

21/00924/EIA – 7.13 North West Relief Road – Noise, Vibration and Nuisance Update

7.13.1	Noise and disturbance emanating from the both the construction phase and the future use of the completed road have been raised as a significant concern. Paragraph 185(a) of the NPPF states that planning decisions should mitigate and reduce to a minimum any potential adverse impact resulting from noise from new development and avoid noise giving rise to significant adverse impacts on health and the quality of life.
7.13.2	Policy MD8 of the SAMDev Plan specifically references support for new strategic transport infrastructure to deliver national priorities and locally identified requirements, where its contribution to agreed objectives outweighs the potential for adverse impacts from noise and vibration.
7.13.3	At this stage, the precise plant and equipment which may be used in the construction of the proposed scheme is not precisely determined as the principal contractor would set out detailed construction methods and plant/equipment requirements. In practice, the plant items identified would move around the site, operating at different times, durations and locations on any one day.
7.13.4	The construction noise and vibration assessments have required assumptions of the construction plant items which would be anticipated for the different work phases. Published or measured noise level data for each plant item and typical on-times have been used as the basis for the construction noise calculations at each receptor for each work phase.
7.13.5	The construction work is currently targeted to commence in Spring 2024 and continue until road opening in Autumn/Winter 2025. Full project completion is planned for Spring 2026 Works between Shepherd’s Lane and Clayton Way, and B4380 Holyhead Road to River Severn are likely to have the greatest impact due to being more densely populated with receptors closer in proximity.
7.13.6	For the proposed scheme roundabout works, the general sequence is to construct the off-line works as far as practicable during daytime working hours, for which the commencement is driven by the completion of the associated earthworks. Once this new space has been created, a series of night works are planned to tie in the existing layout to the new layout and move the traffic onto the new layout. Following this, the works to modify the existing and complete the new layout would take place under traffic management on the network, predominantly under off-peak (09:30 to 15:30) working hours. Once the infrastructure is completed, a series of night-time closures would be required to carry out the surfacing activities.
7.13.7	It has been assumed that away from the junctions, the new or improved carriageway works would progress more rapidly along the proposed scheme, and hence would be alongside any one receptor location for a shorter period.
7.13.8	Only where dwellings are very close to the works is there likely to be the potential for vibration impacts depending on the particular plant machinery used. However, the potential impacts are considered on an activity-by activity basis according to the intensity of the process and the distance at which vibration could be perceptible. It is considered that these impacts from the build out can be adequately mitigated against

	through the Construction Environmental Management Plan (CEMP) which will be required by condition.
7.13.9	Construction traffic can have a temporary impact on sensitive receptors located along existing roads used by these vehicles. The potential for such impacts is dependent on the volume and route of construction traffic. Planned diversions or night-time road closures are only anticipated for very short periods to tie in the proposed scheme to the existing network road. It is considered that the impacts of build out phase of the NWRR can be mitigated and controlled through the imposition of a suitably worded condition requiring the submission and approval of a CEMP, prior to commencement of work on site.
7.13.10	Turning to the operational phase once the NWRR is complete and open to traffic, it is anticipated that adverse operational road traffic noise impacts will occur where the proposed scheme alignment is closest to noise sensitive receptors, particularly those not currently experiencing road traffic noise from existing heavily trafficked roads.
7.13.11	The WSP report concludes that the noise sensitive receptors impacted by night-time noise are in the same areas as those impacted by daytime noise and no changes to the findings of the original report have been highlighted or additional mitigation measures proposed. Whilst the properties impacted by night-time noise are in the same areas as those impacted by daytime noise, there are some differences that need to be taken into consideration.
7.13.12	Whilst overall there are less properties experiencing an increase in night-time noise there are more properties that are experiencing a significant adverse effect (i.e. where the increase in noise level is perceptible and the resulting noise level is above the LOAEL). When applying the night-time assessment, to the long-term change (2038 vs 2023), 111 more properties experience a significant adverse effect than there are in the daytime. When considering the short-term change (opening year 2023) there are 127 more properties that experience a significant adverse effect at night compared to in the daytime. In summary when considering the results of the night-time assessment there are 127 additional properties that experience a significant adverse impact compared to the results of looking at the daytime results as presented in the original report submitted.
7.13.13	The effect of increasing the noise barriers from 2m to 2.5m has been assessed, however the impact of increasing the proposed noise barrier near Shepherds Lane from 2m to 2.5m, will only result in a 0.1-0.8dB increase in attenuation. This level of change would not be perceptible and therefore the increase in height is not considered beneficial when considering the visual impact and increased costs.
7.13.14	Predicted noise levels have been provided for a number of areas that are predicted to be significantly impacted. Shelton Hall Gardens/Dalton Close/Capel close/Brackley Drive/Pennywell/Holyhead Road – this is the largest area significantly impacted by noise. 46 properties in this area have a major adverse noise impact with many having major increases in excess of 10dB and final night-time noise levels up to 51dB (which is 11dB over the LOAEL). One property on Shelton Hall Gardens would experience noise levels above the SOAEL in the night-time. Predictions indicate this property will have 3.5dB increase in noise level in the short term which will increase noise levels to 60dB (5dB above the SOAEL threshold). It should be noted that even if the road was not built,

