

# **ENVIRONMENTAL ASSESSMENT**

Section 75W Modification Application  
Moolarben Coal Project – Stage 1  
(05\_0117 MOD 6)

December 2009

CR 6015\_12\_v1

Section 75W Modification Application  
Moolarben Coal Project Stage 1 – MOD 6

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## 1. INTRODUCTION

This report constitutes an application made pursuant to Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act), seeking modification of the Major Project Approval for Stage 1 of the Moolarben Coal Project (MCP), issued on 6 September 2007 and as modified on 26 November 2008 (05\_0117 MOD 1), 18 December 2008 (05\_0117 MOD 2), 30 June 2009 (05\_0117 MOD 4) and 5 October 2009 (05\_0117 MOD 5).

This modification (05\_0117 MOD 6) seeks approval to amend the location and capacity of the rejects bin, to a preferred location adjacent to open cut mining and mine infrastructure. This will enable improved haul truck access to the rejects bin, which will provide safer and more efficient handling of coarse rejects and tailings from the washing of Stage 1 coal. It will also provide sufficient capacity for future handling of increased rejects should Stage 2 of the MCP (Stage 2) be approved.

Moolarben Coal Mines Pty Limited (MCM), the proponent for the MCP, is a wholly owned subsidiary of Felix Resources Limited (FRL)<sup>1</sup>, a publicly listed company on the Australian Stock Exchange. Felix Resources Limited has a 60% share in the Ashton coal mine and is a capital venture partner in the Newcastle Coal Infrastructure Group (NCIG).

This report has been prepared by Coffey Natural Systems on behalf of MCM.

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<sup>1</sup> On the 23 December 2009 the ownership of FRL will be transferred to Yanzhou Coal Mining Limited, a Chinese owned coal mining company. Yanzhou Coal Mining Limited is a top 100 publicly listed company on the Chinese Stock Exchange. Yanzhou Coal Mining Limited owns and operates the Austar coal mine in NSW.

## **2. BACKGROUND**

### **2.1 Project Location**

The MCP is located in the Western Coalfields of New South Wales, east of the village of Ulan and approximately 40 km northeast of Mudgee, in the Mid Western Region local government area (see Figure 1).

The MCP Stage 1 is bordered by the Goulburn River to the north; Goulburn River National Park, Wilpinjong Coal Mine and Munghorn Gap Nature Reserve to the east; privately-owned grazing land to the south; and privately-owned grazing land, Ulan village and Ulan Coal Mine to the west.

Stage 1 is situated within the Moolarben Creek valley, in the headwaters of the Goulburn River catchment. The dominant land uses are grazing, rural residential, conservation and mining. The Ulan village west of the mine comprises a small rural primary school, two churches, a hotel and mine-owned residential dwellings and vacant land. A rural residential development is located approximately 4 km to the southwest of the mine. A small number of farms and scattered homesteads occupy the rest of the surrounding freehold land.

The locality is serviced by the Ulan–Cassilis Road (linking Mudgee and Cassilis), Cope Road (linking Gulgong and Ulan) and Ulan–Wollar Road (linking Wollar and Ulan). The Gulgong–Sandy Hollow Railway provides the transport link for delivery of coal to domestic and export markets (via Muswellbrook).

### **2.2 The Moolarben Coal Project**

On 6 September 2007, the Minister for Planning granted project approval (05\_0117) for Stage 1 of the MCP.

Since gaining approval for Stage 1, MCM has made five separate applications under S75W of the EP&A Act to modify the Minister's approval for the project:

- In August 2008, an application was made to the Department of Planning (DoP) to make administrative changes and to rearrange specific items of approved infrastructure so as to improve operational efficiency and provide improved conservation outcomes. The application (05\_0117 MOD 1) was approved on 26 November 2008.
- In December 2008, an application was made to the DoP to allow preliminary construction activities to commence prior to completion of required mine access road works. The application (05\_0117 MOD 2) was approved on 18 December 2008.
- In February 2009, an application was made to the DoP to allow Stage 1 to receive and process run-of-mine (ROM) coal from the proposed Stage 2 project (see below); increase throughput of processing, handling and rail loading to 17 Mtpa ROM coal and 13 Mtpa product coals; increase off-site transport of product coal to 13 Mtpa; and extend the approved operating life of Stage 1 infrastructure so that Stages 1 and 2 of the MCP will be fully integrated. The application (05\_0117 MOD 3) is currently being assessed by the DoP.

- In April 2009, an application was made to the DoP to change the configuration of the rail loop from a figure-8 to a balloon loop layout. The application (05\_0117 MOD 4) was approved on 30 June 2009.
- In June 2009, an application was made to the DoP to relocate the ROM coal facility and develop a water sharing pipeline from the Ulan coal mine. The application (05\_0117 MOD 5) was approved on 5 October 2009.

The approved project, as modified, entails the construction and operation of three open cut mines (OC1, OC2 and OC3), one underground mine (UG4); coal handling, processing and rail load out infrastructure; and associated surface facilities. At full production, Stage 1 will produce up to 10 million tonnes per annum (Mtpa) of product coal for export and domestic markets, and will employ in excess of 300 permanent full time workers.

A summary of the approved Stage 1 project is provided in Table 1.

**Table 1      Stage 1 project summary**

<b>Aspect</b>		<b>Description</b>
Project life		21 years, to 20 December 2028.
Mining operations	Open cut	Three open cut mines (OC1 – 302 ha, OC2 – 150 ha and OC3 – 550 ha) will be mined at a combined rate of up to 8 Mtpa ROM coal.  Overburden (30 m average depth) will be blasted where necessary and be removed using excavator and truck operations.  Coal will be blasted and recovered using excavator and truck operations.
Mining operations	Underground	One underground mine (UG4 – depth 70 to 140 m) will be mined at up to 4 Mtpa ROM coal.  Coal will be recovered by longwall mining and transferred to surface by conveyor.  UG4 mine drift entries in the Stage 1 Main Infrastructure Area.
Blasting		Up to 2 blasts a day and 9 blasts a week over any 12 month period, between the hours of 9:00 a.m. to 5:00 p.m. Monday to Saturday.
Coal handling, preparation, and processing		Coal from OC1, OC2 and OC3 will be transferred by truck to the ROM coal facility, prior to transfer via conveyor to the CHPP or raw coal stockpile.  Coal from UG4 will be transferred to the coal handling and processing plant (CHPP) or raw coal stockpile by conveyors.  Crushing and sizing facilities will be included at both the ROM coal facility and CHPP.  Up to 12 Mtpa of ROM coal will be processed.  Coal will be transferred from the CHPP to the product coal stockpile via conveyors.
Coal production, loading and rail transport		Product coal will be produced at up to 10 Mtpa.  Product coal will be loaded onto trains via a rail loop and rail load out facility, and railed to market on the Gulgong-Sandy Hollow rail line in up to four trains a day (four trains during any 24 hour period).
Water demand and supply		Water demand at peak production will be about 6.9 ML/day (2,520 ML/year).  Water will be supplied from mine inflows, surface water capture, recycled process water, water sharing with adjoining mines and groundwater bore field, where required.

