

# Acoustics & Air Quality Modelling & Assessment Unit (AQMAU)



## Audit of noise impact assessment

Table 1: Permit application details and AQMAU audit outcome.

AQMAU audit summary		Audit overview	
<p><b>Consultant BS4142 assessment outcome</b></p> <p><b>Low impact</b></p>	<p>Following sensitivity check modelling, AQMAU finds higher rating levels compared to the consultant.</p> <p>The main reason for the difference is inconsistencies in source sound power levels with respect to the information supplied with the permit application, whereby AQMAU has carried out modelling sensitivity checks using higher source sound power levels.</p>		
<p><b>AQMAU audit outcome</b></p> <p><b>Adverse impact</b></p>	<p>AQMAU finds numerical significant adverse impacts in agreement with the consultant. However, AQMAU determines that these impacts can only be downgraded to adverse impacts in context, where the consultant has considered low impacts in context.</p>		
<p><b>AQMAU audit conclusion</b></p> <p>AQMAU finds higher BS 4142 impacts than the consultant, but recommends that noise impacts from the site are acceptable in terms of EA guidance, providing the site is working to BAT for minimisation of noise. Subject to recommended permit condition requiring revised NIA and NMP following detailed design stage.</p>	<p>The current Noise Impact Assessment (NIA) is based upon an outline design for the Energy from Waste development, whereby detailed plant selection, site layout, building construction and full mitigation specifications are not yet confirmed. In order to verify the accuracy of the impacts predicted with respect to the NIA and SoundPLAN model reviewed within this audit, it is recommended that the use of a permit condition is considered to request a follow up NIA and Noise Management Plan (NMP) following the completion of detailed design. It is recommended that AQMAU would review this future NIA and associated noise modelling.</p>		
Permit application details		AQMAU details	Assessment details
<p><b>Site name:</b> Canford EFW CHP Facility</p> <p><b>Permit sector:</b> Permitting Installations</p> <p><b>Permit ref:</b> EPR/SP3127SF/A001</p> <p><b>Type:</b> New Bespoke</p>	<p><b>AQMAU report reference:</b> AQMAU-C2840-RP01</p> <p><b>AQMAU response date:</b> 30/12/2024</p>	<p><b>NIA reference:</b> CANFORD EFW CHP</p> <p>CANFORD RESOURCE PARK, POOLE, NOISE IMPACT ASSESSMENT, DOCUMENT REFERENCE: 2402670 02, dated 04/06/2024</p> <p><b>Acoustic consultant:</b> RWDI</p> <p><b>Applicant:</b> MVV ENVIRONMENT LIMITED</p>	

## 1. Proposed operations

- 1.1 MVV Environment Ltd proposes to construct and operate a new Energy from Waste Combined Heat and Power facility within Canford Resource Park, Bournemouth, Wimborne BH21 3AP. The proposed site would incinerate up to 260,000 tonnes of non-recyclable Household, Commercial and Industrial waste per year with a generating capacity of approximately 31 MW. The proposed site would operate 24 hours a day, 365 days a year. However, waste is proposed to only be accepted between 07:00 – 20:00, meaning that external HGV movements would also be limited to this time period.

- 1.2 The proposed site within Canford Resource Park is located within a suburban area to the north-east of Poole. The proposed site is located adjacent to existing large scale commercial recycling facilities and Canford Heath Nature Reserve lies to the south of the site. The nearest residential receptors are approximately 600m from the proposed site boundary off of Arrowsmith Road to the west of the site and off of Provence Drive to the east of the site. Canford Park Sports pitches are located to the north-west of the site with further mixed commercial/residential land use off of Magna Road to the north-east of the proposed site. The consultant has noted that the existing sound climate in the area surrounding the site is dominated by existing waste treatment operations from an adjacent Mechanical and Biological Treatment Facility and a Material Recycling Facility within Canford Resource Park and road traffic on Magna Road.
- 1.3 The sources of sound emissions from the proposed site have been detailed as the following:
- Tipping hall building
  - Waste bunker building
  - Boiler house building
  - Building containing:
    - APC plant, silos and reactor
    - Bag filter
    - Induced draft fan
    - Compressed air station
    - Water treatment plant
  - Chimney outlet
  - Turbine hall building
  - Air-cooled condenser
  - Water re-cooling system
  - Main transformer
  - Switchgear building
  - HGV deliveries of waste
  - External loader movements
  - Exhaust steam pipe (between turbine hall and air-cooled condenser)
- 1.4 The consultant has assessed the sound emissions from two operating scenarios, normal operation and turbine bypass operation (which incorporates a higher sound power level for the exhaust steam pipe). Following AQMAU's sensitivity modelling checks, there was negligible difference between the two operating scenarios so AQMAU's outcomes within this audit report are representative of both operating scenarios.