	this property is likely to experience noise levels above the SOAEL threshold due to its proximity to Holyhead Road.
7.13.15	Shelton Gardens – 4 properties have a long term moderate adverse impacts with noise increases up to 7dB and final night-time levels of 43dB only slightly above the LOAEL and daytime levels of 53dB are below the LOAEL.
7.13.16	Alms Houses/Gravel Hill Lane/Ivy Cottage – 8 properties have a long term major adverse impact with noise level increases of up to 13dB and final night-time noise levels of 53dB and 63dB in the day (which is 13 and 8dB above the LOAEL).
7.13.17	Coton Hill – Coton Mount, Corporation Lane and Berwick Road – specific data has only been provided for Berwick Road where 3 Properties will have a long term major adverse effect with noise level increases up to 10dB and final night-time levels of 51dB and 64dB in the daytime (which is 11 and 9dB above the LOAEL). It is considered that additional properties in Coton Mount and Corporation Lane are likely to suffer significant adverse impacts.
7.13.18	Hencote, Cross Hill – 3 properties will have a major adverse impact with noise level increases up to 19dB and final night-time noise levels of 47dB and 59dB in the daytime (7 and 4dB above the LOAEL).
7.13.19	Shepherds Lane – specific noise levels have not been provided for individual properties in this area but there are 5 properties which are likely to have a moderate adverse impact and 5 that are likely to have a major adverse impact.
7.13.20	There are other areas where it is predicted to have significant adverse impacts mainly some properties on the north side of The Mount (which are likely to have a major adverse impact) and some properties to the north of Mount Pleasant (which are likely to have a moderate adverse impact).
7.13.21	The effect is considered for the long term and short term for both the Do something scenario (i.e. if the road was built) and the do minimum scenario (i.e. if the road wasn't built). Some properties may experience a significant adverse impact even if the road was not built and hence this needs to be considered in the assessment. Adding the night-time noise levels has resulted in additional properties categorised as experiencing significant adverse impacts, however, it has not altered the proposed mitigation measures as the properties impacted are in the same localities. As more properties are significantly impacted at night than during the daytime, when ambient noise levels tend to be higher this is this measure which should inform the number of properties effected and the level of impact they experience as this is the worst-case scenario.
7.13.22	The proposed mitigation measures for the scheme consist of the following elements. The scheme proposes a quiet road surface over the entire scheme and additional measures are also proposed in some of the areas which are predicted to have a significant adverse impact as detailed below: <ul style="list-style-type: none"> <li>• Shelton Hall Gardens Area – a 2m barrier has been included in the scheme running from the new roundabout on Holyhead Road and finishes approximately in line with the end of Dalton Close. As the barrier finishes at this point it provides no protection for</li> </ul>

	<p>most of the properties in this area i.e. Dalton Close, Capel Close, Brackley Drive and Pennywell. The River Severn viaduct has parapets that are 1.5m high which will act as a barrier and have been included in the model. If the height of the parapets could be increased this could provide additional mitigation.</p> <ul style="list-style-type: none"> <li>• Shelton Gardens – The section of road north of Shelton Gardens has a 2m barrier on the north side of the carriageway.</li> <li>• Alms Houses/Gravel Hill Lane/Ivy Cottage – 8 properties have a significant adverse impact in this area. The entire road will have a quiet road surface, but no additional mitigation has been proposed in this area as a barrier would be ineffective as the distance between the source and receiver is very large.</li> <li>• Coton Mount &amp; Corporation Lane – the report advises that the distance between the source and receptor is very large and therefore a barrier would be ineffective. Furthermore, it would not be possible to build a barrier through the junction with Berwick Road.</li> <li>• Hencote – the 3 receptors in this area have a major adverse impact with very large increases, the report advises that any barrier to protect these properties would need to be approximately 1.5km long due to the wide angle of view of the proposed scheme and distance from them. It is considered that the limited benefit is disproportionate to the engineering challenges.</li> <li>• Oxon – The embedded mitigation included a 2m high barrier is proposed to the western end from the A5 Churncote roundabout to Holyhead Road (including the section adjacent to Oxon Touring Park) and the southern side of the Proposed Scheme carriageways to the east of Holyhead Road between the proposed B4380 Holyhead Road Roundabout and the Shelton Rough River Severn Viaduct.</li> </ul> <p>Additional secondary mitigation includes a 2m barrier on south between A5 Churncote roundabout and Little Oxon Lane these will provide mitigation to the proposed housing development between Calcott Lane and Shepherds Lane.</p>
7.13.23	<p>The overall noise impact of the proposals (including all proposed mitigation) when considering the latest report, in the short term (OY 2023) there will be 116 properties that experience a large adverse noise effect and 60 that experience a moderate to large adverse noise effect. In the long term (2038 vs 2023) there will be 54 properties that experience a large adverse noise effect and 114 that experience a moderate to large adverse noise effect. In the long term no properties experience a significant improvement in noise levels.</p>
7.13.24	<p>The NWRR, will have an adverse noise impact on a number of properties along its route. Where a new road is introduced and there is minimal existing road networks, there will be an inevitably be increased noise impacts. Whilst noise mitigation measures form part of the proposals and these can be secured via condition, there will be some properties which experience a greater impact as a result of the scheme. Therefore, these adverse effects need to be weighed as part of the overall assessment of the benefits and disbenefits of the scheme. It is not considered that in the longer term any existing receptors will experience any noticeable reduction in noise and therefore the noise impacts of the road will be adverse for to a greater or lesser degree for those properties effected by the development.</p>

8.	Conclusions – Update
8.17	<p>In terms of identified adverse impacts on noise levels, receptors located adjacent to the proposed scheme are predicted to experience increases in noise levels which are simply either not possible or feasible to further mitigate. However, this must be balanced against the properties which would benefit from reduced traffic on other roads mainly in existing urban areas. It is therefore considered that satisfactory noise mitigation can be secured via appropriate conditions to reduce the noise impact on nearby receptors although it is acknowledged that some will still suffer harm as a result of the NWRR. Clearly, these adverse impacts on the amenities of those living nearby, conflict with the objectives of policy CS6 but it is considered that the greater public benefits override these concerns.</p>