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MIDLAND ENERGY LTD

Woodbury Coal Project 2014 JORC Coal Resource Report

Submitted to:
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REPORT

Report Number. 147621009-001-Rev0





Executive Summary

Midland currently holds an Exploration Licence (EL65/2007) over the Woodbury Coal Project, located in the Tasmanian Central Midlands, 5 kilometres (km) east of the Midlands Highway near the town of Woodbury.

Golder was requested by Midland to independently prepare a Coal Resources report for the Woodbury Coal Project (WCP). The report is to comply with the guiding principles and minimum standards set out in the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition' (JORC Code, 2012). Coal Resource estimates were also prepared with consideration given to the "Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves, 2014" (Coal Guidelines).

Coal Resources have been estimated and reported according to the JORC Code.

All Coal Resources are deemed mineable by surface mining methods. Surface Coal Resources have been estimated for the D, C, B and A seams. The seam names were supplied to Golder by Midland. Golder has continued to use the current seam names as they are utilised in all historic data and reports. Estimated Coal Resources are deemed to be fresh (un-oxidised/un-weathered) coal with a minimum coal thickness of 0.10 m and a maximum 50% raw ash on an air-dried basis (adb) cut-off applied within the Woodbury Resource Area (WRA).

This study incorporates all supplied data up to the end of November 2014. Total Coal Resources (Indicated plus Inferred, no Measured Resources present) estimated and reported are 34.0 million tonnes (Mt) at an average combined raw ash of 40.0% (adb), calorific value of 18.9 MJ/kg (adb), total sulphur of 0.4% (adb) and volatile matter of 13.3% (adb). Table 1 below presents a summary of the estimated Coal Resources for the WRA as at December 2014. As per the 2013 Coal Resource estimate, no Measured Coal Resources were defined due to moderate levels of uncertainty surrounding the lack of detailed geological, mining and geotechnical data. Table 14, Table 15 and Table 16 present summary statistics of the composited raw coal quality by seam split (average and minimum/maximum) and by seam respectively. These statistics should be taken into consideration, especially when considering Inferred Resources.

Table 1: December 2014 JORC Coal Resource estimate

Seam/Ply	JORC Resources Category	Tonnes Mt	Raw Ash % (adb)	Calorific Value MJ/kg (adb)	Fixed Carbon % (adb)	Inherent Moisture % (adb)	Relative Density g/cc (adb)	Total Moisture% (arb)	Total Sulphur % (adb)	Volatile Matter % (adb)
BU	Indicated	1.5	42.9	20.1	41.2	3.9	1.70	5.3	0.5	11.9
BM		3.6	43.8	17.8	41.4	3.7	1.74	5.1	0.4	11.9
BL		0.7	43.6	18.4	43.0	4.3	1.68	5.6	0.3	9.8
Sub-Total	Indicated	5.8	43.6	18.4	41.5	3.8	1.72	5.2	0.4	11.7
DT	Inferred	0.3	45.0	15.4	27.3	6.0	1.71	7.9	0.2	16.7
DU		0.3	31.2	21.6	51.2	4.8	1.54	6.2	0.6	20.9
DL		0.9	40.1	19.3	32.1	5.2	1.62	6.5	0.4	16.2
C		1.7	36.3	19.1	43.2	5.0	1.62	6.2	0.4	17.1
CU		2.9	43.3	16.5	42.2	5.4	1.79	8.8	0.2	11.5
CM		2.7	42.2	18.8	41.0	5.2	1.69	6.8	0.4	16.0
CL		3.5	35.5	20.1	42.6	4.4	1.71	5.8	0.4	15.8
BU		1.2	45.3	19.3	38.8	4.5	1.71	6.1	0.5	11.4
BML		0.1	40.9	21.0	46.6	4.4	1.73	6.0	0.2	8.1
BM		3.6	42.1	18.0	40.6	4.0	1.72	5.4	0.4	12.6
BL		1.5	46.6	16.6	35.1	4.9	1.72	6.3	0.4	13.4
A		1.7	36.9	21.9	47.5	2.9	1.66	4.0	0.3	12.7
AU		4.5	33.3	20.6	50.2	4.4	1.65	5.9	0.4	12.8
AM		1.9	43.9	16.3	48.8	4.8	1.84	6.1	0.6	8.5
AL		1.5	33.9	20.5	56.3	3.3	1.68	4.6	0.4	15.5
Sub-Total	Inferred	28.3	39.3	19.0	43.9	4.5	1.70	6.1	0.4	13.6
Total	Indicated + Inferred	34.0	40.0	18.9	43.5	4.4	1.71	6.0	0.4	13.3

*Resources reported at a minimum coal thickness cut-off of 0.10m and a maximum raw ash cut-off of 50% (adb).



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1.0 INTRODUCTION

In 2013, Golder Associates Pty Ltd (Golder) prepared an independent Coal Resource report for the Woodbury Coal Project (WCP), located in Woodbury, Tasmania. In 2014, Golder was engaged by Midland Energy Ltd (Midland) to complete an update of the 2013 geological database, geological model and Coal Resource report for the WCP.

The Coal Resource report was updated to include additional boreholes drilled since preparation of the 2013 Coal Resource report. Midland requested the report comply with the guiding principles and minimum standards set out in the 2012 edition of the “*Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*” (JORC Code). Coal Resource estimates were also prepared with consideration given to the “*Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves, 2014*” (Coal Guidelines).

1.1 Scope of work

Golder was requested by Midland to update the Coal Resource estimate and prepare an independent statement for the WCP, located in Tasmania in accordance with the minimum standards of the JORC Code.

1.2 Deliverables

The following outlines the project deliverables:

- Review and validation of data within the geological database.
- Update of geological database and geological model as necessary.
- Coal Resource estimate.
- Coal Resource report, prepared according to the JORC Code.

1.3 Project team

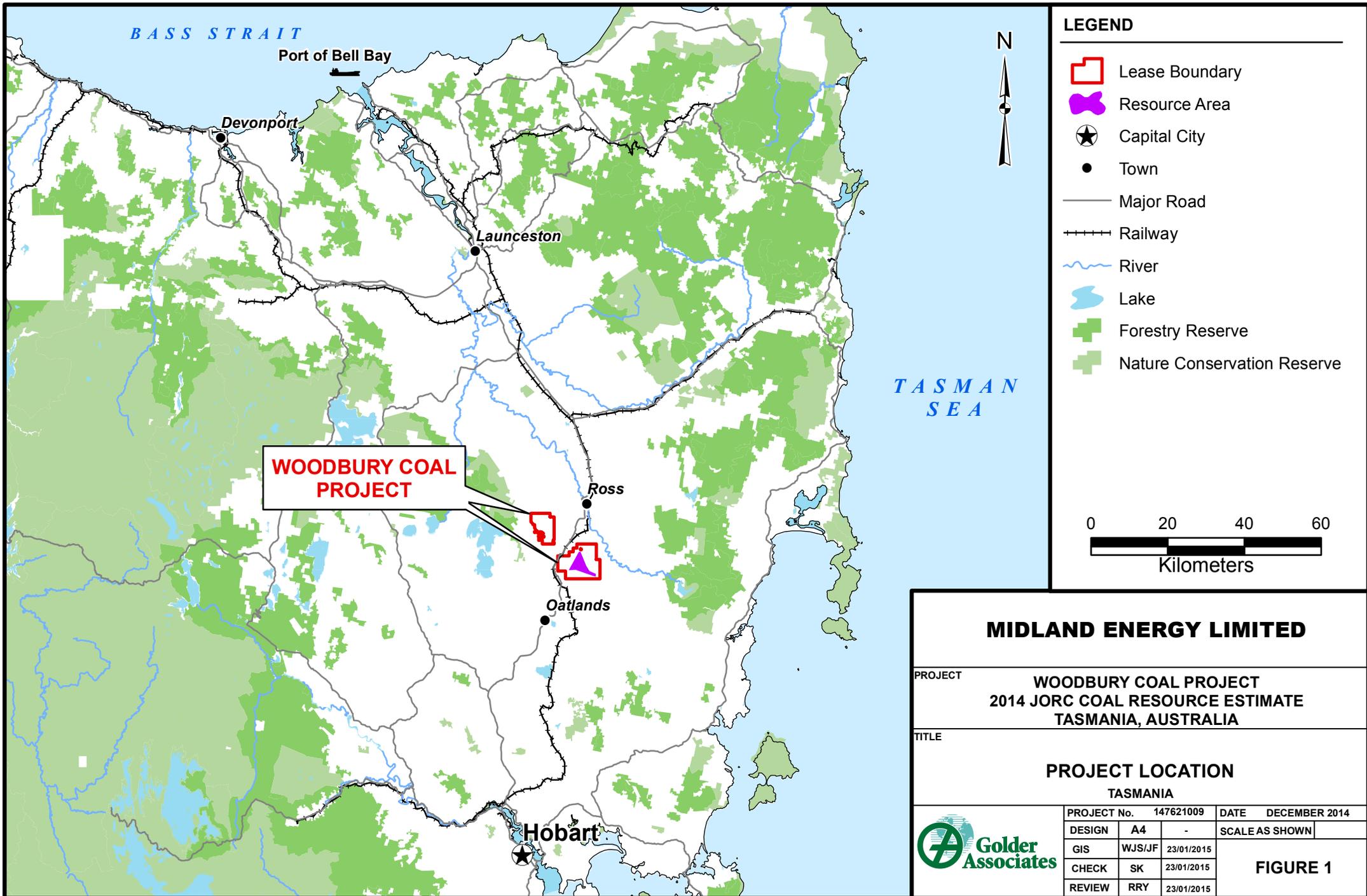
This report has been prepared by Mr Aaron Radonich (Senior Geologist, Golder). Aaron is a qualified geologist and member of both the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). He is certified by the AusIMM as a Chartered Professional in the field of Geology. Aaron has approximately 13 years’ experience in the mining industry and is a Competent Person for reporting Resources under the JORC Code for coal (both thermal and metallurgical). Other members of the Golder team directly involved in the preparation of this report include:

- Mr Jerry deWolfe (Senior Geological Consultant).
- Mrs Faye Chant (Senior Geostatistician).
- Mr Henry Dillon (Resource Geologist).
- Mr Ben Winmill (Engineering Geologist).
- Mr David Arnott (Principal Geologist).

2.0 PROJECT DESCRIPTION, LOCATION AND OWNERSHIP

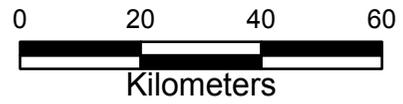
2.1 Location

The WCP comprises a single Exploration Licence (EL), EL65/2007 and is located in Australia’s Tasmanian Central Midlands; approximately 5 km east of the Midlands Highway near the town of Woodbury (Figure 1).



LEGEND

-  Lease Boundary
-  Resource Area
-  Capital City
-  Town
-  Major Road
-  Railway
-  River
-  Lake
-  Forestry Reserve
-  Nature Conservation Reserve



MIDLAND ENERGY LIMITED				
PROJECT	WOODBURY COAL PROJECT 2014 JORC COAL RESOURCE ESTIMATE TASMANIA, AUSTRALIA			
TITLE	PROJECT LOCATION TASMANIA			
	PROJECT No.	147621009	DATE	DECEMBER 2014
	DESIGN	A4	-	SCALE AS SHOWN
	GIS	WJS/JF	23/01/2015	FIGURE 1
	CHECK	SK	23/01/2015	
	REVIEW	RRY	23/01/2015	



2.1.1 Woodbury Resource Area (WRA)

The areal extent of the deposit is largely limited by three (3) major faults, namely the Tin Dish Fault to the west, the Sugarloaf Fault to the east and the Woodbury 2 Fault to the south.

The area defined by these three (3) faults is known as the Woodbury Resource Area (WRA) and is displayed in both Figure 1 and Figure 7 as a purple shaded area.

2.2 Access

A major north-south railway line is located in close proximity to the WCP, connecting the city of Launceston 85 km to the north and the capital city of Hobart 80 km to the south.

The Bell Bay region, located 40 km north of Launceston, hosts a number of deep water load out facilities on the Tamar River. The Tamar River currently services 40,000 to 60,000 tonne Panamax size vessels on a regular basis (Marston 2011). These port facilities may well be suitable for the WCP to utilise to export coal.

2.3 Coordinate system

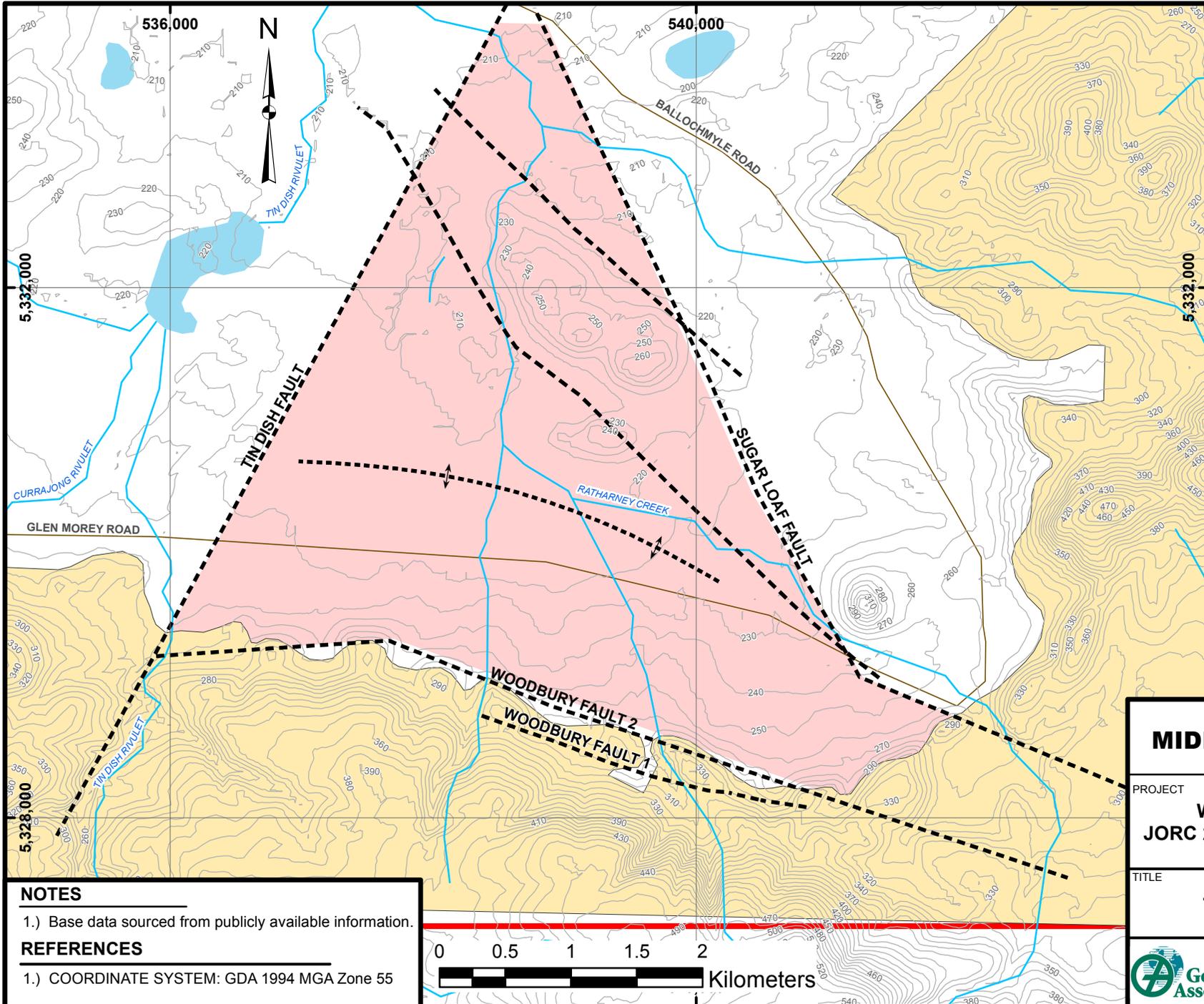
The WCP area is contained within the Geocentric Datum of Australia 1994 (GDA94) Map Grid of Australia 1994 (MGA94) Zone 55.

2.4 Physiography

The major topographical land forms within and around the Woodbury area are:

- The north-south to south-east trending Black Tier Range.
- The north-south trending ridge from Landslip Hills to Chapel Hill.
- The flood plain area known as Saltpen Plains continuing north of Tunbridge to Mona Vale (Section 8.3.3 and Figure 8).

Relief within the Woodbury area ranges between approximately 196 and 322 m (Figure 2).



LEGEND

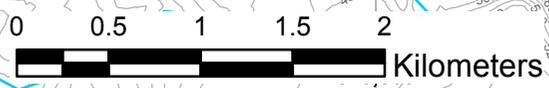
- EL65/2007
- Resource Area
- Dolerite
- Railways
- Highway
- Minor Road
- Interpreted Faults
- Anticline
- Existing Topography
Contour Interval = 10m

NOTES

- 1.) Base data sourced from publicly available information.

REFERENCES

- 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
JORC 2014 COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
TOPOGRAPHIC CONTOURS

PROJECT NO. 147621009	Topography.mxd
DESIGN A4	SCALE: AS SHOWN
GIS WJS	
CHECK RRY	
REVIEW SK	

FIGURE 2



The higher (300 m plus) elevation areas are capped with resistant dolerite with only minor sandstone ridges formed within the lower flood plains (Figure 3). The higher elevation and variable relief areas generally coincide with the contrast between dolerite outcrop and the Saltpen Plains area, underlain by Triassic sediments (Eshuys 1981).

Figure 3 and Figure 4 demonstrate the most prominent topographic feature within the Woodbury area as well as the general relief across the project area respectively.



Figure 3: Photograph looking northwest, showing the dolerite capped hill, situated in the north of the WRA



Figure 4: Photograph looking southeast towards the WRA, showing the general relief of the project area



2.5 Climate

The Midlands region of Tasmania is within a rain shadow and is one of the driest areas in the state of Tasmania, with rainfall averaging 300 mm per annum. The region is subject to an even distribution of rainfall over the course of a year, with deluge events less common than on the neighboring east coast (Baker 1985).

Isolation from the coast creates a localised climate that sees both the warmest summers and some of the coldest winters in Tasmania. In summer, maximum temperatures average 23°C, whilst in winter frosts can occur (Baker 1985).

Figure 5 presents key climate statistics for Launceston, the nearest major city to the WCP.

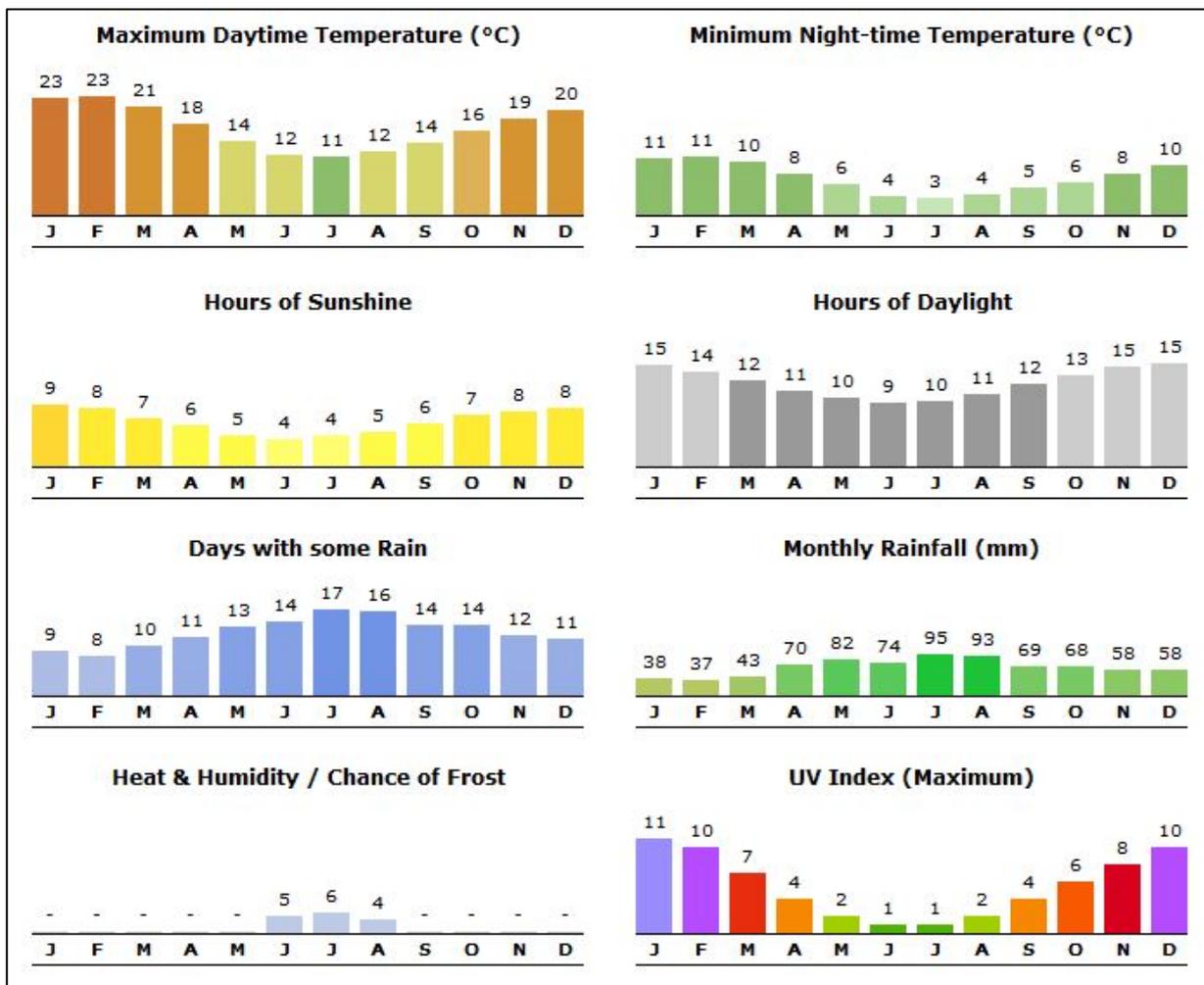


Figure 5: Climate statistics for Launceston, Tasmania (source: <http://www.worldclimateguide.co.uk>)

2.6 Land use

The land in the immediate area of the WRA is categorised (according to the Tasmanian Land Capability Classification system) as Class 4. Land with this classification is designated as primarily suitable for grazing yet may be used for occasional cropping. Limitations restrict the length of cropping phase and/or the types of crops that could be grown. Major conservation treatments and/or careful management are required to minimise degradation.

Cropping rotations should be restricted to one to two years out of 10 in a rotation with pasture or equivalent, during 'normal' years to avoid damage to the soil resource. In some areas longer cropping phases may be possible but the versatility of the land is very limited (Grose 1999).



2.7 Tenement and ownership

EL65/2007 was granted to Energy Investments Pty Limited (EI) in September 2008. In October 2008, EI was sold to Resource Generation Limited (ResGen) who conducted extensive exploration works within the EL. In September 2011, Midland purchased EI from ResGen and continued exploration works within the EL.

In February 2014 EI completed a part relinquishment of EL65/2007. A total of 120 km² was relinquished. The area relinquished was considered to have limited potential for Coal Resources due to geological constraints such as dolerite intrusions and limited extent of host rocks. It was also thought that community issues may limit the “social license to operate” of any discovered resources within the vicinity of the Midlands Highway, the township of Tunbridge and the historic Mona Vale Estate (EI 2014). The area relinquished in comparison to the original EL65/2007 boundary can be seen in Figure 6, Table 2 and Table 3.

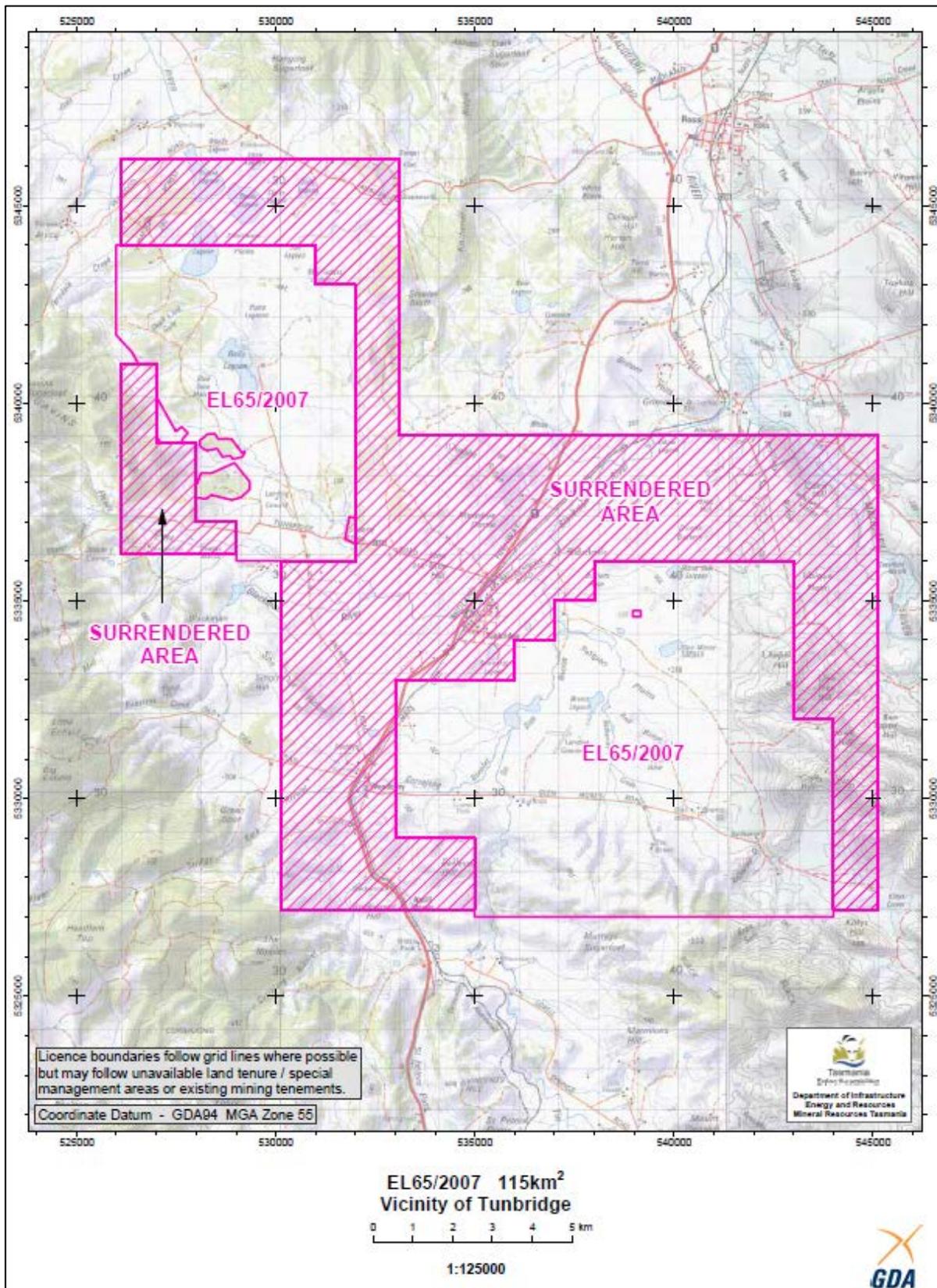


Figure 6: EL65/2007 area relinquished by EI in February 2014 (source: <http://mrt.tas.gov.au>)



WOODBURY COAL PROJECT 2014 JORC COAL RESOURCE REPORT

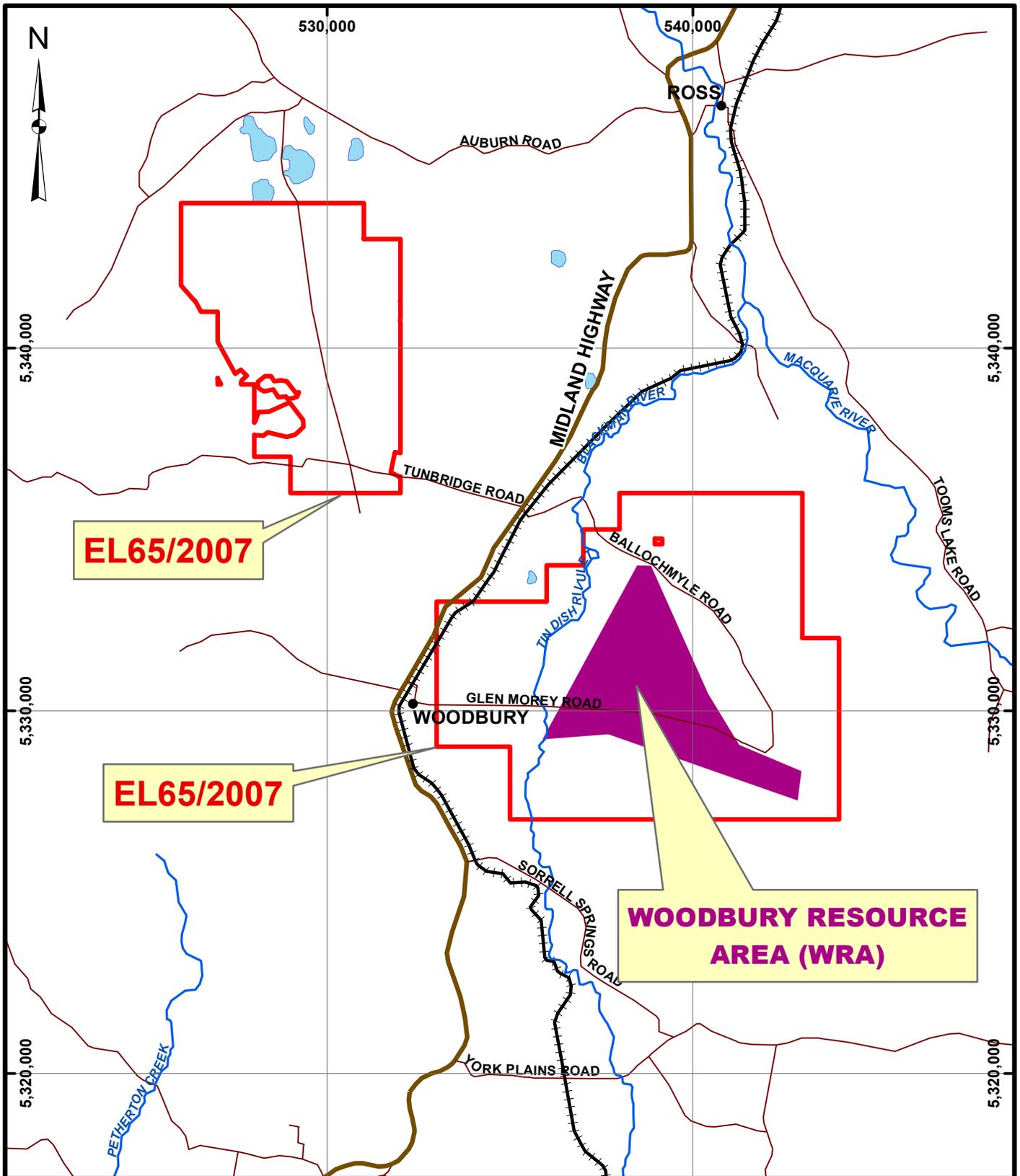
EL65/2007 is currently granted to EI (Table 3). The location and current boundary of EL65/2007 can be seen in Figure 7.

Table 2: EL65/2007 tenement status as at November 2013 (source: <http://mrt.tas.gov.au>)

Tenement	Locality	Status	Principal Holder	Operator	Area (km ²)
EL65/2007	Tunbridge	Pending Renewal	Energy Investments Pty Limited	Energy Investments Pty Limited	237

Table 3: EL65/2007 tenement status as at December 2014 (source: <http://mrt.tas.gov.au>)

Tenement	Locality	Status	Principal Holder	Operator	Area (km ²)
EL65/2007	Tunbridge	Granted	Energy Investments Pty Limited	Energy Investments Pty Limited	115



LEGEND

- Resource Area
- Lakes
- Railway
- Rivers
- Highway
- Minor Road
- Town

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55

PROJECT

MIDLAND ENERGY LIMITED

**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE

TENEMENT LOCATION



PROJECT NO. 147621009			FILE No. Tenement_Location_2014.mxd	
DESIGN	-	-	SCALE: AS SHOWN	REV: 0
GIS	WJS	23/01/2015		
CHECK	RRY	23/01/2015		
REVIEW	ADR	23/01/2015		

FIGURE 7



3.0 EXPLORATION HISTORY

The following is a summary of the exploration history section of the WCP 2013 Coal Resource Report (Golder 2013).

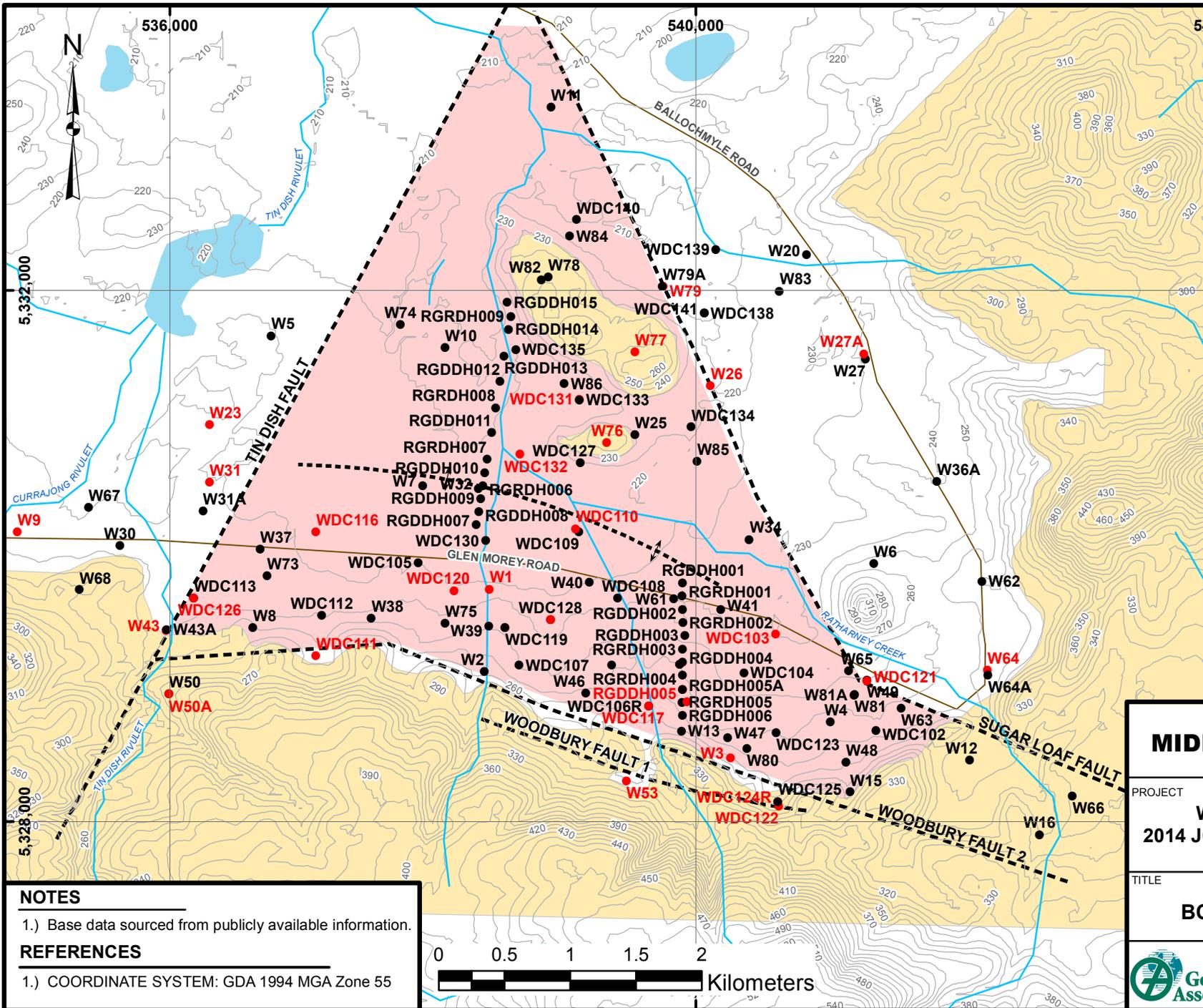
Victor Petroleum and Resources Limited (Victor), The Broken Hill Pty. Co. Ltd (now BHP Billiton), Northwest Bay Company (Northwest) and Costain Australia Limited (Costain) all led initial exploration efforts in the early 1980's centred around the development of resource , capable of supporting a potential coal fired power station situated near Campbell Town for a period of 20 years.

In 1981, a total of 74 cored and rotary boreholes were drilled by Victor within EL31/80 (EL65/2007 is wholly contained within EL31/80). Three years later, joint venture partners Costain, Victor and Northwest drilled another 39 boreholes within the same exploration lease with the aim of further delineating the geological structure and coal seam stratigraphy. This drilling program consisted of 12 partly and fully cored HQ (63.5 mm core diameter) diamond boreholes, three 200 mm (core diameter) cored seam intersections and 24 open boreholes.

Following a decision by the Tasmanian Government favouring construction of an oil powered utility, which was subsequently converted to gas, the project was abandoned.

ResGen conducted the next round of exploration in 2010 in a bid to establish seam continuity and thickness, whilst also further defining coal quality characteristics to reduce the variability of washing yield and other product characteristics. Uncertainty surrounding seam continuity stemmed from irregular borehole placement, along with the lack of a complete data set arising from truncated boreholes. This phase of exploration consisted of the drilling of two parallel lines comprised of 12 and 13 boreholes respectively, drilled between 100 m and 200 m apart in an alternating cored/open borehole sequence in a roughly north-south orientation.

All boreholes drilled throughout the ResGen program were geophysically logged and surveyed. Figure 8 shows the borehole locations.



- LEGEND**
- EL65/2007
 - Resource Area
 - Dolerite
 - ++++ Railways
 - Highway
 - Minor Road
 - - - - - Interpreted Faults
 - - - - - Anticline
 - ~ Existing Topography
Contour Interval = 10m

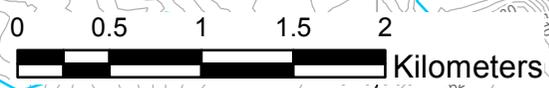
- Drill Hole Location**
- Drill Holes Not Modelled
 - Drill Holes Modelled

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BOREHOLE LOCATION PLAN

PROJECT NO. 137621114	Hole_Location_2014.mxd
DESIGN - -	SCALE: AS SHOWN
GIS WJS 28/01/2015	
CHECK RRY 28/01/2015	
REVIEW SK 28/01/2015	

FIGURE 8





In 2011, ResGen, commissioned Marston and Marston International Pty Ltd (Marston), to prepare a preliminary geological report and provide an updated geological model based on the 2010 exploration program conducted over the WRA.

3.1 2014 Exploration program

Between May and August 2014 an additional 16 boreholes (10 cored and six open boreholes) were drilled by Midland over the WRA. The aim of the program was to both infill existing drilling and increase the tonnage and confidence of the existing JORC Coal Resource.

Table 4: 2014 exploration borehole details

Borehole Information			Collar Coordinates			Orientation	
Borehole ID	Type	Total Depth (m)	East	North	RL	Azimuth	Dip
W73	Open	105.20	536 738.133	5 329 851.641	219.945	0	-90
W74	Open	93.38	537 753.214	5 331 747.147	207.399	0	-90
W75	Cored	138.23	538 093.464	5 329 495.088	232.675	0	-90
W76	Open	120.00	539 324.422	5 330 858.240	243.677	0	-90
W77	Open	102.00	539 537.433	5 331 540.158	247.904	0	-90
W78	Open	129.90	538 877.162	5 332 102.310	243.229	0	-90
W79	Open	15.00	539 753.117	5 332 032.860	213.100	0	-90
W79A	Cored	111.82	539 745.451	5 332 033.635	213.147	0	-90
W80	Cored	117.50	540 387.364	5 328 551.842	255.591	0	-90
W81	Cored	55.14	541 206.419	5 328 957.015	243.964	0	-90
W81A	Cored	36.57	541 204.089	5 328 954.071	243.864	0	-90
W82	Cored	156.93	538 824.907	5 332 084.653	242.271	0	-90
W83	Cored	50.11	540 636.018	5 331 998.252	219.790	0	-90
W84	Cored	69.93	539 043.163	5 332 413.437	213.371	0	-90
W85	Cored	97.48	540 008.897	5 330 713.404	217.569	0	-90
W86	Cored	105.48	538 999.053	5 331 299.379	210.652	0	-90

4.0 PREVIOUS JORC COAL RESOURCE ESTIMATE

Golder completed an independent Coal Resource estimate for the WCP in 2013. The report was prepared and reported in accordance with the guiding principles and minimum standards set out in the 2012 edition of the JORC Code. Coal Resource estimates were also prepared with consideration given to the “*Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves, 2003*” (2003 Coal Guidelines).

All Coal Resources were considered mineable by surface mining methods. Coal Resources were estimated for the D, C, B and A seams. Estimated Coal Resources were reported only for fresh (un-oxidised/un-weathered) coal with a minimum coal thickness of 0.10 m with a maximum 45% raw ash (adb) cut-off applied within the WRA.

The Coal Resource estimate incorporated all supplied data up to the end of September 2013.



WOODBURY COAL PROJECT 2014 JORC COAL RESOURCE REPORT

Table 5 below presents a summary of the previously estimated Coal Resources for the WRA as at November 2013.

Table 5: November 2013 JORC Coal Resource estimate

Seam	JORC Resources Category	Tonnes Mt	Raw Ash % (adb)	Calorific Value MJ/kg (adb)	Fixed Carbon % (adb)	Inherent Moisture % (adb)	Relative Density g/cc (adb)	Total Moisture% (arb)	Total Sulphur % (adb)	Volatile Matter % (adb)
BU	Indicated	0.5	33.1	20.8	51.8	3.4	1.6	4.3	0.3	11.7
BM		0.8	37.9	19.5	48.5	3.2	1.7	4.3	0.2	11.9
BL		0.5	37.6	19.2	50.0	3.8	1.6	4.8	0.4	9.7
Sub-Total	Indicated	2	36.5	19.8	49.8	3.4	1.6	4.4	0.3	11.2
DU	Inferred	0.3	30.3	22.0	*	4.8	1.5	6.0	*	*
DL		0.7	36.6	19.4	*	4.8	1.6	5.8	*	*
C		2.2	35.9	19.2	*	4.7	1.6	5.9	*	*
CM		0.2	43.6	16.2	*	6.7	1.7	8.2	*	*
CL		2.1	31.3	21.6	47.4	4.3	1.5	5.2	0.5	15.3
BU		0.3	34.2	20.4	51.0	3.5	1.6	4.3	0.3	11.4
BM		7.3	41.4	17.8	41.6	4.5	1.7	5.7	0.3	12.7
BL		2.2	39.6	18.3	42.4	4.5	1.6	5.6	0.4	14.0
A		3.2	34.1	21.4	49.6	2.9	1.6	3.8	0.3	13.4
AU		1.2	39.0	18.4	46.8	4.9	1.7	6.4	0.4	9.3
AM		1.1	41.0	17.5	50.3	4.6	1.8	5.9	0.6	10.0
Sub-Total	Inferred	21	38.0	19.1	45.0	4.3	1.6	5.4	0.4	12.8
Total	Indicated + Inferred	23	37.8	19.2	45.4	4.2	1.6	5.4	0.3	12.7

*Insufficient data to be used in JORC Coal Resource estimate.

**Resources reported at a minimum coal thickness cut-off of 0.10m and a maximum raw ash cut-off of 45% (adb).



5.0 GEOLOGY

5.1 Regional geology

Within EL65/2007 the sedimentary rocks of the Parmeener Supergroup rest on a folded and eroded basement of Precambrian and early Palaeozoic rocks. The upper sequences of the marine and non-marine beds of the Parmeener Supergroup are intruded by both concordant and discordant Jurassic dolerite sills (Eshuys 1981).

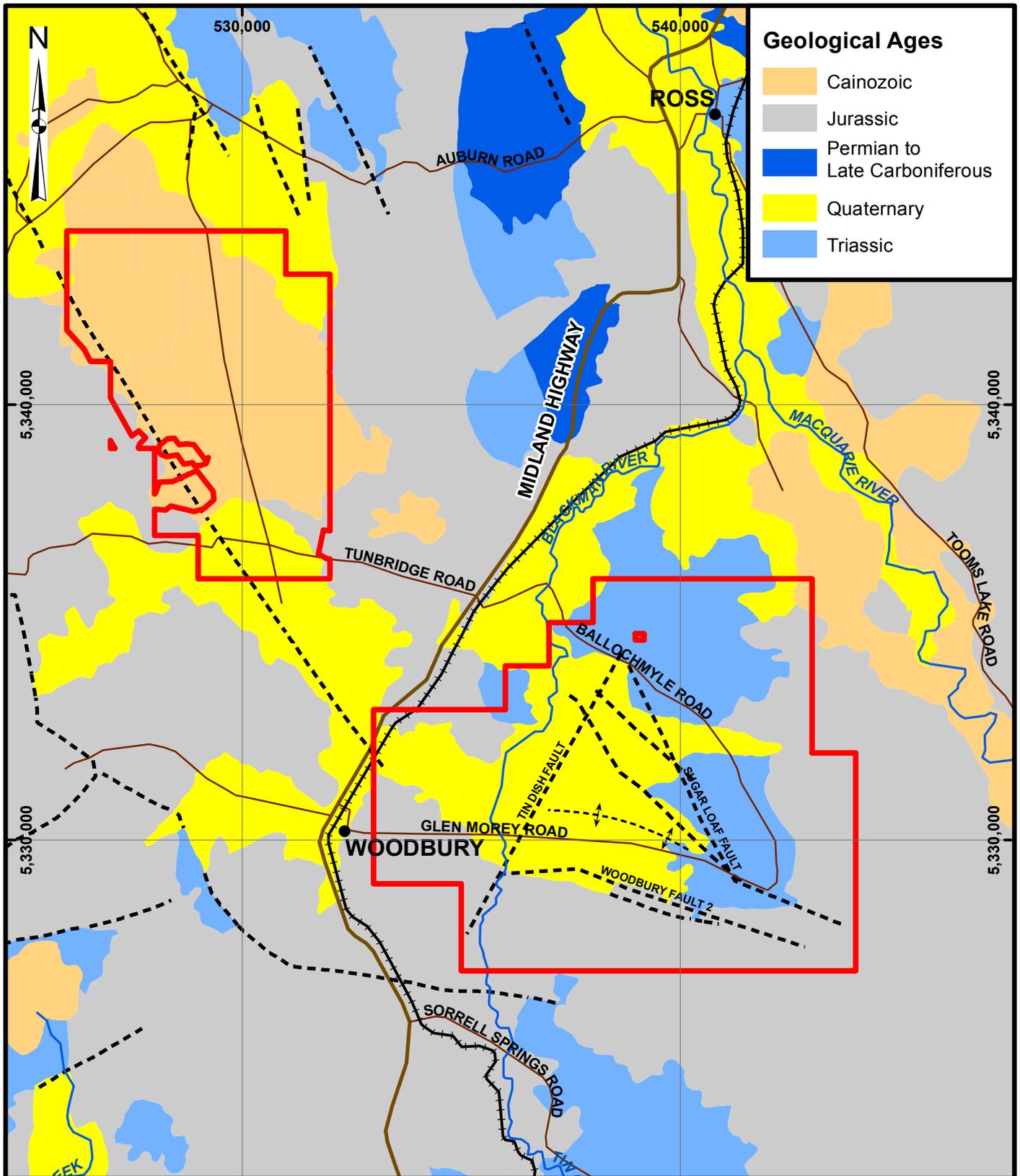
Tectonic activity associated with the Tabberabberan Orogeny during the Devonian initiated a prolonged phase of erosion that persisted through the Triassic (Eshuys 1981).

From the cessation of Triassic sedimentation until the recent times, Tasmania was subjected to normal north-northwest trending faulting. During this tensional phase, only limited sedimentation occurred within restricted basins (Eshuys 1981).

During the Tertiary, major horst and graben structures developed, with the largest forming the Central Highlands Plateau and West Coast Range. Most Tertiary age faults tend to be normal with dips varying between 45 and 90°. Drag folding against faults has resulted in locally steep dips and gentle tilting of fault blocks (Eshuys 1981).

As a result of both the Jurassic dolerite intrusions and Tertiary epeirogeny was the development of the central plateau mass, consisting of a huge slab of block-faulted and warped Permo-Triassic sediments and dolerite (Eshuys 1981).

A generalised regional geological setting is presented below in Figure 9.



Geological Ages

- Cainozoic
- Jurassic
- Permian to Late Carboniferous
- Quaternary
- Triassic

LEGEND

- EL65/2007
- Railway
- Highway
- Minor Road
- Major Rivers
- Town

Geology Legend

- Interpreted Fault
- ↑
↓ Anticline

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55

PROJECT
MIDLAND ENERGY LIMITED

**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
REGIONAL GEOLOGY

			PROJECT NO. 147621009 FILE No. Regional_Geology_2014.mxd	
DESIGN	-	-	SCALE: AS SHOWN REV. 0	
GIS	WJS	23/01/2015		
CHECK	RRY	23/01/2015		
REVIEW	ADR	23/01/2015		

FIGURE 9



5.2 Local geology

5.2.1 Stratigraphy

Bedrock for the Woodbury deposit appears barren of coal and primarily consists of a tuff and siltstone facies, lithic and sub-lithic sandstone, and mudstone (Costain 1983).

The coal measures sequence is composed of lithic sandstone, mudstone, carbonaceous mudstone, minor tuff and siltstone, along with coal (Costain 1983). The middle to late Triassic stratigraphy of the coal measures is less than 150 m in thickness, with individual seams ranging from 0.70 m to 3.90 m thick (Marston 2011). The stratigraphic sequence of the coal bearing strata is shown in Figure 10 and cross sections for the WRA are shown in Figure 11.

5.2.2 Coal seams

The Triassic aged coal seams occur within lithic sandstone belonging to the Upper Parmeener Supergroup (Forsyth 1989).

A gently westward plunging, east-west trending anticline is the primary geological feature of the coal measures. The anticline has a variable dip of 8° for the southern limb and 4° for the northern limb (Marston 2011).

Workers have assigned four major seams, D, C, B and A, with the A seam being the basal seam and the D seam D being the uppermost seam. Section 8.3.6 and Table 12 to Table 16 contain detailed descriptions and statistics for all seams. The estimated coal tonnage is relatively evenly spread between the C, B and A seams with only a small tonnage in the D seam.

Further deeper drilling may increase the confidence in continuity for seam A which has the potential to be the most laterally continuous of all seams (Marston 2011).

The coals of the Woodbury Coalfield are described as being of moderate rank (medium to low volatile bituminous) and consisting predominantly of durainous lithotypes. The elevated coal rank and high content of inertinite macerals (the latter being typical of Tasmanian coals) have been assessed as contributors to a higher specific energy (33-34 MJ/kg dry ash free (daf) basis) and slightly lower volatile matter content (up to 31% daf basis) when compared to the stratigraphical equivalent coals of the Fingal Valley, Tasmania (Costain 1984).

