

# What's involved in the Noise Assessment Process?

The SEARs for the Bowdens Silver Project require a detailed quantitative assessment of noise impacts. The assessment is being undertaken in six steps.

**Step 1:** Identify the existing noise sources and establish the existing background noise levels throughout the community.

**Step 2:** Identify potential impacts and receivers that could potentially be affected to noise.

**Step 3:** Establish relevant noise criteria for day, evening and night-time operations and for project-related traffic on local roads.

**Step 4:** Undertake computer modelling taking into account the number/location of noise sources and their sound power levels, weather conditions, topography and mitigation measures to be adopted on site.

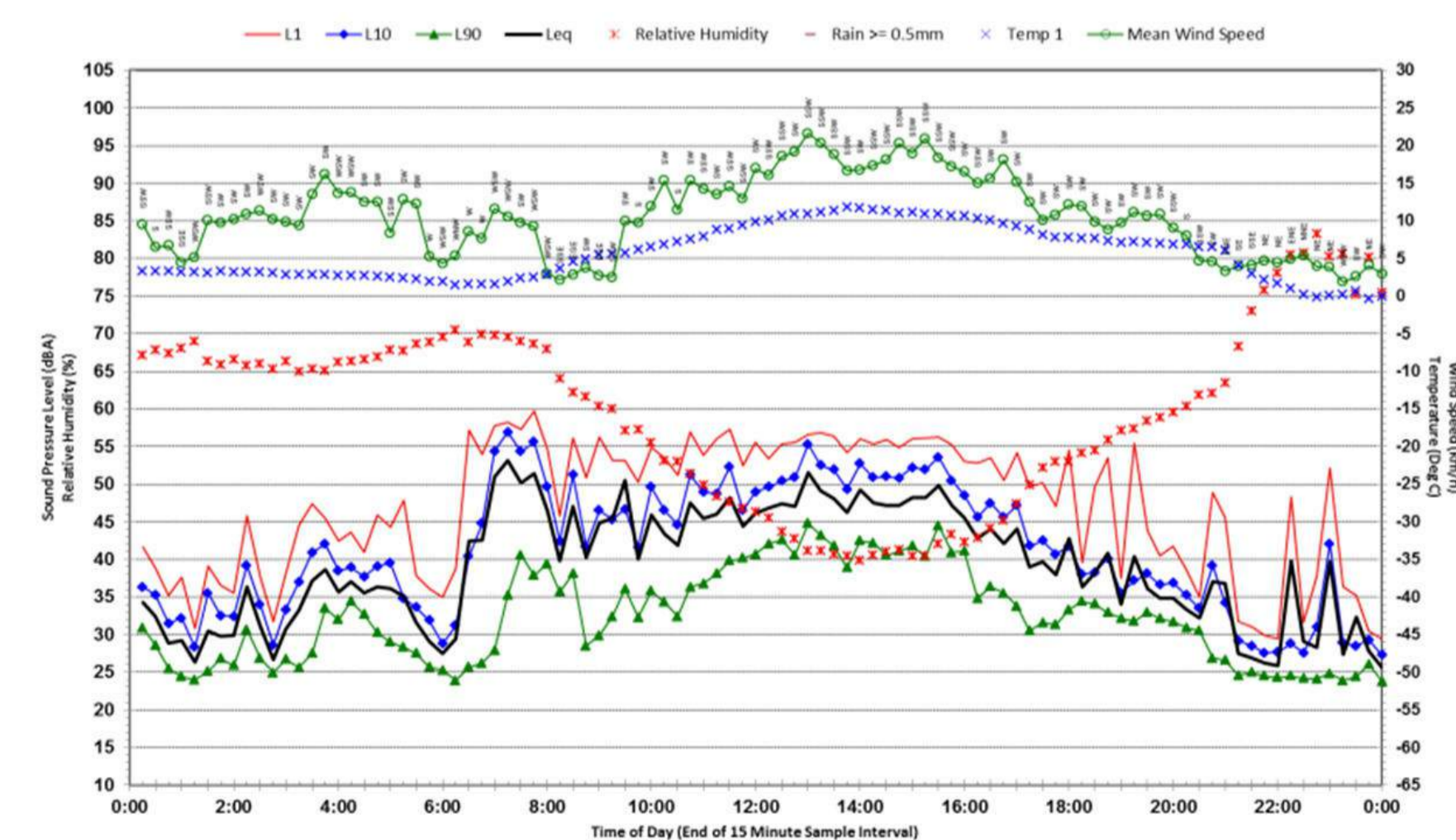
**Step 5:** Identify the need to adopt any additional mitigation measures to ensure noise criteria are satisfied.

**Step 6:** Predict noise levels at surrounding rural residences and properties and at residences in Lue.

## What has been done so far?

- Bowdens Silver has conducted background noise monitoring programs involving unattended noise logging at 13 locations since September 2011.
- Noise levels within Lue village and the surrounding rural level are similar in relation to the Project.
- Background noise levels are typically between 20dB(A) and 30dB(A) being generally higher during the daytime by comparison with the evening/night-time as expected (see chart).
- Background noise levels in the vicinity of the Mine Site are typical of a relatively undeveloped rural environment and a low density area such as the Lue village.

Background noise levels in the vicinity of the Mine Site are typical of a relatively undeveloped rural environment. Attended noise logging has been undertaken historically.



A typical Noise Chart



Example of Noise Meter

# What's involved in the Noise Assessment Process?

## What intrusive noise level will the Project need to comply with during 24 hour operations?

- **LAeq 35dB(A)** over any 15 minute period

## What intrusive noise level will the Project need to comply with during daytime construction?

- **LAeq 40dB(A)** over a 15 minute period for the majority of the construction works and locations
- **LAeq 75dB(A)** over a 15 minute period for a small number of short periods at some locations.

