Coal Free Southern Highlands Inc.

Hume Coal Project
Independent Planning Commission
February 11th, 2019

Presenters

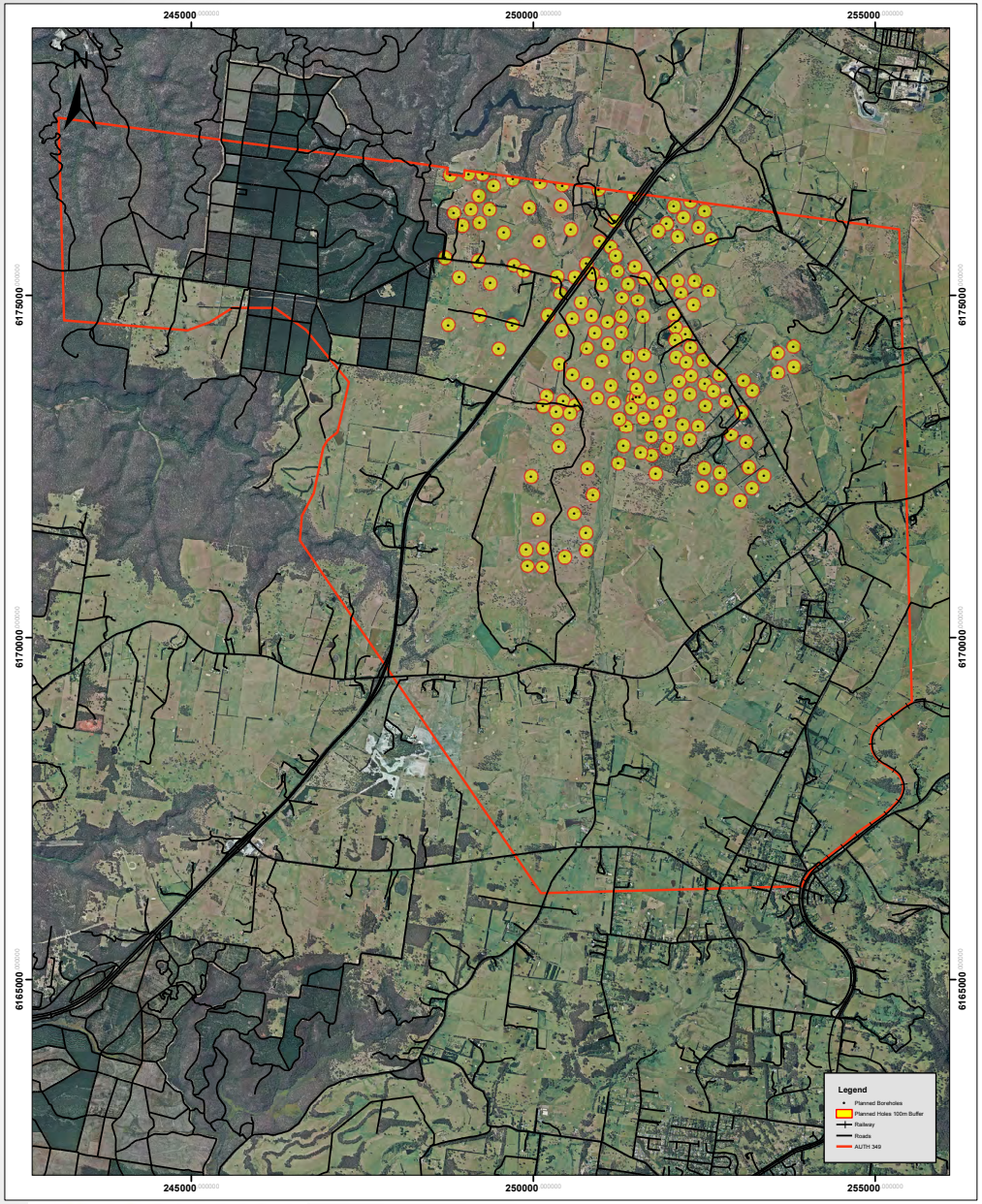
- Alan Lindsay – Vice President CFSH
- Len Diekman – Consultant Geologist
- Doug Anderson – Principal Engineer UNSW WRL
- Dr. Steven Pells – Principal Hydrogeologist PSM
- Dr Bill Ryall – Consultant Environmental Scientist
- Marylou Potts - Solicitor

Agenda

- CFSH response to the DPE assessment – Alan Lindsay
- Geological issues in the mine area – Len Diekman
- Hydrogeological assessment – Doug Anderson
- Groundwater modelling – Steven Pells
- Geochemical issues – Bill Ryall
- Land access and 'make good' – Marylou Potts
- Economic and competitive issues – Alan Lindsay
- Concluding comments

Coal Free Southern Highlands Inc.

