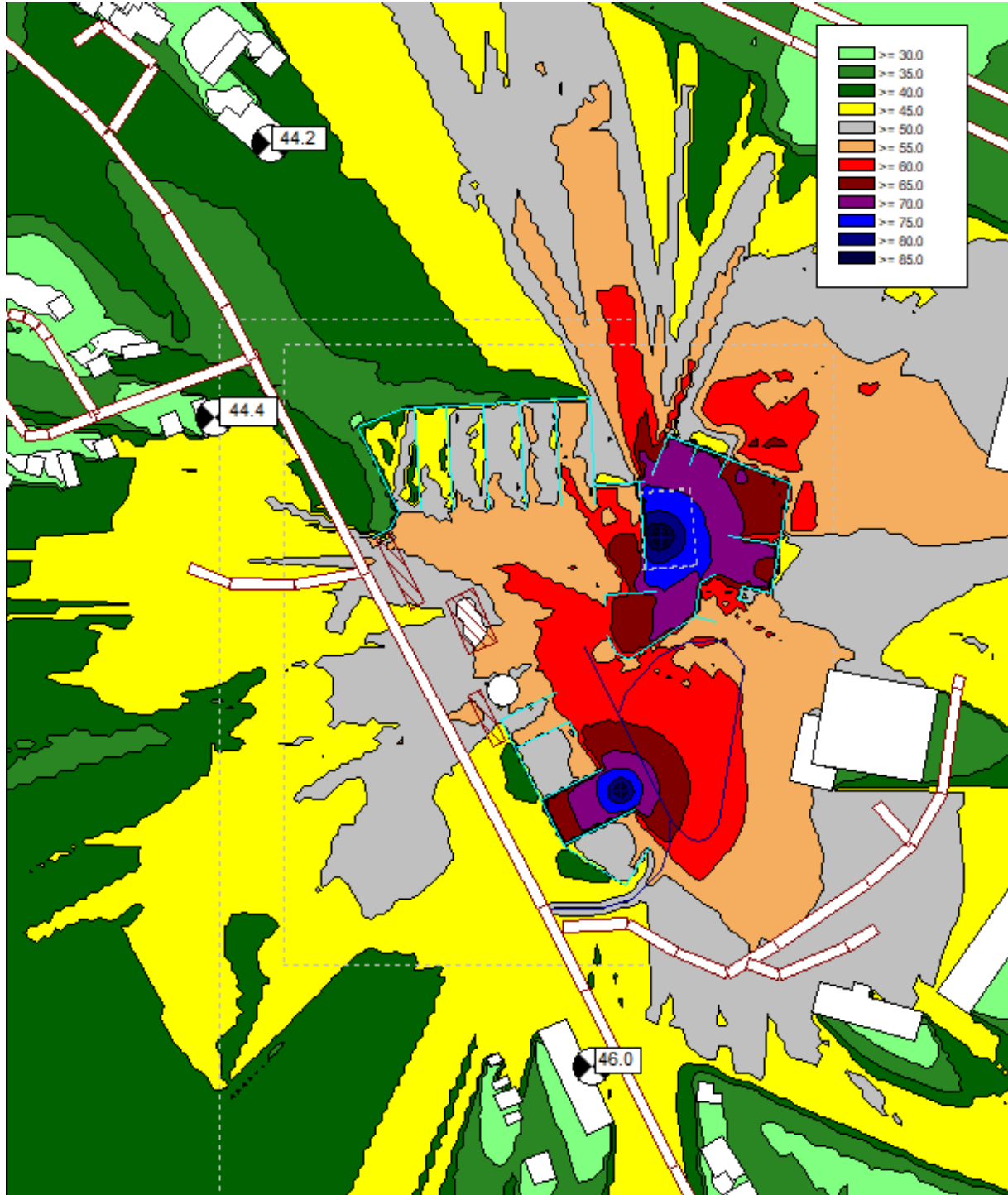




Appendix Three Sound Levels and operation time

Plant/noise source	Assumption of the noise emission levels			Plant reference
	% On-time	dB L _{Aeq} @ 10m	dB L _{WA}	
Electric shredder, powered by a diesel generator	80	83	111	Provided by client
Truck delivery	35	79	106	BS 5228, C8.20

Appendix Four Indicative Prediction of Specific Sound Level (Day) – 1.5 m above ground



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