## What Controls will the Project adopt to reduce construction and operation noise?

- Construction works restricted to daytime only
- Key operating mobile equipment fitted with noise-reduction kits
- Key operating fixed plant housed in buildings or enclosures
- Absence or avoidance of high frequency noise sources such as alarms
- Use of earth mounding or barriers
- Maximising separation distances between mine noise sources and residences
- The operation of mobile equipment in exposed mine areas during the daytime only as required
- Reduced numbers of equipment operating during evening and or night by comparison with the daytime as required

## What influences could light winds and temperature inversions have on noise levels?

- Light winds (<3m/s) blowing from a noise source towards a residence will increase noise levels at the residence.
- Temperature inversions of a night time (predominantly winter) will also increase noise levels over long distances.

## What blast monitoring will be undertaken?

- All blasts will be monitored in Lue village and at selected surrounding residences for acceptable levels of airblast overpressure and ground vibration.

## What effects will light winds and temperature inversions have on mine noise levels?

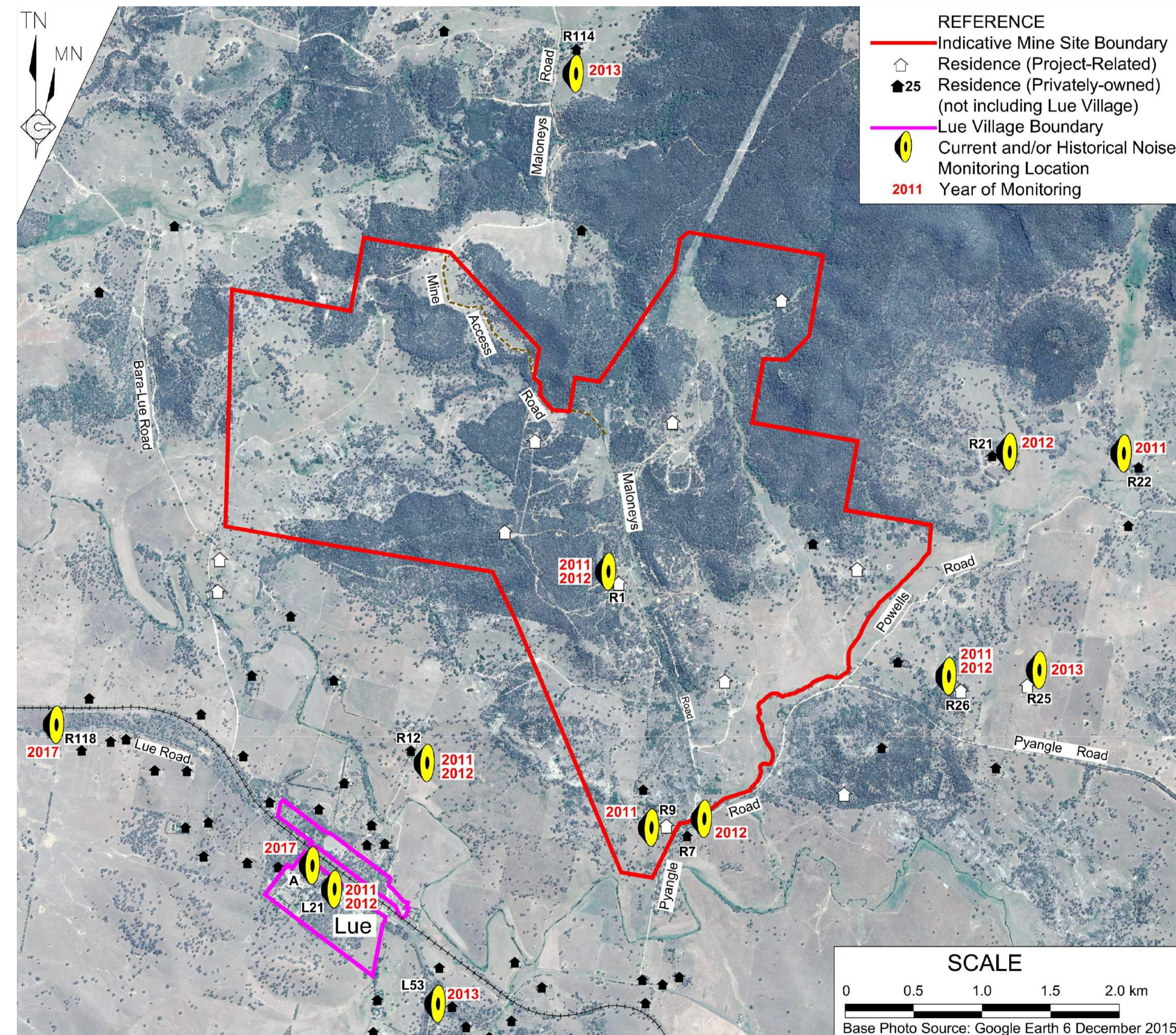
- Light winds (up to 3m/s) blowing from a noise source towards a residence will increase noise levels at the residence.
- Temperature inversions generally of a night-time and predominantly winter will increase noise levels typically over longer distances.

The Project will be designed, constructed and commissioned so that the approved noise criteria at Lue village and the surrounding residences are satisfied.

# Noise Monitoring

## What noise monitoring will be undertaken?

- Continuous real-time noise monitoring in Lue village (24/7).
- Regular operator-attended noise monitoring in Lue village and at selected surrounding residences.
- Traffic noise monitoring.



Current and/or historical noise monitoring locations