Appendix 6

Hume Coal Project
– Response to community concerns
regarding impacts on land values
(Judith Stubbs & Associates 2017)

Hume Coal Project:
Response to Community Concerns regarding impacts on tourism and on land values

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1   Executive Summary

Judith Stubbs and Associates has been retained by Hume Coal to respond to concerns raised in community submissions regarding the impact of the Hume Coal Project on property values. In summary, the impacts of the Hume Coal Project on property values are unlikely to be adverse, with increasing levels of coal mining employment generally associated with a slight increase in property values at the local government area level; and with growth in property prices in the suburbs of Berrima, New Berrima, Medway and Sutton Forest outperforming growth in property prices in Wingecarribee Shire in the period 1 January 2015 to September 2017.

Two questions are addressed in this report. These are:

1. The relationship between coal mining and property values, and whether **increased levels of coal mining is associated with a decline in property values**; and

2. The impact of the Hume Coal Project on property values to date, and whether there has been a **decrease in property values in the locality in recent times.**

1.1   The Project

The Hume Coal Project is located near Berrima NSW, with the above ground works located to the west of the Hume Highway and south of Medway Road. Above ground works and the administration centre occupy a surface area of around 114 hectares.

The rail spur and loop will extend the existing freight line into Berrima Cement Works along an existing alignment south of Taylor Avenue and Medway Road. Grade separated crossings will be provided at the Old Hume Highway and Berrima Road.

1.2   Relationship between coal mining and property values

A statistical analysis was undertaken to understand the relationship in increases in coal mining employment and changes in median property prices over time for active coal mining LGAs in NSW.

The analysis shows a 0.24% increase in median dwelling prices and a 0.91% increase in median rural property prices per hectare for each additional 100 people employed in coal mining at the LGA level, suggesting that increases in coal mining employment are associated with increased median property prices generally across an LGA. There is considerable variation in the data, and neither coefficient is statistically significant as different to zero at the 95% level of confidence, however the analysis does not support the claim of an adverse impact on property values.

1.3 Trends in sales prices in the locality

A statistical analysis was undertaken to compare the price growth of dwellings and rural properties in Wingecarribee LGA and for the combined suburbs of Berrima, New Berrima, Medway and Sutton Forest. Two methods were used. Using both methods, the growth rate of sales prices in the selected suburbs exceeded the growth rate of sales prices more generally in Wingecarribee LGA. The increase in prices for rural properties using median sales was 54% greater in the selected suburbs and the increase in prices for dwellings was 27% greater.

2 Impacts of coal mining on property values

2.1 Overview

A major theme in submissions is the assertion that the prospect of the development of the Hume Coal Project has led to lowered property values in the area and/or that the development of the coal mine will lead to lowered property values in the area. A number of specific claims have been made with respect to property prices such as "the price we have had to accept is well below what it would have been if this project had not existed" (Submission 211519) and "property values for farmland has just dropped by a third" (Submission 215435).

These assertions raise two questions related to:

3. The relationship between coal mining and property values, and whether increased levels of coal mining is associated with a decline in property values; and

4. The impact on property values to date, and whether there has been a **decrease in property values in the locality in recent times.**

A basic description of the proposal is first provided. This is followed by an examination of the two questions set out above.

2.2 Overview of the Proposal

The Hume Coal Project is located near Berrima NSW, with the above ground works located to the west of the Hume Highway and south of Medway Road. Above ground headworks and administration centre occupy a surface area of around 114 hectares.

The Hume Coal Project consists of development of three key components - the mine and associated facilities, a new rail spur and loop and an activity approval for electricity supply works. Each of these components is covered by a separate approvals process.

The mine itself is expected to have a productive life of 19 years, producing up to 3 Mtpa of metallurgical and thermal coal. The mine will not remove pillars, thereby minimising subsidence; and coal reject will be emplaced underground to avoid the creation of permanent above ground spoil heaps. Surface infrastructure will comprise:

- Access via Mereworth Road;

- Surface access to the mine for personnel and for conveyors;

- Ventilation shafts;

- Overland conveyors;

- Coal processing plant;

- Administrative offices, workshops and workforce facilities;

- Water treatment plant;

- Stock pile areas with associated stackers for ROM coal, product coal and rejects stockpile; and

- Train loading plant.

The rail spur and loop will extend the existing freight line into Berrima Cement Works along an existing alignment south of Taylor Avenue and Medway Road. Grade separated crossings will be provided at the Old Hume Highway and Berrima Road.

