



## **NEW SOUTH WALES**

### **TOMINGLEY GOLD PROJECT (TGP)**

*Alkane 100% subject to separate royalty agreements with Compass Resources NL, Golden Cross Operations Pty Ltd and Climax Mining Ltd.*

#### ***Pre-feasibility Study***

Pre-feasibility studies continued through out the Quarter concentrating on the conceptual model of a 1 million tonne per annum open pit mine and conventional CIL gold recovery circuit. The base case used the resources of 6.38 million tonnes grading 2.43g/t gold resources at 0.75g/t gold cut off defined within the Wyoming One and Wyoming Three deposits. All processing plant and associated services would be sited adjacent to the mine at Wyoming, about 2 kilometres south of the town of Tomingley. Capital and operating costs have been estimated to  $\pm 30\%$  in keeping with the pre-feasibility status of the study.

The base case assumed 90% recovery of bulk open pit cut grades producing approximately 60 - 65,000 ounces of gold per year at cash costs ranging from \$375 to \$400 per ounce for a period of five years. Plant capital costs were estimated to be around \$20 million with additional infrastructure and services costs of \$9 million. The latter included the cost of the acquisition of a licence to access water from the Macquarie River and a pipeline to the site at Tomingley, a distance of approximately 50 kilometres.

Given the geometry of the deposits and the 30 metres of clay cover at Wyoming One, the open pit shells were unable to deliver ore feed for five years at manageable waste to ore ratios. This impacted on the overall financial model and, while generating positive cash flows, the base case scenario did not achieve an acceptable financial return.

A number of options are being considered. The addition of further open pittable resources within economic trucking distance of the plant is regarded as a priority, and a significant exploration effort is focussed on achieving this goal (see exploration section below). Modelling of the ore bodies is also ongoing with the aim of providing higher open pittable grades and determining the potential of an underground development, as either an addition to the open pit mining or as a stand alone option. These scenarios may include lower treatment rates.

Understanding of the structural controls to the mineralisation at Wyoming have advanced considerably in the last six months, and further drilling will be programmed to test concepts and model potential higher grade ore shoots that could be accessed by an underground mine development.

#### ***Exploration***

As reported to the ASX on 8 June, a major reconnaissance drilling program was completed within the TGP with the aim of generating targets capable of hosting additional resources. The program totalled 22,028 metres of air core drilling in 254 holes and 5,084 metres of reverse circulation drilling in 39 holes. The drilling targeted the five kilometre long Tomingley structural corridor to the north of Wyoming, and the McLeans and Wyoming One South zones immediately to the south of the Wyoming deposits (see Table 3 and Figure 1).

At **McLeans**, mineralisation was identified by widely spaced RC drilling in two distinct zones over a strike length of at least one kilometre. There is minimal cover over McLeans apart from thin soils and moderate oxidation. The northern zone appears to be an extension of the old Myall's United mine where two narrow high grade veins were historically exploited.

High grades were recorded in several holes (1m @ 24.45g/t Au; 4m @ 3.68g/t Au) while others intersected old mine openings. In the southern zone, extensive alteration was observed over an open ended three hundred metre strike length. This alteration is similar to that hosting the Wyoming deposits and the mineralisation intersected reflects this style with broad low grades interspersed with narrower higher grade intercepts (33m @ 0.54g/t Au; 1m @ 3.70g/t Au).

All the geological data generated by the drilling of this target is being compiled and further testing will be scheduled to determine its resource potential.

**Tomingley Two** is located four kilometres north of Wyoming within the distinctive Tomingley structural

corridor. Broad reconnaissance aircore drilling on east-west traverses 200 metres apart identified a zone of alteration and veining over a strike length of 800 metres below variable transported cover up to 50 metres deep. As a result of several encouraging intercepts (3m @ 4.93g/t Au; 19m @ 0.62g/t Au), some infill aircore and deeper RC drilling was completed on 100 metre spaced lines. This drilling also returned very encouraging results (102m @ 0.66g/t Au; 9m @ 1.75g/t Au) and demonstrated the potential of this system to host resources.

As with McLeans, all geological data is currently being compiled but it appears that gold mineralisation is developed within a north-south structure up to 50 metres in width over an 800 metre strike length. The true widths and orientation of the mineralisation within this structure is not yet clear but the area does present a substantial target.

**Tomingley One** is also located within the Tomingley structural corridor, about three kilometres north of Wyoming. Reconnaissance aircore drilling tested the extensions to the known mineralisation which had been identified by drilling in 2002/3 under variable cover up to 40 metres thick. The mineralisation has now been identified over a strike length of at least 800 metres and while the width of the target zone does not appear to be as great as that at Tomingley Two, the previous high grade intercepts (2m @ 10.95g/t Au; 4m @ 1.79g/t Au) still highlight the potential of this zone to host gold resources.