Response to the DPE assessment of the Hume Coal Project



HUMECOAL PROJECT

SCALE BAR
0 1 2 4
Kilometers

MAP SCALE
1:50,000

REF 3
Planned Borehole Locations
AUTH 349

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SIZE	A3	DRAWN	AFF	DATE
DATUM	GDA 94	CHECKED		13 / 02 / 2014
PROJECTION	MGA ZONE 56	APPROVED		

DRAWING NO
ENV-0010-REV-A

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Hume's proposal March 2014
REF 3

150 drillhole locations nominated

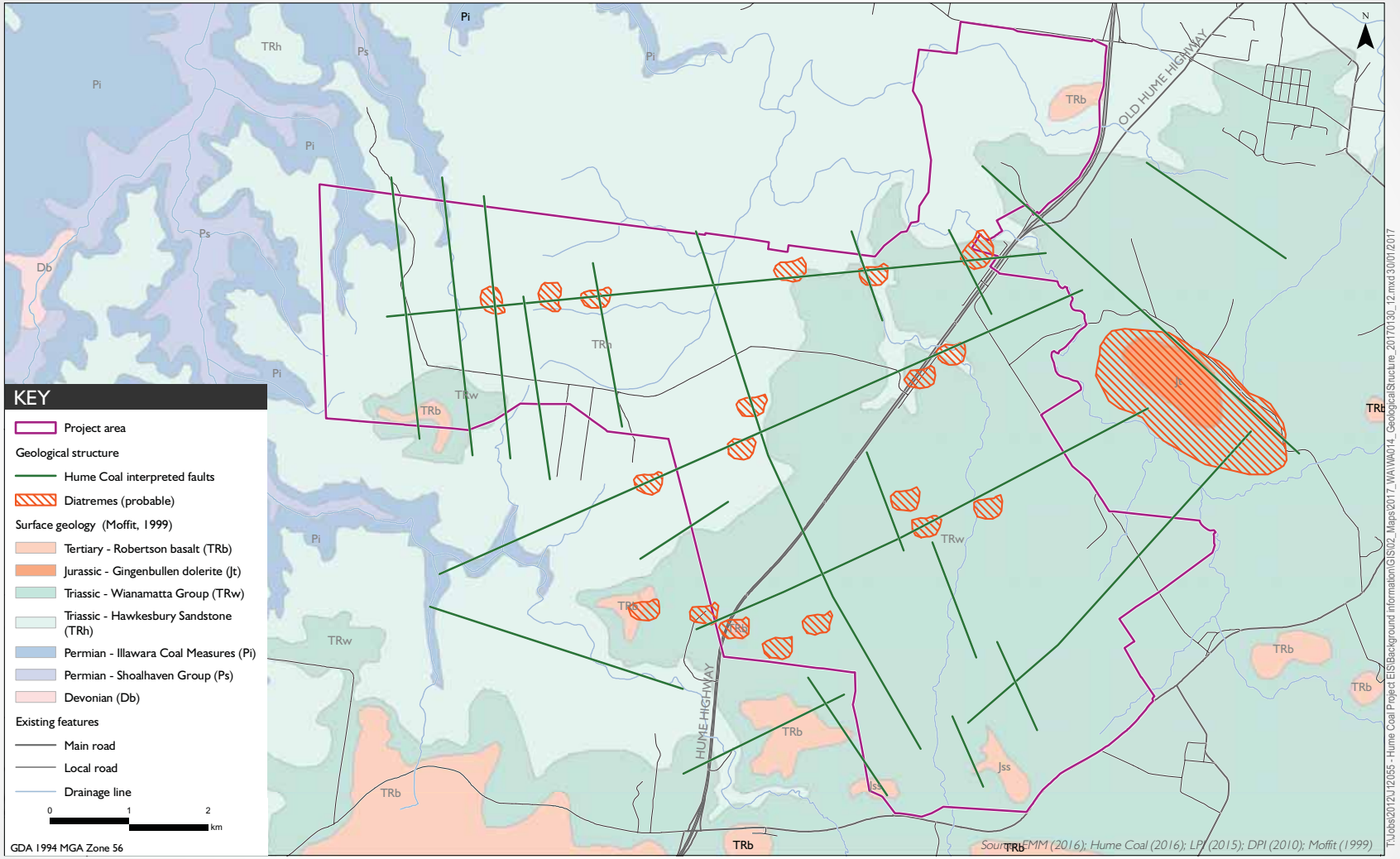
90 to be selected

100 metre radius of flexibility

DRE rejected this proposal

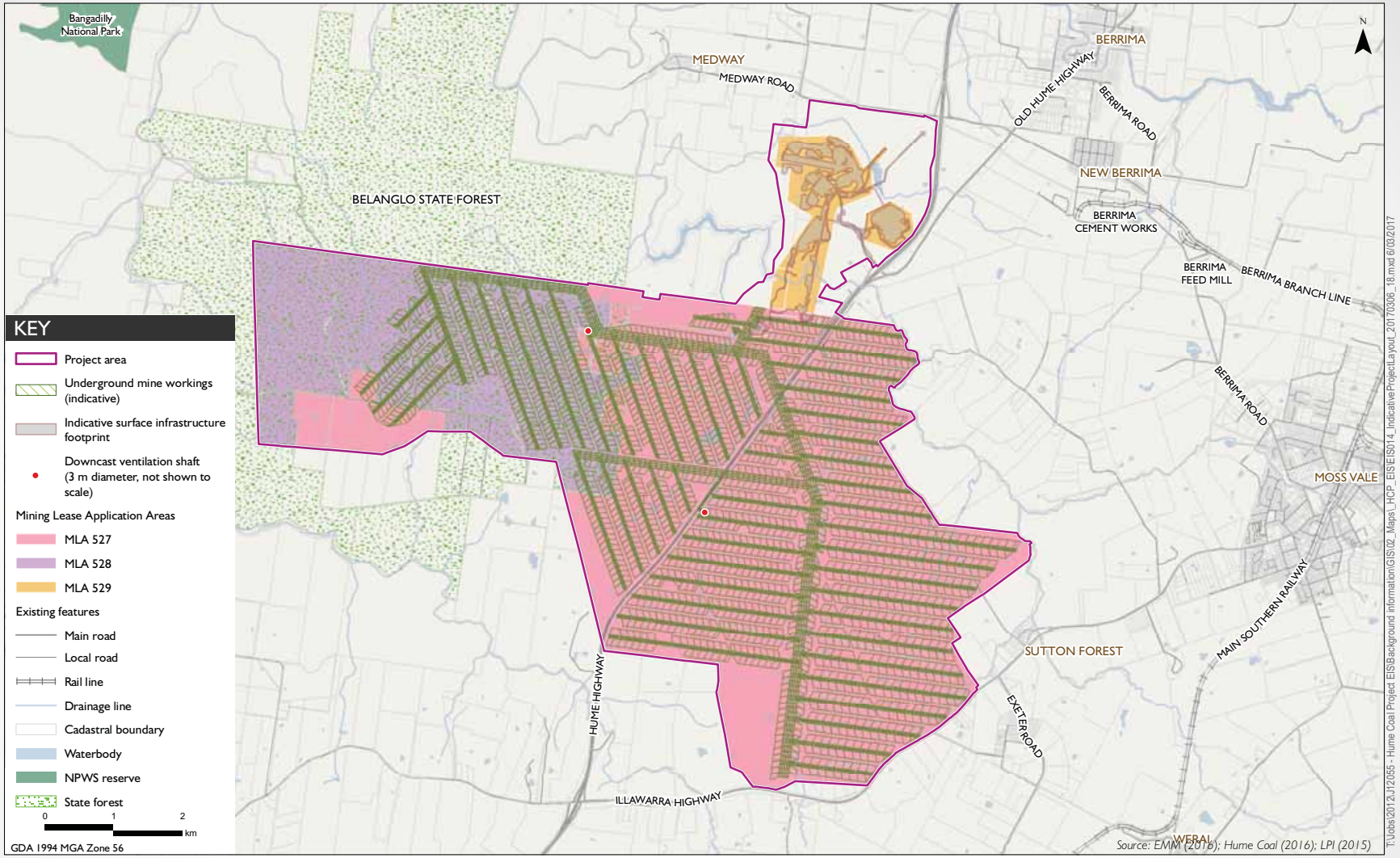
July 2014 – 25 holes approved