**Table 1 Stage 1 project summary (cont'd)**

<b>Aspect</b>	<b>Description</b>
Waste rock, coarse rejects and tailings management	Excavated overburden initially used to form environmental bunds through out-of-pit emplacement on the western side of OC1 and OC2, around the OC3 facilities and along the haul road between OC3 and OC1.  Remaining overburden will be placed within open cut mine voids.  Coarse rejects and tailings will be emplaced with overburden in open cut mine voids.  An emergency tailings dam will be established adjacent to the CHPP.
Mine access	Access to OC1, OC2 and OC3 from Ulan-Wollar Road.  Access to UG4 and the CHPP from Ulan-Cassilis Road, north of Ulan-Wollar Road junction.
Support facilities and utilities	Support facilities including offices, bathhouses, workshops and fuel storages (where required), will be established at the Main Infrastructure Area (to service UG4 and the CHPP), and at OC1 and OC3.  Power will be supplied from the 66 kV Ulan to Wilpinjong transmission line, via an on-site 66/11 kV substation.
Hours of operation	Construction during daylight hours, 7 days a week. Some noisy activities will be conducted outside of school hours to minimise noise impacts on Ulan Public School.  Civil works in the Main Infrastructure Area will occur 24 hours a day, 7 days a week.  Mining operations will occur 24 hours a day, 7 days a week.
Employment	220 construction and 317 full time positions.
Rehabilitation	All disturbed areas will be progressively rehabilitated.

The approved Stage 1 infrastructure layout is shown in Figure 2.

On 14 July 2008, MCM lodged a Major Project Application for Stage 2 of the MCP, Major Project 08\_0135. Stage 2 will consist of one open cut mine (OC4); two underground mines (UG1 and UG2); ROM and raw coal stockpiles; and support facilities. Stage 2 ROM coal will be handled and processed using the approved Stage 1 ROM coal facilities and CHPP. The application (08\_0135) is currently being assessed by the DoP.

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Moolarben Coal Project Stage 1 – MOD 6

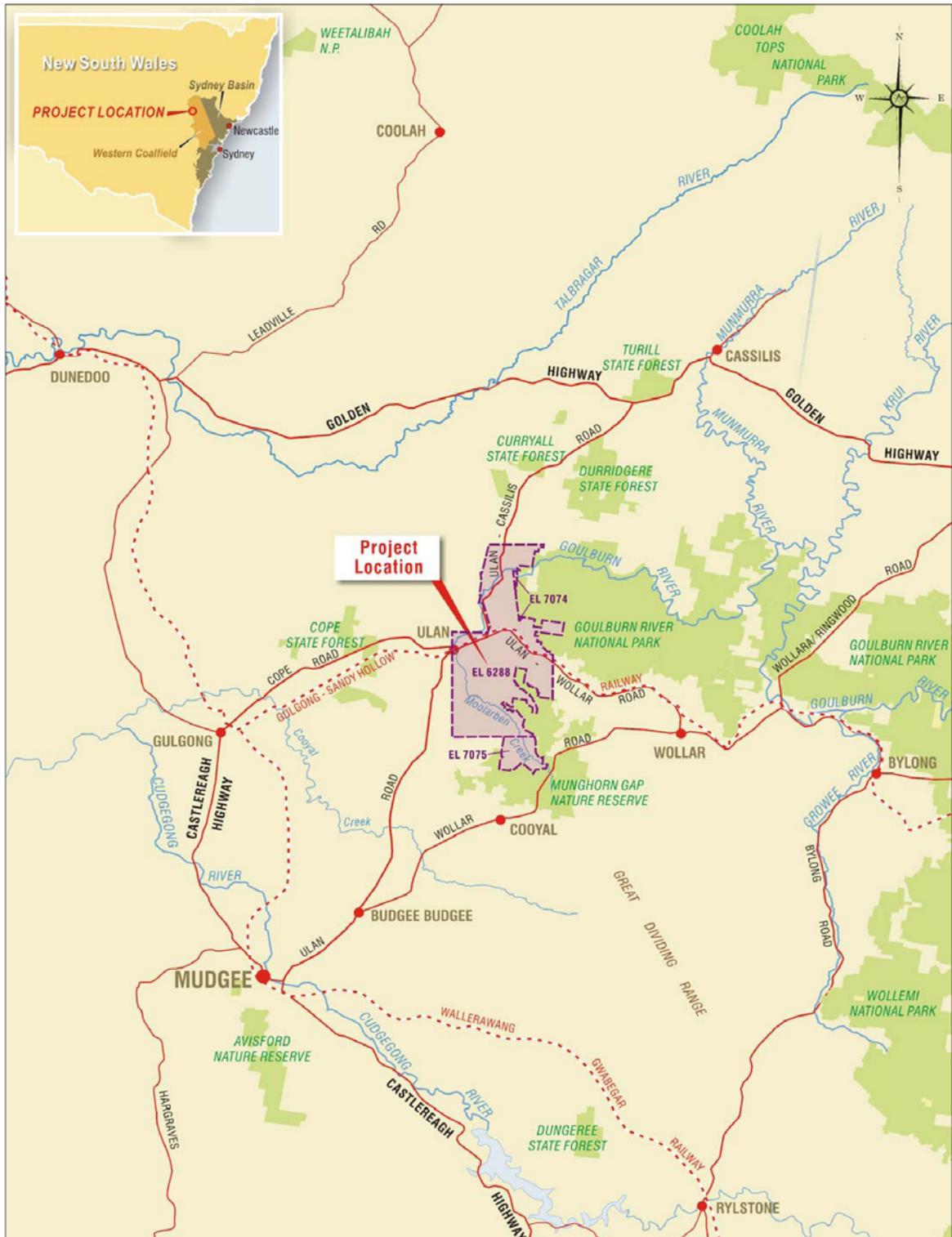


Figure 1 Project location

## **3. PROPOSED MODIFICATION**

### **3.1 Summary of Proposed Modification**

The proposed modification involves relocating the rejects bin to a preferred location about 250 m northwest of its approved location. This amended location (Figure 3) is on cleared grazing land within the disturbance footprint of the open cut 1 (OC1) mine. It also involves increasing the capacity of the rejects bin from 250 to 500 t in preparation for accepting future additional rejects materials from the coal washery, should the project application for Stage 2 be approved. Approval of Stage 2 and the integration of Stage 2 with Stage 1 will increase the throughput of coal through the washery. This will potentially double the amount of coarse rejects and tailings (rejects) delivered to the rejects bin compared to the operation of Stage 1 alone (Wells and Coffey, 2009).

No other changes will be made and construction and operation of the project will occur in accordance with the conditions of the Minister's approval, as modified.

The proposed modification will not affect the extent or timing of the mining activities or any other aspect of the approved project. Further, despite increasing the capacity of the rejects bin, there will be no increase in the amount or rate of rejects delivered to the rejects bin, or the number of trucks used to back haul rejects to the open cut mine void, as a result of Stage 1 alone (i.e., prior to approval of Stage 2 and integration of Stage 2 and Stage 1).

### **3.2 Need for Modification**

#### **3.2.1 Purpose and Description of the Rejects Bin**

Coarse coal rejects and tailings (collectively known as rejects) are a by-product of the coal washing process and will be disposed of in the back-filled open cut mine voids. Rejects will be transferred from the coal washery via a conveyor to a holding bin (rejects bin) where they will be collected and stored temporarily prior to being transported via truck to the open mine void. At full production Stage 1 will generate up to 2 Mtpa of rejects with an average moisture content of about 14%.

The capacity of the rejects bin needs to be sufficient to enable it to temporarily store rejects delivered to it at a constant rate via conveyor from the coal washery, prior to truck loading and disposal. It also needs to be positioned so that empty trucks (e.g., coal haul trucks returning to the open cut pit after dumping ROM coal at the ROM coal dump hopper) can safely drive under the bin to collect rejects for back hauling and disposal in the open cut mine void.

The currently approved 250 t capacity rejects bin has a radius of about 4.5 m and when mounted will stand between 20 and 25 m tall with a disturbance footprint of about 20 m.

