

ALLEGIANCE MINING NL

**EL 43/1992 & ML 2/2007
MELBA FLATS**

ANNUAL REPORT

30 April 2008

Prepared for:

**Allegiance Mining NL
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FORWARD

EL 43/1992 is now a small remnant Exploration Licence surrounding ML 2/2007, acquired to facilitate development of identified resource at Melba Flats. This report covers work completed on both tenements in the twelve-month period to end March 2008.

Grid data in this report is GDA.

1. SUMMARY

1. To facilitate development of identified mineral resources at Melba Flats, application was made for a 269 ha mining lease over these resource areas. Mining Lease 2M/2007 was granted on 22 August 2007 for a 10-year period for this purpose.
2. A remnant 6 sq km area of EL 43/1992 was retained around 2M/2007 to cover areas considered prospective for extensions of known resources.
3. A Level 2 permitting process was commenced over conceptualised developments at Nickel Reward and North Cuni-Genets.
4. An eleven (11) hole core drilling program was completed to test for extensions of known mineralisation at Nickel Reward (3 holes), Devereaux (3 holes), North Cuni (2 holes), Genets (3 holes).

A follow-up drilling program at Nickel Reward was commenced late in the year and results are not yet collated.

5. At Nickel Reward, significant depth extensions of Ni-Cu mineralisation were intersected in MF80, MF81.

At Devereaux, significant mineralisation was intersected beneath the old workings in MF82 and MF83.

At Genets, depth and strike extensions were intersected in MF87, MF88, MF89.

6. Excavation work south of North Cuni intersected mineralised gabbro at shallow depth.
7. An aerial photography survey was completed over the area to assist with development planning and to monitor forestry activity.
8. Metallurgical test work was planned but not commenced.

2. INTRODUCTION

The Melba Flats area is underlain by Cambrian sediments intruded by a number of Cambrian gabbro dikes, genetically associated with the Serpentine Hill and Razorback Ultramafic bodies east of the tenements. The sediments dip to the east and generally strike north-south. Variations in these trends are caused by district folding and common small-scale faulting.

The gabbro dikes are intrusive, often with chilled and brecciated margins, and are both concordant and discordant with the enclosing sediments.

The dikes, sediments and ultramafics are pervasively altered. Carbonate and carbonate-talc alteration of the gabbro dikes is typically accompanied by late stage carbonate veining.

Nickel-copper mineralisation is widespread in the altered gabbros and accumulates in small high grade pods on the footwall of one (?) of these dikes. The mineralisation is accompanied by Au, Pt, Pd, Co mineralisation in broad correlation with the Ni-Cu contents.

The late-stage carbonate alteration and veining is also accompanied by significant coarse galena-sphalerite-chalcopyrite. Exploration to date by Allegiance has shown the Ni-Cu mineralisation to be more widespread and persistent to greater depths than previously thought.

Drilling by Allegiance, complemented by surface exposure and former mine workings, has identified modest shallow resources at Nickel Reward and North Cuni-Genets. The district is regarded as highly prospective for extensions of these resources and for more substantial bodies at depth associated with larger gabbro and ultramafic intrusives.

The overall strategy at Melba is to commence production from several small pits and to access deeper resources by way of appropriately-sized declines from within these pits.

Reflecting this strategy, activity during the past year had three primary objectives:

- expand the shallow open-cuttage resources
- explore for deeper, larger deposits by drilling
- progress development of the shallow resources towards production

MELBA PROJECT
LOCATION PLAN

- ◆ prospective for shallow extensions of previously mined Ni-Cu deposits and deeper larger deposits in altered gabbros and ultramafics.
- ◆ shallow resources already identified at Nickel Reward and North Cuni-Genets.
- ◆ planning and permitting of modest sized open cuts and underground mines on these resources in progress.
- ◆ recent intersection of massive sulfides (0.7m 10.8% Ni, 3.8% Cu) at 200 vertical metres below Nickel Reward confirms depth extension of mineralisation.
- ◆ deeper drilling scheduled to commence in January 2008.
- ◆ discovery of new zone of mineralisation at Devereaux, 800m west of Nickel Reward.

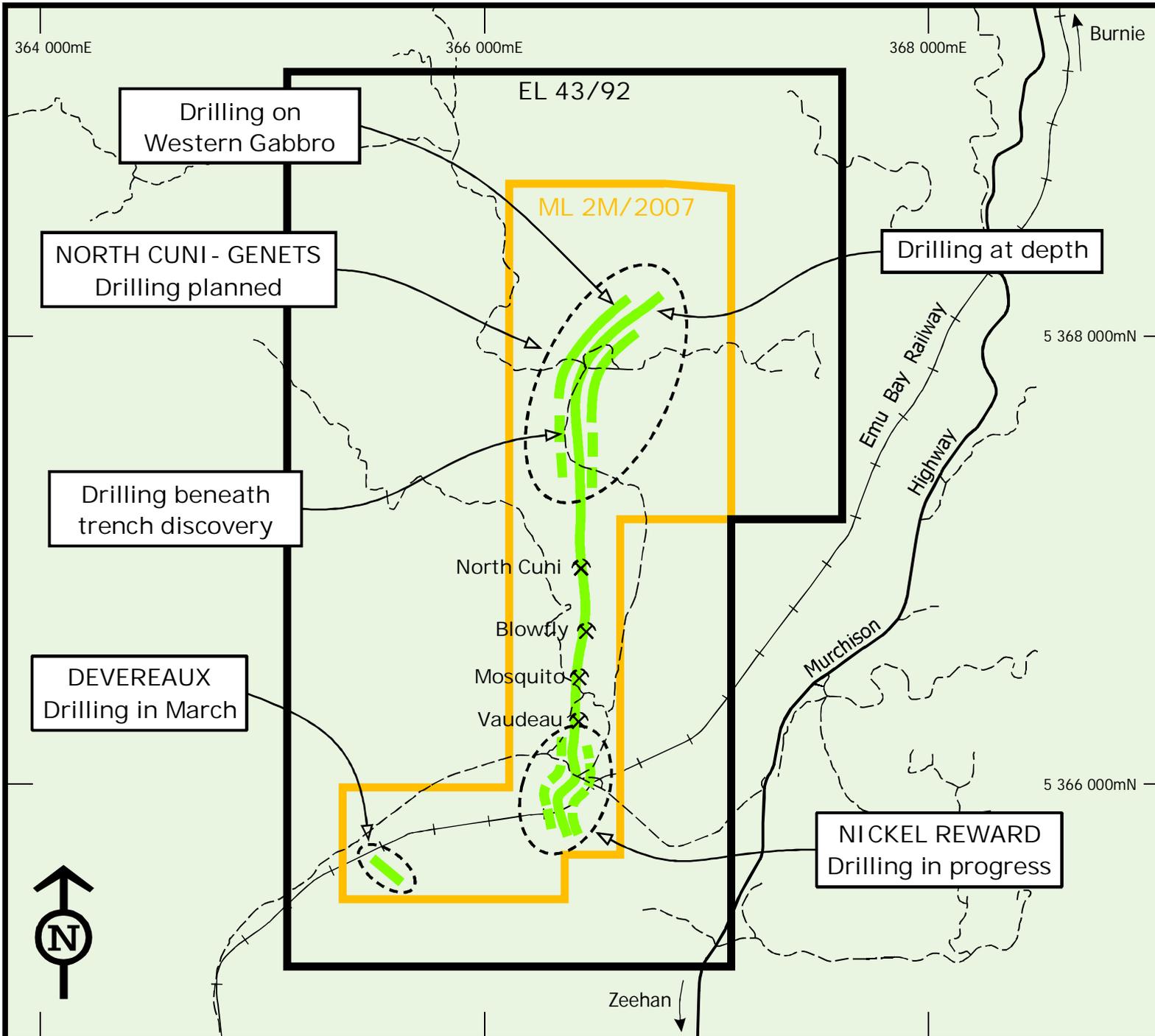


Figure 1

3. WORK COMPLETED - CURRENT YEAR

3.1. Drilling:

Eleven (11) cored drill holes were completed, testing for extensions of mineralisation at Nickel Reward, Devereaux, North Cuni and Genets.

3.1.1 Nickel Reward Drilling:

Drill holes MF79, MF80, MF81 were completed to test for depth extensions of previously identified shallow mineralisation at Nickel Reward. A twin hole MF81(A) and a second-cut intersection MF81(B) were completed off MF81 to acquire material for metallurgical test work.

Logs and assays for these holes are attached in Appendices 1 and 2.

Drill hole location plan, sections and longitudinal projections are attached as figures.

MF79 was drilled to test the northern side of the interpreted north-east plunging Nickel Reward body, approximately 100 m down-plunge of MF75 (1.8 m 2.4% Ni, 1.8% Cu and 3.5 m 1.29% Ni, 1.29% Cu).

Whilst a number of gabbro dikes were intersected, none contained significant mineralisation. It is possible, depending on the structural interpretation of Nickel Reward, that this hole was stopped prematurely and did not reach the main dike.

