

Technical note:

Earl Shilton – Response to HBBC Noise comments on 21/01511/OUT and 23/00330/OUT

1. Introduction

This technical note provides updated information to address the outstanding matters for noise and vibration for Application B (21/01511/OUT) and addresses some of the outstanding matters in relation to Application A (23/00330/OUT).

This technical note is to be read in conjunction with the outline planning application documents, in particular the Site Suitability Assessment report dated December 2021 ref: 42523-WOOD-XX-XX-RP-ON-0001_S3_P02 and the first technical addendum: 42523-WSPE-XX-XX-TN-ON-00001_S3_P01 (first addendum).

The technical note includes supporting information for the assessment of noise impact upon proposed residential dwellings located on the adjacent development site to the Wastewater Treatment Works (WwTW), a summary of the assessment undertaken in the first addendum, supporting figures and responses to the local authority (HBBC Pollution Team) comments at outline planning stage.

2. Summary of outcomes from the first addendum

This section provides a summary of outcomes from the first addendum. Including the tonality assessment, façade sound insulation assessment and the validation of measurement through modelling.

Tonality

An assessment of tonality has been undertaken in accordance with the objective method presented in BS4142:2014¹.

The measurement undertaken at MP1 when assessed using the objective method shows the presence of a tone at 160 Hz.

If this was considered a dominant noise source this would attract a penalty of 6 dB. However, when assessed in the context of the site, the prevailing noise is attributed to traffic noise, and is predicted to be at least 10 dB above noise contributions from the WwTW. As such tonality will only be

¹ British Standards Institution, 2019. BS 4142:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound. BSI, London.

audible during the quietest periods of the night and is considered to not be dominant in the environment.

The assessment concluded no tonality was present at MP2. This is expected to be the case irrespective of screening provided by proposed buildings between the road and the receptors, however, this will be confirmed as a reserved matter.

Model validation for transportation sources

A noise model of the transport sources has been produced using predicted traffic flows. The assessment of transport noise is based on a future year, with the development fully built out and occupied. The average measured $L_{A10,T}$ sound pressure level was compared against the predicted noise level at the monitoring location. Subjectively, on site observations confirmed that road traffic noise is the dominant noise source within the study area.

The results indicate that the predicted and measured $L_{A10,18hr}$ levels are in agreement, within a tolerance of ± 3 dB. The results of the comparison therefore indicate that results from the noise model are valid for the purposes of the assessment.

BS 8233:2014 Assessment

BS8233:2014² presents design criteria for noise within habitable rooms in new residential developments to avoid adverse impacts on amenity for the intended use.

Open and closed window calculations have been undertaken using the highest predicted façade level to give an indicative internal noise level and indication of what glazing, and ventilation strategies will be available for dwellings.

A standard façade construction is used for the calculation consisting: masonry cavity wall, trickle ventilation and standard double glazed glass windows with a thickness configuration of 4(4-16)4.

Traffic noise is predicted to be the prevailing dominant noise across the site during the daytime and the night-time. The combined plant noise and traffic noise levels are used to determine the required sound insulation strategy for first floor bedrooms. The outcome of the assessment is that an indicative glazing and ventilation strategy would consist of:

- Standard glazing configuration (i.e. 4(6-16)4) and attenuated trickle ventilation (minimum performance 42 D_{ne})

The measured plant noise from the WwTW does not significantly change the glazing or ventilation requirements at the Proposed Development, as these are driven by road noise levels across the site.

3. Data Gathering

A number of key information requirements were identified in order to facilitate preparation of the noise assessment. The information obtained to assess the potential noise impacts of operations is discussed in this section. **Figure 3.1** presents the noise monitoring locations and the surrounding infrastructure.

²BSI (2014) British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings. February 2014.

Figure 3.1 Noise monitoring locations and surrounding infrastructure.

3.1 Sensitive receptors and descriptions

The nearest noise sensitive receptors (NSRs) are proposed to be located to the east, south and west of the WwTW, with the closest dwellings approximately 50 m from the WwTW boundary. The assessment has focused on the likely noise impacts at the closest NSR.

3.2 Survey methodology

Source noise surveys

A noise source survey was undertaken at locations around the boundary of the WwTW. The purpose of these surveys was to establish what activities currently occur on the site and to provide data for model inputs. The results from the noise source survey can be seen in **Table 3.1**.