The amended 500 t capacity rejects bin will have a radius of about 5 m and when mounted will stand between 25 and 30 m tall with a disturbance footprint of about 25 m.

### **3.2.2 Rejects Bin Location**

Moolarben Coal Mines is currently constructing Stage 1 infrastructure and ROM coal facilities in preparation for commencing mining and processing of open cut ROM coal in the first quarter of 2010. It has also rationalised the location of ROM coal and rejects handling facilities to further reduce Stage 1 impacts on surrounding sensitive receivers and to enable the use of these facilities for Stage 2. These changes were described in the environmental assessment (EA) report in support of modification application 05\_0117 MOD 5 (Coffey, 2009), which was approved on 5 October 2009. However, unresolved land access issues at the time these infrastructure layout changes were approved required the rejects bin to be located in a suboptimal location.

In the currently approved location (05\_0117 MOD 5), the Stage 1 rejects bin will be located on the ridgeline above the former Council operated Ulan waste transfer station, about 50 m up hill from the ROM coal dump hopper and haul truck turn slab (Figure 2). This location is 2 km northeast of the originally approved ROM coal facilities location west of OC1.

In the currently approved location, trucks accessing the rejects bin will need to cross the path of haul trucks delivering ROM coal to the ROM coal dump hopper. This is an unforeseen and major safety risk. In this location the rejects bin is in a topographically exposed position.

Moolarben Coal Mines has resolved land access issues and is now proposing to relocate the rejects bin to a preferred location 250 m to the northwest and away from the ROM coal dump hopper facility area to an existing cleared area adjacent to the north-eastern extent of OC1 (Figure 3). Relocating the rejects bin to this location will improve the general operating conditions of the ROM coal facility and enable the safe and unencumbered delivery of ROM coal to the ROM coal dump hopper and the collection of rejects from the rejects bin for back hauling and disposal. The proposed relocation will also situate the rejects bin in a less topographically exposed position.

The amended location of the rejects bin is about 1.9 km further away from sensitive receivers, compared to its original approved location west of OC1.

### **3.2.3 Rejects Bin Capacity**

The relocation of Stage 1 ROM coal and rejects handling facilities has removed the need for MCM to construct separate and duplicate facilities for Stage 2. Should Stage 2 be approved, there will be an increase in the production of coal at the mine (i.e., from the integrated operation of Stage 1 and Stage 2), which will also increase the rate and amount of rejects delivered to the rejects bin for disposal in the open cut voids. This will require a commensurate increase in the holding capacity of the rejects bin.

Consequently, MCM is proposing to construct one single increased capacity (i.e., 500 t) rejects bin in anticipation of future increased rejects handling requirements. This will avoid the need to modify or replace an already constructed smaller capacity (i.e., 250 t) rejects bin, or the need to construct a second rejects bin, following approval of Stage 2.

Despite the proposed increased rejects bin capacity, operation of Stage 1 will not increase the amount or rate of rejects generated or required to be handled and disposed of than currently approved.

## **4. PLANNING FRAMEWORK**

### **4.1 S75W EP&A Act**

Under Section 75W of the EP&A Act, the proponent may request the Minister's approval for a project to be modified.

The terms of the Minister's approval can be modified by revoking or varying a condition of the approval or by imposing an additional condition of the approval, and by changing the terms of any determination made by the Minister under Division 3 in connection with the approval.

This application (05\_0177 MOD 6) to modify the Minister's approval for the Stage 1 project will not alter the size of approved mines (OC1, OC2, OC3 or UG4); the methods of approved mining; the rate of approved coal extraction, materials handling and production; or the method and frequency of approved off-site coal transport. Further, the proposed changes will not radically alter or transform the existing approved project and the Stage 1 project will be substantially the same development as approved by the Minister, that being three open cut and one underground coal mines producing up to 10 Mtpa product coals, with supporting infrastructure, including a CHPP and rail loop.

Therefore, the proposed amendments sought for approval come under the power of the Minister to modify the Stage 1 approval, in accordance with the provisions of Section 75W of the EP&A Act.

### **4.2 Section 147 EP&A Act**

Moolarben Coal Mines has disclosed reportable political donations, as required under Section 147 of the EP&A Act, for its application to modify the Stage 1 project 05\_0117 MOD 5 and these are on the public file. Moolarben Coal Mines, its parent company (FRL) or its joint venture operating partners have not made any further reportable political donations since modification application 05\_0117 MOD 5 for Stage 1 was determined.

## **5. ENVIRONMENTAL ASSESSMENT**

### **5.1 Potential Impacts**

The proposed modification does not require any additional clearing of, or disturbance to, existing native vegetation, fauna habitat, heritage sites (Aboriginal and non-Aboriginal), soil or water than already approved for Stage 1. Further, it will not result in off-site noise or dust emissions above that already predicted and approved for Stage 1 or substantially change the visual character of the locality. A brief consideration of noise, dust and visual amenity for the amended rejects bin location and capacity is presented below.

#### **5.1.1 Noise**

The noise impacts associated with the construction and operation of Stage 1 ROM coal and rejects handling facilities in the currently approved location were assessed in the Stage 1 MOD 5 environmental assessment (EA) report (Coffey, 2009). Spectrum Acoustics concluded that approval of the modification would reduce the Stage 1 predicted noise levels at the Ulan School and nearest privately-owned residence (i.e., Property 25) by at least 2 dB(A).

Spectrum Acoustics has reviewed the noise impacts associated with the amended rejects bin location and capacity and has concluded that the previously predicted noise contribution of 25 dB(A) from the rejects bin in its approved location will not be significantly altered. And that since the received contribution of 25 dB(A) is more than 10 dB below the total predicted MCP noise level of 37 dB(A) in the Ulan village there would be no measurable or perceivable noise impacts from the rejects bin in its amended location (Appendix 1).

#### **5.1.2 Air Quality**

The dust impacts associated with the construction and operation of Stage 1 ROM coal and rejects handling facilities in the currently approved location were assessed in the Stage 1 MOD 5 EA (Coffey, 2009). PAE Holmes concluded that approval of the modification would not adversely impact on the amenity of any privately-owned residential receiver. Further, that the modification together with MCM's commitments to control dust emissions will result in a reduction in short-term and long-term PM<sub>10</sub>, TSP and dust deposition levels compared with levels predicted for the original approved Stage 1 project arrangement.

The rejects will have an average moisture content of about 14% and will not be a source of dust emissions. Further, there will be no increase in the number of trucks required to back haul rejects from the rejects bin to the open cut mine void, to that already assessed.

PAE Holmes has reviewed the air quality impacts associated with the amended rejects bin location and capacity and has concluded that the previously predicted air quality impacts from the rejects bin in its approved location will not be significantly altered (Appendix 2). Further, that the previous relocation of ROM coal facilities, including the rejects handling facilities, approved by 05\_0117 MOD 5 reduced the air quality impacts from that originally assessed and approved for Stage 1. The relocation of the rejects bin will result in a further minor reduction in air quality impacts.

### **5.1.3 Visual**

The amended location of the rejects bin is about 750 m from Ulan–Cassilis Road and 150 m from Ulan–Wollar Road, in an area characterised by mine infrastructure (i.e., CHPP, ROM coal facilities, and raw and product coal stockpiles) and approved for open cut mine development (i.e., OC1). This location is over 3.8 km from the Ulan School and over 4 km from the nearest sensitive receiver outside the Ulan village.

There are no privately-owned residences that have a direct view of the amended rejects bin location and it will only be visible to vehicles travelling along Ulan–Cassilis and Ulan–Wollar roads. The majority of this traffic is associated with mine workers travelling to and from the Moolarben, Ulan and Wilpinjong coal mines.