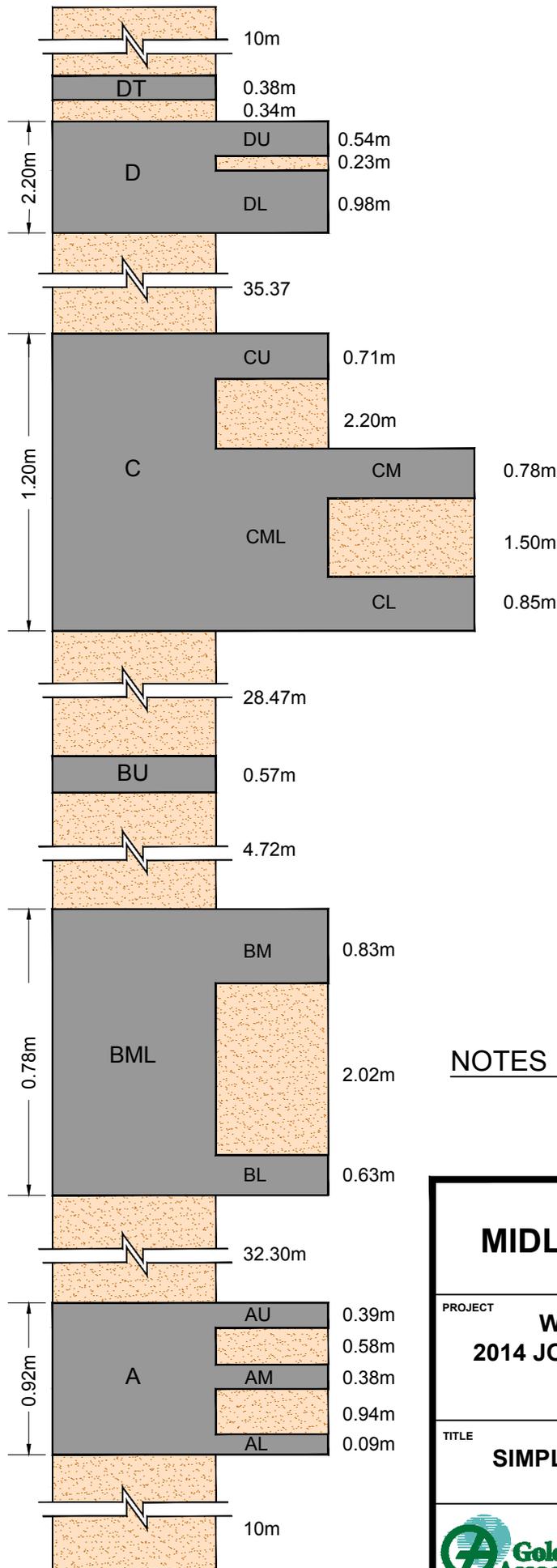
The areal extent of the WRA is largely limited by three major faults, namely the Tin Dish Fault to the west, the Sugarloaf Fault to the east, and the Woodbury 2 Fault to the south (Figure 7). Other factors, such as topographic control in relation to weathering and the position of the interpreted anticline have an effect on seam distribution for seams D and C, whilst igneous intrusions also influence the extent of the resource (Marston 2011).

In 2014 new drilling identified a 30 m elevation difference between RGDDH015 and the W82 and W78 pair and again between W84 and the W82 and W78 pair. In order to reconcile these offsets, two (2) additional NW-SE orientated faults were incorporated in to the geological model during structural correlation. Both 30 m variations in seam elevation occurred over a lateral distance of 300 m. These structures have been interpreted as a graben structure with throws of 30 m on both faults (Figure 11).

5.2.3 Tectonics

On a local scale, the combination of gravity surveying work and photo linear analysis has resulted in the delineation of several graben and horst structures in the Woodbury area. The most significant of these structures are the northeast (062°) trending Kuranda Graben, the east-southeast (112°) trending Woodbury Trough and the east-southeast trending Black Tier – Bellevue Hill and Glen Morey Horsts. The Kuranda Graben is thought to be approximately 4 km in length and 0.7 km in width, whilst the Woodbury trough is thought to be at least 9 km in length and 1 km in width (Costain 1983).

SIMPLIFIED STRATIGRAPHIC COLUMN



NOTES

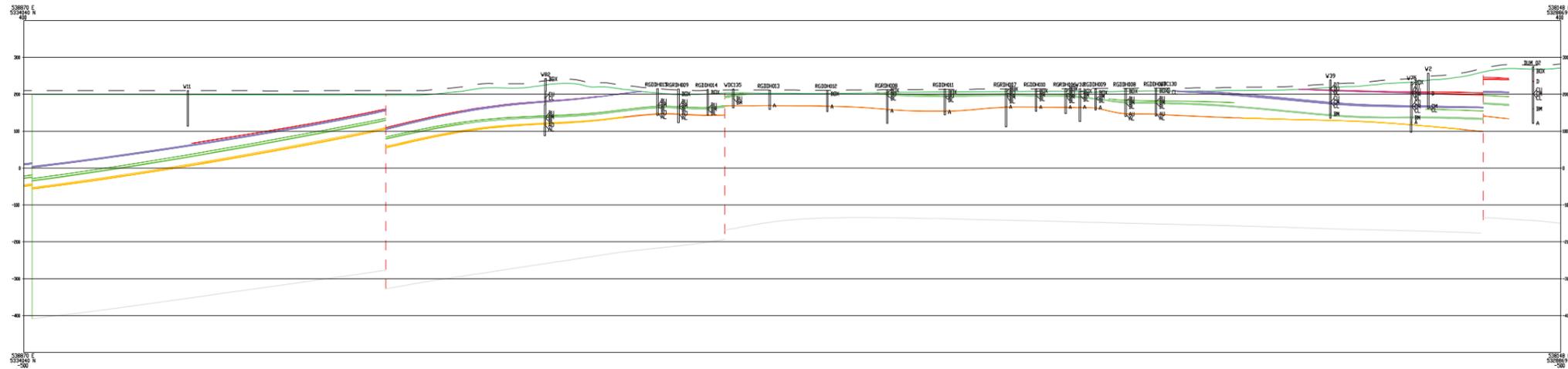
MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

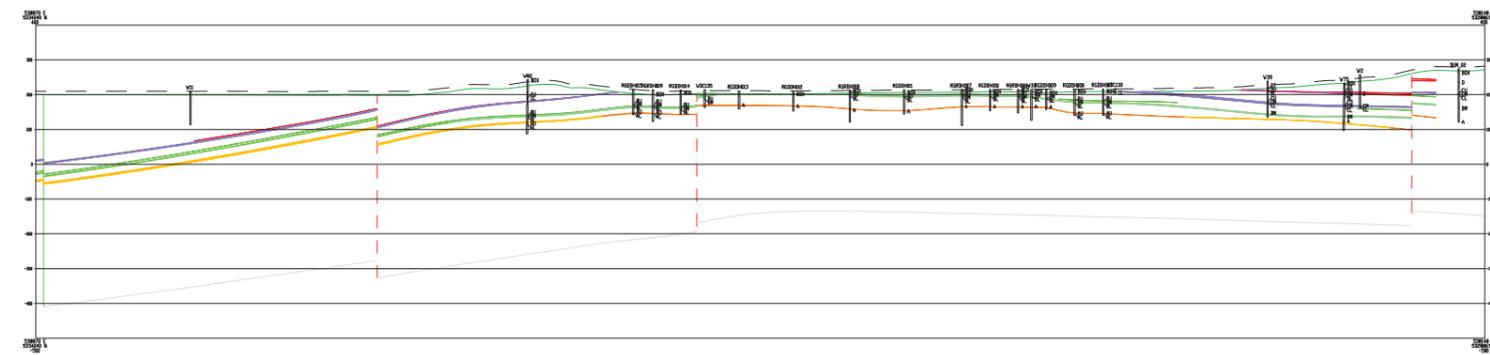
TITLE
SIMPLIFIED STRATIGRAPHIC COLUMN

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	AUTOCAD	WJS	05/12/2014	FIGURE 10
	CHECK	SK	05/12/2014	
	REVIEW	RRY	05/12/2014	

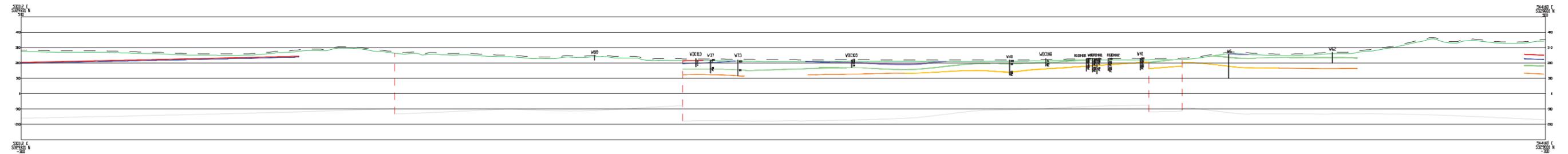
CROSS SECTION 1



CROSS SECTION 2

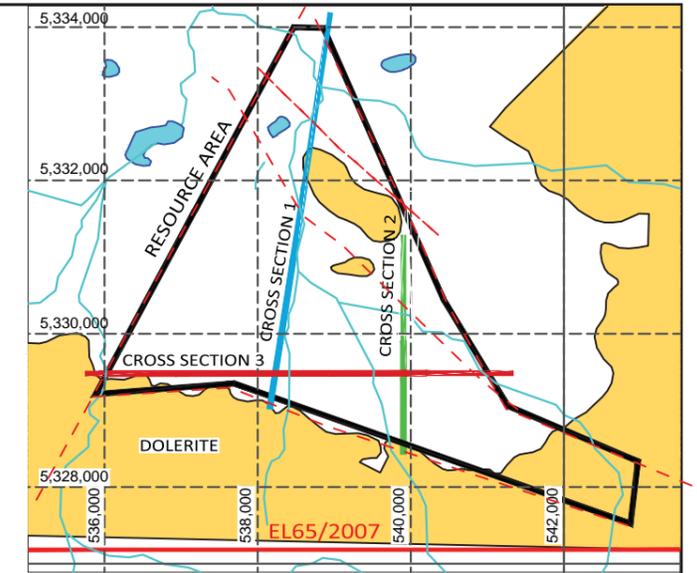


CROSS SECTION 3



Legend

- Existing Topography
- Base of Weathering
- Fault
- D Seam Group
- C Seam Group
- B Seam Group
- A Seam Group



SECTION LOCATION KEY MAP

GEOLOGICAL CROSS SECTIONS

PROJECT
**WOODBURY COAL PROJCT
 2014 JORC RESOURCE ESTIMATE
 TASMANIA, AUSTRALIA**

TITLE
CROSS SECTIONS

TASMANIA, AUSTRALIA			
PROJECT No.	147621009	DATE	JANUARY 2014
DESIGN	SK	SCALE	AS SHOWN
AUTOCAD	WJS	11/05/2013	
CHECK	SK	11/05/2013	
REVIEW	RRY	11/05/2013	



FIGURE 11



6.0 SAMPLING AND ANALYSIS

6.1 Coal quality

As part of the 1981 exploration program, Victor Petroleum Pty Ltd submitted 237 samples from 16 cored boreholes to SGS Australia Pty Ltd (SGS) for analysis, at their Sydney laboratory. This laboratory is National Association of Testing Authorities Australia (NATA) certified today and was at the time these analyses were completed. Limited information is available for this analytical program. The samples included coal, roof and floor units. Analyses reported included inherent moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), specific energy (adb), total sulphur (adb) and relative density (adb). Individual plies were sampled on geology and in some cases composited.

All of the analyses were completed according to Australian Standards (details below) for coal and coke testing methods.

Three seam sections (W39 – D seam, W41 – BU ply, BU ply and BL ply and W46 – D seam) from boreholes W39, W41 and W46 were submitted to SGS for sizing and washability analysis. In each case a composite was prepared from plies with designated coal sections, utilizing the maximum amount of available sample. These composites, comprising coal of nominal topsize 12.7 mm were first sized at 0.5 mm. The plus 0.5 mm fraction was then float/sink separated at gravities of 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.80, 1.90 and 2.00. Ash was determined on each fraction. The minus 0.5 mm fraction was further sized at 250, 125 and 75 microns. Ash was determined on each size fraction.

As part of the 2010 exploration program commissioned by ResGen, coal sampling was conducted on 15 cored boreholes by Marston geologists. The 15 cored boreholes had correlated depths picked from geophysical logs. A total of 108 samples were submitted to SGS Australia Pty Ltd (Newcastle laboratory) for coal quality analysis, which is also and was at the time these analyses were conducted NATA certified.

The samples included coal, roof and floor units. Analyses reported included total moisture (ar), inherent moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), total sulphur (adb), gross calorific value (adb) and relative density (adb). Individual plies were composited and proximate analysis was available for all seams sampled.

A total of 50 composite and single seam samples were submitted for testing to SGS Australia Pty Ltd (Newcastle laboratory) from the A, B, C and D seams. The samples were crushed to a top size of 12 mm and were tested at densities of 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0 and 2.2 in accordance with AS 4156.1 (Coal – Float and Sink Testing). All float fractions were tested for ash content.

Total moisture analyses were completed according to AS 1038.1 (Coal - Total Moisture), inherent moisture, ash, volatile matter and fixed carbon analyses were completed according to AS 1038.4 (Coal and Coke – Proximate Testing), total sulphur analyses were completed according to AS 1038.6.3.3 (Coal and Coke – Total Sulphur I IR Method), gross calorific value analyses were carried out according to AS 1038.5 (Coal and Coke – Calorific Value) and relative density analyses were carried out according to AS 1038.21.1.1 (Coal and Coke – Relative Density – Bottle Method).

A total of 70 samples from the 2014 exploration program were submitted for raw coal quality testing to ALS Group Pty. Ltd.'s (ALS) Brisbane laboratory from the A, B, C and D seams. The ALS Brisbane laboratory is also and was at the time these analyses were conducted, NATA certified.

The samples included coal, roof and floor units. Analyses reported included free moisture (ar), moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), total sulphur (adb), calorific value (adb) and relative density (adb).

Free moisture analyses were completed according to AS 1038.1 (Coal - Total Moisture), moisture, ash, volatile matter and fixed carbon analyses were completed according to AS 1038.3 (Coal and Coke – Analysis and testing – Proximate analysis of higher rank coal), total sulphur analyses were completed according to AS 1038.6.3.3 (Coal and Coke – Total Sulphur IR Method), gross calorific value analyses were carried out according to AS 1038.5 (Coal and Coke – Calorific Value) and relative density analyses were carried out according to AS 1038.21.1.1 (Coal and Coke – Relative Density – Bottle Method).



6.2 Geophysical logging

Endeavour Geophysics Pty Ltd (Endeavour) completed geophysical logging of all 2014 boreholes. Endeavour included the calibration block for the density tool used to geophysically log the 2014 boreholes. Using the calibration block ensures the downhole wireline probe is calibrated to provide accurate depth measurements of subsurface rock types. The downhole wireline logs are then used to adjust the depths of lithological logs, ply intervals and coal quality samples. Parameters logged for open boreholes included natural gamma, bulk density, differential density, long spaced density, short spaced density and bed resolution density. Parameters logged for cored boreholes included natural gamma, caliper, bulk density, differential density, long spaced density, short spaced density, bed resolution density, resistivity and spontaneous potential. Selected cored boreholes were also logged for verticality or downhole deviation and full wave sonic.

11 of the 16 2014 exploration boreholes were depth corrected by Golder. The five boreholes not depth corrected consisted of two abandoned boreholes that were re-drilled and three boreholes geophysically logged through PVC casing. All five boreholes were excluded from the geological model (Table 8). Depth corrections on boreholes drilled in 2014 were corrected using Advanced Logic Technology's WellCAD™ software. WellCAD™ adjusts the depths of the lithological logs to the depths of the geophysical logs by tying the roof and floor picks in the lithology log to picks (utilising mid-point inflection) made directly on the geophysical trace. Open borehole picks were made utilising the gamma and density curves. Cored borehole picks were made utilising the caliper, density and gamma curves. Once all picks are completed on the log, WellCAD™ completes the depth correction. Not every borehole possessed a geophysical log and for a total of three boreholes it was not possible to utilise the geophysical logs due to the quality of the log response from being logged through PCV casing. The boreholes corrected in this manner are tabulated below in Table 6.

Table 6: 2014 boreholes geophysically corrected by Golder

Borehole ID	Depth Corrected	Reason
W74	No	Poor quality log response though the PCV casing.
W75	Yes	
W76	No	Poor quality log response though the PCV casing.
W77	No	Poor quality log response though the PCV casing.
W78	Yes	
W79	No	No Geophysical Log
W79A	Yes	
W80	Yes	
W81	No	No Geophysical Log
W81A	Yes	
W82	Yes	
W83	Yes	
W84	Yes	
W85	Yes	
W86	Yes	



7.0 DATA

7.1 Information supplied

Data from the 2014 exploration program was provided to Golder by Luke Marshall, Director of Midland, in electronic format. Data files were supplied as MS Excel, MS Word, LAS and PDF formatted files.

Golder possessed the previous geological model and supportive data used for the 2013 Coal Resource estimate. This information along with newly acquired data was used as the framework for the resource update. A total of 112 boreholes were deemed suitable for use in the 2014 geological model (Section 7.2).

A summary of the data provided is presented below:

- Borehole information (a total of 16 new boreholes).
 - Collar location.
 - Lithological observations.
- Coal quality analyses/values for the following variables (a total of 11 new boreholes):
 - Ash (AS) % (adb)
 - Calorific Value (CV) MJ/kg (adb)
 - Fixed Carbon (FC) %(adb)
 - Inherent Moisture (IM) %(adb)
 - Relative Density (RD) g/cc (adb)
 - Total Moisture (TM) %(arb)
 - Total Sulphur (TS) % (adb)
 - Volatile Matter (VM) % (adb)
- Geophysical density logs in electronic LAS format (a total of 12 new boreholes).
- Geophysical full wave sonic logs in electronic LAS format (a total of eight new boreholes).
- Geophysical multi-survey tool logs in electronic LAS format (a total of five new boreholes).
- Geophysical down hole survey logs in electronic LAS format (a total of seven new boreholes)
- Core and chip photographs.

Golder was provided with an existing borehole database, "woodbury_dhdb.mdb", comprising collar locations, ply codes and depths, lithological depths, raw coal quality data and composited quality data that matches ply intervals. The database was reviewed and updated where data anomalies were found. Coding was assigned to each borehole to identify the borehole type, whether it is used in the model and if there is geophysical or coal quality data available for the borehole. The codes used are shown in Table 7 below.



Table 7: Borehole codes and descriptions

Borehole Code	Description	Number of Boreholes
MC	Model, Cored	14
MCG	Model, Cored, Geophysics	3
MCGQ	Model, Cored, Geophysics, Quality	32
MCQ	Model, Cored, Quality	10
MD	Model, Dummy	4
ML	Model, Large Diameter	2
MO	Model, Open	21
MOG	Model, Open, Geophysics	26
Total Modelled Boreholes		112
XC	Excluded, Cored	6
XCG	Excluded, Cored, Geophysics	1
XL	Excluded, Large Diameter	1
XO	Excluded, Open	12
XOG	Excluded, Open, Geophysics	11
Total Excluded Boreholes		31
Total Boreholes		143

7.2 Data validation

Validation of the geological database was carried out using a number of methods; the following is a full list of validations carried out by Golder:

- Check borehole proximity distances to identify duplicate boreholes.
- Check borehole locations to identify boreholes that are in close proximity (less than 10 m apart).
- Check borehole collar against topography.
- Check for ply from/to depth overlaps.
- Check coal quality samples for overlaps in from/to depths.
- Check proximate analysis data sums to 100%.
- Review seam correlations.
- Cross referencing of data to ensure completeness and representativeness.

Based on the data review and validation, a total of 31 boreholes were excluded from the geological model. Reasons for excluding boreholes include proximity to other (better, more reliable or more complete) boreholes, difference between borehole collar and topographic elevation being greater than 2 m (indicating uncertain location), poor core recovery and missing geophysical logs. Excluded boreholes as well as the reason for exclusion are shown in Table 8 below.



Table 8: Excluded boreholes

Borehole ID	Reason for Exclusion
RGDDH005	Redrilled. Use borehole RGDDH005A.
W1	Depths do not correlate with English log. Unable to read geophysical depths.
W14	Depths do not correlate with English log. Unable to read geophysical depths.
W23	Plies not identified. English log contradicts geophysical log. Outside of WRA.
W26	Plies not identified. Geophysical log not available. Outside of WRA.
W27A	Plies not identified. Topography vs collar difference >2 m. Use borehole W27.
W3	Depths not accurate. Poor quality geophysics.
W31	Plies not identified. Topography vs collar difference 1.8 m. Use borehole W31A.
W43	Plies not identified. Within 10 m of borehole W43A.
W50A	Plies not identified. Within 10 m of borehole W50.
W53	Plies not identified. Topography vs collar difference >2 m. No geophysics available.
W64	Plies not identified. Topography vs collar difference >2 m. Use borehole W64A.
W9	Coal exists but geophysics is of poor quality. Too difficult to read. Outside of WRA.
WDC103	Suspect depths. No geophysics available.
WDC110	Plies not identified. No geophysics available. Use borehole WDC109.
WDC111	Plies not identified. No geophysics available. Outside of WRA.
WDC116	Plies not identified. Topography vs collar difference >2 m.
WDC117	Duplicate of borehole WDC106R.
WDC118R	Plies not identified. Geophysical log not available. Outside of WRA. Within 10 m of WDC119.
WDC120	Plies not identified. No geophysics available. Topography vs collar difference >2 m.
WDC121	Plies not identified. Within 10 m of borehole W49.
WDC122	Plies not identified. Topography vs collar difference >2 m.
WDC124R	Plies not identified. Topography vs collar difference >2 m. Within 10 m of borehole WDC125.
WDC126	Poor recovery. Duplicate of borehole WDC113
WDC129	Plies not identified. Within 10 m of borehole WDC129.
WDC131	Plies not identified. Topography vs collar difference >2 m. Within 10 m of borehole WDC133.
WDC132	Plies not identified. No geophysics available.
WDC136	Duplicate of borehole WDC137
W76	Poor quality geophysics due to logging through PVC. Seam thickness resolution impossible
W77	Poor quality geophysics due to logging through PVC. Seam thickness resolution impossible
W79	Poor quality geophysics due to logging through PVC. Seam thickness resolution impossible. Use borehole W79A.



A comparison between topography and collar elevation was conducted and a total of eight boreholes (Table 9) were identified with a difference greater than 2 m. A difference of ± 2 m was selected due to the fact that the variation in relief across the project is relatively small (Figure 8, Sections 2.4 and 8.0). These boreholes were excluded from the geological model, as their locations were probably uncertain. All other boreholes in the geological model are relatively similar (less than 2 m) in elevation to the topography. Topographic data used to create the topographic grid in the geological model was originally sourced from Tasmania's Department of Primary Industries and Water (DPIW), purchased on behalf of ResGen (Harvey 2008). The accuracy of both the topographic data used to create the topographic grid and the survey equipment used to survey the borehole collars is not known. Boreholes with a difference between topography and collar elevation of 2 m or less were left as is and not registered to the topographic surface.

Table 9: Difference between collar and topography

Borehole ID	Difference (m)
W53	7.08
WDC122	5.63
WDC131	5.38
WDC116	4.37
WDC124R	4.25
W64	2.15
W27A	2.12
WDC120	2.07

In order to determine the most appropriate grid cell size for creating a geological model, Golder developed a function within the borehole database to determine a suitable grid cell size. The database process calculates the distance from each borehole to every other borehole in the database. It then classifies and orders them by discrete bins of distance values and identifies the smallest value above which 95% of the calculated population lies. The recommended minimum grid cell size is one third of the resulting distance, which in this case was 10 m, as shown in Figure 12, however, for the 2013 geological model, due to a number of boreholes being drilled in a linear chain pattern, Golder determined the minimum grid cell size to be 20 m. As a result of this process the grid cell size used to build the geological model was 20 m. Boreholes drilled in 2014 did not materially improve the borehole spacing as close spaced historic drilling exists. As a result of this process the grid cell size used to build the 2014 geological model was 20 m.

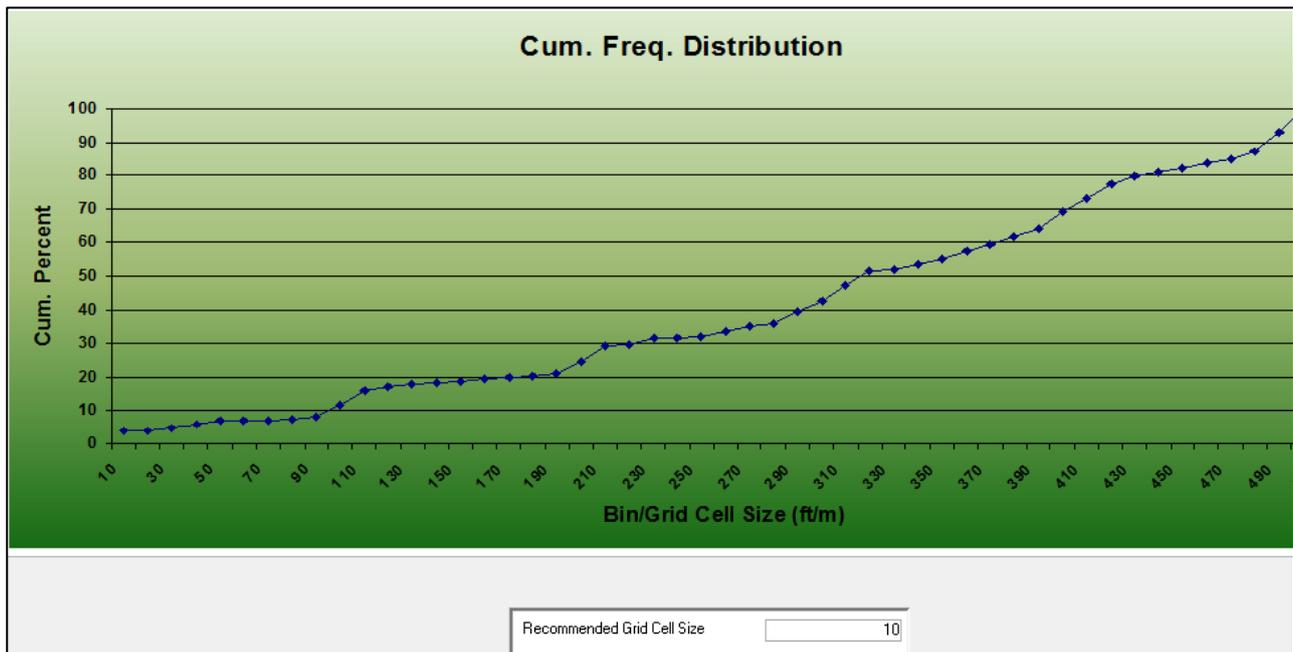


Figure 12: Grid cell size determination

Coal ply intervals and sample intervals were assessed for depth overlaps. No overlapping depths were identified.

Golder reviewed all raw coal quality samples and checked for completeness. Proximate analyses were numerically combined to confirm they total 100%. No proximate analyses outside the prescribed range of 100% ± 5% were identified.

In light of the 2014 drilling, Golder reviewed the historic seam correlations and identified some boreholes requiring further review. These boreholes were reviewed in detail and changes to the ply correlation/s were made where necessary after examining the coal quality samples in conjunction with the lithological and geophysical data (Table 11).

.Across all exploration programs, coal quality data was sampled to match geological intervals. Samples were composited by Golder to match ply intervals within the model.

Golder reviewed all raw coal quality samples and checked for completeness. Proximate analyses were numerically combined to confirm they total 100%. Coal quality variables were compared against ash to identify outliers. An example of the ash and density plot is shown in Figure 13. Outliers were reviewed on a case by case basis before determining whether the samples were suitable to be included in the model.

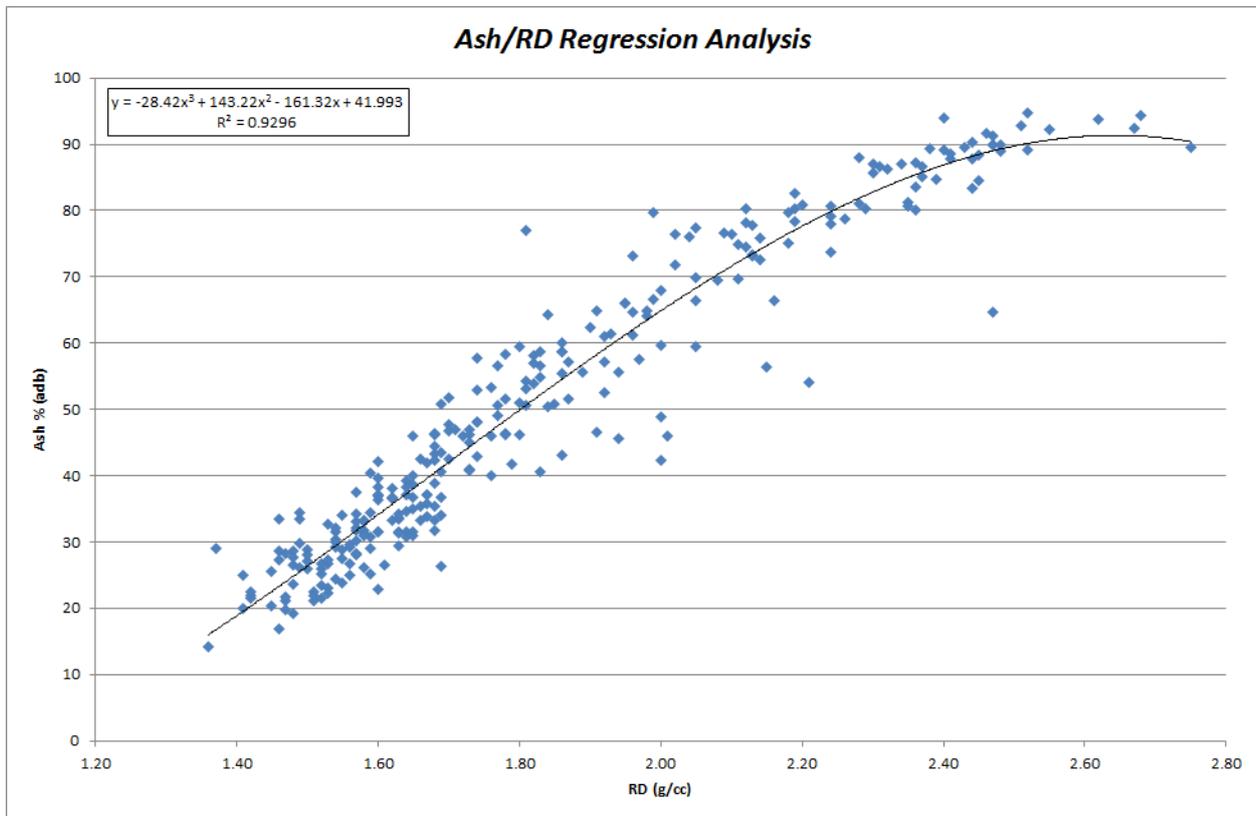


Figure 13: Ash vs density plot

Coal quality samples were checked to establish which samples cover less than 90% or greater than 100% of the ply interval. Samples that fall into these categories were excluded from the coal quality model as they were determined not to be representative of the interval. Coal quality data was then composited against their respective ply intervals and reviewed for anomalous values. The review found that five samples should be excluded from the coal quality model, three samples due to insufficient ply interval coverage, one sample included an excessive amount of overburden material and the results from one other sample did not support the associated lithological or geophysical information.

Table 10 shows a breakdown of the sample and ply interval correlations. Values highlighted in red have a sample excluded from the model for that ply.



Table 10: Coal quality sample/ply interval correlation

Seam	Count	>100%	100%	>90%	>75%	>50%	<50%	Comment
A	7		7					
AL	8		8					
AM	9	1	8					Exclude borehole RGDDH002 from model. Suspect coal quality values.
AU	11		11					Exclude borehole RGDDH002 from model. Suspect coal quality values.
BL	17		16			1		Borehole W25 excluded from model. Sample covers <75% of interval.
BM	25		24	1				
BML	1		1					
BU	15		15					
C	4		4					
CL	12		12					
CM	8		7				1	Borehole RGDDH005A excluded from model. Sample covers <50% of interval.
CU	8		7				1	Borehole RGDDH004 excluded from model. Sample covers <50% of interval.
DL	4		3	1				
DT	4		4					
DU	4		4					

For coal quality data to be determined sufficient for use in the coal quality model, a minimum of three data points were required. This is due to the fact that a minimum of three data points are required to facilitate triangulation and to develop a spatial trend for coal quality model extents. Table 14 identifies those seams/plies with three or more samples and the average coal quality values for each ply interval.

8.0 COAL RESOURCE ESTIMATION

8.1 Geological interpretation and seam correlations

Local geology interpretations have been undertaken by a variety of geological consultants, including Marston in 2011. Their interpretations were built on historical interpretations and have honoured the logic that was applied throughout the project’s life. That is, the WRA consists of four main seams (A, B, C and D) each of which are split into upper, middle and lower plies. Information used to undertake the interpretation is derived from borehole data that has been logged by geologists and where applicable, analysed at a NATA certified laboratory.

Based on the information supplied to Golder, the work undertaken to this point has been conducted in line with industry best practice and is considered appropriate for both geological modelling and resource estimation. It should be noted that in areas of limited data, more drilling and subsequent review of the relevant seam/ply correlations will be required to further increase the confidence of the geological model.

While reviewing the 2014 correlations, some 2013 correlations were re-interpreted. In most cases the change is minor and constitutes a move from one ply to another. In WDC138 a 0.2 m ply coded as BU was removed as the almost 20 m separation between the 2013 BU and BM was not supported by surrounding drilling.

In boreholes WDC138 and WDC 140 significant changes were required after detailed correlation using geophysics in nearby boreholes and the interpretation of two new faults occurred.

Table 11 details the correlation changes made from the 2013 to the 2014 geological model.



Table 11: Correlation changes from 2013 to 2014 geological model

Borehole ID	From	To	Old Ply Code	New Ply Code
RGDDH007	69.09	69.55	AM	AL
RGDDH008	69.48	70.07	AM	AL
RGDDH011	19.06	19.98	BM	BU
RGDDH015	65.84	66.34	AM	AL
RGRDH001	64.01	64.29	AM	AL
RGRDH008	11.86	12.13	BM	BU
RGRDH009	67.03	67.73	AM	AL
W13	73.5	74.4	C	CM
W47	43.92	44.9	CML	CM
WDC108	12.5	13	BU	CL
WDC138	36	36.2	BU	Removed
WDC140	17.8	18.2	DT	BU
WDC140	21.6	23.47	D	BML
WDC140	42.58	45.08	CU	AU
WDC140	45.8	46.32	CM	AM
WDC140	46.8	47.1	CL	AL

8.2 Geostatistical evaluation for Coal Resource classification

8.2.1 Exploratory data analysis

The borehole coverage and spacing for Woodbury is shown in Figure 8. The WRA is triangular, defined on all sides by faults and is flanked by dolerite to the south. Geostatistics were carried out to define continuity in both coal quality (CQ) and structure thickness (ST) for consideration during Resource classification. For the geostatistical evaluation, only data within the WRA and outside the dolerite mask was used. In addition only boreholes validated and selected for modelling were used (Section 7.2).

Structure thickness (ST) is the thickness or length down a vertical borehole from the first observation of a discrete seam intersection to the last intersection. In particular cases this may include non-coal material that forms part of a nominated seam. ST is different to thickness (TK) which only includes seam coded intervals for a nominated seam and does not include non-coded seam parting (PT). By its very nature given this description, $ST = TK + PT$.

Statistics by seam split of ST are shown in Table 12 and by seam grouping in Table 13. This includes all borehole intersections, not only those with CQ data. Seam splits BL, BM, BU, CL, CM, CU, AU and AL contain a reasonable amount of data (i.e. 15 intersections or greater), all other splits are insufficient for robust statistics. Figure 14 shows box plots of seam thickness by seam grouping. Both the B and C seams show a higher mean and variance in the cumulative seam thickness statistics; this may be influenced by the large interburden units between the upper and middle seam splits in some boreholes. It was considered that it may be more appropriate to do semi-cumulative statistics and variograms for the B and C seams, i.e. BML and BU for the B seam and CML and CU for the C seam. However, there was insufficient data for BU and CU to generate robust variograms. Therefore statistics and variograms were calculated on full seam accumulations.



Table 12: Univariate statistics of ST by seam split

Seam Split	Number	Min	Max	Mean	Var	COV
DT	6	0.16	0.91	0.53	0.07	0.50
D	7	0.80	3.90	2.40	1.06	0.43
DU	7	0.22	0.69	0.48	0.03	0.33
DL	8	0.38	1.42	0.86	0.12	0.40
C	10	0.60	2.66	1.24	0.33	0.46
CU	20	0.11	2.00	0.72	0.24	0.68
CML	1	1.58	1.58	1.58	NA	NA
CM	16	0.23	1.38	0.81	0.13	0.44
CL	26	0.29	1.92	0.75	0.17	0.55
BU	31	0.10	1.53	0.64	0.09	0.48
BML	4	0.67	1.87	1.05	0.30	0.52
BM	46	0.13	2.77	0.76	0.18	0.55
BL	30	0.12	1.88	0.59	0.16	0.67
A	12	0.11	1.00	0.64	0.08	0.44
AU	16	0.16	2.50	0.78	0.37	0.78
AM	8	0.19	0.52	0.35	0.01	0.31
AL	16	0.07	0.92	0.44	0.09	0.67

Table 13: Univariate statistics of ST by seam accumulations

Seam Group	Number	Missing	Min	Max	Mean	Var	COV
D	15	0	0.80	3.90	2.27	0.78	0.39
C	40	0	0.48	13.92	3.87	11.81	0.89
B	58	0	0.10	12.30	3.51	9.86	0.90
A	28	0	0.11	4.92	1.59	1.46	0.76

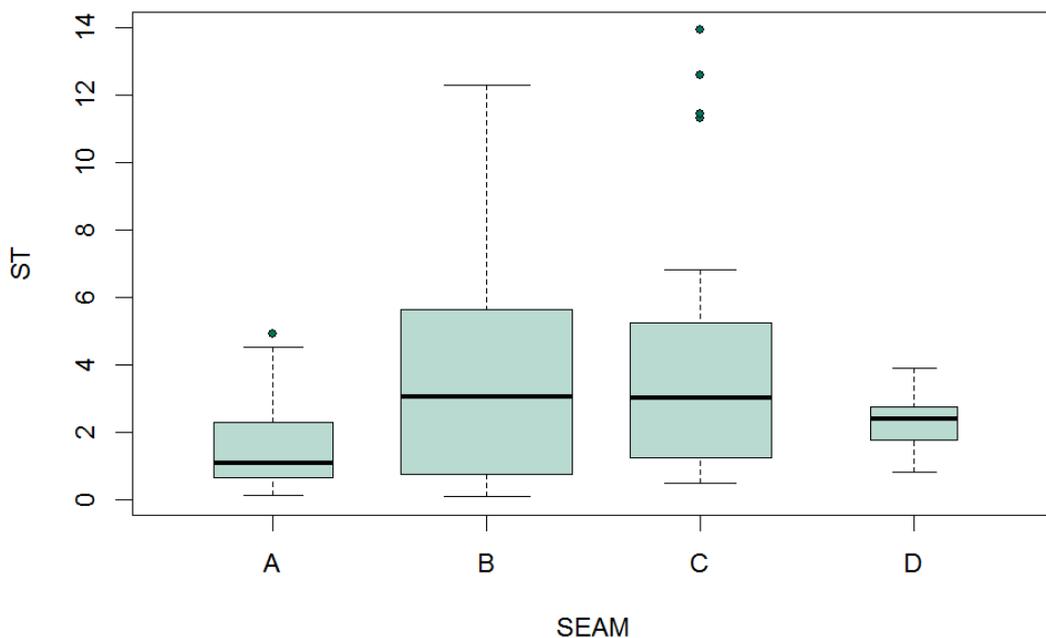


Figure 14: Box plot of ST by seam accumulations



Coal quality data was composited against respective ply intervals and statistics were reviewed for distribution characteristics.

Statistics calculated for the CQ data by seam split show low sample counts in most splits (Table 14). Table 15 presents the minimum and maximum values for each CQ variable by seam split. For meaningful statistics to be calculated, a generally accepted rule of thumb is that there should be at least 15 samples in the dataset. Ideally each split would have a sufficient data set to be considered separately. Only one split possesses greater than 15 samples. For spatial statistics such as variography, generally a larger dataset is required, with coverage across the entire study area. Figure 18 and Figure 20 show much of the data selected for use in the geostatistical evaluation is contained within two north-south oriented lines of drilling. Each line contains boreholes with approximately 200 m spacing. Drill coverage to the northwest and northeast portions of the WRA is limited. Borehole coverage is more consistent in the southern portion of the WRA. The result of this consideration was that Coal Resources were not estimated from POO situated in a linear chain unless supported by POO located in the up and down dip direction and no Measured Coal Resources were estimated or reported.

Statistics were therefore calculated for seam groupings to increase the sample counts per data set and provide sufficient data. These statistics are presented in Table 16 and as box plots in Figure 15.

The B, C and D seams show similar mean AS and CV values. The A seam has a slightly lower mean raw AS and higher CV. However, the A and C seams have slightly higher variances than the B and D seams.

The A and B seams have similar moisture content to each other. C seam has a similar range and variance but higher average inherent moisture (IM).

RD and TS is reasonably consistent for all seams with a low variance. The coefficient of variation (COV) is below one for all seams and variables. The COV is the dispersion variance normalised to the mean. In domain definition for resource modelling, a COV of one or below is often considered to represent a data set with a sufficiently low variance that it can be considered consistent.



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Table 14: Average composited coal quality by seam split

Seam Split	TM % (arb)		IM % (adb)		AS % (adb)		FC % (adb)		TS % (adb)		VM % (adb)		RD g/cc (adb)		CV MJ/kg (adb)	
	Ave	Count	Ave	Count	Ave	Count										
DT	8.4	3	6.5	4	47.6	4	15.5	2	0.1	2	9.9	2	1.72	4	14.0	4
DU	6.1	3	4.7	4	30.9	4	20.5	2	0.2	2	8.6	2	1.52	4	21.8	4
DL	6.7	3	5.3	4	40.8	4	13.4	2	0.1	1	6.8	2	1.61	4	14.9	3
C	6.7	4	5.4	4	39.9	4	21.2	2	0.2	2	8.2	2	1.67	4	17.6	4
CU	6.9	3	4.3	7	47.8	7	35.0	6	0.2	5	12.6	6	1.76	7	13.6	6
CM	6.7	3	5.1	7	41.5	7	32.7	5	0.3	4	12.7	5	1.66	7	17.7	6
CL	6.0	6	4.8	12	38.6	12	35.0	10	0.3	9	12.7	10	1.71	12	18.1	11
BU	5.5	10	4.2	14	42.8	14	41.0	14	0.4	13	12.1	14	1.68	14	17.6	14
BML	6.0	1	4.4	1	40.9	1	46.6	1	0.2	1	8.1	1	1.71	1	21.0	1
BM	5.3	16	4.1	22	43.6	22	26.8	19	0.2	17	9.1	19	1.70	22	17.2	20
BL	6.1	10	4.7	13	47.7	13	30.0	12	0.3	10	10.8	12	1.72	13	14.5	11
A	4.2	6	3.3	7	30.7	7	51.8	7	0.3	6	14.1	7	1.60	7	22.0	6
AU	5.8	6	4.2	9	29.8	9	43.0	6	0.3	6	13.5	6	1.61	9	21.8	9
AM	6.3	4	5.0	6	42.9	6	20.5	3	0.2	3	4.0	3	1.82	6	16.7	6
AL	4.7	4	3.2	8	26.1	8	52.3	6	0.3	5	16.1	6	1.56	8	23.6	7



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Table 15: Minimum and maximum composited coal quality by seam split (for above sample counts)

Seam Split	TM % (arb)		IM % (adb)		AS % (adb)		FC % (adb)		TS % (adb)		VM % (adb)		RD g/cc (adb)		CV MJ/kg (adb)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
DT	6.1	10.0	4.9	8.5	41.2	58.7	18.0	30.2	0.1	0.3	14.8	17.3	1.63	1.84	8.0	17.6
DU	5.3	7.9	3.8	6.4	20.4	46.9	47.5	55.4	0.6	0.6	19.7	21.9	1.44	1.69	15.2	25.8
DL	5.5	9.5	4.4	6.9	34.3	54.5	24.5	40.4	0.4	0.4	14.1	18.4	1.53	1.70	18.2	20.4
C	3.5	8.1	2.6	6.6	26.0	48.0	34.4	48.3	0.3	0.5	12.0	20.0	1.49	1.86	14.2	22.8
CU	2.5	12.6	1.7	7.3	22.7	74.7	16.5	49.0	0.1	0.5	3.9	24.7	1.50	2.08	7.6	23.5
CM	4.7	11.1	3.4	8.1	28.3	72.5	7.7	49.6	0.4	0.5	12.3	18.4	1.57	1.86	10.1	25.3
CL	3.4	9.8	2.5	6.5	28.4	55.2	30.8	51.8	0.2	0.5	11.2	22.3	1.47	2.43	12.6	22.9
BU	3.6	10.5	2.1	7.8	28.0	89.7	3.9	57.2	0.2	1.2	4.3	19.0	1.53	2.10	7.8	24.1
BML	6.0	6.0	4.4	4.4	40.9	40.9	46.6	46.6	0.2	0.2	8.1	8.1	1.71	1.71	21.0	21.0
BM	2.6	10.3	1.8	7.5	27.4	87.9	3.9	54.8	0.0	1.6	4.8	19.9	1.48	2.10	8.8	23.3
BL	3.0	10.7	2.2	7.9	30.1	79.4	10.5	55.0	0.2	0.7	5.7	19.1	1.48	1.96	9.0	22.1
A	1.6	5.6	2.1	3.8	25.1	65.5	26.7	56.1	0.2	0.4	5.2	18.8	1.56	1.82	15.6	23.9
AU	4.3	10.0	2.6	8.3	20.4	52.5	41.3	57.2	0.3	0.6	6.1	23.4	1.49	1.90	12.9	25.6
AM	4.1	9.8	2.4	8.1	28.3	56.4	46.6	55.9	0.3	0.8	6.1	18.6	1.56	2.12	11.3	23.1
AL	3.9	6.3	2.6	4.2	20.6	59.4	50.8	64.7	0.3	0.4	9.9	24.3	1.45	2.03	10.1	26.0



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Table 16: Univariate statistics of raw coal quality data by seam

Seam Group	Raw Coal Quality Variable	Number	Min	Max	Mean	Var	COV
D	AS % (adb)	12	20.4	58.7	39.76	131.90	0.29
	CV MJ/kg (adb)	12	7.99	25.77	18.34	25.03	0.27
	FC % (adb)	6	18	55.4	36.01	203.62	0.40
	IM % (adb)	12	3.8	8.5	5.52	1.89	0.25
	RD % (adb)	12	1.45	1.86	1.62	0.02	0.08
	RD calculated* % (adb)	12	1.45	1.86	1.64	0.02	0.08
	TM % (arb)	9	5.3	9.97	6.65	2.27	0.23
	TS % (adb)	6	0.09	0.61	0.38	0.05	0.56
	VM % (adb)	6	14.1	21.9	17.70	8.73	0.17
C	AS % (adb)	30	22.72	74.69	42.75	215.66	0.34
	CV MJ/kg (adb)	27	7.62	25.33	18.06	25.47	0.28
	FC % (adb)	23	7.7	51.8	38.54	139.54	0.31
	IM % (adb)	30	1.7	8.08	4.67	2.91	0.37
	RD % (adb)	27	1.48	2.46	1.72	0.05	0.13
	RD calculated* % (adb)	30	1.48	2.46	1.75	0.05	0.13
	TM % (arb)	16	2.51	9.76	6.12	3.64	0.31
	TS % (adb)	20	0.09	0.53	0.35	0.01	0.33
	VM % (adb)	23	3.9	24.68	14.63	23.47	0.33
B	AS % (adb)	50	27.4	77.2	42.76	106.73	0.24
	CV MJ/kg (adb)	46	7.78	24.12	18.12	12.72	0.20
	FC % (adb)	46	13.2	57.2	39.73	112.00	0.27
	IM % (adb)	50	1.8	7.9	4.29	2.39	0.36
	RD % (adb)	46	1.49	2.01	1.69	0.02	0.07
	RD calculated* % (adb)	50	1.49	2.19	1.72	0.02	0.08
	TM % (arb)	37	2.57	10.54	5.38	3.51	0.35
	TS % (adb)	41	0.01	1.62	0.38	0.08	0.72
	VM % (adb)	46	4.8	19.9	12.57	19.70	0.35
A	AS % (adb)	30	20.38	79.4	37.55	234.90	0.41
	CV MJ/kg (adb)	28	10.07	25.95	20.14	24.13	0.24
	FC % (adb)	22	10.5	64.7	49.57	144.97	0.24
	IM % (adb)	30	2.1	8.3	3.92	2.44	0.40
	RD % (adb)	28	1.47	2.15	1.69	0.03	0.11
	RD calculated* % (adb)	30	1.47	2.23	1.72	0.04	0.12
	TM % (arb)	20	1.56	10.01	5.58	4.22	0.37
	TS % (adb)	20	0.19	0.79	0.37	0.02	0.34
	VM % (adb)	22	5.2	24.34	13.26	32.70	0.43



Figure 16 shows a correlation matrix for all data combined. This contains scatter plots of the CQ variables on the lower left side and corresponding correlation coefficients on the upper right side, along the diagonal are histograms of each variable. AS, CV, FC and RD all have strong correlations with correlation coefficients of 0.80 or above.

The scatter plots between VM with AS, FC, CV and IM shown in Figure 16 show a wide scatter and two possible populations. This plot was for all data together, similar plots were generated for each seam separately. This indicated that only B seam contains the two separate populations (Figure 17). The upper population when highlighted (blue) on a sample location map Figure 17 (top right) is to the northwest. This population mostly contains higher VM and IM and lower FC samples, (Figure 17).

Golder concluded there is insufficient data to establish if there is a separate domain, i.e. north and south limb of fold, or fault block related or if we need to treat the splits separately. Therefore the B seam was modelled as one domain; however there is lower confidence as a result. More CQ data is required to better define the domains present.

