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Hornet
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Services Pty Ltd

MAZZA GRAVEL DEPOSIT

RESOURCE ESTIMATE.

DAVID MAZZA

November 2017

By:

Richard Stockwell BSc (Hons), MAIG

Consulting Geologist

EXECUTIVE SUMMARY

Hornet Drilling and Geological Services Pty Ltd (Hornet) was engaged by Mr David Mazza to investigate the composition and volume of in-situ gravel material on his property: Lot 130, Morrissey Road, Yabberup. Morrissey Road is a formed gravel road that terminates on the Donnybrook – Boyup Brook road approximately 20km east of Donnybrook, WA.

The site is extensively cleared for grazing and has been the target of previous excavation by Mr Mazza. The extraction site covers about 8 hectares of hill-top laterite rock and gravel over a clayey gravel and clay floor. The site has been partially quarried and surface exposures range from in-situ, un-touched resource to remnant mounds of gravel, adjacent to previous excavations. An active Extractive Industry Licence is established for the Mazza Resource.

The resource was drilled by the reverse circulation, Aircore technique and sample material was geologically logged as drilling proceeded. Using Datamine software, drill holes were imported and de-surveyed to show sample intervals with depth. Strings were created in cross section that conform to geologically-logged intervals. These strings were then converted to three-dimensional wireframes, from which volume estimates could be made.

Some variability is observed in the depth and thickness of all materials intersected and the resource figures presented should be read with this inherent variability in mind. Due to the broken habit of Laterite caprock in the southern area of the resource, gravel figures should be viewed with the understanding that much of it will be competent Laterite caprock.

Tonnage estimates of the three valuable gravel products are as follows:

1. Laterite caprock 2,350t
2. Gravel 27,500t (which will include significant Laterite caprock)
3. Clayey gravel 172,500t

Mr Mazza has established markets for the materials from the Morrissey Road site. There is every expectation that the substantial remaining resource will continue to meet the specifications for these markets, as detailed below:

- Main roads spec base-course
- Main roads spec sub-base
- Pitching rocks
- Spalls
- Rip rap
- Amour rocks
- Clay gravel fill

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Project Manager		
Richard Stockwell		24 November 2017
	Signed	Date
Peer Reviewer		
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	Signed	Date

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DISTRIBUTION LIST

1 electronic copy provided to Mr David Mazza

1 electronic copy retained at the Hornet regional office Bunbury

1 INTRODUCTION

Hornet Drilling and Geological Services Pty Ltd (Hornet) was engaged by Mr David Mazza to establish the composition and volume of in-situ gravel material on his property: Lot 130, Morrissey Road, Yabberup. The site has been partially quarried and surface exposures range from in-situ, un-touched resource to remnant mounds of gravel, adjacent to previous excavations.

Drilling and geological logging of drilled materials was completed at the site to determine remaining resources. Resultant data were then incorporated into a resource estimate.

This report aims to detail the findings from investigations on the type and volume of gravel materials at the Mazza site and will include some discussion on suitability of the site for quarrying activities.

2 ACCESS AND INFRASTRUCTURE

The Mazza Gravel Resource is located adjacent to Morrissey Road, a formed gravel road that terminates on the Donnybrook – Boyup Brook road approximately 20km east of Donnybrook, WA (Figure 1). The resource is located within 60km of Bunbury and within 35km of Collie.

The region surrounding the Mazza Gravel Resource is an established farming and horticultural region with very few residences. There are no residential buildings on Lot 130, Morrissey Road and the site is easily accessed in all seasons.

The site is extensively cleared for grazing and has supported previous excavation of gravel materials by Mr Mazza (Figure 2).

3 LAND TITLE

Lot 130 Morrissey Road, Yabberup is host to the gravel resource under investigation. The property is wholly owned by Mr Mazza and no encumbrances or easements are known to exist.

An active Extractive Industry Licence is established for the Mazza Resource.

4 DATA COLLECTION

The area of interest, described by Mr Mazza, was subjected to a reverse circulation air-core drilling programme using the Hornet, 6WD, Landcruiser-mounted drill rig (Figure 3). A nominal 50m by 50m drill pattern was applied to the drill definition and additional holes were completed where a greater level of detail was required. A total of 28 holes for 76.4 metres were drilled.