Views from the Ulan village and nearest sensitive receivers toward the amended rejects bin location are obscured by natural landscape features, Ulan coal mine infrastructure and the OC1 environmental bund.

### **5.1.4 Other**

The amended location for the rejects bin is in an existing cleared area within the disturbance footprint of OC1. Consequently there will be no additional impacts on biodiversity, heritage, soil, water or other environmental or social aspect to that already approved.

## **5.2 Management and Mitigation**

Moolarben Coal Mines will implement the environmental management and mitigation measures described in its approved construction management plans during construction of the rejects handling facilities.

Moolarben Coal Mines will implement the environmental management and mitigation measures described in its operational management plans, which are currently being considered by the DoP, during operation of Stage 1, including operation of the rejects handling facilities.

## **6. CONCLUSION**

This application seeks to modify the MCP Stage 1 Project Approval to enable the location and capacity of the rejects bin to be amended.

The proposed modification will not cause any additional impacts to approved Stage 1 activities, and overall the impact of relocating the rejects bin 250 m to the northwest and increasing the capacity of the bin will be negligible.

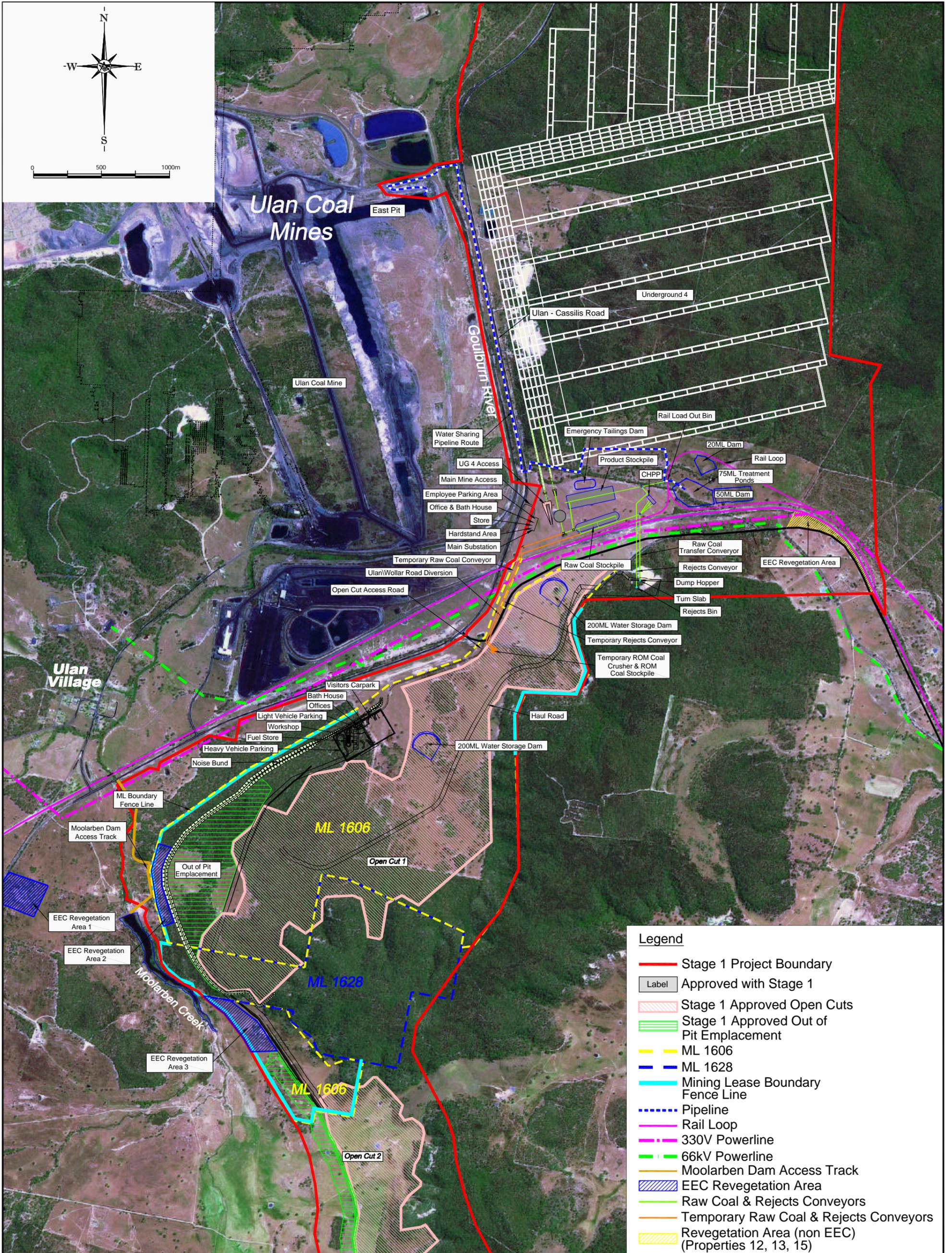
This report demonstrates that the proposed modification is generally consistent with the terms of the Minister's approval for the MCP (as modified). Further, that there will be no substantive environmental impacts as a result of relocating or increasing the capacity of the rejects bin. Finally, all other aspects of the MCP will remain consistent with the project approval.

## **7. REFERENCES**

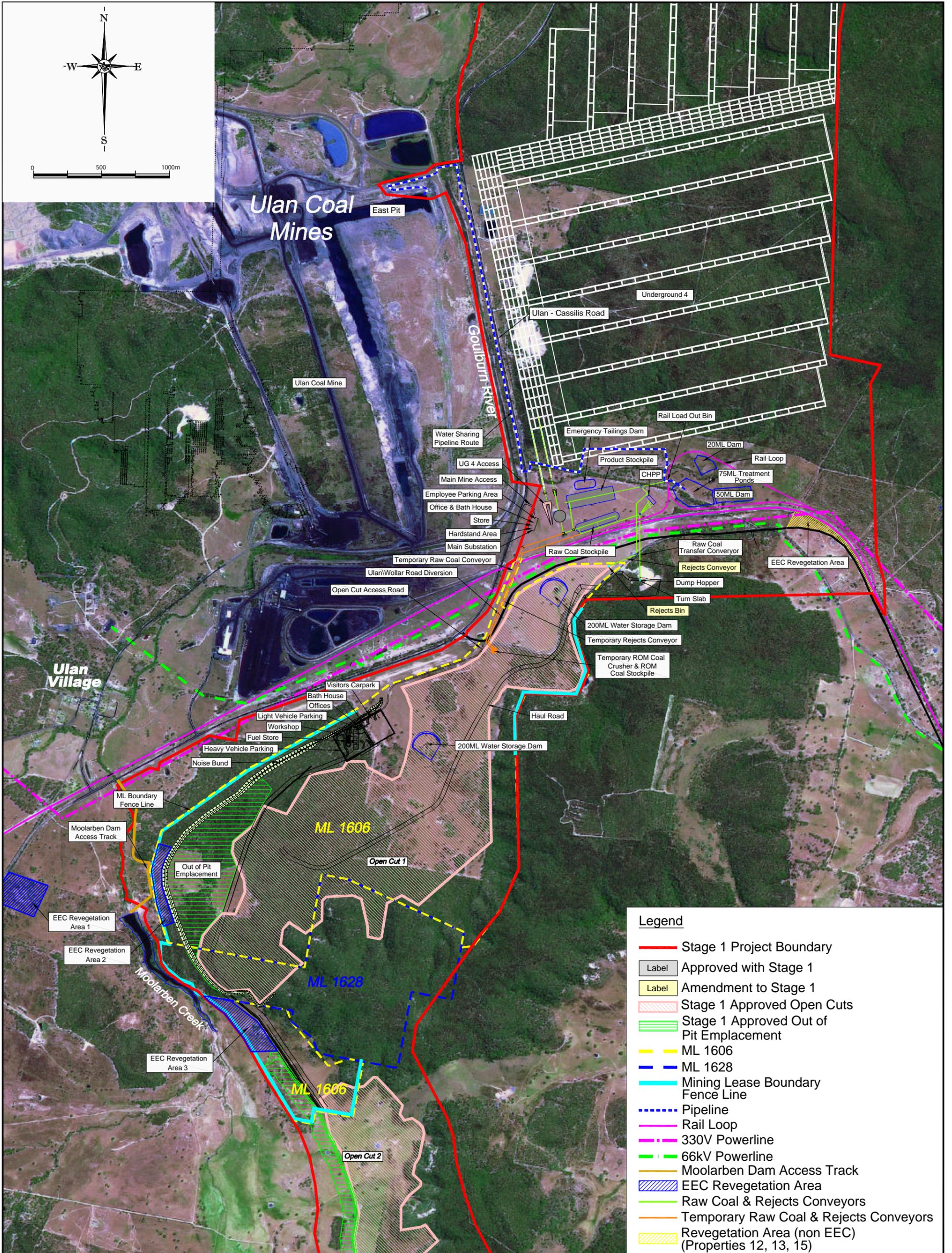
Coffey (2009). Environmental Assessment Section 75W Modification Application Moolarben Coal Project Stage 1 (05\_0117 MOD 5). Report prepared for Moolarben Coal Mines Pty Ltd by Coffey Natural Systems Pty Ltd.

