



Humidity -	70%
Air Pressure -	1013.5mbar
Temperature -	10°C

Foundation of the Model

The noise model was constructed utilising the following information:

- Detailed OS Mastermap Vector 1:1 scale commercial topographical data;
- Site layout preliminary general arrangement as supplied by Studio E LLP;
- Noise levels for the equipment proposed on site as supplied by Northern Bio Power and Tamar Energy Ltd;
- HGV and vehicle movements associated with the site as supplied by the traffic consultants on the project, SK Transport Ltd (Chapter 6).

Modelling Assumptions

Within the construction of the noise model, certain assumptions have been required to be made due to incomplete information as a result of the early stage of the development and facility design.

Key noise sources associated with the facility as used within the noise model are detailed below:

- 4No. Air Cooled Condenser (ACC) Fans located at 15m above ground level. The fans are shrouded in a 10m band of acoustically cladded material similar to that specified within the façade construction of the building structures with an open top and bottom to allow air flow. The ACC fans were specified within the information supplied by Northern Bio Power as generating a broadband noise level of 100dB(A);



- Internal noise generation by the Timber Resource Recovery Centre (TRRC) has been assumed to be below 85dB(A) in accordance with the requirements of the Control of Noise at Work Regulations 2005;
- Internal noise generation by the Anaerobic Digestion facility (AD) is largely attributed to 1No (one) tiger shredder emitting a noise level of 94dB Lw and on medium sized shovel loader emitting a noise level of 85dB; and,
- 2No Combined Heat and Power (CHP) Engines located near the AD facility. The engines are housed in an acoustically robust ISO Shipping container which, with all fans and vents included would reduce the noise generated by the CHP engines to a level of 65dB at a distance of 10m from the source.

Inherent/incorporated Mitigation Measures

Furthermore as a minimum Northern Bio Power Ltd is committed to incorporate the following mitigation measures into the design of the facility, and hence these measures have been assumed to form part of the development proposals within the impact assessment.

All assumptions and incorporated mitigation measures embodied within the scope of the modelling exercise are as detailed below.

1. The façade construction of the building envelopes have been assumed in all cases to provide an R_w sound reduction index of at minimum -38dB(A) based upon the usage of a standard cladding product (Kingspan KS 1000RW/40 including I (insulation) and L (perforated steel liner sheeting)).
2. The roof construction has been assumed to provide an R_w sound reduction index of at minimum -38 dB(A). This could be supplied by the use of a Kingspan KS 1000RW/30 or 50 both including I (insulation) and L (perforated steel liner sheeting).



- Noise associated with the 4No. ACC fans requires to be reduced by 6dB by appropriate acoustic or design measures from the level quoted within the Modelling Assumptions Section of this appendix:

ACC Fans: 100dB (quoted level) – 6dB (required mitigation) = 94dB source level

- All vehicular access doors have been assumed to be rapid closing, closed when not in use and to provide an R_w sound reduction of at minimum -15dB(A).
- All personnel doors have been assumed to provide the same sound attenuation as the surrounding wall construction. It has further been assumed that all personnel doors to the facility will remain closed at all times when not in use.
- All noise sources on site, with the exception of the following detailed sources, have been assumed to be within the building envelope
 - 4no. Air cooled condenser fan units
 - 1No. Flare Stack emissions at approx. 2.5m AOD;
 - 2No CHP Engines in Acoustically robust ISO 'shipping' containers; and,
 - HGV and vehicle movements.
- It has been assumed within the scope of the calculations undertaken that noise from all activities on site will remain continuous for 100% of the assessment period of 1 hour (100% on time);
- The model has been constructed assuming the 95 HGV's accessing the facility per day, comprising:
 - AD facility deliveries: 35HGVs per day;
 - TRRC facility deliveries: 60HGVs per day.



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9. It has also been assumed within the calculations that the sound power level of an HGV under acceleration is 105.5 dB as stipulated as a maximum permitted value in EC Directive 92/97/EC. This value has been corrected within the modelling in accordance with the haul road methodology of BS5228 to take account of the number of vehicles per hour and the speed of travel (assumed 16kmph/10mph)
 10. All mobile plant operating within and around the REP will be fitted with either “smart” or broadband reversing alarm systems, or at sensitive times will be manoeuvred with the support of a qualified banksman to minimise the disturbance associated with this aspect of the operations.