Drilled materials were geologically logged as drilling progressed. Drill collar and geological logs are included in Appendix 1. A surface survey and drill collar pick-up was then performed by Thompson's Consulting Surveyors and data were provided to Hornet for the resource estimation.

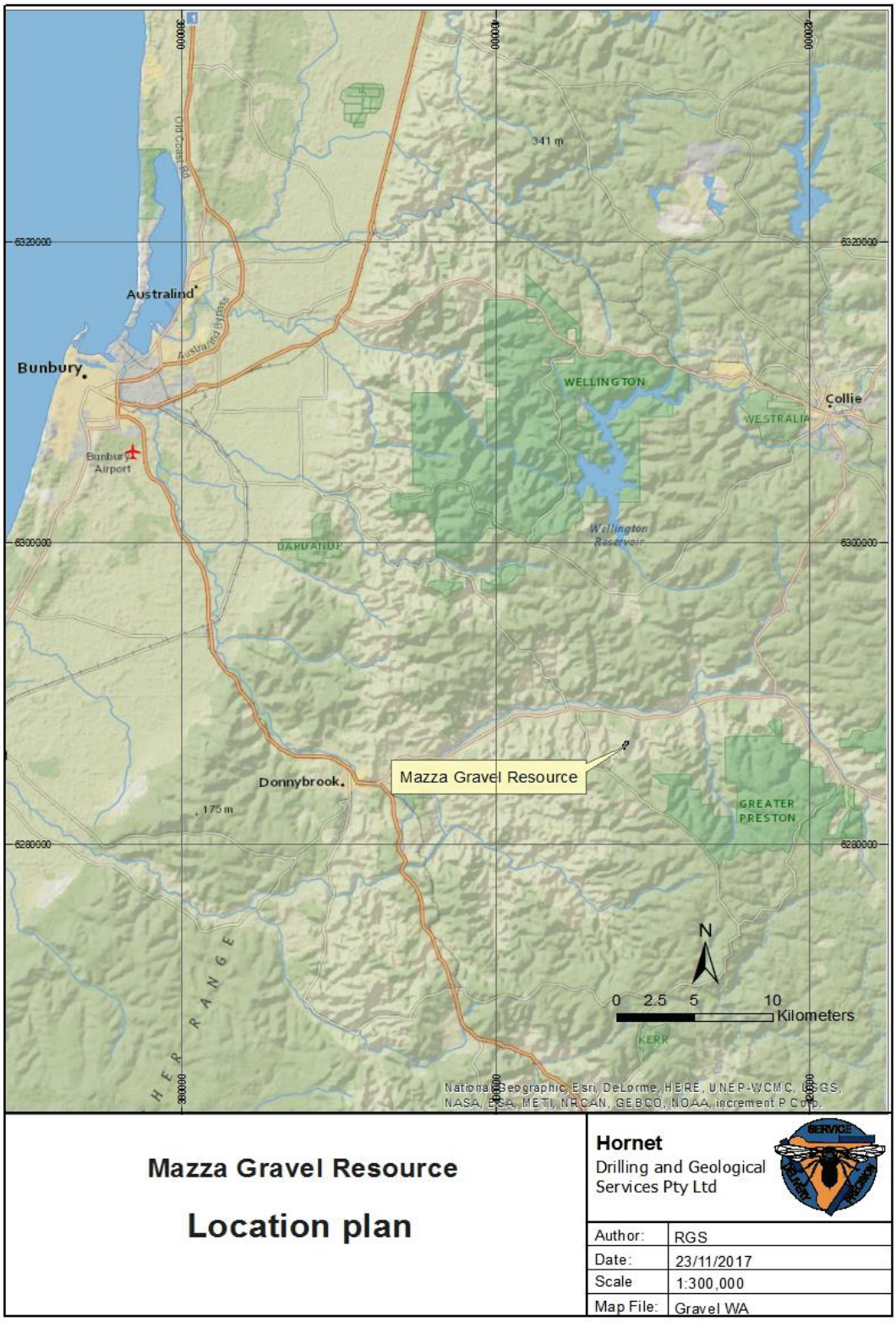


Figure 1. Mazza Gravel Resource Location Plan.

Figure 2. Mazza Gravel Resource outline and drill hole locations on airphoto.

Figure 3. Drilling equipment configuration.

5 HYDROGEOLOGY

Due to all holes being less than 4.5m in depth, there was no intersection of groundwater. Some evidence for surface pooling of water was observed in the previous extraction area.