Just 3 holes were eventually drilled, all west of the highway



Geological structure

Hume Coal Project
Water Assessment
Figure 6.5



Indicative project layout

Hume Coal Project

Environmental Impact Statement

Figure 2.1

Basic mine layout

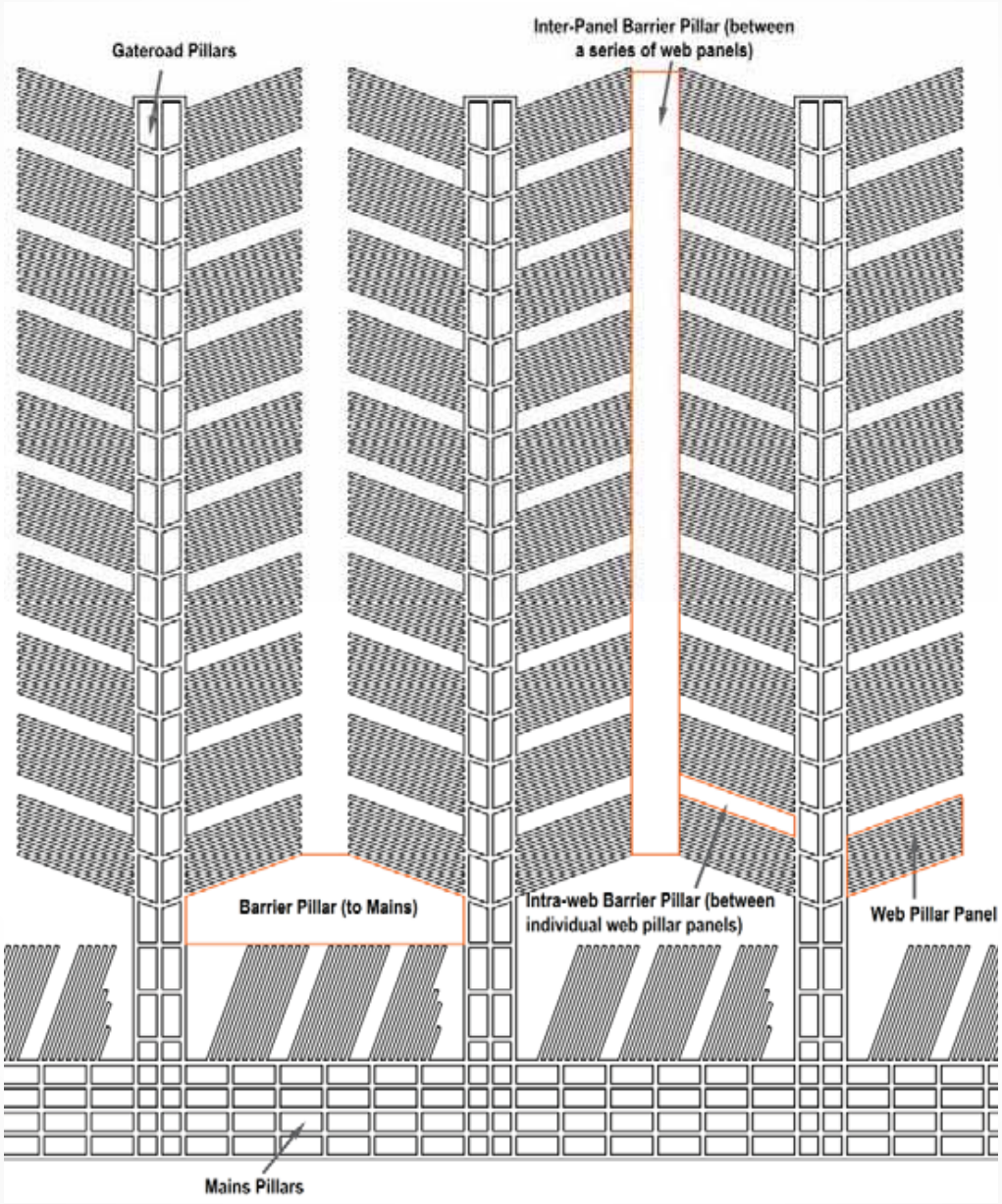
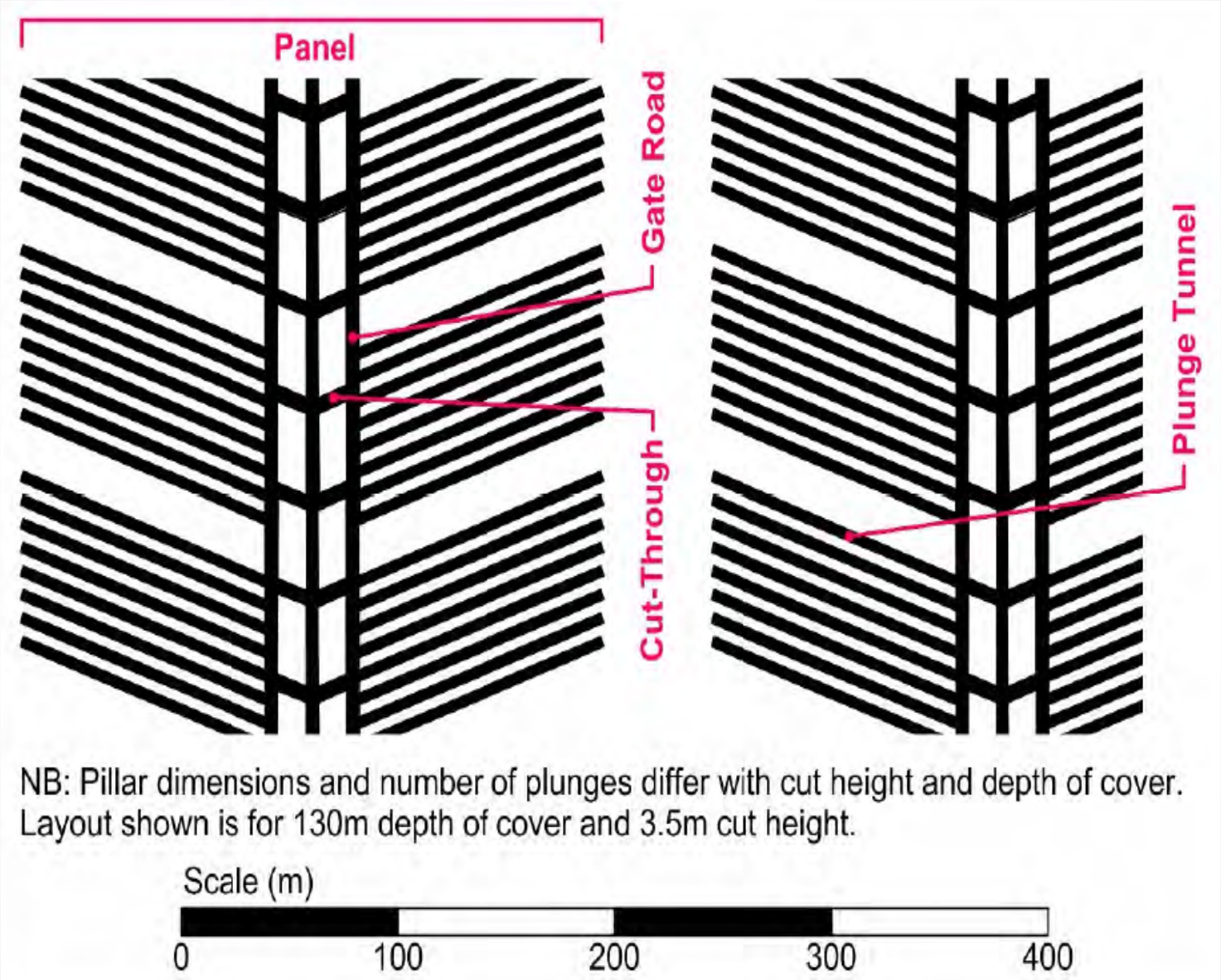
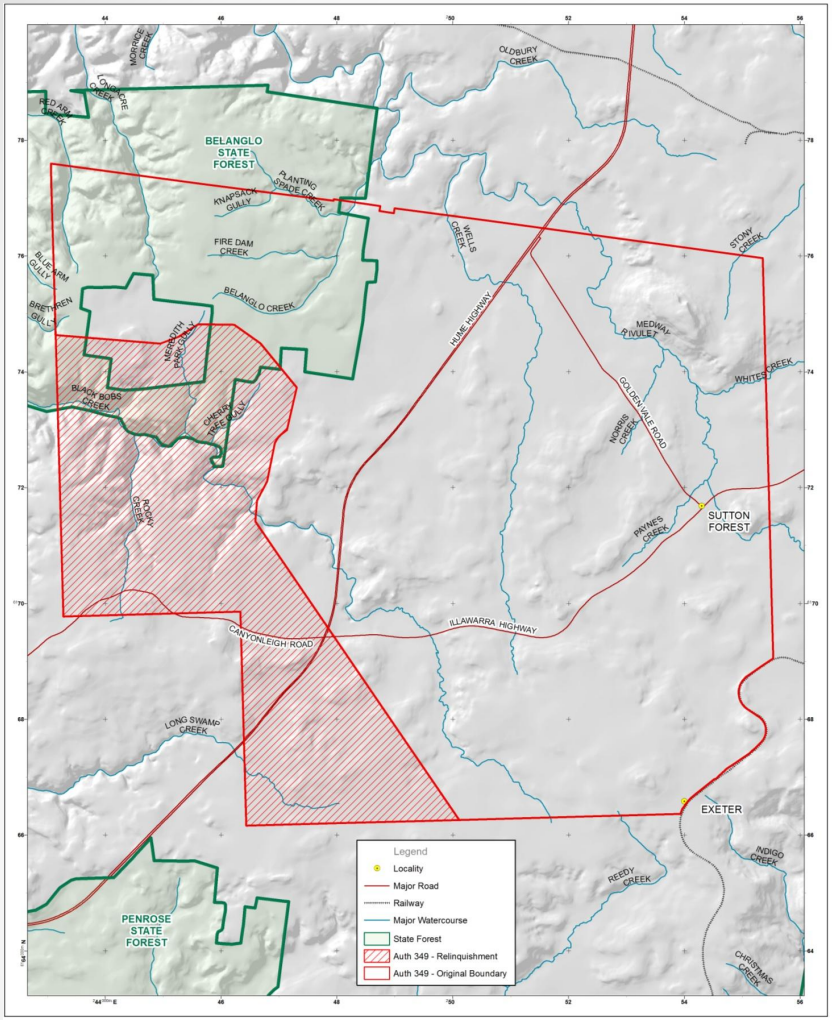


