

## 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*

Continuous real-time 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.

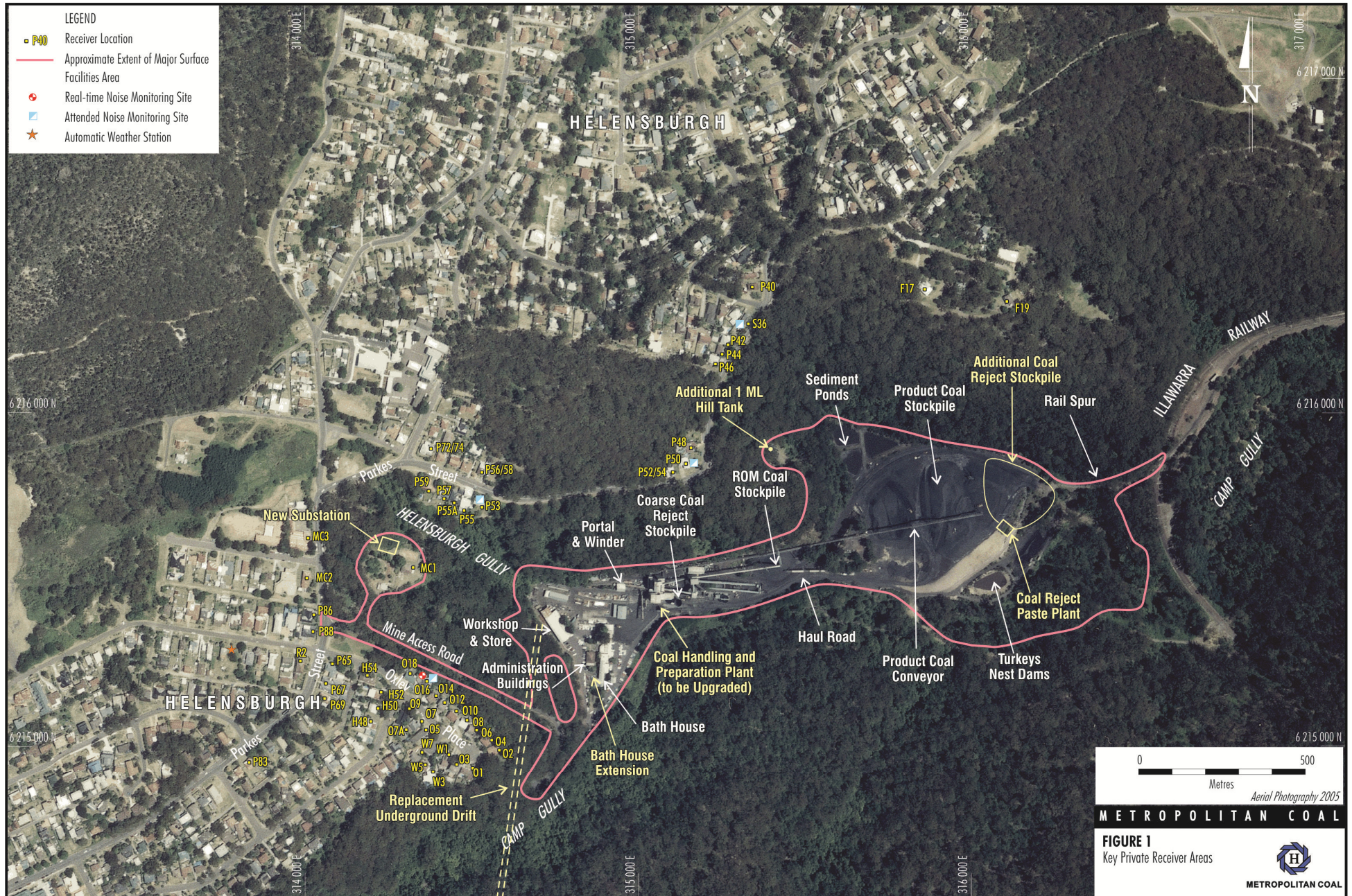
Attended noise monitoring is conducted for 15 minute periods during the daytime, evening and night-time periods. The monitoring was carried out on two consecutive days and nights resulting in at least two 15 minute samples for each monitoring location every three months. Daytime monitoring at residences 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 are used to verify data collected from the real-time noise monitor and to track the noise performance of the mine prior to the end of 2014. Post-2014 attended monitoring data will be utilised to determine compliance with Project Approval noise impact criteria.