MF80 was designed to intersect the down-plunge extension of the Nickel Reward zone south of MF79 and 100 m down plunge of previous mineralised intersections. It intersected two mineralised dikes, consistent with results in shallower holes:

171.2-172.7 m, 1.5 m 0.92% Ni, 0.68% Cu

211.9-215.5 m, 3.6 m 0.60% Ni, 0.48% Cu

MF81 was similarly designed to test the interpreted southern margin of the mineralised zone beneath previous intersections. It intersected two mineralised gabbro dikes, interpreted as extensions of the shallow zone:

149.8-153.8 m, 4.0 m 0.66% Ni, 0.54% Cu

170.2-173.1 m, 2.9 m 0.75% Ni, 0.89% Cu

MF81(A) was drilled HQ size immediately adjacent to MF81 to acquire material for metallurgical test work. It intersected two gabbro dikes similar to

MF81 but these were not assayed and were retained whole for metallurgical testing.

On the immediate footwall of the lower dike, the hole intersected an interval of massive sulfide. One quarter of this core was assayed:

174.1-174.8 m, 0.7 m 10.8% Ni, 3.8% Cu, 0.24 g/t Au,
0.12 g/t Pt, 0.49 g/t Pd

3.1.2 Devereaux Mine Drilling:

The Devereaux Mine consists of a very shallow shaft and several pits developed on a thin band of outcropping massive Ni-Cu sulfides 800 m south-west of Nickel Reward. Three very shallow (25 m?), poorly recorded drill holes were completed in the 1950s below the immediate workings. All three holes are reported as intersecting significant sulfides.

Drill holes MF82, MF83, and MF84 were completed to test the gabbro host dike at depth. At the time of drilling, there was no reliable information on strike or dip of the dike.

Logs, assays, drill hole location plans, sections and longitudinal projections are attached.

MF82 was drilled to test the gabbro host dike, south of the workings approximately 150 m below surface. Within the main gabbro dike, it intersected:

170.2-172.1 m, 1.9 m 0.65% Ni, 0.53% Cu

Following completion of this hole, the main dike was interpreted as striking WNW and dipping 85-90° to the north-east.

MF83 was designed to test the main gabbro host 100-150 m directly beneath the workings. It intersected the main dike where anticipated, and it was well mineralised:

138.4-143.1 m, 4.7 m 1.3% Ni, 0.94% Cu

MF83(A) was drilled immediately adjacent to MF83 to acquire material for metallurgical testing. However, the dike where intersected was very broken and poorly mineralised. Best result was:

137.1-139.3 m, 2.2 m 0.37% Ni, 0.26% Cu

MF84 was designed to test the dike further west along strike. The dike was not intersected where anticipated and was unmineralised. It is interpreted as

having changed strike to NNW, with a major fold or flexure close to MF83 and the surface workings.

3.1.3 North Cuni-Genets:

MF85 and MF86 were drilled to test for southern extensions of the North Cuni mineralised gabbro. MF87 and MF88 were drilled to test for strike and depth extensions of Genets to the north, and MF89 was drilled to test for depth extensions of Genets to the south.

MF85 and **MF86** were drilled between the North Cuni mine workings and the mineralised gabbro exposed in the southern rock quarry. Both holes intersected several gabbro dikes, one of which correlates with the North Cuni gabbro, but it was not significantly mineralised in either hole.

MF87 was drilled near the northern strike extension of Genets to repeat or infill drill an area tested by earlier holes with unreliable data. The main Genets dike was pinched out but a deeper western dike carried significant disseminated mineralisation with the best intersection:

116.0-135.9 m, 19.9 m 0.17% Ni, 0.12% Cu

including 116.0-118.2 m, 2.2m 0.42% Ni, 0.31% Cu

MF88 was a vertical hole from the MF 87 site, designed to test the Genets gabbro below the MF87 pinch zone. It intersected the gabbro approximately 50 metres down-dip of MF87 and the best intersection was:

71.9-80.1 m, 8.2 m 0.62% Ni, 0.48% Cu

including 75.0-80.1 m, 5.1 m 0.85% Ni, 0.69% Cu

MF89 was drilled to test depth extensions of Genets, to the south of MF88. In addition to intersecting the main Genets dike, it intersected several major deeper dikes. The footwall section of the deepest dike intersected appears to be an altered ultramafic.

The best intersection in the Genets dike was:

94.7-100.0 m, 5.3 m 0.51% Ni, 0.41% Cu

including 95.7-98.9 m, 3.2 m 0.74% Ni, 0.61% Cu

3.2 Development Planning:

Following grant of ML 2/2007, planning commenced for the permitting of open-cut developments at Nickel Reward and North Cuni, and deeper underground mining beneath these open-cuts by way of declines commenced

from within the cuts. Such a development would be classified as a Level 2 activity - hence a *Notice of Intent* was submitted to DTAE, who responded with *Guidelines* for the preparation of a DPEMP.

Copies of the *Notice of Intent* and *Guidelines* are appended.

3.3 Metallurgical Test Work:

No metallurgical test work has been undertaken on Melba mineralisation. The style and chemistry of the mineralisation is very different to Avebury ore.

Quotations for preliminary test work were obtained from Metcon but the work has not yet commenced.

3.4 Other Work:

3.4.1 Aerial photography:

The Melba Flats area was aerial photographed in February 2008 and this coverage is now available in digital format. Survey control points were established around the tenement.

3.4.2 Geological mapping:

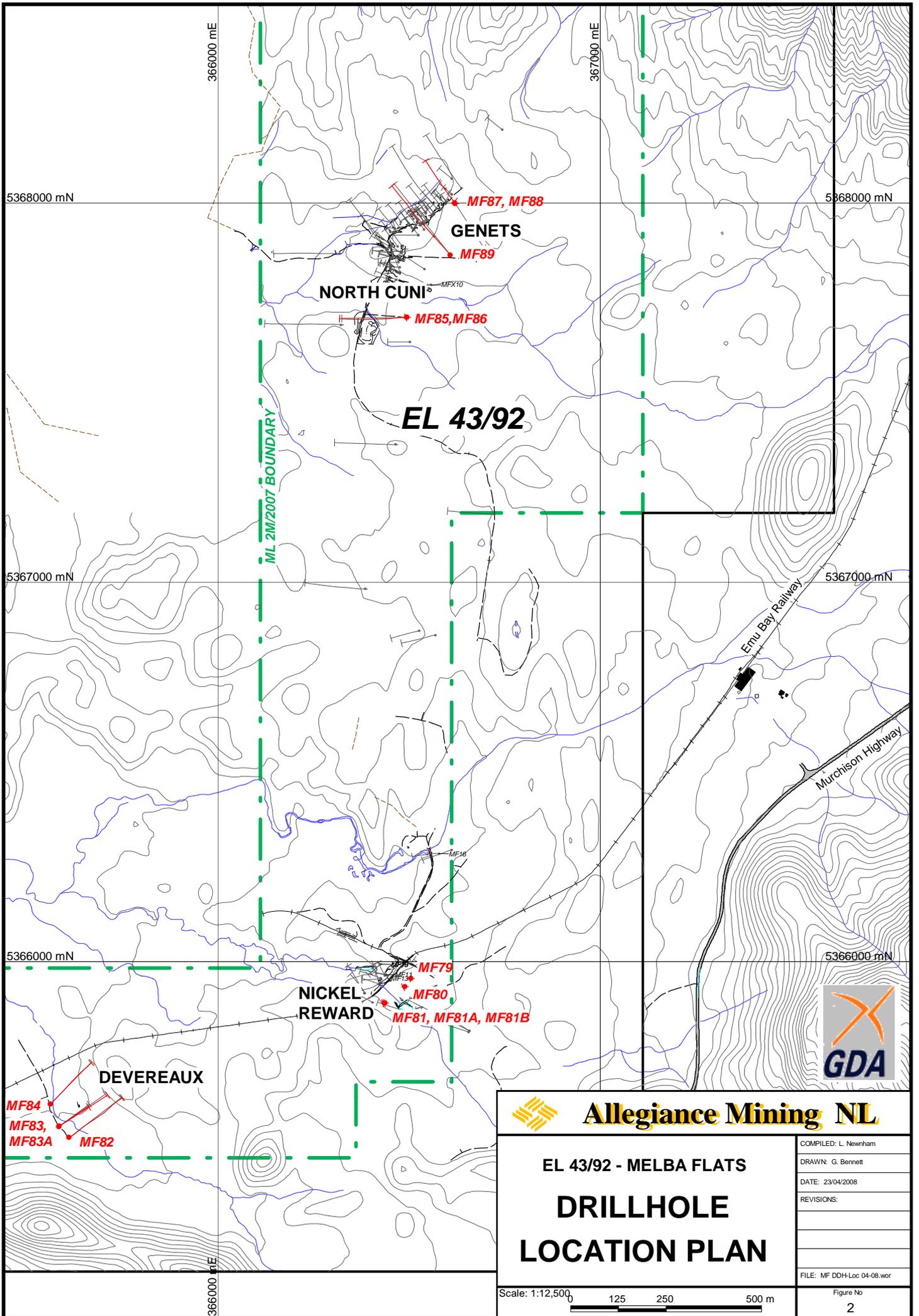
Contract geologist Nic Turner was engaged to remap the complete licence and lease area because of the greatly improved outcrop access afforded by forestry activities. This work is currently being drafted.

3.4.3 Trenching:

Trenching was undertaken by Nic Turner at Devereaux (limited) and North Cuni to acquire additional information on near surface mineralisation.

At Devereaux, a pit adjacent to the old shaft exposed a mineralised gabbro with a thin discontinuous zone of massive sulfide on the footwall.

At North Cuni, a fault-disrupted mineralised gabbro dike was exposed over a strike length of 50 m. This dike was previously unknown. The area has been mapped and sampled by Nic Turner but not yet drafted.