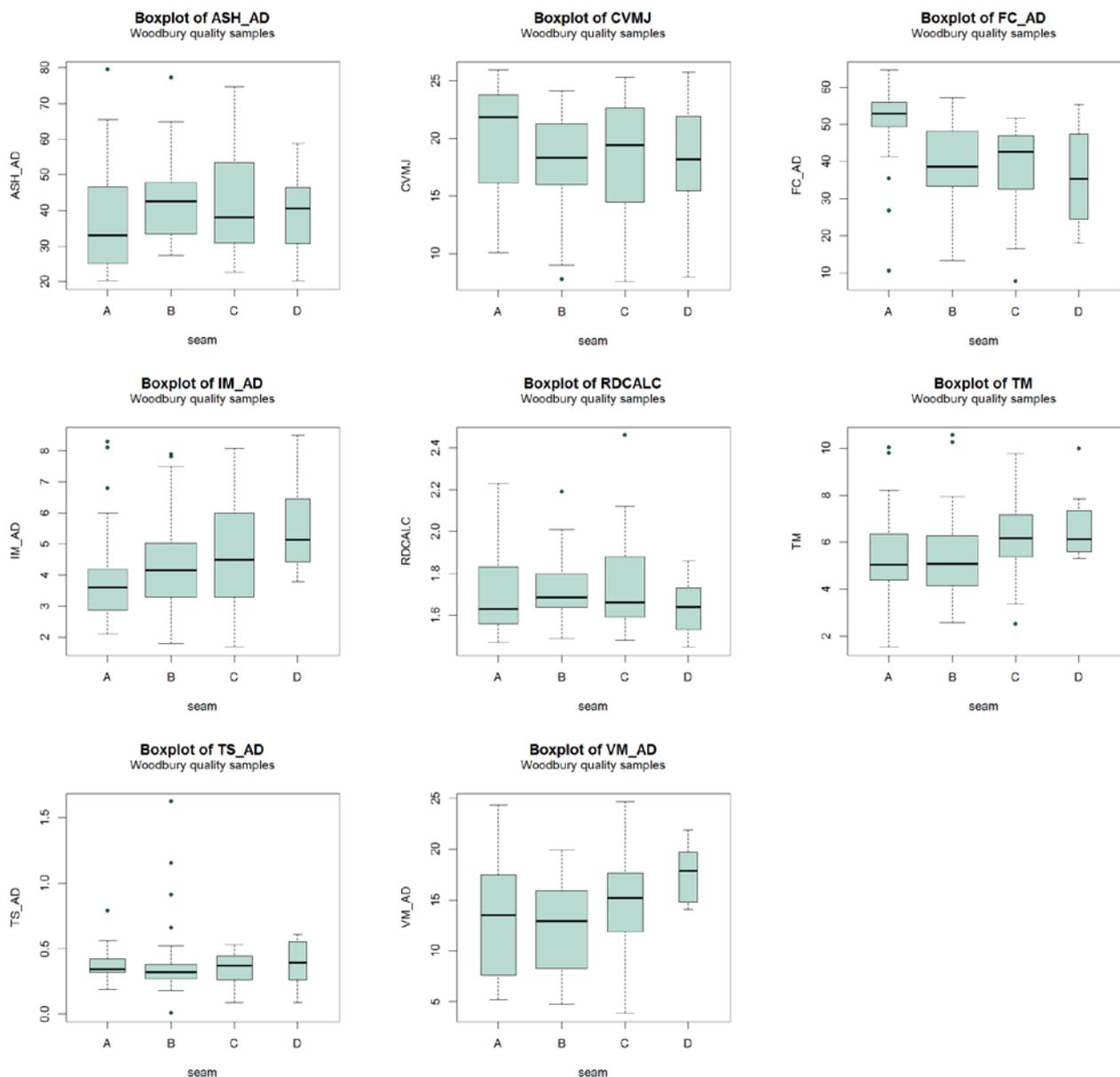


Figure 15: Boxplots for coal quality per seam



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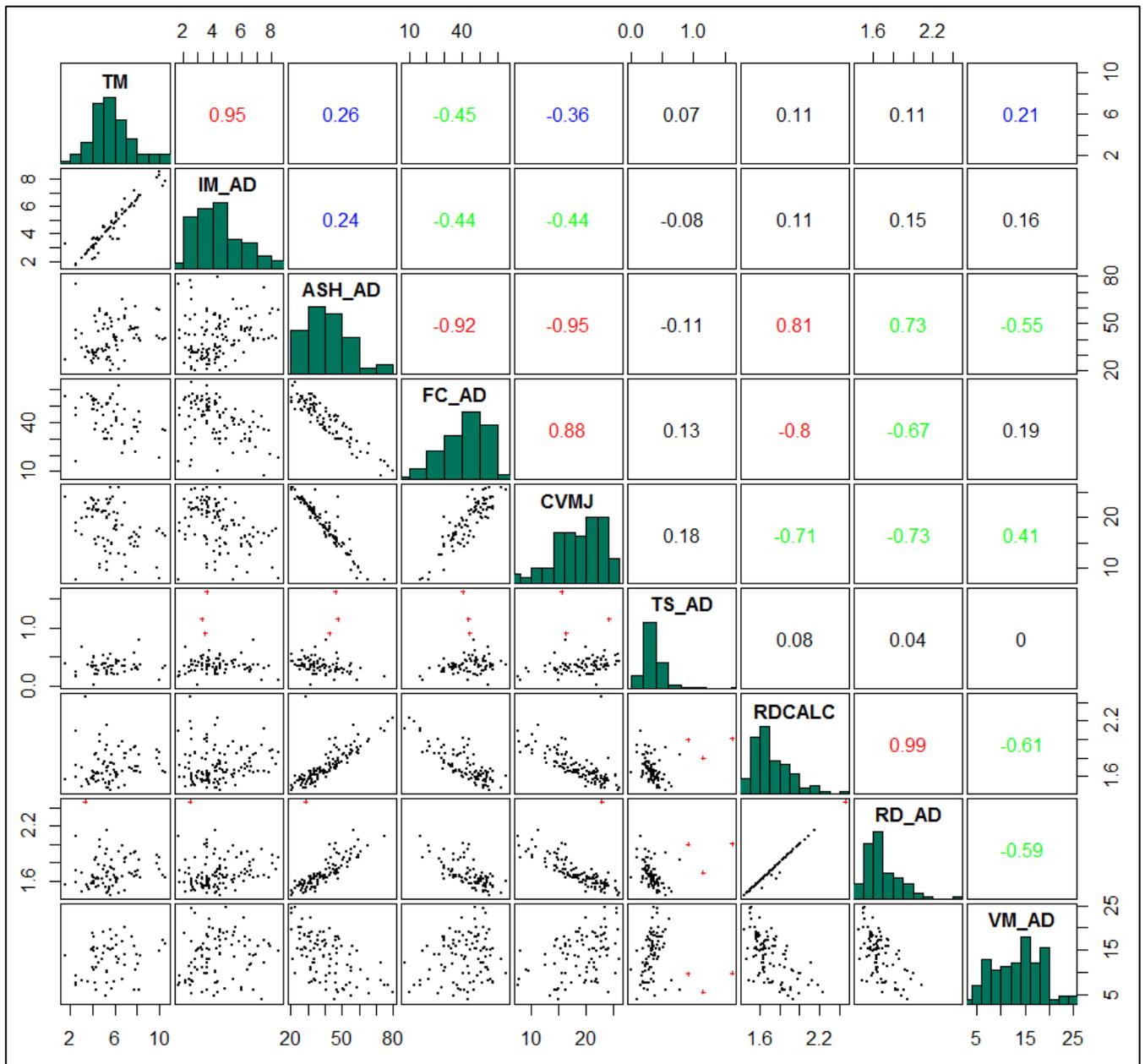


Figure 16: Correlation matrix for all raw CQ data



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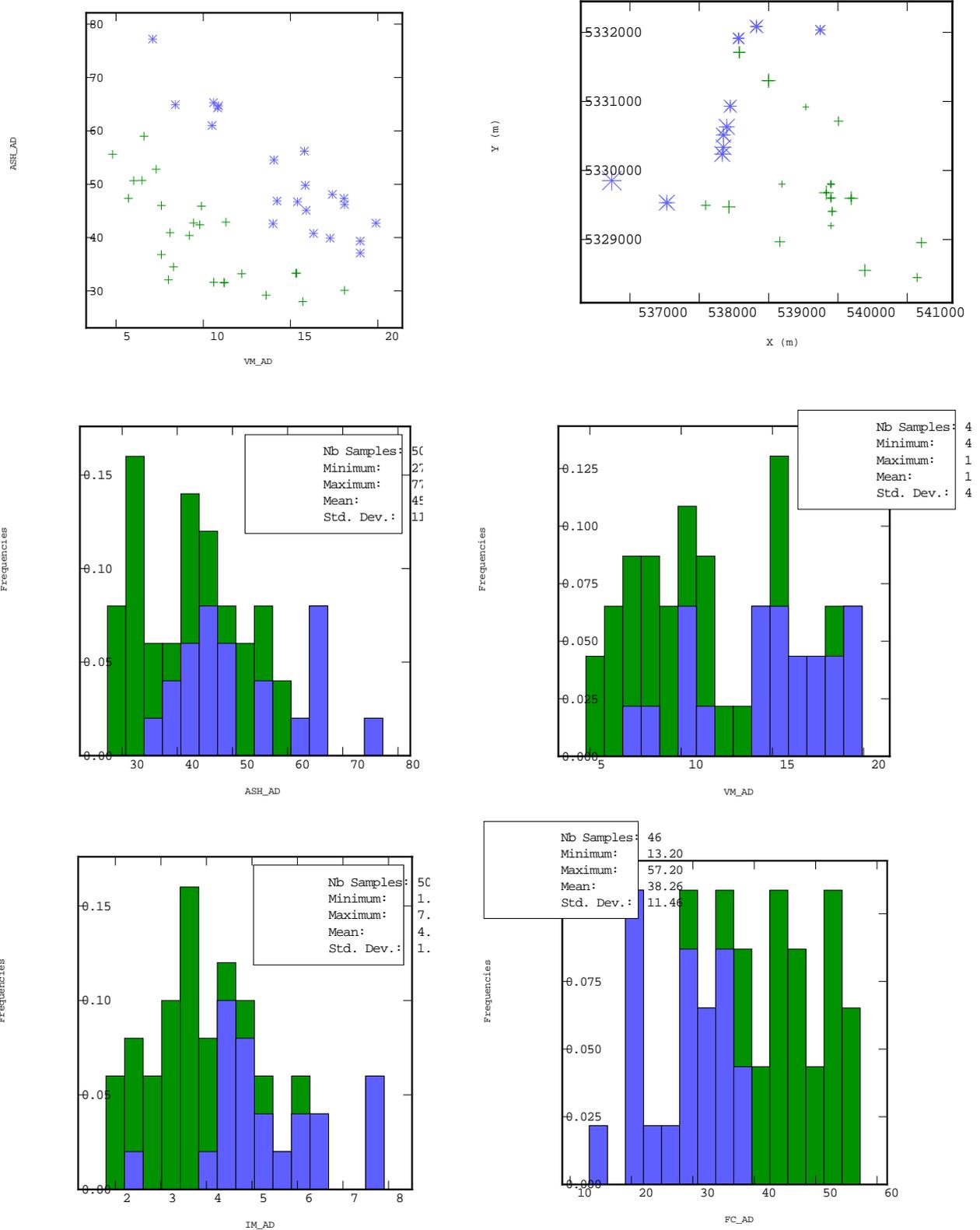


Figure 17: Scatter plot (top left), location base map (top right) and histograms (middle and bottom) for B Seam. Blue shows highlighted upper population on all plots



8.2.2 Variography

Variography was carried out on both seam thickness and key CQ parameters, where data was sufficient. This enabled a quantification of continuity per seam, for consideration when assigning confidence categories to Resources. There was insufficient data to carry out directional variography. Omni-directional experimental semi-variograms (variograms) were generated for each seam for ST and for AS, CV and RD for B seam only. The A, C and D seams possessed insufficient spatial coverage of data to carry out variography on CQ variables.

Lag distances used to calculate variograms were varied per domain to suit the highly variable data spacing. There are two lines of 100 – 200 m spaced boreholes and then a broader spaced dataset, mostly in the south, of 250 m – 1,000 m spaced holes. Figure 18 and Figure 20 show the coverage and spacing of the data used for seam thickness and coal quality.

The resulting variograms and fitted variogram models are shown in Figure 19 and Figure 21. The variogram models fitted are not intended for use in a kriged estimate. The final variogram model ranges represent the maximum limit of continuity for that variable and seam.

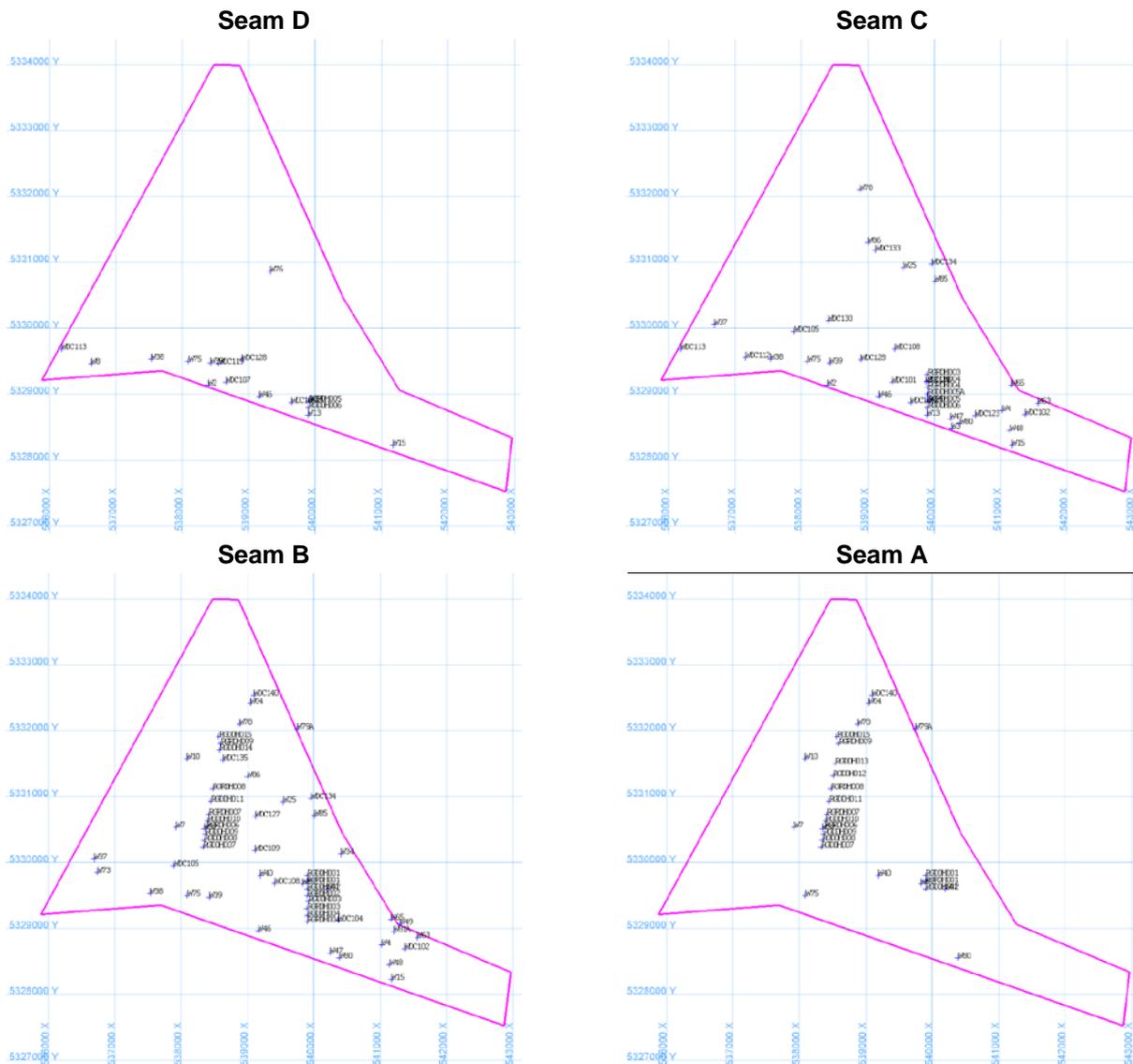


Figure 18: Data coverage for ST

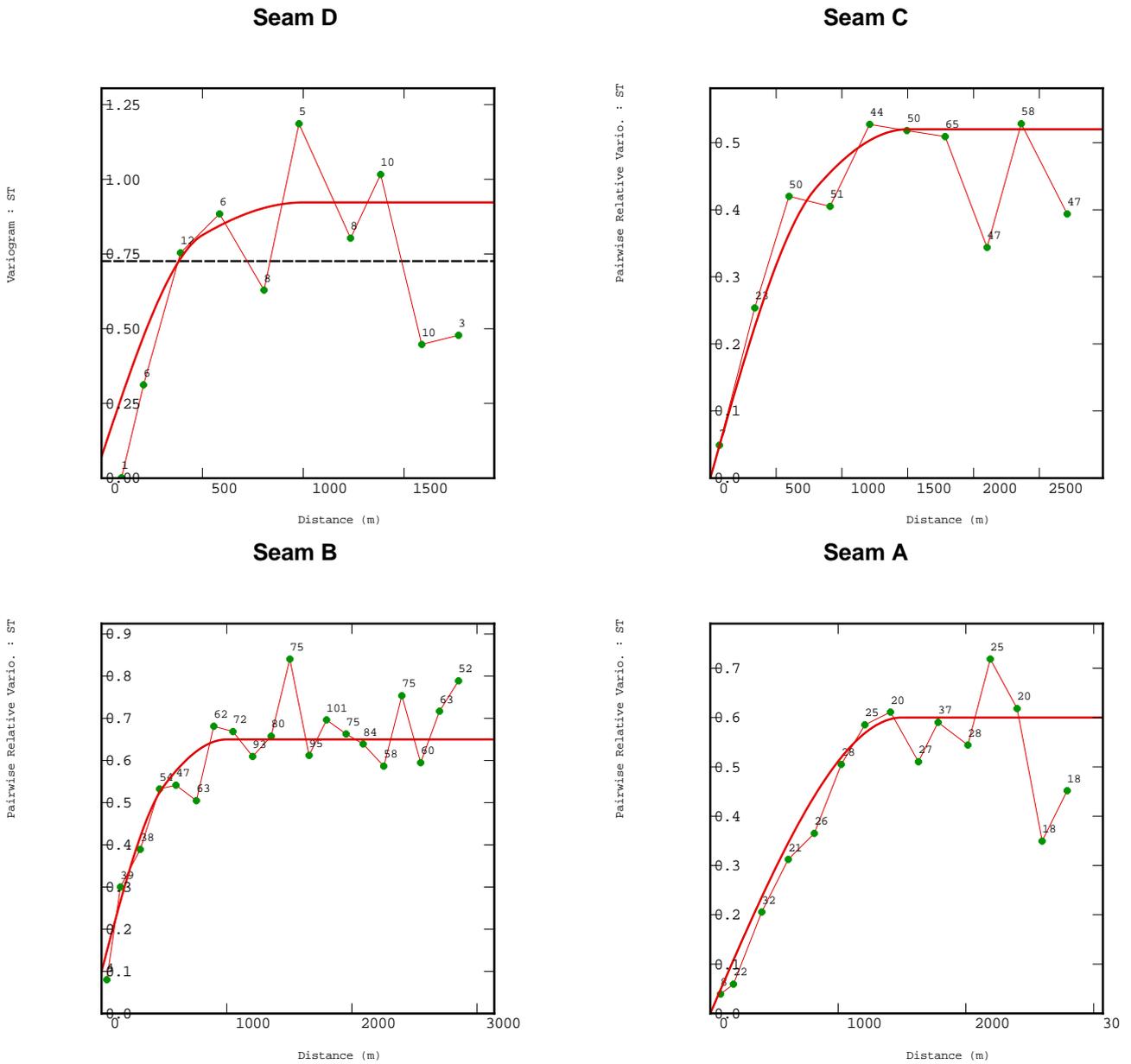


Figure 19: Variograms (thin red line) and variogram models (thicker red line) for ST by seam

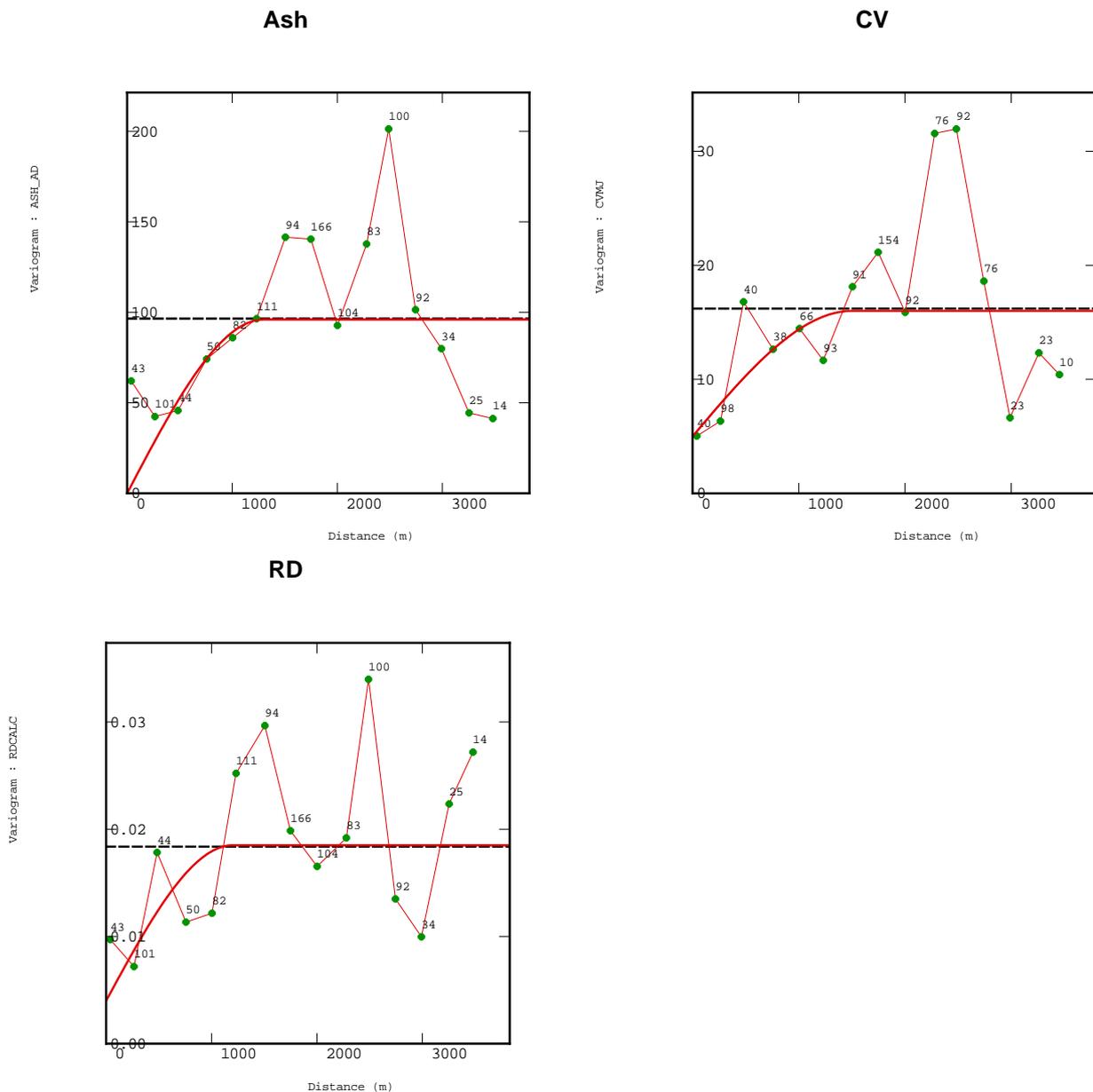


Figure 21: Variograms (thin red line and variogram models (thicker red line) for raw, CQ B seam

The ST histogram and base map for the A seam shows a possible multimodal distribution, with a thickening to the east. This reflects a seam split that is present in the east, but not in the west. The increase in ST to the east therefore represents interburden, as the coal thickness of the splits is fairly constant. Increased information from boreholes is required in this area to improve data coverage and variogram quality.

The number and coverage of data for the A seam is largely limited to a single line of drilling data. The seam splits towards the southeast, which may represent a separate domain. The variogram indicates a maximum range of continuity for ST of approximately 1,500 m. Continuity of CQ could not be confirmed through variography.

The B seam has the most data for ST and for CQ as well as a good spatial coverage of data, and therefore the variograms can be considered more reliable than for other seams. However, there appears to be two domains and more data is required to define the exact location of the domain boundary. The variograms indicate a maximum range of continuity for ST of approximately 1,000 m and CQ of approximately 1,200 m – 1,500 m. A distance of 1,000 m is considered appropriate for use as a “maximum continuity” for the B seam.



The number and coverage of data for the C seam is reasonable for ST, but poor for CQ. The variogram indicates a maximum range of continuity for ST of approximately 1,000 m. Continuity of CQ could not be confirmed through variography.

The number and coverage of data for the D seam is very limited for both ST and CQ. The variogram indicates a maximum range of continuity for ST of approximately 1,000 m. Continuity of CQ could not be confirmed through variography.

8.3 Geological modelling process

8.3.1 Software utilised

Golder updated the Woodbury geological model which had been created earlier in 2013. This earlier model was developed using MineScape™ (version 5.7), with the update of the structural and coal quality models using the same version.

8.3.2 Overview

The updated model, named “woodbury_1412”, was used to evaluate the structure and coal quality for the resource estimate. The model was constructed using Ventyx’s MineScape™ software, version 5.7, utilising the Stratmodel module. Lithology data and borehole coordinates were provided by Midland Energy. Additional data was obtained from historical reports available from the Mineral Resources Tasmania (MRT).

The model was created using the MineScape™ Finite Element Method (FEM) interpolator to interpolate known data points (borehole data) onto a grid. For each data point, a bilinear equation can be set up to express the known value at the data point to the unknown values of the four surrounding nodes.

Five fault structures are incorporated into the current model. Three of these faults were based on digitized fault traces originated from available geological data and maps created in 2008. From this information the faults were assigned a dip of 90° and throws ranging from approximately 10 m to 100 m. An additional two faults were interpreted into the current geological model during structural correlation to account for 30 m variations in seam elevation over 300 m of lateral distance. These structures have been interpreted as a graben in the north of the WRA. Dolerite intrusions have been identified primarily in the southern extent of the EL from regional geology maps and borehole data. Boreholes that have been drilled within the dolerite extents identify the dolerite as an intrusion rather than a surface flow. Boreholes drilled in 2014 (W77, W78 and W82) proved that coal is present underneath the 2013 models two small exclusion zones in the centre of the deposit. Two exclusion zones have been removed in the current geological model.

The resource area that was delineated by MEGMS in the initial geological model was based on the three major fault structures surrounding the deposit and Marston subsequently applied the same limits in its model. Golder has again used this same resource area in this model to estimate coal tonnage due to the lack of data outside the area. A slight adjustment was made where boreholes W79 and W79A showed structural continuity with the downthrown block (west side) of the fault. As such, the fault line was moved east to allow this borehole to fall inside the boundary of the WRA.

8.3.3 Topography

Topographic data was initially provided to Marston by ResGen in DXF format. The relative accuracy of the topographic contours supplied could not be confirmed, however, upon completion of a validation routine comparing collar elevation to topographic surface level, Golder confirmed the accuracy of the topographic surface. The modelled topographic grid was created using 5 m grid cell spacing. The data was provided in the GDA 1994 MGA Zone 55 coordinate system. Topographic data used to create the topographic grid in the geological model was originally sourced from Tasmania’s Department of Primary Industries and Water (DPIW), purchased on behalf of ResGen (Harvey 2008).

A comparison of collar elevations with the topographic surface identified a total of eight boreholes where the difference in elevation was greater than 2 m as discussed in Section 7.2. These boreholes were subsequently excluded from the geological model. The topography of the area is shown in Figure 8.



8.3.4 Base of weathering

A total of 61 intercepts for the base of weathering (logged as BOX) were recorded. The BOX was based on visual observations determined by the field geologist. These values were used to create a base of weathering grid model utilising the modelling routine described in Section 8.3.

The logged base of weathering depth to floor observations range from 1.0 m to 15.8 m with an average of 8.0 m.

8.3.5 Dolerite

High relief areas in the northeast and southeast of the WRA have previously not had resources estimated (dolerite masks have been utilised) due to the lack of boreholes drilled into the dolerite to test for coal continuity beneath these intrusive bodies. The 2014 exploration program tested and confirmed the presence of coal beneath the dolerite outcrop in the north of the WRA; hence, the dolerite masks were edited to remove this portion of the mask (Figure 22).

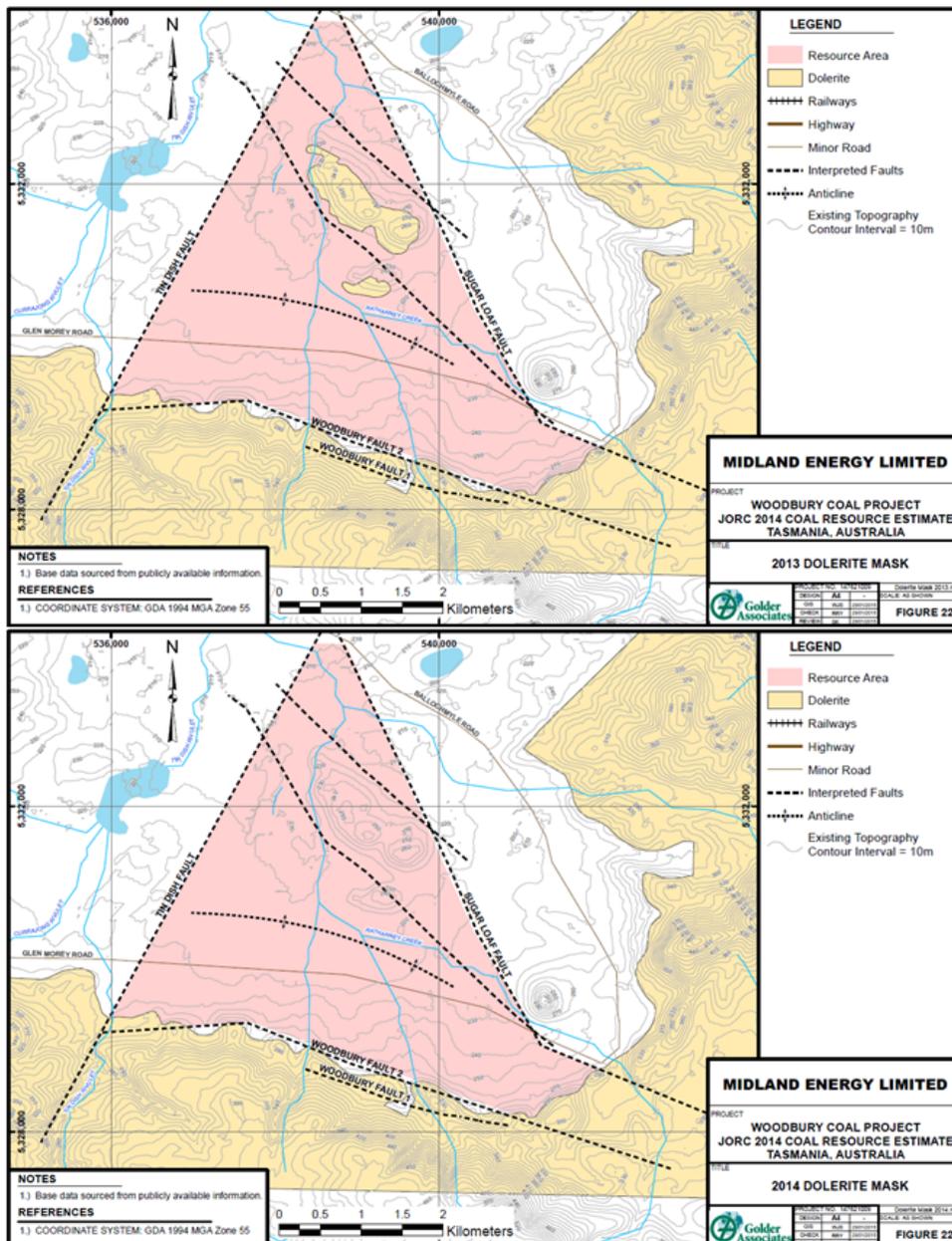


Figure 22: 2013 and 2014 dolerite masks



8.3.6 Geological structure models

Two data files were imported into MineScape to generate the structure model. One file contains borehole collar data and the other file contains borehole ply interval and base of weathering surface depths. The geological model splits the parent seams (A, BML, C and D) into daughter plies as shown in Figure 23 to provide consistent surfaces across the EL, which is useful for mine design purposes.

A further 13 pairs of collar and lithology data files were loaded into MineScape™. These layers were used to generate the structure model as it allowed simple incorporation or removal of the boreholes selected during validation. The layers names and their meanings are described in Table 7.

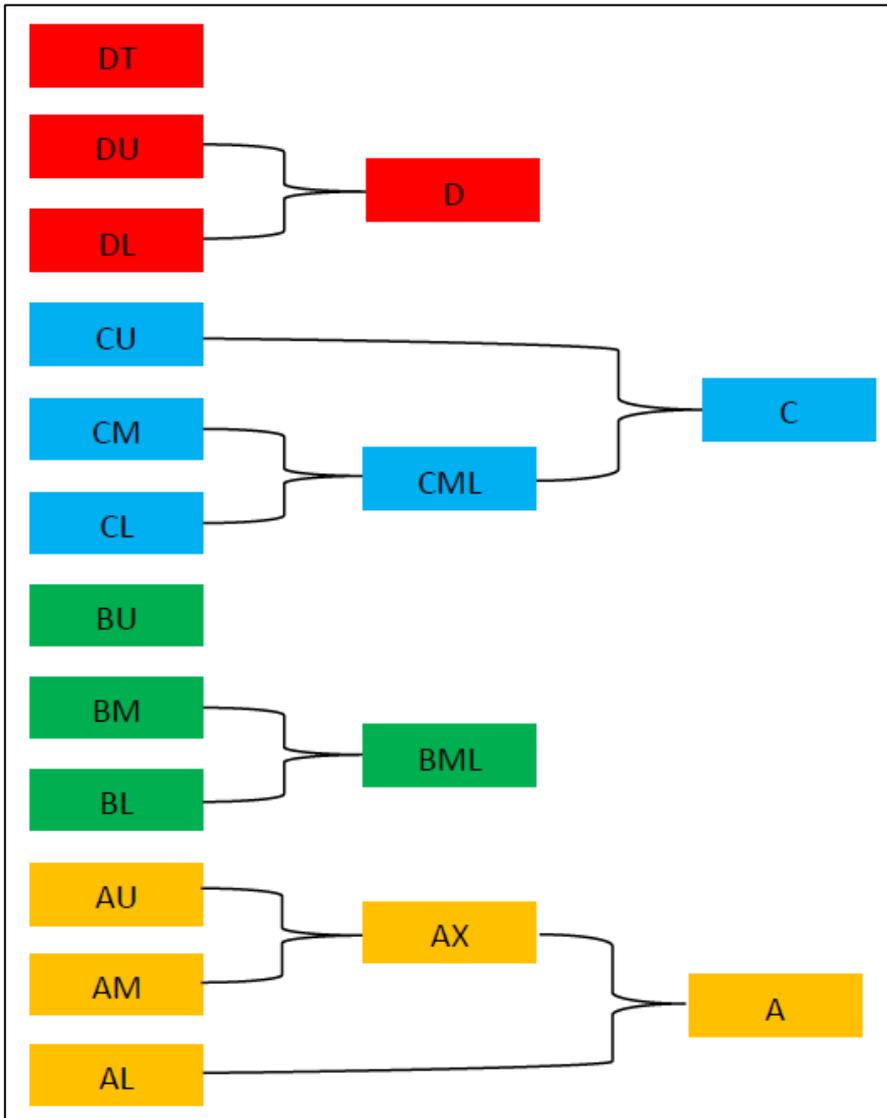


Figure 23: Woodbury MineScape™ geological model schema

*Note: AX is a dummy seam used to force the A seam to split into three (3) plies in MineScape™.

D Seam

The DT ply is positioned above the D seam as a rider. The D seam splits into the daughter plies DU and DL. The thickness ranges between 0.16 m where the plies split and a maximum thickness of 3.90 m where the seam coalesces. The thickness of overburden above the D seam ranges from 5 m to 53 m. Raw coal quality statistics presented are the average of the raw coal composites generated.



Table 17: D seam raw coal quality and thickness statistics

Variable	Seam/Ply			
	DT	D	DU	DL
Mean TM% (arb)	5.9	-	7.8	4.7
Mean IM% (adb)	5.3	-	6.5	4.7
Mean AS% (adb)	40.8	-	47.6	30.9
Mean FC% (adb)	31.8	-	25.6	50.3
Mean TS% (adb)	0.4	-	0.2	0.6
Mean VM% (adb)	16.1	-	16.3	21.1
Mean RD g/cc (adb)	1.65	-	1.74	1.54
Mean CV% (adb)	19.3	-	14.0	21.8
Minimum Thickness (m)	0.16	0.80	0.22	0.38
Maximum Thickness (m)	0.91	3.90	0.69	1.42
Average Thickness (m)	0.53	2.40	0.48	0.86

C Seam

The C seam splits into the daughter plies CU and CML which further splits into the CM and CL plies. The thickness ranges between 0.11 m where the plies split and a maximum thickness of 2.66 m where the C seam coalesces. The thickness of overburden above the C seam ranges from 2.7 m to 98 m. Raw coal quality statistics presented are the average of the raw coal composites generated.

Table 18: C seam raw coal quality and thickness statistics

Variable	Seam/Ply				
	C	CU	CML	CM	CL
Mean TM% (arb)	6.7	4.7	-	8.0	5.9
Mean IM% (adb)	5.4	4.3	-	5.1	4.8
Mean AS% (adb)	39.9	47.6	-	41.5	38.6
Mean FC% (adb)	41.2	35.4	-	41.7	39.8
Mean TS% (adb)	0.4	0.3	-	0.4	0.4
Mean VM% (adb)	15.9	13.9	-	16.2	14.8
Mean RD g/cc (adb)	1.68	1.82	-	1.70	1.73
Mean CV% (adb)	17.6	16.3	-	19.5	18.8
Minimum Thickness (m)	0.60	0.11	1.58	0.23	0.29
Maximum Thickness (m)	2.66	2.50	1.58	1.38	1.92
Average Thickness (m)	1.24	0.72	1.58	0.81	0.75

B Seam

The BU ply exists only as a unique ply and the BML ply splits into the daughter BM and BL plies. The thickness ranges between 0.1 m and a maximum thickness of 2.77 m for the BM ply. The thickness of overburden above the C seam ranges from 4.5 m to 135 m. Raw coal quality statistics presented are the average of the raw coal composites generated.



Table 19: B seam raw coal quality and thickness statistics

Variable	Seam/Ply			
	BU	BML	BM	BL
Mean TM% (arb)	5.6	6.0	5.1	5.9
Mean IM% (adb)	4.3	4.4	3.9	4.8
Mean AS% (adb)	41.3	40.9	42.3	45.4
Mean FC% (adb)	42.1	46.6	39.1	36.4
Mean TS% (adb)	0.5	0.2	0.3	0.4
Mean VM% (adb)	12.4	8.1	13.2	13.0
Mean RD g/cc (adb)	1.72	1.73	1.70	1.73
Mean CV% (adb)	18.9	21.0	17.7	16.3
Minimum Thickness (m)	0.10	0.67	0.13	0.12
Maximum Thickness (m)	1.53	1.87	2.77	1.88
Average Thickness (m)	0.64	1.05	0.76	0.59

A Seam

The A seam splits into the daughter plies AU, AM and AL. The thickness ranges between 0.1 m where the plies split and a maximum thickness of 1.2 m where the A seam coalesces. The thickness of overburden above the A seam ranges from 41 m to 183 m. Raw coal quality statistics presented are the average of the raw coal composites generated.

Table 20: A seam raw coal quality and thickness statistics

Variable	Seam/Ply			
	A	AU	AM	AL
Mean TM% (arb)	4.2	6.7	6.8	5.0
Mean IM% (adb)	3.3	4.2	5.0	3.4
Mean AS% (adb)	30.7	29.8	42.9	35.2
Mean FC% (adb)	51.8	53.0	49.9	47.6
Mean TS% (adb)	0.3	0.4	0.5	0.4
Mean VM% (adb)	14.1	16.6	9.7	15.1
Mean RD g/cc (adb)	1.62	1.62	1.84	1.68
Mean CV% (adb)	22.6	21.8	16.7	23.6
Minimum Thickness (m)	0.11	0.16	0.19	0.07
Maximum Thickness (m)	1.00	2.50	0.52	0.92
Average Thickness (m)	0.64	0.78	0.35	0.44

Please refer to Table 12 and Table 14 for seam thickness and coal quality statistics for each ply and Table 13 and Table 16 for seam thickness and coal quality statistics for each seam.

Plans depicting the Depth to Floor (DF) and Structure Floor (SF) are presented in APPENDIX A.

8.3.7 Coal quality models

The RD used in the modelling is an in situ density calculated using the Preston Sanders correction:

$$RD = ARD \times (100 - IM) / (100 + ARD \times (TM - IM) - TM)$$

Where:

ARD = Apparent Relative Density



IM = Inherent Moisture

TM = Total Moisture

In the absence of Moisture Holding Capacity (MHC) data Golder used TM (arb) as the in situ moisture. The TM (adb) is likely to be close to, but slightly different than the true in situ moisture but lacking an in situ moisture analysis the TM (arb) is still an acceptable value to use in the calculation and will give a more reliable RD than the air-dried RD that results from the AS 1038 analysis.

Base data checks were performed on the quality data by creating a histogram of the CV (adb) and conducting cross plots. Some outliers were found; however, they were not eliminated from the data set as the WRA is known to contain igneous intrusions which could have affected the CV (adb) and VM (adb) content. Such outliers would create multiple domains which likely may require separate modelling. Additionally, raw coal quality samples were checked using cross plots for any significant trending between data. The raw proximate data was calculated to check that it added up to 100% (AS + FC + IM + VM). The TM (arb) was calculated for all historic boreholes using a regression formula based on the TM (arb) versus IM (adb) regression analysis and scatter plot of the most recent data set. Scatter plot and regression analysis is shown in Figure 24.

i.e.

$$TM = 1.1592 \times IM + 0.6415$$

Where:

IM = Inherent Moisture

TM = Total Moisture

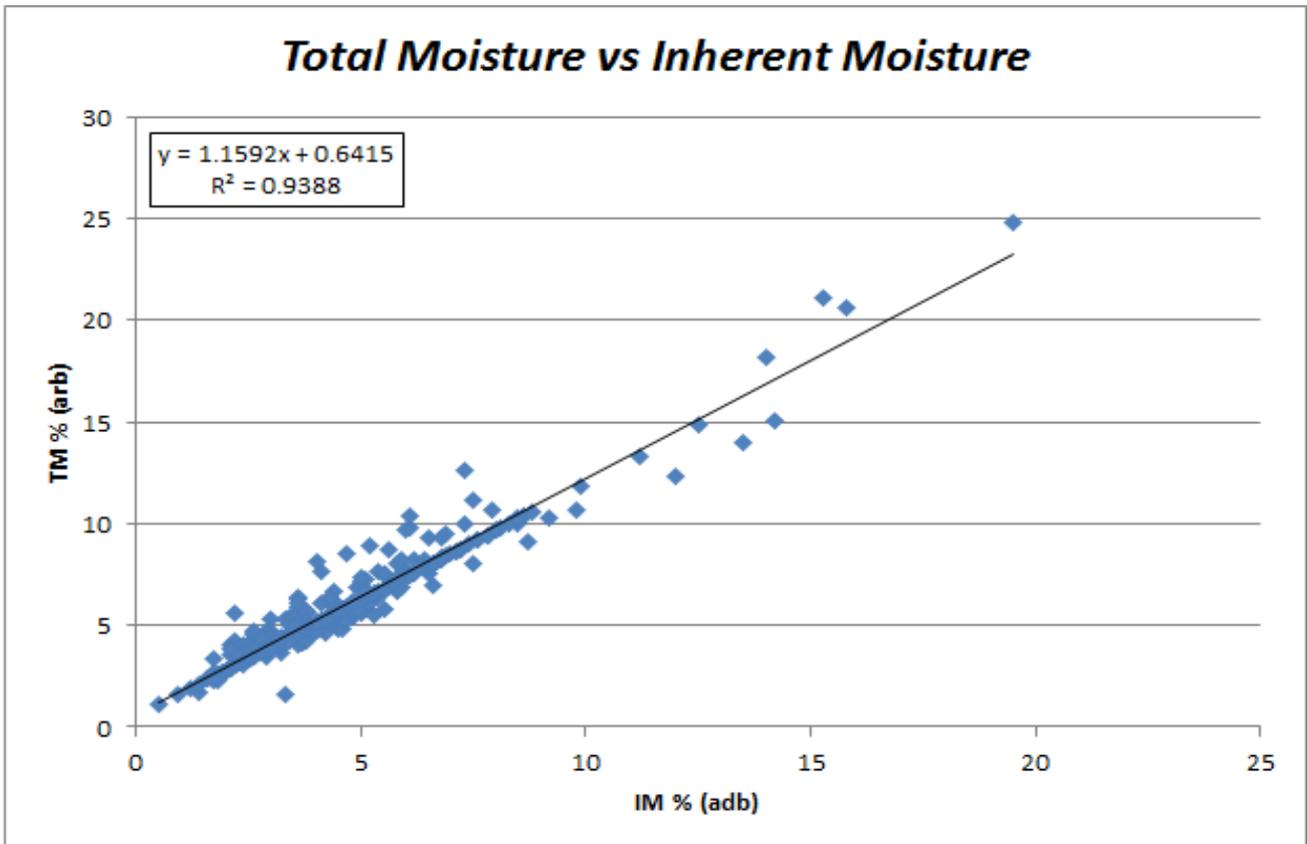


Figure 24: TM v IM plot



The quality data for each seam intercept was then composited and gridded using a modified inverse distance interpolator, to the power of 4 (height interpolator).

The height interpolator is a variant on the trend surface and inverse distance interpolators. Unlike the trend surface interpolator, the data points are weighted, thus producing a different plane at each sample point. By using a weighting curve that is infinite at zero distance, data honouring can be assured. Due to the least squares fit, the effect of data clustering is minimised. Four points trying to distort the plane on one side are only twice as important as one point on the other. As well as the search algorithm and the weighting curve, the order of the fit (least squares) and the order of the surface (plane, first order), can be changed to give a more appropriate modelling of the surface.

In extrapolation, the height interpolator tends to follow the last trend. Therefore, results outside the data limits are more prone to error than those within. The trending of the surface allows for values higher or lower than the data values. This is normally justifiable in datasets where the collecting of data was semi-random and the chances of the data containing the highest or lowest possible data values are slight. The height interpolator constructs a best fit plane through the data surrounding a sample point.

Ranges for model interpolation/extrapolation were determined from the maximum continuity as determined by modelling of semi-variograms (Section 8.2).

Plans depicting the AS content of each seam/ply are presented in APPENDIX B.

9.0 COAL RESOURCE REPORTING AND CLASSIFICATION

9.1 Basis of reporting and classification

Golder has generated and classified Coal Resources for the WRA in accordance with the JORC Code.

The D, C, B and A seams were reported based on overall seam thickness as well as midburden thickness and depth to be the seams most likely to be feasibly economically extracted in a surface mining scenario.

The basis of tonnage calculations from the modelled estimates of coal volumes on a per seam basis is the coal relative density (RD). As described previously (Section 8.3.7), the coal RD has been calculated from supplied apparent relative density (adb) and total moisture (arb) in accordance with the Preston-Sanders methodology, which is accepted as an industry standard. This calculated RD was then utilised in estimating Resource tonnage. The formula utilised is as follows:

$$RD = ARD * (100 - IM) / (100 + ARD * (TM - IM) - TM).$$

The assumption has been made that the estimated Coal Resources will be mined utilising surface mining extraction methods.

9.2 Classification of Coal Resources

9.2.1 Approach

Classification categories for the determination of Resources were based on the number and relative distance between nominated Points of Observation (POO). Figures presented in APPENDIX D provide Resource outlines for each seam/ply estimated in addition to the specific POO used for each seam/ply's classification.

POO were defined based on the following criteria:

- Sample derived from a cored borehole that has been surveyed or an open borehole that possesses wireline geophysics
- Lithological logs defining sample and /or roof and floor depth.

9.2.2 Classification criteria

The following criteria were used to generate polygons defining Coal Resource classification:



9.2.2.1 Measured Resources

No Measured Coal Resources were defined due to moderate levels of uncertainty surrounding the lack of detailed geological, mining and geotechnical data.

9.2.2.2 Indicated Resources

Indicated Coal Resources were defined using the following criteria:

- Cored borehole that had intersected the seam/ply and where the seam/ply had been sampled and raw coal quality data was available.
- Seam D – No Indicated Resources estimated.
- Seam C – No Indicated Resources estimated.
- Seam B – Distance between POO no more than 900 m and extrapolation of no more than 450 m from a POO.
- A 50 m buffer was incorporated in proximity of either a fault or dolerite.
- Minimum of three POO to define an area of influence.

9.2.2.3 Inferred Resources

Inferred Coal Resources were defined using the following criteria:

- Cored borehole that had intersected the seam/ply and where the seam/ply had been sampled and raw coal quality data was available plus open boreholes that had wireline geophysical logging data.
- Seam D – Distance between POO no more than 1,000 m and extrapolation of no more than 500 m from a POO.
- Seam C – Distance between POO no more than 1,500 m and extrapolation of no more than 750 m from a POO.
- Seam B – Distance between POO no more than 1,000 m and extrapolation of no more than 500 m from a POO.
- Seam A – Distance between POO no more than 1,500 m and extrapolation of no more than 750 m from a POO.
- A 50 m buffer was incorporated in proximity of either a fault or dolerite.
- Minimum of two POO to define an area of influence.

A completed JORC Code Table 1 is presented in APPENDIX C.

Plans depicting the JORC classification categories for each seam/ply are presented in APPENDIX D.

9.3 Coal Resource statement

Golder has prepared a Coal Resource estimate within the WRA of EL65/2007 that was reported in accordance with the JORC Code. The estimate was prepared with reference to the *“Australian Guidelines for Estimating and Reporting of Inventory Coal, Coal Resources and Coal Reserves”*. Accompanying the estimation is the JORC 2012 Table 1 *“Check List of Assessment and Reporting Criteria”*, presented in APPENDIX C and completed by Golder.

The regional and local geology, structure, coal quality and other factors have been described in the preceding sections of this report. The estimate was produced using the geological model “woodbury_1412” described in Section 8.3.



WOODBURY COAL PROJECT 2014 JORC COAL RESOURCE REPORT

The polygons used to estimate the resources are shown in APPENDIX D. The estimated in situ resource is shown below in Table 21. The total Coal Resource estimate is 34 Mt. The table shows that approximately 17% of the total estimated Coal Resource sits in the Indicated category and approximately 83% of the total Coal Resource sits in the Inferred category.

Table 14, Table 15 and Table 16 present summary statistics of the composited raw coal quality by seam split (average and minimum/maximum) and by seam respectively. These statistics should be taken into consideration, especially when considering Inferred Resources.