Figure 2.6 Indicative mine layout showing different coal pillar types


Panel
Gate Road
Cut-Through
Plunge Tunnel
NB: Pillar dimensions and number of plunges differ with cut height and depth of cover.
Layout shown is for 130m depth of cover and 3.5m cut height.
Scale (m)
0
100
200
300
400

Geological Considerations and Consequences for Mine Development

Including environmental impacts of geology



PROJECT: Hume Coal Project

TITLE

REV	DESCRIPTION	DATE
0	Original map output	13/4/2012

SCALE 1:50,000 | SIZE A3 | DATUM GDA 94 | PROJECTION MGA ZONE 56

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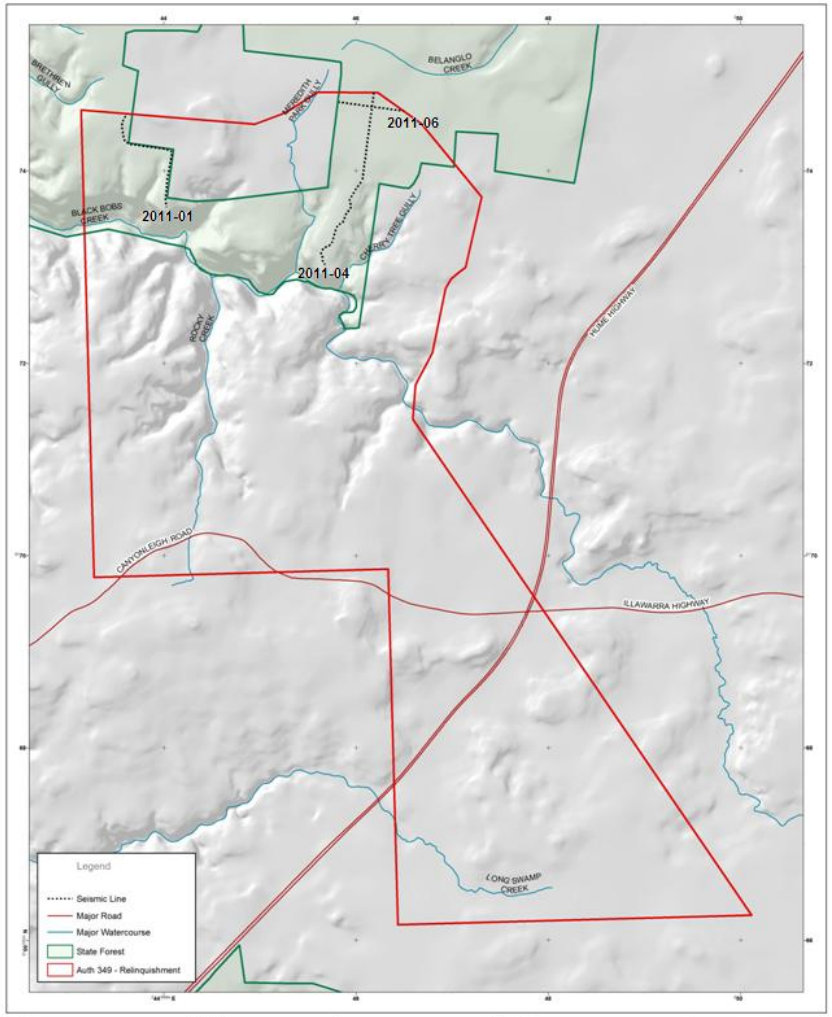
FIGURE 1 PARTIAL RELINQUISHMENT AREA LOCATION



PROJECT: Hume Coal Project

TITLE

REV	DESCRIPTION	DATE
0	Original map output	16/4/2012
1	Update seismic lines	16/4/2012