Wells and Coffey (2009). Moolarben Coal Project Stage 2 Environmental Assessment Report. Report prepared for Moolarben Coal Mines Pty Ltd by Wells Environmental Services and Coffey Natural Systems Pty Ltd.

Wells (2006). Moolarben Coal Project Environmental Assessment Report. Report prepared for Moolarben Coal Mines Pty Ltd by Wells Environmental Services.









# Appendix 1

## Noise Assessment

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16 December 2009

Ref: 07289/3363

**Mr Michael Moore**

Coffey Natural Systems Pty Ltd  
Level 1, 3 Rider Boulevard  
Rhodes NSW 2138

**MODIFICATION TO APPROVED MCP STAGE 1 – REJECTS BIN RE-LOCATION**

Dear Sir,

This letter provides information relating to the potential noise impact from a proposed change to the approved Moolarben Coal Project (MCP) Stage 1. We understand this letter will be included with information to be sent to the Department of Planning for their consideration.

It is understood that MCO proposes to construct and operate a 500t rejects bin approximately 250m northwest of the currently approved 250t rejects bin (not yet built), which would no longer be required if the modification application is approved. As advised in our previous letter (ref: 07289\_3125 dated 5 June 2009) the 250t rejects bin in its currently approved location would contribute no more than 25 dB(A) at the nearest receiver (Ulan village) under adverse meteorological conditions. Considering that (a) the increased capacity of the bin will not increase its worst case noise emission over a 15-minute assessment period and (b) the proposed relocation distance of 250m is insignificant compared with the >4000m distance to the nearest receiver, it can be deduced without noise modelling that the proposal would not significantly alter the predicted noise contribution of 25 dB(A) from the rejects bin.

Since the received contribution of 25 dB(A) is more than 10 dB below the total predicted MCM noise level of 37 dB(A) in Ulan village, we advise that there would be no measurable or perceivable noise impacts from the proposed relocation of the rejects bin.

Please call our office on 4954 2276 if you require further information.

Yours faithfully,

**SPECTRUM ACOUSTICS PTY LIMITED**

A handwritten signature in black ink, appearing to read 'Neil Pennington', is written over a light blue horizontal line.

**Neil Pennington**  
Principal/Director

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# Appendix 2

## **Air Quality Assessment**

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18 December 2009

Michael Moore  
Coffey Natural Systems Pty Ltd  
Level 1, 3 Rider Boulevard  
Rhodes  
NSW 2138

## **Air Quality Assessment – Moolarben Stage 1 second revision of location for coal dump hopper and associated facilities**

Dear Michael,

### **1 INTRODUCTION**

In your memorandum dated 15 December 2009 and sent to us by email, you outlined plans by the Moolarben Coal Mines Pty Ltd (MCM), to revise the location of the rejects bin for the Stage 1 of the MCM.

Your memorandum asks us to assess the effects that this change would have on air quality effects.

A change from the original location of the coal receiving hopper and associated facilities, (including the rejects bin) to a site some 2.2 km further afield was previously made and is described in a letter very similar to this one dated 9 June 2009 and prepared by Nigel Holmes. Approval for this relocation was granted on 5 October 2009.

This letter provides a stand-alone assessment of the revised location of the rejects bin to a site some 250 m north-west of the location described in the 9 June 2009 letter. For ease of comparison, this letter also describes the air quality effects shown in the June 09 letter and in the original EA.

Rather than repeat all the detailed analysis provided in the Stage 1 and 2 environmental assessment I have focussed on describing the main differences between this proposed relocation of the rejects bin and both previous assessments for Stage 1 in regard to air quality effects.

### **2 QUALITATIVE REVIEW OF ISSUES**

The only significant effect that this change has on the project from an air quality perspective is to decrease the length of the haul distance between the open cut pits and the rejects bin. In Year 2 the coal haul distance from Pit 1 will decrease from approximately 9.2 km to approximately 8.9 km. The decreased haul distance will decrease dust emissions if all other factors remain unchanged. In addition, the new emission will occur in a slightly different location and this would have some small bearing on air quality effects, in particular on the place where these effects are experienced.

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BRISBANE

GOLD COAST

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**A PEL COMPANY**

It needs to be noted that the assessment for Stage 2 resulted in some environmentally beneficial changes which, as shown in the June 2009 letter, were incorporated into the Stage 1 mine approved on 5 October 2009. These changes were as follows:

1. Haul roads will be treated to a higher level of control than previously assumed and MCM has committed to achieving 85% control on dust emissions on haul roads so that TSP emissions will be 0.6 kg/VKT<sup>1</sup>.
2. Truck sizes for transporting coal from Pit 1 to the dump hopper will be 240 instead of 170 tonne thus resulting in a lower VKT count to transport a given quantity of coal (trucks used to haul coal from Pits 2 and 3 will not change in size and will still have a load capacity of 50 t or more. The assessment assumes 50 t).
3. There are some minor changes in the locations and orientations of coal stockpiles and the layout of offices, workshops etc.

These were significant changes from an air quality perspective and resulted in lower overall impacts from the original mine plan in many areas, in particular where private residences are located.

### 3 FURTHER DISCUSSION ON CHANGES IN EMISSIONS AND THE APPROACH TO THE ASSESSMENT

The approach taken in the assessment has been to recalculate the emissions inventory for Year 2 and re-allocate the relevant sources of dust emission to match the changed haul road length and changed location for the coal receiving facilities. The dispersion model has then been re-run using the same meteorological data and the same model setup parameters as used in the (June 2009) Stage 1 Environmental Assessment except of course for the location of the dust sources and the rate of dust emissions.

The revised location of the rejects bin assumed in the modelling is shown as the red dot labelled "21" on **Figure 1**. The re-location has resulted in a decreased length of the coal haul road of some 250 m. (Note: **Figure 1** also provides a description of some features that are not labelled on subsequent maps.)