6 GEOLOGY

The Mazza property overlies Archaean-aged granitoid rocks that have undergone extensive weathering and subsequent dissection by drainage and run-off over millennia. The extraction area shows an intact Laterite weathering profile overlying Kaolinite clays from the weathering of underlying granitoid rocks. The stratigraphy comprises:

- A red-brown, surface Laterite cap rock, interspersed with sandy gravel
- a variably iron-indurated, orange-brown clay gravel (~60 – 80% gravel)
- some areas of yellow-brown, lightly indurated gravelly clay (<~20% gravel)
- yellow-cream kaolinite clays (floor or basement)

7 RESOURCE

The volume of Laterite caprock, gravel and clay gravel are estimated. No previous volume estimations exist.

7.1 Data used

The drilling grid was set out to cover the area of investigation. Geological units were distinct and consistent across the site. This allowed precise geological logging to an accuracy of 0.1m.

The volume estimation included the designated area and extended outwards until the resource boundary was intersected. Often the resource is bound by the steep gradient surrounding the hill-top resource. Where the detailed surface survey showed a continuation of gravel mounds beside excavations, or a clear extension of caprock rafts, the geological interpretation was extended to include these.

A specific gravity (density) of 2.8 g/cm^3 is used for estimating the Laterite zone tonnage. Competent Laterite would have a specific gravity in excess of 3.5 g/cm^3 but in the case of the Mazza Resource, much of this material is expected to be broken and interspersed with gravel and sand materials. A specific gravity of 1.8 g/cm^3 and 1.9 g/cm^3 is used for estimating the gravel and clay gravel zone tonnages, respectively.

7.3 Volume Estimation

Using Datamine software, drill holes were imported and de-surveyed to show sample intervals with depth. Strings were created in cross section that conform to the geologically-logged intervals.

These strings were then converted to three-dimensional wireframes (Figure 4), from which volume estimates could be made. Volume estimates were made of the Laterite caprock, gravel and clay gravel zones (Table 1).

8 RESULTS

Drilling has provided a great deal of clarity on the materials present on site. However, some variability is observed in the depth and thickness of all materials intersected and the figures presented should be read with this inherent variability in mind.

An estimated 70% of the intact, southern region of the resource appears to have broken caprock present (Mazza, pers. comm., 2017). As this unit is extensively broken, drilling only intersected competent caprock in two holes in this area. In this instance, gravel figures should be viewed with the understanding that a significant part of the gravel resource in the south will be competent Laterite caprock.

The volume of material contained by class/zone is detailed in Table 1. Assumed specific gravity is applied to each material class and listed for transparency. External peer review was engaged to verify the volume estimation.

Table 1. Mazza Gravel Resource: Resource volume estimation

ZONE	Specific Gravity (g/cm3)	Volume (m3)	Tonnes
Laterite cap rock (lat)	2.8	840	2,352
Gravel (Gv)	1.8	15,245	27,441
Clay gravel (Cgv)	1.9	90,722	172,372