**Table 2: AQMAU risk grading of noise impact assessment elements.**

NIA element	Risk grading	Summary of AQMAU audit	Further actions
Sensitive receptors	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>- The consultant has included a receptor at R11 to the west of the site, labelling this as High Trees, a residence off of Arrowsmith Road. AQMAU has reviewed this receptor and has found that the receiver in the noise model was actually placed at Flambards, a residence adjacent to High Trees. AQMAU has added their own receivers within the model to be representative of the High Trees residence, which is one of the nearest receptors to the proposed site. Predicted specific sound levels at these receivers were similar to those at the consultant’s receiver locations.</li> <li>- AQMAU has reviewed Bournemouth, Poole and Christchurch Council’s planning portal for any proposed residential developments in the area and has not found any currently in the planning system.</li> <li>- During the daytime (07:00 – 23:00) the consultant has calculated impacts at ground floor levels of nearby residential receptors (1.5m) only, while first floor receptors (4m) were included during the night-time (23:00 – 07:00), this underestimates the impacts from the site. Environment Agency guidance<sup>1</sup> clarifies that where BS 4142<sup>2</sup> states that impacts should be calculated “outside a building” the Environment Agency considers this to be “any room where occupants would expect or need quiet – studies, bedrooms, sitting rooms” Therefore, any floor above the ground floor should also be considered within a noise impact assessment. AQMAU has conducted modelling sensitivity checks with receivers at first floor levels during both the daytime and night-time where appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>- If a follow up NIA is requested to be submitted following detailed design, the consultant should include an assessment of impacts at first floor locations (4m) during the daytime at residential properties where appropriate.</li> </ul>
Background sound levels	<b>Low risk</b>	<ul style="list-style-type: none"> <li>- The consultant has undertaken a long-term background sound survey three locations, LT1 to the east of the site, LT2 to the west and LT3 to the south. The consultant has not detailed the soundscape directly at the long-term measurement locations, but based upon the description provided for the three attended measurement locations (ST1, ST2 and ST3), the dominant sound source during the survey was generally road traffic noise. Additional contributions were present from the existing recycling facilities at Canford Resource Park with some contributions from the construction of the now complete housing development off of Provence Drive to the east of the site. The temporary construction noise would not be representative of the typical soundscape of the area, however the background sound levels captured across the long-term survey were low, so it is unlikely that the construction noise adversely affected the derived</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>

<sup>1</sup> <https://www.gov.uk/government/publications/method-implementation-document-mid-for-bs-4142/method-implementation-document-mid-for-bs-4142>

<sup>2</sup> BS 4142: 2014 + A1: 2019, Methods for rating and assessing industrial and commercial sound, British Standards Institution

NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<p>background sound levels. Regardless, the highest noise impacts have been noted during the night-time when construction noise would not have been present during the survey.</p> <ul style="list-style-type: none"> <li>- The consultant has applied an adjustment to the background sound levels measured at some of the long-term measurement positions with respect to synchronised measurements during the middle of one weekday daytime period at attended measurement locations. No attended measurements were carried out during the night-time or the weekend and the derived numerical adjustments applied by the consultant were minimal regardless. Therefore, to mitigate uncertainty in this approach, AQMAU has only used directly measured background sound levels at the long-term locations. With the low background sound levels measured by the consultant, particularly during the night-time, this is not considered to increase risk and may even result in an overprediction of noise impacts at locations located closer to residual sound sources, such as roads, than the long-term measurement locations.</li> <li>- AQMAU has analysed the raw data from the background sound level survey, provided by the consultant. AQMAU has derived slightly lower background sound levels compared to the consultant based upon an analysis of weekend periods, where the consultant had not considered separate weekday/weekend periods.</li> </ul>	
Source sound levels	<b>High Risk</b>	<ul style="list-style-type: none"> <li>- The consultant has used reference sound levels provided by MVV Environment Ltd to quantify the source sound power levels used within the NIA.</li> <li>- AQMAU has compared the sound levels within the report and modelling against previous applications and finds that the values used are similar to previous assessments.</li> <li>- AQMAU has however noted issues with the interpretation of the representativity of the of the method the consultant has utilised to model sound emissions from proposed buildings with respect to reference internal sound pressure levels. AQMAU has incorporated higher source sound power levels for sound emitting buildings as part of modelling sensitivity checks, resulting in increased predicted specific sound levels at nearby noise sensitive receptors.</li> <li>- The consultant has accounted for only 1 HGV movement per hour in their moving point source calculation used to determine the HGV line source sound power level. AQMAU has increased the number of HGV movements per hour to 13 movements in</li> </ul>	<ul style="list-style-type: none"> <li>- There is a risk that the sound levels of equipment to be installed on site may be different to what is currently presented at outline design. Permitting should consider the use of permit conditions to ensure that impacts from the site are not higher than presented in this report. This could be done by requiring a future NIA and NMP once the detailed design is confirmed. AQMAU can assist the Area team/officer in assessing any future NIA provided in support of such a permit condition.</li> </ul>

NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<p>line with the predicted trip generation data in the Transport Assessment<sup>3</sup>, resulting in an increased sound power level for the HGV line source and contributing to increased specific sound levels at nearby receptors during the daytime (up to 20:00).</p> <ul style="list-style-type: none"> <li>- Uncertainty has also been noted with respect to how sound emissions from the air-cooled condenser have been modelled based upon the source data for fans and the proposed cladding around this item of plant. AQMAU has increased the sound power levels of some of the area sources used to represent this source within the noise model, contributing to increased specific sound levels from the site.</li> <li>- Further detail on source sound levels is included in Section 2 of this report.</li> <li>- There is a risk that the assumed sound levels of equipment do not match the sound levels of equipment that will later be chosen and installed on site. Considering the current outline design stage, and the uncertainty associated with the sound source modelling identified by AQMAU, it is recommended that Permitting should consider the use of a permit condition, requiring a future Noise Impact Assessment and Noise Management Plan once the detailed design is complete.</li> </ul>	<ul style="list-style-type: none"> <li>- If a follow up NIA is requested to be submitted following detailed design, it should incorporate accurate trip generation data for HGV movements. Additionally, referenced data should be used for plant items if available once plant selection is complete, as well as referenced sound insulation data for facade elements presented following confirmation of building constructions.</li> </ul>
Calculation method	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>- The consultant has carried out modelling using SoundPLAN version 8.2, with the ISO 9613-2:1996<sup>4</sup> calculation method. This standard was withdrawn at the start of 2024 and was replaced with an updated version of the same standard ISO 9613-2:2024<sup>5</sup> at that time. AQMAU has carried out modelling calculations using the current version of the ISO 9613-2:2024 standard, resulting in increased specific sound level predictions.</li> <li>- AQMAU agrees with the approach the consultant has taken to model hard ground absorption (G = 0) within the area of the proposed site and soft ground absorption (G = 1) elsewhere within the model. AQMAU has slightly reduced the absorption coefficient of obstacles within the model to match AQMAU's standard modelling settings<sup>6</sup>, however this had a negligible effect on predicted specific sound levels.</li> <li>- Inconsistencies have been noted between the heights of sound emitting buildings and some of the external sound sources across heights listed in the NIA, the input heights</li> </ul>	<ul style="list-style-type: none"> <li>- If a follow up NIA is to be requested following detailed design: <ul style="list-style-type: none"> <li>o Building heights/layouts should be consistent between the NIA, noise model and reference drawings.</li> <li>o Sound emissions from chimneys/vents incorporated into building façades/roofs should be incorporated into the assessment with mitigation detailed if applicable.</li> </ul> </li> </ul>