In summary;

- the original Year 2 emissions inventory was estimated to produce 2,612 tonnes of TSP emission;
- the revised TSP emissions (in June 2009) when the facilities were relocated by 2.2 km and the environmentally beneficial changes were incorporated were estimated to be 2,358 t; and,
- after incorporating this second relocation of the hopper by 250m the TSP emissions are estimated to be 2,352 t.

As can be seen, the proposed change results in a minor decrease in emissions.

The most common winds over the year are from the east-southeast and these will tend to blow the dust from the haul road servicing the rejects bin towards the east-northeast and onto land currently used for coal handling at the Ulan Mine.

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<sup>1</sup> VKT refers to vehicle-kilometres-travelled.

## 4 RESULTS

Figures 2 to 5 show the predictions made for;

- Maximum 24-hour average PM<sub>10</sub> concentrations due to emissions from the original and revised projects;
- Annual average PM<sub>10</sub> concentrations due to emissions from the original and revised projects;
- Annual average TSP concentrations due to emissions from the original and revised projects;
- Annual average dust (insoluble solids) deposition due to emissions from the original and revised projects.

Each figure shows the contours:

- as predicted in the original EA (dashed light grey contours);
- as predicted in June 2009 for the 2.2 km relocation of the coal receiving facilities (light orange contours); and
- for this proposed 250 m relocation of the rejects bin (red contours).

It is very difficult to see the difference that the proposed relocation of the rejects bin would make as the orange and red contour lines almost completely overlap.

The differences between the grey contours and the orange or red contours mainly illustrate the effects of improved haul road dust control, the larger truck sizes used and the changes in haul road length.

The new arrangement results in lower impacts in some areas near the relocated rejects bin. No residence is predicted to experience an increase in short-term or long-term PM<sub>10</sub>, TSP or dust deposition levels. Overall, the reduction in impacts is small.

## 5 CONCLUSIONS

This letter outlines an examination of the likely effects on air quality resulting from a relocation of the rejects bin for Stage 1 mining at MCM. The examination has shown that the proposed changes would result in a minor reduction in the dust levels compared with the levels predicted in the revised Stage 1 project. Note that both the revised Stage 1 project and this second minor revision result in significant reductions in dust levels compared to the original project.

Yours faithfully  
PAEHolmes

Aleks Todoroski

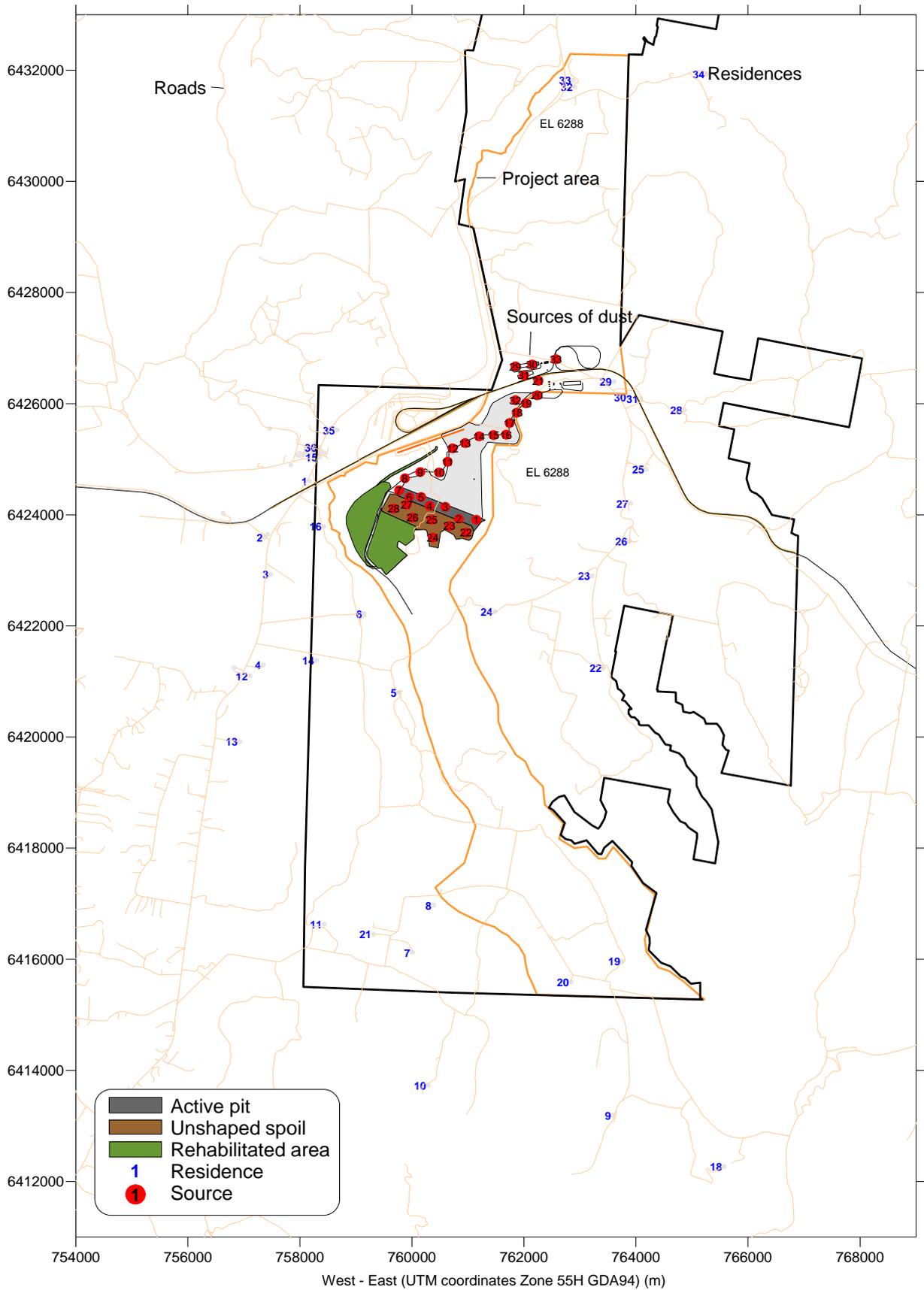
## 6 REFERENCES

PAEHolmes letter to Coffey Natural Systems Pty Ltd "Air Quality Assessment – Moolarben Stage 1 revised location for coal dump hopper and associated facilities" 9 June 2009