The survey took place on the evening/night of Thursday 8th September 2022. Sound pressure levels were measured to characterise various plant items located at the WwTW. Using aerial photography and onsite observations, the main contributors of noise at the monitoring locations were determined to be a bank of pumps located on the eastern side of the WwTW site and filtration tanks located at the southern part of the WwTW site. Observations of the WwTW plant consider the noise to be steady and is represented by the L_{90} (i.e. the lowest 10 percent) of sound pressure levels at the measurement locations close to the WwTW. Further observations conclude that noise levels from the plant when approximately 10 m front the site boundary are inaudible over the existing traffic, this includes measurements during the night-time where measurements were

paused whenever vehicles passed by the site. This is evidenced by the close proximity to the WwTW site boundary and the very short duration of usable data in between pauses (approximately 15s) for both measurements. Even though the cumulative duration of non-paused data is very short, the highly regular nature of the noise as perceived by the surveyors, means that the L_{90} used to represent pumps on the site, is considered to be a robust characterisation of the sound generated by the WwTW.

A summary of the noise source survey can be found in **Table 3.1** detailing the measurement and the resulting sound pressure levels at the monitoring location.

Table 3.1 Summary of sound levels from source measurements

ID	Description	Reference distance (m)	Measurement Length (hh:mm:ss)	$L_{Aeq, T}$ (dB)	$L_{Amax, T}$ (dB)	$L_{A90, T}$ (dB)
MP1	Corner of pump house (east boundary)	35	00:14:00*	44	46	44
MP2	Filtration tanks (south boundary)	25	00:06:00*	44	47	42

*Pauses in the measurements were made for periods of traffic.

4. Responses to local authority comments

Comment	Response
Have the proposed changes to the A47 been taken into account?	Yes, traffic flows for 2036 have been used and consider future changes to road layout.
Dwellings to the south of the A47 on breach lane are close to a proposed roundabout and should be considered.	Using the standard Calculation of Road Traffic Noise methodology, roundabouts are not a source of significant noise compared to fast flowing roads. Therefore, the presence of a roundabout is not considered to give rise to additional noise over and above the A47, but will be considered nonetheless.
Access to the proposed development is also proposed from Mill Lane- no consideration of this area has been provided.	Updates to the traffic assessment are being progressed, this will be considered in the design of access routes. Further assessment of impacts occurring around Mill Lane can only be completed upon receiving the most up to date traffic flow information and will be addressed in an additional addendum for Application A (23/00330/OUT).
Table 11.5- Noise emissions for proposed commercial uses should be designed to meet a noise emissions criterion of 0dB(A) above background noise level at the worst affected receptors.	The commercial area will be addressed at the reserved matters stage once a more detailed layout and the nature of employment uses has been confirmed. This will ensure development sound levels do not exceed the background sound level by 0 dB(A) at the worst affected receptors.
Table 11.7- Residential and schools should be high sensitivity. A further "very high" sensitivity could be added for more sensitive uses.	Receptor sensitivity categorisation is in accordance with the IoA and IEMA guidelines and is based on the experience of assessing similar developments. The sensitivity choice is secondary to the assessment outcomes, which follow the usual standard

Comment	Response
	methodologies, and is consistent with the EIA significance matrix for the project
11.11.5 Has Project ID 7 within Appendix 4A been taken into account?	The project was considered, but due to the distance from site, significant effects are not anticipated. The acoustic design proposed to mitigate the A47 will be suitable.
11.13- St Simon & St Jude Primary School and residences on Astley Road are predicted to experience a significant adverse effect due to additional traffic using Astley Road and access to the Site. Mitigation is mentioned however what is the feasibility of providing a noise barrier between the receptor and the road (on Astley Road to protect existing dwellings). Further consideration of mitigation is required.	At this stage an updated traffic assessment is currently being undertaken. Further assessment of impacts occurring around Astley Road can only be completed upon receiving the most up to date traffic flow information and will be addressed in an additional addendum for Application A (23/00330/OUT).

5. Conclusions

This addendum has addressed comments for Application B, an additional addendum will be issued to address the comments that are specific to Application A.

In summary, further information to support the noise monitoring methodology has been presented, a summary of the first addendum has been provided and responses to local authority comments have been addressed.

The commercial area will be addressed at the reserved matters stage once a more detailed layout has been confirmed.

The plant noise from the WwTW is tonal, but the traffic noise across the site drives the sound insulation requirements and there does not need to be any specific noise protection to mitigate the plant noise that is not already required for the road traffic noise emanating from the A47. As such, recommendations provided within 42523-WOOD-XX-XX-RP-ON-0001_S3_P02 are considered equally relevant.

Further assessment is required to address the significant effects (in EIA terms) occurring around Astley Road and Mill Lane. This can be undertaken once the most current traffic flow information has been received.

Based on the site suitability assessment and subsequent assessment herein, it is recommended that planning consent may be granted subject to the inclusion of a suitably worded noise condition.

Issued by

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Document revisions

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1	Initial version	15/06/2023