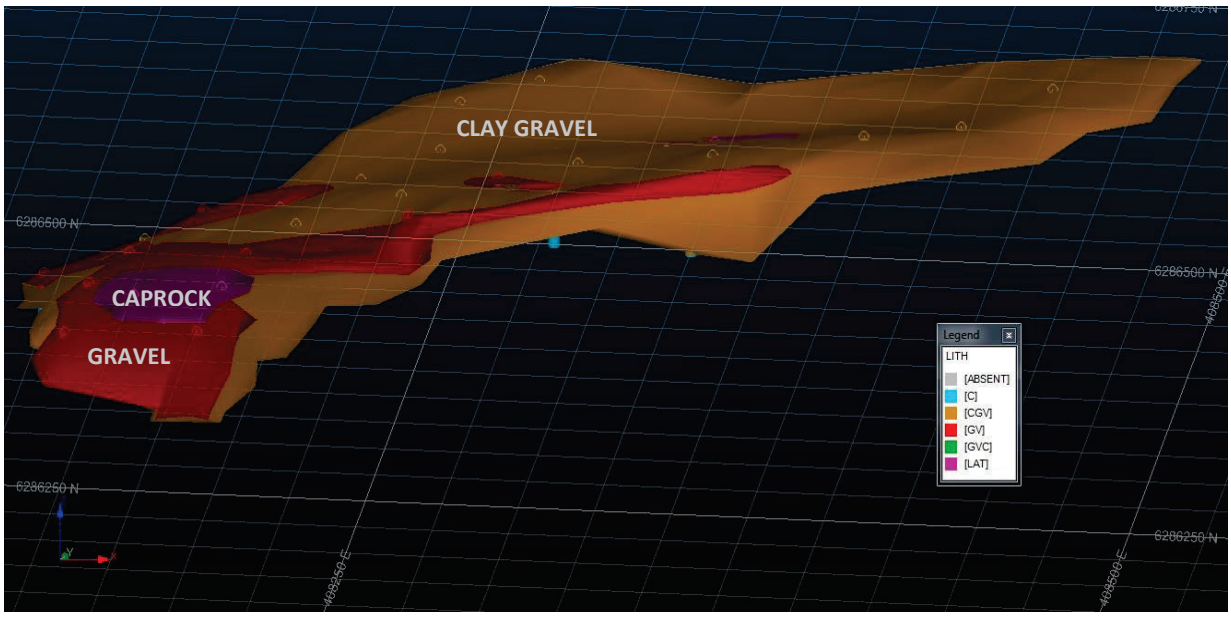


Figure 5. Volume estimation model showing drill locations and modelled zones (looking NNW).

9 PRODUCT MARKET

Mr Mazza has established markets for the crushed laterite caprock, sandy gravel and clay gravel materials from the Morrissey Road site. There is every expectation that the substantial remaining resource will continue to meet the specifications for these markets, as detailed below:

- Main roads spec base-course
- Main roads spec sub-base
- Pitching rocks
- Spalls
- Rip rap
- Amour rocks
- Clay gravel fill

10 CONCLUSIONS

The Mazza Gravel Resource is favourably located on cleared, Freehold title, owned by David Mazza. It is afforded all-weather access and has the capability of meeting market requirements for multiple alternate products. Resource figures for the investigation site are as follows:

1. 2,352 tonnes of Laterite caprock
2. 27,441 tonnes of gravel (which will include significant Laterite caprock)
3. 172,372 tonnes of clay gravel

Appendix 1: Collar information and Geological logs - RC Aircore drilling

COLLARS

BHID	XCOLLAR	YCOLLAR	ZCOLLAR	DEPTH	AT	BRG	DIP
YBAC001	408239.28	6286783.64	260.04	1.5	0	0	90
YBAC002	408409.59	6286764.88	262.16	3	0	0	90
YBAC003	408219.01	6286738.27	261.53	1	0	0	90
YBAC004	408386.04	6286714.69	262.89	2	0	0	90
YBAC005	408302.34	6286738.46	259.68	2.5	0	0	90
YBAC006	408266.68	6286666.19	262.80	2	0	0	90
YBAC007	408290.29	6286708.76	261.00	3	0	0	90
YBAC008	408360.67	6286663.37	265.47	2	0	0	90
YBAC009	408219.86	6286680.55	262.31	1	0	0	90
YBAC010	408314.96	6286633.65	265.88	2	0	0	90
YBAC011	408199.77	6286634.22	263.32	1.5	0	0	90
YBAC012	408246.66	6286618.44	264.89	2.5	0	0	90
YBAC013	408178.86	6286590.32	264.28	1.5	0	0	90
YBAC014	408220.77	6286572.88	266.55	2	0	0	90
YBAC015	408139.71	6286550.27	264.59	2	0	0	90
YBAC016	408190.90	6286536.38	266.89	3	0	0	90
YBAC017	408142.88	6286486.21	268.04	6	0	0	90
YBAC018	408184.96	6286454.32	270.37	5	0	0	90
YBAC019	408138.94	6286412.26	270.89	3	0	0	90
YBAC020	408182.59	6286410.14	271.17	3	0	0	90
YBAC021	408137.32	6286362.64	271.06	3.5	0	0	90
YBAC022	408180.72	6286361.67	271.51	3	0	0	90
YBAC023	408156.32	6286390.78	271.71	4	0	0	90
YBAC024	408311.89	6286601.56	266.03	4.4	0	0	90
YBAC025	408270.59	6286574.17	266.67	3	0	0	90
YBAC026	408230.00	6286518.00	269.00	4	0	0	90
YBAC027	408153.47	6286592.06	263.83	2	0	0	90
YBAC028	408108.67	6286534.97	263.23	3	0	0	90