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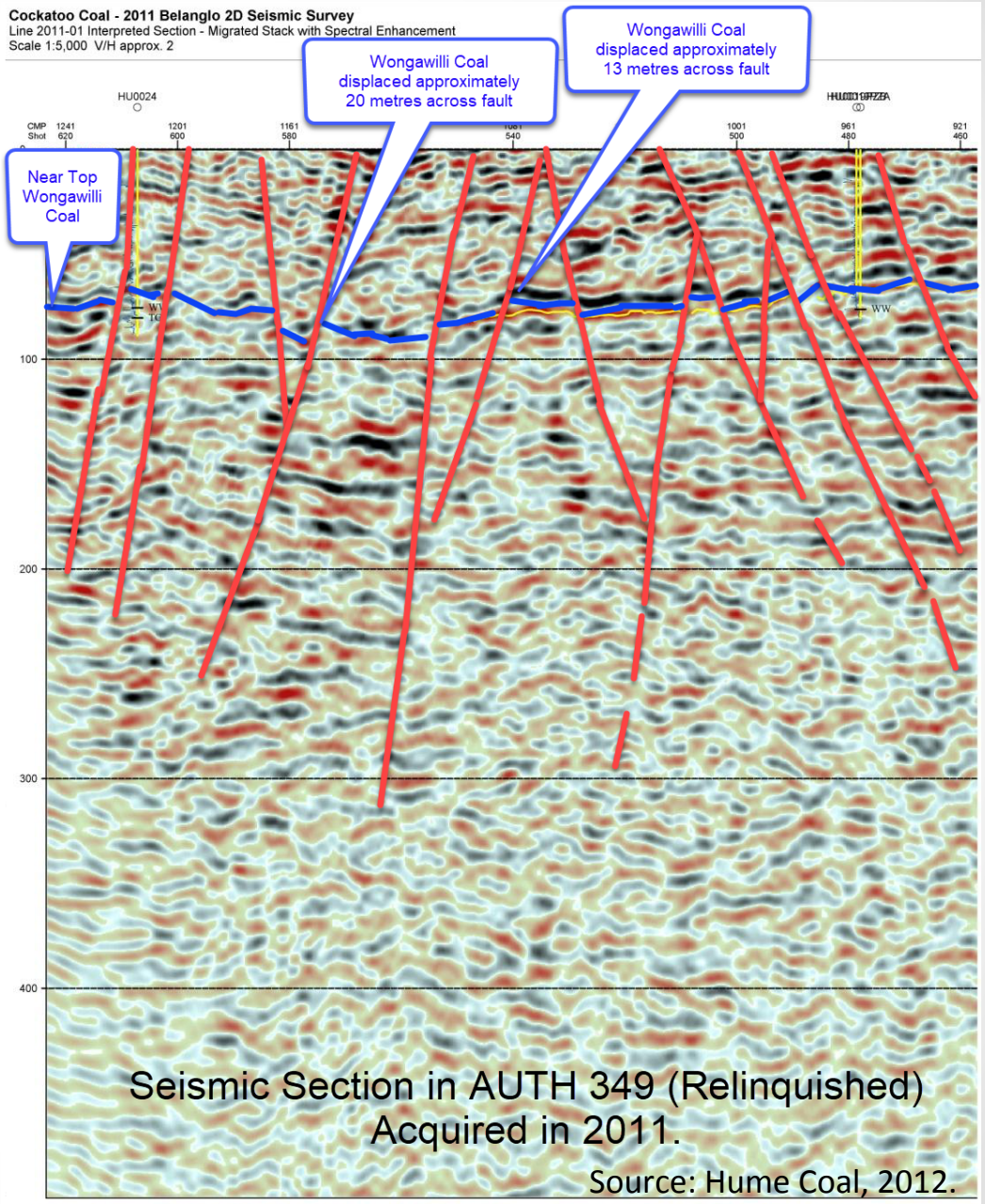
FIGURE 18 2011 2D SEISMIC SURVEY LINE LOCATIONS

Geological Complexity

- Seismic Data demonstrates that:
  - faulting places the Hawkesbury Sandstone horizontally against the Wongawilli Coal
  - The structure of the top of the Wongawilli coal does not "…dip gently from west to east…at…a grade of 1 in 100"(Fitzsimmons & Doyle, 2017). Rather, it is faulted and is involved in both anticlinal and synclinal features
  - The Wongawilli Coal is highly fragmented into separate and non-contiguous bodies across faults.

CONCLUSION:

