

## Noise

Metropolitan Coal is an underground mining operation and noise emissions are therefore restricted to surface facilities.

Noise monitoring for the Project consists of unattended and attended measurements. Real-time (i.e. unattended) noise monitoring commenced in December 2010. Attended noise monitoring commenced in September 2010.

### ***Real-time Noise Monitoring***

Real-time noise monitoring for the Project is undertaken using an unattended statistical noise logger. Real-time noise monitoring is used as an internal Metropolitan Coal noise management tool and not for compliance purposes.

The real-time noise monitoring site is located at the northern boundary of 16 Oxley Place (Figure 1).

The real-time noise monitor records noise levels 24 hours a day, 7 days a week and a graphical summary of the previous 24 hours of noise is sent to key mine staff via email on a daily basis.

The continuous recording also includes an audio function which allows the monitor to record audio of the noise signal. This audio information can be downloaded in order to allow the listener to determine whether the noise source is Project related. There are numerous other potential noise sources apart from Project noise, such as insects, frogs, local vehicles, domestic activities (lawn mowers, etc.) and wind and rain, which may influence noise monitoring results.

The real-time monitor was initially set up approximately 20 metre (m) east of the rear (eastern) residential boundary of 16 Oxley Place. Following analysis of the results the monitor was moved to be within 5 m of the residential boundary, to provide a more representative measurement of the noise levels at the residential boundary.

The results of the attended surveys conducted at 16 Oxley Place have been compared with those obtained from the real time noise monitor and good correlation was obtained between the attended results and those from the real time noise monitor.

### ***Attended Noise Monitoring***

Real-time continuous monitoring is supplemented by attended noise monitoring.

Attended noise measurements and recordings are conducted to quantify the intrusive noise emissions from the mine, including processing and transportation operations as well as the overall level of ambient noise.

Attended noise monitoring is conducted quarterly. However, additional monitoring may also be conducted in the event of ongoing noise complaints from a particular landholder/locality that requires further investigation. The attended noise monitoring is conducted at sites representative of the nearest residences to the Project that are potentially most affected by Project noise emissions. The nearest residences are (Figure 1):