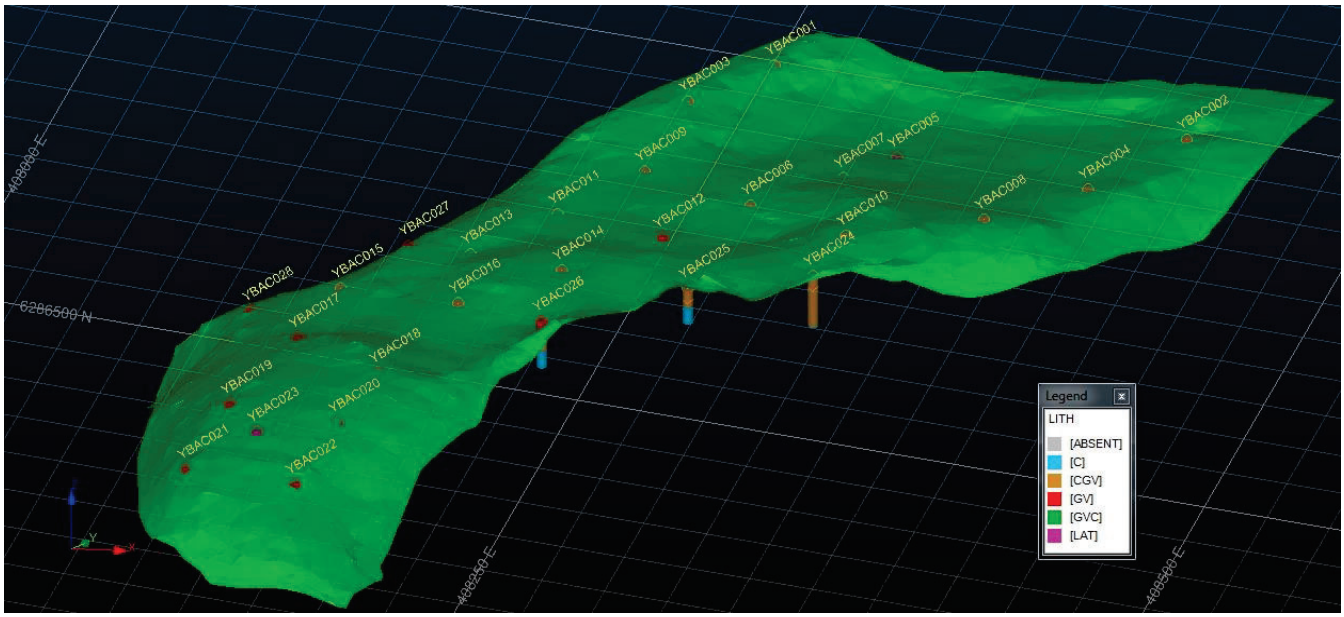
GEOLOGY

BHID	FROM	TO	INT	COLOUR	LITH	HARD	COMMENT
YBAC001	0	0.5	0.5	O	CGV		
YBAC001	0.5	1.5	1	CY	C		
YBAC002	0	0.8	0.8	OB	CGV		
YBAC002	0.8	1.5	0.7	CP	GVC		
YBAC002	1.5	3	1.5	CP	C		
YBAC003	0	0.5	0.5	O	CGV		
YBAC003	0.5	1	0.5	CY	C		
YBAC004	0	1	1	OB	CGV		
YBAC004	1	2	1	CV	C		