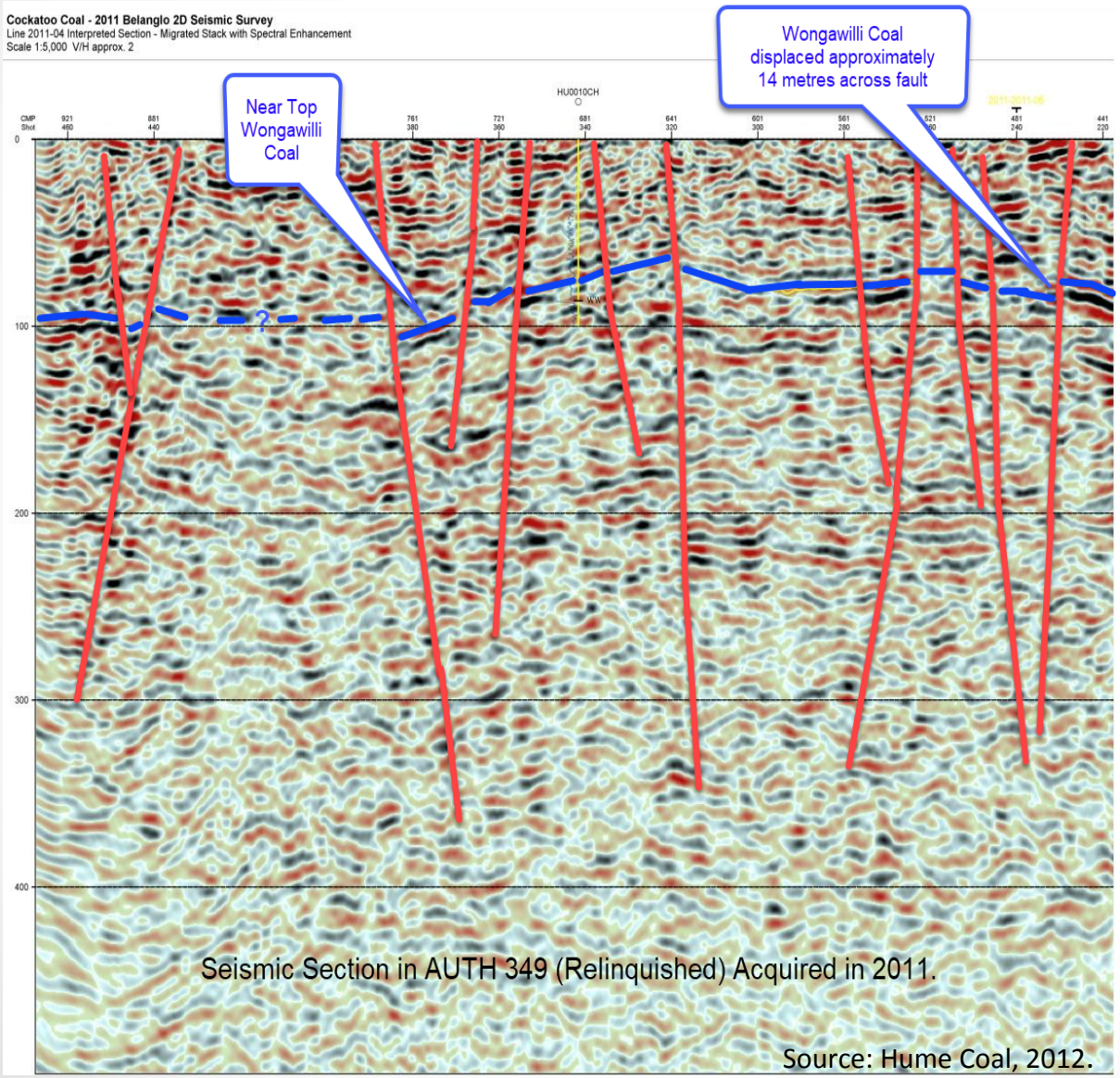
- Geological structure within AUTH 349 is much more complex than the Operator has portrayed in the proposals.

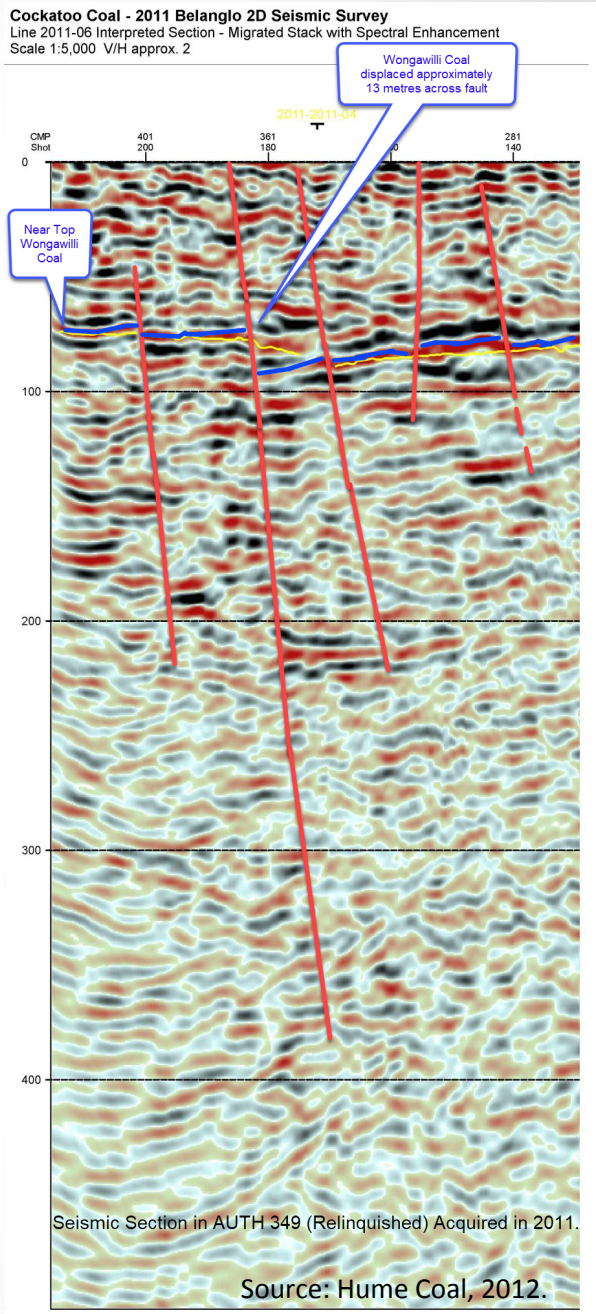


Seismic Section in AUTH 349 (Relinquished) Acquired in 2011.

Source: Hume Coal, 2012.