The reconnaissance drilling completed to date has been confined to an area roughly eight kilometres north-south by one kilometre wide within the larger Tomingley Gold Project, which extends over 60 kilometres north-south and five kilometres wide. The potential for continued discovery of substantial gold resources within the project area is considered high and will remain a focus for the Company's activities in the Tomingley-Peak Hill region.

## **DUBBO ZIRCONIA PROJECT**

*Australian Zirconia Ltd (AZL) 100%, subject to Astron Limited earning 50%*

The review of potential process flow sheet optimisations and modifications continued.

## **PEAK HILL GOLD MINE**

*Alkane Exploration Ltd 100%*

710 ounces of gold were produced for the March Quarter. Decommissioning of the heaps is continuing and gold will continue to be produced from these operations over the next six months or more, generating a small cash surplus.

## **BODANGORA (gold-copper)**

*Alkane Exploration Ltd 100%, subject to royalty agreement with Rio Tinto Exploration Pty Limited*

The Bodangora tenement covers multiple gold and gold-copper targets within 65km<sup>2</sup> area which have been subject to various exploration programs over many years. These targets range from monzonite associated porphyry and skarn type mineralisation through to distinctive vein hosted structurally controlled deposits. The latter is typified by the historic underground Bodangora Mine (Mitchells Creek) which produced 200,000 ounces of gold from 300,000 tonnes of ore largely between 1891 and 1917.

During the Quarter, 25 reconnaissance RC holes (2,278 metres) tested an area of 4km by 2km around the Bodangora mine (Figure 2), targeting other vein sets away from the main production line and determine the potential for open pit gold resources. Surface rock chip sampling and drilling have identified at least 13 separate veins and alteration zones within the area.

The RC holes intersected a folded and faulted sequence of basalt, andesitic volcanoclastics and other sediments with variable levels of alteration and veining. While many veins returned gold values up to 1g/t Au, no high grade intercepts were recorded confirming the view that the high grade shoots are probably controlled by specific structures within the vein sets. Further testing of the shallow environment will await a more detailed assessment of the structural interpretation of the area. This will also provide targeting for the deeper drill testing of the main Bodangora vein set.

The drilling also located the “up-stream” and apparently unmined extension to the Jawbone Lead, an alluvial deep lead which was worked in the 1870’s and again in the 1900’s, although no production records are available for this body. Further shallow drilling will be planned to assess the potential of the deep lead.

Table 1: Summary of Bodangora RC Results

Hole No	East	North	Azimuth	Intercept (m)	Grade (g/t Au)	Interval (m)	EOH (m)	Target Zone	
BDRC08	688189	6406452	270°	3	0.81	68 - 71	90	Knowles Reef	
				1	1.30	69 - 70			
BDRC09	687987	6406350	270°	4	0.98	47 - 51	95	Y Reef	
				incl	1	2.73			47 - 48
				and	3	1.30			87 - 90
				incl	1	2.67	87 - 88	Z Reef	
BDRC19	687536	6407977	270°	1	1.07	100 - 101	114	M Ck Reef Nth	
BDRC20	687429	6408084	270°	8	0.76	66 - 74	89	M Ck Reef Nth	
				incl	1	1.71			72 - 73
BDRC21	687500	6408074	270°	3	1.57	113 - 116	131	M Ck Reef Nth	
				incl	1	2.42			113 - 114
				and	1	2.21			115 - 116

All holes drilled at a nominal inclination of -55° to -60°. Gold analysis by 50g fire assay of 1 metre riffle split intervals.

A high resolution aeromagnetic and radiometric survey of 1,735 line kilometres has also been completed to assist with the geological and structural interpretation of the tenement. This data will be combined with the existing database to guide further target testing.

## WELLINGTON (copper-gold)

*LFB Resources NL 100%*

The Wellington Project is centred 15 kilometres to the south east of the town of Wellington. The project hosts several targets, including the Federal gold and **Galwadgere** copper-gold prospects (Figure 2). Most work by Alkane to date has focussed on Federal but the improving copper price over the last year prompted a reassessment of the potential of Galwadgere.

Exploration by other companies has taken place intermittently since 1967, with the bulk of the work comprising 41 diamond core holes completed during the 1970’s. This drilling located an extensively altered felsic to intermediate volcanic sequence hosting base metal sulphide and gold mineralisation. Eleven shallow RC holes were drilled in 1989 to test for a possible supergene oxide gold deposit in the near surface environment but the depth of oxidation was shallower than anticipated and there was no enrichment of gold values. In 1997 two additional core holes were also drilled for metallurgical testing, while one RC hole was drilled to check the mineralised sequence below the Permian cover.

Several resource calculations were completed by other companies but the age of the data precludes these resources being formally reported within JORC guidelines.

The mineralisation at Galwadgere had been traced over a strike length of at least 300 metres, is up to 30 metres wide and has been tested to a depth of 280 metres, although the bulk of the drilling is above 200 metre vertical depth. The system dips to the east at about 60°, and there is an apparent plunge to the north at 45-50°. Limited metallurgical work was completed in 1980 and this indicated that the sulphide mineralisation was readily amenable to upgrade by gravity or heavy media separation techniques.