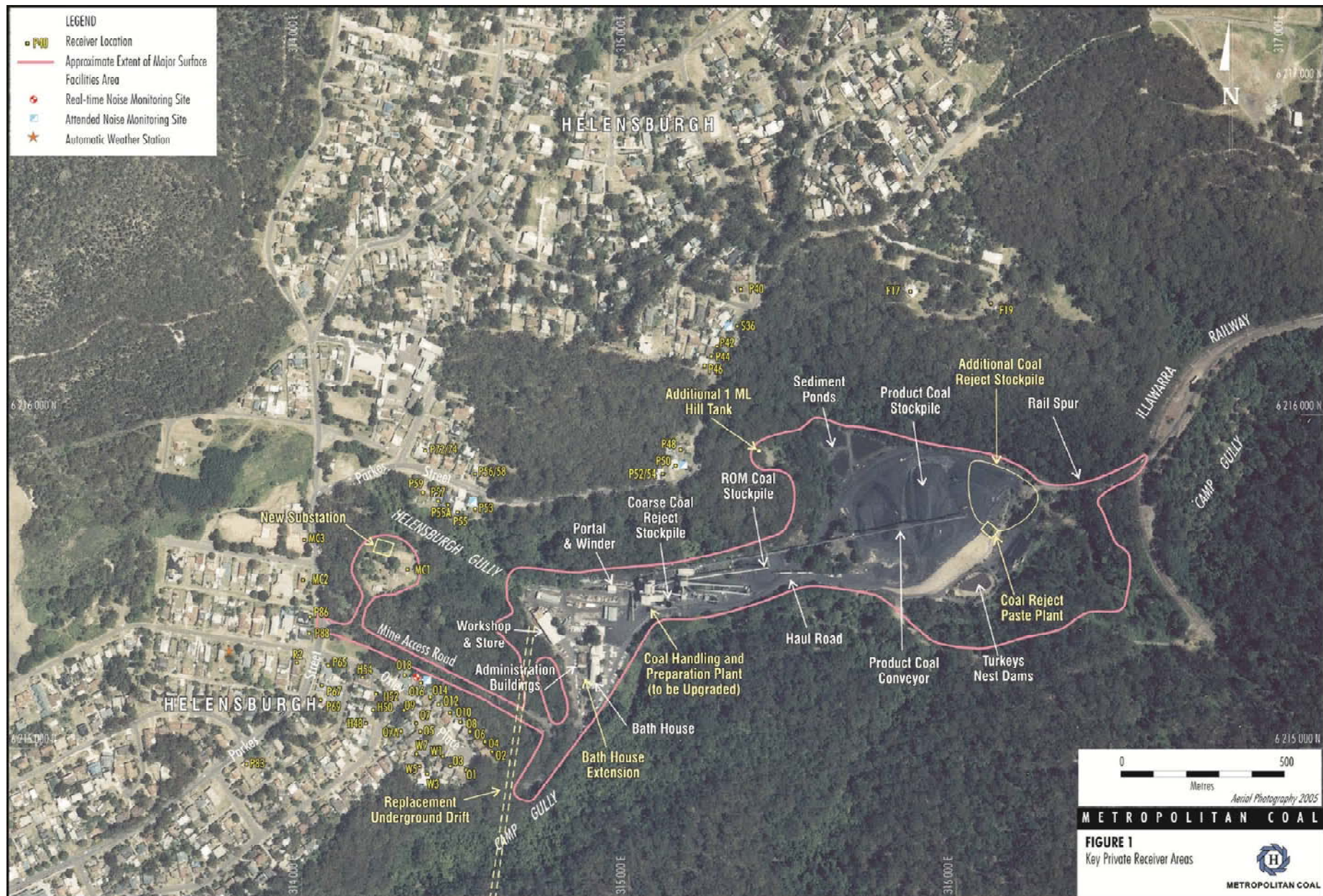
- residences to the south-west at 2 to 18 Oxley Place;
- residences to the west north-west at 53 to 59 Parkes Street;
- residences to the north-west at 48, 50, 52/54 Parkes Street; and
- residences further to the north-west at 42, 44 and 46 Parkes Street.

Attended noise monitoring is conducted for 15 minute periods during the daytime, evening and night-time periods. The monitoring was carried out on two consecutive days and nights resulting in at least two 15 minute samples for each monitoring location every three months. Daytime monitoring at residences to the south-west at 2 to 18 Oxley Place was conducted in the morning period, to include a representative number of reject and product truck movements on the Mine Access Road.

Attended noise monitoring was conducted quarterly at (Figure 1):

- 16 Oxley Place;
- 53 Parkes Street;
- 50 Parkes Street; and
- 36 Old Station Road, noting this residence is immediately adjacent to 42 Parkes Street and representative of the nearest residences in this area.

# METROPOLITAN COAL - ENVIRONMENTAL MONITORING SUMMARY





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Results from the attended monitoring program will be used to verify data collected from the real-time noise monitor and to track the noise performance of the mine prior to 2014. Post-2014 attended monitoring data will be utilised to determine compliance with Project Approval noise impact criteria.

For the four quarterly noise monitoring surveys conducted within the review period, the intrusive equivalent continuous noise level ( $L_{Aeq(15minute)}$ ) mine-related noise levels were estimated (Tables 1 to 4).

**Table 1**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**- September Quarter 2011**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	52	50, 47	52, 48
53 Parkes Street	52, 55, 56	55, 54	55, 54
50 Parkes Street	48	48, 54	49, 53
36 Old Station Road	48, 45	48	47, 53

dBA = A-weighted decibels.