Additional seismic lines demonstrating faulted geological structure





Consequences of Geological Complexity

1. The Wongawilli Coal is highly fragmented into separate and non-contiguous bodies across faults. Consequently, the proposed mine layout would not be able to follow the coal seam so resource recoveries would be below expectations.

2. The operator's proposal for the presence of a widespread aquitard isolating the Hawkesbury Sandstone aquifer from the Wongawilli Coal is invalid because fault throws of up to 18 metres not only fragment the aquitard, they horizontally juxtapose the Wongawilli Coal and the Hawkesbury Sandstone.

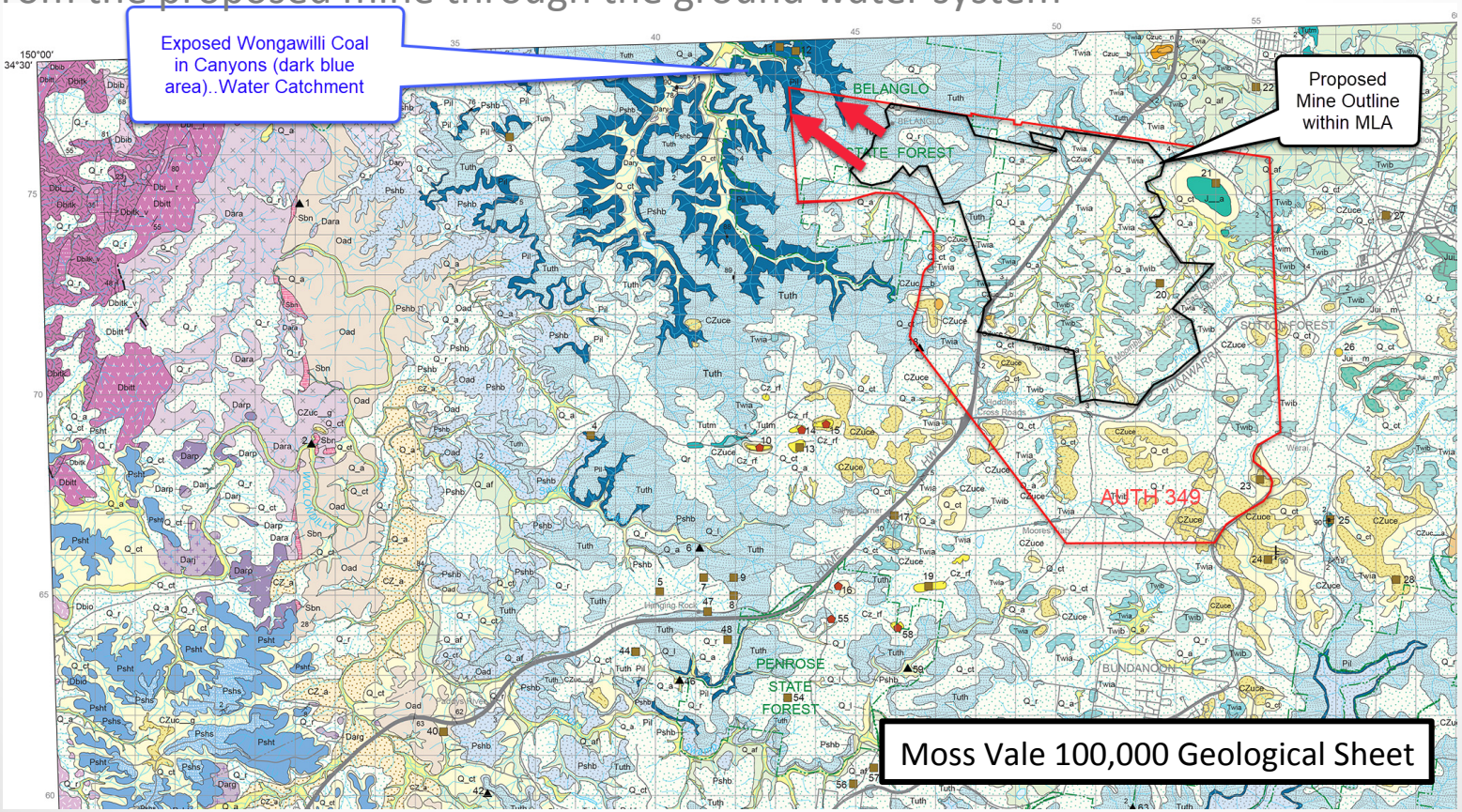
3. The mine process, as proposed would pass from the mined coal seam directly into the Hawkesbury Sandstone aquifer across fault planes resulting in the Hawkesbury Sandstone aquifer becoming a receptor for in-mine contaminants.

4. The presence of a multitude of igneous dykes and diatremes reported by Fitzsimmons & Doyle (2017) and others (refer following map) reduces resource recoveries.

Burragorang water catchment is a receptor for the proposed mine contaminants

The Wongawilli Coal is exposed in gorges of Wingecarribee River tributaries (which flow into the Wollondilly River of the Burragorang Water Catchment) in and around the north-western part of AUTH 349.

Consequently, the Lake Burragorang Water Catchment is a receptor to contaminants from the proposed mine through the ground water system



Quoted References & Sources

Ben Fitzsimmons and Rod Doyle, Hume coal – An overview, in Naj Aziz and Bob Kininmonth (eds.), Proceedings of the 17th Coal Operators' Conference, Mining Engineering, University of Wollongong, 8-10 February 2017, 90-98.

Hume Coal Pty Ltd. AUTH 349 Partial Relinquishment Report to Coal Advice, May 2012.

Geological Survey of New South Wales, Moss Vale 1:100,000 scale Geological Sheet.