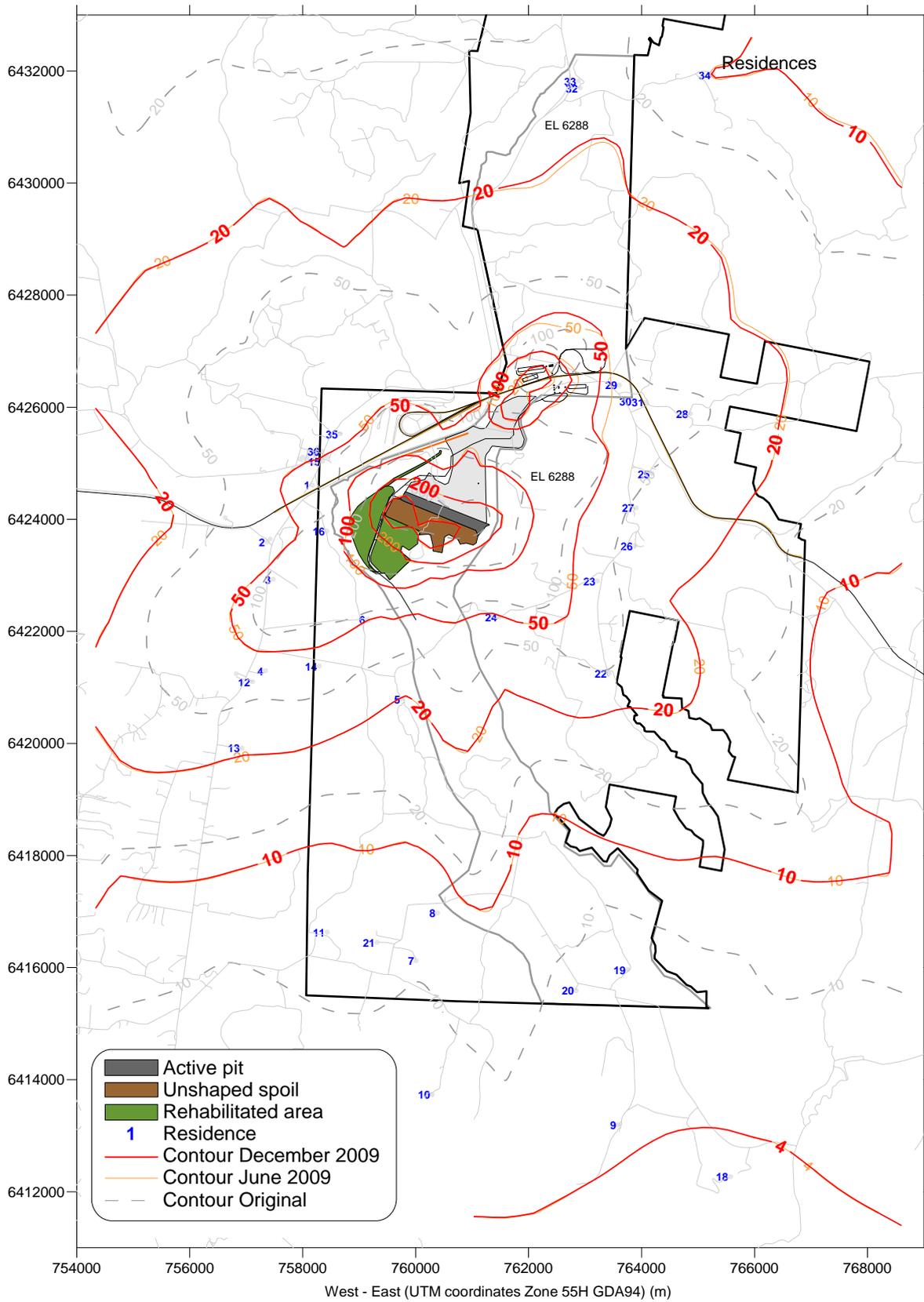
Holmes Air Sciences (2006) "Air Quality and Greenhouse Gas Assessment: Proposed Moolarben Open Cut Mine, Near Ulan NSW", Prepared by Holmes Air Sciences, Suite 2B, 14 Glen Street, Eastwood, NSW 2122.

## Figures

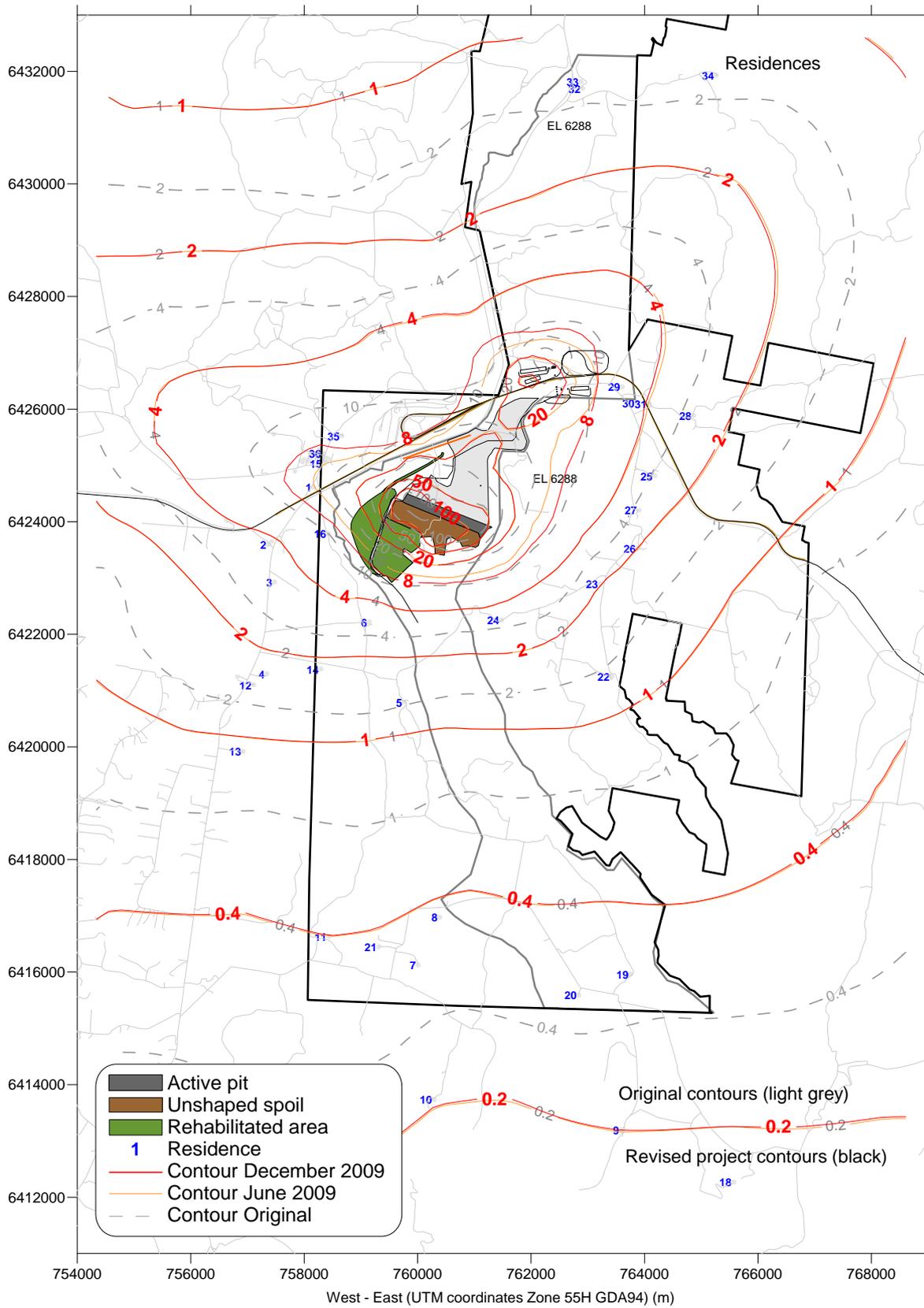
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Location of dust sources as modelled for revised (December 2009) Moolarben mine in Year 2  
**Figure 1**