EL 43/92

ML 2/M/2007 BOUNDARY

GENETS

NORTH CUNI

NICKEL REWARD

DEVEREAUX

Emu Bay Railway

Murchison Highway

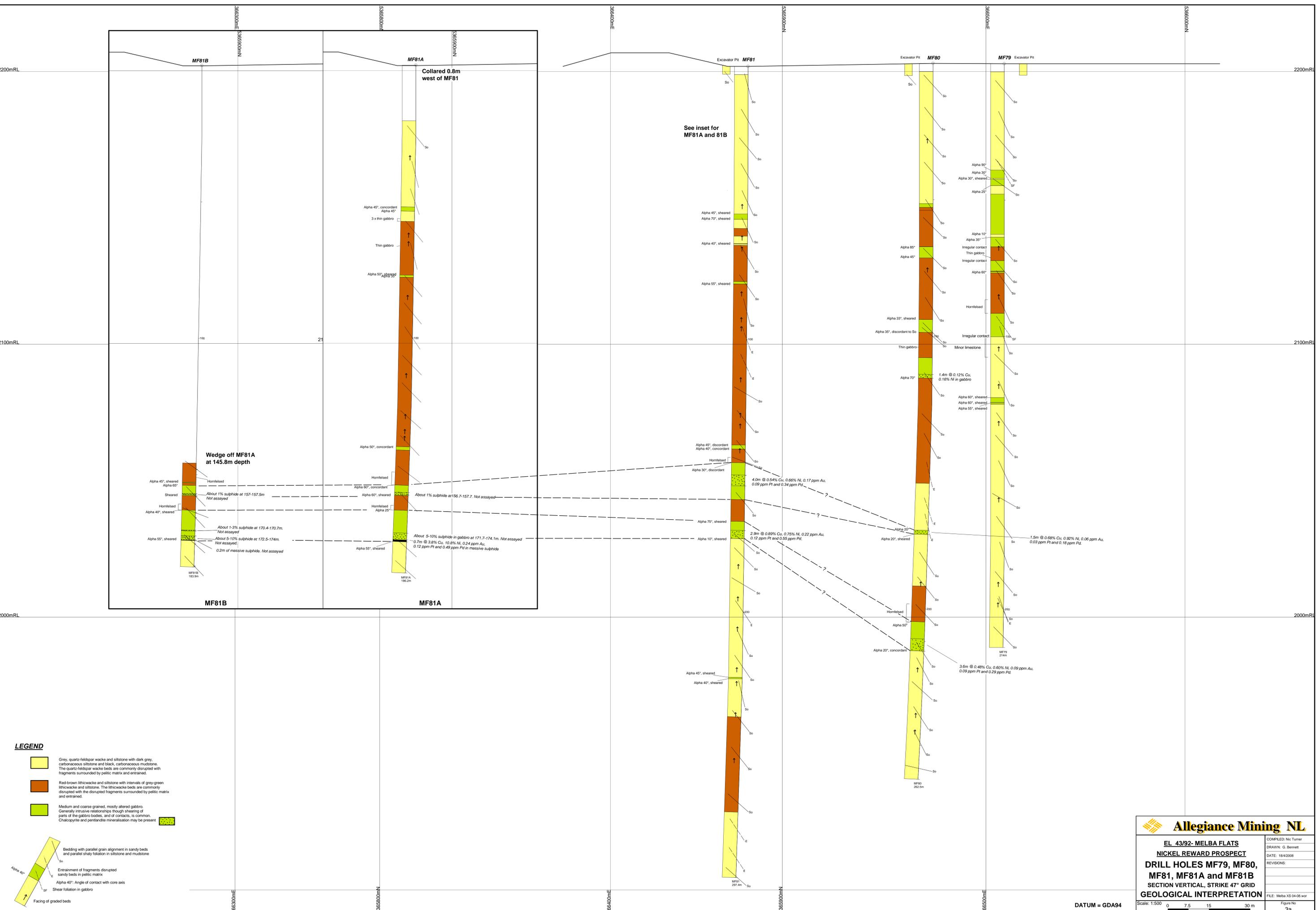


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**EL 43/92 - MELBA FLATS
DRILLHOLE
LOCATION PLAN**

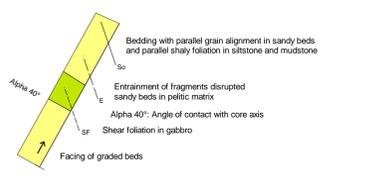
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125 250 500 m

COMPILED: L. Newtham
DRAWN: G. Bennett
DATE: 23/04/2008
REVISIONS:
FILE: MF DDH-Loc 04-08.wor
Figure No 2



LEGEND

- Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
- Red-brown lithowacke and siltstone with intervals of grey-green lithowacke and siltstone. The lithowacke beds are commonly disrupted with the disrupted fragments surrounded by pelitic matrix and entrained.
- Medium and coarse grained, mostly altered gabbro. Generally intrusive relationships through shearing of parts of the gabbro bodies, and of contacts, is common. Chalcopyrite and pentlandite mineralisation may be present.



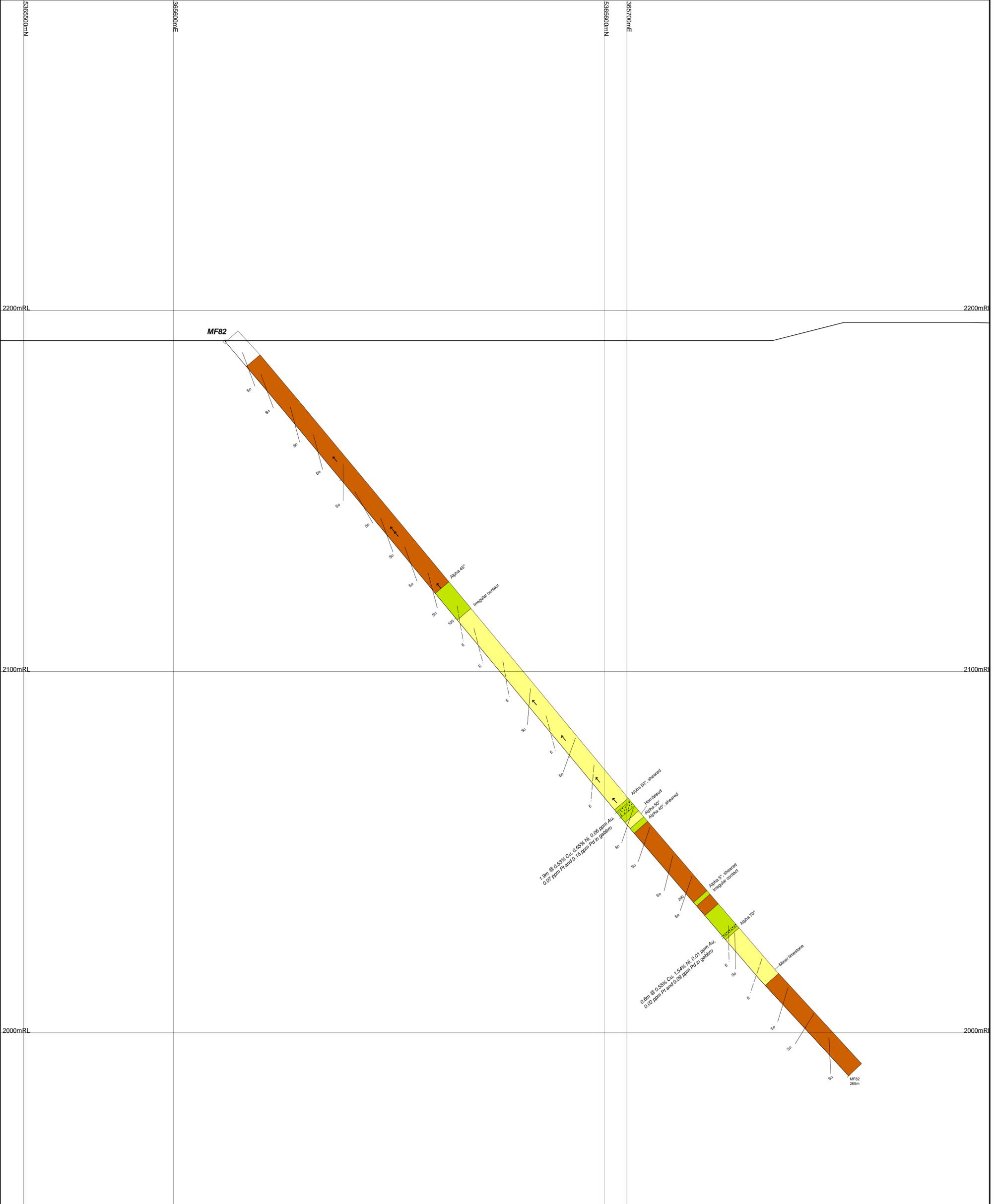
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EL 43/92- MELBA FLATS
NICKEL REWARD PROSPECT
DRILL HOLES MF79, MF80,
MF81, MF81A and MF81B
SECTION VERTICAL, STRIKE 47° GRID
GEOLOGICAL INTERPRETATION

