## APPENDIX C: ADDITONAL NOISE AND DUST INFORMATION

Pacific Environment Limited

Consulting • Technologies • Monitoring • Toxicology

7 December 2012

Luke Stewart
Ground Floor, Suite 01
20 Chandos Street
St Leonards NSW 2065

Sent via email: lstewart@emgamm.com

Dear Luke

**Re: Integra Mine Complex Modification 2 – Air Quality Assessment Contours**

In August 2012, PAEHolmes (now Pacific Environment) provided a letter report which detailed the predicted ground-level concentrations (GLCs) due to the continuation of truck haulage of ROM coal from the underground surface facilities to the CHPP at Integra Coal Operations Pty Ltd (Integra).

Subsequent to this, it is understood the Department of Planning and Infrastructure (DP&I) have requested contour plots comparing predicted GLCs for the approved and proposed operations.

As the letter report detailed the predicted GLCs using both the default emission factor for hauling on unpaved roads, and the current AP-42 emission factor, contours which include the predicted GLCs using both emission factors are provided in **Attachment A**.

As shown on **Figure A.1** to **Figure A.16**, the predicted change to GLCs from that approved is negligible. It is noted that due to the minor contribution of the continuation of haulage to the total GLCs, the contours often lie on top of each other.

Please do not hesitate to contact me should you have any further queries.

Kind regards

JACox

Judith Cox
Principal Consultant – Air Quality
Pacific Environment Limited
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# Attachment A – Contour Plots

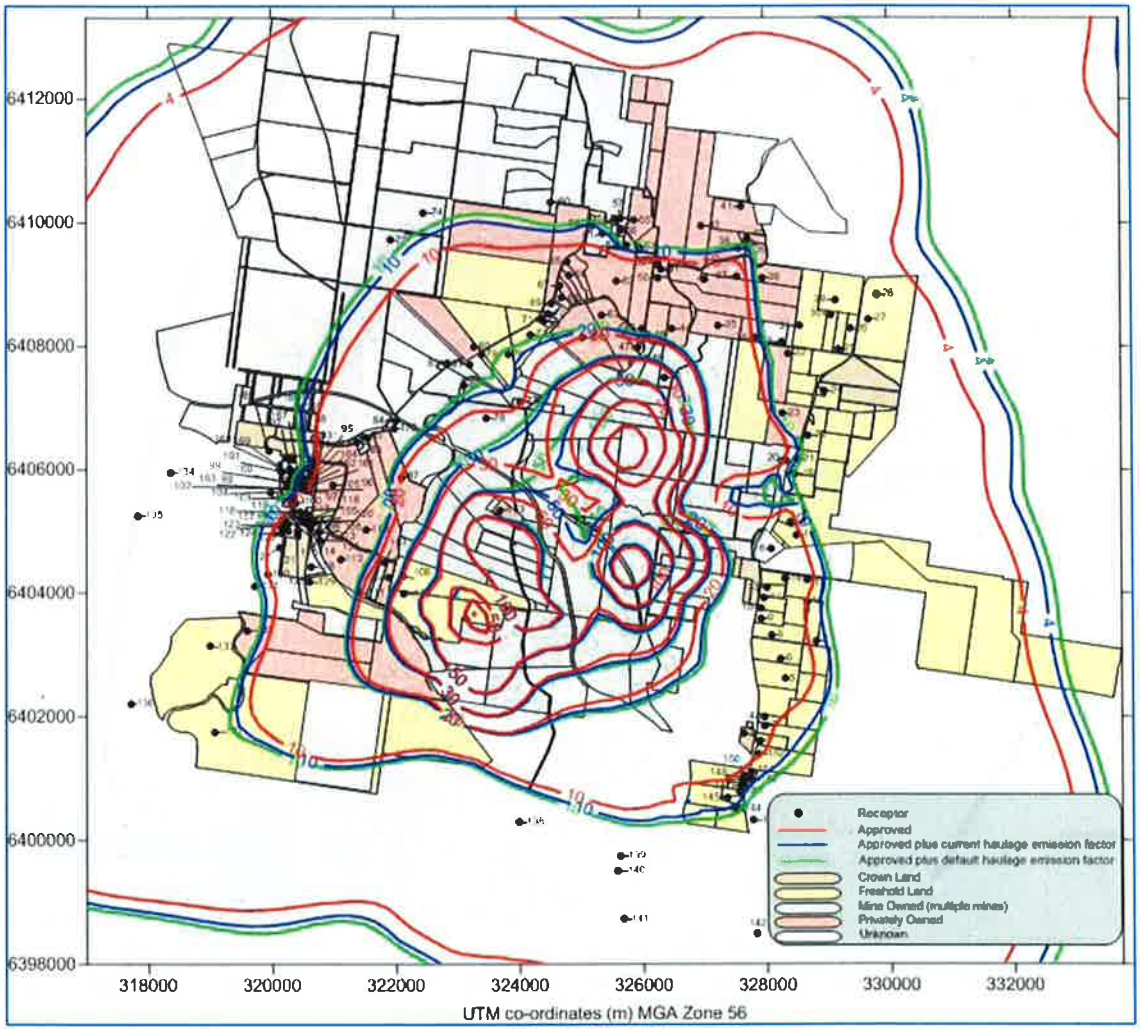


**Figure A.1: Predicted 98.6th percentile 24-hour average $PM_{10}$ GLC due to Integra operations only ($\mu g/m^3$) – Year 3**