2.3 Relationship between Coal Mining and Property Values

2.3.1 Statistical analysis (longitudinal data)

A data set was compiled for median prices for dwellings and for rural properties in the active coal mining LGAs of Singleton, Muswellbrook, Wollongong, Lake Macquarie, Wollondilly, Mid-Western Regional Council, Lithgow, Cessnock, Narrabri, Gunnedah, Liverpool Plains, Gloucester and Great Lakes for the years 2001, 2006 and 2011. The data were taken from the EAC RedSquare Database. Properties described in square metres were taken as residential dwellings and properties described in hectares were taken as rural properties. Median prices were calculated for dwellings using the sales price and for rural properties using the sales price per square metre.

The data were further analysed to obtain the absolute change in coal employment and percentage change in median prices for the periods 2001-2006 and 2006-2011. A factor was also included for the year to account for the rapid price growth between 2001 and 2006 compared to the more moderate growth between 2006 and 2011. The results of linear regression analysis of the combined data sets for 2001-2006 and 2006-2011 are shown in the tables below.

The analysis shows a 0.24% increase in median dwelling prices and a 0.91% increase in median rural property prices per hectare for each additional 100 people employed in coal mining at the LGA level, suggesting that increases in coal mining employment are associated with increased median property prices generally across an LGA. There is considerable variation in the data, and neither coefficient is statistically significant as different to zero at the 95% level of confidence, however the analysis does not support the claim of an adverse impact on property values.

Table 2.1: Linear Regression Analysis Results – Change in coal mining employment vs change in median dwelling price

Parameter	Value	Comments
R^2	0.74	The model accounts for 74% of the variation in median dwelling prices
Coal mining jobs	0.0024% (p=0.862)	Each increase of 100 jobs in coal mining predicts a 0.24% increase in median dwelling prices. The positive trend is not statistically significant.
year	74.5% (p=0.000)	The average increase in median dwelling prices for the period 2001-2006 was 74.5 percentage points greater compared to the period 2006-2011
Constant	14.7% (p=0.10)	The underlying annual growth rate was 2.8%. The positive trend is not statistically significant.

Source: EAC RedSquare, JSA calculation and analysis

Table 2.2: Linear Regression Analysis Results – Change in coal mining employment vs change in median rural property price per hectare

Parameter	Value	Comments
R^2	0.33	The model accounts for 33% of the variation in median rural property prices
Coal mining jobs	0.0091% (p=0.871)	Each increase of 100 jobs in coal mining predicts a 0.91% increase in median rural property prices per hectare. The positive trend is not statistically significant.
year	120.2% (p=0.013)	The average increase in median dwelling prices for the period 2001-2006 was 120.2 percentage points greater compared to the period 2006-2011
Constant	3.0% (p=0.934)	The underlying annual growth rate was 3.0%. The positive trend is not statistically significant.

Source: EAC RedSquare, JSA calculation and analysis

2.4   Trends in sales prices in the locality

2.4.1   Introduction

In order to understand trends in sales prices in the locality and the impact of the proposed mine on prices, data sets were compiled for the sale price of dwellings and rural properties in Wingecarribee LGA generally (as a control) and for the combined suburbs of Berrima, New Berrima, Medway and Sutton Forest for the period 1 January 2015 to September 2017. The combined suburbs reflect the area of the mine lease and the likely impacts on groundwater and other matters stated in submissions to affect prices; while the period includes the sale of a property in Golden Vale Road, claimed by the vendor to have been adversely affected by the

proposed coal mine.[1]   Rural properties were taken as those properties with area reported in hectares and dwellings were taken as those properties with area reported in square metres.

Sales for the period for the selected suburbs, along with a trend line, are shown graphically below.