The deposit is one of several mineral occurrences located within the Silurian aged Gleneski Formation along a four kilometre long zone adjacent to a major regional structure, the Nindethana Thrust. A small, younger Permian basin is situated immediately to the north of Galwadgere and these sediments cover an area roughly one kilometre diameter and up to 200 metres in depth. Most of the other mineral occurrences have not been subject to any systematic exploration.

Eight RC holes (1,320 metres) were programmed to check various parts of the mineralised system to confirm the continuity of the copper grades previously reported, determine the extent of the associated gold mineralisation

and check the potential for a zoned system hosting separate silver-lead-zinc rich horizons. The drilling intersected altered volcanics hosting broad widths of disseminated pyrite-chalcopyrite mineralisation with occasional massive sulphide lenses up to 5 metres thick (Figure 3). While the deposit has previously been categorised as a Volcanogenic Massive Sulphide (VMS) type deposit, and there is some evidence of metal zonation, later structural overprint may have modified the distribution of the metals.

Table 2: Summary of Galwadgere RC Results

Hole No	East	North	Azimuth	Intercept (m)	Grade (% Cu)	Grade (g/t Au)	Interval (m)	EOH (m)	Remarks
<b>GAL 004</b>	<b>692284</b>	<b>6384101</b>	<b>270</b>	<b>6</b>	<b>0.21</b>	<b>0.13</b>	<b>123 - 129</b>	<b>210</b>	<b>North end</b>
<b>and</b>				<b>11</b>	<b>0.26</b>	<b>0.18</b>	<b>138 - 149</b>		
<b>GAL 005</b>	<b>692344</b>	<b>6383850</b>	<b>270</b>	<b>4</b>	<b>1.69</b>	<b>0.08</b>	<b>121 - 125</b>	<b>192</b>	
<b>and</b>				<b>2</b>	<b>0.15</b>	<b>1.31</b>	<b>137 - 139</b>		
<b>and</b>				<b>17</b>	<b>0.96</b>	<b>0.18</b>	<b>151 - 168</b>		
<b>incl</b>				<b>13</b>	<b>1.02</b>	<b>0.19</b>	<b>154 - 167</b>		
<b>incl</b>				<b>4</b>	<b>1.38</b>	<b>0.25</b>	<b>163 - 167</b>		
<b>GAL 006</b>	<b>692244</b>	<b>6383864</b>	<b>270</b>	<b>37</b>	<b>0.84</b>	<b>0.24</b>	<b>49 - 86</b>	<b>114</b>	
<b>incl</b>				<b>26</b>	<b>1.09</b>	<b>0.26</b>	<b>60 - 86</b>		
<b>incl</b>				<b>17</b>	<b>1.37</b>	<b>0.31</b>	<b>69 - 86</b>		
<b>incl</b>				<b>11</b>	<b>1.68</b>	<b>0.29</b>	<b>69 - 80</b>		
<b>and</b>				<b>3</b>	<b>1.58</b>	<b>0.64</b>	<b>83 - 86</b>		
<b>GAL 007</b>	<b>692270</b>	<b>6383938</b>	<b>270</b>	<b>3</b>	<b>0.61</b>	<b>0.43</b>	<b>87 - 90</b>	<b>150</b>	
<b>and</b>				<b>8</b>	<b>0.81</b>	<b>0.19</b>	<b>104 - 112</b>		
<b>and</b>				<b>3</b>	<b>0.47</b>	<b>0.40</b>	<b>123 - 126</b>		<b>1.27% Zn 0.53% Pb 25g/t Ag</b>
<b>GAL 008</b>	<b>692295</b>	<b>6384018</b>	<b>270</b>	<b>47</b>	<b>0.90</b>	<b>1.58</b>	<b>122 - 169</b>	<b>186</b>	
<b>incl</b>				<b>9</b>	<b>0.97</b>	<b>6.94</b>	<b>160 - 169</b>		<b>2.61% Zn 0.87% Pb 29g/t Ag</b>
<b>and</b>				<b>4</b>	<b>0.39</b>	<b>1.00</b>	<b>166 - 170</b>		
<b>GAL 009</b>	<b>692167</b>	<b>6384012</b>	<b>270</b>		<b>Overshot main target</b>				
<b>GAL 010</b>	<b>692188</b>	<b>6383896</b>	<b>270</b>	<b>13</b>	<b>1.07</b>	<b>0.26</b>	<b>17 - 30</b>	<b>102</b>	
<b>incl</b>				<b>6</b>	<b>1.87</b>	<b>0.49</b>	<b>24 - 30</b>		
<b>and</b>				<b>5</b>	<b>2.17</b>	<b>0.50</b>	<b>46 - 51</b>		
<b>GAL 011</b>	<b>692370</b>	<b>6384104</b>	<b>270</b>	<b>4</b>	<b>0.25</b>	<b>0.06</b>	<b>184 - 188</b>	<b>282</b>	<b>North end</b>
				<b>3</b>	<b>0.68</b>	<b>trace</b>	<b>259 - 262</b>		
					<b>Broad widths low grade zinc</b>				

All holes drilled at a nominal inclination of -60°. Gold analysis by 50g fire assay, other metals by ICP-AES of 1 metre riffle split intervals. Copper checked by aqua regia AAS. True widths approximately 90% of drill intercepts.