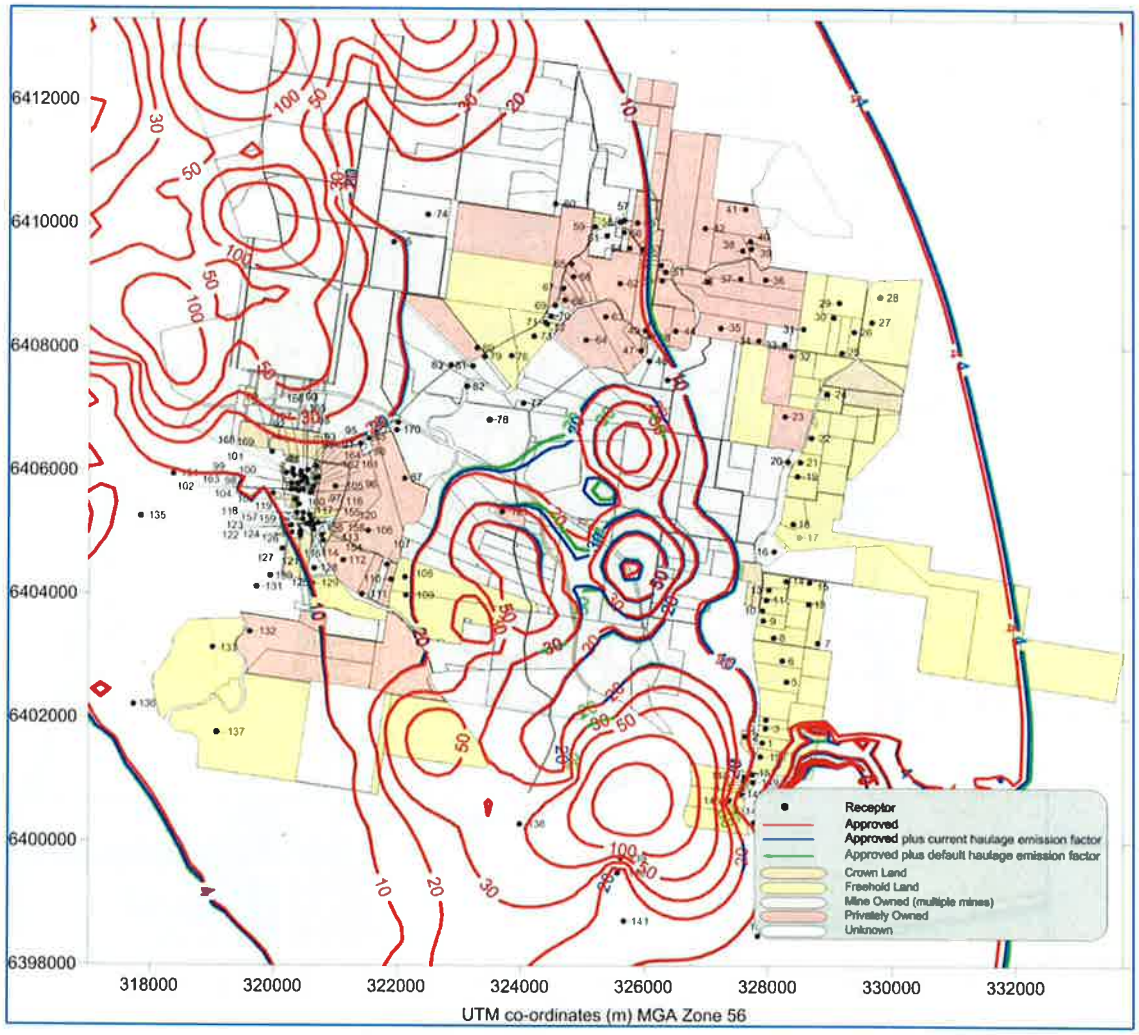


**Figure A.2: Predicted annual average $PM_{10}$ GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 3**

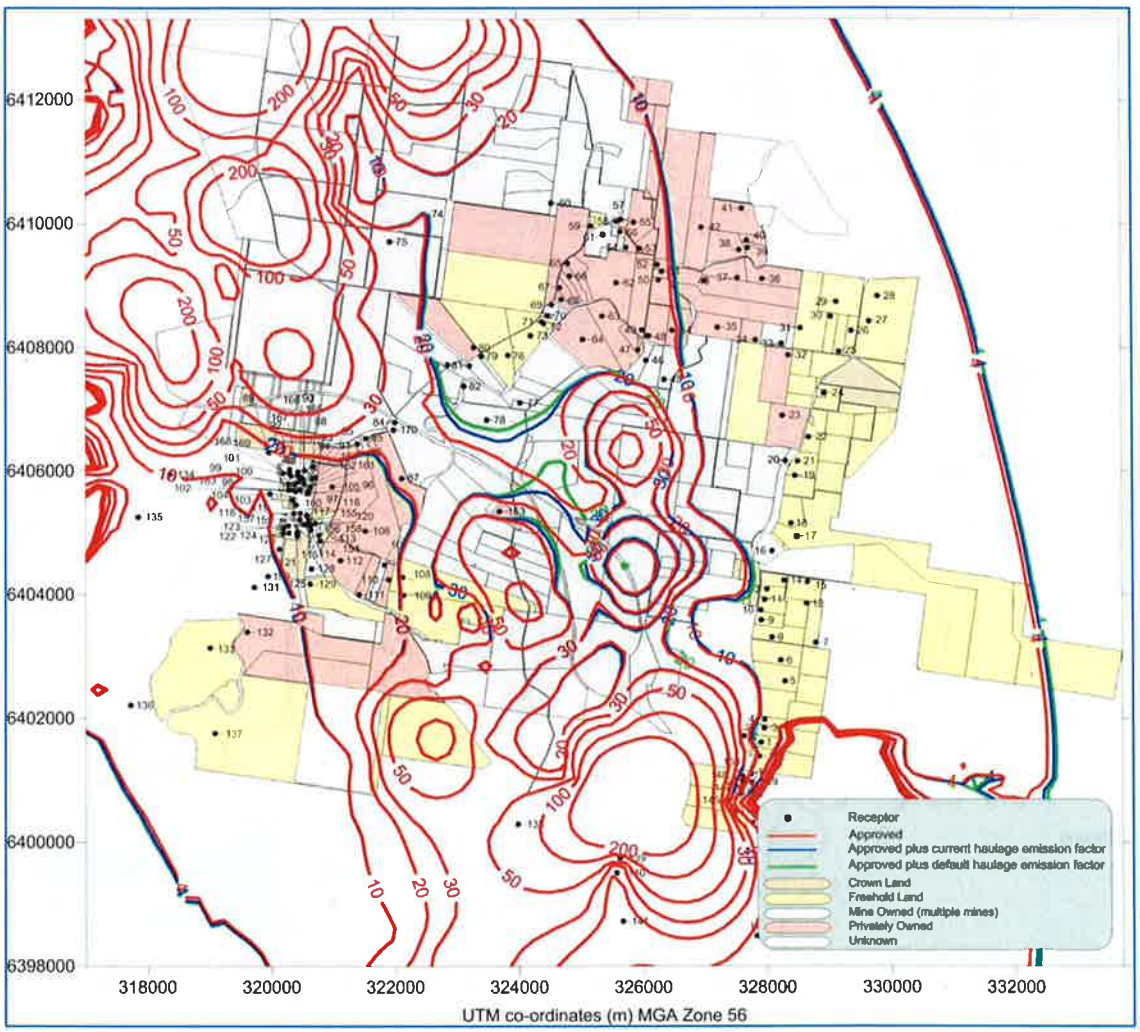


**Figure A.3: Predicted annual average TSP GLC due to Integra operations and other sources (µg/m³) – Year 3**

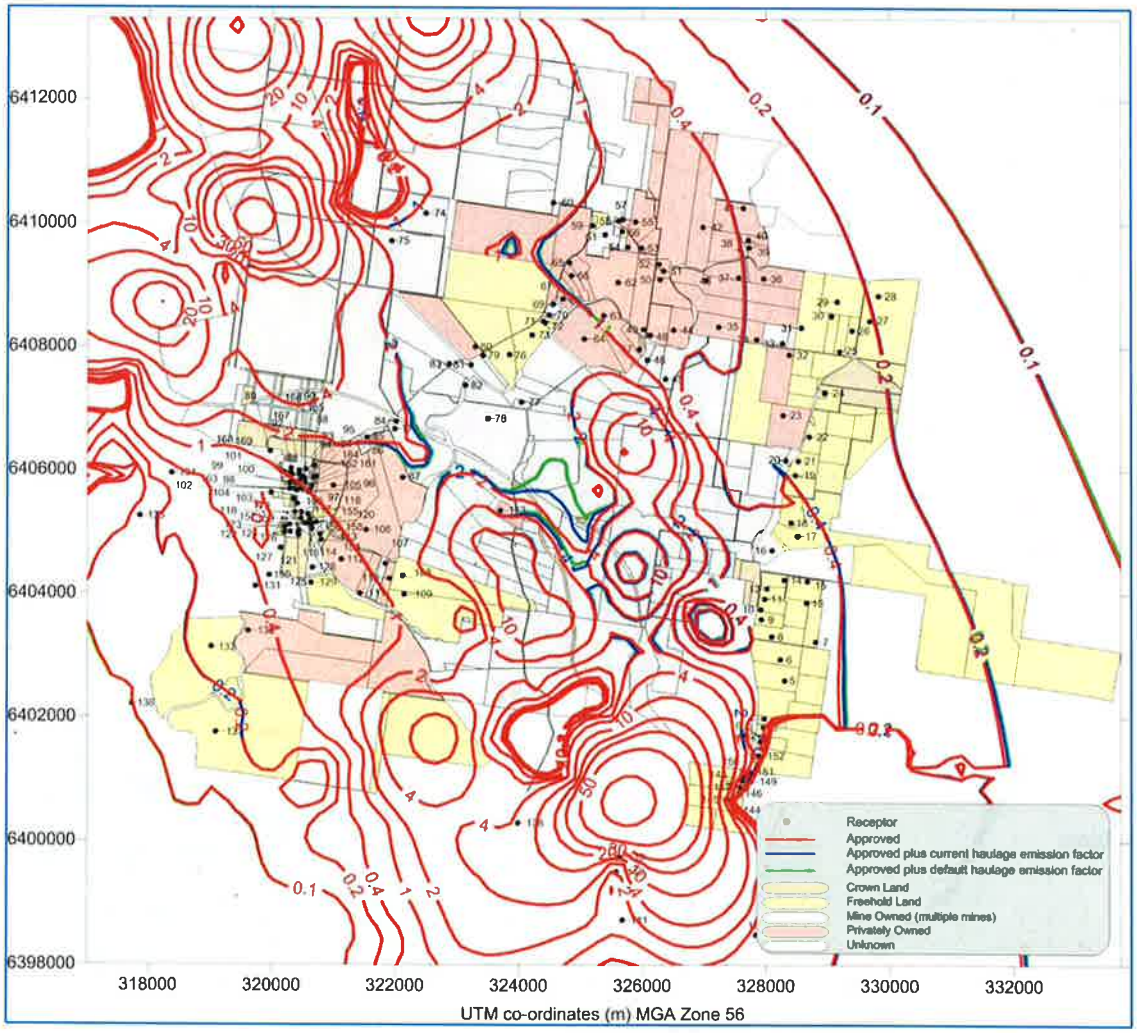


**Figure A.4: Predicted annual average dust deposition levels due to Integra operations and other sources (g/m²/month) – Year 3**