For the six quarterly noise monitoring surveys conducted within the reporting period, the intrusive equivalent continuous noise level ( $L_{Aeq(15minute)}$ ) mine-related noise levels were estimated (Tables 1 to 6).

**Table 1**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**September Quarter 2012**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	52, 58	43, 50	43, 50
53 Parkes Street	46, 48	41, 47	42, 45
50 Parkes Street	44, 48	41, 48	41, 47
36 Old Station Road	43, 45	30, 47	32, 46

**Table 2**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**December Quarter 2012**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	57, 58	50, 51	51, 52
53 Parkes Street	53, 52	50, 48	48, 48
50 Parkes Street	52, 50	50, 49	49, 50
36 Old Station Road	52, 53	54, 49	45, 49

**Table 3**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**March Quarter 2013**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	55, 58	51, 51	50, 51
53 Parkes Street	52, 54	48, 47	47, 46
50 Parkes Street	49, 47	49, 48	49, 49
36 Old Station Road	44, 47	46, 48	48, 44

**Table 4**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**June Quarter 2013**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	57, 56	49, 50	49, 51
53 Parkes Street	50, 52	47, 47	47, 47
50 Parkes Street	51, 51	49, 50	49, 48
36 Old Station Road	49, 50	44, 51	44, 47

**Table 5**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**September Quarter 2013**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	51, 58	51, 50	50, 50
53 Parkes Street	45	48	46, 48
50 Parkes Street	50, 43	48, 48	46, 48
36 Old Station Road	51, 43	46, 47	45, 46

**Table 6**  
**Estimated Intrusive  $L_{Aeq(15minute)}$  Mine-Related Noise Levels**  
**December Quarter 2013**

Monitoring Locations	Mine-Related Intrusive $L_{Aeq(15minute)}$ (dBA)		
	Day	Evening	Night
16 Oxley Place	52, 59	51, 52	50, 50
53 Parkes Street	53	47	48, 47
50 Parkes Street	50	48	49, 48
36 Old Station Road	53, 52	53, 47	53, 44

## METROPOLITAN COAL - ENVIRONMENTAL MONITORING SUMMARY

### **Assessment of Monitoring Results**

Tables 1 to 6 show consistent estimated mine-related noise levels were obtained for the six surveys from September 2012 to December 2013, with lower levels on occasion during the September 2012 and September 2013 surveys as a result of the mine not being operational.

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.

Comparison with previous noise monitoring results (September 2010 to July 2012) shows no significant change in the long term mine related noise levels at the four monitoring locations.

### **Assessment of Environmental Performance**

An assessment has been conducted against the noise performance indicators detailed in the Metropolitan Coal Noise Management Plan. The assessment indicated:

- Metropolitan Coal established a quarterly operational attended noise monitoring program and real-time noise monitoring system at the site by December 2010.
- Metropolitan Coal has designed the major surface facilities fixed plant upgrades (and any associated mobile plant upgrades) to be cognisant of the material noise reductions at the site that will be required.
- Metropolitan Coal has undertaken noise modelling of the preferred upgrade design prior to construction to determine if sufficient noise reduction is likely to be achieved from the planned fixed and mobile plant upgrades.

None of the relevant noise performance indicators were exceeded during the reporting period.

### **Management and Mitigation Measures**

Metropolitan Coal has progressively implemented additional noise controls during the upgrade of the major surface facilities.

Noise reduction works undertaken in the reporting period at the Major Surface Facilities Area include:

- Installation of a high performance noise suppressive cladding on two extensions to the CHPP.
- Maintenance of previously installed cladding on the CHPP.
- Cladding and insulation of conveyor motors in the CHPP area.
- Toolbox talks for mobile plant operators to minimise noise impacts whilst loading trains.
- Installation of audible and visible alarms at each of the train level crossings on site as part of planned changes coordinated with Pacific National to cease the use of train horns on site except in emergency situations.
- Use of a portable noise monitor at sensitive receivers.

Metropolitan Coal commissioned a Noise Mitigation Strategy to identify the key receivers surrounding the Colliery, rank the contribution of the Colliery noise sources in each receiver area, and determine and evaluate suitable mitigation for the dominant noise sources. As a result of the strategy, a number of new initiatives will be implemented in the next reporting period.