Table 21: December 2014 Woodbury JORC Coal Resource estimate

Seam/Ply	JORC Resources Category	Tonnes Mt	Raw Ash % (adb)	Calorific Value MJ/kg (adb)	Fixed Carbon % (adb)	Inherent Moisture % (adb)	Relative Density g/cc (adb)	Total Moisture% (arb)	Total Sulphur % (adb)	Volatile Matter % (adb)
BU	Indicated	1.5	42.9	20.1	41.2	3.9	1.70	5.3	0.5	11.9
BM		3.6	43.8	17.8	41.4	3.7	1.74	5.1	0.4	11.9
BL		0.7	43.6	18.4	43.0	4.3	1.68	5.6	0.3	9.8
Sub-Total	Indicated	5.8	43.6	18.4	41.5	3.8	1.72	5.2	0.4	11.7
DU	Inferred	0.3	31.2	21.6	51.2	4.8	1.54	6.2	0.6	20.9
DT		0.3	45.0	15.4	27.3	6.0	1.71	7.9	0.2	16.7
DL		0.9	40.1	19.3	32.1	5.2	1.62	6.5	0.4	16.2
C		1.7	36.3	19.1	43.2	5.0	1.62	6.2	0.4	17.1
CU		2.9	43.3	16.5	42.2	5.4	1.79	8.8	0.2	11.5
CM		2.7	42.2	18.8	41.0	5.2	1.69	6.8	0.4	16.0
CL		3.5	35.5	20.1	42.6	4.4	1.71	5.8	0.4	15.8
BU		1.2	45.3	19.3	38.8	4.5	1.71	6.1	0.5	11.4
BML		0.1	40.9	21.0	46.6	4.4	1.73	6.0	0.2	8.1
BM		3.6	42.1	18.0	40.6	4.0	1.72	5.4	0.4	12.6
BL		1.5	46.6	16.6	35.1	4.9	1.72	6.3	0.4	13.4
A		1.7	36.9	21.9	47.5	2.9	1.66	4.0	0.3	12.7
AU		4.5	33.3	20.6	50.2	4.4	1.65	5.9	0.4	12.8
AM		1.9	43.9	16.3	48.8	4.8	1.84	6.1	0.6	8.5
AL		1.5	33.9	20.5	56.3	3.3	1.68	4.6	0.4	15.5
Sub-Total		Inferred	28.3	39.3	19.0	43.9	4.5	1.70	6.1	0.4
Total	Indicated + Inferred	34.0	40.0	18.9	43.5	4.4	1.71	6.0	0.4	13.3

9.4 Change in Coal Resource

A material change has occurred between the 2013 and 2014 Coal Resource estimates. The main areas of difference are:

- Total estimated Coal Resources (Indicated plus Inferred Resources) have gone from 23Mt at an average combined raw ash of 37.8% (adb), calorific value of 19.2 MJ/kg (adb), total sulphur of 0.3% (adb) and volatile matter of 12.7% (adb) in 2013 to 34Mt at an average combined raw ash of 40.0 (adb), calorific value of 18.9 MJ/kg (adb), total sulphur of 0.4% (adb) and volatile matter of 13.3% (adb) in 2014.

The increase in total estimated Coal Resources is the result of:

- An increase in Indicated Resources from 2Mt at an average combined raw ash of 36.5% (adb), calorific value of 19.8 MJ/kg (adb), total sulphur of 0.3% (adb) and volatile matter of 11.2% (adb) in 2013 to 5.8Mt at an average combined raw ash of 43.6% (adb), calorific value of 18.4 MJ/kg (adb), total sulphur of 0.4% (adb) and volatile matter of 11.7% (adb) in 2014.



- An increase in Inferred Resources from 21Mt at an average combined raw ash of 38.0% (adb), calorific value of 19.1 MJ/kg (adb), total sulphur of 0.4% (adb) and volatile matter of 12.8% (adb) in 2013 to 28.3Mt at an average combined raw ash of 39.3% (adb), calorific value of 18.9 MJ/kg (adb), total sulphur of 0.4% (adb) and volatile matter of 13.6% (adb) in 2014.

The change in estimated Coal Resource tonnage and raw coal quality is the result of:

- Increased drilling density in the north of the WRA where no Coal Resources were estimated as part of the 2013 Coal Resource estimate.
- Conversion of some Inferred Resources estimated as part of the 2013 Coal Resource estimate to Indicated Resources (due to increased drilling density) as part of the 2014 Coal Resource estimate .
- Drilling designed to test the presence of coal beneath the dolerite hill in the north of the WRA resulting in the intersection of coal seams.
- Increased geological continuity and subsequent Coal Resource classification distances (from analysis of semi-variograms) due to increased drilling density.
- Re-correlation work resulting in the estimation and reporting of Inferred Resources in the BML, CU and DT plies not previously recognised as part of the 2013 Coal Resource estimate.
- The raw ash cut-off increasing from 45% to 50%.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Geological work

Golder recommends the following geological tasks be completed as the project progresses:

- Golder recommends either the sourcing of information pertaining to the accuracy of the topography data used to generate the current topographic surface or the acquisition/purchase of topographic data possessing a high accuracy level. A topographic surface with a high level of accuracy will be required for detailed mine planning work as the WCP progresses through the various levels of feasibility to production.
- Golder recommends the further collection of float/sink analytical results in order to evaluate product yields and better understand potential product streams as the WCP moves forward.
- Golder recommends a cored drilling program to verify the continuity of both geological structure and coal quality in areas of Inferred Resources with the aim of increasing borehole density and raising the JORC Coal Resource classification and quantities.
- Golder recommends a cored and open borehole drilling program along the western flank of the WRA in order to verify the continuity of both geological structure and coal quality in areas of either Inferred Resources or where Resources have not been estimated due to sparse drilling.
- Drilling should be concentrated in the northern and western sections of the WRA.
- A program of geotechnical sampling and analysis should be part of any future drilling programs.
- A program of hydrogeological sampling and analysis should be part of any future drilling programs.
- A 2D seismic program should be considered in order to delineate structure in the north of the WRA.
- Modify approach to timing of geophysical logging downhole post drilling in an attempt to avoid boreholes collapsing, resulting in the need to geophysically log through PVC Casing. Cased boreholes show results in a geophysical logs with little value.



- Include Moisture Holding Capacity (MHC) analysis of cored seam sections as part of all future exploration programs.
- Develop a Limit of Oxidation (LOX) line drilling program to assist in defining the edge of crop. This will also give greater confidence in the base of weathering as opposed to visual identification of the oxidised boundary.
- Missing data from historical drilling programs should be located and incorporated into the project master database.
- Targeted shallow drilling is required to further delineate the D seam, as currently the number of intersections within the seam is few. This has resulted in the estimation of only limited Inferred Resources.
- The A seam should be further targeted with drilling in the north due to its estimated thickness and quality.

11.0 DECLARATION

This Coal Resource report has been prepared under the guiding principles of the JORC Code 2012 and has also been prepared in consideration of the Coal Guidelines. Neither the authors nor Golder have any material interest or entitlement, direct or indirect, in the securities of Midland Energy nor any companies associated with Joint Venture participants.

12.0 LIMITATIONS

Your attention is drawn to the document – “Limitations” (APPENDIX E) which is included in of this report. The statements presented in this document and associated Appendices are intended to advise you of what your realistic expectations of this report should be, and to present you with recommendations on how to minimise the risks associated with the services provided for this project. The document is not intended to reduce the level of responsibility accepted by Golder Associates, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.



13.0 REFERENCES (INCLUSIVE OF APPENDIX C)

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Report Signature Page

GOLDER ASSOCIATES PTY LTD

A handwritten signature in blue ink, appearing to read 'A Radonich', located below the name Aaron Radonich.

Aaron Radonich
Senior Geologist

A handwritten signature in blue ink, appearing to read 'J deWolfe', located below the name Jerry deWolfe.

Jerry deWolfe
Senior Geological Consultant/Mine Design Group Manager

AR/JDW-DA/AR/NM

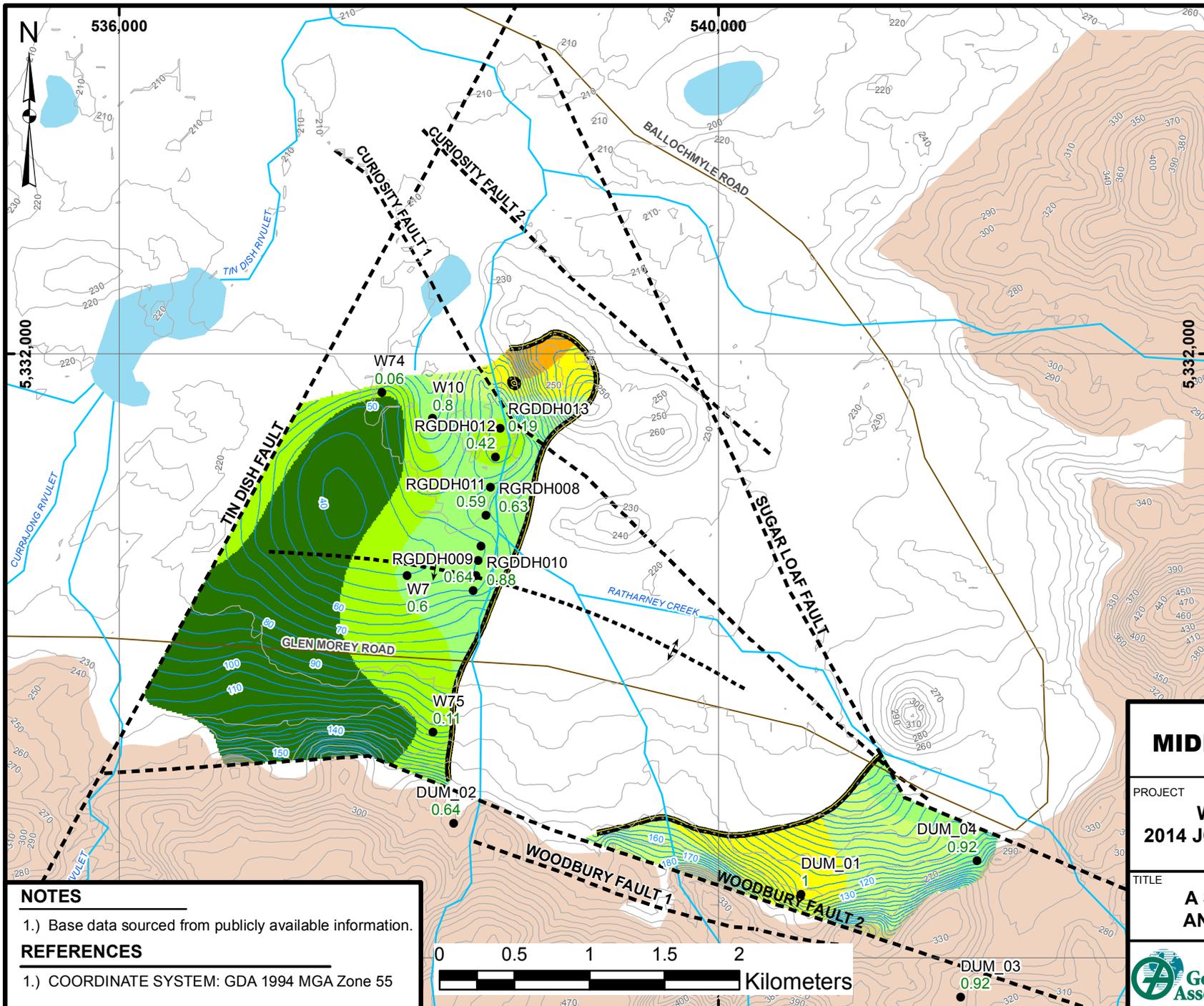
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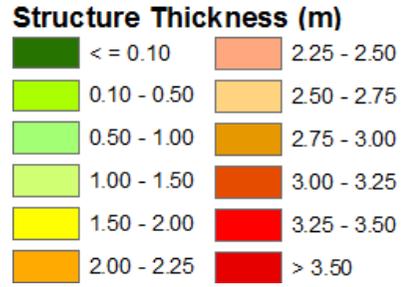
APPENDIX A

Seam Structure Thickness and Floor Contours



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- A Seam Split
- Drill Hole Location
Structure Thickness (m)



MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
A SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

NOTES
 1.) Base data sourced from publicly available information.

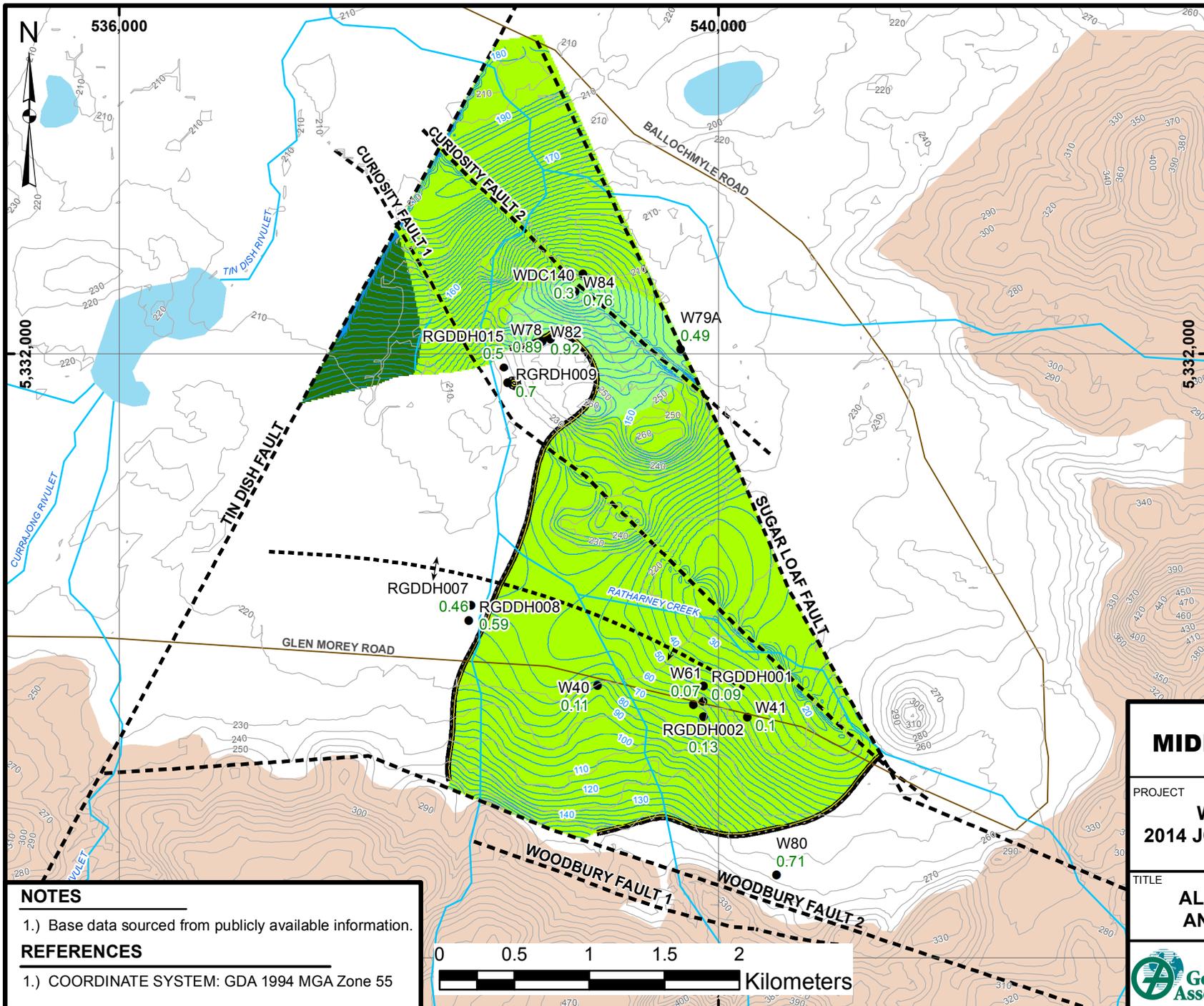
REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



PROJECT NO. 147621009		SCALE: AS SHOWN
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GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015



APPENDIX A



LEGEND

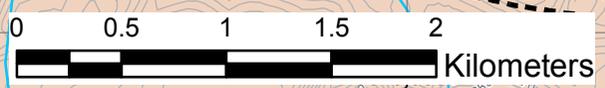
- Dolerite
 - Road
 - Faults
 - Anticline
 - Existing Topography
Contour Interval = 10m
 - Depth to Floor
Contour Interval = 5m
 - AL Seam Split
 - Drill Hole Location
- Structure Thickness (m)**
- | | |
|--|--|
| <= 0.10 | 2.25 - 2.50 |
| 0.10 - 0.50 | 2.50 - 2.75 |
| 0.50 - 1.00 | 2.75 - 3.00 |
| 1.00 - 1.50 | 3.00 - 3.25 |
| 1.50 - 2.00 | 3.25 - 3.50 |
| 2.00 - 2.25 | > 3.50 |

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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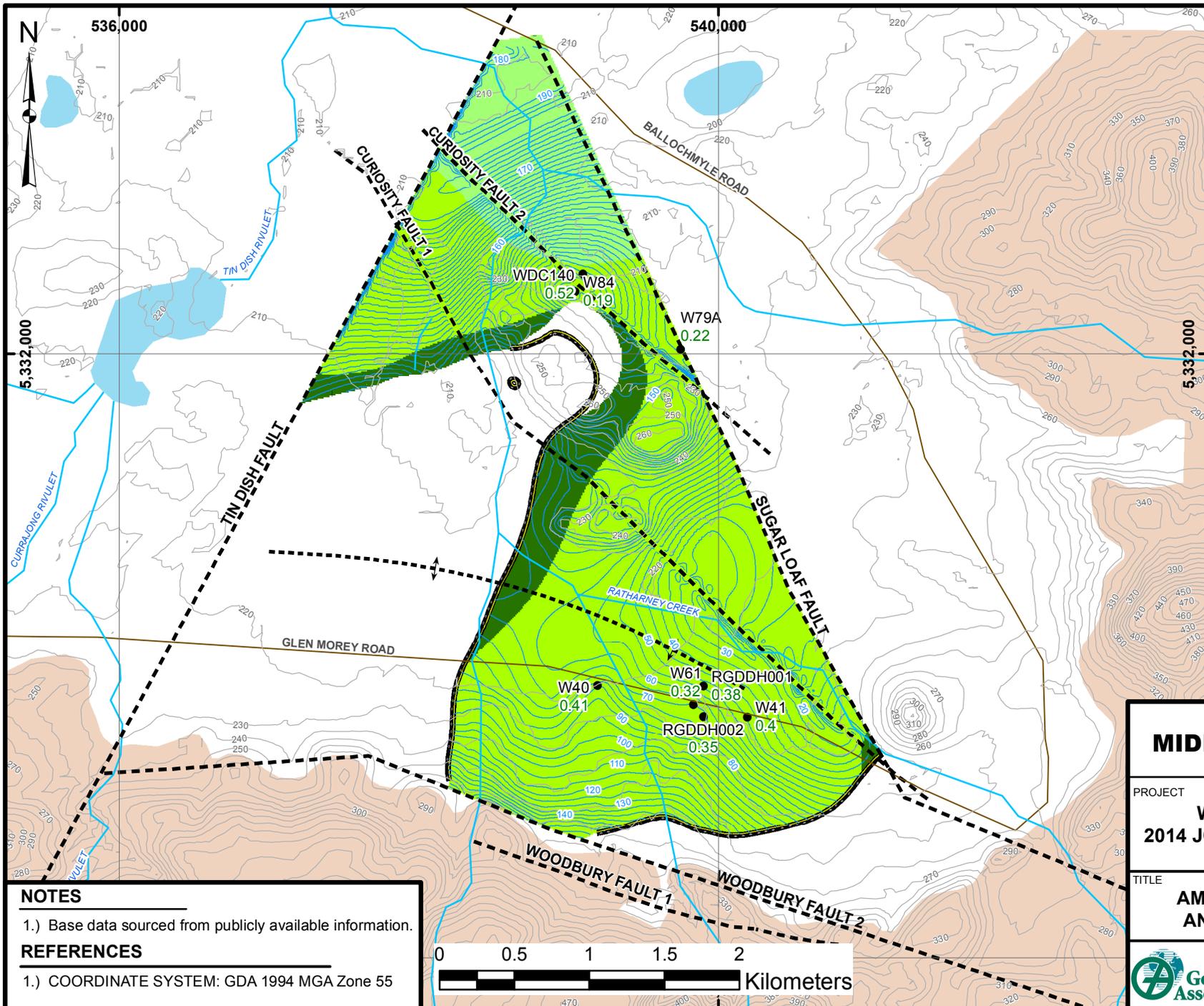
PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
AL SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH



PROJECT NO.	147621009	SCALE:	AS SHOWN
DESIGN	A4		
GIS	RJW	20/01/2015	
CHECK	HJD	20/01/2015	
REVIEW	ADR	20/01/2015	

APPENDIX A



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- AM Seam Split
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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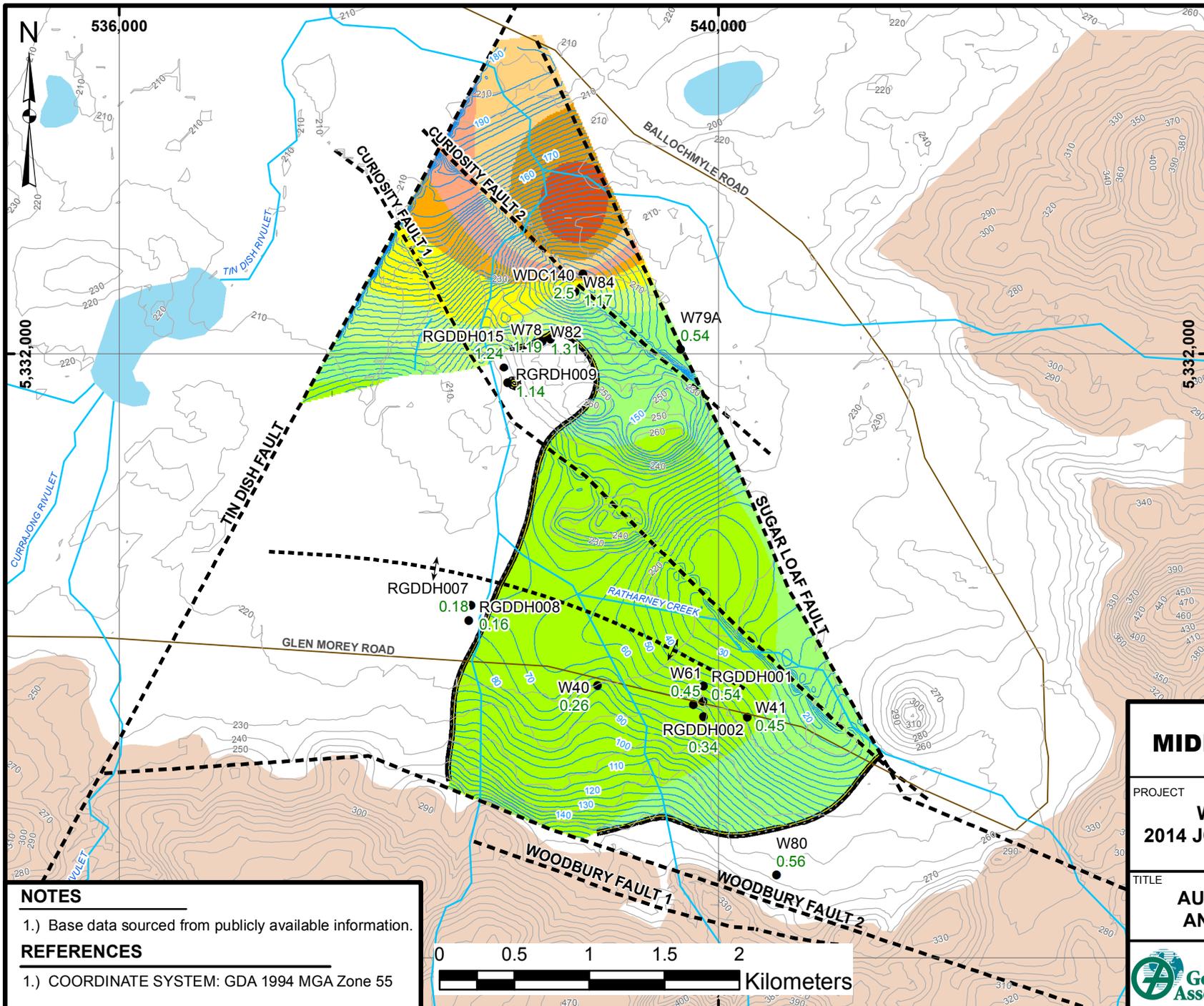
PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **AM SEAM STRUCTURE THICKNESS AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	
REVIEW ADR 20/01/2015	

APPENDIX A





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- Depth to Floor
- Contour Interval = 5m
- AU Seam Split
- Drill Hole Location
- Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **AU SEAM STRUCTURE THICKNESS**
AND DEPTH TO FLOOR ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW	20/01/2015
CHECK HJD	20/01/2015
REVIEW ADR	20/01/2015

APPENDIX A

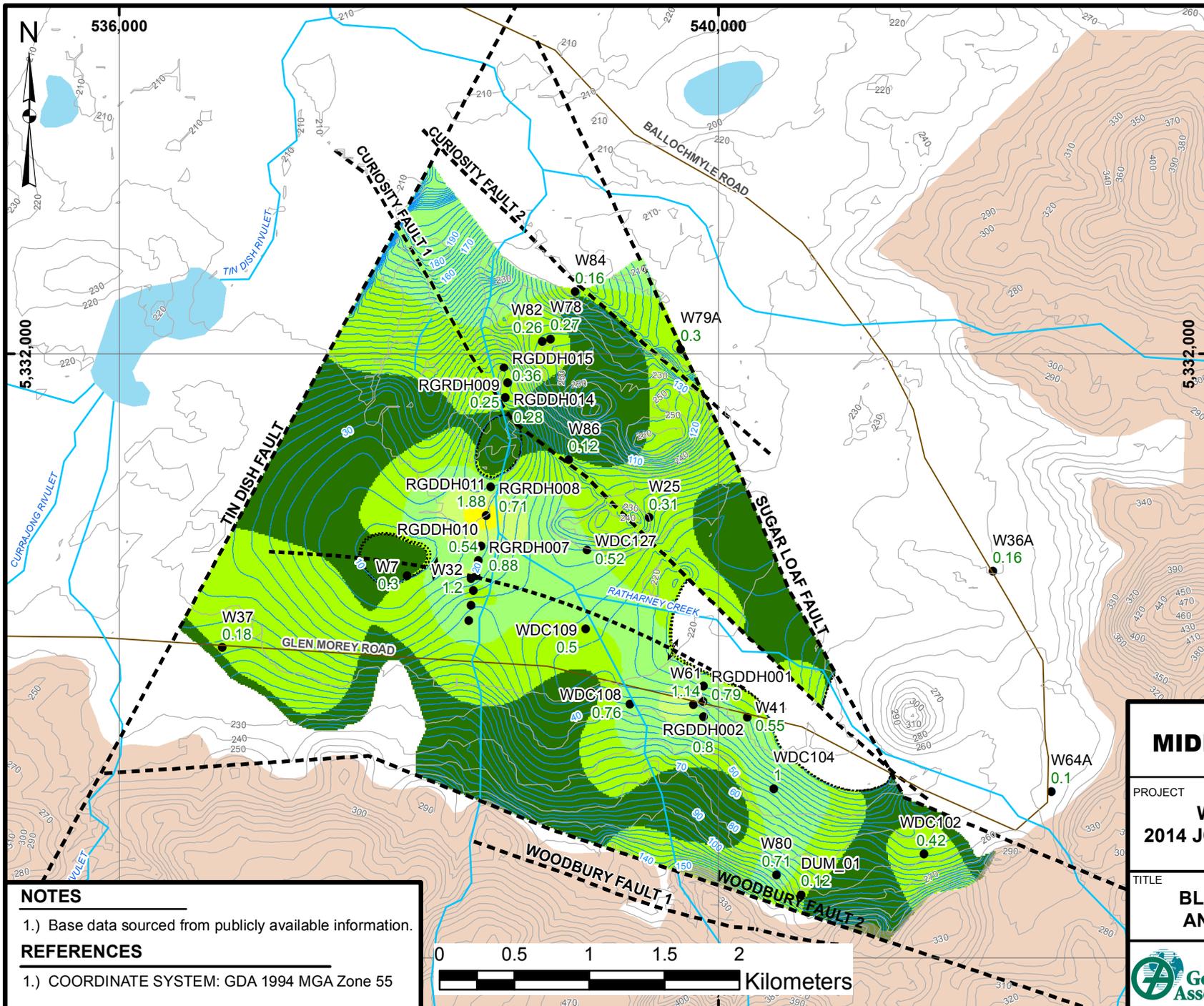
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- BL Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BL SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

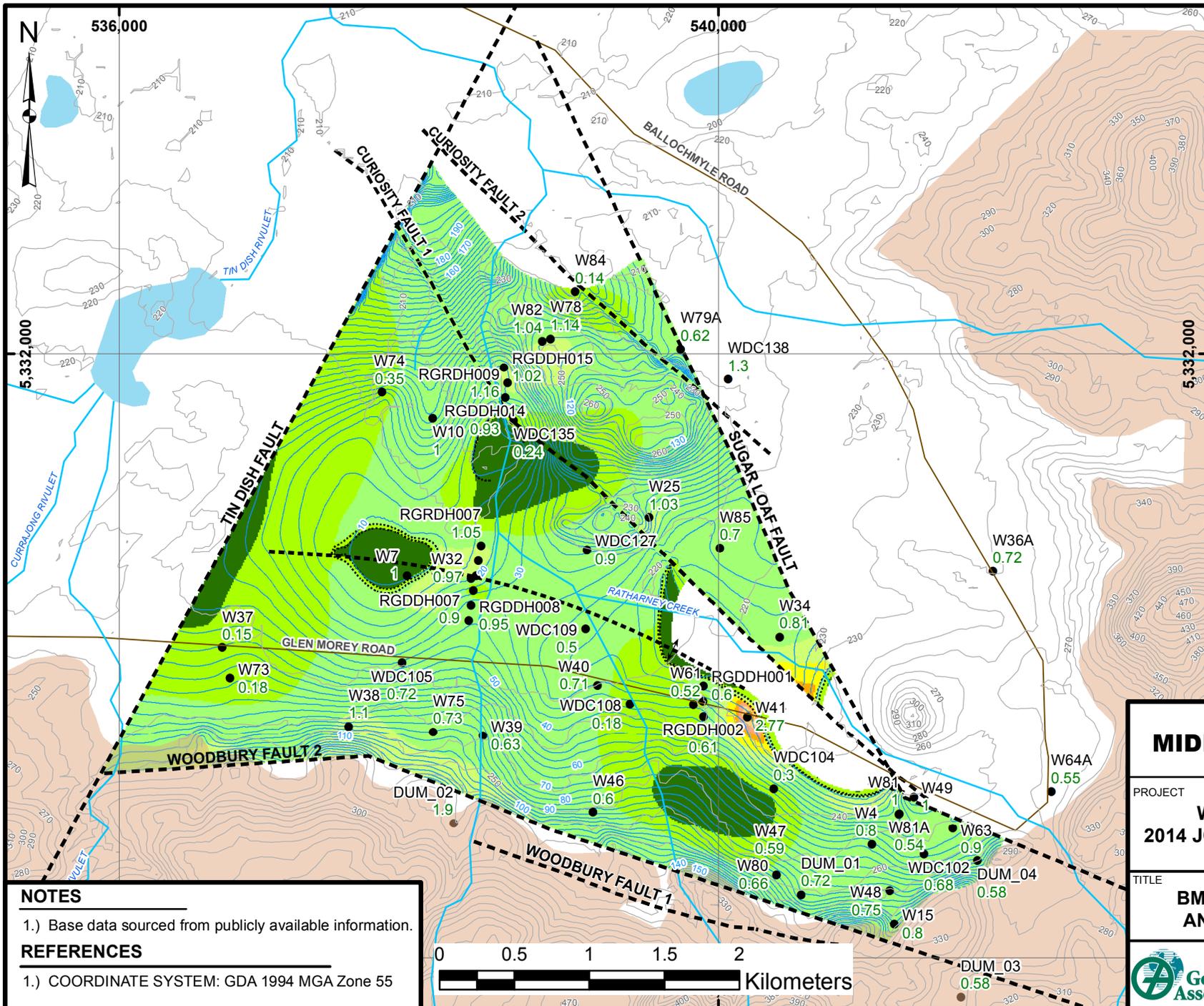
NOTES
 1.) Base data sourced from publicly available information.

REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



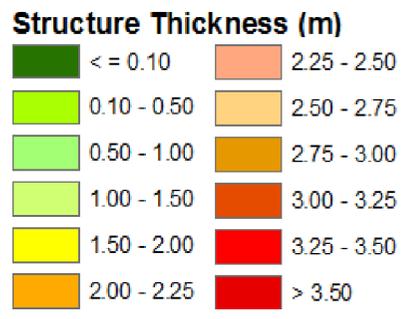
PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX A



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- BM Seam Subcrop
- Drill Hole Location
Structure Thickness (m)



MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**BM SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO.	147621009		SCALE:	AS SHOWN
DESIGN	A4	-		
GIS	RJW	20/01/2015		
CHECK	HJD	20/01/2015		
REVIEW	ADR	20/01/2015		

APPENDIX A

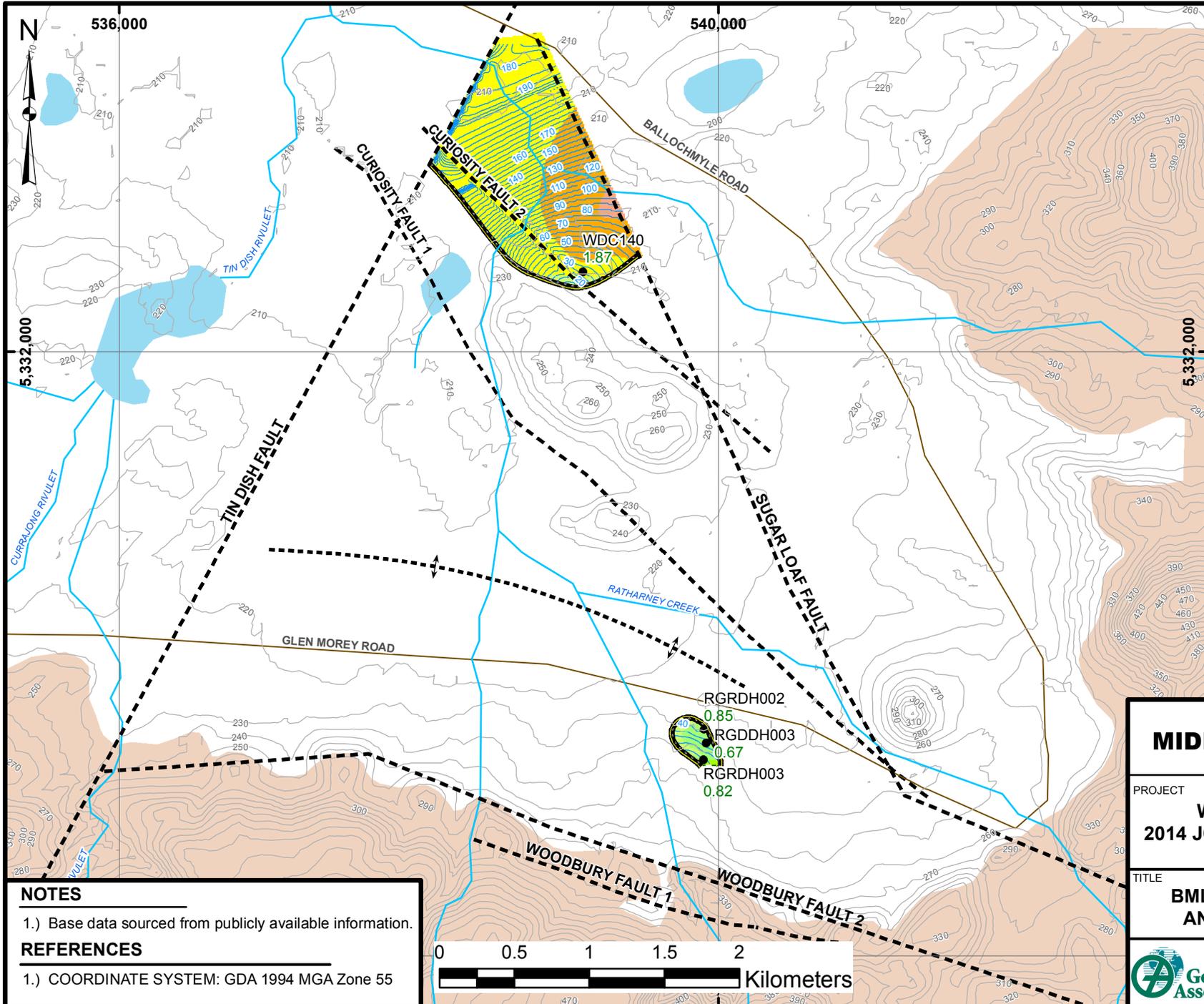
NOTES

- Base data sourced from publicly available information.

REFERENCES

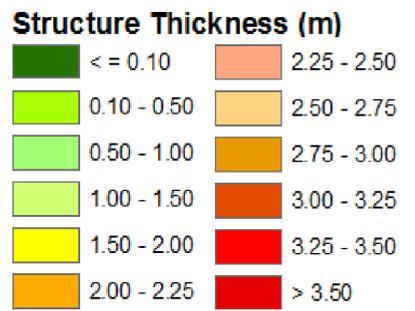
- COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- BML Seam Split
- Drill Hole Location
Structure Thickness (m)



NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



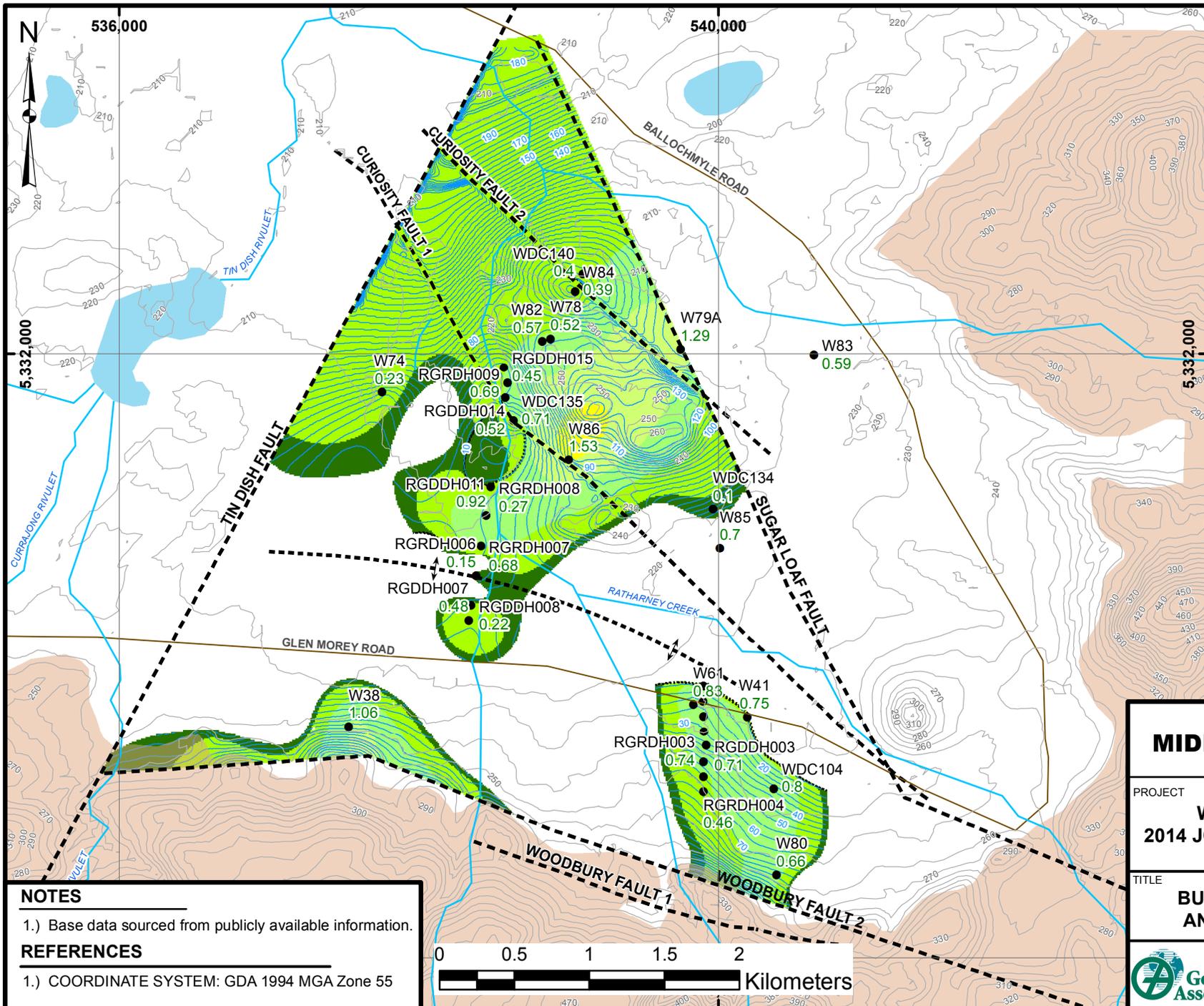
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PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **BML SEAM STRUCTURE THICKNESS AND DEPTH TO FLOOR ISOPLETH**

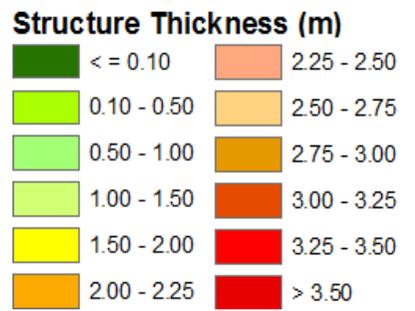
PROJECT NO.	147621009		SCALE:	AS SHOWN
DESIGN	A4	-		
GIS	RJW	20/01/2015		
CHECK	HJD	20/01/2015		
REVIEW	ADR	20/01/2015		

APPENDIX A



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- BU Seam Subcrop
- Drill Hole Location
Structure Thickness (m)



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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BU SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

NOTES
 1.) Base data sourced from publicly available information.

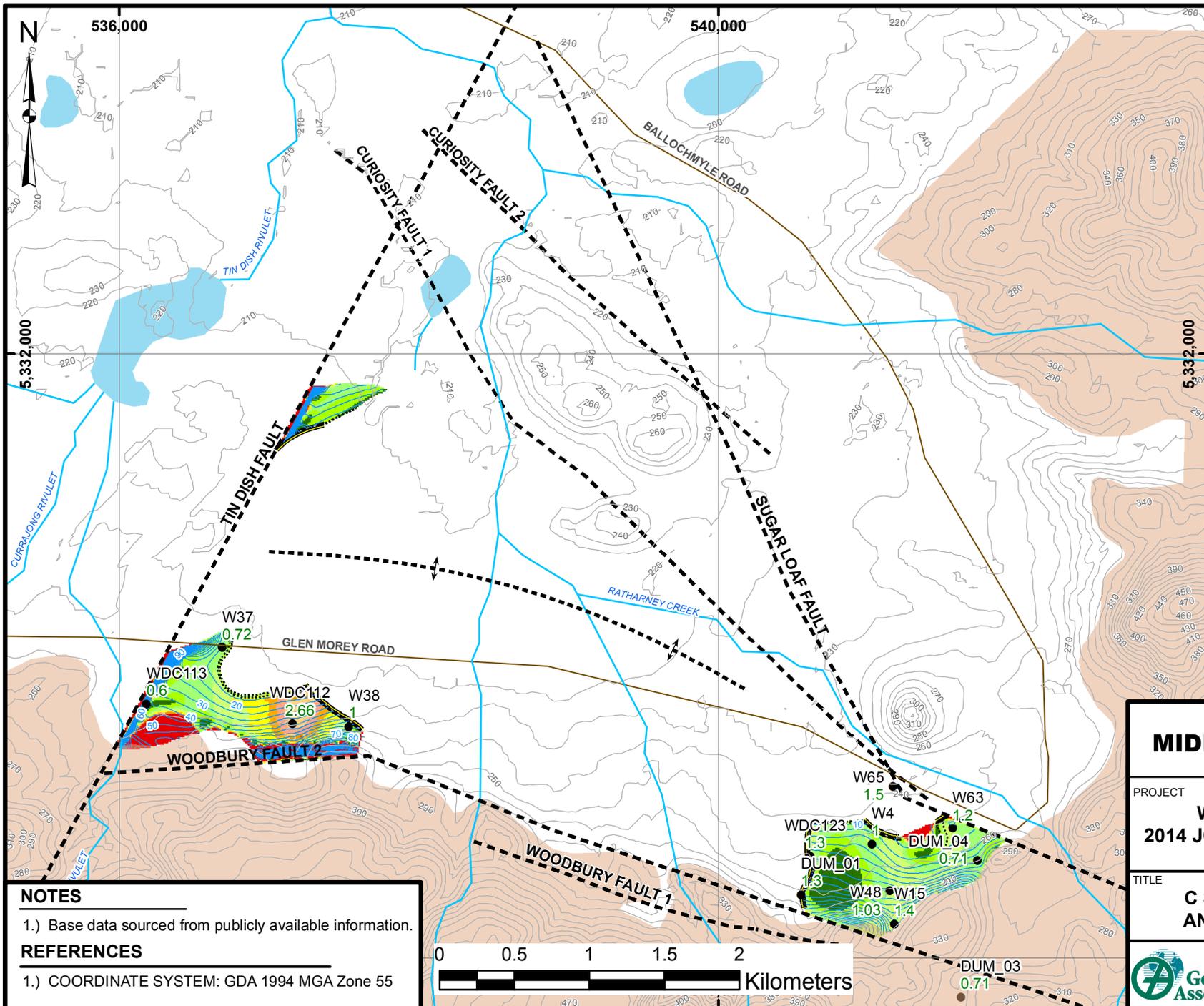
REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015



APPENDIX A



- LEGEND**
- Dolerite
 - Road
 - Faults
 - Anticline
 - Existing Topography
Contour Interval = 10m
 - Depth to Floor
Contour Interval = 5m
 - C Seam Split
 - C Seam Subcrop
 - Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
C SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX A

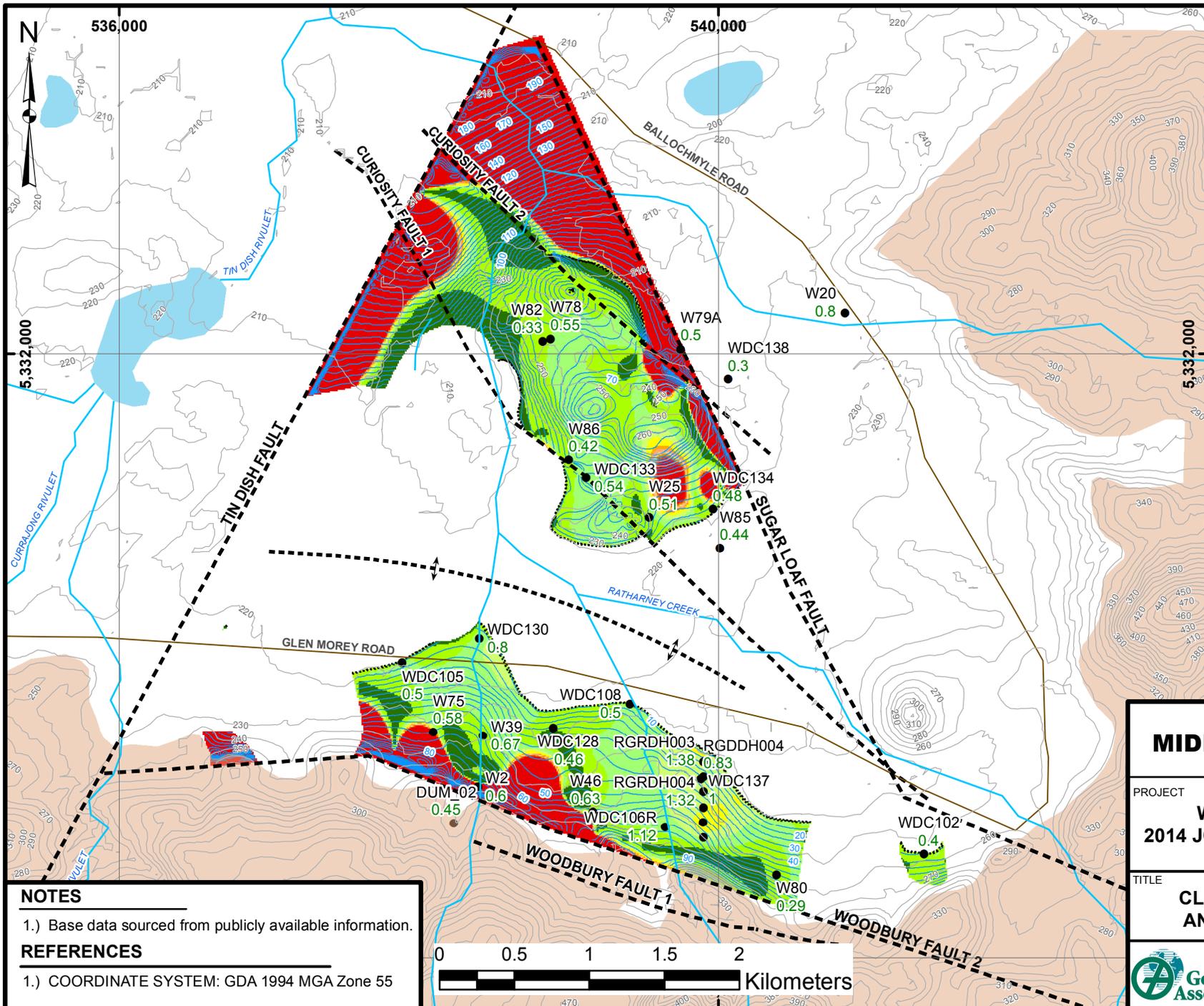
NOTES

- 1.) Base data sourced from publicly available information.