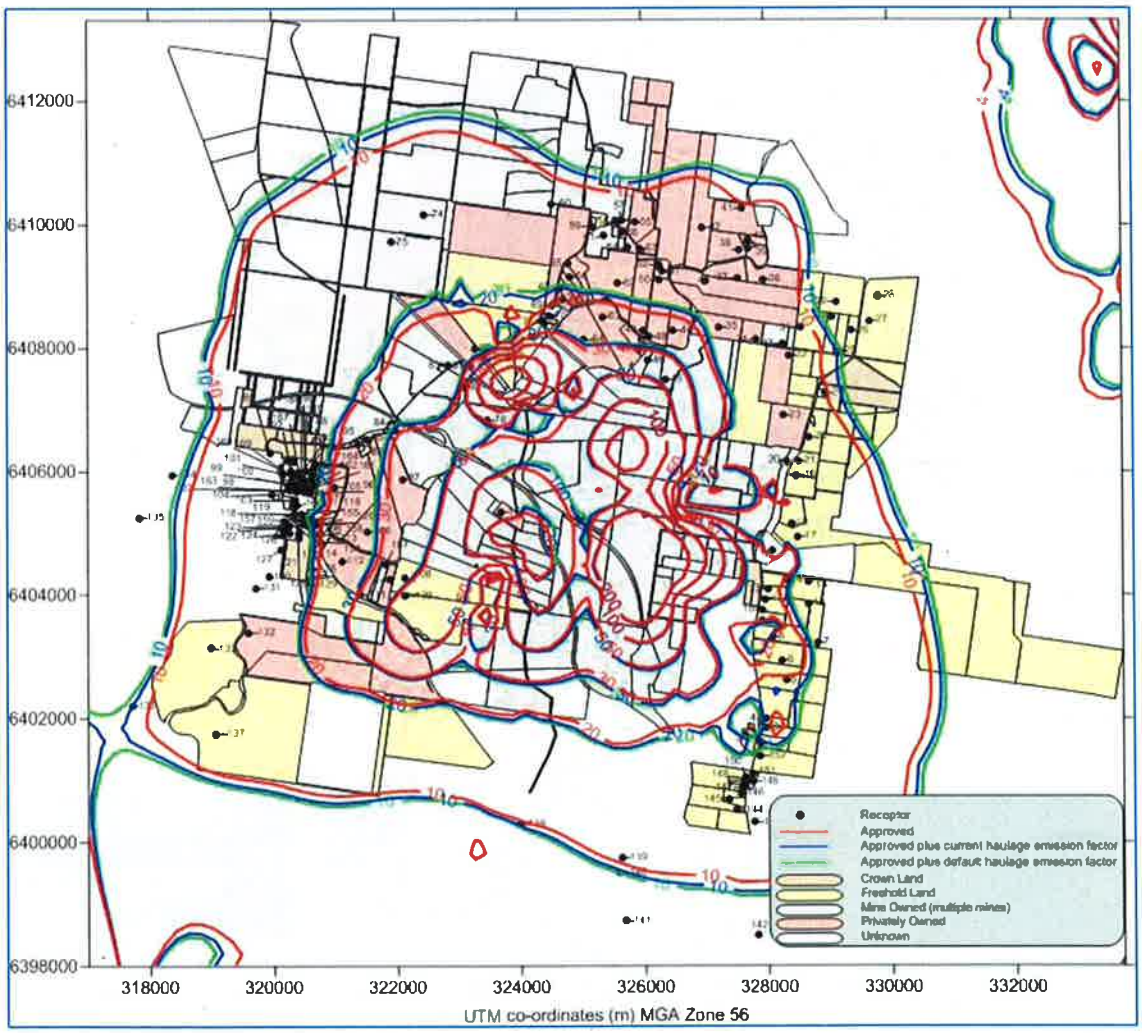


**Figure A.5: Predicted 98.6th percentile 24-hour average $PM_{10}$ GLC due to Integra operations only ($\mu g/m^3$) – Year 4**