Scale: 1:500

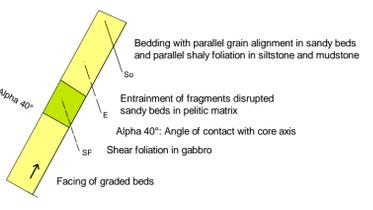
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COMPILED: Nic Turner
 DRAWN: G. Bennett
 DATE: 18/4/2008
 REVISIONS:
 FILE: Melba XS 04-08.wor
 Figure No
 3a



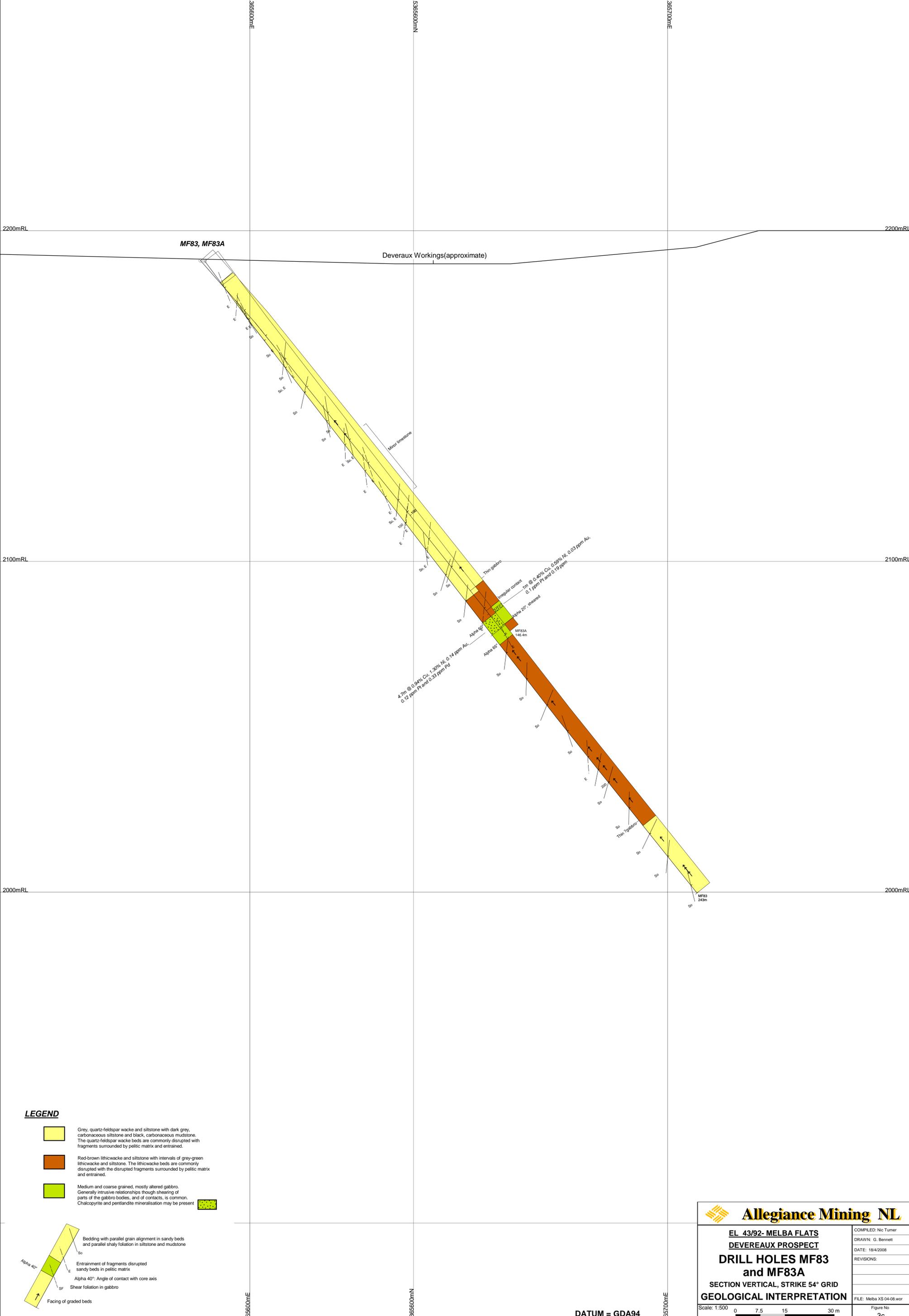
LEGEND

- Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
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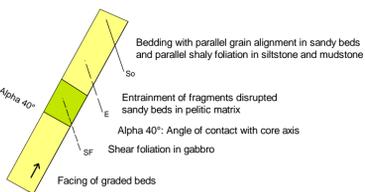
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EL 43/92- MELBA FLATS DEVEREAUX PROSPECT	
DRILL HOLE MF82	
SECTION VERTICAL, STRIKE 52° GRID	
GEOLOGICAL INTERPRETATION	
Scale: 1:500 	COMPILED: Nic Turner DRAWN: G. Bennett DATE: 18/4/2008 REVISIONS: FILE: Melba XS 04-08 wor Figure No 3b



LEGEND

-  Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
-  Red-brown lithicwacke and siltstone with intervals of grey-green lithicwacke and siltstone. The lithicwacke beds are commonly disrupted with the disrupted fragments surrounded by pelitic matrix and entrained.
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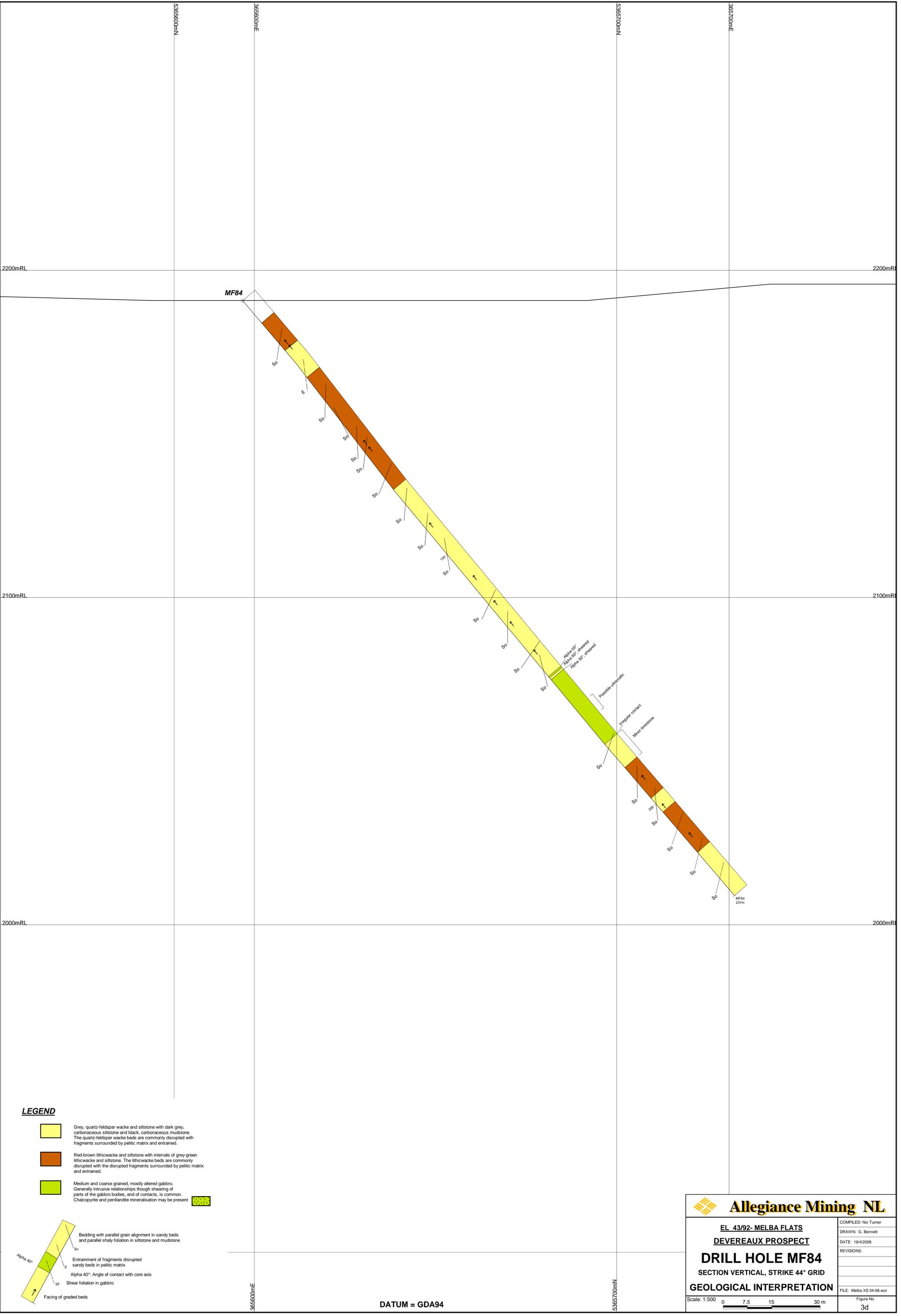
Allegiance Mining NL

EL 43/92- MELBA FLATS
DEVEREAUX PROSPECT
**DRILL HOLES MF83
and MF83A**
SECTION VERTICAL, STRIKE 54° GRID
GEOLOGICAL INTERPRETATION