The higher gold grades intersected by **GAL 008 (9m @ 6.94g/t Au)** and the previous drilling, may be controlled by more discrete structures within the broader alteration zone and will be investigated further once all the recent and historic data has been compiled.

At this stage the mineralised system is open to the south, north and down dip with the deepest hole previously completed, demonstrating continuity of the broad alteration zone and higher grade massive sulphide lenses at a vertical depth of approximately 280 metres.

<b>DDH 40:</b>	<b>261.95 – 271.95m</b>	<b>10.00m @ 1.00% Cu</b>
	<b>280.94 – 285.94m</b>	<b>5.00m @ 0.94% Cu</b>
	<b>300.93 – 305.14m</b>	<b>4.21m @ 1.03% Cu</b>
	<b>309.42 – 309.67m</b>	<b>0.25m @ 3.50% Cu, 15.5g/t Au, 230g/t Ag</b>

The drilling has confirmed the potential of Galwadgere to host an economic resource and further RC drilling has been scheduled to commence in September. The deposit is located adjacent to favourable logistics, being three kilometres from the main Western Railway, adjacent to power and water, and has the town of Wellington twenty road kilometres away.

### **ORANGE-MOLONG (copper-gold)**

*LFB Resources NL 100%*

The auger soil geochemical survey continued to test structural targets identified on aeromagnetic images covering the area immediately to the south of the Charlies area where previous drilling has intersected narrow high grade gold-copper intercepts associated with altered monzonite intrusives. A discrete gold anomaly up to 40ppb has been located at one aeromagnetic target to date.

### **MOORILDA (copper-gold)**

*LFB Resources NL 100%*

A high resolution aeromagnetic and radiometric survey of 5,240 line kilometres has been completed to assist with the geological and structural interpretation of the tenements. This data will be combined with the existing database to guide further target testing.

### **CUDAL (gold-copper)**

*Alkane Exploration Ltd 100%, subject to royalty agreement with Rio Tinto Exploration Pty Limited*

A high resolution aeromagnetic and radiometric survey of 3,200 line kilometres has also been completed at Cudal to assist with the geological and structural interpretation of the tenements. Compilation of the extensive previous exploration database has commenced and will be combined with the aeromagnetics to guide further target testing.

## **WESTERN AUSTRALIA**

### **LEINSTER REGION JOINT VENTURE (nickel-gold)**

*Alkane Exploration Ltd 49%, Jubilee Mines NL 51%*

*The four prospects - Leinster Downs, Miranda, McDonough Lookout and Mt Keith - are subject to a farm-in agreement with Jubilee Mines NL where Jubilee can earn a 75% interest in the properties by spending \$4.5M before March 2005. In March 2002 Jubilee reported expenditures to earn a 51% interest and have elected to continue to earn a further 24%.*

While Jubilee have advised that no field work was carried out during the quarter, they have scheduled detailed aeromagnetic surveys for Miranda and McDonough during the September Quarter.