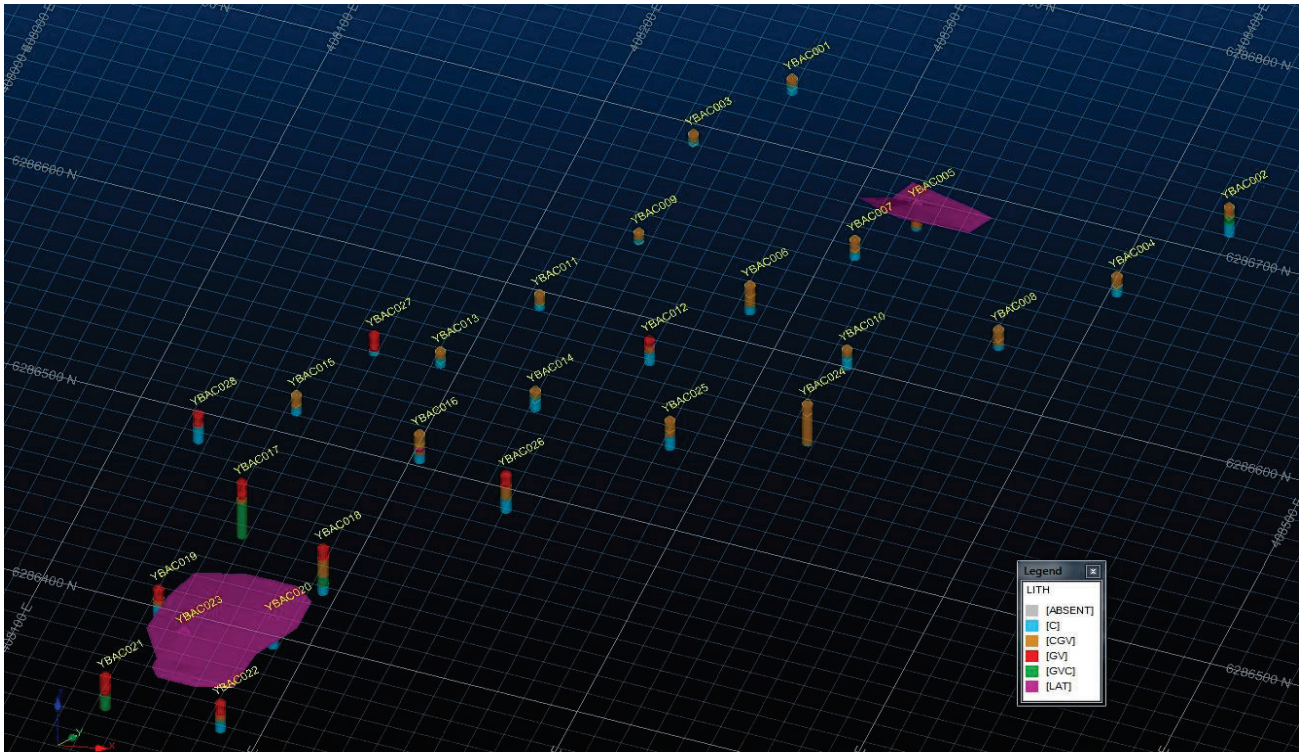
YBAC005	0	0.2	0.2	YB	LAT	3	CAPROCK
YBAC005	0.2	2.2	2	YB	CGV		
YBAC005	2.2	2.5	0.3	CP	C		
YBAC006	0	2.1	2.1	OB	CGV		
YBAC006	2.1	3	0.9	CP	C		
YBAC007	0	1.2	1.2	YB	CGV		
YBAC007	1.2	2	0.8	CP	C		
YBAC008	0	1.5	1.5	RB	CGV		
YBAC008	1.5	2	0.5	CP	C		
YBAC009	0	0.5	0.5	O	CGV		
YBAC009	0.5	1	0.5	CY	C		
YBAC010	0	0.5	0.5	OB	CGV		
YBAC010	0.5	2	1.5	CP	C		
YBAC011	0	0.8	0.8	RB	CGV		
YBAC011	0.8	1.5	0.7	CY	C		
YBAC012	0	0.2	0.2	OB	GV		
YBAC012	0.2	0.4	0.2	RB	LAT	3	
YBAC012	0.4	1.1	0.7	OB	CGV		
YBAC012	1.1	2.5	1.4	CP	C		
YBAC013	0	0.5	0.5	RB	CGV		
YBAC013	0.5	1.5	1	CY	C		
YBAC014	0	0.5	0.5	YO	CGV		
YBAC014	0.5	2	1.5	CP	C		
YBAC015	0	1.1	1.1	RB	CGV		
YBAC015	1.1	2	0.9	CY	C		
YBAC016	0	1.4	1.4	OB	CGV		
YBAC016	1.4	1.7	0.3	RB	LAT	3	
YBAC016	1.7	2	0.3	OB	CGV		
YBAC016	2	3	1	CP	C		
YBAC017	0	1.5	1.5	RB	GV		
YBAC017	1.5	2	0.5	O	CGV		
YBAC017	2	6	4	CO	GVC		
YBAC018	0	1	1	RB	GV		
YBAC018	1	3	2	OB	CGV		
YBAC018	3	4	1	PC	GVC		
YBAC018	4	5	1	PC	C		
YBAC019	0	1	1	RB	GV		
YBAC019	1	1.5	0.5	OB	CGV		
YBAC019	1.5	3	1.5	CY	C		
YBAC020	0	0.3	0.3	OB	LAT	3	CAPROCK
YBAC020	0.3	2	1.7	OB	CGV		
YBAC020	2	3	1	CY	C		
YBAC021	0	1.8	1.8	RB	GV		
YBAC021	1.8	3.5	1.7	PB	GVC		
YBAC022	0	1	1	RB	GV		