Scale: 1:500 

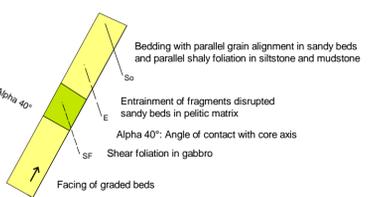
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DRAWN: G. Bennett
DATE: 18/4/2008
REVISIONS:
FILE: Melba XS 04-08.wor
Figure No
3C

DATUM = GDA94



LEGEND

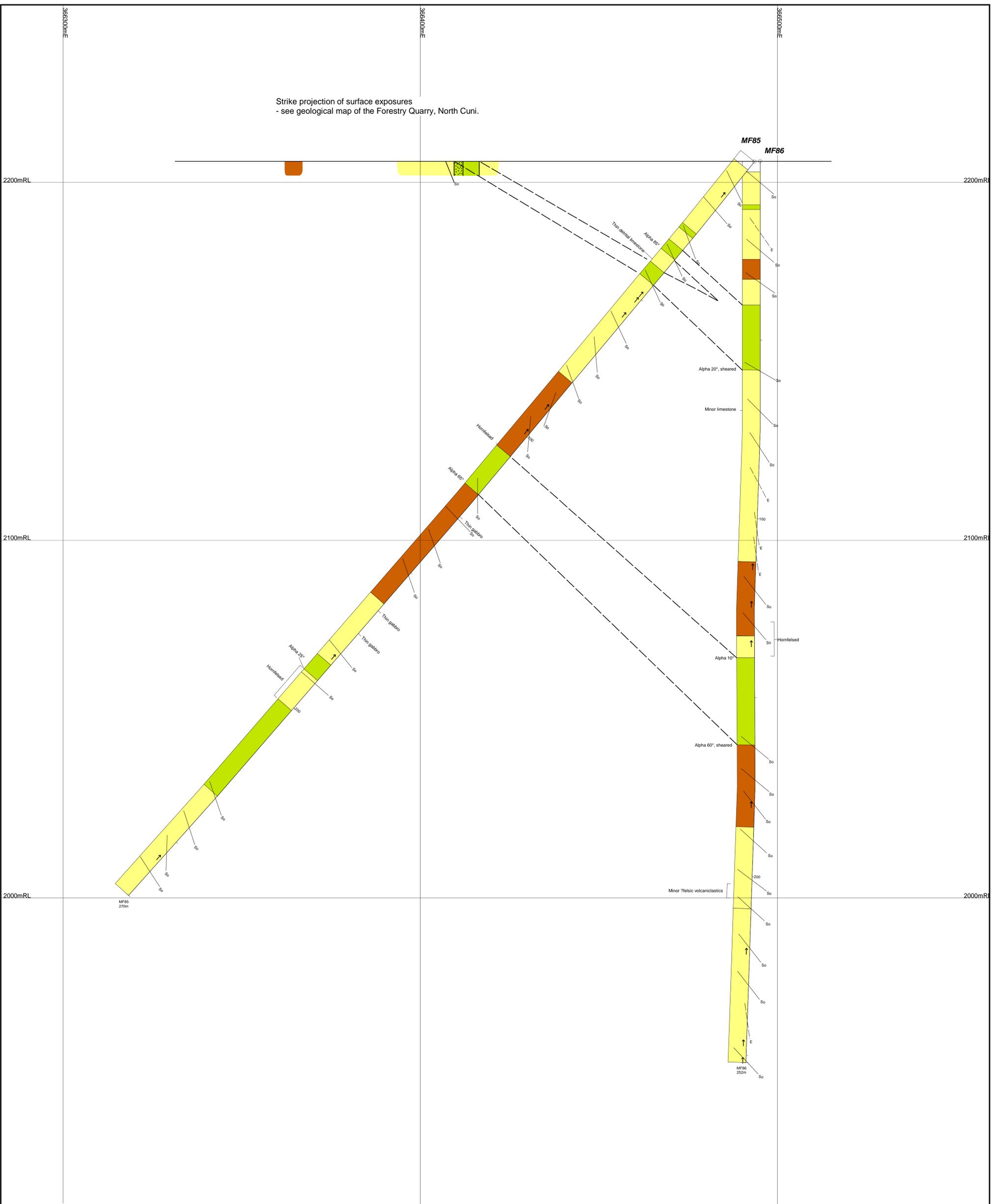
-  Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
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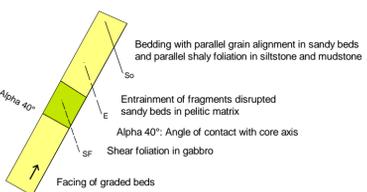
 Allegiance Mining NL	
EL 43/92- MELBA FLATS	
DEVEREAUX PROSPECT	
DRILL HOLE MF84	
SECTION VERTICAL, STRIKE 44° GRID	
GEOLOGICAL INTERPRETATION	
Scale: 1:500	0 7.5 15 30 m
COMPILED: Nic Turner	Figure No
DRAWN: G. Bennett	3d
DATE: 18/4/2008	
REVISIONS:	
FILE: Melba XS 04-08.wor	

Strike projection of surface exposures
- see geological map of the Forestry Quarry, North Cuni.

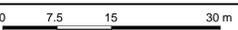


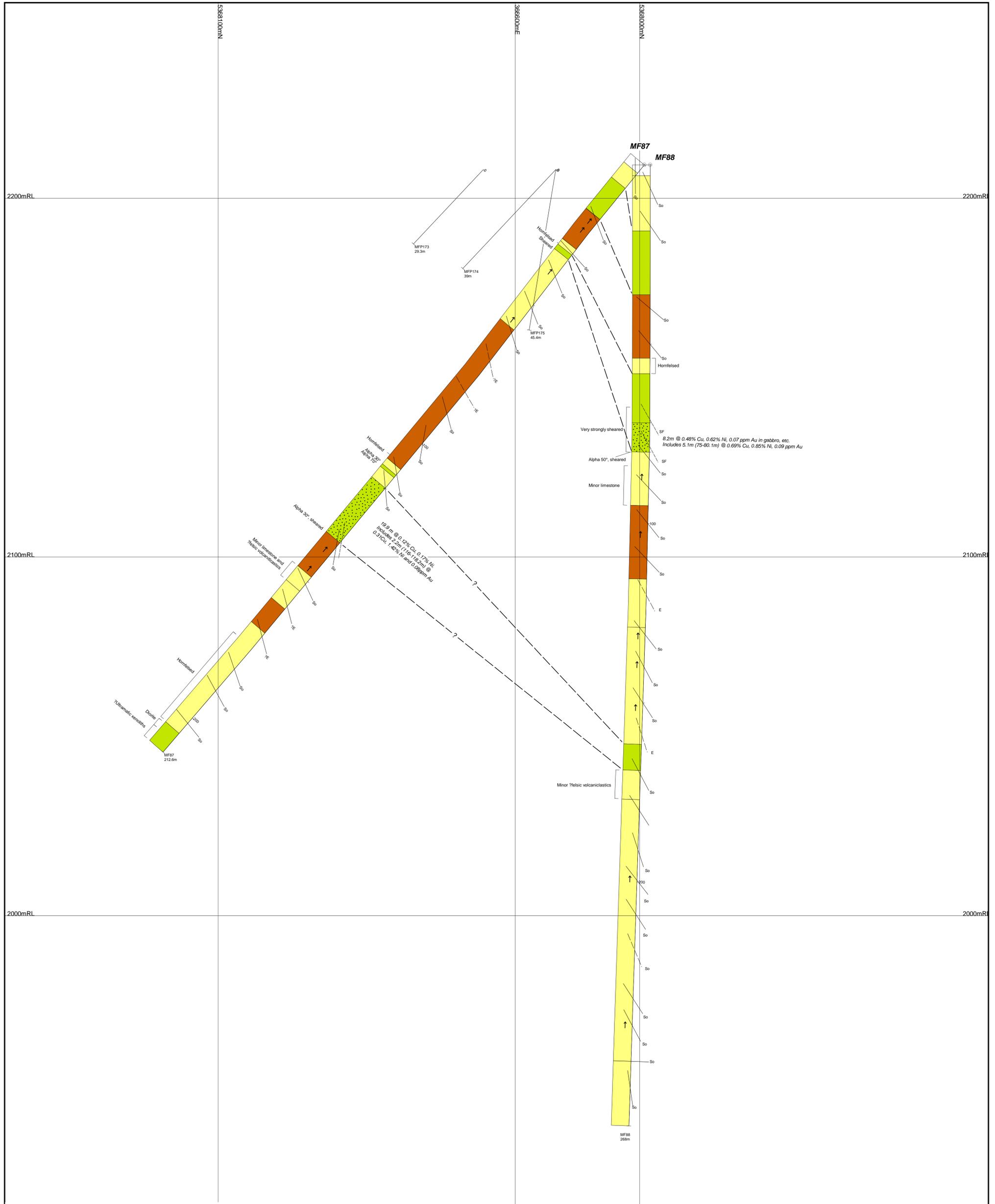
LEGEND

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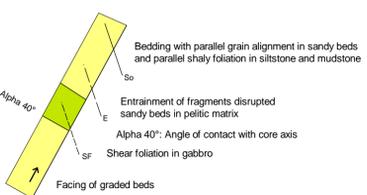
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 Allegiance Mining NL	
EL 43/92- MELBA FLATS	
NICKEL REWARD PROSPECT	
DRILL HOLES MF85	
and MF86	
SECTION VERTICAL, STRIKE 269° GRID	
GEOLOGICAL INTERPRETATION	
Scale: 1:500	
COMPILED: Nic Turner	Figure No
DRAWN: G. Bennett	3e
DATE: 18/4/2008	
REVISIONS:	
FILE: Melba XS 04-08 wor	