**NULLAGINE DIAMOND PROJECT (Western Australia) and WAITANGI (New Zealand)** were inactive

### **DI Chalmers**

#### **Technical Director**

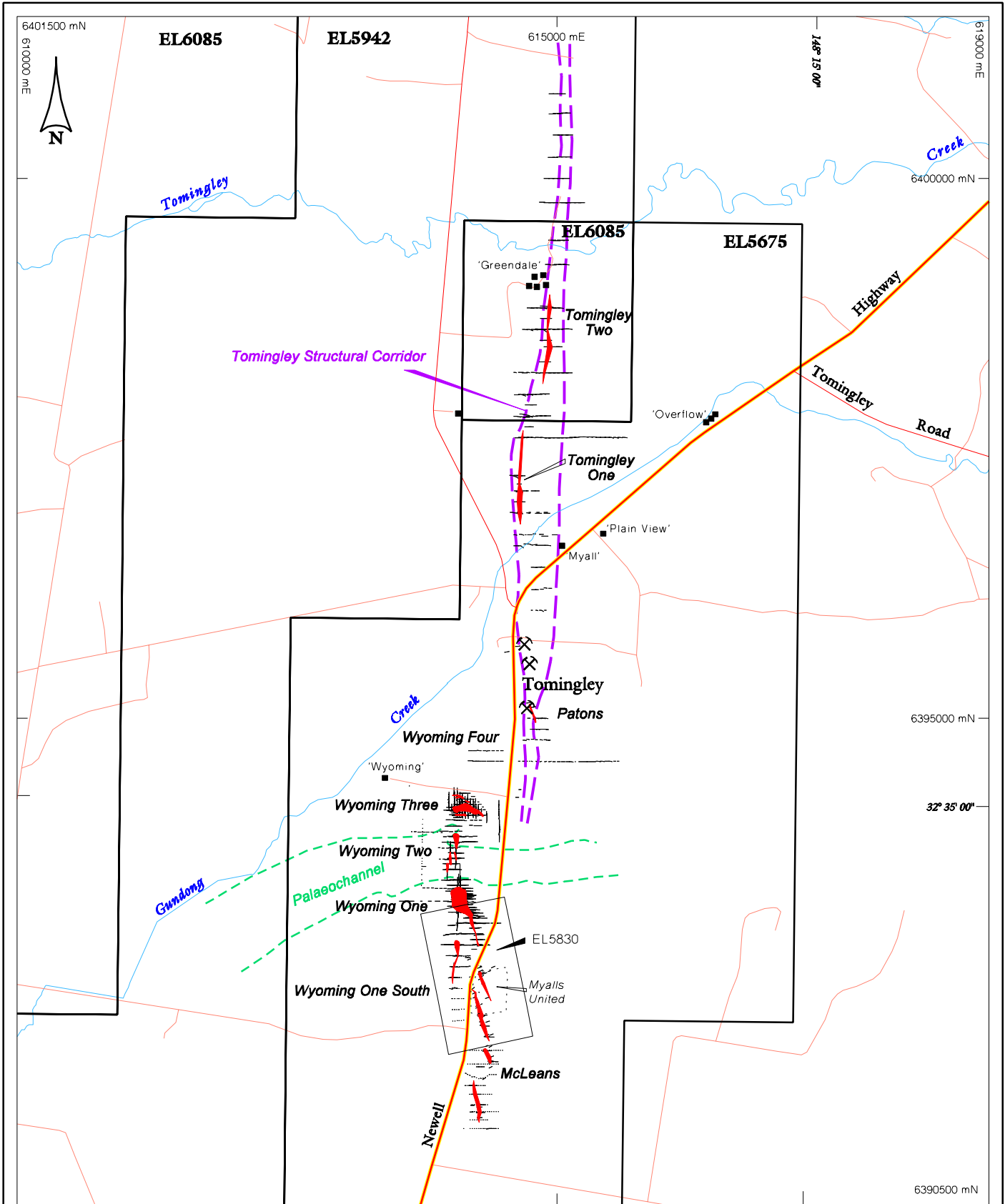
#### **ALKANE EXPLORATION LTD**


*Unless otherwise stated this report is based on information compiled by Mr DI Chalmers, FAusIMM, FAIG, a director of the Company, who is a competent person as defined in the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves, September 1999, and accurately reflects the information compiled by the competent person.*

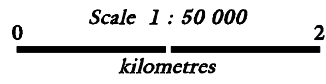
### **Table 3: Summary of Recent TGP Results**

All holes drilled at a nominal inclination of -60°. Gold analysis by 30g fire assay of 3 metre composites. #50g fire assay of 1m resplits;