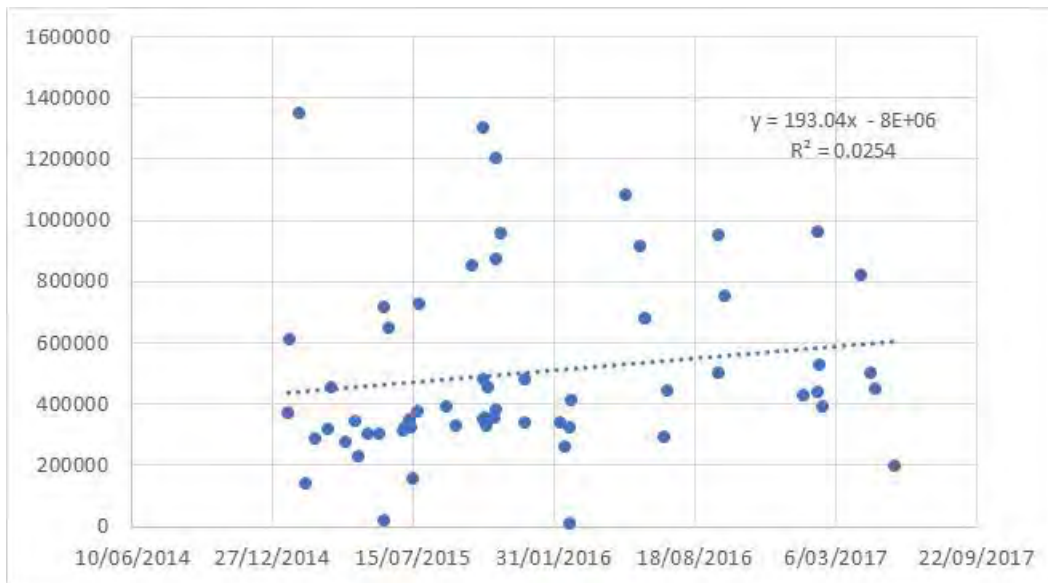Figure 2.1: Sales prices for dwellings in Berrima, New Berrima, Medway and Sutton Forest, 1 January 2015 to September 2017, including trendline.
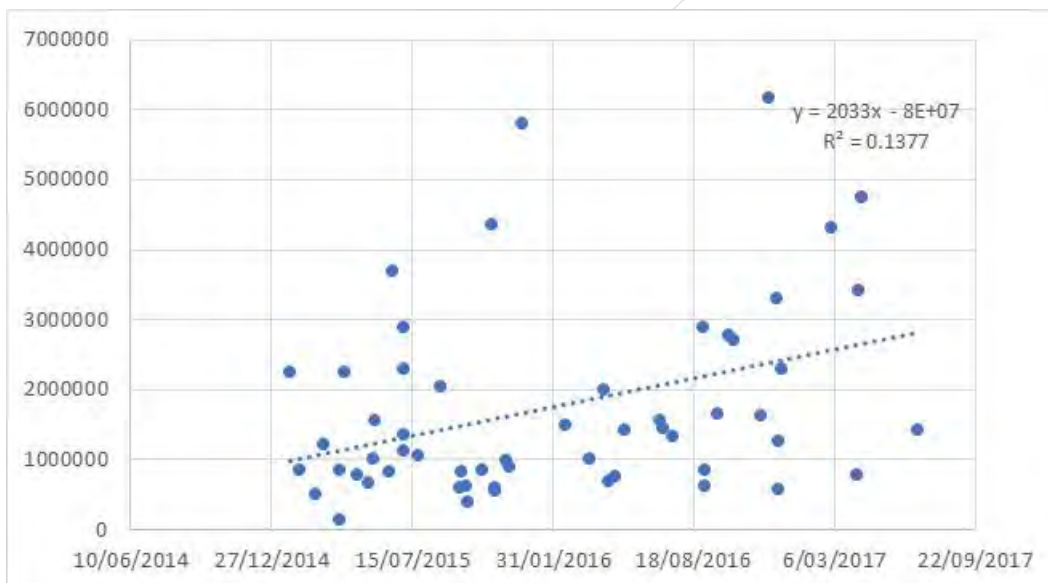Source: EAC RedSquare and JSA calculation

Figure 2.2: Sales prices for rural properties in Berrima, New Berrima, Medway and Sutton Forest, 1 January 2015 to September 2017, including trendline.
Source: EAC RedSquare and JSA calculation

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[1] Submission 211519.

2.4.2   Analysis by medians

The data sets were partitioned into two parts, one for 1 January 2015 to 20 May 2016, and one for 21 May 2016 to September 2017, and median sales prices were calculated for each period. Results of the analysis are shown in the table below. It can be seen that in each case, growth in median price in the selected suburbs exceeded growth in median prices more generally in Wingecarribee LGA. This finding does not support the hypothesis that prices in the locality have been depressed or adversely affected by the development application for the coal mine and the publicity surrounding the proposed development.

Table 2.3: Median sales price and change for dwellings and rural properties Wingecarribee LGA and selected suburbs 1 January 2015 to 20 May 2016; and 21 May 2016 to September 2017.

