

Technical Note

Project name Glen Earrach PSH	Subject Glen Earrach Grid Connection – Noise and Vibration	Date April 2026	
Prepared by AS Associate Director	Checked by SB Principal Acoustics Consultant	Verified by DL Technical Director	Approved by MC Project Manager

Background

Glen Earrach Energy (GEE) has commissioned AECOM to assess the potential effects of a proposed grid connection (referred to as the Grid Connection Project) in combination with the Glen Earrach Pumped Storage Hydro project (the Proposed Development). An indicative connection route has been identified between the substation forming part of the Proposed Development and the indicative connection point for the Proposed Development at the Bingally substation to the west (hereafter the Connection Route).

The Connection Route comprises an initial section (approximately 2km) of underground 400kV cable (UGC) from the Glen Earrach Pumped Storage Hydro substation to the start of a 400kV overhead line (OHL) section. The 400kV overhead line has an approximate length of 16km and connects the underground cable section to the Bingally Substation. The Connection Route is as shown in Figure A. To inform the assessment it is assumed that the 2km of 400kV cable will be installed through micro-tunnelling. It is also assumed that access tracks and temporary working areas will be required in the vicinity of the Connection Route during construction with construction lasting approximately 3 years.

The aim of this assessment is to identify whether the Grid Connection Project has the potential to result in any likely significant effects on noise and vibration, having regard to the cumulative assessment approach used in the Environmental Impact Assessment Report (EIAR) for the Proposed Development, considering both the Construction Phase and the Operation Phase. This Technical Note should be read in conjunction with Chapter 14: Noise and Vibration of the EIAR for the Glen Earrach Pumped Storage Hydro project (hereafter the NVIA Chapter) and Additional Information.

Assessment

The assessment presented herein is a high-level, desk-based review of the potential for the Project to give rise to likely significant noise and vibration effects at sensitive receptors, based on the currently available information on the indicative Connection Route and anticipated construction activities.

Scope of Assessment

Construction and operational vibration effects relating to the Grid Connection have been scoped out of further consideration due to the separation distances between the indicative Connection Route and identified sensitive receptors based on available satellite imagery. At such distances (i.e. > 1 km), vibration arising from typical construction activities or operation of overhead line infrastructure would not be expected to be perceptible.

Construction noise associated with on-site activities (e.g. vegetation clearance, excavation, tower erection, and conductor stringing) has also been scoped out. Given the linear and transient nature of the works, together with the separation distances to receptors and the day-time only working, construction noise effects would be temporary, localised, and not expected to give rise to significant effects. It is anticipated that some materials may be delivered by helicopter, however as this will likely be relevant to specific steep sections of the connection route and considering the large separation distances to sensitive receptors and/or the short duration of the pass-by event this activity would not create noise levels potentially causing significant effects at sensitive receptors.

Operational noise associated with the overhead line has also been scoped out on the basis that the separation distances i.e. greater approximately than 500m, to noise sensitive receptors are very large and therefore effects of any corona discharge or hum, if present, would not be audible at sensitive receptors.

Construction Traffic Noise

The only potential noise effect identified as requiring consideration is construction traffic noise associated with the use of public roads for the transport of materials, plant, and personnel. The number of HGV movements associated with the Grid Connection Project has been estimated to peak at approximately 45 HGV movements per day for a period of up to approximately six months within the overall 3-year construction programme. Traffic volumes have been estimated by the project team using a scaled approach informed by EIAR traffic modelling from comparable OHL projects. These estimates have been reviewed by AECOM and are considered appropriate on a precautionary basis given the level of detail available at this stage.

The NVIA Chapter within the EIAR presents predictions of the change in road traffic noise levels due to the addition of construction traffic on the public road network for both winter and summer periods (refer to Table 14-20 and Table 14-21). These predictions indicate that the change in noise levels is typically less than 3 dB, resulting in an outcome of no greater than Low impact, which is classified as Minor and Not Significant.

The addition of construction traffic associated with the Grid Connection Project would not materially alter these conclusions. This is because existing traffic flows on the assessed road links are relatively high (as reflected by the AAWT values presented in Table 14-20 and Table 14-21), and the introduction of approximately 45 HGV movements per day represents a small proportional increase in total traffic flow.

In accordance with established road traffic noise principles (e.g. CRTN), noise levels are logarithmically related to traffic flow. As such, a doubling of traffic flow is typically required to result in an increase of approximately 3 dB, which is generally considered the minimum perceptible change. The addition of 45 HGV movements per day, when compared to baseline traffic flows ranging from several hundred to several thousand vehicles per day on the affected links, would result in a much smaller proportional increase and therefore a negligible change in noise levels at receptors that might be in the vicinity of affected links.

On this basis, the addition of construction traffic associated with the Project would not be expected to increase road traffic noise levels beyond those previously assessed in the NVIA Chapter. The magnitude of impact would therefore remain Low, with effects classified as Minor and Not Significant.

Cumulative

The NVIA Chapter has previously considered the cumulative effects of construction traffic associated with the Proposed Development in combination with other committed developments, with the resulting cumulative traffic flows presented in Table 14-24. This assessment indicates that the predicted changes in road traffic noise levels across the assessed links are typically less than 3 dB in both summer and winter periods, with effects classified as Low or Very Low magnitude, corresponding to Minor or Negligible significance (i.e. Not Significant).

The addition of construction traffic associated with the grid connection works, with peak flows of approximately 45 HGV movements per day, would represent a small proportional increase relative to the cumulative traffic flows already assessed. Given the logarithmic relationship between traffic flow and noise level, such an increase would not materially alter the predicted change in Basic Noise Level.

Accordingly, the inclusion of the grid connection construction traffic within the cumulative scenario would not be expected to increase noise levels beyond those previously assessed, and the overall magnitude and significance of cumulative effects would remain unchanged. Cumulative construction traffic noise effects are therefore considered to be Not Significant.

Summary

A desk-based assessment has been undertaken to consider the potential for the proposed grid connection to give rise to significant noise and vibration effects at sensitive receptors.

Construction and operational vibration, as well as construction and operational noise associated with on-site activities and operation of the overhead line, have been scoped out on the basis of large separation distances between the Connection Route and sensitive receptors. These effects are not considered likely to be perceptible or significant.

The only potential impact identified relates to construction traffic noise on public roads. Based on the findings of the Noise and Vibration Chapter and taking into account the relatively small increase in traffic flows associated with the grid connection works, changes in road traffic noise levels would remain below levels typically considered perceptible.

Cumulative effects with other developments have also been considered and would remain Not Significant.

On this basis, no likely significant effects on noise and vibration have been identified arising from the Grid Connection Project, having regard to the cumulative assessment approach used in the EIAR for the Proposed Development.

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