Hole No	East	North	Azimuth	Intercept (m)	Grade (g/t Au)	Interval (m)	EOH (m)	Target Zone
MCP037	614320	6392250	270°	1	24.45#	37 - 38	102	McLeans
MCP038	614360	6392250	270°	4	3.68#	83 - 87	174	McLeans
and				4	1.47#	94 - 98		McLeans
MCP039	614340	6392150	270°	3	1.68#	0 - 3	102	McLeans
MCP040	614380	6392150	270°	2	4.24#	106 - 108	144	McLeans
MCP043	614360	6392050	270°	1	1.92#	41 - 42	76	McLeans
MCP048	614267	6391601	270°	9	0.87#	72-81#	150	McLeans
MCP049	614258	6391521	270°	9	0.74#	21-30#	102	McLeans
incl				1	3.70#	29-30		
MCP050	614297	6391521	270°	1	1.22#	80-81#	150	McLeans
MCP053	614299	6391352	270°	33	0.54#	30-63	96	McLeans
MCP054	614337	6391350	270°	3	1.02#	45-48	150	McLeans
and				6	0.45#	87-93		
MCP059	614309	6391301	270°	3	1.85#	84-87	96	McLeans
WY 688	614039	6392598	270°	2	0.98#	20 - 22	52	Wyoming 1 S
WY 796	614079	6392698	270°	2	1.90#	59-61#	102	Wyoming 1 S
WY 797	614104	6392698	270°	3	0.67	96-99#	120	Wyoming 1 S
WY 803	614046	6392740	180°	3	0.67	84-87	131	Wyoming 1 S
TO 084	614641	6396599	90°	3	1.27	36 - 39	89	Tomingley 1
TO 092	614598	6396901	90°	3	0.99	75 - 78	118	Tomingley 1
TO 117	614640	6397602	90°	3	1.33	78 - 81	130	Tomingley 1
TO 220	614748	6397901	90°	6	0.32	111-117	134	Tomingley 1
TO 222	614698	6397701	90°	3	0.33	81-84	127	Tomingley 1
TO 123	614712	6397800	90°	3	4.93#	111 - 114	137	Tomingley 2
TO 144	614840	6398200	90°	3	0.96	66 - 69	107	Tomingley 2
TO 162	614880	6398800	90°	19	0.62#	123- 142	142	Tomingley 2
incl				4	1.14	124-128		
incl				3	1.65	139-142		
TO 163	614842	6398800	90°	3	0.67	99-102	125	Tomingley 2
TO 171	614890	6399201	90°	3	0.35	105-108	129	Tomingley 2
TO 203	614841	6398816	90°	102	0.66	129-231	240	Tomingley 2
incl				6	1.39	159-165		
incl				6	1.03	174-180		
incl				24	1.29	201-225		
TO 213	614880	6398703	90°	18	0.58	105-123	146	Tomingley 2
and				8	1.65	138-146		
TO 215	614878	6398499	90°	3	0.25	93-96	153	Tomingley 2
and				6	0.82	102-108		
and				9	1.75	132-141		
and				3	0.37	150-153		
TO 216	614839	6398501	90°	18	0.65	102-120	155	Tomingley 2
and				9	0.58	129-138		
TO 217	614877	6398300	90°	6	0.72	78-84	137	Tomingley 2
and				3	1.59	90-93		
and				3	0.37	96-99		
TO 218	614837	6398300	90°	6	0.47	75-81	143	Tomingley 2
and				6	1.18	120-126		
TO 182	614957	6399775	90°	6	0.45	69-75	93	Tom Regional
TO 183	614920	6399775	90°	10	0.24	114-124	124	Tom Regional
TO 187	614958	6400000	91°	2	0.43	99-101	101	Tom Regional
TO 193	614996	6400197	90°	3	0.25	69-72	119	Tom Regional
WY 783	614775	6394994	90°	6	0.39	36-42	54	Patons Mine
WY 786	614766	6395102	270°	22	0.32	11-33	67	Patons Mine



 0.25g/t Au outline



 **ALKANE EXPLORATION LTD**

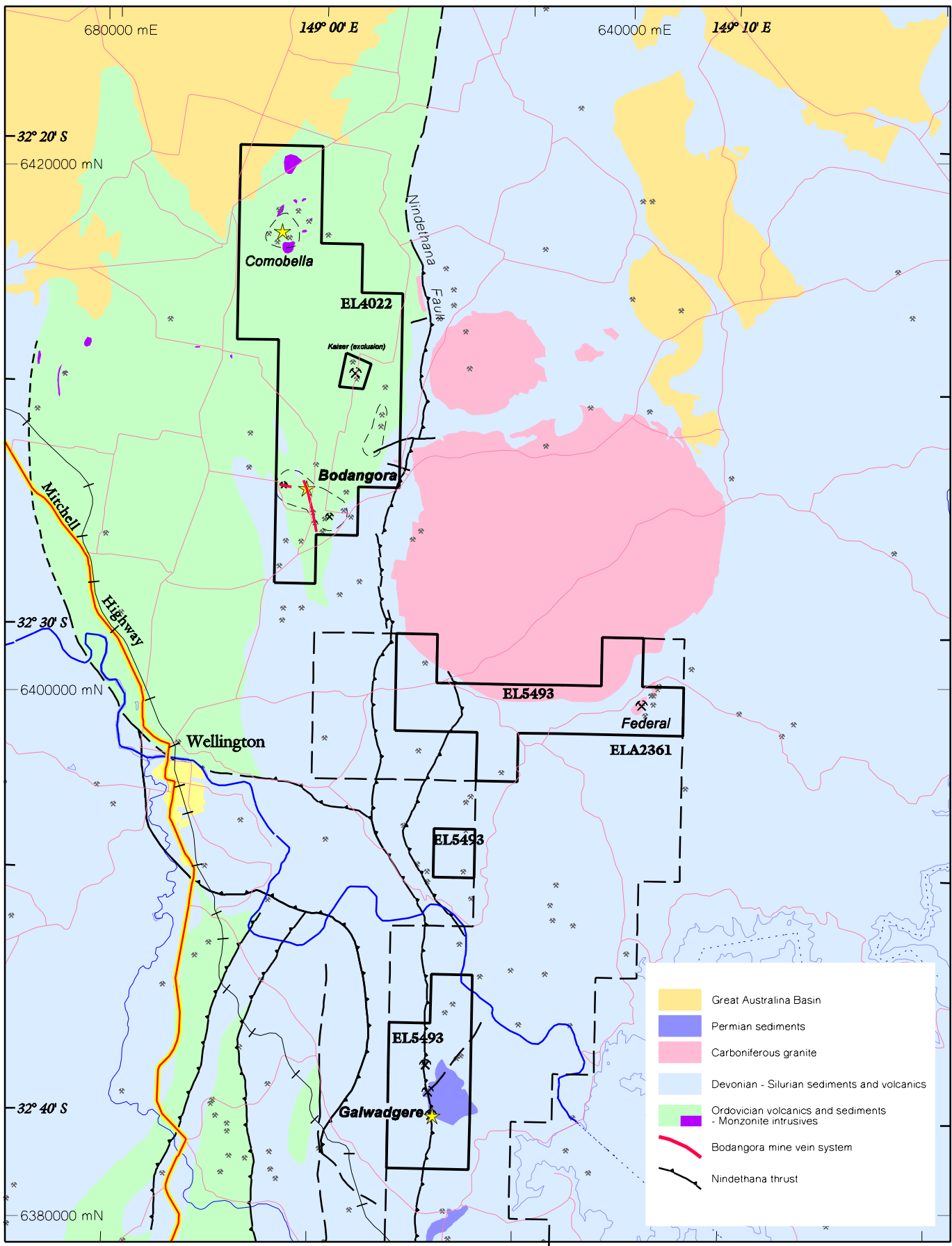
**TOMINGLEY GOLD PROJECT**  
NEW SOUTH WALES