<sup>3</sup> CANFORD RESOURCE PARK, WIMBORNE, TRANSPORT ASSESSMEN, Document No: 028.0076/TA/5, Rev 2-5, dated Feb-May 2023, prepared by Paul Basham Associates Ltd

<sup>4</sup> ISO 9613-2: 1996, Acoustics – Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors.

<sup>5</sup> ISO 9613-2: 2024, Acoustics – Attenuation of sound during propagation outdoors. Part 2: Engineering method for the prediction of sound pressure levels outdoors.

<sup>6</sup> Order of reflection 3, building absorption coefficient 0.1, & receptor heights of 1.5m and 4m (where relevant).

NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<p>in the noise model and the scaled heights presented within section and elevation drawings<sup>7</sup>. Where inconsistencies have been noted, AQMAU has relied upon the scaled heights presented in the section and elevation drawings.</p> <ul style="list-style-type: none"> <li>- The consultant has applied a +3 dB “correction” to predicted specific sound levels to account for potential uncertainty within the source data within the model. Additionally, it has been stated by the consultant that a 5 dB “safety margin” has been included where a calculation has included a sound reduction index. AQMAU has retained the sound reduction index data for the indicative facade constructions used by the consultant, but has removed the +3 dB correction due to the fact that the increases in specific sound level identified by AQMAU essentially represent the uncertainty associated with the assumptions regarding sound source data and noise modelling methodology, and AQMAU’s modelling sensitivity checks to source sound levels exceed this uncertainty value regardless.</li> <li>- It has been noted that there are a number of chimneys/vents indicatively included within the sections and elevation drawings which have not been separately assessed for sound emissions with respect to the general roof construction of buildings. Following detailed design, if chimneys or vents are to be incorporated into the facade/roof structure of any buildings, sound emissions from these should be assessed with mitigation measures detailed if applicable.</li> </ul>	<ul style="list-style-type: none"> <li>○ The calculation method should be updated to ISO 9613-2:2024.</li> </ul>
Acoustic feature correction	<b>Low risk</b>	<ul style="list-style-type: none"> <li>- AQMAU agrees with the consultant's application of acoustic feature correction, whereby +3 dB has been included for sound that is neither tonal, intermittent, or impulsive but is otherwise readily distinctive against the residual sound environment.</li> </ul>	-
Mitigation	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>- The applicant has proposed the following mitigation measures on site: <ul style="list-style-type: none"> <li>○ The air-cooled condenser is proposed to be surrounded by cladding achieving a sound insulation performance of <math>R_w</math> 24 dB on 4 sides (excluding the top and bottom).</li> <li>○ The exhaust steam pipe between the turbine hall and the air-cooled condenser will be treated with some form of acoustic mitigation to achieve at least a 10 dB reduction in sound emissions.</li> <li>○ The processing of materials will be contained within buildings with openings (such as doors) to be kept to a minimum.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Permitting should consider the use of a permit condition to ensure that adequate mitigation measures are installed on site. This could be done by requiring a future NIA and NMP update once a detailed design has been finalised.</li> </ul>

<sup>7</sup> Project No. SC1643/PL, Drawing Nos. 10-01, 10-02, 11-01, 11-02, 12-01, 12-02 and 12-03, dated 23/02/2023, prepared by Savage + Chadwick Architects

NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<ul style="list-style-type: none"> <li>- Within the consultant's SoundPLAN model, 3m tall barriers were included adjacent to the sources representing the water re-cooling system and the main transformer. These barriers were not mentioned within the NIA, but should be included within the Noise Management Plan for the site as part of the acoustic mitigation scheme.</li> <li>- The consultant has anticipated that a number of mitigation measures will be required on site to control the sound emissions from the site. The project is currently in the early design stage, and therefore the consultant has not been able to provide the confirmed specifications for proposed building constructions, silencers, attenuators, and other aspects of bespoke attenuation. Permitting should consider the use of a permit condition to require the applicant to submit a detailed noise impact assessment and Noise Management Plan once a detailed design has been finalised. At the detailed design stage, it should be clear what mitigation measures are required to ensure that impacts are acceptable at the nearby residential properties.</li> <li>- Following sensitivity modelling checks, AQMAU finds a risk of adverse impacts in context at residential properties. In line with the aims of the Noise Policy Statement for England<sup>8</sup>, Environment Agency guidance<sup>9</sup> and the standard permit condition for noise, this level of impact is acceptable only if the site is working to Best Available Techniques<sup>10</sup>. Further information is provided on Best Available Techniques in Section 2 of this report.</li> </ul>	<ul style="list-style-type: none"> <li>- Any acoustic barriers that will be included on the proposed site should be included within the acoustic mitigation scheme details in the NMP.</li> <li>- AQMAU finds there is a risk of adverse impacts. This level of impact is only acceptable if the Noise Management Plan demonstrates Best Available Techniques.</li> </ul>
Context	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>- The consultant has included a consideration of context to justify a reduction in the overall impact from sound emissions at residential receptors from a numerical significant adverse impact to a low impact. The main points which lead to this conclusion are: <ul style="list-style-type: none"> <li>○ While the site will operate 24 hours a day and 365 days a year, residual waste will only be accepted during daytime hours (between 07:00 – 20:00).</li> <li>○ Predicted specific sound levels are below the residual sound levels measured during the survey at the most affected receptors.</li> </ul> </li> </ul>	-

<sup>8</sup> <https://www.gov.uk/government/publications/noise-policy-statement-for-england>

<sup>9</sup> <https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits>

<sup>10</sup> <https://www.gov.uk/guidance/best-available-techniques-environmental-permits>

NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<ul style="list-style-type: none"> <li>○ Non-residential receptors outside the scope of BS 4142 have been included within the assessment and are likely to be less sensitive than residential receptors during the night-time period.</li> <li>○ The site will be located within Canford Resource Park, which includes existing industrial waste processing activities from a Mechanical and Biological Treatment Facility as well as a Material Recycling Facility. This means that nearby residences would already be accustomed to sound of a similar character to that associated with the proposed Energy from Waste facility.</li> <li>○ Absolute representative background sound levels are low, particularly during the night-time.</li> <li>○ Absolute specific sound levels are low, and when factoring in assumed attenuation from a window with predicted specific sound levels internal noise levels at nearby receptors would be barely audible.</li> </ul> <p>- AQMAU generally agrees with the consultant regarding their assessment of context, particularly with respect to the consideration of absolute sound levels as BS 4142 mentions <i>“Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.”</i> AQMAU finds higher rating levels than the consultant, however the predicted levels are still low and are consistently lower than residual levels during both day and night-time periods. Additionally, only a small number of residential receptors are predicted to be adversely or significant adversely affected, these are located to the north-west of the site and this result is primarily driven by the low background sound levels in this area. On this basis, AQMAU agrees that the predicted numerical significant adverse impacts from the development can be downgraded, but considers that sound emissions from the site may still be perceptible during certain time periods. In accordance with EA guidance, which advises <i>“It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an ‘adverse impact’)</i>”, AQMAU finds that the predicted impacts can be reduced to adverse impacts in context.</p>	
BS 4142 conclusions	<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>- The consultant predicts a numerical significant adverse BS 4142 impact as a worst case and following a consideration of context they conclude low impacts from the proposed Energy from Waste site.</li> </ul>	<ul style="list-style-type: none"> <li>- In line with the aims of the Noise Policy Statement for England and the Environment Agency’s guidance and standard permit condition for noise, the Noise Management Plan should</li> </ul>