REFERENCES

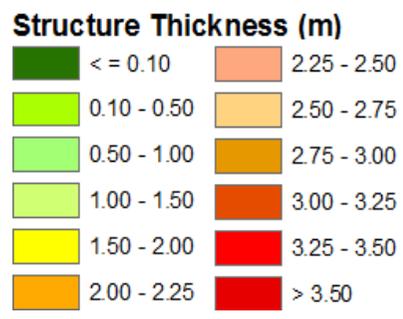
- 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- CL Seam Subcrop
- Drill Hole Location
Structure Thickness (m)



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PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**CL SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

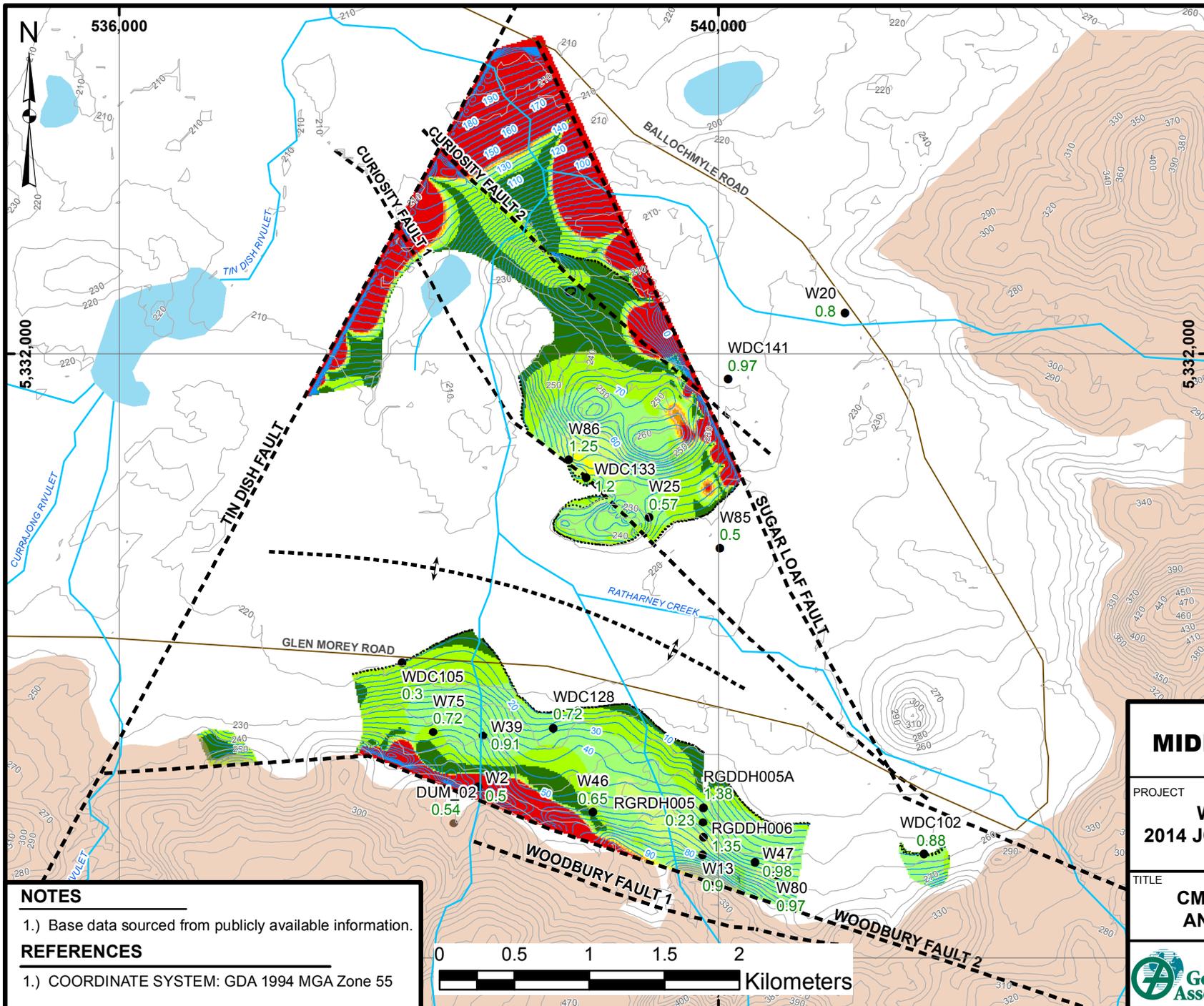
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- CM Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
CM SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

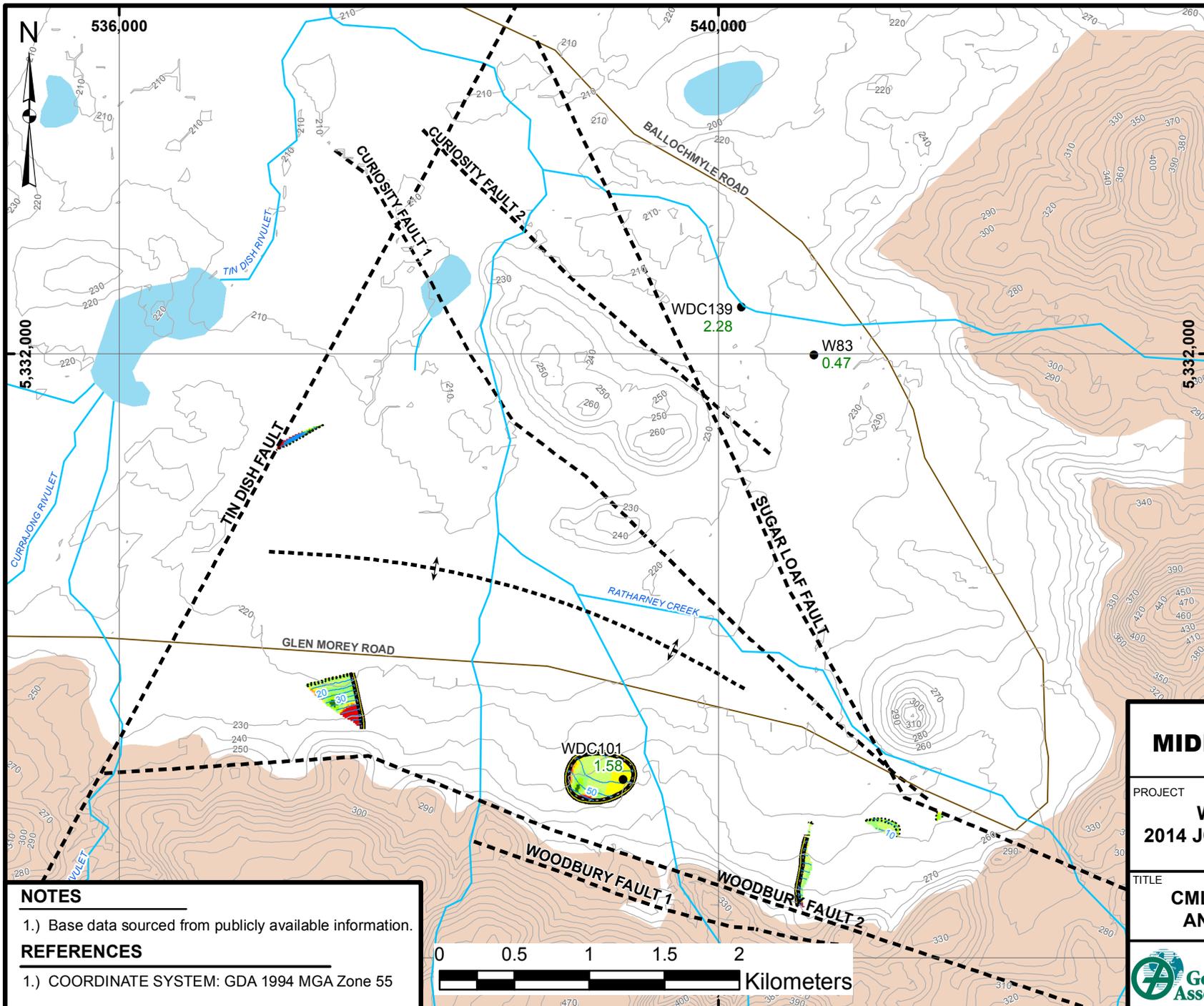
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- CML Seam Split
- CML Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	<= 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **CML SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

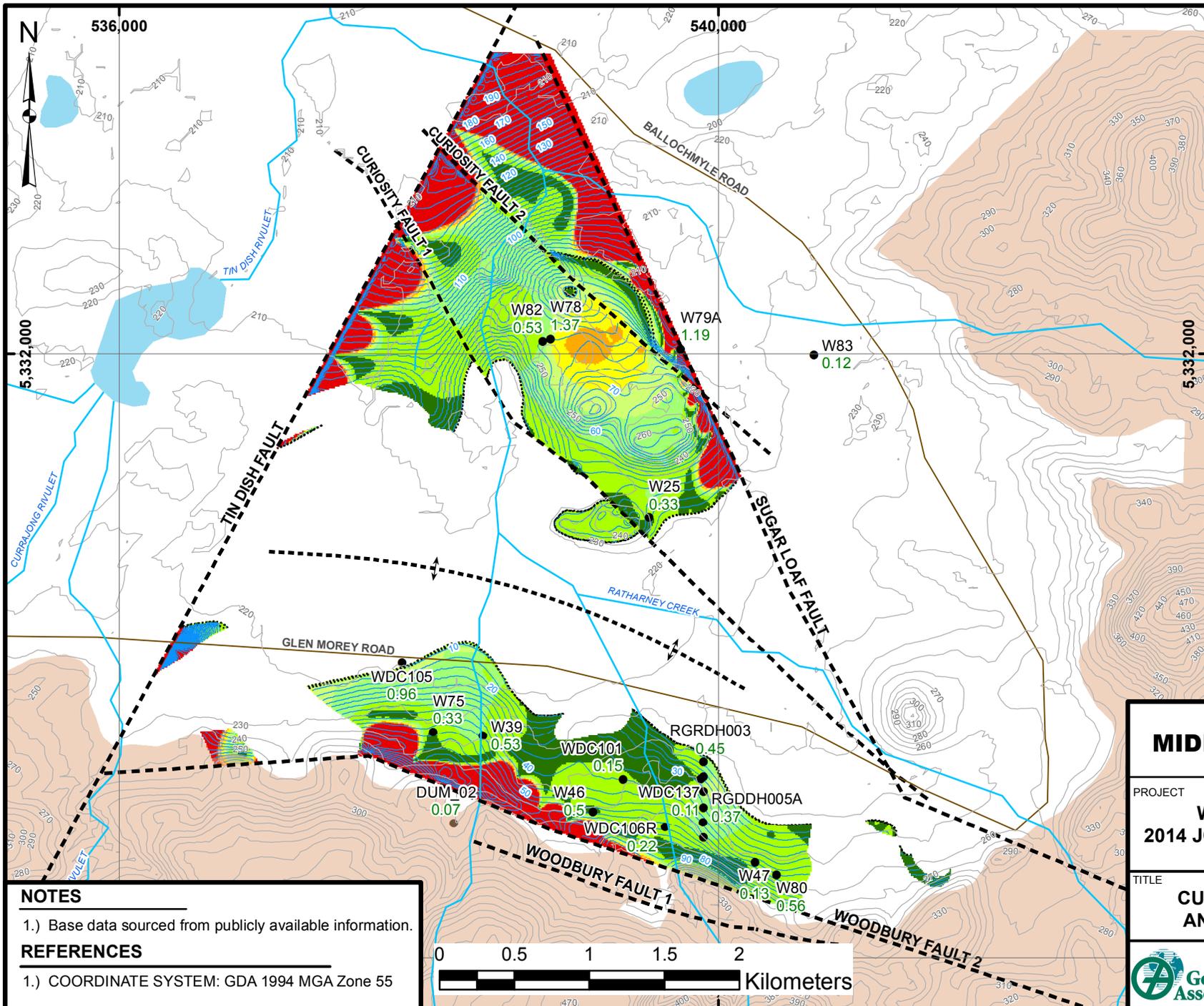
NOTES

- Base data sourced from publicly available information.

REFERENCES

- COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- CU Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	≤ 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

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PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**CU SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

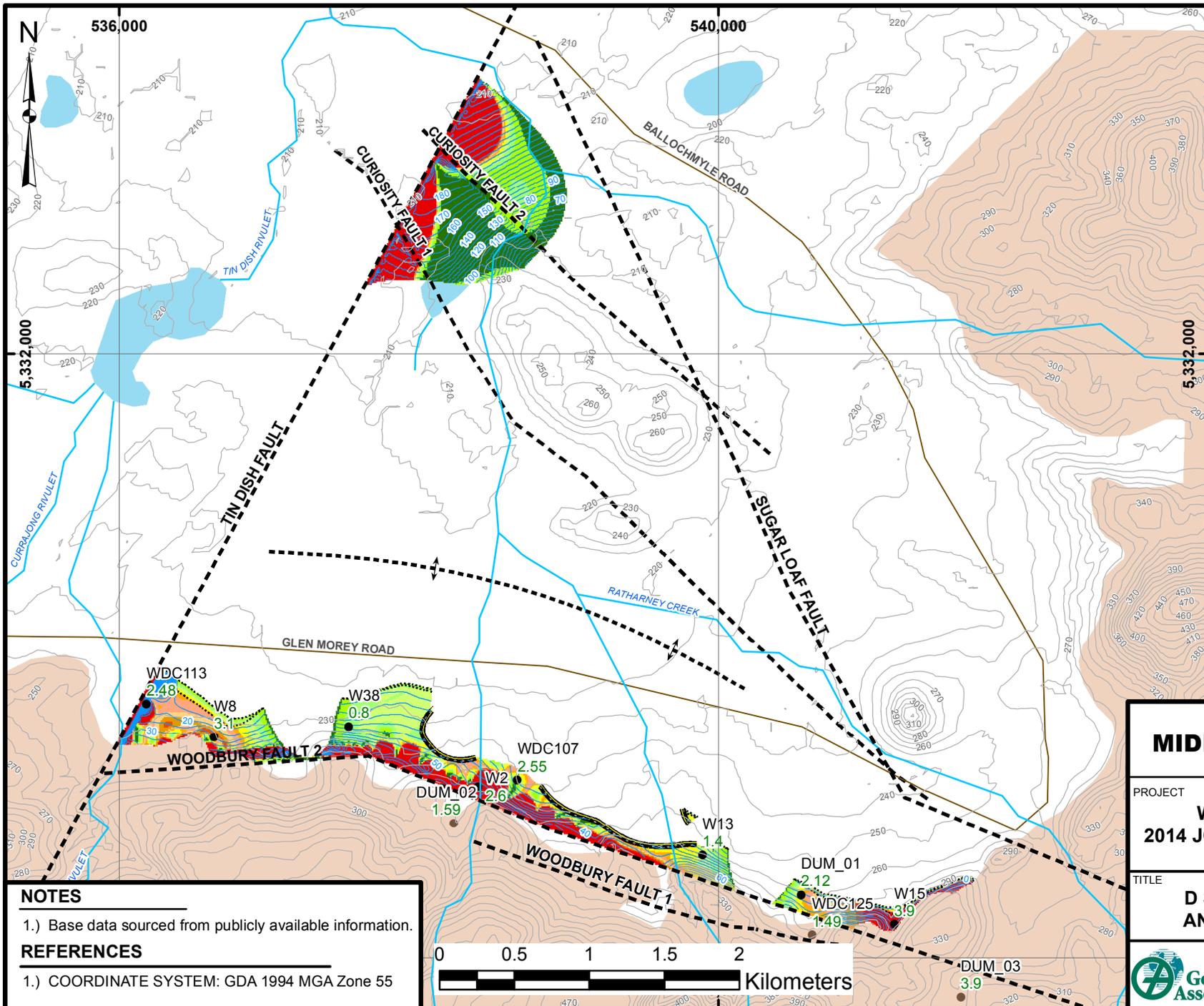
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
 - Road
 - Faults
 - Anticline
 - Existing Topography
Contour Interval = 10m
 - Depth to Floor
Contour Interval = 5m
 - D Seam Split
 - D Seam Subcrop
 - Drill Hole Location
Structure Thickness (m)
- Structure Thickness (m)**
- | | | | |
|--|-------------|--|-------------|
| | <= 0.10 | | 2.25 - 2.50 |
| | 0.10 - 0.50 | | 2.50 - 2.75 |
| | 0.50 - 1.00 | | 2.75 - 3.00 |
| | 1.00 - 1.50 | | 3.00 - 3.25 |
| | 1.50 - 2.00 | | 3.25 - 3.50 |
| | 2.00 - 2.25 | | > 3.50 |

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PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**D SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

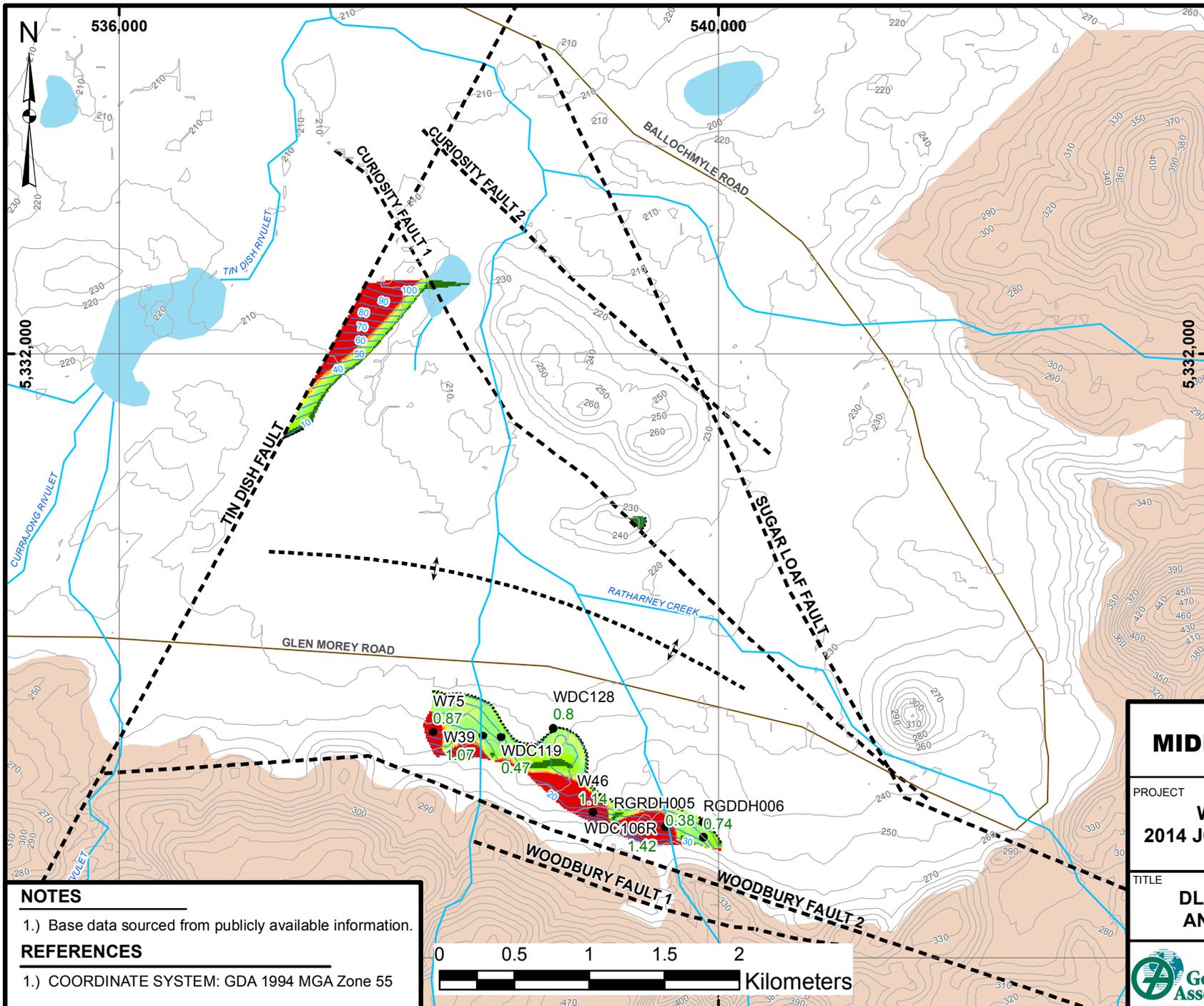
NOTES

- 1.) Base data sourced from publicly available information.

REFERENCES

- 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- D Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

	< = 0.10		2.25 - 2.50
	0.10 - 0.50		2.50 - 2.75
	0.50 - 1.00		2.75 - 3.00
	1.00 - 1.50		3.00 - 3.25
	1.50 - 2.00		3.25 - 3.50
	2.00 - 2.25		> 3.50

MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**DL SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	APPENDIX A
REVIEW ADR 20/01/2015	

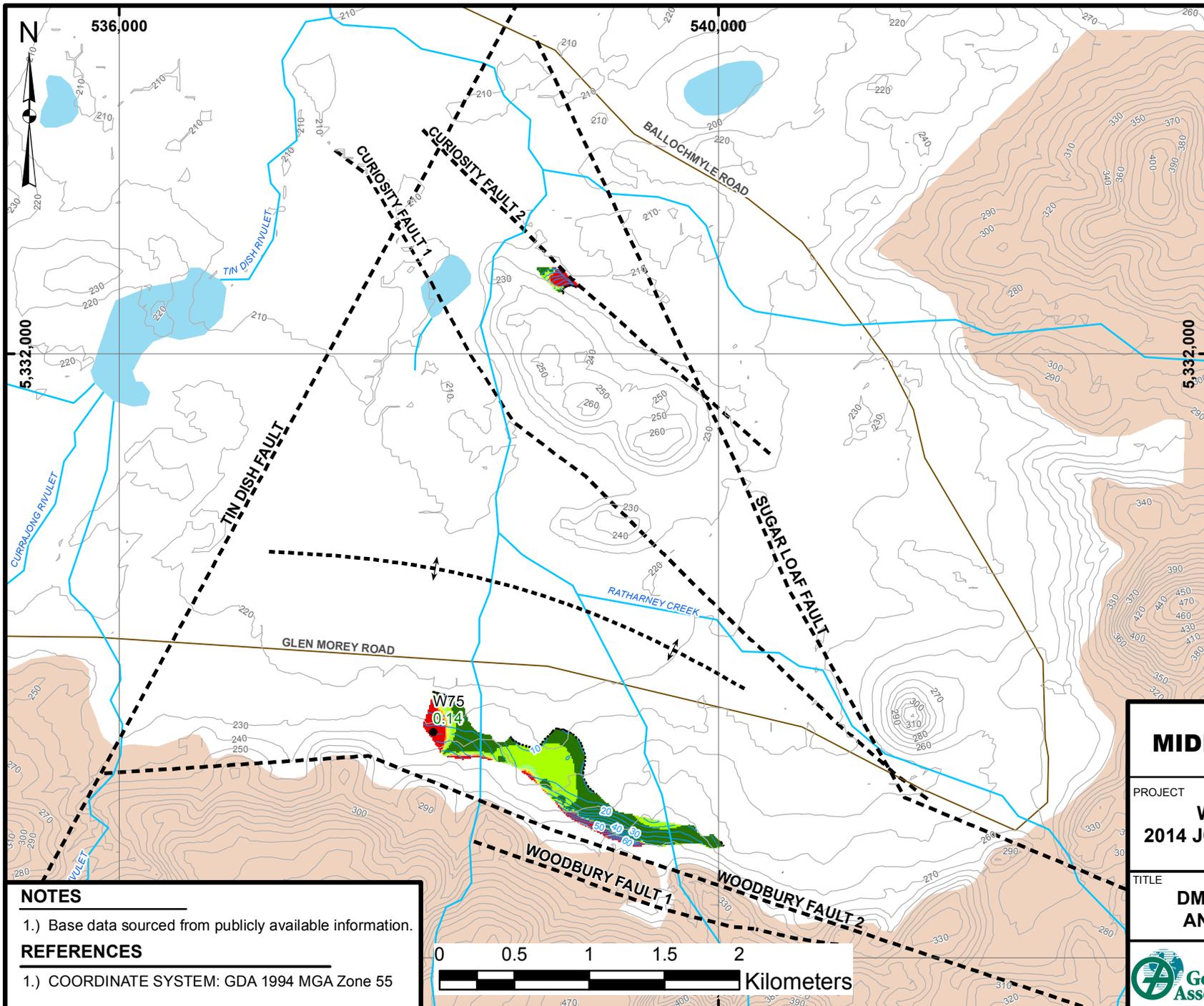
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1.) Base data sourced from publicly available information.

REFERENCES

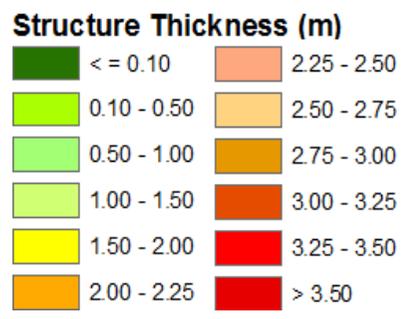
1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- DM Seam Subcrop
- Drill Hole Location
Structure Thickness (m)



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PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **DM SEAM STRUCTURE THICKNESS AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	
REVIEW ADR 20/01/2015	APPENDIX A

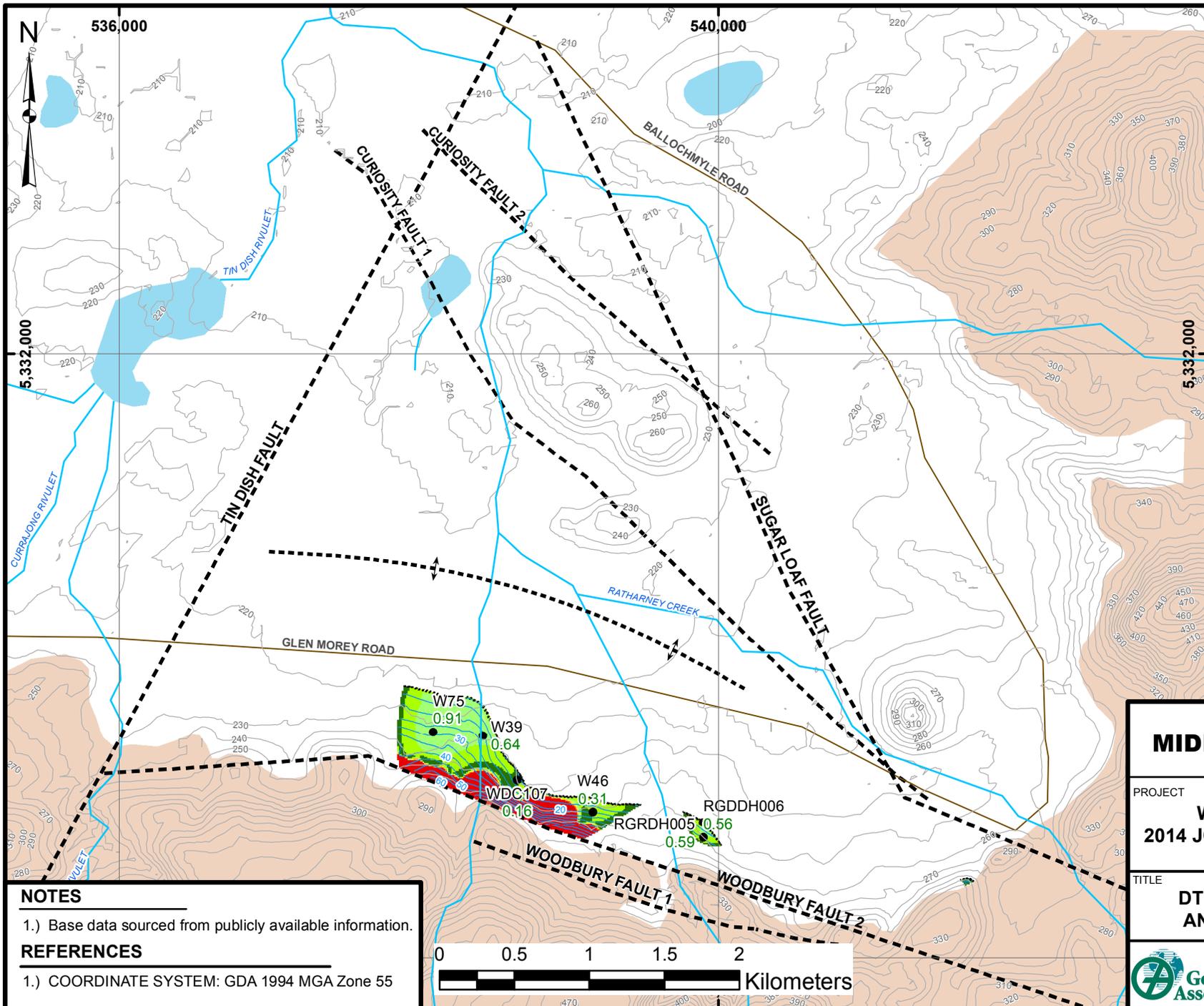
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

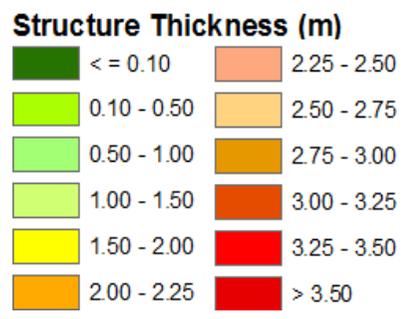
1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- DT Seam Subcrop
- Drill Hole Location
Structure Thickness (m)



NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



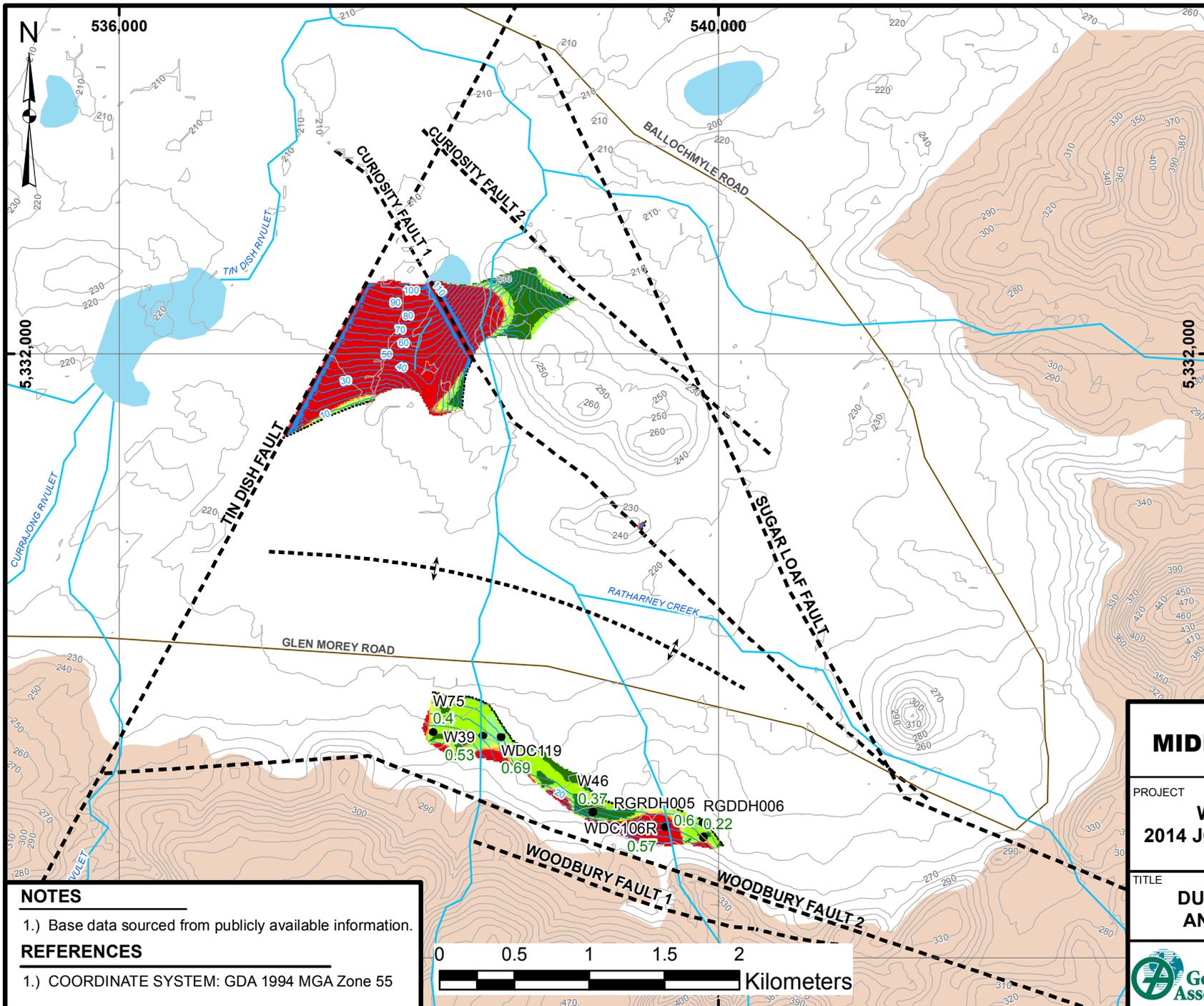
MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**DT SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH**

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX A



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Depth to Floor
Contour Interval = 5m
- DU Seam Subcrop
- Drill Hole Location
Structure Thickness (m)

Structure Thickness (m)

 <= 0.10	 2.25 - 2.50
 0.10 - 0.50	 2.50 - 2.75
 0.50 - 1.00	 2.75 - 3.00
 1.00 - 1.50	 3.00 - 3.25
 1.50 - 2.00	 3.25 - 3.50
 2.00 - 2.25	 > 3.50

MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
DU SEAM STRUCTURE THICKNESS
AND DEPTH TO FLOOR ISOPLETH

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

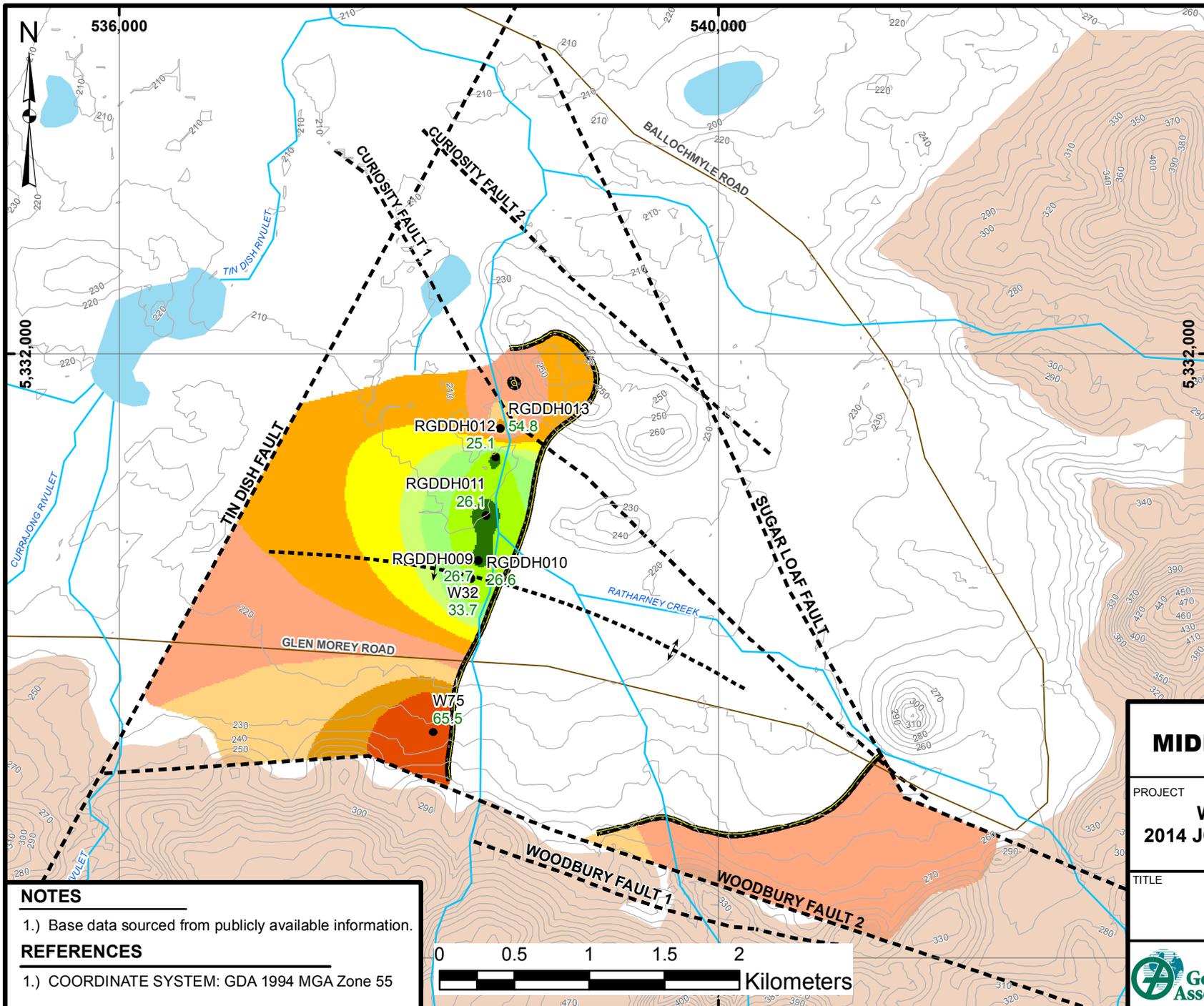
APPENDIX A





APPENDIX B

Seam Ash Content Contours



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- A Seam Split
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

		< 29	40 - 43
		29 - 32	43 - 46
		32 - 35	46 - 49
		35 - 37	49 - 52
		37 - 40	> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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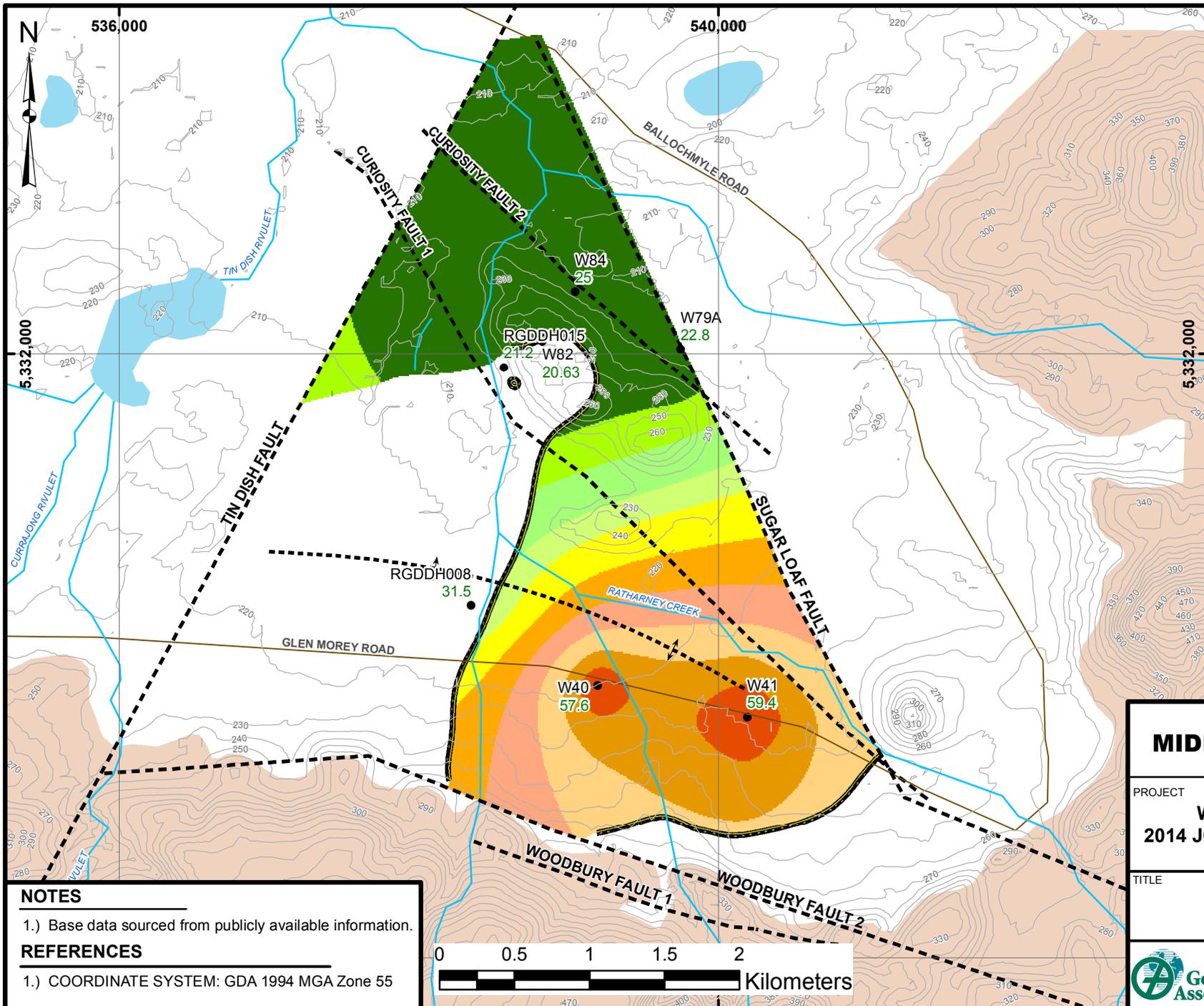
PROJECT
WOODBURY COAL PROJECT
 2014 JORC COAL RESOURCE ESTIMATE
 TASMANIA, AUSTRALIA

TITLE
A SEAM ASH CONTENT
COAL QUALITY ISOPLETH



PROJECT NO.	147621009		SCALE:	AS SHOWN
DESIGN	A4	-		
GIS	RJW	20/01/2015		
CHECK	HJD	20/01/2015		
REVIEW	ADR	20/01/2015		

APPENDIX B



- LEGEND**
- Dolerite
 - Road
 - Faults
 - Anticline
 - Existing Topography
 - Contour Interval = 10m
 - AL Seam Split
 - Drill Hole Location
 - Ash Content % (adb)

Ash Content = % (adb)

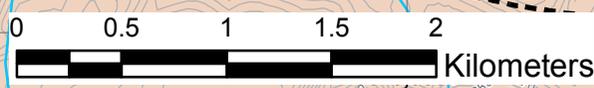
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		32 - 35	46 - 49
		35 - 37	49 - 52
		37 - 40	> 52

NOTES

- Base data sourced from publicly available information.

REFERENCES

- COORDINATE SYSTEM: GDA 1994 MGA Zone 55

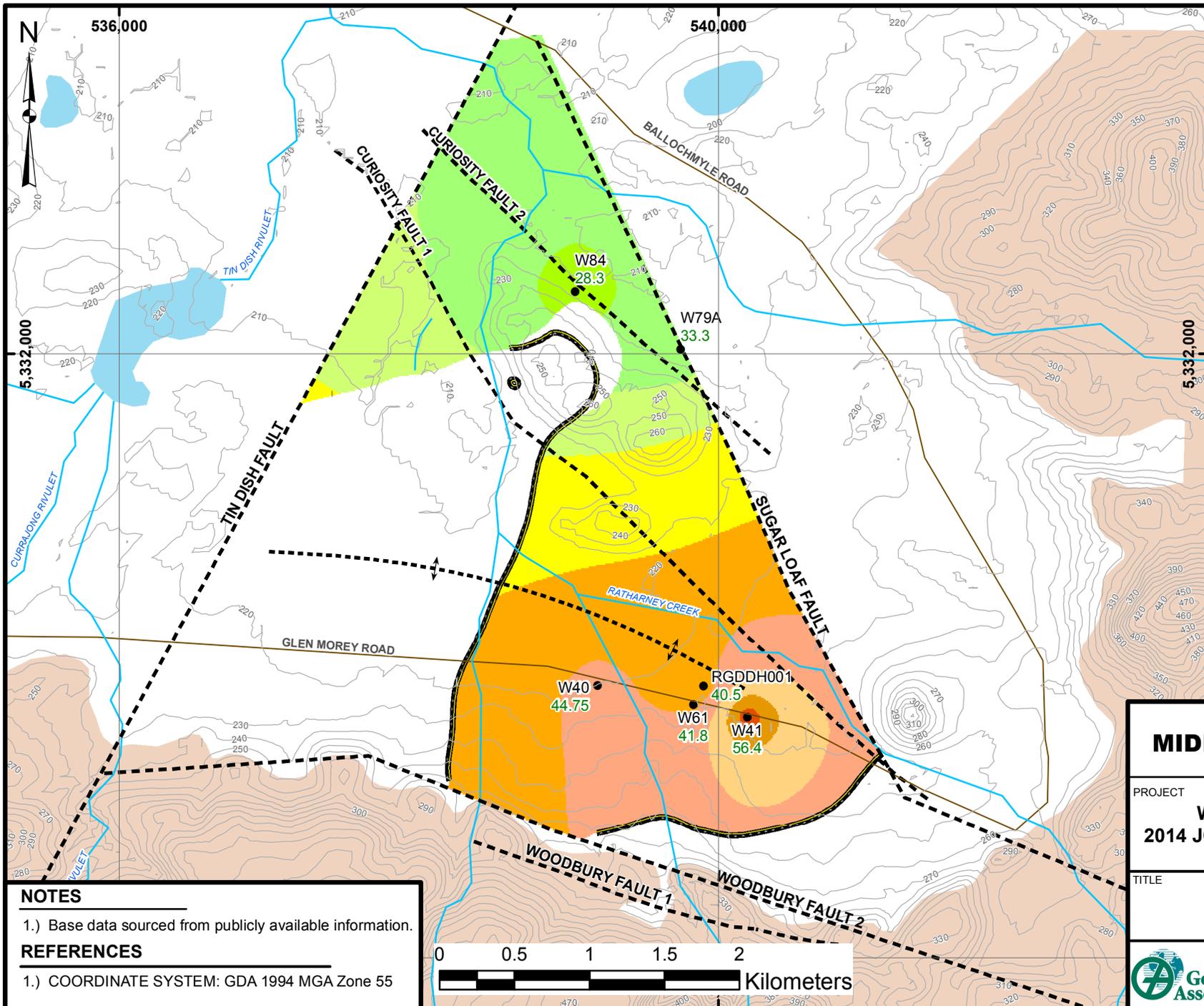


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PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**AL SEAM ASH CONTENT
COAL QUALITY ISOPLETH**

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW 20/01/2015	
CHECK HJD 20/01/2015	
REVIEW ADR 20/01/2015	APPENDIX B



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- AM Seam Split
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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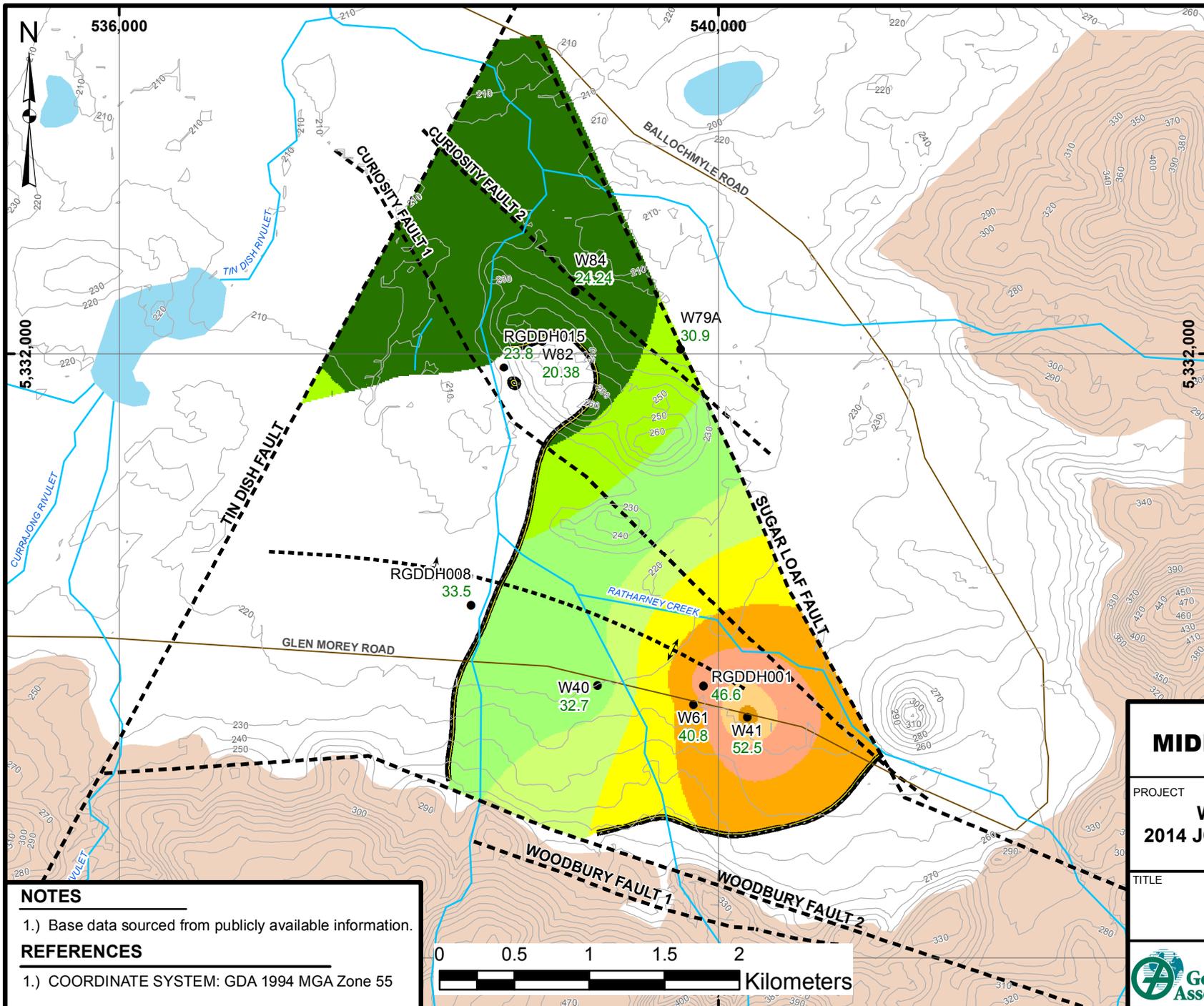
PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**AM SEAM ASH CONTENT
COAL QUALITY ISOPLETH**

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX B





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- AU Seam Split
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

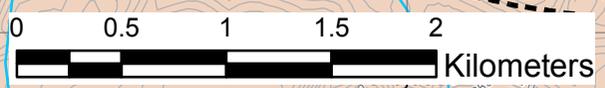
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NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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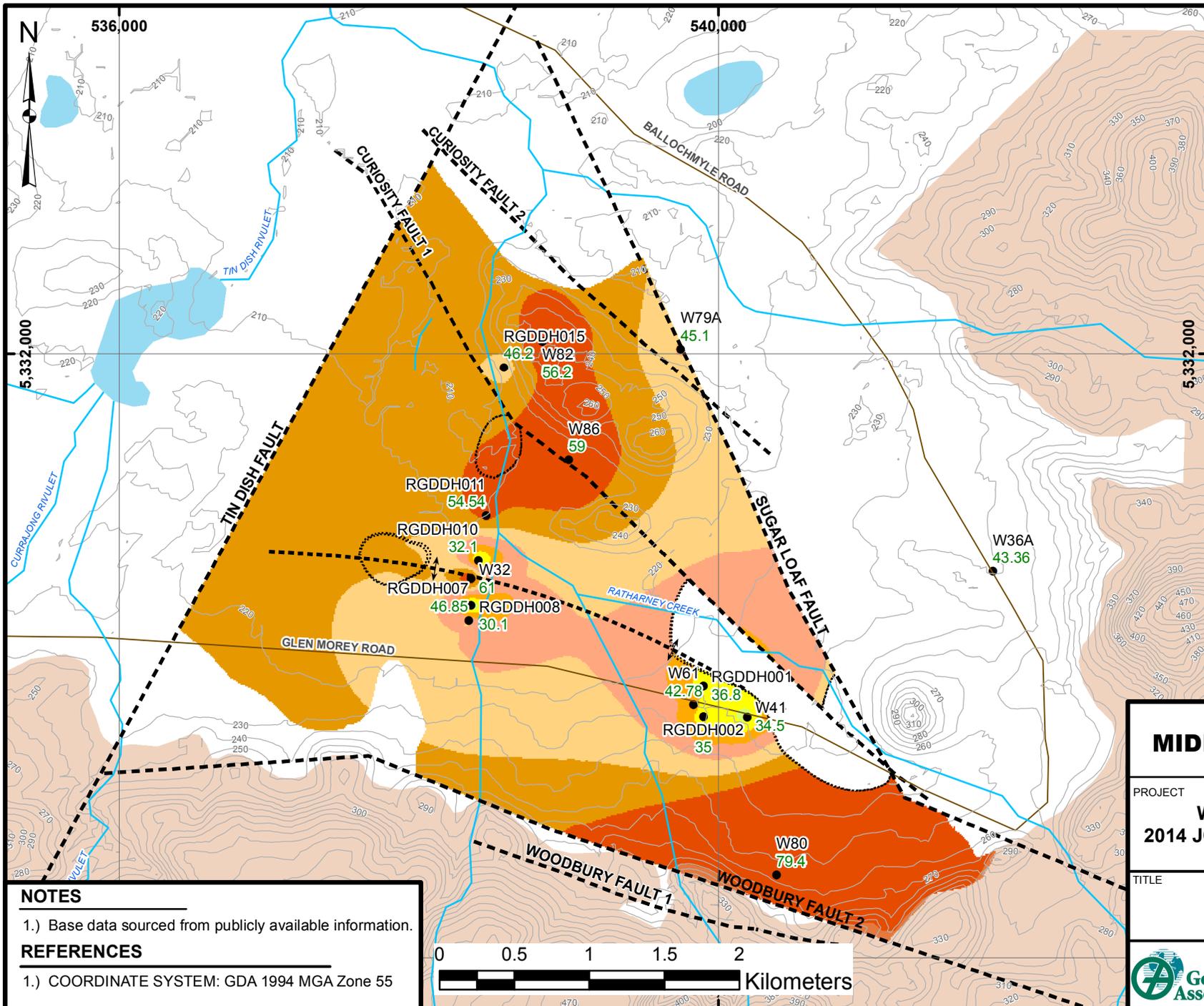
PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **AU SEAM ASH CONTENT**
COAL QUALITY ISOPLETH

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	-
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX B





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BL Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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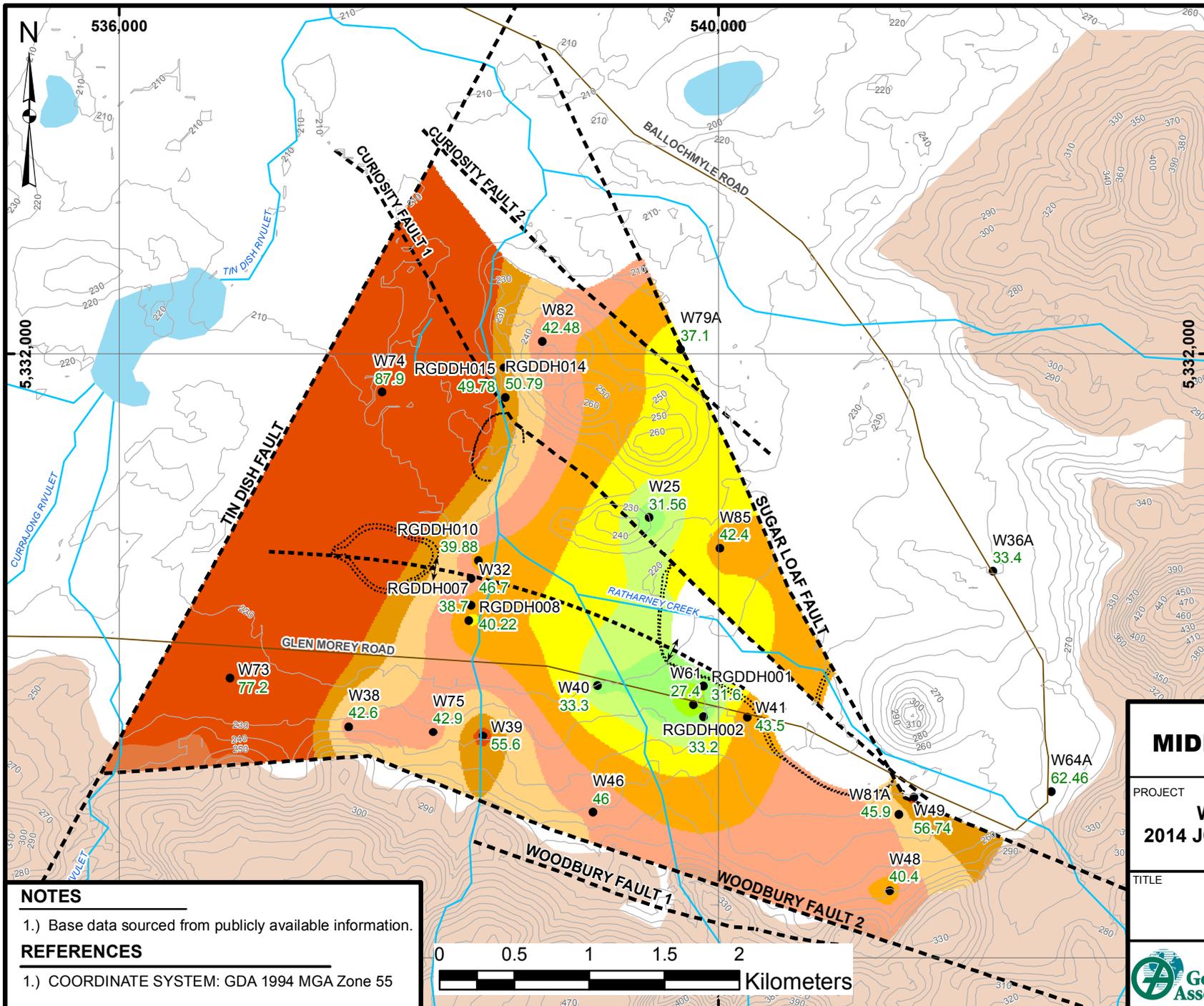
PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **BL SEAM ASH CONTENT**
COAL QUALITY ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW	20/01/2015
CHECK HJD	20/01/2015
REVIEW ADR	20/01/2015

APPENDIX B





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BM Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BM SEAM ASH CONTENT
COAL QUALITY ISOPLETH

NOTES
 1.) Base data sourced from publicly available information.