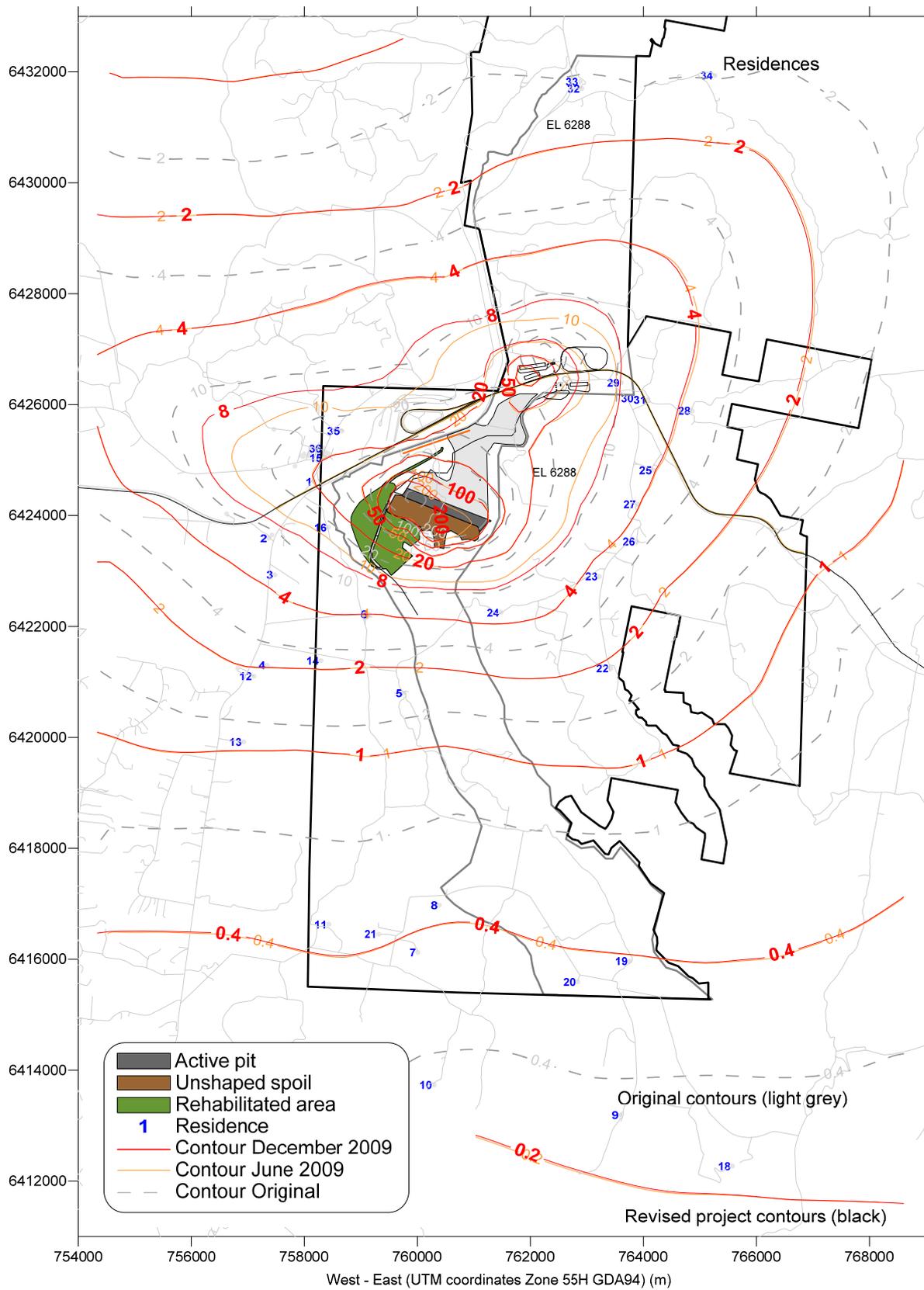
Comparison of predicted maximum 24-hour average  $PM_{10}$  concentrations due to emissions from Moolarben mine in Year 2 -  $\mu g/m^3$   
**Figure 2**



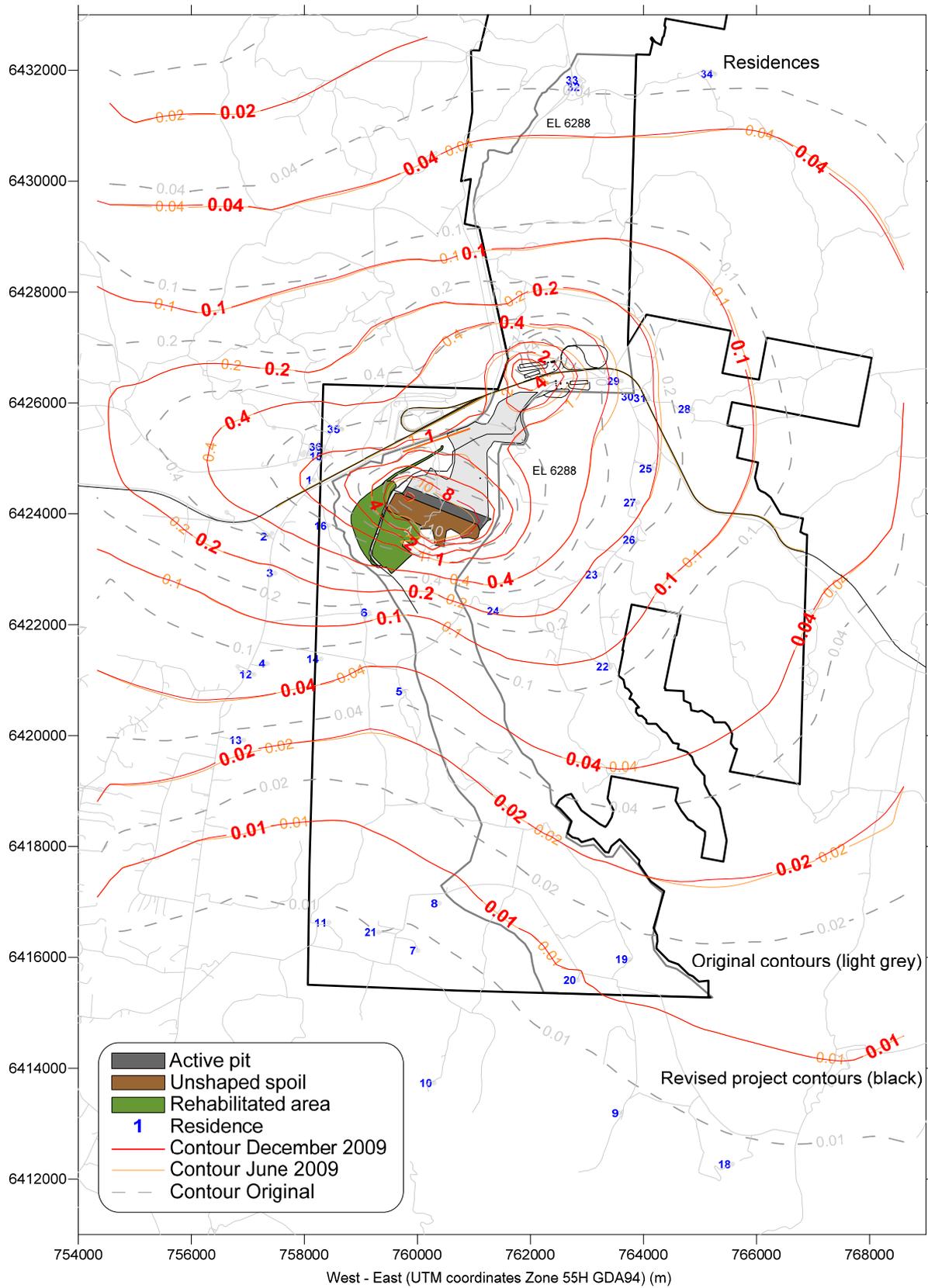
Comparison of predicted annual average PM<sub>10</sub> concentrations due to emissions from Moolarben mine in Year 2 - µg/m<sup>3</sup>

**Figure 3**

**Fig**



Comparison of predicted annual average TSP concentrations due to emissions from Moolarben mine in Year 2 -  $\mu\text{g}/\text{m}^3$   
**Figure 4**



Comparison of predicted annual average dust (insoluble solids) deposition rate due to emissions from Moolarben mine in Year 2 -  $g/m^2/month$   
**Figure 5**