NIA element	Risk grading	Summary of AQMAU audit	Further actions
		<ul style="list-style-type: none"> <li>- Following sensitivity check modelling, AQMAU finds higher specific sound levels compared to the consultant. AQMAU considers that there is a risk of numerical significant adverse impacts.</li> <li>- After a consideration of context, AQMAU finds that an adverse impact is likely at nearby residential receptors. In line with the aims of the Noise Policy Statement for England and The Environment Agency’s guidance and standard permit condition for noise, this level of impact is acceptable only if the site is working to Best Available Techniques to minimise sound emissions.</li> <li>- This conclusion is based on the applicant achieving the consultant’s assumed design targets for sound levels of equipment and installation of adequate mitigation measures. There is a risk that this report’s assumptions and therefore its conclusions will change once a detailed design is complete. Permitting should consider using a permit condition to request a further Noise Impact Assessment and Noise Management Plan once the detailed design of the plant is finalised.</li> </ul>	<p>demonstrate Best Available Techniques.</p> <ul style="list-style-type: none"> <li>- As previously advised, Permitting should consider the use of a permit condition to ensure that the currently predicted impacts, which are based on the consultant’s assumed sound source levels and mitigation measures are accurate. This could be achieved by requiring a further NIA and NMP once the detailed design is finalised.</li> </ul>

**Table 3: AQMAU risk grading key.**

Risk Grading	Implications for AQMAU audit
<p><b>Low Risk</b> We don’t see any risk with this element of the NIA.</p>	<p>AQMAU agrees with the assumptions/conclusions submitted in relation to this element of the NIA. Or We disagree, but this is not considered significant, and does not affect the assessment of risk.</p>
<p><b>Medium Risk</b> We see some risk with this element of the NIA and have investigated further.</p>	<p>AQMAU don’t agree with the assumptions/conclusions submitted in relation to this element of the NIA. This affects the assessment of risk, and further action may be required from the applicant / consultant.</p>
<p><b>High Risk</b> We see major risk with this element of the NIA and it is likely to cause a problem.</p>	<p>AQMAU strongly disagrees with the assumptions/conclusions submitted in relation to this element of the NIA. This strongly affects the assessment of risk and further action will be required from the applicant / consultant.</p>

## 2. Further evidence

### Sound source levels

- 2.1 The consultant has provided reference noise levels, mentioning that source sound spectra has been “normalised” to the broadband source sound level data provided by MVV Environment Ltd. It is unclear what is meant by the spectra being normalised, although AQMAU finds the internal reverberant sound pressure level references and source levels provided are generally consistent with similar Energy from Waste sites. The proposed design for the facility is currently at outline design stage with layouts and plant selection not yet confirmed, therefore the sources used within the assessment are liable to change following detailed design in any case.
- 2.2 Reference internal sound pressure levels have been provided within buildings, which on no clear basis has been assumed by the consultant to represent the sound pressure level measured at a distance of 1m. The consultant has used this assumption to derive the sound power level for a singular point source within the middle of each room, with no explanation as to what this point source is meant to represent, and has then calculated sound breakout from individual buildings within the SoundPLAN model using an internal to external calculation. AQMAU disagrees with this approach as the internal sound pressure levels are not considered to relate to a singular point source within the middle of each room, which the consultant’s method assumes. Rather this has been interpreted as an internal reverberant sound pressure level, which is consistent with similar Energy from Waste site Noise Impact Assessments previously reviewed. AQMAU has carried out sound breakout calculations using the internal sound pressure levels within Table 6 of the NIA as internal reverberant sound pressure levels, generally retaining the sound reduction index values used by the consultant for proposed outline facade constructions. This resulted in sound power levels ( $L_{WA}/m^2$ , dB) that were substantially higher than those calculated by the consultant.
- 2.3 There is a single building within the proposed layout which has been detailed by the consultant to house the following sound sources:
- APC plant, silos and reactor
  - Bag filter
  - Induced draft fan
  - Compressed air station
  - Water treatment plant

In order to model sound emissions from each of the areas/rooms that house these sources, the consultant has used the previously described method to model sound emissions from point sources to represent each of the above items of plant. As the detailed layout of the building is not yet confirmed, AQMAU has taken the approach of calculating sound breakout from the whole building using the highest internal reverberant sound pressure level from the above listed plant, which was that associated with the induced draft fan. This led to increased sound power levels than those used by the consultant, increasing predicted specific sound levels at nearby noise sensitive receptors.