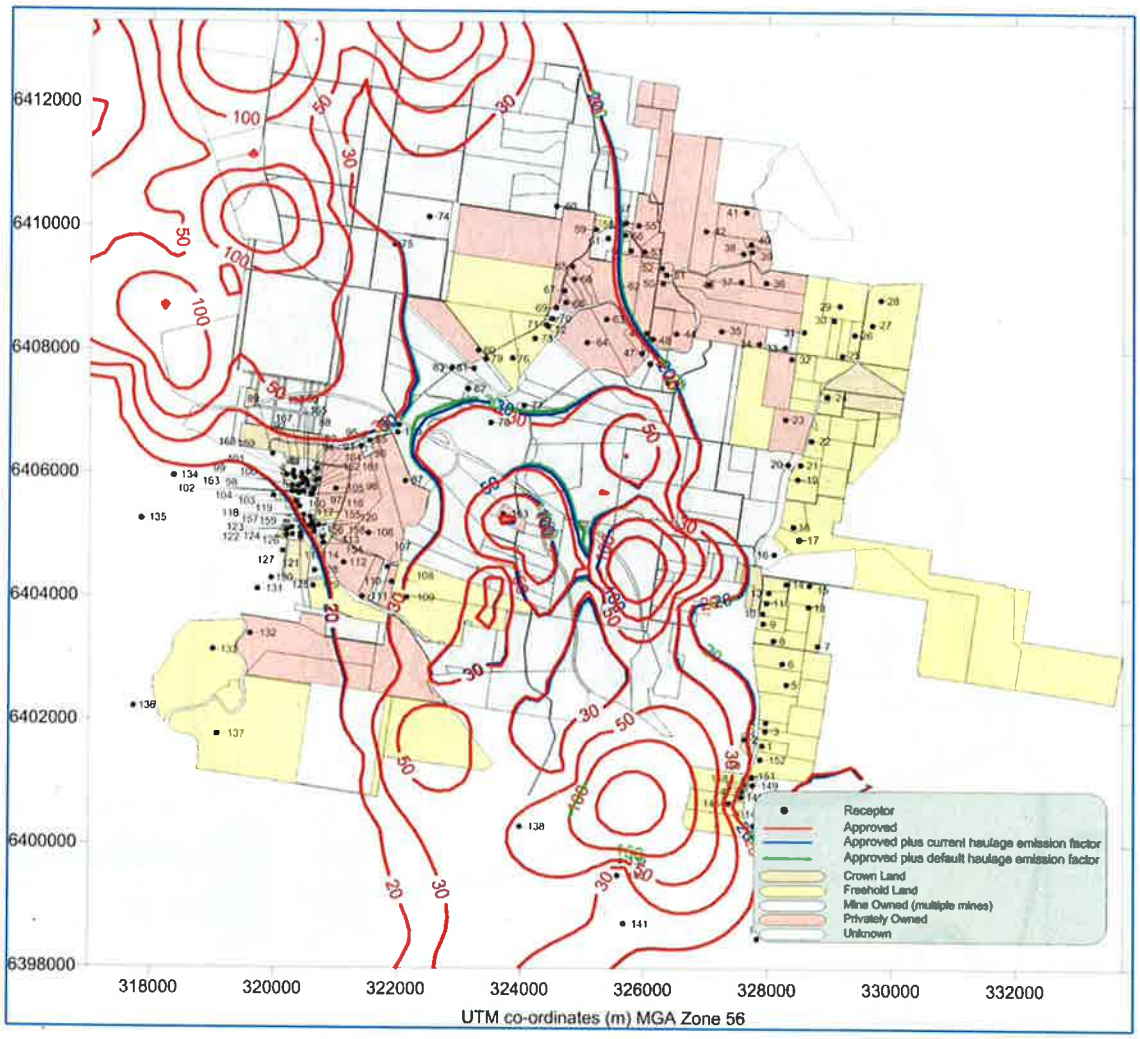


**Figure A.6: Predicted annual average $PM_{10}$ GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 4**

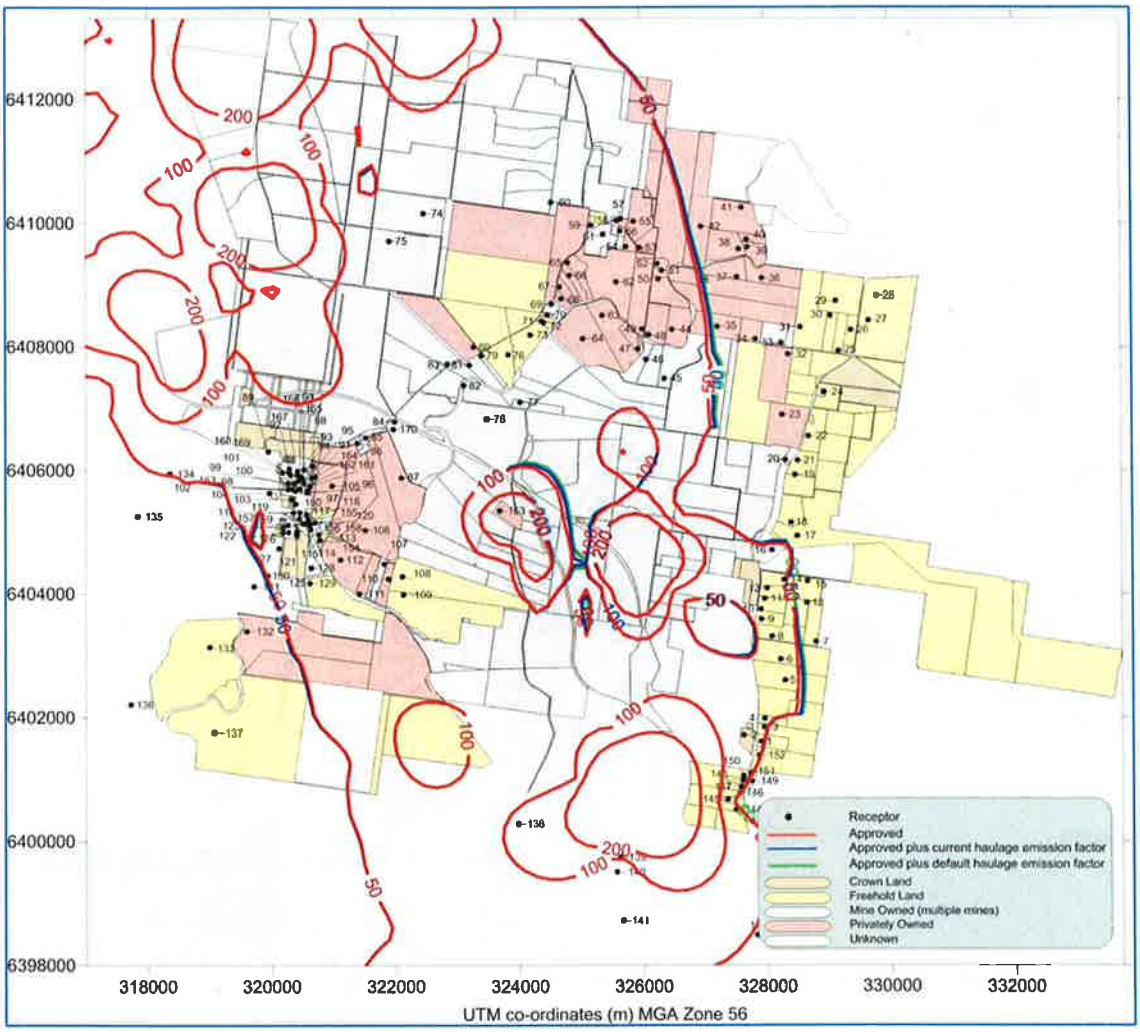


**Figure A.7: Predicted annual average TSP GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 4**

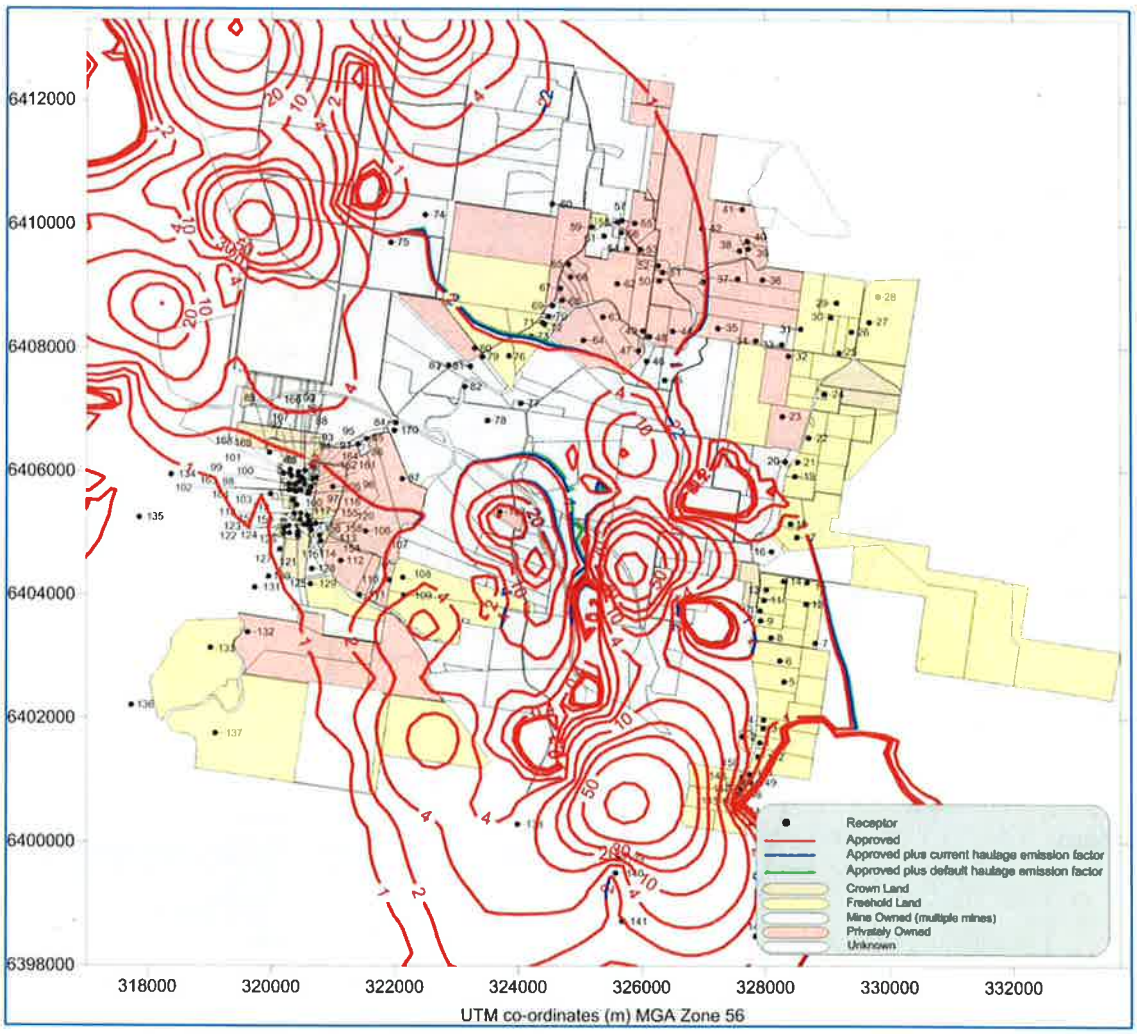


**Figure A.8: Predicted annual average dust deposition levels due to Integra operations and other sources (g/m²/month) – Year 4**

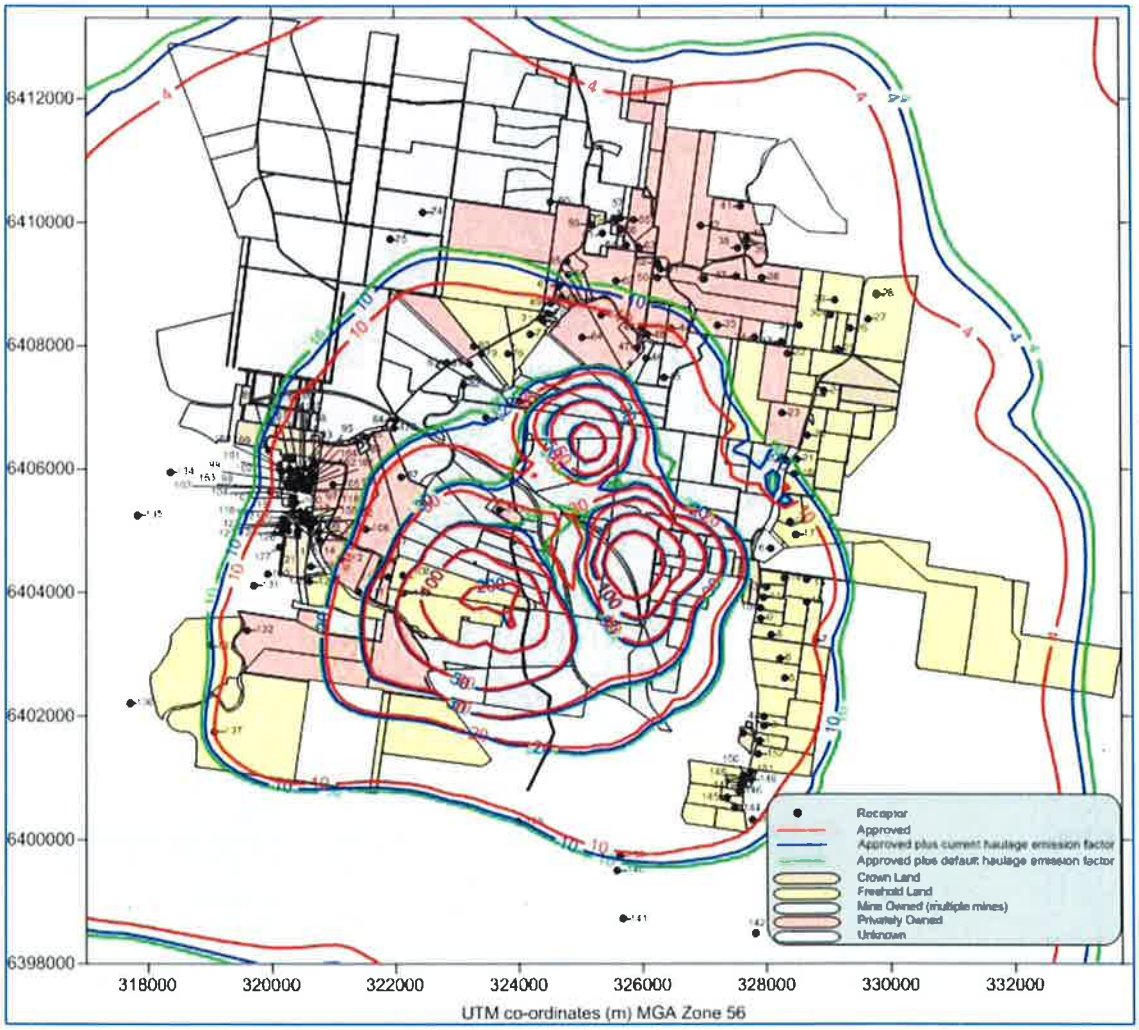


**Figure A.9: Predicted 98.6th percentile 24-hour average $PM_{10}$ GLC due to Integra operations only ($\mu g/m^3$) – Year 6**