YBAC022	1	1.7	0.7	O	CGV		
YBAC022	1.7	3	1.3	PC	C		
YBAC023	0	0.4	0.4	RB	LAT	3	CAPROCK
YBAC023	0.4	1.2	0.8	RB	GV		
YBAC023	1.2	2.5	1.3	OB	CGV		
YBAC023	2.5	4	1.5	PC	C		
YBAC024	0	2.5	2.5	OB	CGV		
YBAC024	2.5	4.3	1.8	RB	CGV		
YBAC024	4.3	4.4	0.1	CP	C		
YBAC025	0	1.5	1.5	OB	CGV		
YBAC025	1.5	3	1.5	CP	C		
YBAC026	0	1	1	RB	GV		
YBAC026	1	2.5	1.5	OB	CGV		
YBAC026	2.5	4	1.5	CP	C		
YBAC027	0	1.5	1.5	OB	GV		
YBAC027	1.5	2	0.5	CY	C		
YBAC028	0	1	1	RB	GV		
YBAC028	1	1.2	0.2	OB	CGV		
YBAC028	1.2	3	1.8	CO	C		

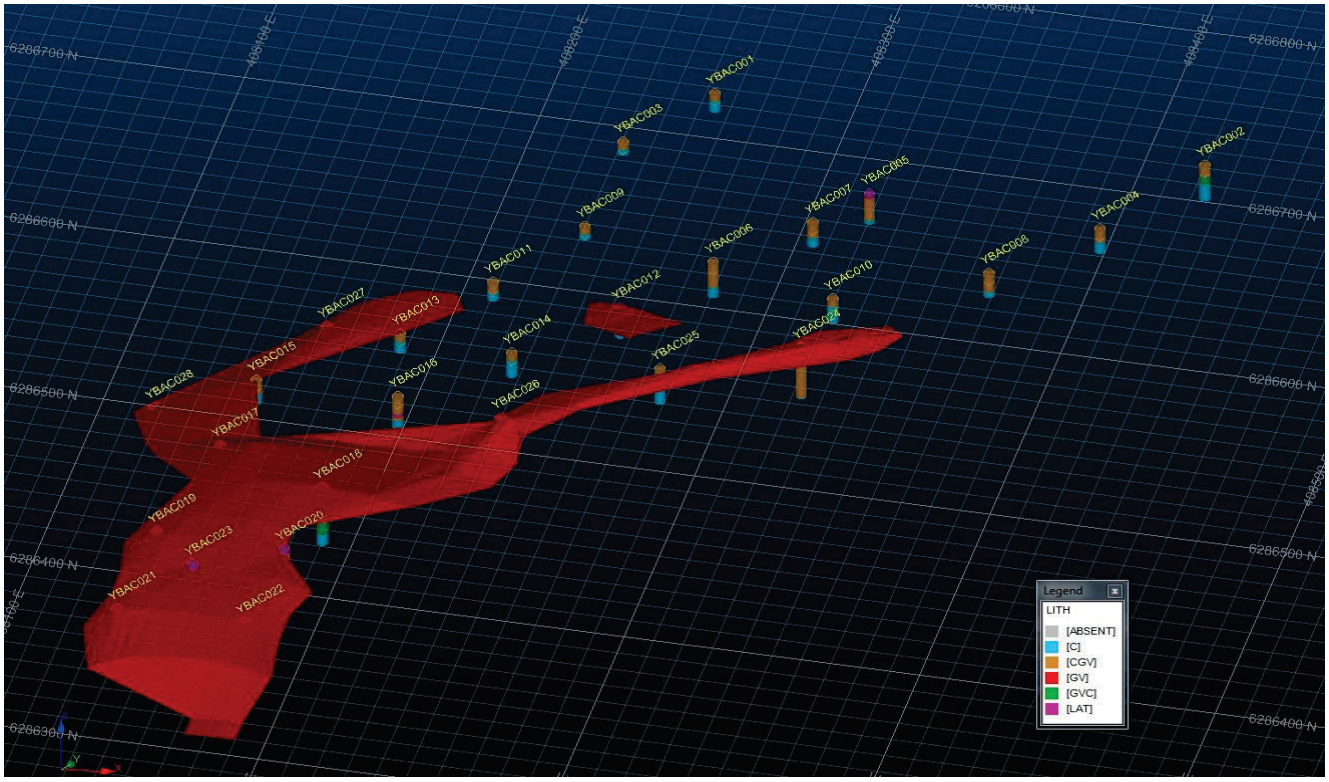
Appendix 2: Oblique views (looking NNW) of topography and the resource by material type.