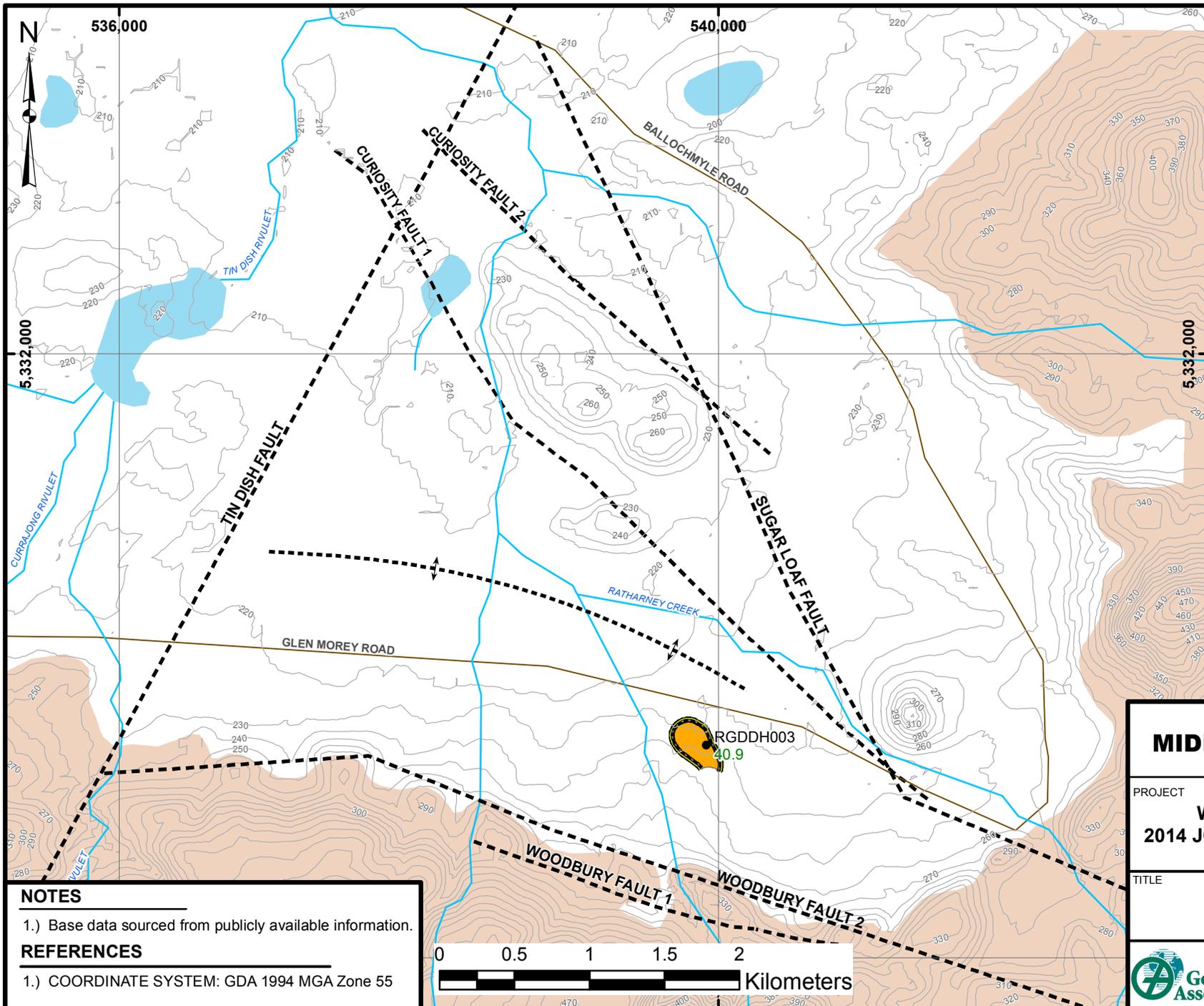
REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015



APPENDIX B



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BML Seam Split
- BML Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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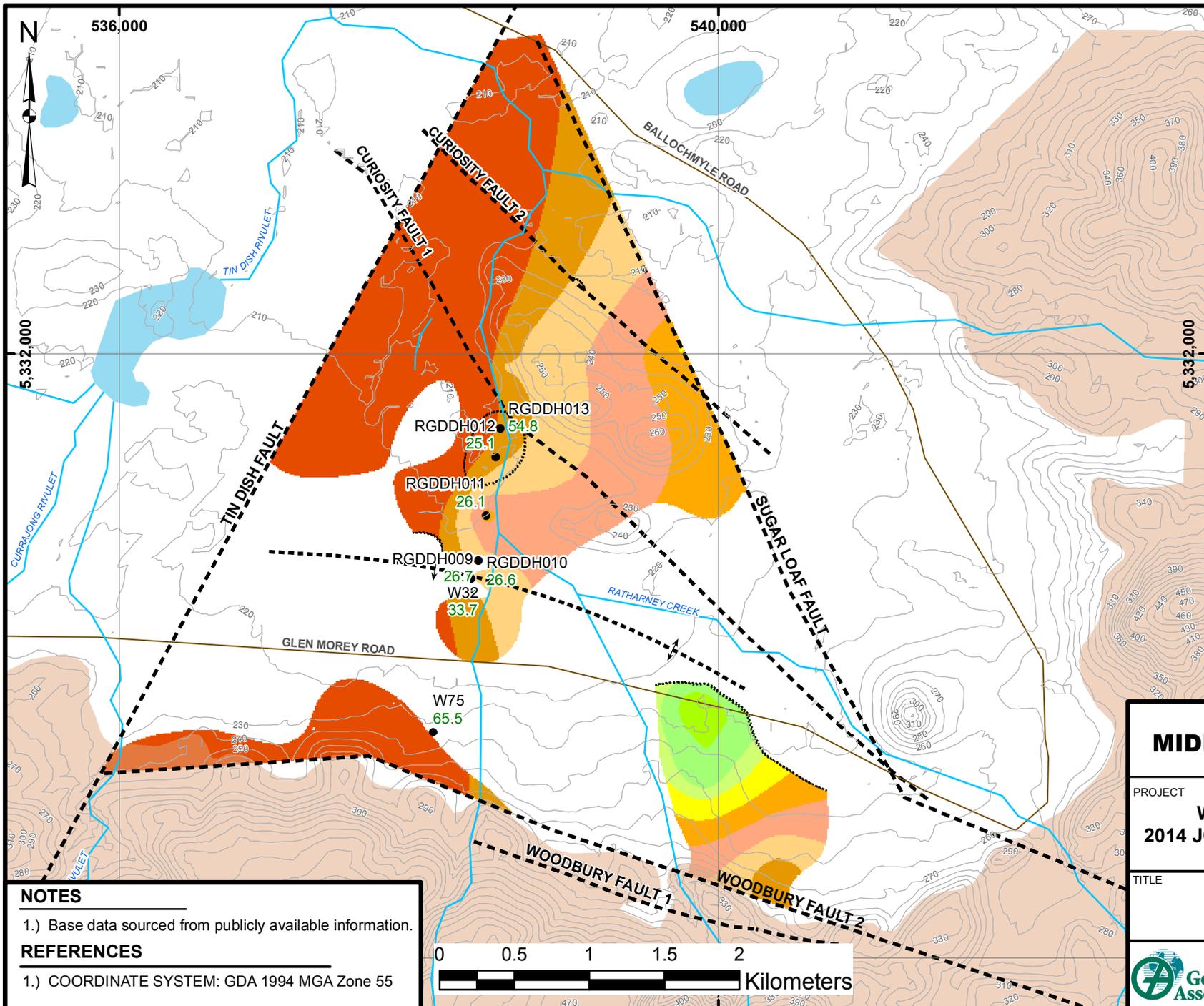
PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BML SEAM ASH CONTENT
COAL QUALITY ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW	22/01/2015
CHECK HJD	22/01/2015
REVIEW ADR	22/01/2015

APPENDIX B





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BU Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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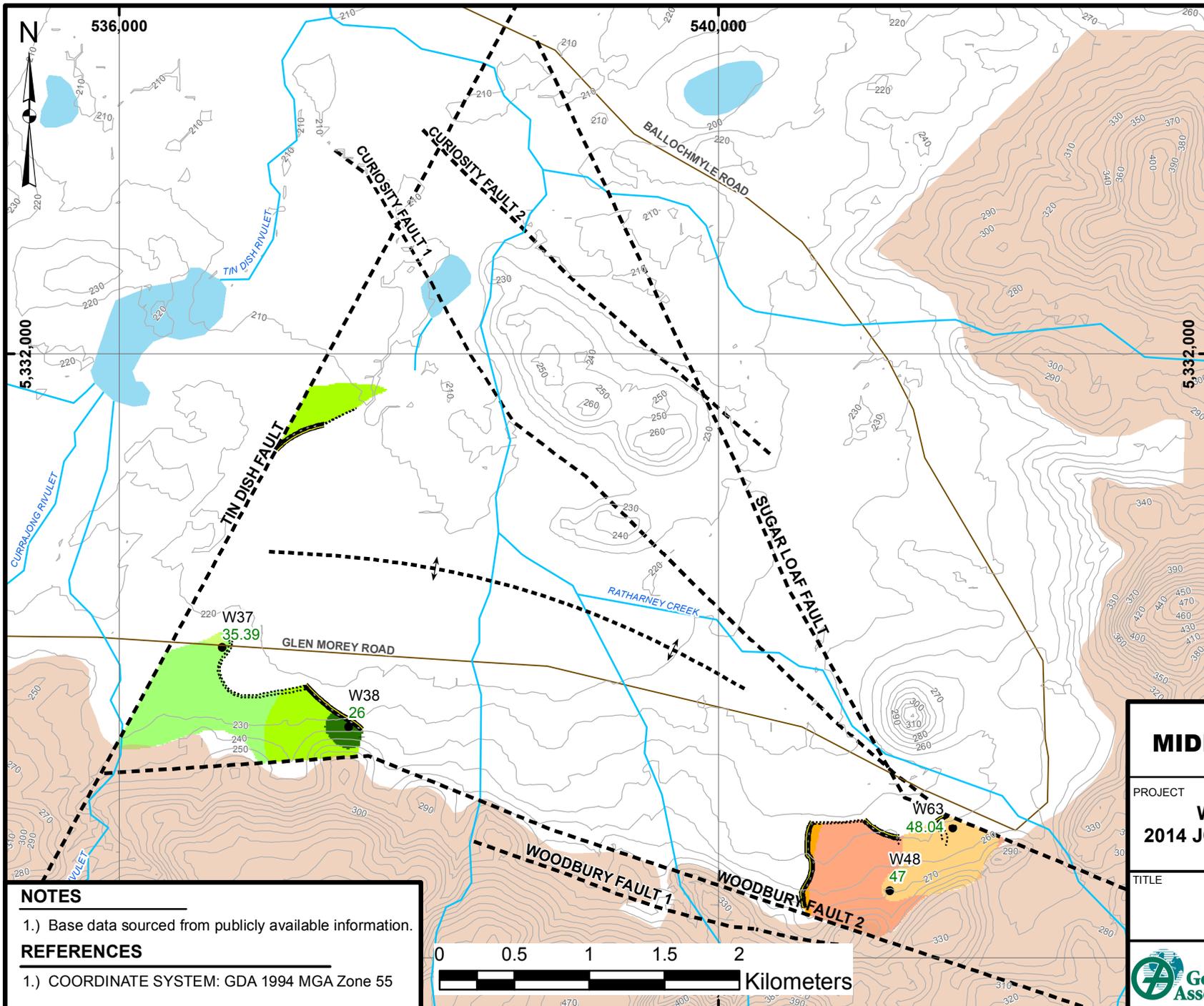
PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **BU SEAM ASH CONTENT**
COAL QUALITY ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW	20/01/2015
CHECK HJD	20/01/2015
REVIEW ADR	20/01/2015

APPENDIX B





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- C Seam Split
- C Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

		< 29	40 - 43
		29 - 32	43 - 46
		32 - 35	46 - 49
		35 - 37	49 - 52
		37 - 40	> 52

MIDLAND ENERGY LIMITED

PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **C SEAM ASH CONTENT**
COAL QUALITY ISOPLETH

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX B

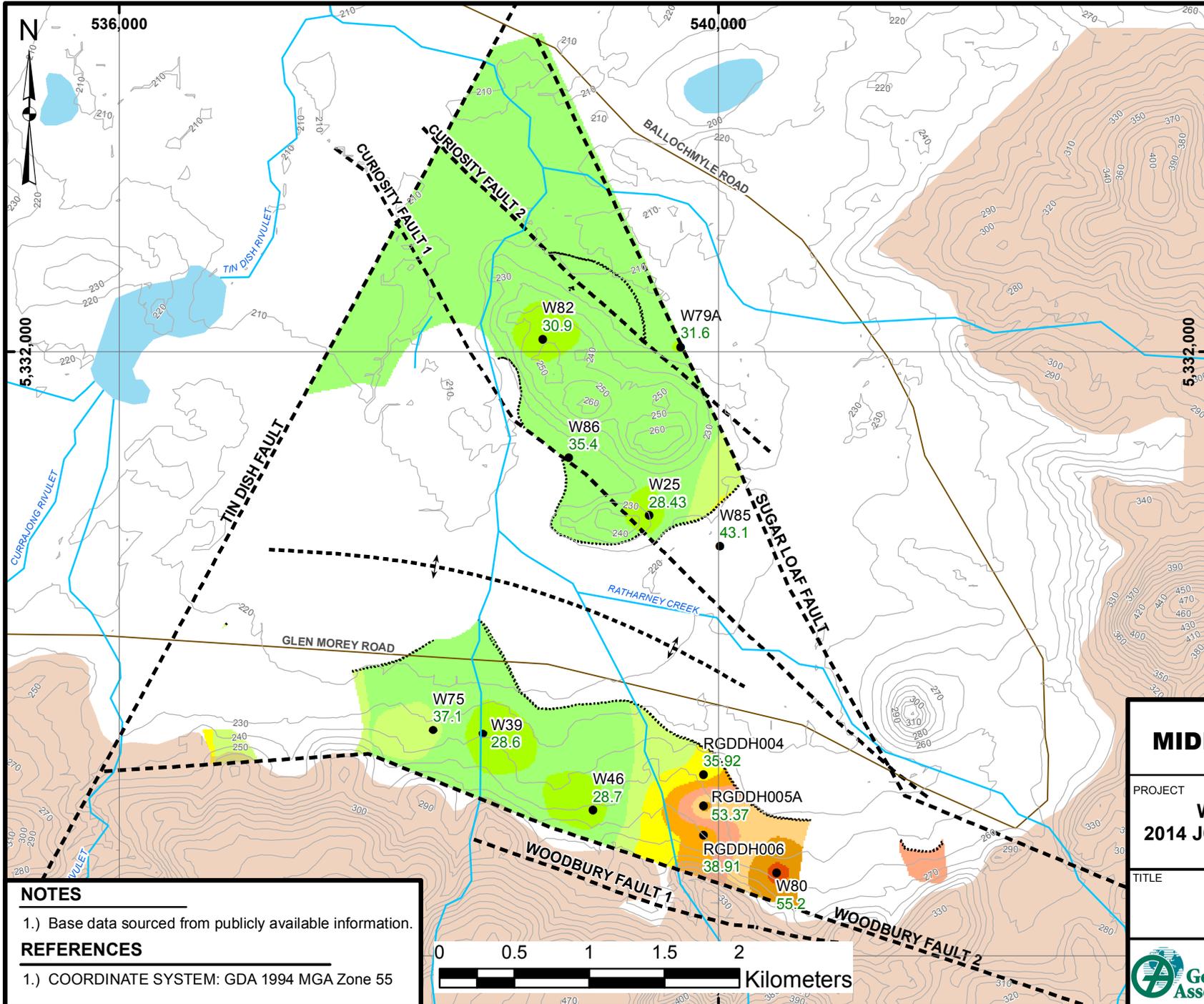
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- CL Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
CL SEAM ASH CONTENT
COAL QUALITY ISOPLETH

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

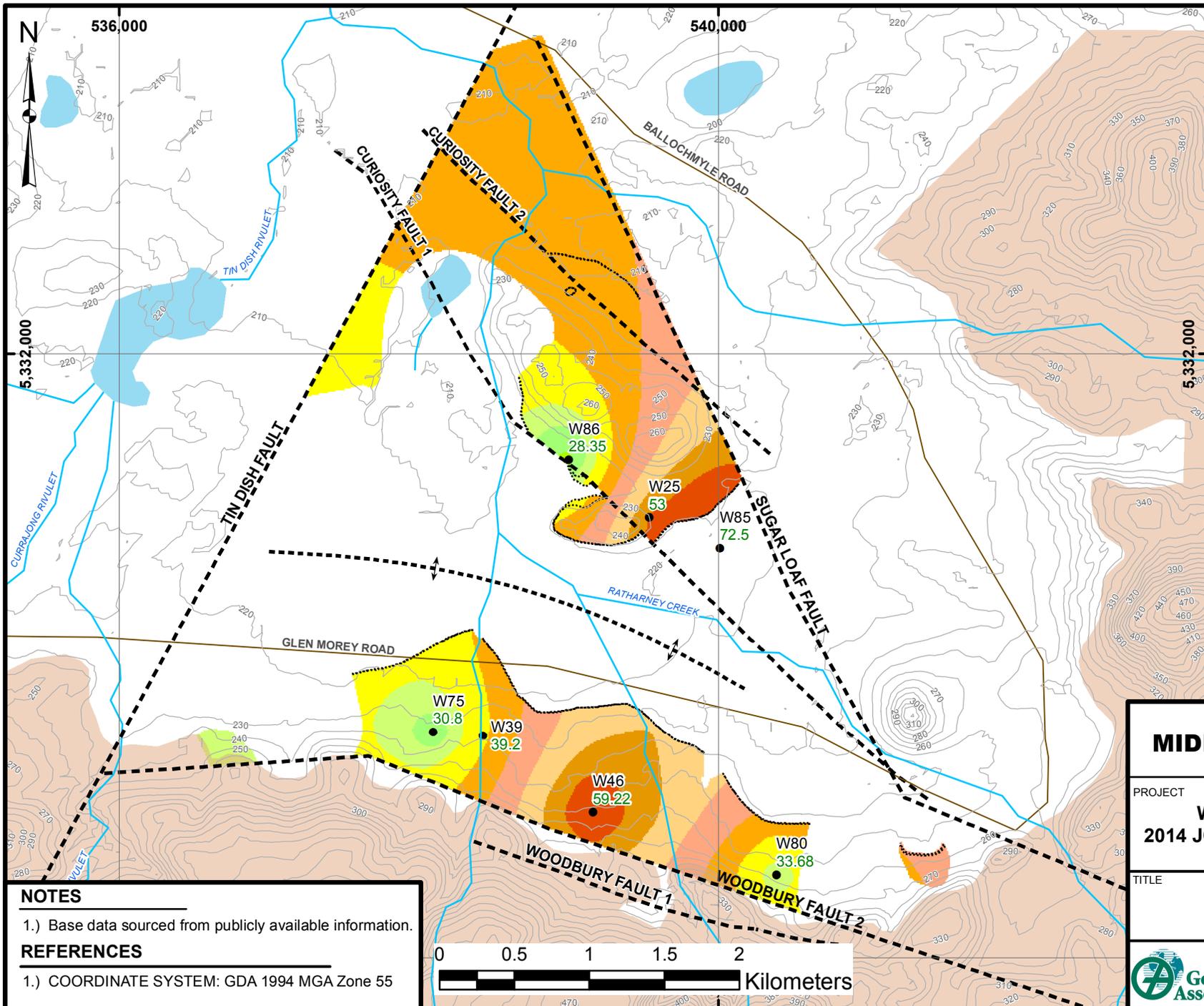
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PROJECT NO.	147621009		SCALE:	AS SHOWN
DESIGN	A4	-		
GIS	RJW	20/01/2015		
CHECK	HJD	20/01/2015		
REVIEW	ADR	20/01/2015		



APPENDIX B



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- CM Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
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NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



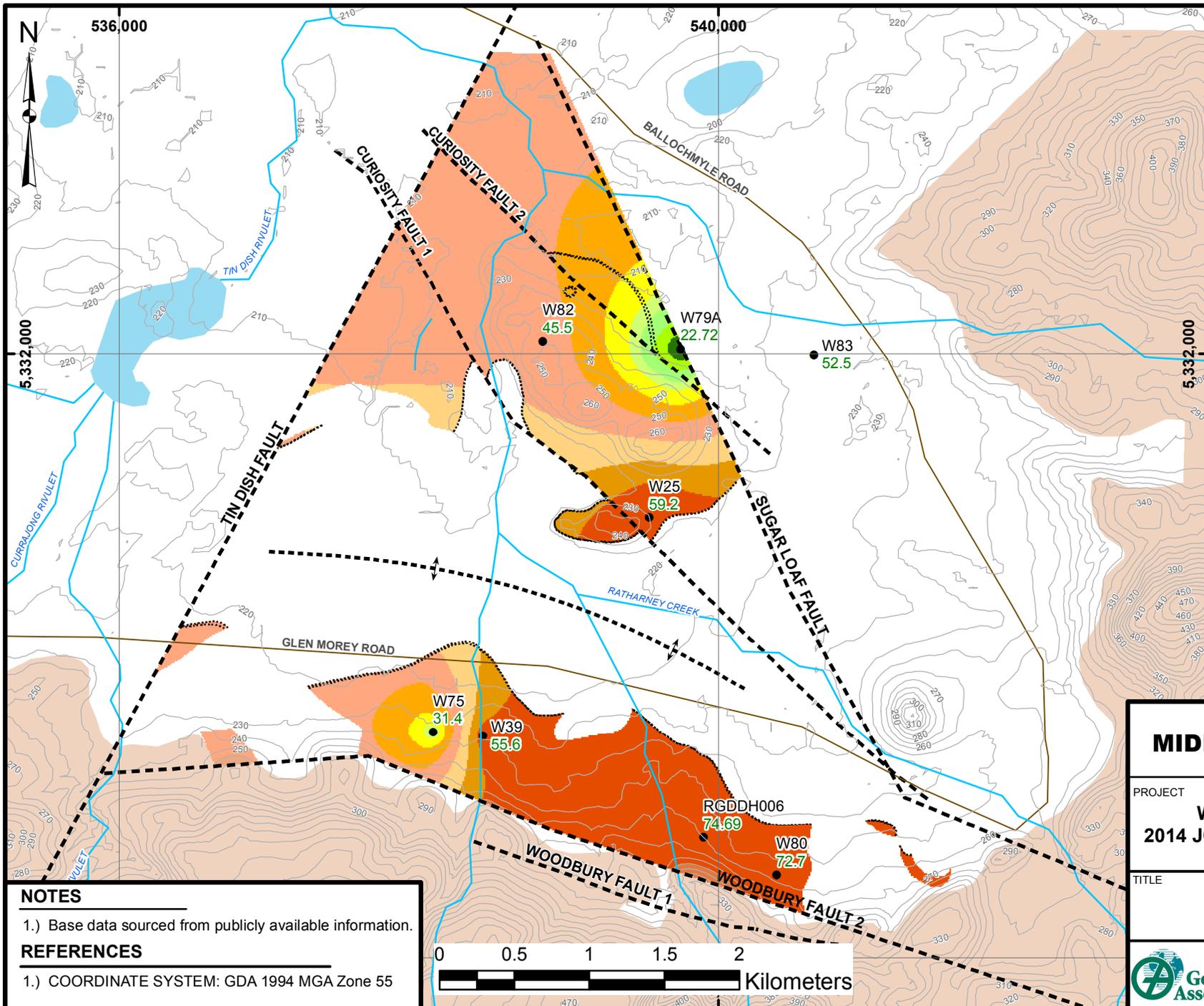
MIDLAND ENERGY LIMITED

PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **CM SEAM ASH CONTENT**
COAL QUALITY ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
GIS RJW	20/01/2015
CHECK HJD	20/01/2015
REVIEW ADR	20/01/2015

APPENDIX B



LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- CU Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**CU SEAM ASH CONTENT
COAL QUALITY ISOPLETH**

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX B

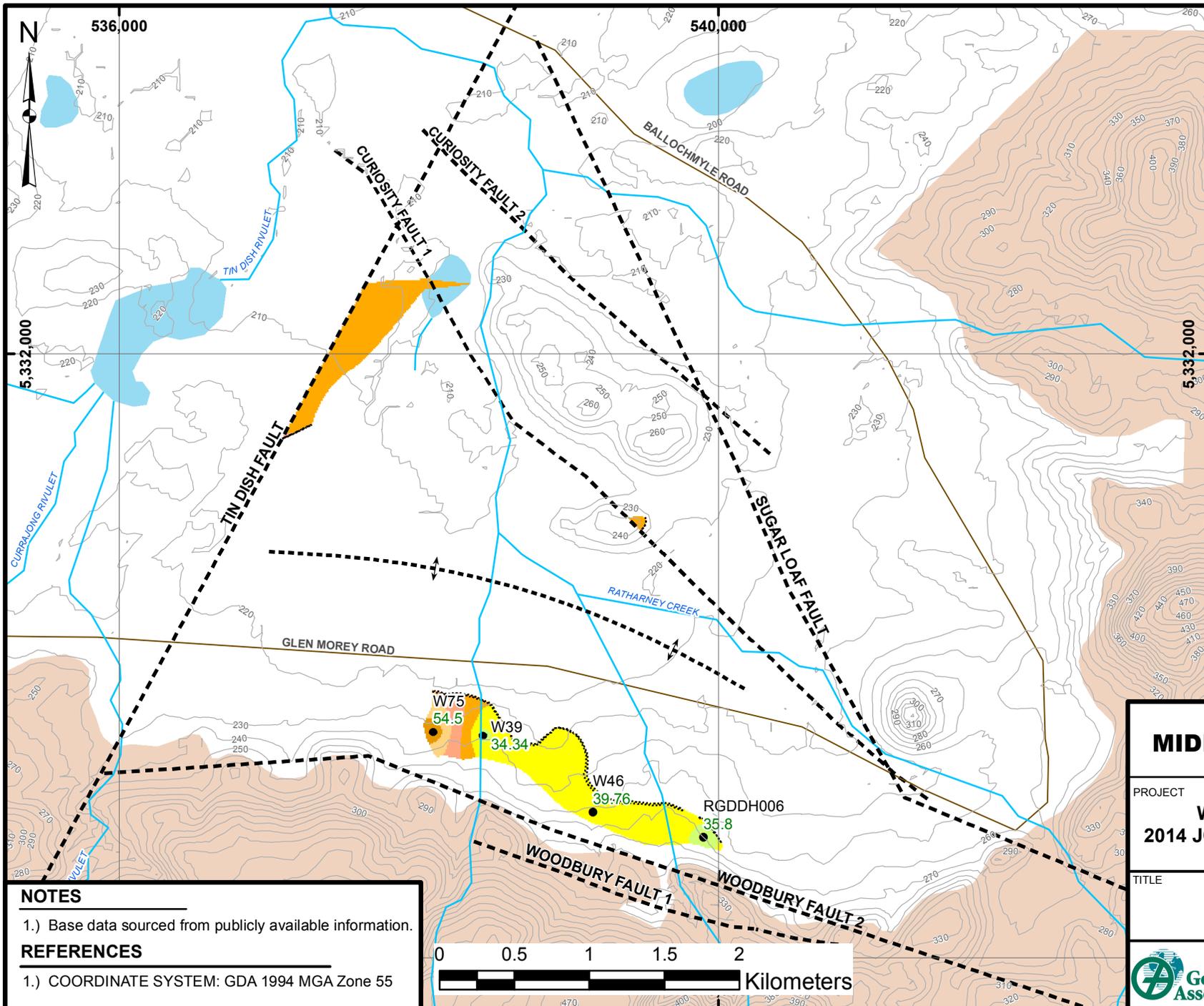
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1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- DL Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
	37 - 40		> 52

MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
DL SEAM ASH CONTENT
COAL QUALITY ISOPLETH

PROJECT NO. 147621009	SCALE: AS SHOWN
DESIGN A4	
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CHECK HJD 20/01/2015	APPENDIX B
REVIEW ADR 20/01/2015	

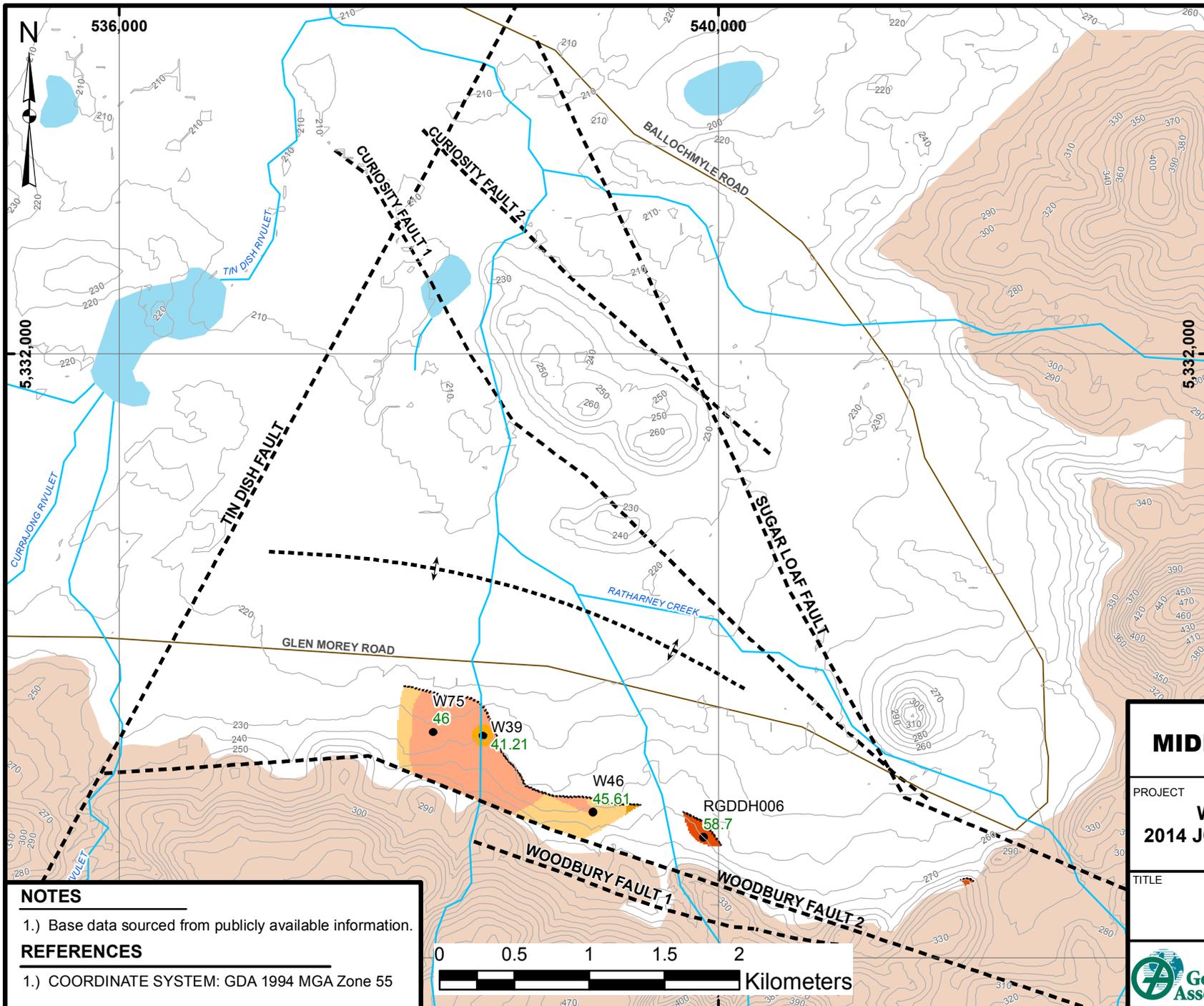
NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- DT Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
	29 - 32		43 - 46
	32 - 35		46 - 49
	35 - 37		49 - 52
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MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
**DT SEAM ASH CONTENT
COAL QUALITY ISOPLETH**

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
REVIEW	ADR	20/01/2015

APPENDIX B

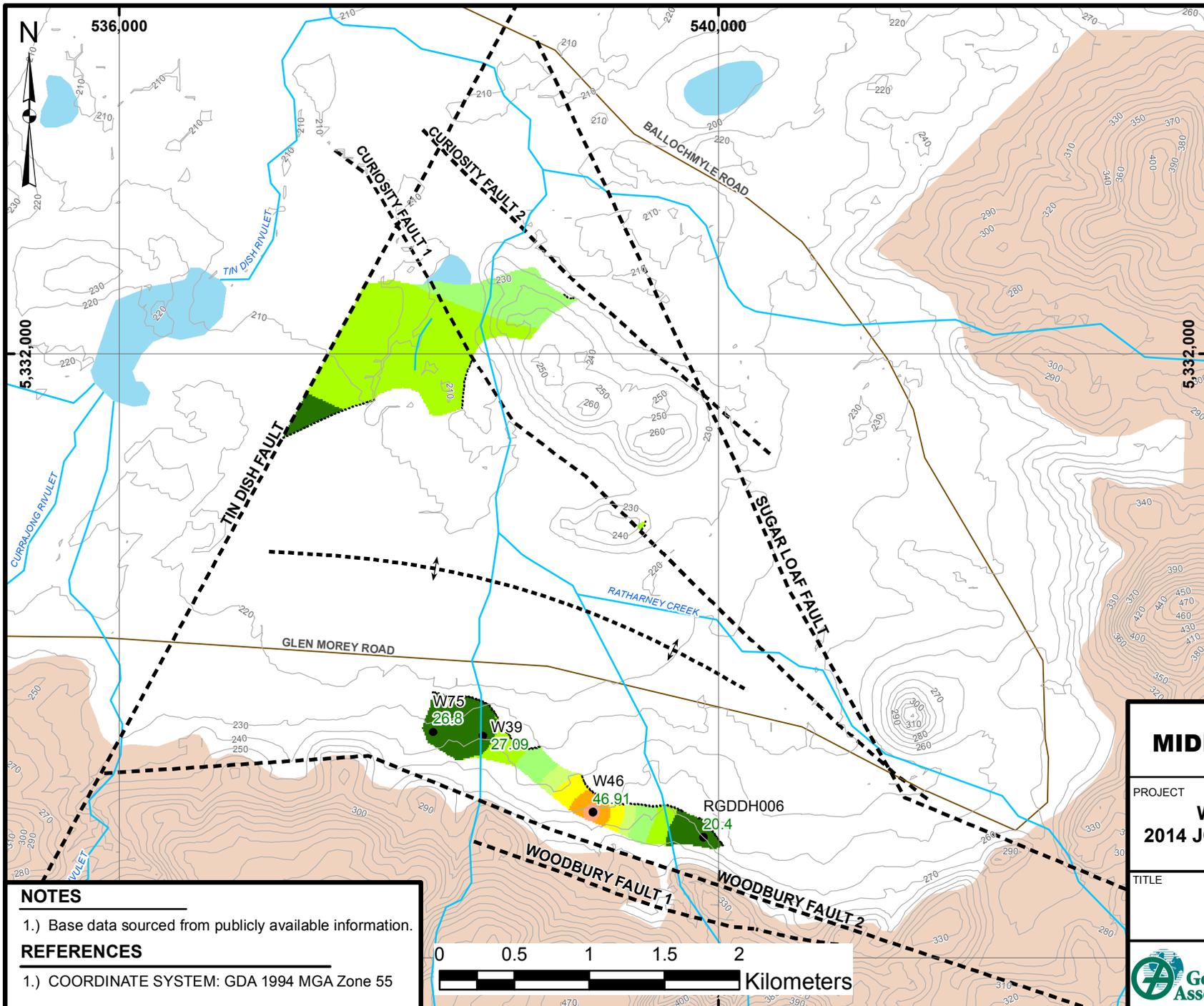
NOTES

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REFERENCES

- COORDINATE SYSTEM: GDA 1994 MGA Zone 55





LEGEND

- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- DU Seam Subcrop
- Drill Hole Location
- Ash Content % (adb)

Ash Content = % (adb)

	< 29		40 - 43
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	35 - 37		49 - 52
	37 - 40		> 52

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
DU SEAM ASH CONTENT
COAL QUALITY ISOPLETH

PROJECT NO. 147621009		SCALE: AS SHOWN
DESIGN	A4	
GIS	RJW	20/01/2015
CHECK	HJD	20/01/2015
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APPENDIX B





APPENDIX C

JORC Code Table 1: Check List of Assessment and Reporting Criteria



JORC CODE, 2012 EDITION – TABLE 1
Section 1 – Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> ■ Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. ■ Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. ■ Aspects of the determination of mineralisation that are Material to the Public Report. ■ In cases where ‘industry standard’ work has been done this would be relatively simple (e.g. ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information. 	<ul style="list-style-type: none"> ■ A total of 69 cored boreholes and 70 open boreholes have been drilled at the WCP. ■ Coal sampling has been conducted on a total of 42 cored boreholes consisting of 15 Resource Generation Ltd (ResGen), 16 W series and 11 Midland Energy Ltd (Midland) 2014 boreholes to correlated depths picked from downhole wireline geophysical logs. ■ Previous to this study, Marston International Pty Ltd (Marston) submitted one hundred and eight (108) samples to SGS Australia Pty Ltd’s (SGS) Newcastle laboratory for raw coal quality analysis. As part of the 2014 exploration program Midland submitted a further 70 seam, roof and floor samples to ALS Group Pty Ltd’s (ALS) Brisbane laboratory for analysis. ■ Groundsearch Australia Pty Ltd (Groundsearch) supplied Golder Associates Pty Ltd (Golder) with the calibration block for the density tool used to geophysically log the 2010 ResGen boreholes. ■ Endeavour Geophysics Pty Ltd (Endeavour) completed geophysical logging of all 2014 Midland boreholes. Endeavour included the calibration block for the density tool used to geophysically log the 2014 Midland boreholes.
<i>Drilling techniques</i>	<ul style="list-style-type: none"> ■ Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by 	<ul style="list-style-type: none"> ■ In 1981, Victor Petroleum Pty Ltd (Victor) completed a program of 74 cored and open rotary boreholes.



APPENDIX C

JORC Code Table 1

what method, etc.)

- In 1984, Costain Australia Ltd (Costain)/ Victor/Northwest Bay Company Pty Ltd (Northwest) completed a program of 39 boreholes (25 open, 11 partly and fully cored and three 200 mm cored in-seam intersections).
- In 2010, ResGen completed a program of 25 boreholes consisting of 15 cored boreholes and nine open boreholes. Details are as follows:
 - *Blade to between 1 m and 9 m (borehole diameter of 171 mm) and installation of 150 mm PVC surface set casing.*
 - *Borehole then bladed a further 1 m to 3 m (borehole diameter of 140 mm) and cased off with HWT.*
 - *HQ cored in 3 m lengths (diamond impregnated bit, triple tube, borehole size 96.1 mm, core size 63.5 mm) to total depth (TD).*
 - *For open boreholes, drilling was conducted with either a blade or a tri-cone bit (outside borehole diameter of 171 mm), then cased with PVC to between 1 m and 3 m depending on borehole competence, then drilled to TD using a 5 inch percussion hammer bit and truck mounted compressor.*
 - *A 6 m sump was drilled below the basal target seam and geophysically logged by Groundsearch Australia Pty Ltd.*
- In 2014, Midland completed a program of 16 boreholes consisting of ten cored boreholes and six open boreholes. Details are as follows:
 - *Blade to between 1 m and 9 m (borehole diameter of 171 mm) and installation of 150 mm PVC surface set casing.*
 - *Borehole then bladed a further 1 m to 3 m (borehole diameter*



APPENDIX C
JORC Code Table 1

		<p>of 140 mm) and cased off with HWT.</p> <ul style="list-style-type: none"> ■ HQ cored in 3 m lengths (diamond impregnated bit, triple tube, borehole size 96.1 mm, core size 63.5 mm) to total depth (TD). ■ For open boreholes, drilling was conducted with either a blade or a tri-cone bit (outside borehole diameter of 171 mm), then cased with PVC to between 1 m and 3 m depending on borehole competence, then drilled to TD using a 5 inch percussion hammer bit and truck mounted compressor. ■ A 6 m sump was drilled below the basal target seam and geophysically logged by Endeavour Geophysics Pty Ltd.
<p><i>Drill sample recovery</i></p>	<ul style="list-style-type: none"> ■ Method of recording and assessing core and chip sample recoveries and results assessed ■ Measures taken to maximise sample recovery and ensure representative nature of the samples ■ Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material 	<ul style="list-style-type: none"> ■ Core recovery (for pre-ResGen drilling) is reported to have been measured on site at the time of geological logging. For ResGen and Midland cored drilling, core recovery was measured and recorded on site at the time of geological logging. Core recoveries from both exploration programs average $\geq 95\%$ across seam sections. Core recoveries of this level have been deemed acceptable by Golder for use in resource estimation. ■ A triple-tube inner tube system was used to obtain optimum core recovery, using a 3 m barrel. ■ Open borehole recoveries were not routinely monitored, however, open boreholes were not utilised to assess coal quality.
<p><i>Logging</i></p>	<ul style="list-style-type: none"> ■ Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. ■ Whether logging is qualitative or quantitative in nature. Core (or 	<ul style="list-style-type: none"> ■ All boreholes were geologically logged by an on-site geologist to produce lithological logs. ■ Core collected from the 2010 ResGen exploration program was photographed. Core and chips collected from the 2014 Midland exploration program was photographed.



APPENDIX C
JORC Code Table 1

	<p>costean, channel, etc.) photography.</p> <ul style="list-style-type: none"> ■ The total length and percentage of the relevant intersections logged. 	<ul style="list-style-type: none"> ■ Lithological data, graphic logs and English logs corrected to geophysics were provided for both the ResGen and Midland boreholes. ■ Historical reports (pre 1990) indicate all pre-ResGen boreholes were geophysically logged. ■ All boreholes drilled as part of the 2010 ResGen drilling program were geophysically logged using calibrated equipment. Both cored and open boreholes were logged using caliper, gamma, resistivity and density. ■ All boreholes drilled as part of the 2014 Midland drilling program were geophysically logged using calibrated equipment. Open boreholes were logged using natural gamma, bulk density, differential density, long spaced density, short spaced density and bed resolution density. Cored boreholes were logged using natural gamma, caliper, bulk density, differential density, long spaced density, short spaced density, bed resolution density, resistivity and spontaneous potential. Selected cored boreholes were also logged for verticality or downhole deviation and full wave sonic.
<p><i>Sub-sampling techniques and sample preparation</i></p>	<ul style="list-style-type: none"> ■ If core, whether cut or sawn and whether quarter, half or all core taken ■ If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry ■ For all sample types, the nature, quality and appropriateness of the sample preparation technique ■ Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples 	<ul style="list-style-type: none"> ■ Destructive full core samples were taken in the field as per industry standard practices. ■ All samples were bagged and transported to the laboratory for testing. ■ Sample preparation was undertaken at NATA certified laboratories (SGS and ACIRL) in accordance with the relevant Australian Standard. ■ Sampling for coal quality was undertaken to geological boundaries, with stone bands sampled separately and composited for resource



APPENDIX C
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	<ul style="list-style-type: none"> ■ Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling ■ Whether sample sizes are appropriate to the grain size of the material being sampled 	<p>estimation.</p> <ul style="list-style-type: none"> ■ Field duplicate/second half sampling has not been completed.
<p><i>Quality of assay data and laboratory tests</i></p>	<ul style="list-style-type: none"> ■ The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total ■ For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. ■ Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established 	<ul style="list-style-type: none"> ■ As part of their 1981 exploration program, Victor Petroleum Pty Ltd (Victor) submitted a total of 237 samples to SGS Australia Pty Ltd (Sydney laboratory) for analysis. The samples included coal, roof and floor units. Analyses reported included inherent moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), specific energy (adb), total sulphur (adb) and apparent relative density (adb). Individual plies were sampled on a geological basis and in some cases composited. ■ All of the above analyses were completed according to AS 1038. ■ A total of three seam sections (W39 22.54-25.47 m, W41 11.50-12.25 m, 16.55-19.32 m and 22.75-23.30 m and W46 (18.30-20.76 m) from the above exploration program were submitted to SGS Australia Pty Ltd for sizing and washability analysis. In each case a composite was prepared from plies with designated coal sections, utilizing the maximum amount of available sample. These composites, comprising coal of nominal topsize 12.7 mm were first sized at 0.5 mm. The plus 0.5 mm fraction was then float/sink separated at gravities of 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.80, 1.90 and 2.00. Ash was determined on each fraction. The minus 0.5 mm fraction was further sized at 250, 125 and 75 microns. Ash was determined on each size fraction. ■ SGS (Sydney laboratory) is NATA certified. ■ Marston submitted a total of 108 samples to SGS (Newcastle



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laboratory) for analysis. The samples included coal, roof and floor units. Analyses reported included total moisture (ar), inherent moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), total sulphur (adb), gross calorific value (adb) and apparent relative density (adb).