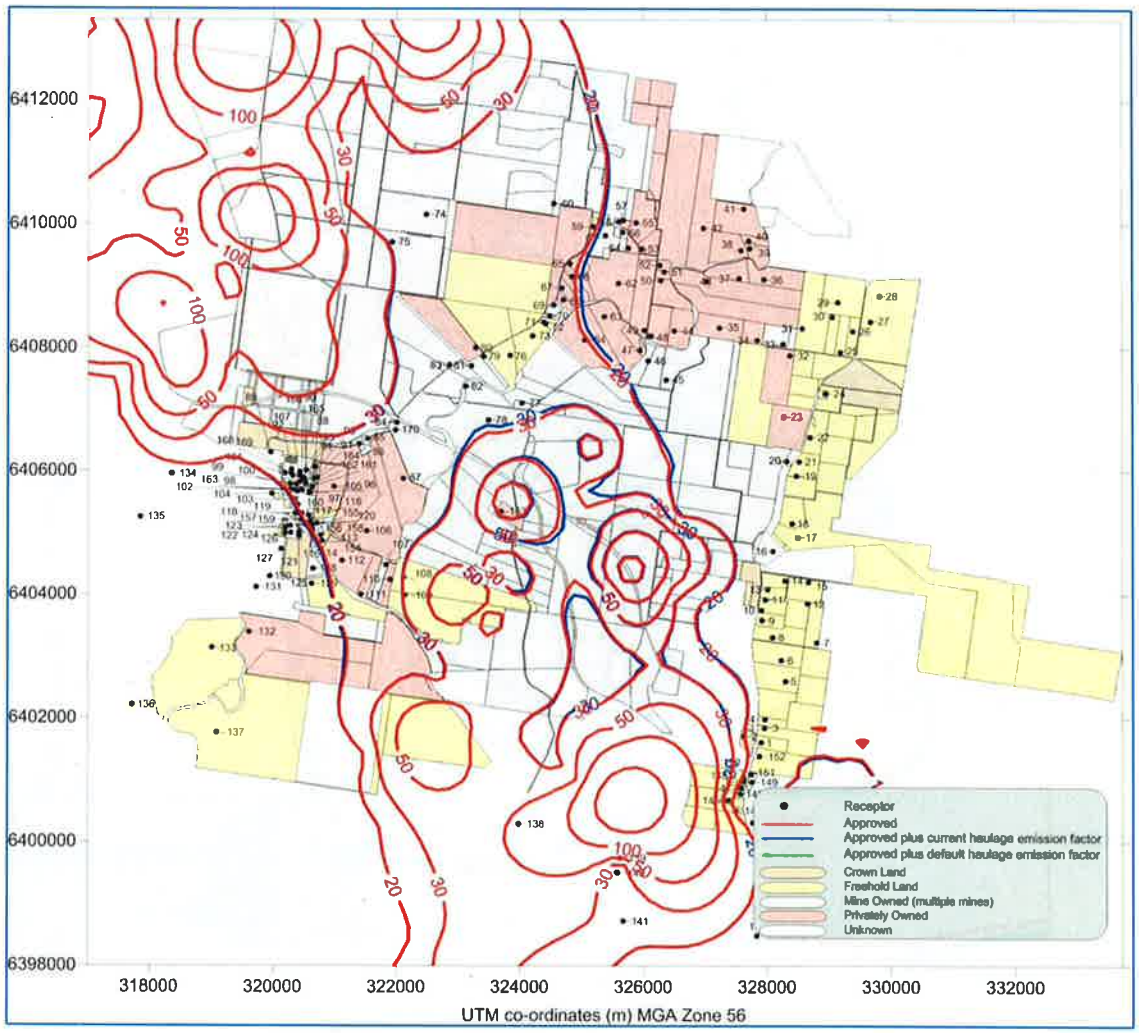


**Figure A.10: Predicted annual average $PM_{10}$ GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 6**

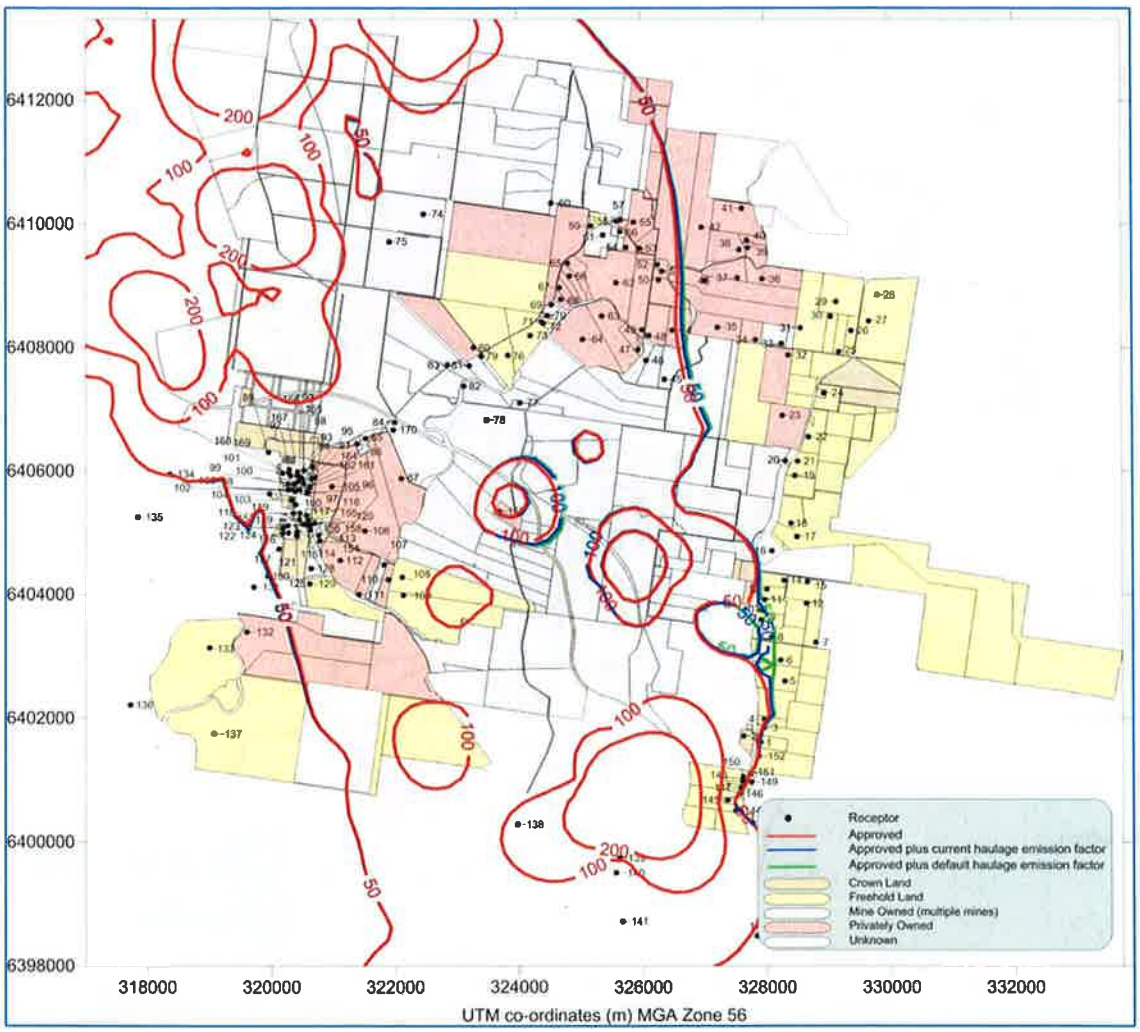


**Figure A.11: Predicted annual average TSP GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 6**

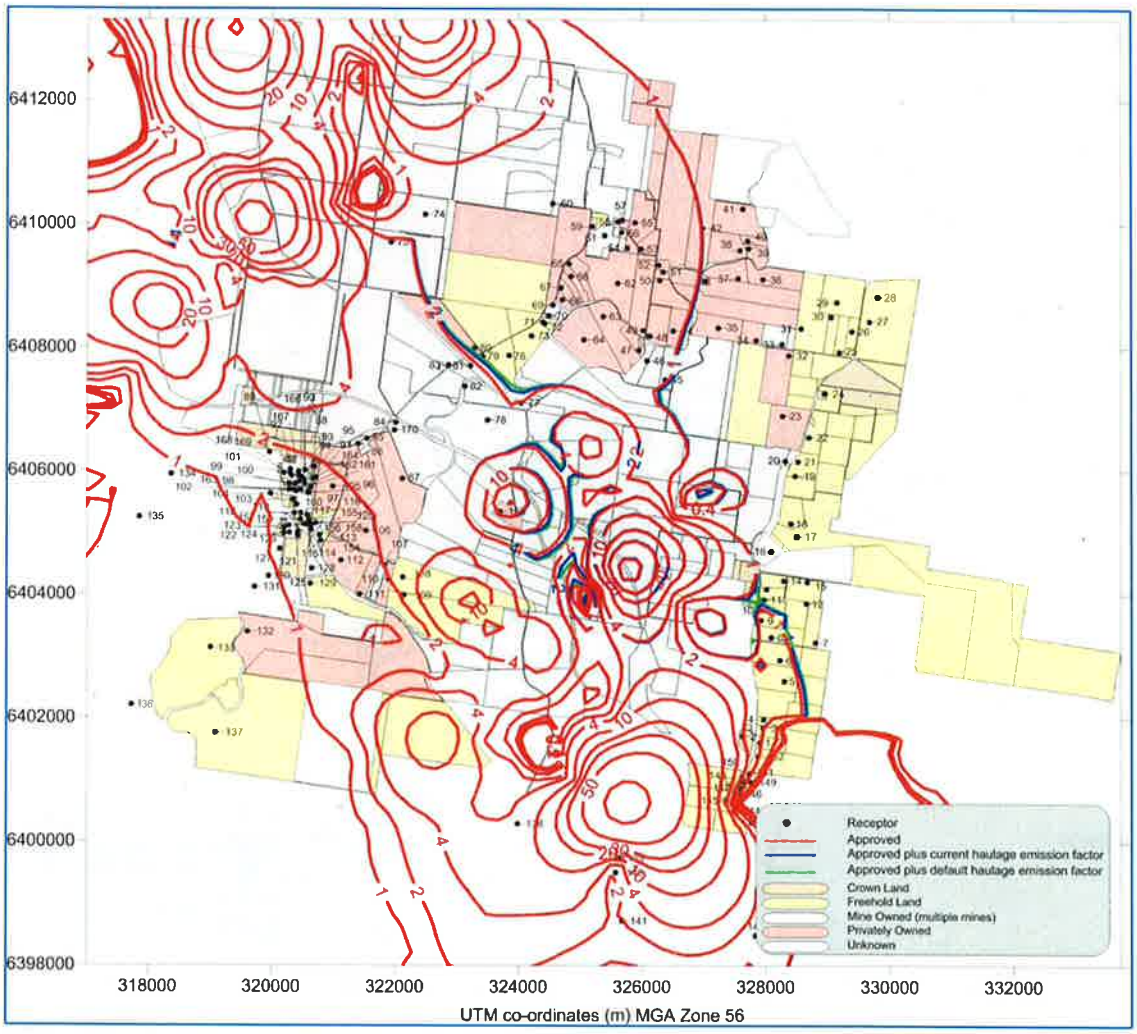


**Figure A.12: Predicted annual average dust deposition levels due to Integra operations and other sources (g/m²/month) – Year 6**