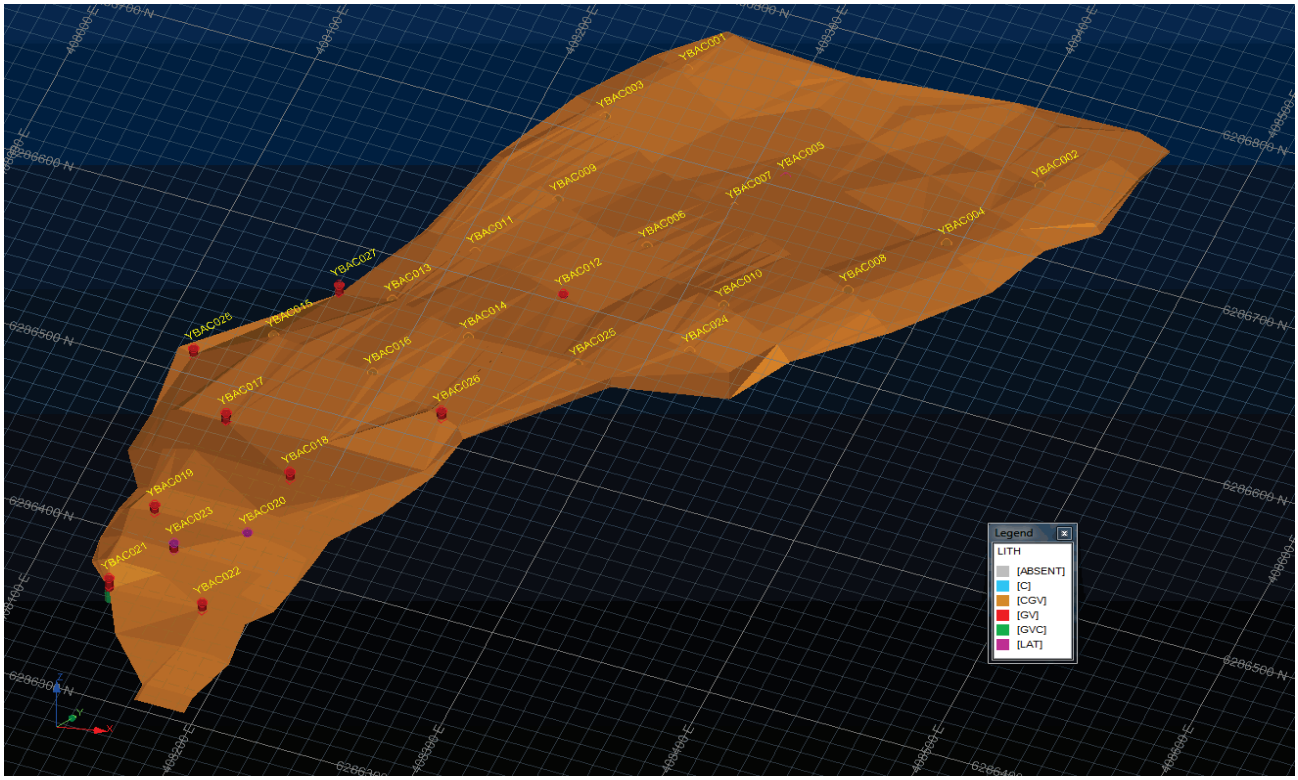
Topography and drill traces.



Laterite zones and drill traces



Gravel zone and drill traces



Clay gravel zone and drill traces