**Prospect Locations**

Projection - AMG Zone 55  
Datum (horizontal) - AGD66

COMPILED : MMC PLAN No. : ALK TOM IAL-007  
DRAFTED : M-O-G Date : June 2004 FIGURE No. : 1





Scale 1 : 200 000



Projection - AMG Zone 55  
Datum (horizontal) - AGD66

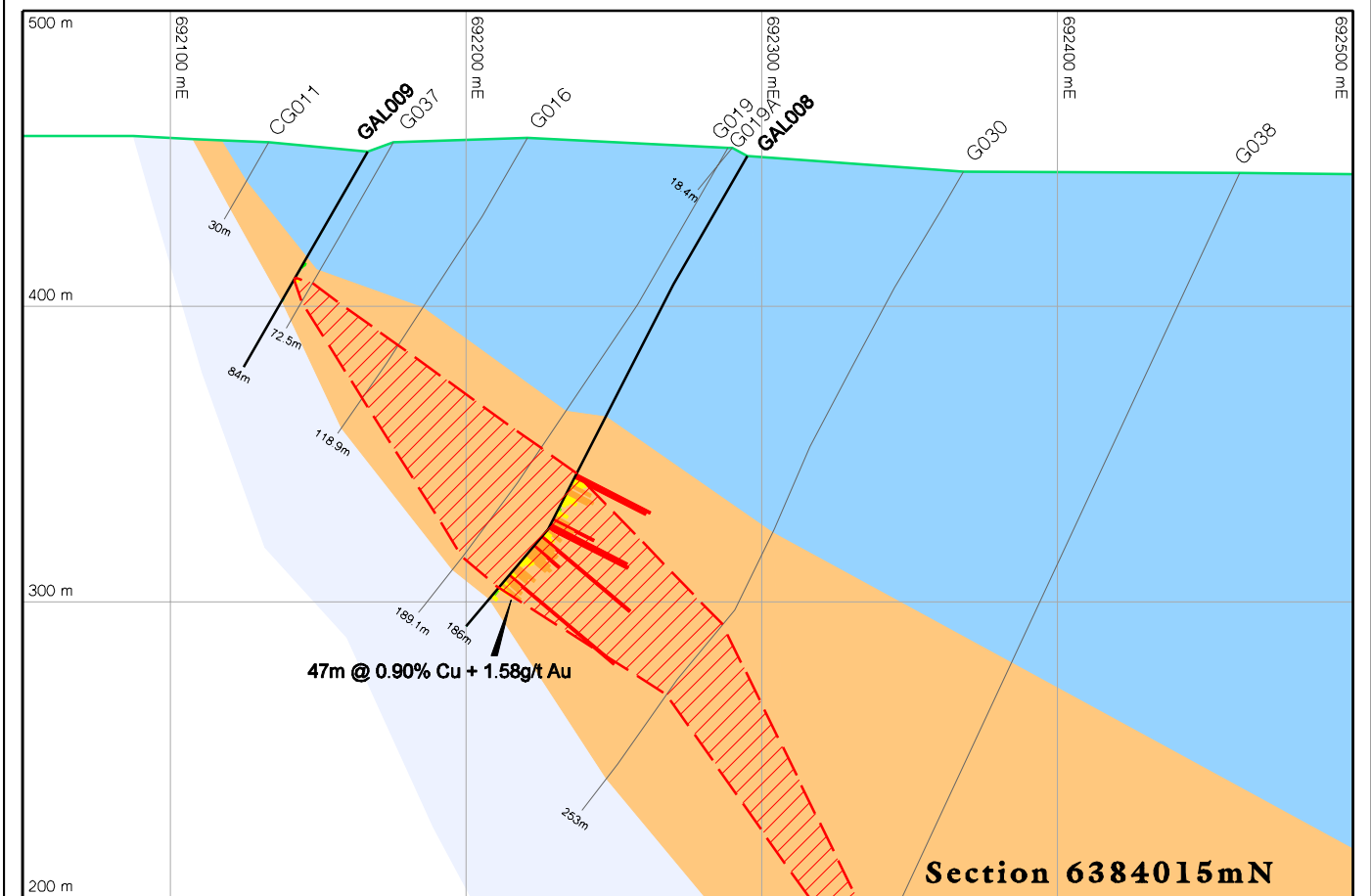
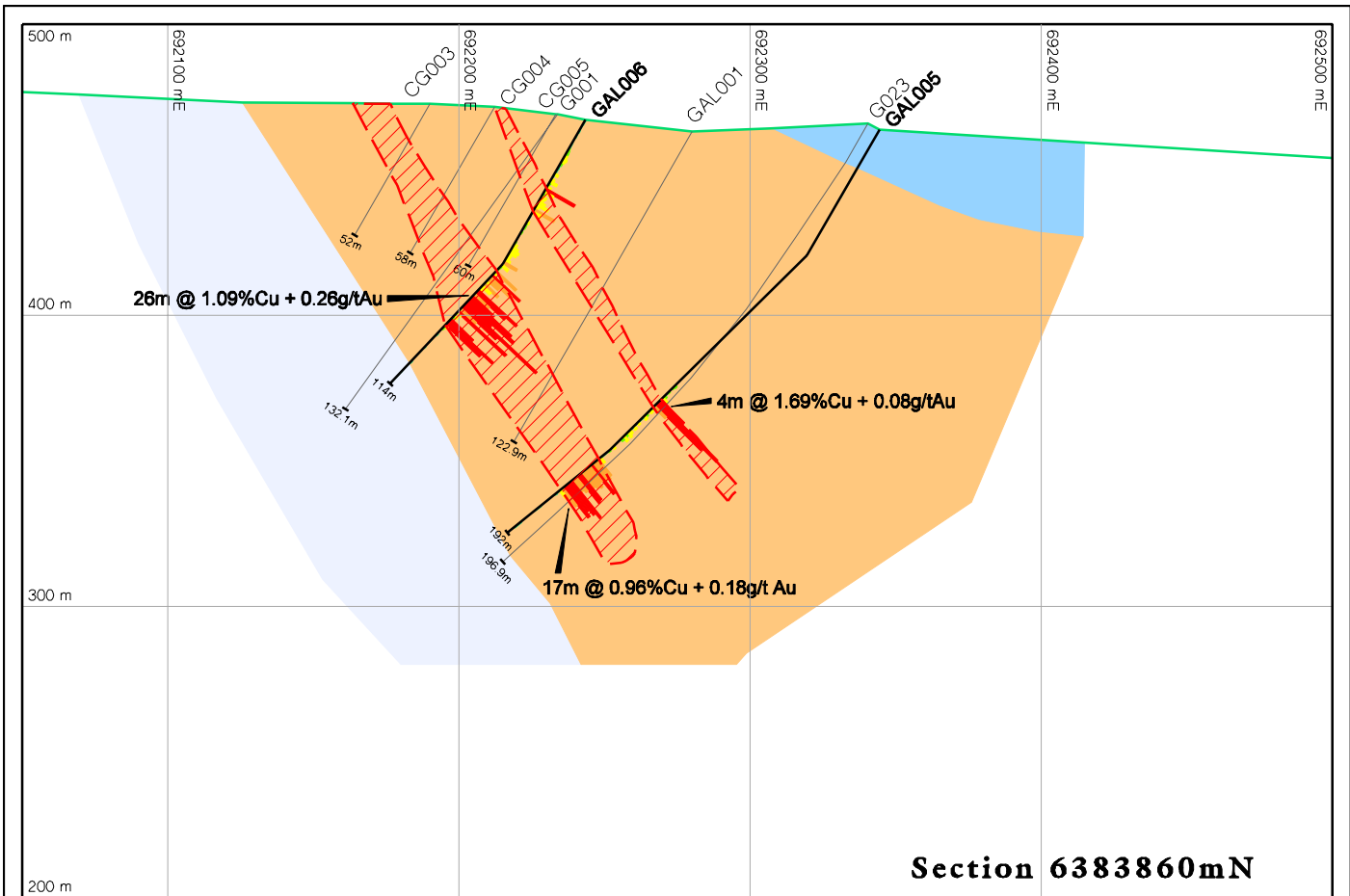
**ALKANE EXPLORATION LTD**

**BODANGORA & WELLINGTON PROJECTS**

NEW SOUTH WALES

**Regional Geology**

COMPILED : MMC PLAN No. : ALK BOD 1GA-002  
DRAFTED : M-O-G Date : July 2004 FIGURE No. :



- Permian sediments
- Devonian sediments
- Silurian volcanics and volcanoclastics
- Mineralisation

- Alkane RC drill hole
- Historical drill hole



**ALKANE EXPLORATION LTD**  
**WELLINGTON PROJECT**  
**Galwadgere Prospect**