LEGEND

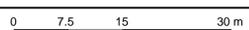
-  Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
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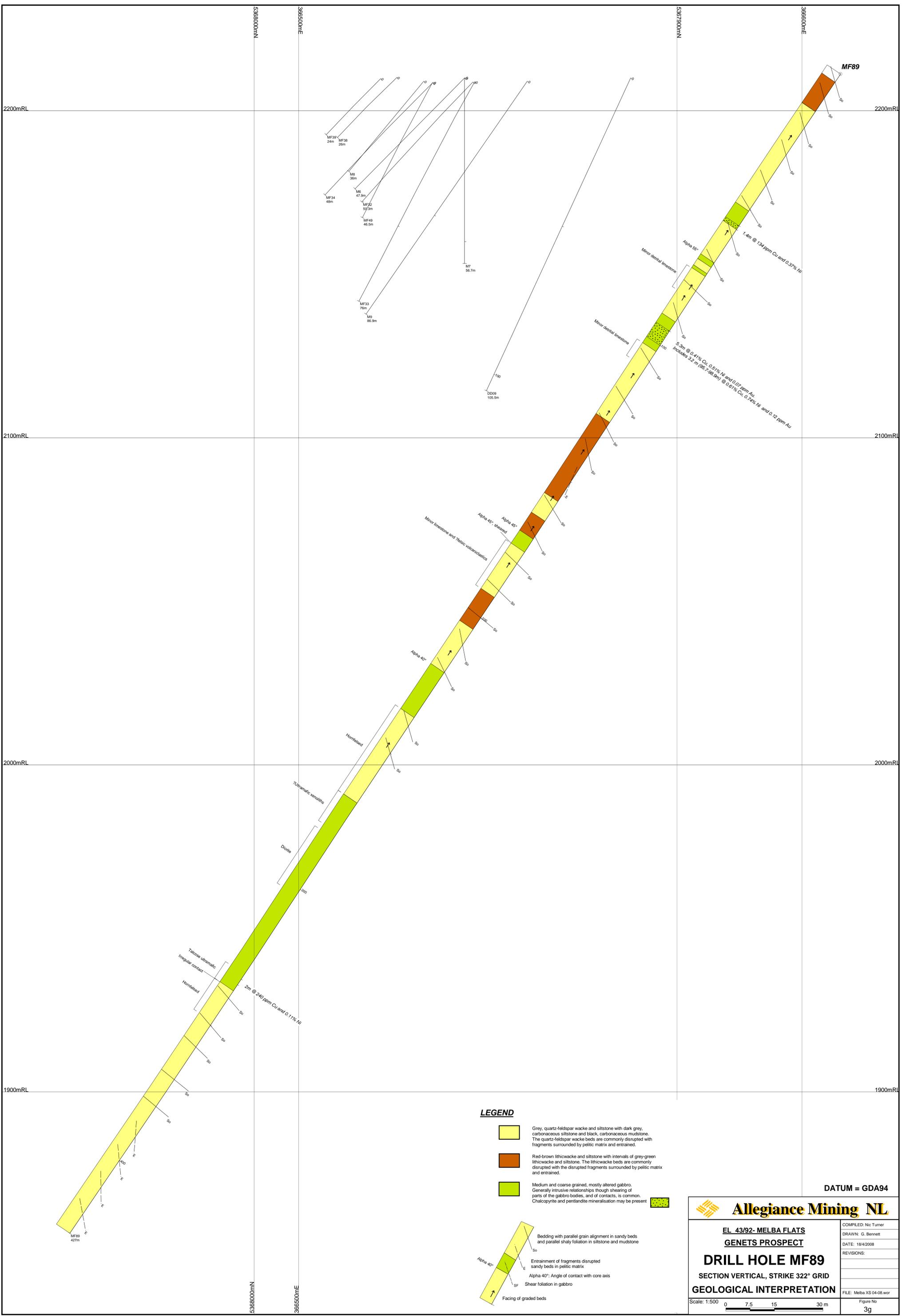




EL 43/92- MELBA FLATS
NICKEL REWARD PROSPECT
DRILL HOLES MF87
and MF88
SECTION VERTICAL, STRIKE 327° GRID
GEOLOGICAL INTERPRETATION

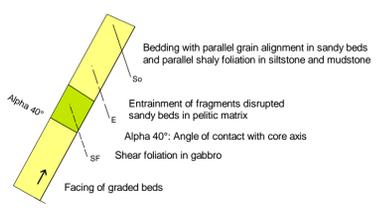
COMPILED: Nic Turner
 DRAWN: G. Bennett
 DATE: 18/4/2008
 REVISIONS:
 FILE: Melba XS 04-08.wor

DATUM = GDA94
 Scale: 1:500

 Figure No
3f



LEGEND

- Grey, quartz-feldspar wacke and siltstone with dark grey, carbonaceous siltstone and black, carbonaceous mudstone. The quartz-feldspar wacke beds are commonly disrupted with fragments surrounded by pelitic matrix and entrained.
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DATUM = GDA94

**EL 43/92- MELBA FLATS
GENETS PROSPECT
DRILL HOLE MF89
SECTION VERTICAL, STRIKE 322° GRID
GEOLOGICAL INTERPRETATION**

<p>Scale: 1:500</p>	<p>COMPILED: Nic Turner DRAWN: G. Bennett DATE: 18/4/2008 REVISIONS: FILE: Melba XS 04-08.wor Figure No 3g</p>
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**EL 43/92 - MELBA FLATS
NICKEL REWARD PROSPECT**

LOCATION PLAN

Compiled : L. Newnham
Date : April 2008
Drawn : G. Bennett
Revisions :
Datum : GDA94
File : NR Plan 04-08.dwg

SCALE : NTS



Figure No.
4

Newnham Exploration and Mining Services

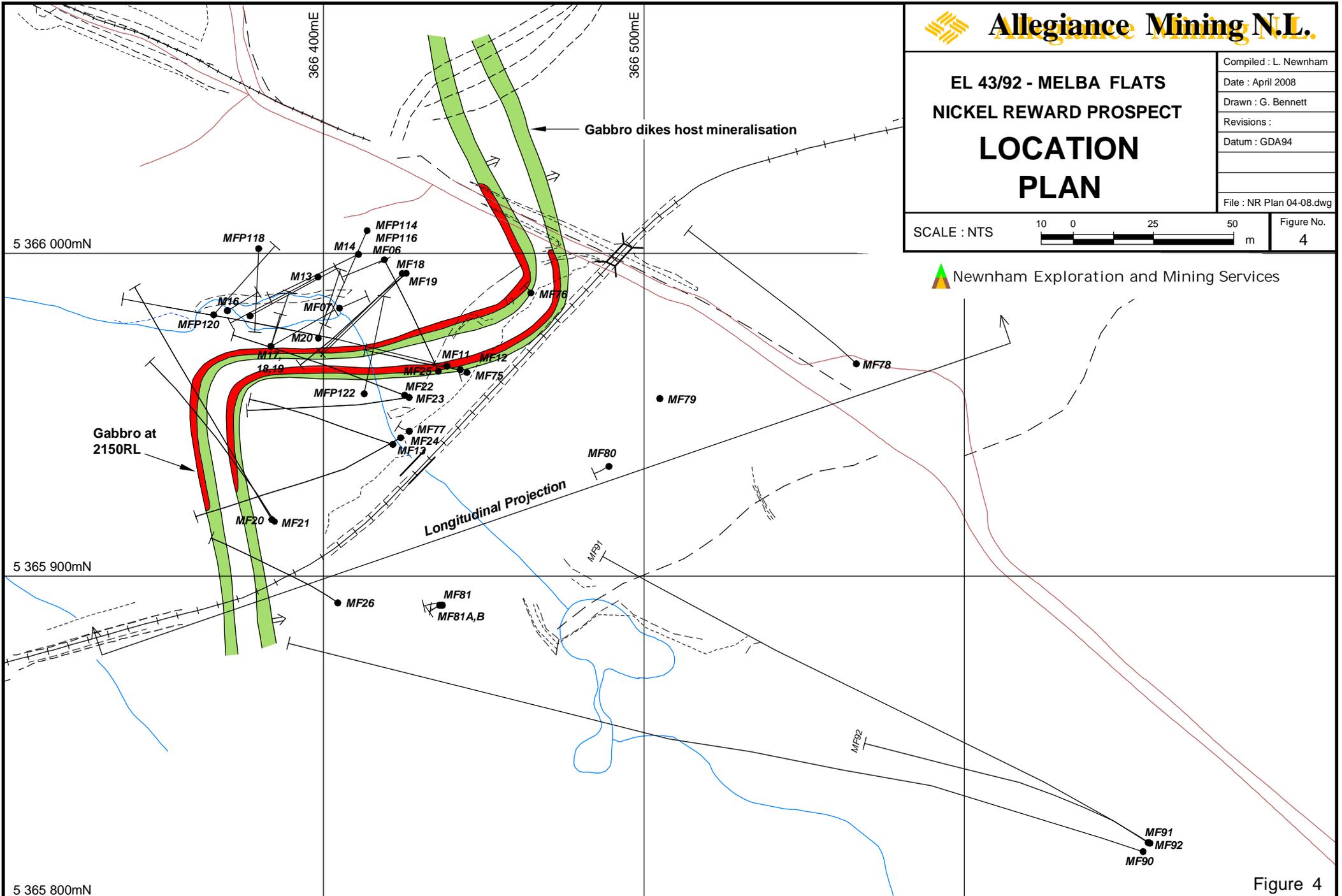


Figure 4

SW

NE

High grade massive sulfides in surface workings and trenches

2200mRL

2100mRL

2000mRL

1900mRL



NOTE:

Widths shown are drill hole lengths



Newnham Exploration and Mining Services



Allegiance Mining N.L.