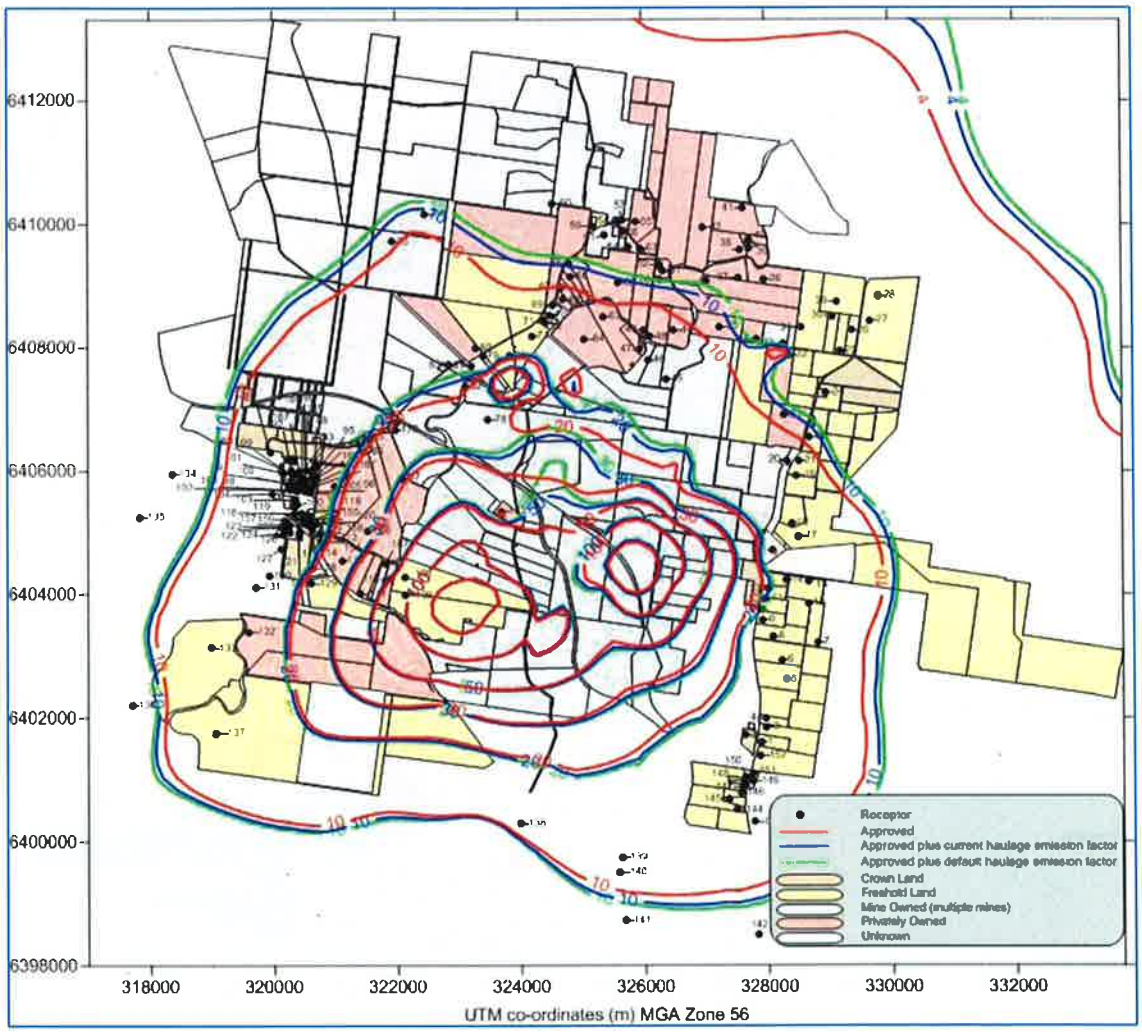


**Figure A.13: Predicted 98.6th percentile 24-hour average $PM_{10}$ GLC due to Integra operations only (µg/m³) – Year 8**