**Table 2**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**- December Quarter 2011**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	53, 59	50, 51	50, 50
53 Parkes Street	55, 53	51, 50	52, 50
50 Parkes Street	51, 50	48, 47	48, 48
36 Old Station Road	54, 51	51, 52	53, 45

**Table 3**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**- March Quarter 2012**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	58, 57	50, 50	49, 50
53 Parkes Street	53, 54	50, 50	49, 49
50 Parkes Street	50, 49	49, 48	48, 49
36 Old Station Road	50, 50	51, 50	54, 43

**Table 4**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**- June Quarter 2012**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	54, 55	49, 50	49, 50
53 Parkes Street	54, 52	49, 50	50, 50
50 Parkes Street	51, 51	50, 48	49, 50
36 Old Station Road	52, 51	51, 51	51, 51

Consistent estimated mine-related noise levels were obtained for the four surveys from September 2011 to July 2012, with higher levels on occasion during September 2011 survey as a result of the drift fan replacement at Metropolitan Coal. Furthermore, the attended noise levels recorded at 16 Oxley Place, 53 Parkes Road and 50 Parkes Road were generally constant in noise level as these locations are influenced by continuous noise from the Coal Handling and Preparation Plant (CHPP) and conveyors whereas mine-related noise levels at 36 Old Station Road were more varied as a result of mobile plant such as front end loaders and bulldozers associated with the train loading operations.

## METROPOLITAN COAL - ENVIRONMENTAL MONITORING SUMMARY

The attended monitoring results for the four locations when the mine was fully operational are summarised as follows:

- 16 Oxley Place – the typical attended results are 52 to 58 dBA daytime, 47 to 51 dBA evening and 48 to 50 dBA night-time.
- 53 Parkes Road - the typical attended results are 52 to 56 dBA daytime, 50 to 55 dBA evening and 49 to 52 dBA night-time.
- 50 Parkes Road - the typical attended results are 48 to 51 dBA daytime, 47 to 54 dBA evening and 48 to 53 dBA night-time.
- 36 Old Station Road for periods when the mine is fully operational the typical attended results are 50 to 54 dBA daytime, 48 to 51 dBA evening and 43 to 54 dBA night-time.
- Unattended real-time monitor - 16 Oxley Place. The real-time noise monitor has been located at 16 Oxley Place. Higher levels of typically 2 to 3 dBA were recorded by the unattended real-time monitor when compared to the attended location at the rear of the dwelling (approximately 10 m west). The higher levels are considered to result from 'façade reflection' from the acoustically solid rear fence.

Comparison with the previous noise monitoring results for the survey period of September 2010 to July 2011 shows no significant change in the long term mine related noise levels at the four monitoring locations.

Metropolitan Coal has commenced upgrades to the major surface facilities in the review period and upgrade works are ongoing.

One component of the site upgrades of relevance to major surface facilities noise management is the progressive implementation of additional noise controls.

The following significant noise reduction works were undertaken in the review period at the Major Surface Facilities Area:

- Completion of the installation of new cladding on the CHPP (Plate 1 to 3).
- Use of portable noise monitor at sensitive receivers.
- Installation of a new drift ventilation fan with superior noise suppression over current fan.
- Ongoing discussions with Pacific National regarding minimisation of night time rolling stock.

While the noise impact assessment criteria in the Project Approval do not apply until the end of 2014, Metropolitan Coal has commenced addressing aspects of the noise impact criteria, including:

- the design of major surface facilities upgrades cognisant of the material noise reductions that will be required, including the notification of the lead upgrade design contractors of the noise impact assessment criteria that need to be achieved; and
- a number of options for upgrading of the washery building cladding were previously evaluated to determine their relative noise mitigation. Additional components of the new washery building cladding were installed during the review period.

Furthermore whilst the '*Additional Noise Mitigation Criteria*' from the Project Approval does not apply until the end of 2014, Metropolitan Coal has taken a proactive approach and commissioned noise mitigation works in the form of double glazing for neighbouring residences in consultation with the landowners. The criteria for eligibility for double glazing was informed by an independent acoustic study.



**Plate 1 Noise Insulation Sheets**



Plate 2 CHPP Installation of Noise Insulation



Plate 3 CHPP Installation of Noise Insulation