EL 43/92 - MELBA FLATS
NICKEL REWARD PROSPECT
LONGITUDINAL
PROJECTION

Compiled : L. Newnham
Date : April 2008
Drawn : G. Bennett
Revisions :
Datum : GDA94
File : NR LongProj 04-08

SCALE : NTS

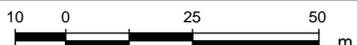
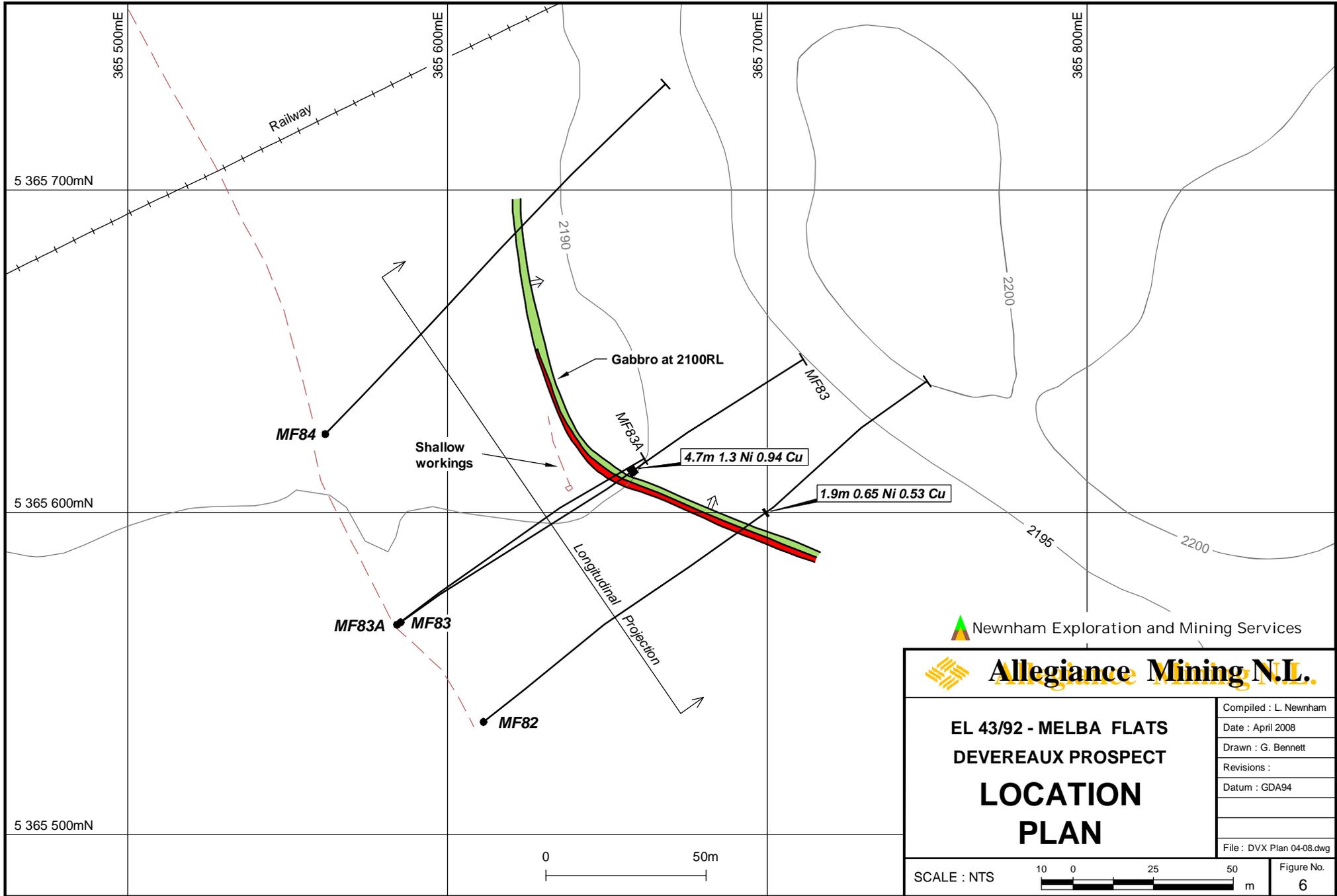


Figure No.