- Total moisture analyses were completed according to AS 1038.1, inherent moisture, ash, volatile matter and fixed carbon analyses were completed according to AS 1038.4, total sulphur analyses were completed according to AS 1038.6.3.3, gross calorific value analyses were carried out according to AS 1038.5 and relative density analyses were carried out according to AS 1038.21.1.
- SGS (Newcastle laboratory) is NATA certified
- As part of the above exploration program a total of 50 composite and single seam samples were submitted for testing to SGS Australia Pty Ltd (Newcastle laboratory) from seams A, B, C and D. The samples were crushed to a top size of 12 mm and were tested at densities of 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0 and 2.2 in accordance with AS 4156.1. All float fractions were tested for ash content.
- Midland submitted a total of 70 samples to ALS Group Pty. Ltd.'s (ALS) Brisbane laboratory for analysis. The samples included coal, roof and floor units. Analyses reported included total moisture (ar), inherent moisture (adb), ash (adb), volatile matter (adb), fixed carbon (adb), total sulphur (adb), gross calorific value (adb) and apparent relative density (adb)
- Total moisture analyses were completed according to AS 1038.1, inherent moisture, ash, volatile matter and fixed carbon analyses were completed according to AS 1038.4, total sulphur analyses were completed according to AS 1038.6.3.3, gross calorific value analyses were carried out according to AS 1038.5 and relative



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		<p>density analyses were carried out according to AS 1038.21.1.</p> <ul style="list-style-type: none"> ■ Groundsearch Australia Pty Ltd (Groundsearch) supplied Golder Associates Pty Ltd (Golder) with the calibration block for the density tool used to geophysically log the 2010 ResGen boreholes. ■ Endeavour Geophysics Pty Ltd (Endeavour) completed geophysical logging of all 2014 Midland boreholes. Endeavour supplied Golder with the calibration block for the density tool used to geophysically log the 2014 Midland boreholes.
<p><i>Verification of sampling and assaying</i></p>	<ul style="list-style-type: none"> ■ The verification of significant intersections by either independent or alternative company personnel. ■ The use of twinned holes. ■ Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. ■ Discuss any adjustment to assay data. 	<ul style="list-style-type: none"> ■ All coal intersections utilised in the generation of the geological model have been validated by Golder. Validation work conducted includes comparison between geological logs, core photographs, and downhole wireline geophysical logs. This validation work has been conducted by Marston, the Mining and Exploration Geological Modelling Services Pty Ltd (MEGMS) and Golder (refer Section 7.2 of the 2014 Coal Resource estimate report). Any intersections that failed validation tests were excluded from the geological model (refer Table 8, Section 7.2 of the 2014 Coal Resource estimate report). ■ No twinned boreholes have been completed, however, results from borehole data as well as other sources i.e. wireline geophysics etc. are considered consistent enough for Golder to consider the supplied borehole information accurate. ■ All coal quality analyses have been cross-referenced against original laboratory reports by Golder. ■ 2014 borehole data that was sent to Golder by Midland was in MS Excel, MS Word, LAS and PDF formats (refer Section 7.1 of the of the 2014 Coal Resource estimate report). This data was formatted and imported into the existing MS Access geological database and validated as per Section 7.2 of the of the 2014 Coal Resource



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		<p>estimate report.</p> <ul style="list-style-type: none"> ■ Golder was in possession of the existing MineScape™ geological model (built by Golder in 2013), which was validated and updated, an MS Access geological database which was also validated (see above), company reports in various formats, geological logs, core photographs, site photos, wireline geophysical logs, laboratory reports, MRT reports etc. which were all utilised in the construction of the geological model and subsequent 2014 Coal Resource estimate. All data supplied was securely stored on Golder’s file servers which are backed up on a regular basis. ■ In order to generate a more realistic tonnage estimate Golder calculated a density from supplied relative density and total moisture data in accordance with the Preston-Sanders methodology, which is accepted as an industry standard. This calculated density was then utilised in estimating Resource tonnage. The formula utilised is as follows: $RD=ARD*(100-IM) / (100+ARD*(TM-IM)-TM)$.
<p><i>Location of data points</i></p>	<ul style="list-style-type: none"> ■ Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. ■ Specification of the grid system used. ■ Quality and adequacy of topographic control. 	<ul style="list-style-type: none"> ■ In relation to the 2010 ResGen exploration program, all boreholes were surveyed by a registered surveyor (Peter Binney Surveys from Granton Tasmania). ■ In relation to the 2014 Midland exploration program, all boreholes were surveyed by the supervising geologist using a handheld GPS. Borehole collars were then surveyed by a registered surveyor (National Survey Solutions). ■ Borehole co-ordinates for all boreholes contained within the geological database were then validated against the topographic surface. ■ According to Mineral Resources Tasmania (MRT) reports supplied that relate to the other two exploration programs, all borehole



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		<p>collars were surveyed.</p> <ul style="list-style-type: none"> ■ Golder validated all borehole collars against the current topographic model supplied by Midland. Any boreholes with >2 m discrepancy against the topographic model were excluded from geological model construction (refer Table 9, Section 7.2 of the 2014 Coal Resource estimate report). ■ Topographic data was originally provided to in the form of a DXF data file by ResGen. For the 2013 Coal Resource estimate, the modelled topographic surface (grid model) was generated using 5 m grid cell spacing. The topographic surface used for the 2014 geological model was also generated using 5 m grid cell spacing. ■ All geological data was provided in the GDA 1994 MGA Zone 55 co-ordinate system.
<p><i>Data spacing and distribution</i></p>	<ul style="list-style-type: none"> ■ Data spacing for reporting of Exploration Results. ■ Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. ■ Whether sample compositing has been applied. 	<ul style="list-style-type: none"> ■ In 2014, a total of 16 boreholes were drilled by Midland, comprising ten cored boreholes and six open boreholes. ■ In 2010, a total of 25 boreholes were drilled by ResGen, comprising 15 cored boreholes and nine open boreholes in a north-south orientation (up and down dip) in two parallel lines, the first line comprising a total of 12 boreholes were spaced approximately 100 m distance apart, whilst the second line were drilled between 100 m and 200 m apart. These boreholes were drilled to increase geological certainty due to a lack of good quality data from the previous 115 boreholes completed. ■ Spacing of cored boreholes ranges from 250 to 500 m over the project area. ■ Spacing of open boreholes ranges from 250 to 500 m over the project area.



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		<ul style="list-style-type: none"> ■ Golder (using semi-variographic analysis) has determined that the data spacing and distribution of both cored and open boreholes is sufficient to establish the degree of geological and grade (raw coal quality) continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. ■ In relation to the 2014 Midland exploration program, individual plies were composited and proximate analysis was available for all seams that were sampled. ■ In relation to the 2010 ResGen exploration program, individual plies were composited and proximate analysis was available for all seams that were sampled. In other instances Marston used the composite analysis for the complete interval. ■ In relation to the historic Victor exploration program, individual plies were sampled on a geological basis and in some cases composited. Proximate analysis was available for all seams sampled.
<p><i>Orientation of data in relation to geological structure</i></p>	<ul style="list-style-type: none"> ■ Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. ■ If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. 	<ul style="list-style-type: none"> ■ Boreholes have all been drilled vertically. A total of seven downhole deviation logs were supplied to Golder (from the 2014 Midland exploration program). These surveys were incorporated into the geological database. The amount of deviation from vertical (no more than 1.5 m) is not considered to have introduced a material sampling bias. ■ The dip of the coal seams over the entire deposit range between 4° and 8° towards the south. ■ The Tin Dish, Sugar Loaf, Woodbury and Curiosity 1 and 2 Faults as well as a local anticline north of the Woodbury Fault comprise the major structures within the WRA.



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		<ul style="list-style-type: none">■ Vertical drilling is considered the most suitable method to assess the geological setting based on the current understanding of the deposit.■ In 2010 a total of 25 boreholes were drilled by ResGen, comprising 15 cored boreholes and nine open boreholes in a north-south orientation (up and down dip) in two parallel lines, the first line comprising a total of 12 boreholes were spaced approximately 100 m distance apart, whilst the second line were drilled between 100 and 200 m apart. These boreholes were drilled to increase geological certainty due to a lack of good quality data from the previous 115 boreholes completed. Golder considers that the overall orientation of data in relation to geological structure does not result in a biased sampling of possible structures as the boreholes orientated in a linear chain have only been used for resource estimation purposes where supporting drilling up and down dip is present.■ Golder recommends the conducting of downhole deviation/verticality surveys for all boreholes for any future exploration drilling conducted.
<i>Sample security</i>	<ul style="list-style-type: none">■ The measures taken to ensure sample security.	<ul style="list-style-type: none">■ For all three exploration programs, core logging and sampling was undertaken by professional geologists on private property with locked gates. Once coal quality samples to be analysed were delivered to the relevant laboratory, a sample listing was cross-checked and confirmed with the client sending the samples. Golder has assessed the risk of sabotage and/or sample interference/theft as minimal.
<i>Audits or reviews</i>	<ul style="list-style-type: none">■ The results of any audits or reviews of sampling techniques and data.	<ul style="list-style-type: none">■ After an initial review of the MEGMS geological model, Marston made some minor re-correlations based on the 2010 ResGen drilling results. The base of weathering (BOW)/Base of Oxidation (BOX) was determined by using field logs based on field geologist's interpretations. Rod Davis (contracted by ResGen)



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correlated seams for the 25 boreholes drilled during the 2010 ResGen exploration program. Marston later reviewed these seam/ply picks and chose to re-assign some seam names based on new geological modelling data generated.

- AMC Consultants Pty Ltd (AMC) provided an independent geological review of the Energy Investments Limited (EI) Tasmanian Coal Project. The review included exploration programs and previous non-JORC estimates of both quality and quantity.
- Golder conducted a thorough review of all data within the current geological database and model; resulting in the exclusion of any data that failed certain geological criteria (refer Section 5.2.3 of the 2013 Coal Resource estimate report).
- Golder conducted a review and subsequent re-correlation of the current seam/ply picks as part of the Resource estimation project (refer Section 5.3 of the 2013 Coal Resource estimate report).
- Golder conducted a thorough review of all data within the current geological database and model; resulting in the exclusion of any data that failed certain geological criteria (refer Table 8, Section 7.2 of the 2014 Coal Resource estimate report).
- Golder conducted a review and subsequent re-correlation of the current seam/ply picks as part of the Resource estimation project (refer Table 11, Section 8.1 of the 2014 Coal Resource estimate report).
- SGS and ACIRL undertook internal audits and checks in line with Australian Standards and their NATA certification.



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Section 2 – Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<p><i>Mineral tenement and land tenure status</i></p>	<ul style="list-style-type: none"> ■ Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. ■ The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	<ul style="list-style-type: none"> ■ EL65/2007 was granted to EI in September of 2008. ■ In October of 2008, EI was sold by its owners to ResGen. ResGen conducted extensive exploration within the tenement. ■ Midland purchased EI in September of 2011 and continued exploration works within the EL65/2007 tenement. ■ In February 2014, EI completed a part relinquishment of EL65/2007. A total of 120 km² was relinquished. The area relinquished was considered to have limited potential for Coal Resources due to geological constraints such as dolerite intrusions and limited extent of host rocks. It was also thought that community issues may limit the “social license to operate” of any discovered resources within the vicinity of the Midlands Highway, the township of Tunbridge and the historic Mona Vale Estate (EI 2014). The area relinquished in comparison to the original EL65/2007 boundary can be seen in Figure 6, Table 2 and Table 3 of the 2014 Coal Resource estimate report. ■ EL65/2007 is pending renewal as at December 2014. ■ Golder does not envisage any impediments to obtaining a licence to operate in the area.
<p><i>Exploration done by other parties</i></p>	<ul style="list-style-type: none"> ■ Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> ■ An initial exploration program of 74 cored and open rotary boreholes was conducted in 1981 by Victor within EL31/80. In-situ Measured and Indicated resources (non-JORC compliant)



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<i>Criteria</i>	<i>JORC Code explanation</i>	<i>Commentary</i>
		<p>were estimated based on 18 of these boreholes.</p> <ul style="list-style-type: none"> ■ In 1984, a joint venture between Costain Australia Limited (50%), Victor (40%) and Northwest Bay Company Pty Ltd (10%), conducted another exploration program consisting of 39 boreholes within EL31/80. The program consisted of 25 open boreholes, 11 partly and fully cored HQ diamond boreholes and three 200 mm cored seam intersections. The aim of the program was to further delineate the geological structure and coal seam stratigraphy. ■ In 2010 ResGen completed an exploration program consisting of 25 boreholes (15 cored and nine open boreholes). ■ In 2014, a total of 16 boreholes were drilled by Midland, comprising ten cored boreholes and six open boreholes.
<i>Geology</i>	<ul style="list-style-type: none"> ■ Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> ■ The project is located within the Woodbury Coalfield of Tasmania. ■ The target coal seams are Triassic in age. The host rock in which the coal seams occur is lithic sandstone belonging to the Upper Parmeener Supergroup. ■ Structurally, the geology within the resource area appears to contain some localised small scale faulting i.e. the Curiosity faults. ■ The WRA was delineated by MEGMS in the initial geological model based on the interpreted presence of a total of three major fault structures surrounding the deposit. Marston and Golder have utilised the same WRA in both the previous and current geological models to estimate coal tonnages and



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Criteria	JORC Code explanation	Commentary
		<p>quality.</p> <ul style="list-style-type: none"> ■ The coal present within the WRA is interpreted by Golder as thermal coal potentially suitable for power station supply as well as other markets such as cement manufacture.
<i>Drill hole Information</i>	<ul style="list-style-type: none"> ■ A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> ■ easting and northing of the drill hole collar ■ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ■ dip and azimuth of the hole ■ down hole length and interception depth ■ hole length ■ If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. 	<ul style="list-style-type: none"> ■ Exploration results are not being reported. ■ All the available/supplied geological information has been utilised to produce a Coal Resource estimate. ■ All information material to the Coal Resource estimate is contained within the 2014 Coal Resource estimate report and associated appendices including a table of 2014 drillhole information such as borehole identifier, orientation, total depth and borehole type.
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> ■ In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. ■ Where aggregate intercepts incorporate short lengths of high 	<ul style="list-style-type: none"> ■ Exploration results are not being reported. ■ Golder has utilised a minimum thickness cut-off of 0.10 m and a maximum raw ash cut-off of 50% (adb). Only Coal Resources that fall within this range have been estimated and reported.



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Criteria	JORC Code explanation	Commentary
	<p>grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</p> <ul style="list-style-type: none"> ■ The assumptions used for any reporting of metal equivalent values should be clearly stated. 	<ul style="list-style-type: none"> ■ The available/supplied geological information has been utilised to produce a Coal Resource estimate. ■ All information material to the Coal Resource estimate is contained within the 2014 Coal Resource estimate report and associated appendices.
<p><i>Relationship between mineralisation widths and intercept lengths</i></p>	<ul style="list-style-type: none"> ■ These relationships are particularly important in the reporting of Exploration Results. ■ If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. ■ If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known'). 	<ul style="list-style-type: none"> ■ Seam A is difficult to define laterally, although statistically it is possibly the most continuous of seams present within the WRA. ■ Section 8.2 of the 2014 Coal Resource estimate report demonstrates the number of intercepts and average thickness of those seams/plies which have had Coal Resources estimated. ■ All boreholes (apart from the 2014 Midland boreholes that possess verticality survey information) are assumed vertical i.e. downhole thicknesses reported, true thicknesses are not known. Golder interprets that the shallow seam dips within the WRA and the small deviation seen in boreholes surveyed suggests that thicknesses reported would approximate true thicknesses.
<p><i>Diagrams</i></p>	<ul style="list-style-type: none"> ■ Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. 	<ul style="list-style-type: none"> ■ All borehole locations are presented in Figure 8, Section 3.0 of the 2014 Coal Resource estimate report. ■ Floor contours for all seams/plies with Coal Resources estimated are presented in Appendix A of the 2014 Coal Resource estimate report. ■ Structure thickness contours for all seams/plies with Coal



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Criteria	JORC Code explanation	Commentary
		<p>Resources estimated are presented in Appendix A of the 2014 Coal Resource estimate report.</p> <ul style="list-style-type: none"> ■ Raw ash contours for all seams/plies with Coal Resources estimated are presented in Appendix A of the 2014 Coal Resource estimate report. ■ Representative geological cross-sections are presented in Figure 11 of the 2014 Coal Resource estimate report. ■ Coal Resource category polygons plans for all seams/plies with Coal Resources estimated are presented in Appendix D of the 2014 Coal Resource estimate report.
<i>Balanced reporting</i>	<ul style="list-style-type: none"> ■ Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. 	<ul style="list-style-type: none"> ■ Exploration results are not being reported. ■ The available/supplied geological information has been utilised to produce a Coal Resource estimate. ■ All information material to the 2014 Coal Resource estimate is contained within the 2014 Coal Resource estimate report and associated appendices.
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> ■ Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. 	<ul style="list-style-type: none"> ■ Geophysical logs were available for all 14 Midland 2014 boreholes (two of the 16 boreholes completed were re-drills with the abandoned boreholes not being logged), 25 ResGen boreholes and 33 historic boreholes. ■ Known dolerite intrusions in the area overly the coal in some instances. The dolerite intrusion in the north of the WRA was drill tested as part of the 2014 Midland exploration program. Coal beneath this intrusion was intersected and found not to be



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Criteria	JORC Code explanation	Commentary
		<p>heat affected.</p> <ul style="list-style-type: none"> ■ Tonnage estimated in both the Marston report and the Golder 2013 Coal Resource estimate report excludes coal found beneath igneous intrusions as insufficient data exists to verify geological continuity. Tonnage estimated in the Golder 2014 Coal Resource estimate includes coal previously excluded due to its location beneath igneous intrusions. Boreholes were drilled to test this geological setting and coal was found to be present beneath the dolerite hill in the north of the WRA. ■ To date, geotechnical and hydrogeological work has not been completed. Golder has recommended (Section 10 of the 2014 Coal Resource estimate report) that work of this nature should be incorporated into future exploration programs. ■ Golder has also recommended (Section 10 of the 2014 Coal Resource estimate report) that 2D seismic surveying be conducted with the aim of establishing increased certainty around interpreted fault locations, orientations and displacements.
<i>Further work</i>	<ul style="list-style-type: none"> ■ The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). ■ Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	<ul style="list-style-type: none"> ■ Golder recommends a cored drilling program with the aim being to verify the continuity of both the geological structure and coal quality of the resource. It is expected that conducting this work would result in an increase in borehole (with complete datasets) density with the aim of raising the Coal Resource classifications and tonnage estimates (Section 10 of the 2014 Coal Resource estimate report). ■ Both geotechnical and hydrogeological sampling and analysis are recommended as part of future exploration programs.



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Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> ■ The development a Limit of Oxidation (LOX) line drilling program to assist in defining the edge of crop should be considered. This will also give greater confidence in the base of weathering as opposed to visual identification of the oxidised boundary by the logging geologist. ■ The location (and incorporation into the project geological database) of missing data from historical drilling programs is recommended. MRT should be contacted to arrange a viewing of all historical data (drill cores) that may be associated with the project. ■ 2D seismic surveying should be conducted with the aim of establishing increased certainty around interpreted fault locations, orientations and displacements.

Section 3 – Estimation and Reporting of Mineral Resources

(Criteria listed in Section 1, and where relevant in Section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Database integrity</i>	<ul style="list-style-type: none"> ■ Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. ■ Data validation procedures used. 	<ul style="list-style-type: none"> ■ All data within the supplied MS Access geological database was validated by Golder as was the MineScape™ 2013 geological model prior to Golder completing a re-correlation exercise and subsequent geological database update and geological model update. ■ Discrepancies between lithology and total depth were checked. ■ Boreholes with miscorrelations were corrected in the geological



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		<p>database prior to the geological model being updated.</p> <ul style="list-style-type: none"> ■ Refer to Section 7.2 of the 2014 Coal Resource estimate report for details of validation work conducted.
<p><i>Site visits</i></p>	<ul style="list-style-type: none"> ■ Comment on any site visits undertaken by the Competent Person and the outcome of those visits. ■ If no site visits have been undertaken indicate why this is the case. 	<ul style="list-style-type: none"> ■ A site visit was undertaken by Mr. Aaron Radonich (Senior Geologist, Golder) and Ms. Faye Jones (Senior Geostatistician, Golder Associates) on October 1 to 3, 2013. The site was visited to establish an understanding of the site geography/geomorphology, road/rail access and proximity, proposed open cut mine location, proposed infrastructure i.e. CHPP and any potential community issues etc. A site visit was not undertaken in relation to the 2014 Coal Resource estimate as the Competent Person was confident that existing exploration procedures were utilised as part of the 2014 Midland exploration program.
<p><i>Geological interpretation</i></p>	<ul style="list-style-type: none"> ■ Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. ■ Nature of the data used and of any assumptions made. ■ The effect, if any, of alternative interpretations on Mineral Resource estimation. ■ The use of geology in guiding and controlling Mineral Resource estimation. ■ The factors affecting continuity both of grade and geology. 	<ul style="list-style-type: none"> ■ A total of 143 boreholes (31 excluded from the geological model build) have been drilled across the deposit. This data set has been used to develop a sound understanding of the geological/structural setting of the project area. A 2014 review of seam/ply correlations was completed by Golder, with some changes made to existing correlations (refer Table 11, Section 8.1 of the 2014 Coal Resource estimate report). ■ All boreholes not possessing a verticality survey were assumed vertical. ■ Due to the relatively simple geological structure of the deposit, alternative interpretations have not been considered. ■ The three faults bounding the WRA have been used to limit geological and coal quality models. Coal Resource polygons have also been limited to within 50 m of a fault due to the relative uncertainty of fault location, orientation and



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		<p>displacements.</p> <ul style="list-style-type: none">■ Marston previously reviewed possible additional exploration requirements to provide sufficient data to increase confidence levels and enable Coal Resource estimates to be stated at the Indicated category level for a significant portion of the deposit.■ The principle structure containing the coal bearing sequence on the Woodbury plain is a narrow graben trending north-south with an elongate dolerite intrusion lying to both the east and south. It has been suggested in previous reviews of the area that the coal bearing sequence possibly extends southward beneath the dolerite intrusion that dominates the region; however, there is no borehole data available to support this theory at this time.■ Generally with increased drilling density (2014 Midland exploration program), an increase in continuity of both thickness and raw coal quality has been seen. It is envisaged that these indicators would further increase with more exploration work.
<p><i>Dimensions</i></p>	<ul style="list-style-type: none">■ The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<ul style="list-style-type: none">■ The geological model for the project area covers a total of 132km² within the bounds of EL65/2007.■ EL65/2007 covers a total area of 115km².■ There is no depth limit on the current geological model nor is there a cut-off depth in terms of Coal Resource estimation.■ Appendices A, B and D of the 2014 Coal Resource estimate report display the variation in raw ash content, Depth to Floor (DF), Structure Floor (SF) and Coal Resources for all seams/plies with Coal Resources estimated.



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Estimation and modelling techniques

- The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
- The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
- The assumptions made regarding recovery of by-products.
- Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
- In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
- Any assumptions behind modelling of selective mining units.
- Any assumptions about correlation between variables.
- Description of how the geological interpretation was used to control the resource estimates.
- Discussion of basis for using or not using grade cutting or capping.
- The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.
- Exploration borehole information was utilised to develop a geological model, which was used as the basis for Coal Resource estimation.
- Coal seams were identified from lithological logging of boreholes by a trained geologist and validated/cross-referenced against various sources of data i.e. wireline geophysics and coal quality analyses.
- Seam/ply correlation was previously completed by Marston and subsequently by Golder, with the geological database and model being subsequently updated (once in 2013 and again in 2014).
- No acid mine drainage or pyrite content of coal investigations have been completed to date.
- As part of the 2014 Coal Resource estimate a comparison was made between the 2013 and 2014 estimates with an explanation of the difference supplied.
- Coal quality samples taken from cored boreholes were sent to NATA accredited laboratories for analysis according to the appropriate standards.
- Geological data was utilised in geological modelling software MineScape™ version 5.7, in the form of three separate .csv files containing borehole collars, seam/ply picks and raw coal quality. All data was validated prior to importation.
- Once data import was completed, a grid based geological and coal quality model was developed.
- A total of four dummy boreholes were used in the model along



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the southern boundary of the WRA to control seam structure. This gave the model better extrapolation in areas where there was insufficient borehole coverage

- Any missing seams/plies were interpolated and set to zero thickness above borehole collar RL and below borehole total depth. This includes dummy boreholes.
- Once generated, the geological model was interrogated/validated with cross-sections, contours and reports generated through MineScape™ and updated as deemed necessary.
- Coal Resources were reported from the geological model using the Coal Resource categorisation polygons for each seam/ply to limit the estimate to within the areas defined by each set of relevant polygons.
- Masks were created in the structural model to delimit all dolerite within the resource area (apart from the dolerite in the north). The masks prevented the model from estimating coal tonnage beneath the dolerite, as data was not available to verify the continuity of the seams/plies beneath this unit.
- A total of 112 boreholes were used in the generation of the geological model (31 excluded, refer to Table 7, Section 7.1 of the 2014 Coal Resource estimate report).
- The Relative Density (RD) used in the modeling is an in-situ density calculated using the Preston Sanders correction.
- Golder calculated an in-situ density from supplied relative density and total moisture determinations in accordance with the Preston-Sanders methodology, which is accepted as an industry standard. This calculated density was then utilised in



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		estimating Resource tonnage. The formula utilised is as follows: $RD=ARD*(100-IM)/(100+ARD*(TM-IM)-TM)$.
<i>Moisture</i>	<ul style="list-style-type: none"> Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content 	<ul style="list-style-type: none"> Tonnage was reported to include natural moisture. Total moisture content reported averages 6.0% (ar). Inherent moisture content reported averages 4.4% (adb).
<i>Cut-off parameters</i>	<ul style="list-style-type: none"> The basis of the adopted cut-off grade(s) or quality parameters applied 	<ul style="list-style-type: none"> Total estimated Coal Resources were not limited by depth. All seam roofs and floors were truncated by the Base of Weathering (BOW) surface. All Coal Resources estimated were limited to a minimum seam/ply thickness of 0.10 m and a raw ash of $\leq 50\%$ (adb). i.e. only Coal Resources that meet these cut-off criteria have been estimated and reported. Seams/plies are generally high ash due to their interbedded nature. It is expected that high ash seams/plies would be recovered as Coal Resource during mining and subsequent processing would improve quality to a more acceptable market specification.
<i>Mining factors or assumptions</i>	<ul style="list-style-type: none"> Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with 	<ul style="list-style-type: none"> The only assumption that has been made is that the estimated Coal Resources will be mined utilising surface mining extraction methods. Coal Resource estimates represent in-situ tonnages and no mining roof and floor loss or dilution parameters have been applied. Assumptions made regarding mining methods and parameters



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	<p>an explanation of the basis of the mining assumptions made</p>	<p>are not rigorous at this stage but more conceptual in nature. More detailed mining studies will be required as the WCP progresses through the various levels of feasibility.</p>
<p><i>Metallurgical factors or assumptions</i></p>	<ul style="list-style-type: none"> ■ The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made 	<ul style="list-style-type: none"> ■ No metallurgical assumptions have been applied during the Coal Resource estimation process. ■ Assumptions made regarding metallurgical factors are not rigorous at this stage but more conceptual in nature. More detailed studies will be required as the WCP progresses through the various levels of feasibility. ■ In 2011, ResGen commissioned Golder to plan and supervise a float-sink test program on HQ core samples obtained from the 2010 drilling program (refer “Quality of assay data and laboratory tests” section of this table). The study concluded that a product with average ash content of 20% (adb) could theoretically be achieved through washing with an average apparent yield of 61%. Further collection and analysis of float/sink samples is required as the WCP progresses through the various levels of feasibility, in order to evaluate product yields and better understand potential product streams.
<p><i>Environmental factors or assumptions</i></p>	<ul style="list-style-type: none"> ■ Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made 	<ul style="list-style-type: none"> ■ No environmental assumptions have been incorporated into the geological modelling or Coal Resource estimation process. ■ Assumptions made regarding environmental factors are not rigorous at this stage but more conceptual in nature. More detailed studies will be required as the WCP progresses through the various levels of feasibility. ■ Golder is not aware of any significant environmental risk associated with EL65/2007. The land is currently utilised for farming, dominantly cropping purposes and there is no residential housing in the immediate area surrounding the



APPENDIX C
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		<p>proposed mine or infrastructure sites.</p>
<p><i>Bulk density</i></p>	<ul style="list-style-type: none"> ■ Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples ■ The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit ■ Discuss assumptions for bulk density estimates used in the evaluation process of the different materials 	<ul style="list-style-type: none"> ■ Golder calculated an in-situ density from supplied relative density and total moisture determinations in accordance with the Preston-Sanders methodology, which is accepted as an industry standard. This calculated density was then utilised in estimating Resource tonnage. The formula utilised is as follows: $RD=ARD*(100-IM) / (100+ARD*(TM-IM)-TM)$. ■ Relative density and Preston-Sanders relative density grid models were developed for all seams/plies estimated. ■ Coal Resources are estimated and reported on an air dried basis (adb).
<p><i>Classification</i></p>	<ul style="list-style-type: none"> ■ The basis for the classification of the Mineral Resources into varying confidence categories. ■ Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). ■ Whether the result appropriately reflects the Competent Person's view of the deposit. 	<ul style="list-style-type: none"> ■ Coal Resources were classified by defining Points of Observation (POO) on a ply by ply basis and by generating Coal Resource confidence polygons around the designated POO for each ply. ■ POO for Indicated Coal Resources confidence polygons were defined as cored boreholes that intersected the seam/ply and where the seam/ply had been sampled and had coal quality available. ■ POO for Inferred Coal Resources confidence polygons included the above plus open boreholes that had wireline geophysical logging data available. ■ Coal Resource classification distances were generated by way of statistical and geostatistical (modelling and analysis of semi-variograms) review of both thickness and key raw coal quality parameters. The lesser of the maximum continuity (thickness and key raw coal quality parameters) was used as range for



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determining Coal Resource classification distances. The maximum continuity was used for generating Inferred Coal Resources classification distance and half the maximum continuity was used for generating Indicated Coal Resources classification distance. No Measured Coal Resources were estimated.

- The following distances between POO were used to generate the corresponding Coal Resource categorisation polygons:
- D Seam Measured Coal Resources = None estimated.
- D Seam Indicated Coal Resources = None estimated.
- D Seam Inferred Coal Resources = 1,000 m (minimum of two POO to form a polygon).
- C Seam Measured Coal Resources = None estimated.
- C Seam Indicated Coal Resources = None estimated.
- C Seam Inferred Coal Resources = 1,500 m (minimum of two POO to form a polygon).
- B Seam Measured Coal Resources = None estimated.
- B Seam Indicated Coal Resources = 900 m (minimum of three POO to form a polygon).
- B Seam Inferred Coal Resources = 1,000 m (minimum of two POO to form a polygon).
- A Seam Measured Coal Resources = None estimated.



APPENDIX C
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		<ul style="list-style-type: none"> ■ A Seam Indicated Coal Resources = None estimated. ■ A Seam Inferred Coal Resources = 1,500 m (minimum of two POO to form a polygon). ■ Inferred Coal Resources have been classified on geostatistically derived POO distances based on thickness values. ■ Indicated Coal Resources have been classified on geostatistically derived POO distances based on both raw ash (adb) and thickness values obtained from borehole intercepts. ■ Insufficient raw ash data in seams A, C and D precluded CQ variography and confirmation of CQ continuity. Therefore Resources for these seams were limited to Inferred only. ■ POO that possessed seam/ply thickness and raw coal quality from cored boreholes were used for Indicated Coal Resources. These POO plus open boreholes that possess downhole geophysical logs were used for Inferred Coal Resources. ■ Increased borehole density (particularly cored bore holes with coal quality analysis) would allow the Coal Resource estimate to be reported at a higher confidence level.
<p><i>Audits or reviews</i></p>	<ul style="list-style-type: none"> ■ The results of any audits or reviews of Mineral Resource estimates 	<ul style="list-style-type: none"> ■ The geological database review/update, geological model review/update and Coal Resource estimation were conducted by Mr Henry Dillon (Resource Geologist, Golder). ■ Mr Aaron Radonich (Senior Geologist, Golder) acted as Competent Person (CP) as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (The 2012 JORC



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		<p>Code).</p> <ul style="list-style-type: none"> ■ Mr Jerry deWolfe acted as peer reviewer for both the 2014 geological model and Coal Resource report. ■ Mrs Faye Chant (Senior Geostatistician, Golder) conducted all statistical and geostatistical analysis work. ■ All supplied data was reviewed by Golder and updated as necessary prior to generation of the current geological model. ■ The geological model was reviewed against supplied raw data. ■ The geological model was interrogated by way of a series of representative cross-sections and a full set of contour plans. ■ Mr David Arnott (Principal Consultant) provided technical expertise throughout the entire project timeframe and peer reviewed the Coal Resource report and found it to be satisfactory, with no fatal flaws.
<p><i>Discussion of relative accuracy/confidence</i></p>	<ul style="list-style-type: none"> ■ Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate ■ The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the 	<ul style="list-style-type: none"> ■ The geological model utilised for Coal Resource estimation purposes was constructed by Golder. All data was reviewed/validated and updated as necessary prior to inclusion in the geological model. ■ Coal Resource estimation was undertaken utilising standard industry best practice methodology deemed appropriate for this deposit type. ■ Inferred Coal Resources have been classified on geostatistically derived POO distances based on thickness values obtained from borehole intercepts.



APPENDIX C JORC Code Table 1

procedures used

- These statements of relative accuracy and confidence of the estimate should be compared with production data, where available

- Indicated Coal Resources have been classified on geostatistically derived POO distances based on both raw ash (adb) and thickness values obtained from borehole intercepts.
- Insufficient ash data in seams A, C and D precluded CQ variography and confirmation of CQ continuity. Therefore Coal Resources for these seams were limited to Inferred only.
- No production data is available at this stage.

POTENTIAL FOR EVENTUAL ECONOMIC EXTRACTION

Mine planning studies have not yet been completed by Midland or Golder. Golder believes that with regard to their location, quantity and quality, the Coal Resources identified herein have a reasonable prospect for eventual economic extraction.

Midland proposes surface mining methods or a small dragline method, either of which are appropriate for this style of deposit. Careful mining practices and equipment selection, which are successfully used at other similar deposits, will be required in order to maximise coal recovery and minimise dilution in the thin shallow dipping coal seams.

Run of mine (ROM) coal requires washing to produce thermal coal products suitable for power station consumption, that could then be trucked and/or railed to port for ship loading.

The deposit is proximal to both the Midlands Highway as well as the north-south rail line linking Launceston and Hobart. Coal of similar quality is currently being used in power stations and cement plants in Australia and internationally and the WCP could potentially supply these and other markets.

Further detailed exploration, Coal Resource estimation and detailed feasibility studies are required to confirm economic viability and obtain the necessary regulatory approvals.

COAL QUALITY

The raw coal qualities and qualities estimated for the seams/plies present at the WCP are summarised below in Table 1:



APPENDIX C
JORC Code Table 1

Table 1: December 2014 JORC Coal Resource estimate

Seam/Ply	JORC Resources Category	Tonnes Mt	Raw Ash % (adb)	Calorific Value MJ/kg (adb)	Fixed Carbon % (adb)	Inherent Moisture % (adb)	Relative Density g/cc (adb)	Total Moisture% (arb)	Total Sulphur % (adb)	Volatile Matter % (adb)	
BU	Indicated	1.5	42.9	20.1	41.2	3.9	1.70	5.3	0.5	11.9	
BM		3.6	43.8	17.8	41.4	3.7	1.74	5.1	0.4	11.9	
BL		0.7	43.6	18.4	43.0	4.3	1.68	5.6	0.3	9.8	
Sub-Total	Indicated	5.8	43.6	18.4	41.5	3.8	1.72	5.2	0.4	11.7	
DT	Inferred	0.3	45.0	15.4	27.3	6.0	1.71	7.9	0.2	16.7	
DU		0.3	31.2	21.6	51.2	4.8	1.54	6.2	0.6	20.9	
DL		0.9	40.1	19.3	32.1	5.2	1.62	6.5	0.4	16.2	
C		1.7	36.3	19.1	43.2	5.0	1.62	6.2	0.4	17.1	
CU		2.9	43.3	16.5	42.2	5.4	1.79	8.8	0.2	11.5	
CM		2.7	42.2	18.8	41.0	5.2	1.69	6.8	0.4	16.0	
CL		3.5	35.5	20.1	42.6	4.4	1.71	5.8	0.4	15.8	
BU		1.2	45.3	19.3	38.8	4.5	1.71	6.1	0.5	11.4	
BML		0.1	40.9	21.0	46.6	4.4	1.73	6.0	0.2	8.1	
BM		3.6	42.1	18.0	40.6	4.0	1.72	5.4	0.4	12.6	
BL		1.5	46.6	16.6	35.1	4.9	1.72	6.3	0.4	13.4	
A		1.7	36.9	21.9	47.5	2.9	1.66	4.0	0.3	12.7	
AU		4.5	33.3	20.6	50.2	4.4	1.65	5.9	0.4	12.8	
AM		1.9	43.9	16.3	48.8	4.8	1.84	6.1	0.6	8.5	
AL		1.5	33.9	20.5	56.3	3.3	1.68	4.6	0.4	15.5	
Sub-Total		Inferred	28.3	39.3	19.0	43.9	4.5	1.70	6.1	0.4	13.6
Total		Indicated + Inferred	34.0	40.0	18.9	43.5	4.4	1.71	6.0	0.4	13.3

*Coal Resources reported at a minimum coal thickness cut-off of 0.10m and a maximum raw ash cut-off of 50% (adb).



COMPETENT PERSON STATEMENT

The information in this report that relates to the Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Henry Dillon, Resource Geologist, a full time employee of Golder Associates (NZ) Ltd and Mr Aaron Radonich, Senior Geologist, a full time employee of Golder Associates Pty Ltd.

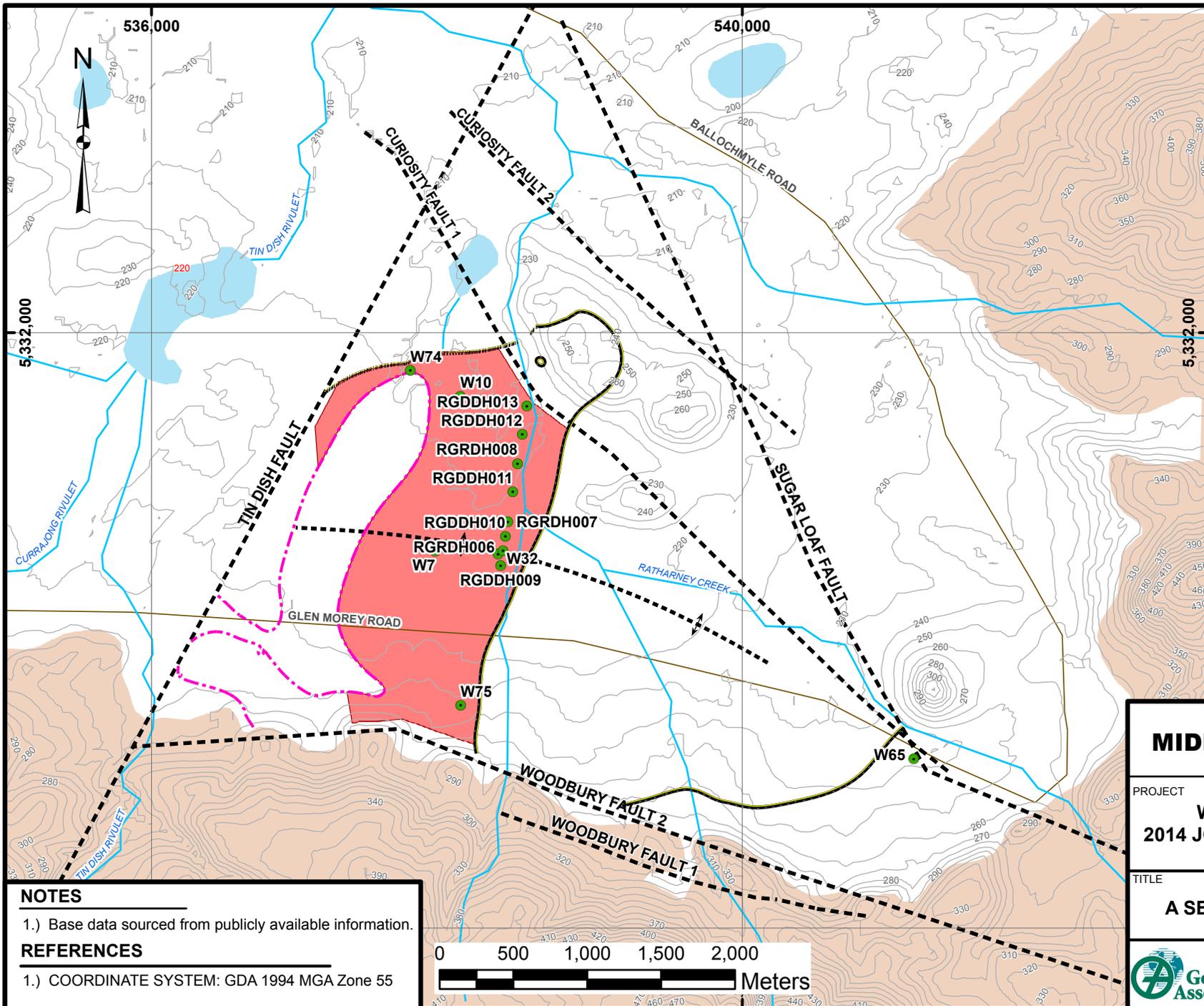
Mr Dillon is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and certified by that organisation as a Chartered Professional in the field of Geology.

Mr Radonich is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and certified by that organisation as a Chartered Professional in the field of Geology. Mr Radonich is also a member of the Australian Institute of Geoscientists (AIG). Mr Radonich has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (The 2012 JORC Code). Mr Radonich consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



APPENDIX D

JORC Resource Classification Polygons



LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- A Seam Split
- A Seam Pinch
- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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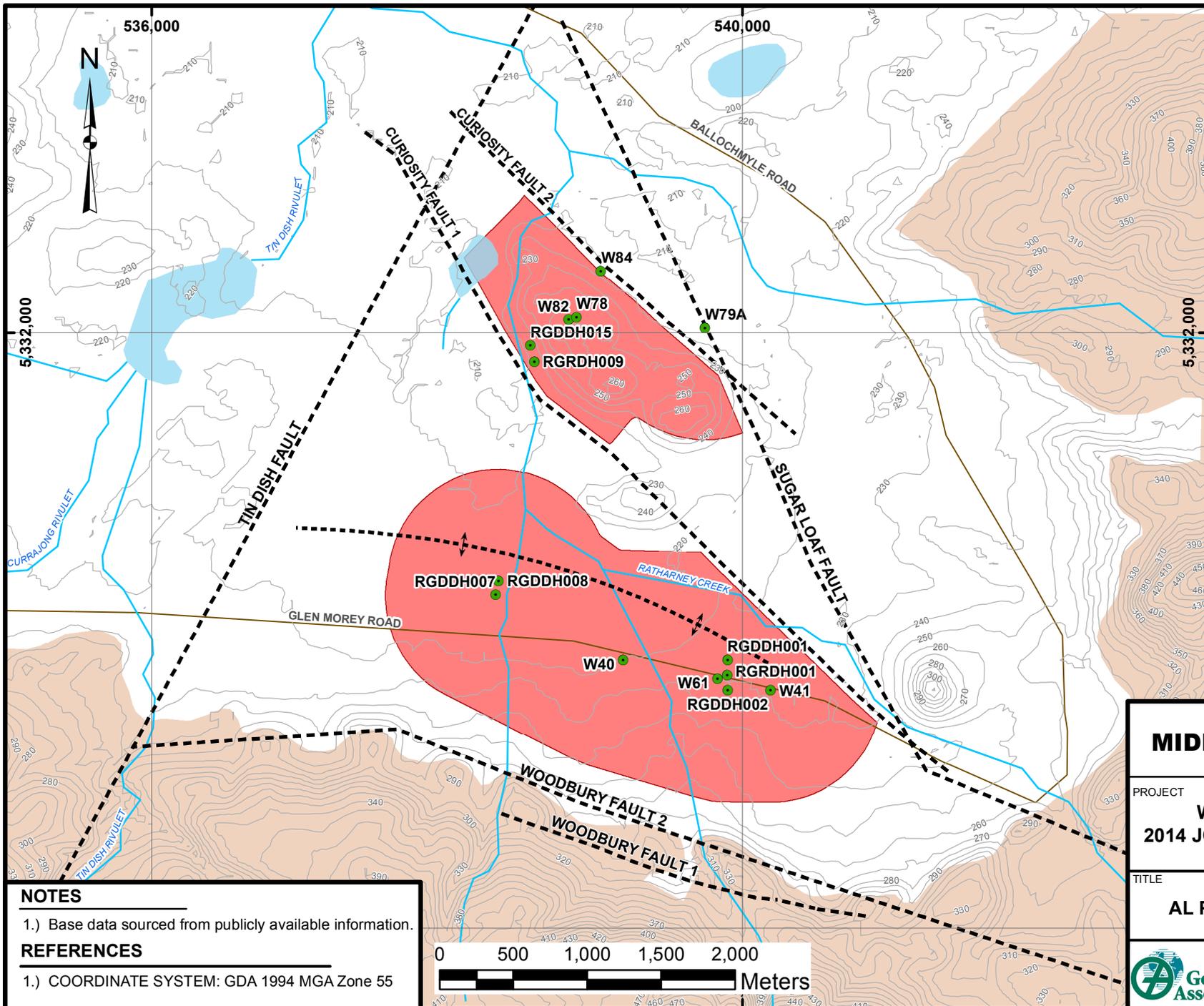
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2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
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PROJECT NO. 147621009		DATE DECEMBER 2014
DESIGN	A4	SCALE AS SHOWN
GIS	ZEM	19/12/2014
CHECK	HJD	19/12/2014
REVIEW	ADR	19/12/2014



APPENDIX D



LEGEND

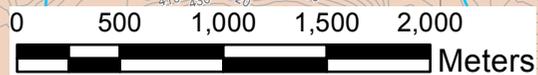
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- Dolerite
- Road
- Faults
- ↕ Anticline
- Existing Topography
- Contour Interval = 10m
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- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



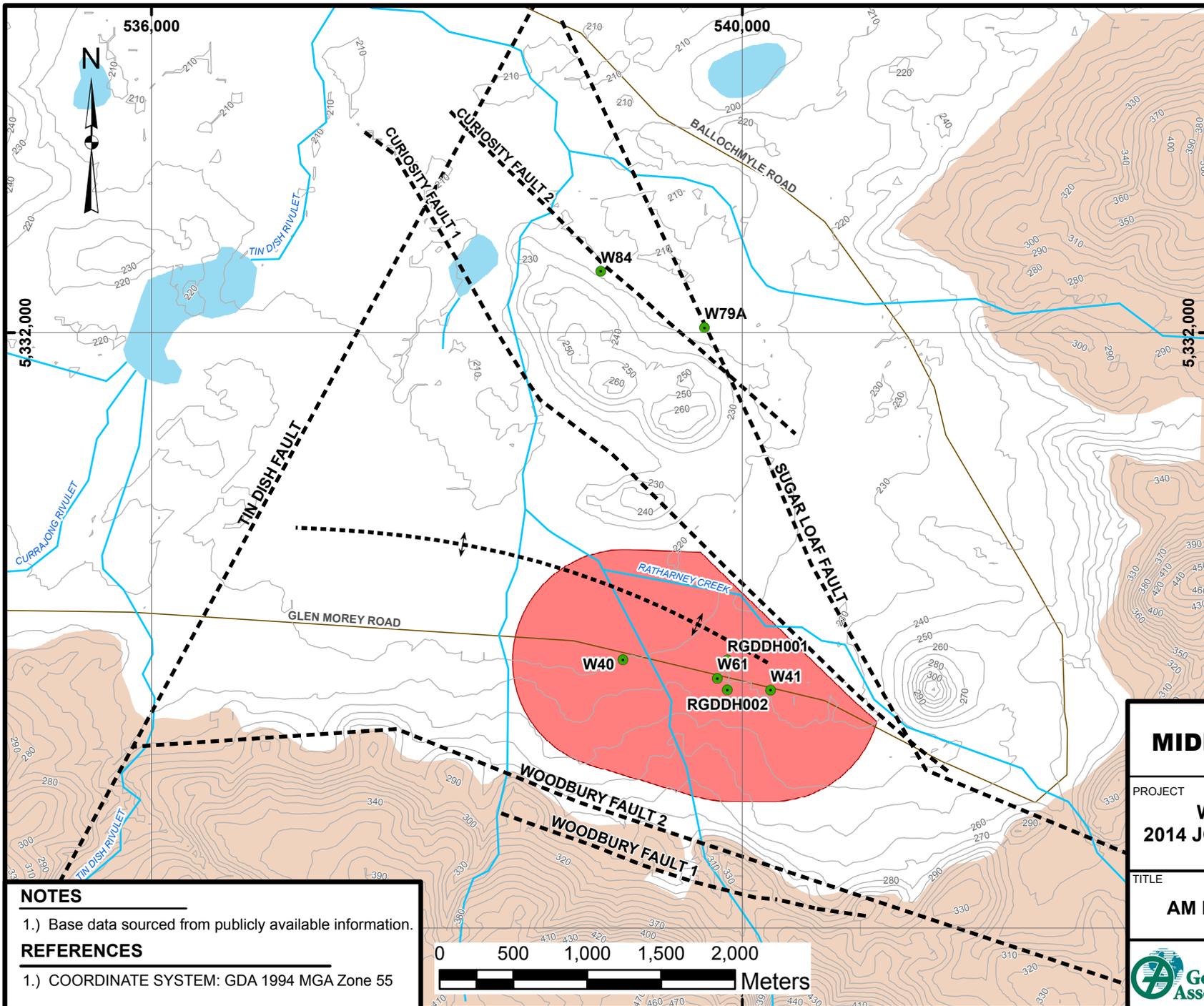
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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
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DESIGN	A4		SCALE AS SHOWN
GIS	ZEM	19/01/2015	
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LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



