



13.0 NOISE AND VIBRATION

This chapter provides details of existing ambient noise levels within the vicinity of the Study Alignment. Noise sensitive receivers and locations have been identified along with details regarding their respective distances from the Study Alignment.

Based on the vicinity of residences/human habitation to the Study Alignment, an assessment of potential background and incidental noise levels at noise-sensitive locations, particularly during construction and operational phases has been undertaken. Mitigation measures to reduce the potential impacts have also been identified within this section.

13.1 EXISTING ENVIRONMENT

The Study Alignment predominantly passes through rural areas with generally acceptable background noise levels. An exception to this is where the Study Alignment traverses close to the existing Kogan Creek Power Station. The acoustic environment of this section of the Study Alignment is dominated by the noise of the existing Kogan Creek Power Station. During field investigations, the power station was clearly audible along this section of the Study Alignment. Due to the magnitude of the power station, its associated noise is expected to be significant in comparison to the expected noise emanating from the proposed transmission line.

Noise sensitive places as defined by the *Environmental Protection (Noise) Policy 1997* (EPP (Noise)) include:

- Dwellings;
- Library, childcare centre, kindergarten, school, college, university or other educational institution;
- Hospital, surgery or other medical institution;
- Protected areas, or an area identified under a conservation plan as a critical habitat or an area of major interest, under the *Nature Conservation Act 1992*; and
- Parks or gardens open to the public for use other than for sport or organized entertainment.

Seven noise sensitive receptors have been identified from aerial photography and regional investigations within 750m of the proposed transmission line.

DISTANCE FROM STUDY ALIGNMENT	NUMBER OF HOUSES
< 250m	1
>250m <500m	3
>500m <750m	3

It should be noted that the house which is within 250m of the Study Alignment, is currently unoccupied.



13.2 POTENTIAL IMPACTS

Background and incidental noise and vibration levels are expected to be elevated during the construction phase within and surrounding the proposed alignment. Sources of noise and vibration will include earthworks, machinery, traffic (both heavy and light vehicle movements), cranes, foundation excavation and boring, structure installations, vegetation clearing, mulching and chipping, access and building construction. The expected noise and vibration levels and exposure periods will be comparable to that of an ordinary construction site.

During the construction phase elevated noise levels can be expected at locations close to the works areas, and may cause some noise nuisance or annoyance to surrounding sensitive receivers. However, due to the sequential and linear nature of construction associated with the transmission line, any elevation in background and incidental noise will be localized and of short duration. Due to the large separation distance, and proposed construction works being carried out during less noise sensitive hours, there is a low potential for noise impacts to occur during the construction phase. Furthermore, considering the proposed alignment is located in a rural setting, with some sections adjacent to a pre-existing power station, construction noise is not anticipated to be unreasonable or cause nuisance within the immediate area.

During the operational phase, transmission lines can produce corona noise, which is a crackling sound that is caused by the ionisation of air near the conductors. Corona noise is likely to be greatest immediately following rainfall or fog. Transmission lines generate noise, as a result of wind passing across conductors and poles. Wind noise is generally masked by other wind-generated noise such as rustling vegetation. Generally, the transmission line's distance from sensitive receptors provides an adequate noise buffer under normal operating conditions and therefore would not significantly contribute to an increase in background noise levels. Furthermore, vibration is not expected to cause an impact during the operational phase.

During maintenance, aerial (via helicopter) and/or vehicular inspections of the proposed transmission lines will be conducted. Aerial inspection is the most cost-effective method of conducting maintenance inspections and is expected to occur approximately once every 12 months. Potential noise and vibration sources include those related to vehicle operation, and noise associated with repairs. However, the noise generated from these activities are not expected to be significant.

13.3 MITIGATION MEASURES

The proposed transmission line study alignment has been chosen to ensure the distance between the alignment and any adjacent dwellings is maximised.

A number of mitigation measures have been recommended to minimise the potential noise and vibration impacts of the proposed development during the construction phase, including:

- Trucks and machinery to be fitted with effective mufflers and regularly maintained to prevent noise sources (i.e. loose bearings, vibrating panels etc);
- Machinery and vehicles are to be maintained in accordance with the manufacturer's recommendations;
- Equipment not being utilised as part of the work should not be left standing with engines idling for an extended period;



- Ensure construction time is kept to a minimum;
- Restricting construction works to those hours permitted by the DERM (normally 6:30am to 6:30pm Monday to Saturday) except where required for operational reasons or where noise outside these times will not create a nuisance; and
- Publicly communicate construction schedules.

Should works be required outside of those hours stipulated above, potentially affected landholders will be notified and appropriate DERM approvals acquired.

During maintenance, the potential for noise nuisance would also be minimised by keeping the public informed of maintenance schedules and restricting maintenance works, where possible, to the hours outlined above. There may be infrequent instances where emergency works may be required outside these hours.

The additional proposed mitigation measures for Noise Management are outlined further in the EMP (see **Appendix F**).