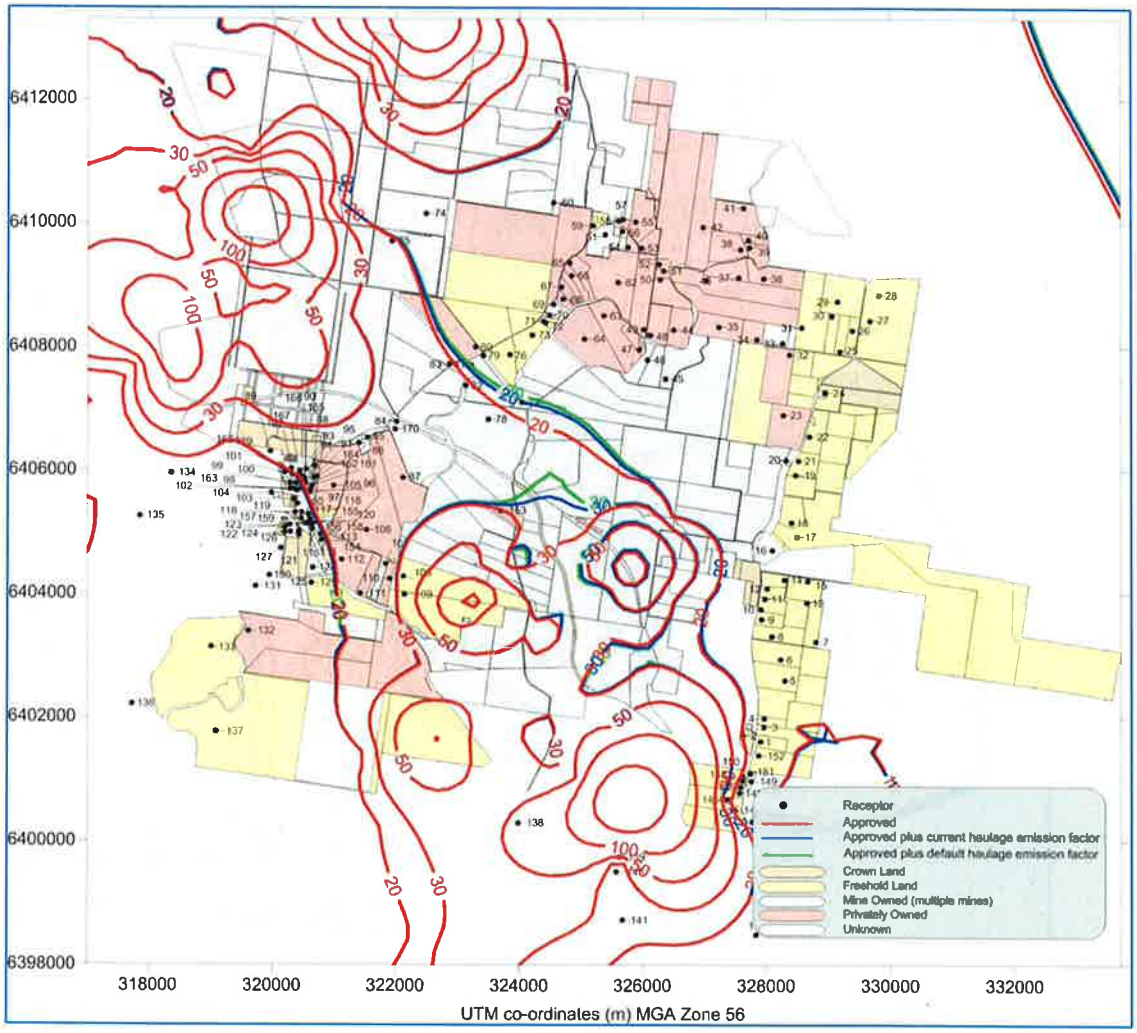


**Figure A.14: Predicted annual average $PM_{10}$ GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 8**

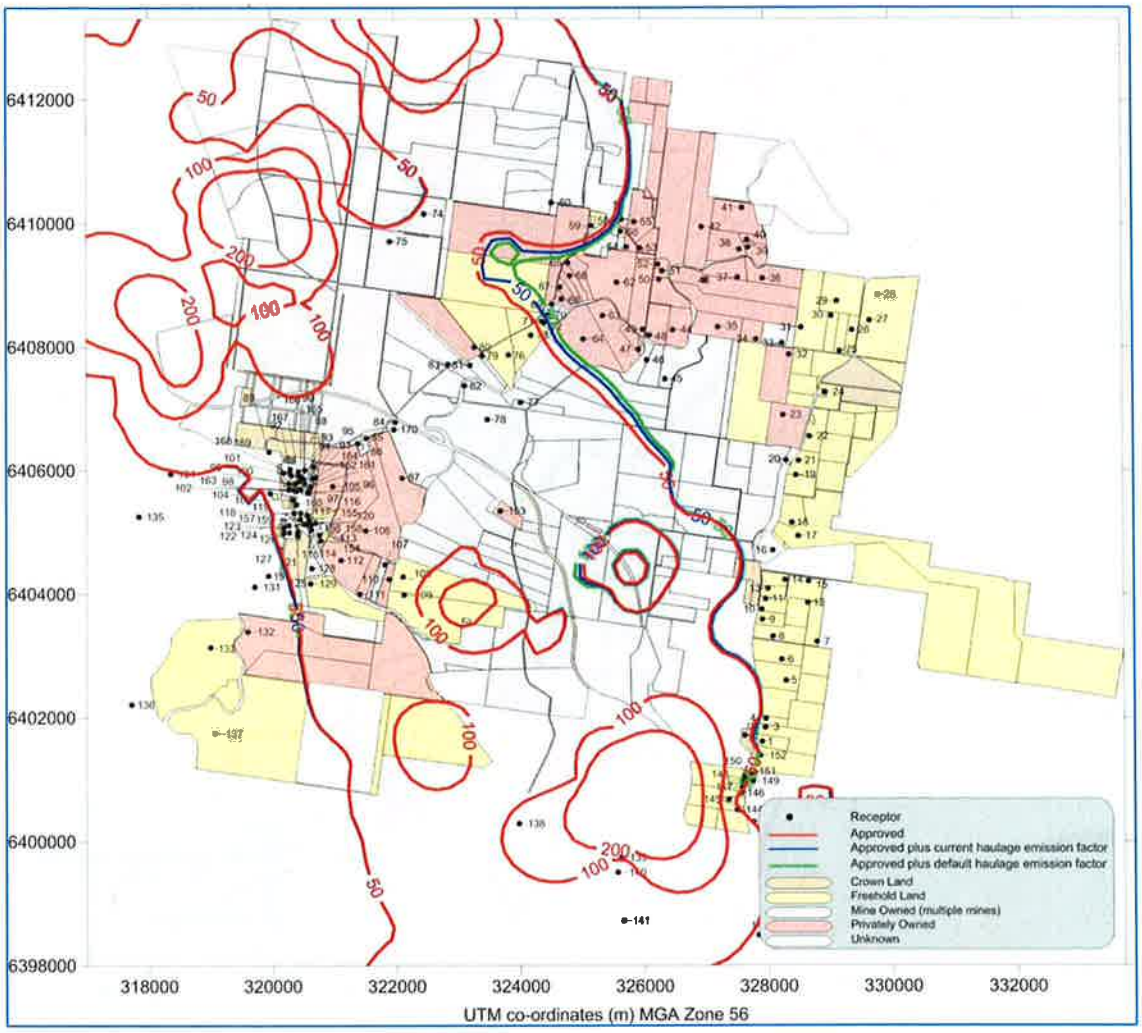


**Figure A.15: Predicted annual average TSP GLC due to Integra operations and other sources ($\mu g/m^3$) – Year 8**

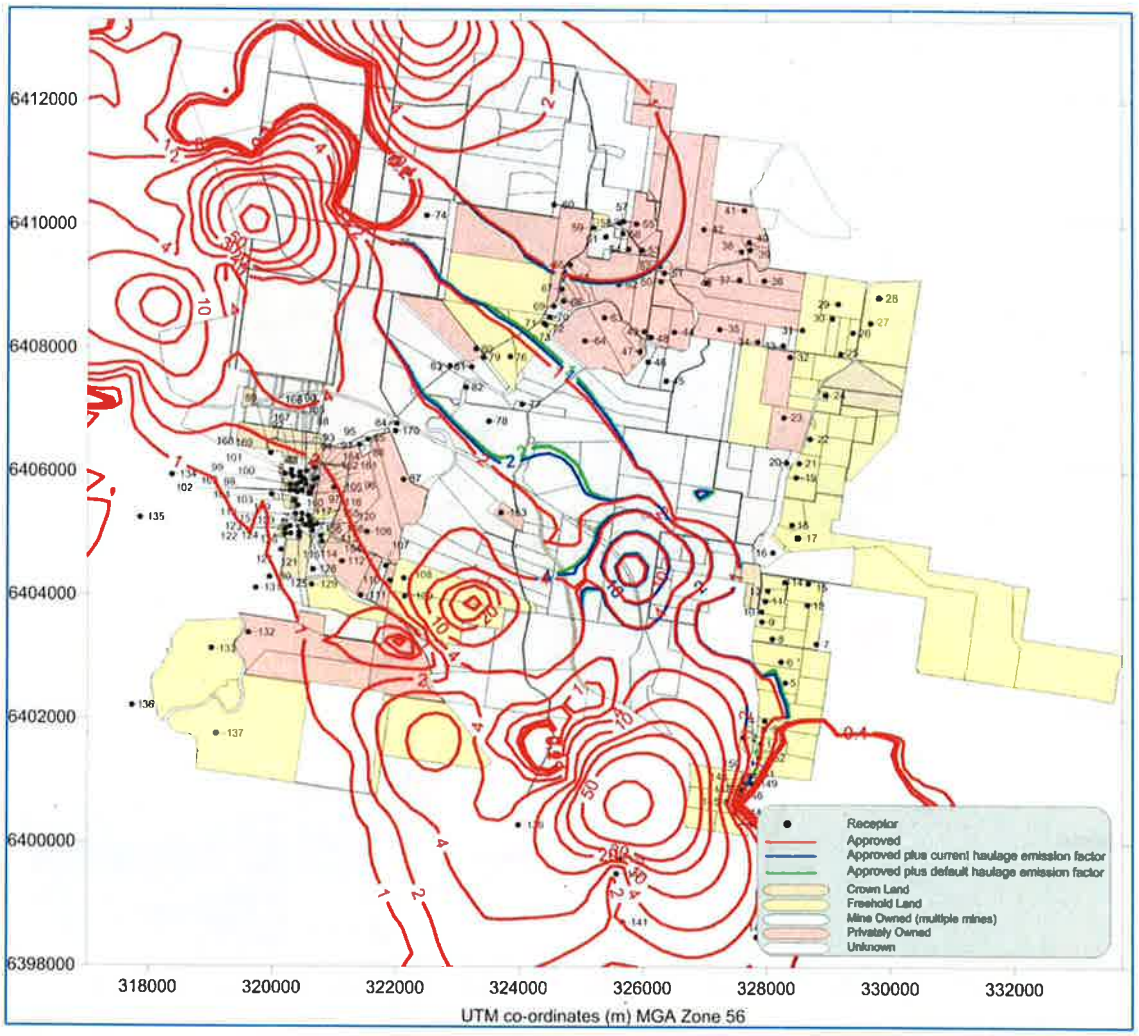


**Figure A.16: Predicted annual average dust deposition levels due to Integra operations and other sources (g/m²/month) – Year 8**

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3 December 2012

Phil Jones
Environmental Planning Officer
NSW Department of Planning and Infrastructure
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Re: Integra modification 2 - noise emission comparison conveyor versus truck haulage

Dear Phil,

# 1 Introduction

As part of the determination for the Integra Mine Complex Modification 2, the Department of Planning and Infrastructure (DP&I) has requested additional noise related information regarding the removal of Schedule 3 Condition 48, which requires the installation and operation of an overland conveyor from the UG surface facilities to the Coal Handling and Preparation Plant (CHPP). Specifically, DP&I has requested:

- a summary table comparing the worst case noise predictions at each noise assessment group(s) (NAG) for both the conveyor and truck haulage options; and
- contour plans of noise emissions from the two scenarios, so that a visual comparison can be made.

This letter provides the requested information. Modelling results include the 3 m high bund wall which has been constructed to mitigate noise emissions from truck haulage.

# 2 Methodology

The methodology adopted for the study was consistent with the approach used in the EMM (2012) environmental assessment report, and includes comparing emissions for the worst case night time (inversion) period for the conveyor versus truck haulage.

This scenario quantifies the noise contribution of each option independent from other Integra noise sources. Sources modelled for this scenario include the underground overland conveyor for the conveyor scenario, and trucks and water carts for the truck haulage scenario.

# 3 Results

Table 1 provides a summary comparing the worst case noise predictions for each NAG for the conveyor and haul road options. Figure 1 and Figure 2 provide the noise emission contours for this scenario.

**Table 1 Summary of worst case noise emissions for each NAG**

| NAG | Location | $L_{eq}$ Criteria, dB(A) | Predicted noise levels, $L_{eq(15\text{-}min)}$, dB(A) | | Difference, dB(A) |
|---|---|---|---|---|---|
| | | | Conveyor only | Truck haul only | |
| 1 | 80 | 36 | 36 | 36 | 0 |
| 3 | 87 | 39 | 35 | 36 | 1 |
| 4 | 96 | 37 | 30 | 29 | -1 |
| 5 | 111 | 47 | 32 | 34 | 2 |
| 6 | 132 | 38 | 25 | 25 | 0 |
| 7 | 110 | 39 | 34 | 36 | 2 |
| 8 | 142 | 35 | 23 | 20 | -4 |
| 9 | 4 | 39 | 32 | 32 | 0 |
| 10 | 13 | 37 | 37 | 35 | -2 |
| 11 | 16 | 42 | 38 | 34 | -4 |
| 12 | 62 | 40 | 34 | 34 | 0 |
| A | 35 | 35 | 34 | 30 | -4 |
| C | 64 | 35 | 35 | 33 | -4 |
| D | 48 | 36 | 33 | 30 | -3 |
| F | 76 | 40 | 38 | 39 | 1 |

*Note 1 : a negative value in the difference column identifies the haul option generates lower emissions than the conveyor option.*

Table 1 demonstrates:

- the continuation of truck haulage would result in a 1 to 4 dB decrease in contributions at seven of the 15 NAGs;
- there is no change between the contributions from the conveyor versus the truck haulage scenario at four of the NAGs; and
- there would be a minor decrease in contributions of between 1 to 2 dB at four of the NAGs should the conveyor scenario be adopted.