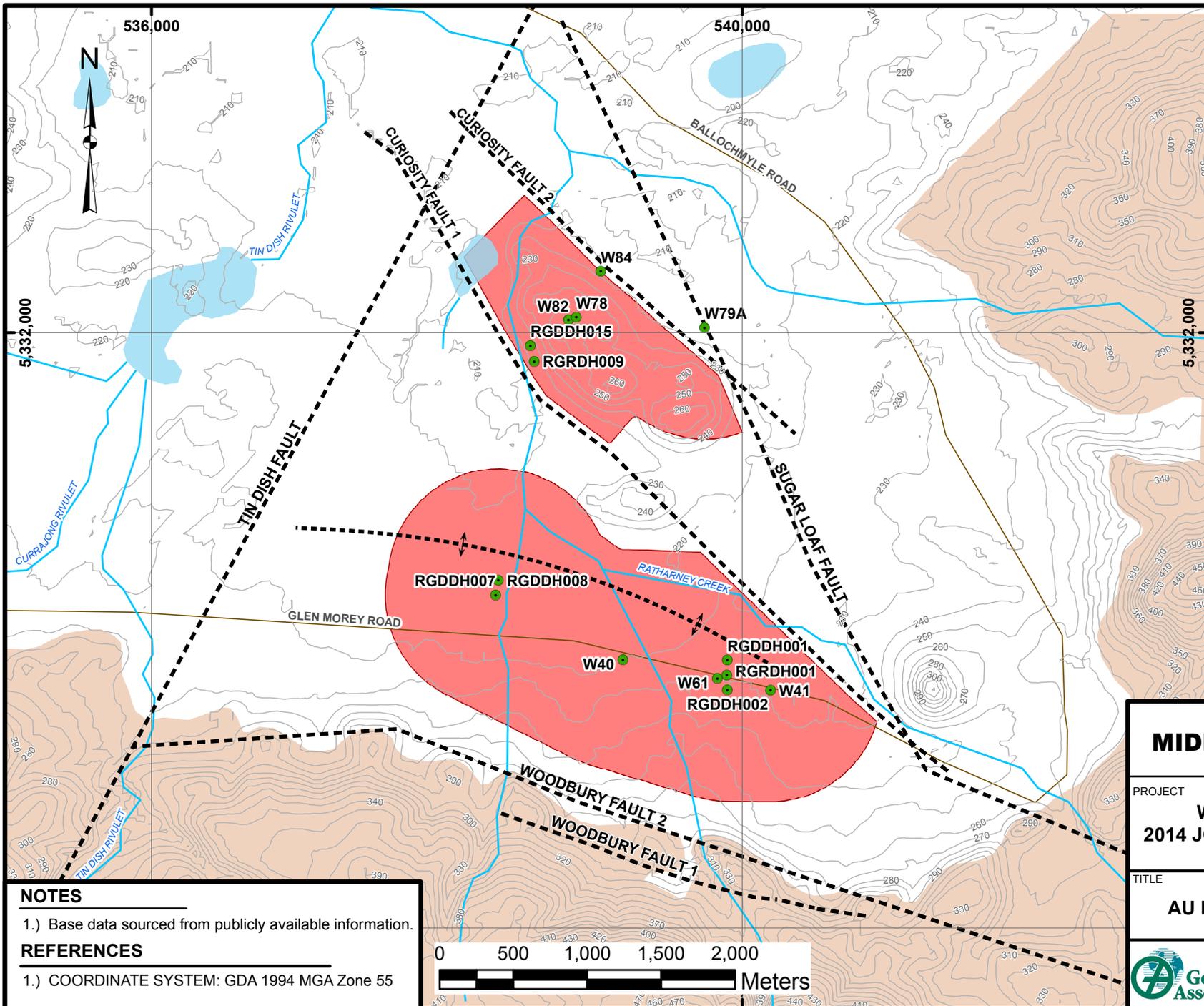
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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
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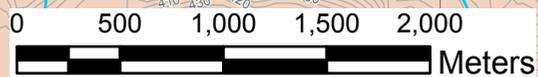
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- Anticline
- Existing Topography
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REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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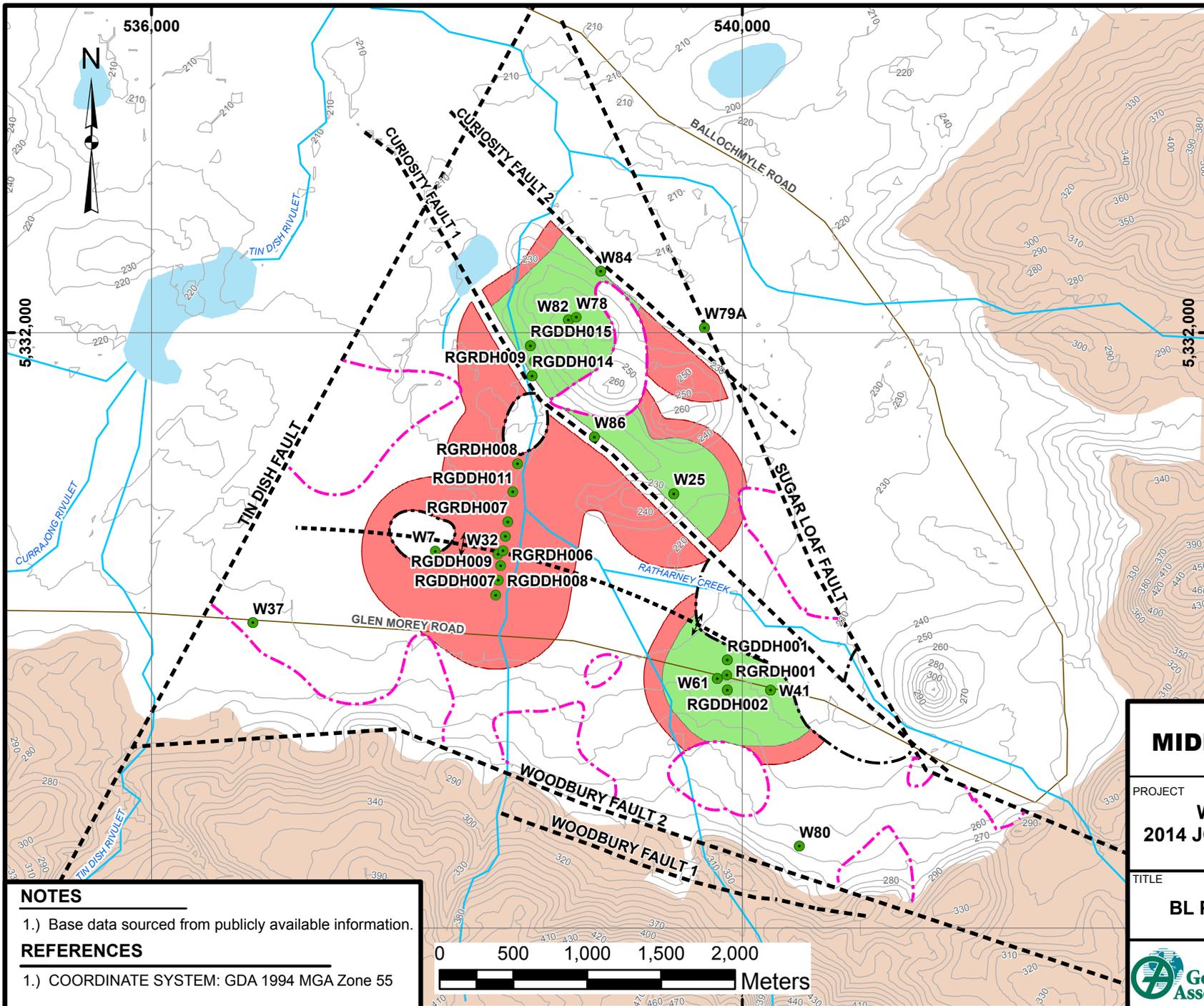
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2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
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APPENDIX D



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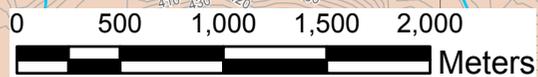
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- Dolerite
- Road
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- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55

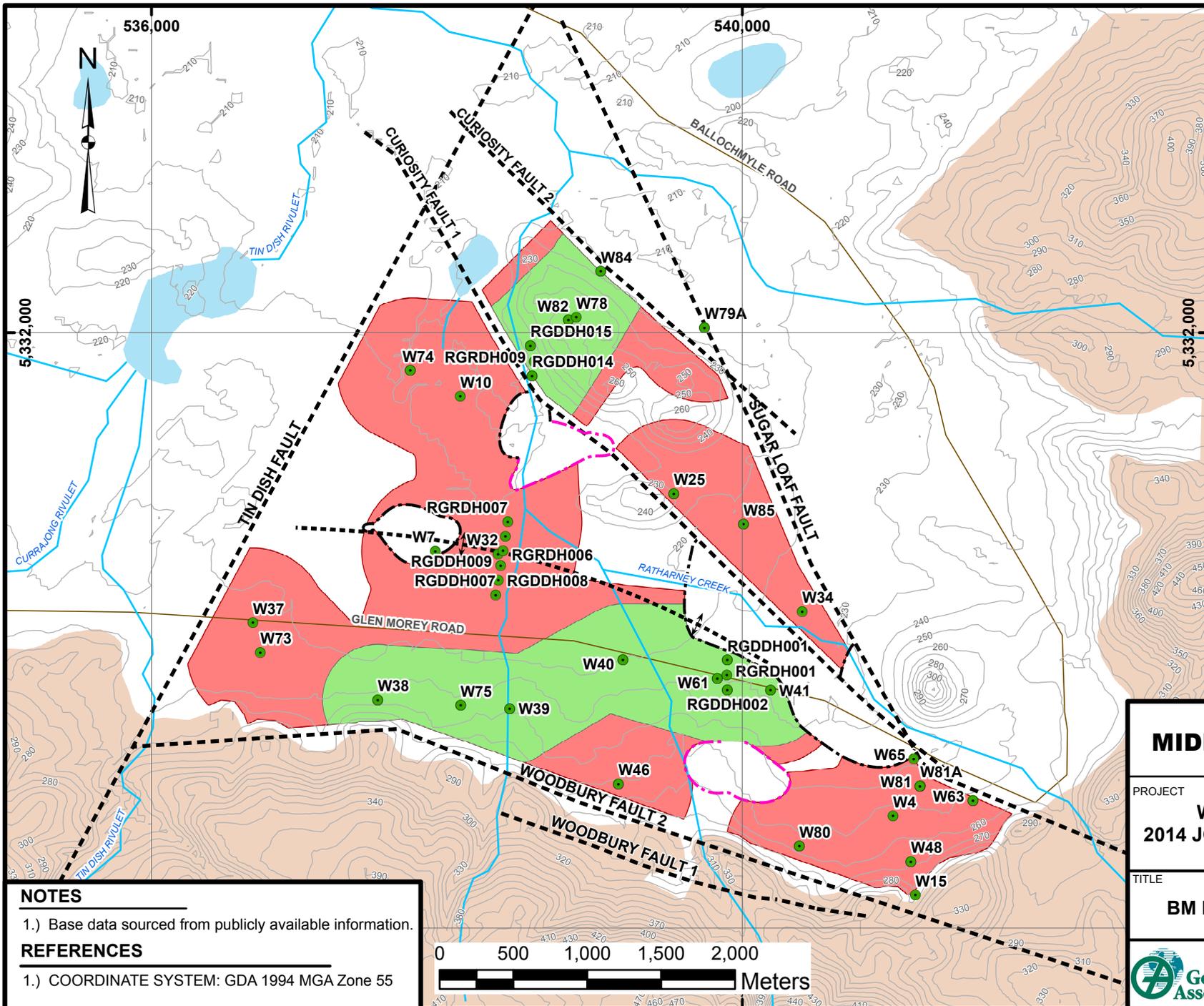


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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BL PLY RESOURCE CLASSIFICATION

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	DESIGN A4	SCALE AS SHOWN
	GIS ZEM 19/12/2014	
	CHECK HJD 19/12/2014	APPENDIX D
	REVIEW ADR 19/12/2014	



LEGEND

- Indicated Resources
- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BM Ply Subcrop Floor
- BM Ply Pinch
- Points of Observation

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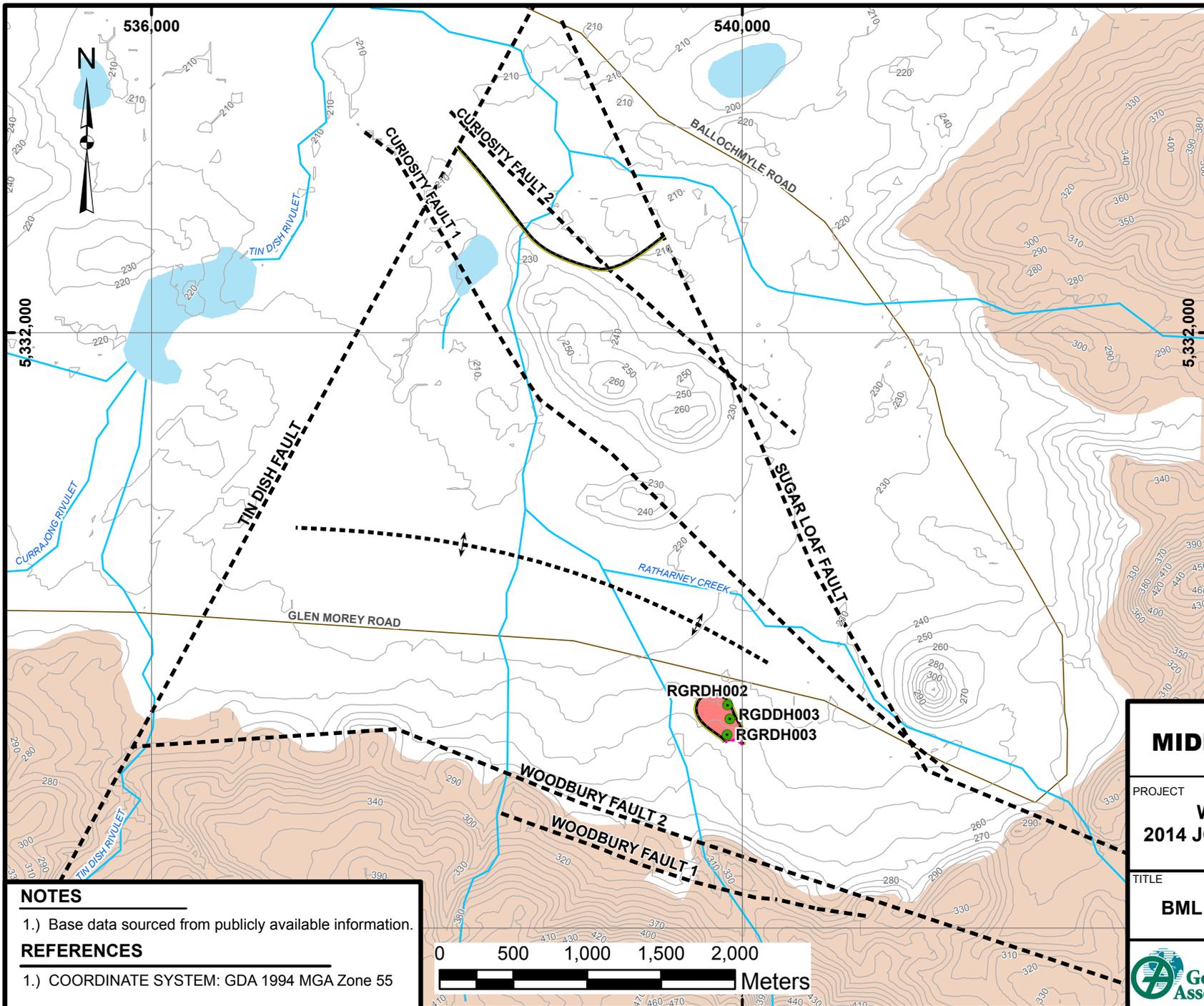


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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BM PLY RESOURCE CLASSIFICATION

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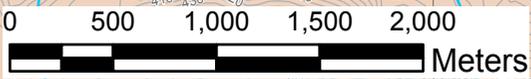
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- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



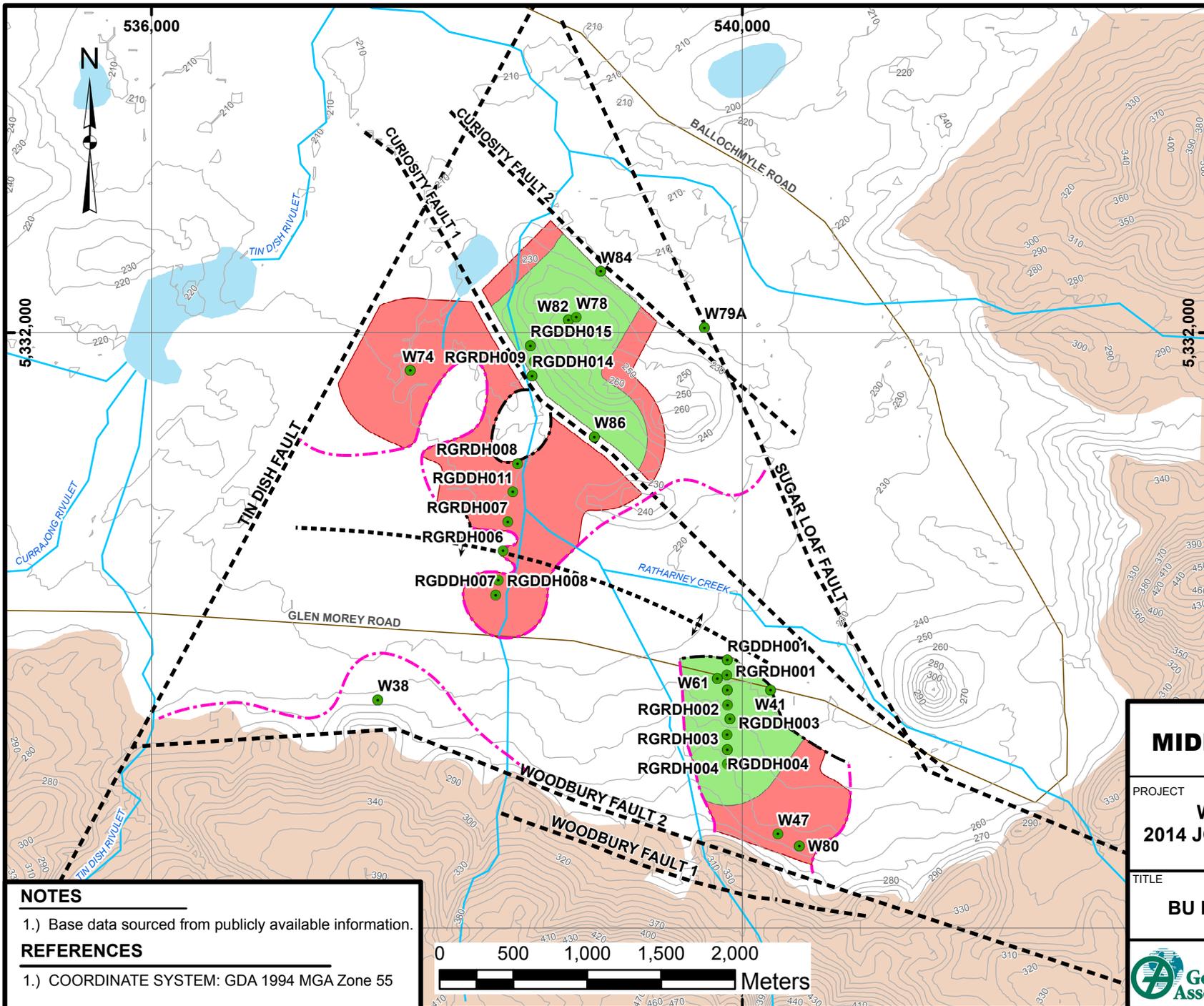
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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BML PLY RESOURCE CLASSIFICATION

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DESIGN	A4		SCALE AS SHOWN
GIS	ZEM	19/12/2014	
CHECK	HJD	19/12/2014	APPENDIX D
REVIEW	ADR	19/12/2014	





LEGEND

- Indicated Resources
- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- BU Ply Subcrop Floor
- BU Ply Pinch
- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55

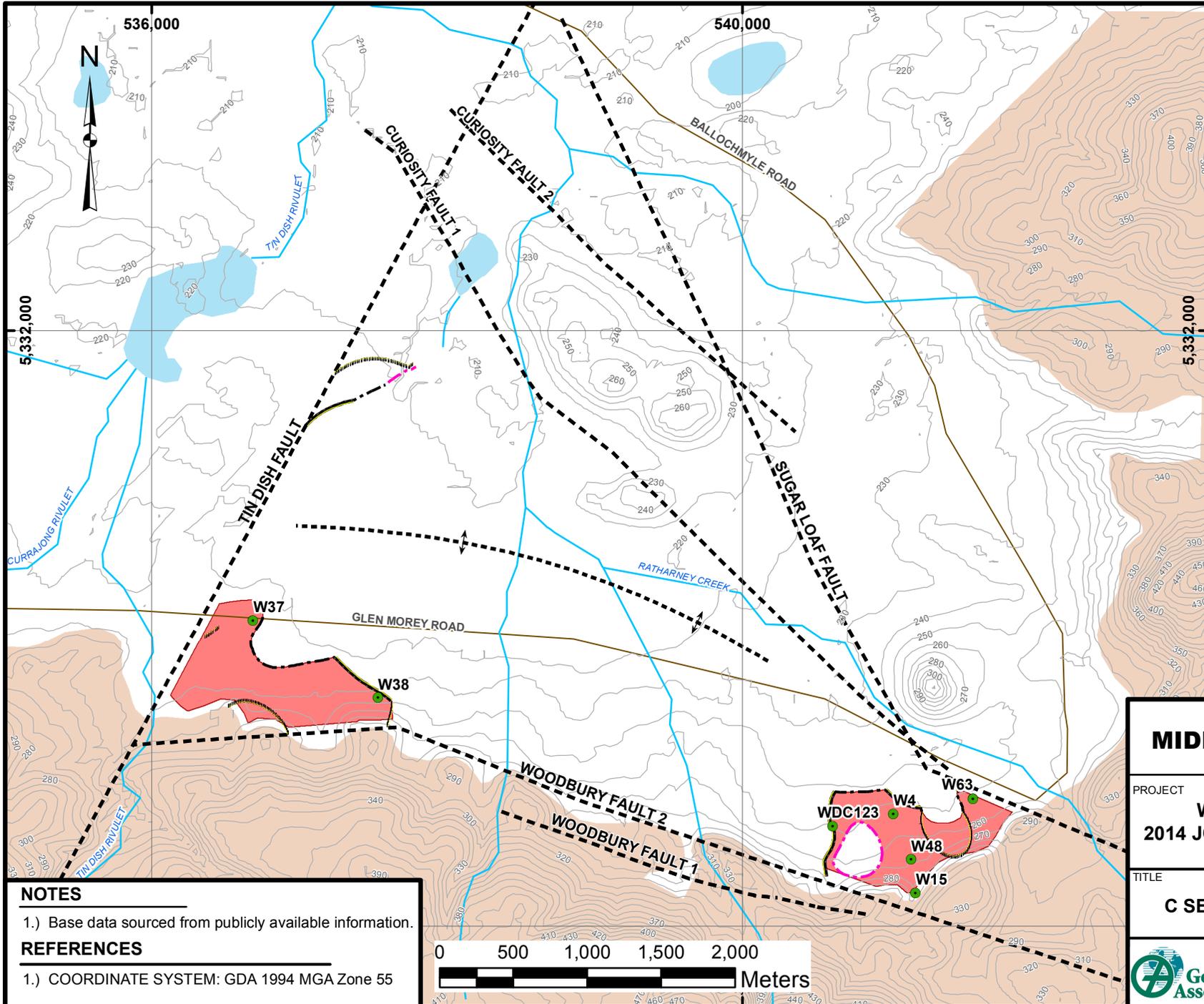


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PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
BU PLY RESOURCE CLASSIFICATION

	PROJECT NO. 147621009	DATE DECEMBER 2014
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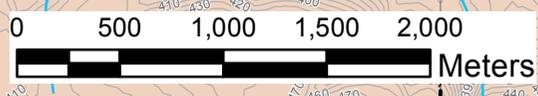


LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- C Seam Split
- C Seam Pinch
- C Seam Subcrop Floor
- Points of Observation

NOTES
 1.) Base data sourced from publicly available information.

REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55

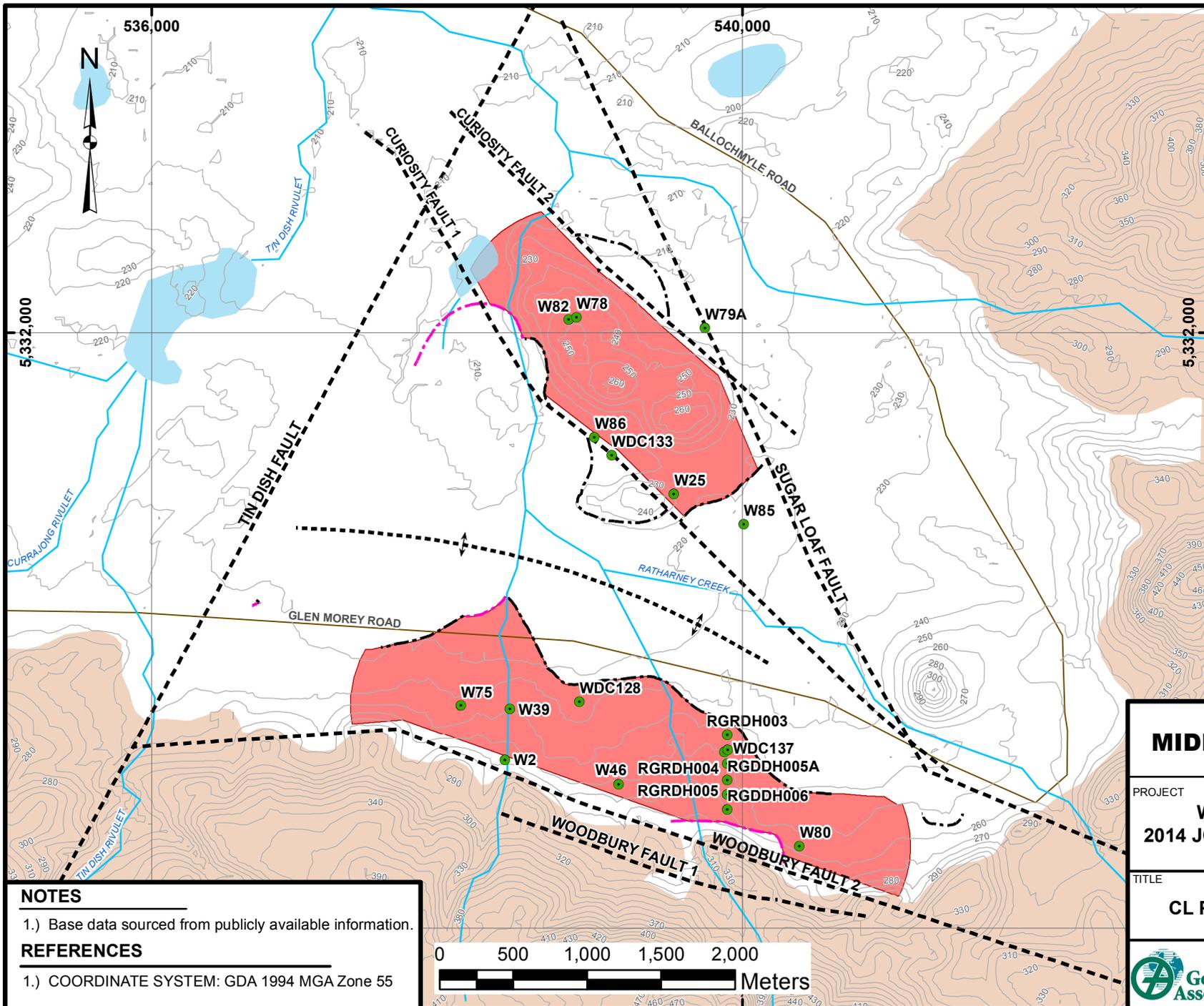


MIDLAND ENERGY LIMITED

PROJECT
WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
C SEAM RESOURCE CLASSIFICATION

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DESIGN A4	SCALE AS SHOWN
GIS ZEM 15/01/2015	APPENDIX D
CHECK HJD 15/01/2015	
REVIEW ADR 15/01/2015	

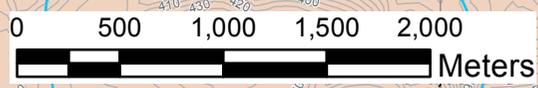


LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- CL Ply Subcrop Floor
- CL Ply Pinch
- Points of Observation

NOTES
 1.) Base data sourced from publicly available information.

REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



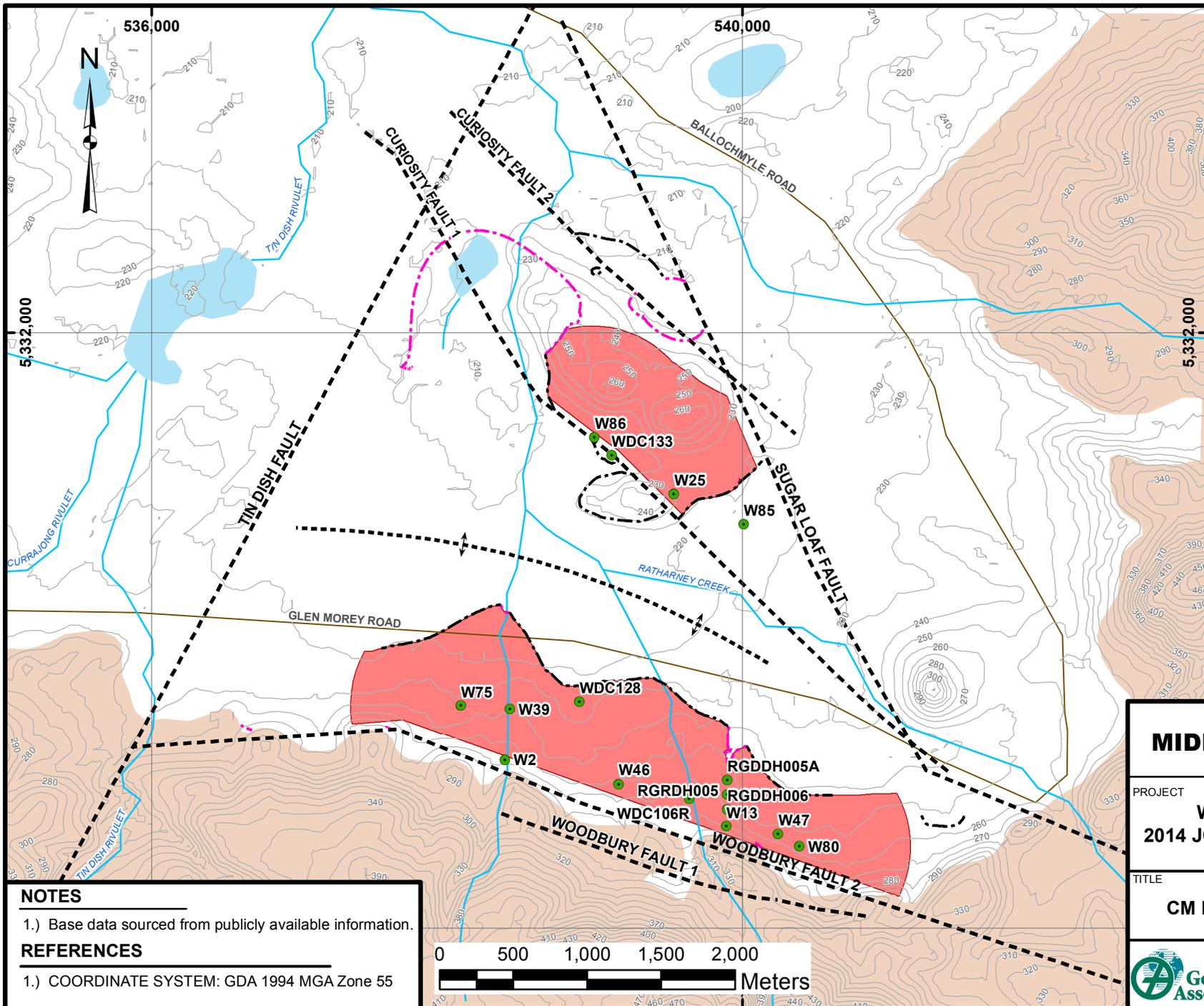
MIDLAND ENERGY LIMITED

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WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
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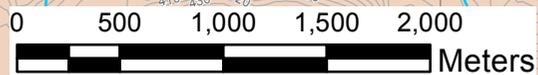
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- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- CM Ply Pinch
- CM Ply Subcrop Floor
- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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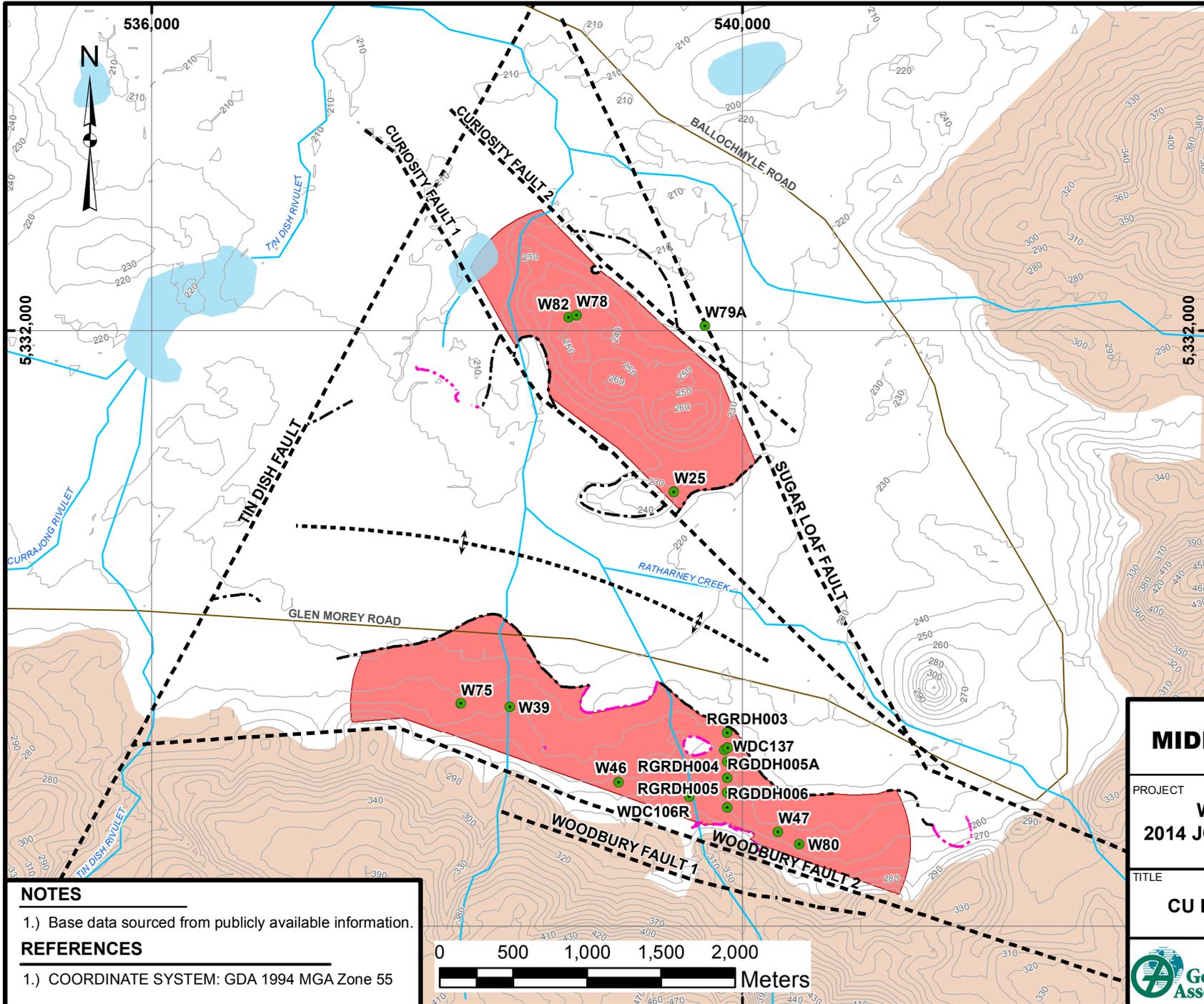
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TASMANIA, AUSTRALIA

TITLE
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GIS	ZEM	15/01/2015	
CHECK	HJD	15/01/2015	
REVIEW	ADR	15/01/2015	



APPENDIX D



LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- CU Ply Pinch
- CU Ply Subcrop Floor
- Points of Observation

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PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **CU PLY RESOURCE CLASSIFICATION**

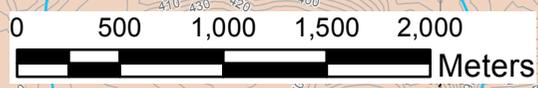
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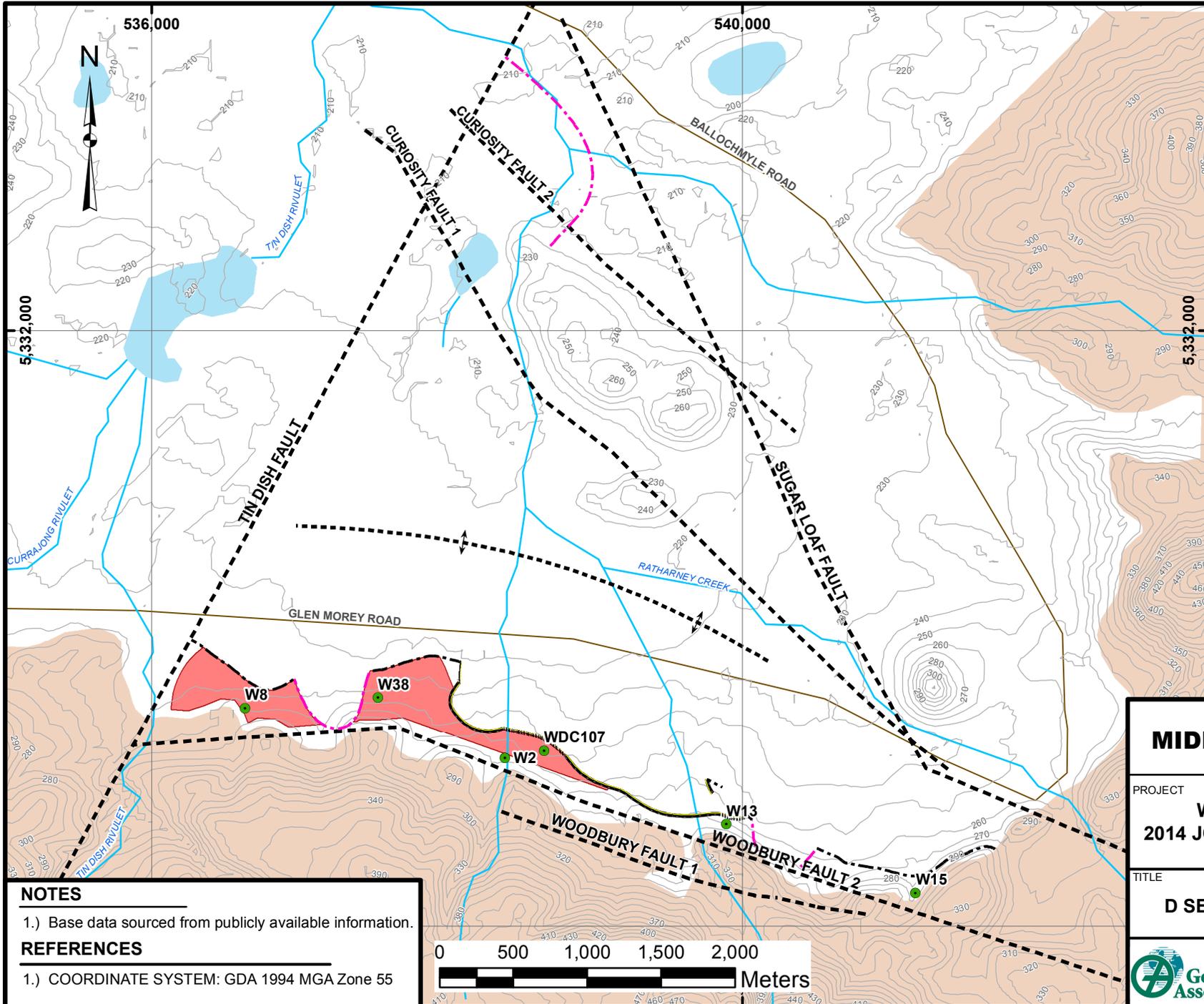
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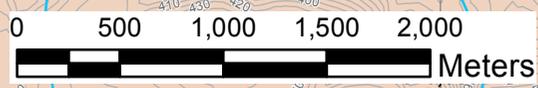
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- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- D Seam Split
- D Seam Pinch
- D Seam Subcrop Floor
- Points of Observation

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



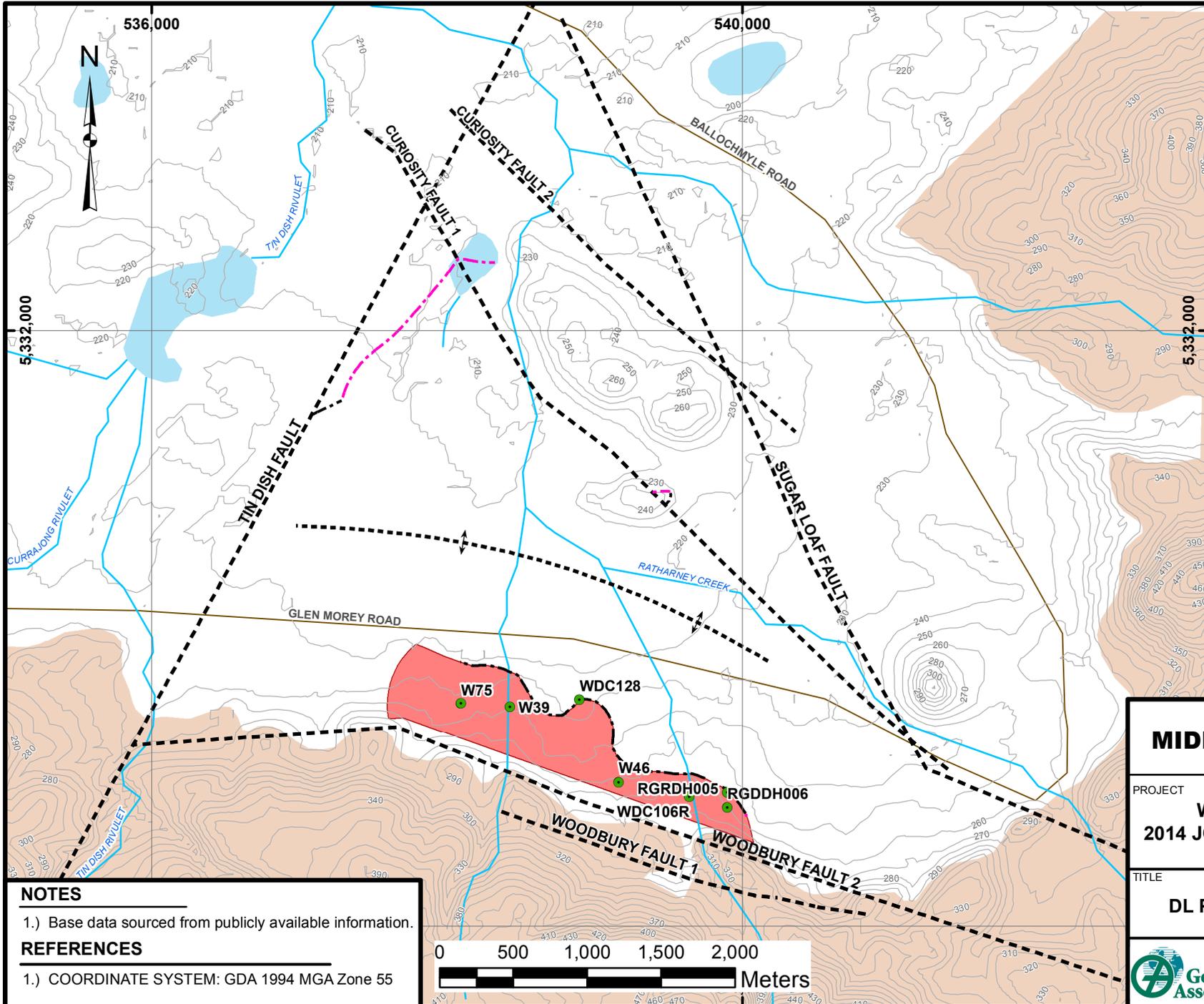
MIDLAND ENERGY LIMITED

PROJECT **WOODBURY COAL PROJECT**
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE **D SEAM RESOURCE CLASSIFICATION**

PROJECT NO. 147621009	DATE DECEMBER 2014
DESIGN A4	SCALE AS SHOWN
GIS ZEM 16/01/2015	APPENDIX D
CHECK HJD 16/01/2015	
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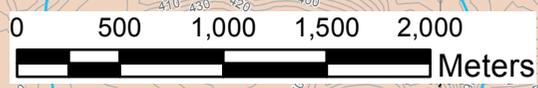


LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
- Contour Interval = 10m
- DL Ply Pinch
- DL Ply Subcrop Floor
- Points of Observation

NOTES
 1.) Base data sourced from publicly available information.

REFERENCES
 1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55



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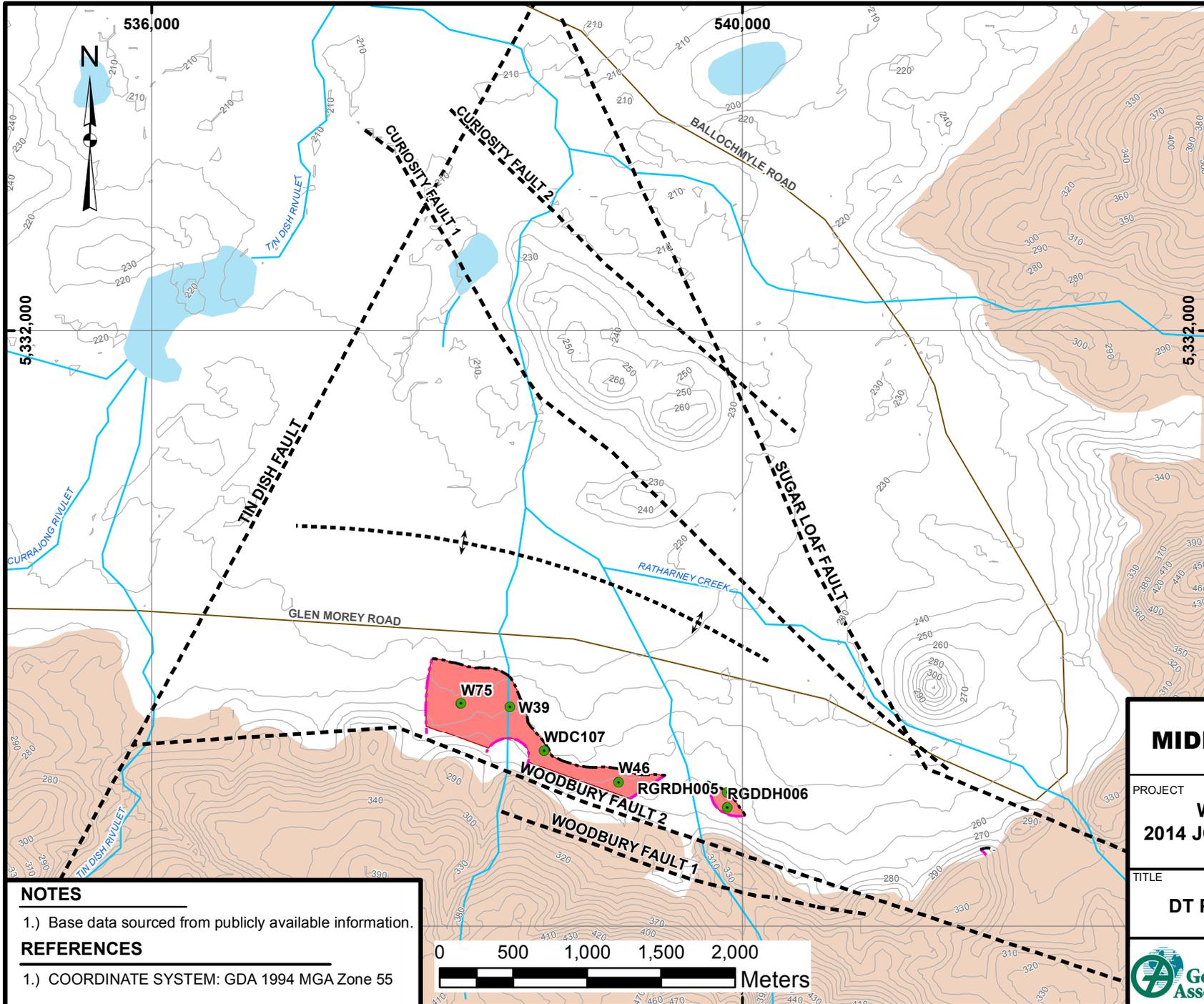
PROJECT
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2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

TITLE
DL PLY RESOURCE CLASSIFICATION

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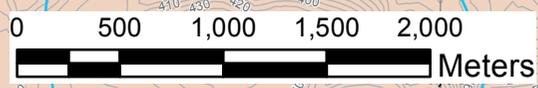


LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- DT Ply Pinch
- DT Ply Subcrop Floor
- Points of Observation

NOTES
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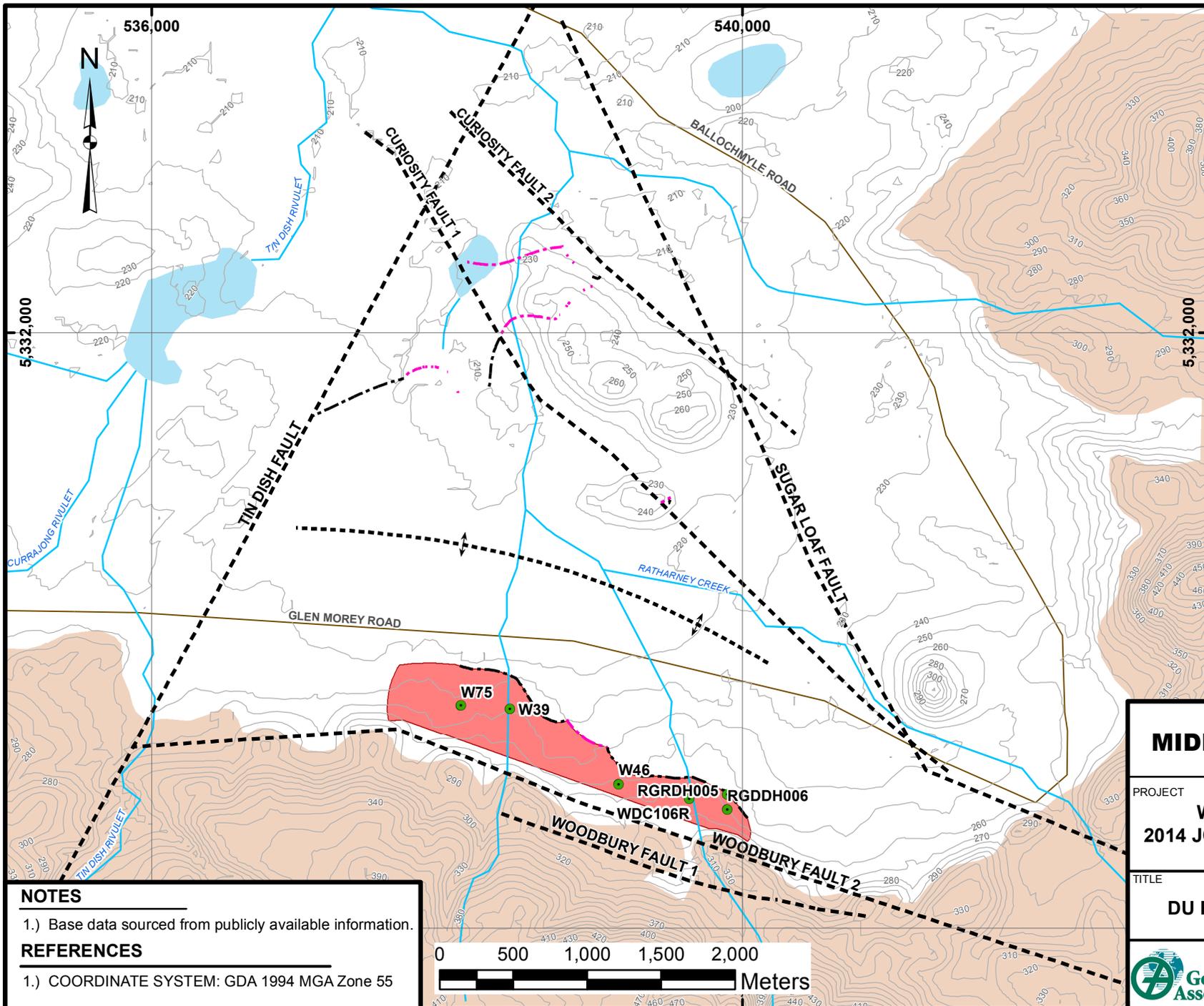
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WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA

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CHECK	HJD	16/01/2015	APPENDIX D
REVIEW	ADR	16/01/2015	





LEGEND

- Inferred Resources
- Dolerite
- Road
- Faults
- Anticline
- Existing Topography
Contour Interval = 10m
- DU Ply Pinch
- DU Ply Subcrop Floor
- Points of Observation

MIDLAND ENERGY LIMITED

PROJECT
**WOODBURY COAL PROJECT
2014 JORC COAL RESOURCE ESTIMATE
TASMANIA, AUSTRALIA**

TITLE
DU PLY RESOURCE CLASSIFICATION

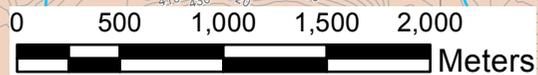
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GIS	ZEM	16/01/2015	APPENDIX D								
CHECK	HJD	16/01/2015									
REVIEW	ADR	16/01/2015									

NOTES

1.) Base data sourced from publicly available information.

REFERENCES

1.) COORDINATE SYSTEM: GDA 1994 MGA Zone 55





APPENDIX E

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