Area	Period	Median	Percentage increase
Rural Properties:			
Wingecarribee	1 January 2015 to 20 May 2016	$920,000 (n=437)	
	21 May 2016 to September 2017	$1,299,000 (n=351)	41%
Selected Suburbs	1 January 2015 to 20 May 2016	$1,015,000 (n=35)	
	21 May 2016 to September 2017	$1,650,000 (n=21)	63%
Dwellings:			
Wingecarribee	1 January 2015 to 20 May 2016	$505,000 (n=2,070)	
	21 May 2016 to September 2017	$670,000 (n=1,501)	33%
Selected Suburbs	1 January 2015 to 20 May 2016	$351,500 (n=44)	
	21 May 2016 to September 2017	$500,000 (n=17)	42%

Source: EAC RedSquare, JSA calculation and analysis

2.4.3   Linear Regression Analysis

The results of a linear regression analysis of the data are shown in the tables below. For all data sets, a preliminary analysis included variables for days and days squared to identify any possible point of contraflexion. i.e. a slowing or increase in the rate of price growth. No evidence was found for slowing or increase in the rate of price growth, suggesting that growth in prices had been relatively constant during the period.

For all data sets, the annual growth rate was calculated as a percentage of both the average price and of the constant in the analysis.

For rural properties in Wingecarribee LGA, annual growth was estimated at 16.2% on average price and 13.6% on the constant. For the selected suburbs, annual growth was estimated at 34.8% and 23.2% respectively, well above the growth rates for rural properties more generally in the LGA. Due to the high level of variance in the data, the difference was not statistically significant at the 95% level (p=0.20). This finding does not support the claim that growth in rural property prices or property prices more generally have been adversely affected by the proposed coal mine, and if there is such an effect it cannot be identified amidst the wide number of other factors impacting on sales price.

For dwellings in Wingecarribee LGA, annual growth was estimated at 17.7% on average price and 17.9% on the constant. For the selected suburbs, annual growth was estimated at 13.0% and 12.3% respectively. Due to the high level of variance in the data, the difference was not statistically significant at the 95% level (p=0.33). This finding does not support the claim that growth in dwelling prices or dwelling prices more generally have been adversely affected by the proposed coal mine, and if there is such an effect it cannot be identified amidst the wide number of other factors impacting on sales price.

Table 2.4: Linear Regression Analysis Results – Sales price of rural properties Wingecarribee LGA 1 January 2015 to September 2017.

Parameter	Value	Comments
R^2	0.02	The model accounts for 2% of the variation in median rural property prices
Days	$680 (p=0.013)	On average, rural property prices increased by $680 per day over the period.
Area	$3,165 (p=0.006)	Each additional hectare increased the sales price by $3,165.
Constant	$1,825,100 (p=0.000)	The base sales price is $1,825,100.

Source: EAC RedSquare, JSA calculation and analysis

Table 2.5: Linear Regression Analysis Results – Sales price of rural properties Selected suburbs 1 January 2015 to September 2017.

Parameter	Value	Comments
R^2	0.13	The model accounts for 13% of the variation in median rural property prices
Days	$1,667 (p=0.023)	On average, rural property prices increased by $1,667 per day over the period.
Area	$4,617 (p=0.344)	Each additional hectare increased the sales price by $4,617. The result was not statistically significant.
Constant	$2,617,400 (p=0.000)	The base sales price is $2,617,400.

Source: EAC RedSquare, JSA calculation and analysis

Table 2.6: Linear Regression Analysis Results – Sales price of dwellings Wingecarribee LGA 1 January 2015 to September 2017.

Parameter	Value	Comments
R^2	0.14	The model accounts for 14% of the variation in dwelling prices
Days	$328 (p=0.000)	On average, dwelling prices increased by $328 per day over the period.
Area	$102 (p=0.000)	Each additional square metre increased the sales price by $102.
Constant	$670,090 (p=0.000)	The base sales price is $670,090.

Source: EAC RedSquare, JSA calculation and analysis

Table 2.7: Linear Regression Analysis Results – Sales price of dwellings Selected suburbs 1 January 2015 to September 2017.

Parameter	Value	Comments
R^2	0.12	The model accounts for 12% of the variation in dwelling prices
Days	$179 (p=0.235)	On average, dwelling prices increased by $179 per day over the period. The result is not statistically significant.
Area	$65 (p=0.017)	Each additional square metre increased the sales price by $65.
Constant	$528,360 (p=0.000)	The base sales price is $528,360.

Source: EAC RedSquare, JSA calculation and analysis