These results are generally consistent with those presented in the EMM (2012) environmental assessment report that concluded with the construction of the noise bund, there would be a negligible noise increase at potentially affected receptors.

# 4 Conclusion

EMM has completed a detailed comparison of noise emission from two coal transport scenarios at each NAG. The investigation compared a coal conveyor to the continuation of haulage by truck from the underground transfer station to the CHPP.

The results of the comparison are generally consistent with findings presented in the EMM (2012) environmental assessment. It is demonstrated, however, that assumptions regarding attenuation provided by the noise bund were highly conservation with higher noise reductions than previously anticipated.

The modelling indicates that the transportation of coal from the Integra underground will not result in any significant difference in noise impacts between the conveyor and continued truck haulage. Furthermore, continuation of this transport method would result a reduction of emissions for just under half of all NAGs compared to the conveyor haulage option.

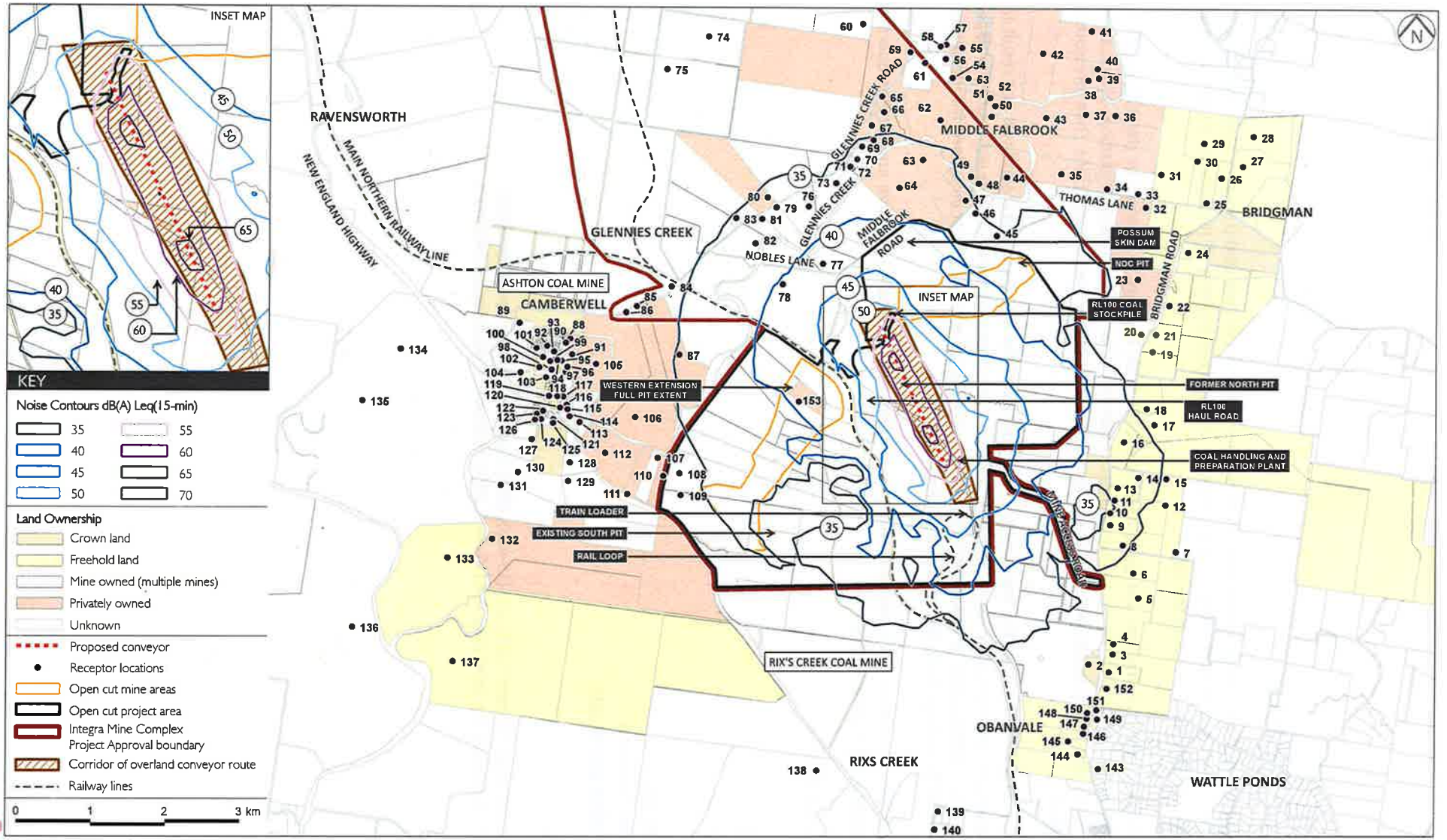
We trust that the information above satisfies your requirements and if you have any further queries, please contact the undersigned.

Yours Sincerely,

Oliver Muller
Associate, Acoustics
omuller@emgamm.com

Attached:

Figure 1 - Conveyor transport only, Leq (15-min), dB(A) inversion meteorological conditions
Figure 2 – Haul truck transport only, Leq (15-min), dB(A) inversion meteorological conditions




Source: URS 2011. Boundaries are offset to improve clarity.

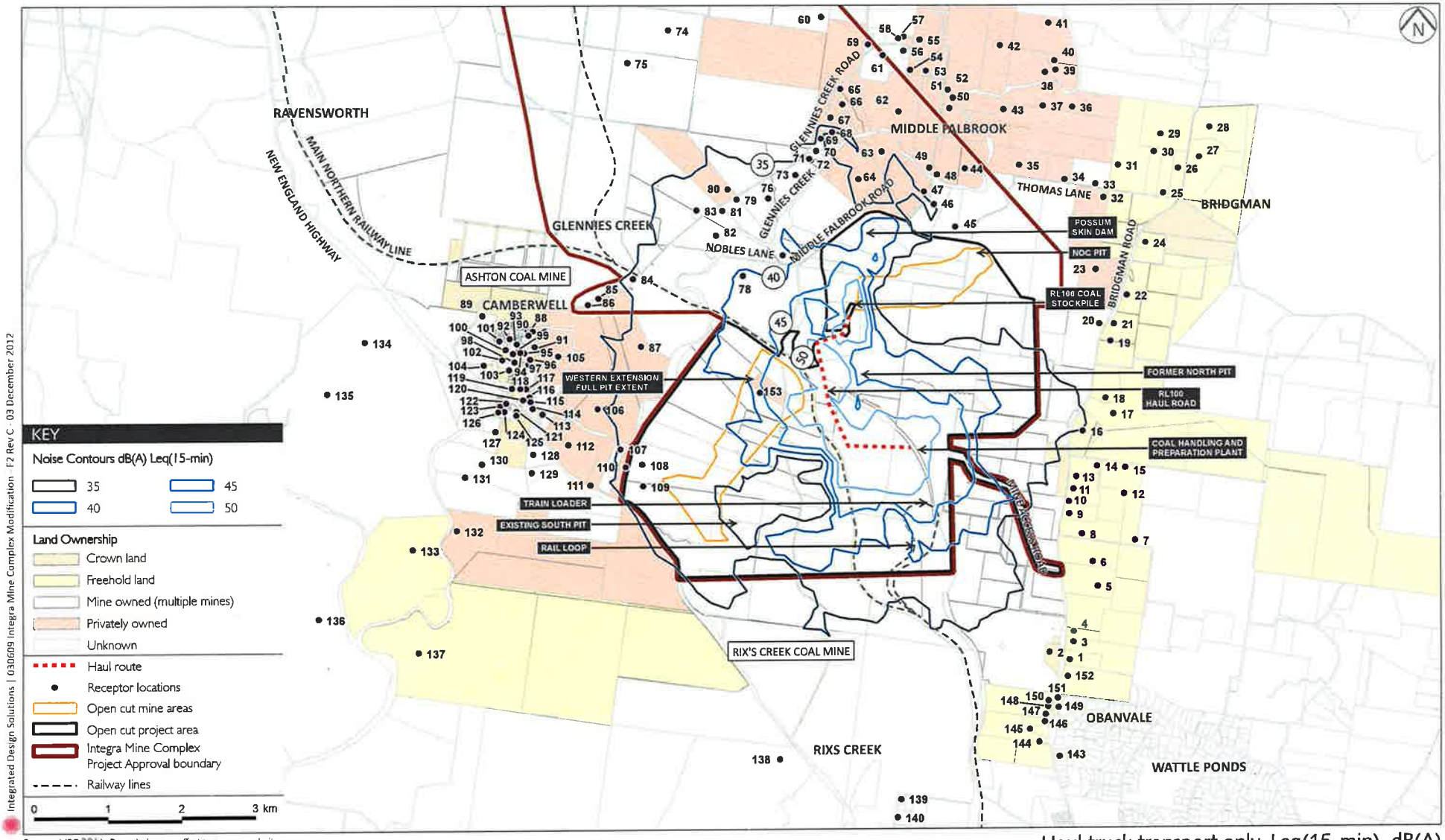
EMM

Integrated Design Solutions | 030609 Integra Mine Complex Modification - F1 Rev C 03 December 2012

## Conveyor transport only, Leq(15-min), dB(A)
## Inversion meteorological conditions

Integra Mine Complex Modification 2 Environmental Assessment

FIGURE 1




Source: URS 2011. Boundaries are offset to improve clarity.

EMM

Haul truck transport only, Leq(15-min), dB(A)
Inversion meteorological conditions

Integra Mine Complex Modification 2 Environmental Assessment

FIGURE 2