- 2.4 Uncertainty has been noted by AQMAU regarding the representativity of the method by which sound emission from the air-cooled condenser has been modelled through a calculation of internal sound propagation from point sources representing the fans of the plant unit. As part of this calculation, the consultant has modelled the bottom structure of the enclosure around the fans, approximating the sound reduction index of this construction to that used for a roller shutter door elsewhere in the application. Additionally, directivity has been applied to the fan point source in both the vertical (perpendicular to the plane of fan rotation) and horizontal (parallel to the plane of fan rotation) planes, equating to no adjustment on axis and -10 dB at 90° and 270° off axis in a type

of “figure 8” pattern. AQMAU agree that the adjustment applied in the vertical axis could be representative of fan emissions, but the adjustment in the horizontal plane seems to be unintended and unrepresentative. To counteract the uncertainty in the representativity of the construction of the air-cooled condenser and the applied directivity in the horizontal plane, AQMAU has changed the sound power level ( $L_{WA}/m^2$ , dB) of the area sources to match the consultant’s calculations for if the bottom of the structure was fully open, also using the highest of the individual facade sound power level calculated by the consultant. AQMAU’s changes resulted in higher sound emissions from the air-cooled condenser at nearby receptors. As with the rest of the proposed development, the design presented for the air-cooled condenser may change at detailed design, and as such the calculation of sound emission from this source should be updated following plant selection and confirmation of the cladding construction.

- 2.5 AQMAU agrees with the approach the consultant has taken to adjust the HGV movements line source sound power level by using a moving point source approximation. However, the consultant has only accounted for 1 HGV movement per hour in their assessment. This contradicts the Transport Assessment<sup>11</sup> submitted with the permit application, whereby trip generation estimates (assuming that HGV movements are spread across the day between 07:00 – 20:00) state that there may be 13 HGV movements per hour. AQMAU has accordingly increased the vehicle movements per hour within the moving point source calculations, increasing the sound power level of the HGV line source. AQMAU has also shortened the layout of the HGV line source to only cover the movement path within the permitted site boundary, where the consultant had extended this towards Magna Road. Overall AQMAU’s changes to the HGV source increased specific sound levels at nearby receptors during the daytime.

## Mitigation

- 2.6 As stated, AQMAU finds that adverse impacts are likely due to sound emissions from the site. This level of impact is acceptable only if the site is working to Best Available Techniques. This could include demonstrating that noise emissions have been prevented or minimised as far as reasonably practicable using the following examples as justification (reproduced from EA guidance):
- Concentrate on the dominant noise sources (and where necessary consider the influence of individual sub-components within a system).
  - Detail all existing noise attenuation measures (enclosures, silencers, locations of kit, operating times restrictions and maintenance regimes).
  - For dominant noise sources, consider all noise reduction techniques and come to a reasoned determination of what is achievable.
  - Where upgrades are identified - state the predicted impact of the works and commit to firm completion timescales.
  - Set out the findings of the above within the NMP.
- 2.7 In addition to this there is a waste incineration BREF document<sup>12</sup> with further, more detailed guidance on how to apply the Best Available Techniques to control sound emissions.

End of Document

---

<sup>11</sup> CANFORD RESOURCE PARK, WIMBORNE, TRANSPORT ASSESSMEN, Document No: 028.0076/TA/5, Rev 2-5, dated Feb-May 2023, prepared by Paul Basham Associates Ltd

<sup>12</sup> <https://eippcb.jrc.ec.europa.eu/reference/waste-incineration-0>