5

MF92 ●



Newham Exploration and Mining Services

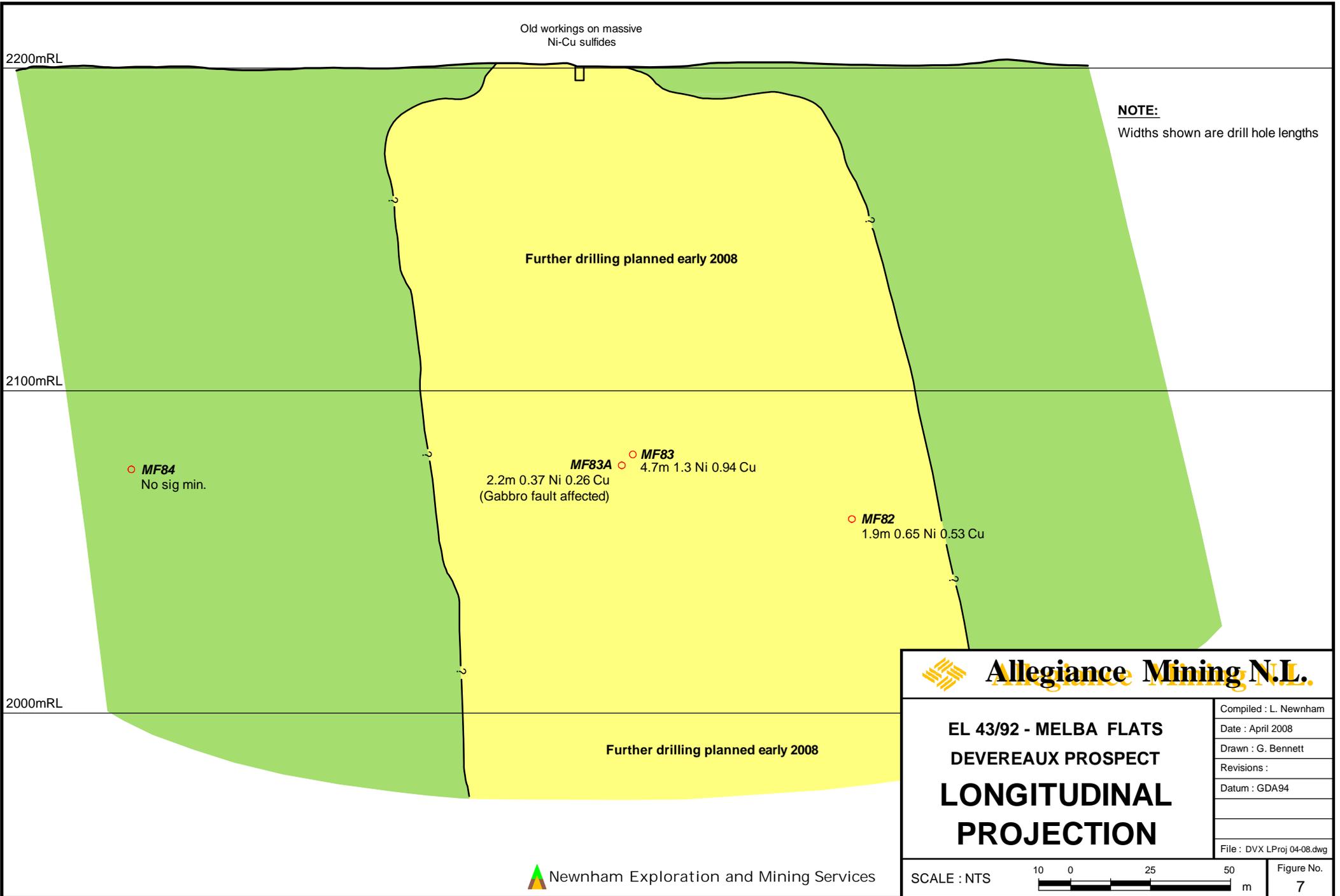


**EL 43/92 - MELBA FLATS
DEVEREAUX PROSPECT**

LOCATION PLAN

SCALE : NTS

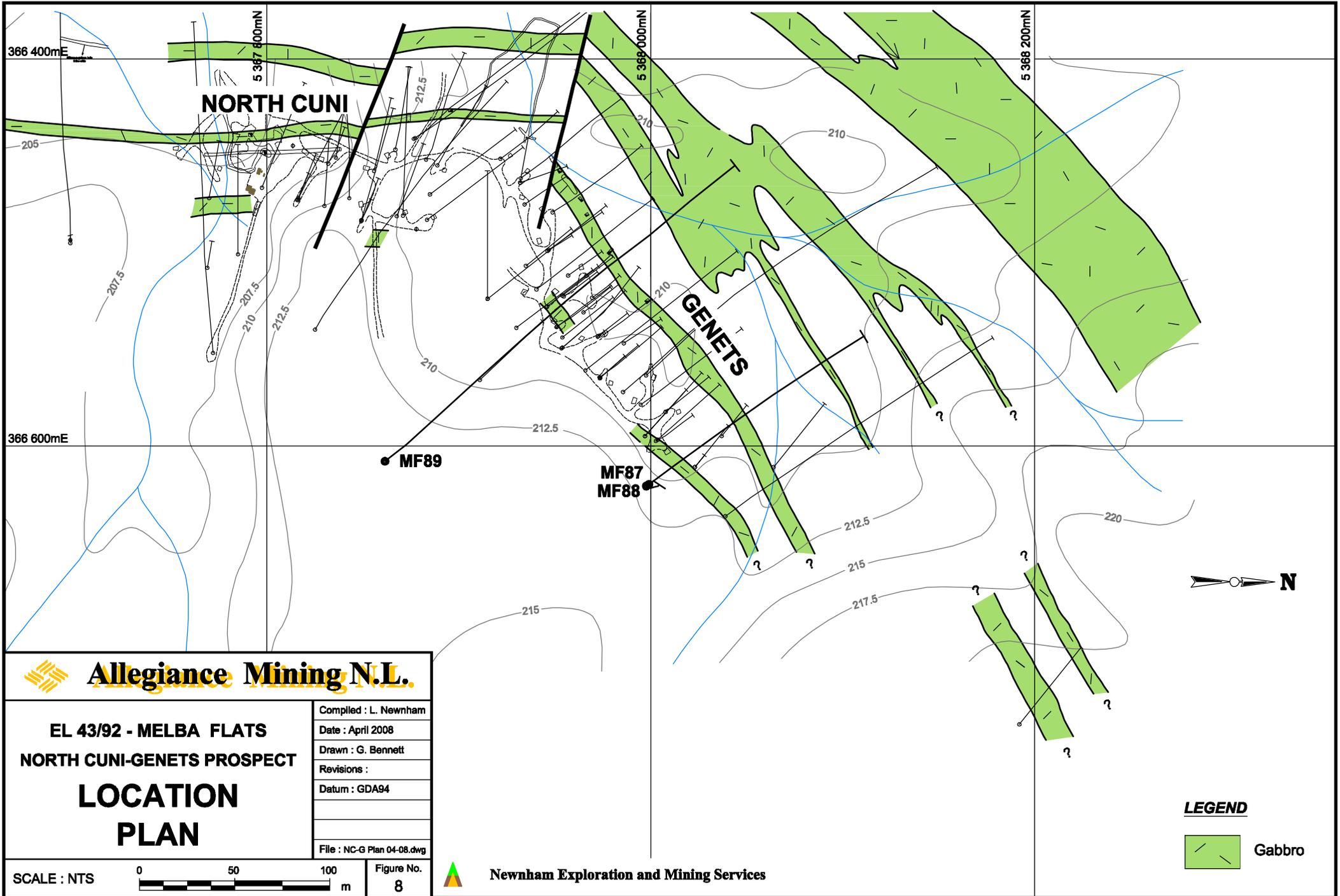
Compiled : L. Newham
Date : April 2008
Drawn : G. Bennett
Revisions :
Datum : GDA94
File : DVX Plan 04-08.dwg
Figure No. 6



<p>EL 43/92 - MELBA FLATS DEVEREAUX PROSPECT LONGITUDINAL PROJECTION</p>	Compiled : L. Newnham
	Date : April 2008
	Drawn : G. Bennett
	Revisions :
	Datum : GDA94
	File : DVX LProj 04-08.dwg

Newnham Exploration and Mining Services

SCALE : NTS Figure No. 7



EL 43/92 - MELBA FLATS
NORTH CUNI-GENETS PROSPECT
LOCATION PLAN

Compiled : L. Newnham
Date : April 2008
Drawn : G. Bennett
Revisions :
Datum : GDA94
File : NC-G Plan 04-08.dwg



Figure No.
8

Newnham Exploration and Mining Services

LEGEND

Gabbro

S

N

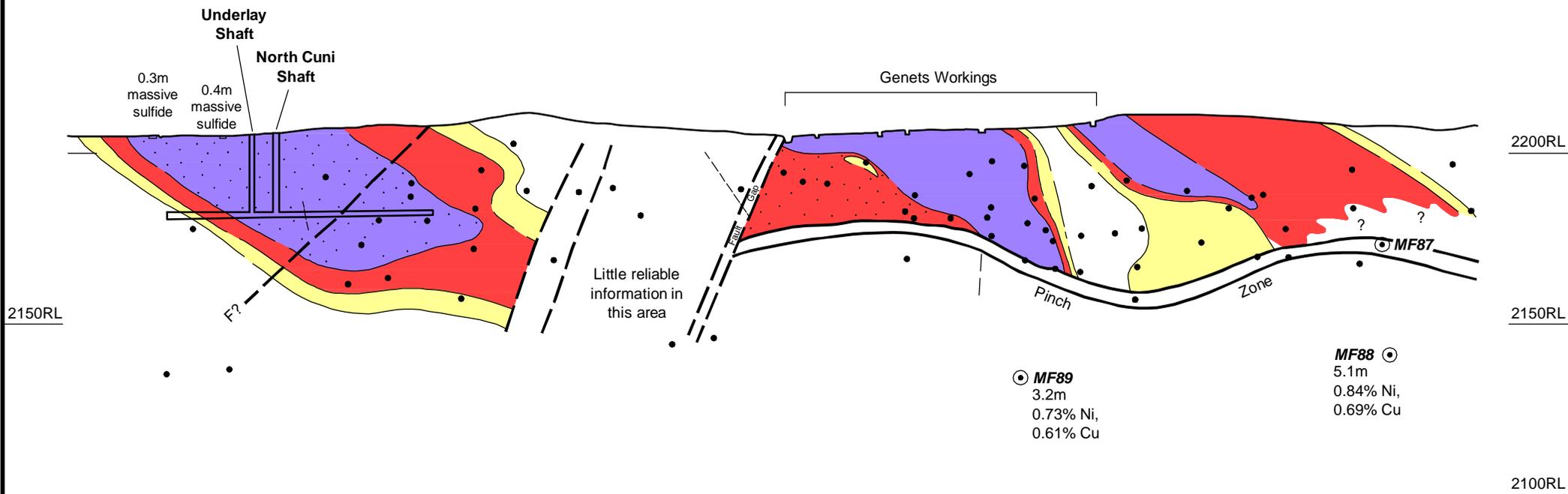
5 367 800mN

5 367 900mN

5 367 900mN

366 000mE

5 367 950mN



LEGEND

- Existing drill hole intersection
- ⋯ Footwall zones of high grade massive sulfide
- 0.5 - 0.75% Ni
- 0.75 - 1.0% Ni
- >1.0% Ni

 Newnham Exploration and Mining Services

 **Allegiance Mining N.L.**

EL 43/92 - MELBA FLATS
 NORTH CUNI-GENETS PROSPECT
**LONGITUDINAL
 PROJECTION**
 LOOKING WEST

Compiled : L. Newnham
Date : April 2008
Drawn : G. Bennett
Revisions :
Datum : GDA94
File : NC-G LProj 04-08.dwg

SCALE : NTS



Figure No.
9

4. WORK RECOMMENDED NEXT YEAR

The following work is recommended in 2008:

- drill down-plunge at Nickel Reward
- drill along strike and at depth on North Cuni-Genets
- drill beneath and south along strike of the North Cuni quarry
- drill at Devereaux
- re-interpret Nickel Reward drilling
- re-estimate resources at Nickel Reward, North Cuni-Genets and Devereaux
- complete mapping
- complete metallurgical test work
- complete DPEMP
- commence mining at Nickel Reward and North Cuni-Genets

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Appendix 1:
Drill Logs MF79 - MF 89

Drillers'	Blocks	Recovery	Recovery	Geology		Structure	Core Assays	Cu	Ni	S	Au	Pt	Pd	Element		
				65.6	78.9	Red-brown and grey-green lithicwacke, etc. Transitional from top through green and pink banding into red-brown sandstone and siltstone with a grey-green interval at 72.4-73 m. The sandstone is lithicwacke throughout. A green basaltic clast of exceptional size (70 mm across) is present at 71.9 m. At 73.4 m the red-brown sediments are altered to grey-green colour along vein margins. Grey-green colour at 78.8-78.9 m may reflect hornfelsing.										
				78.9	79.8	Gabbro Top and bottom margins are fine grained (chilled) while maximum grain size in the central part is about 4 mm. Strong shear foliation throughout with the top contact parallel to both shearing and overlying bedding (alpha 55°). Bottom contact irregular, but, generally parallel to underlying bedding. Negligible sulphide. Calcite common as alteration mineral and as white veinlets.	MF 81 78-78.9	19	81	<0.01						
							MF 81 78.9-79.8	151	460	<0.01						
							67.1 f-up MF 81 79.8-81	39	128	0.01						
							70 So 30									
				79.8	138.8	Red-brown and grey-green lithicwacke, etc. 0.1 m of green-grey sediments (?hornfelsed) beneath the gabbro are followed by red-brown siltstone and subordinate lithicwacke with green-grey intervals at 80.9-81.8 m and 100-100.3 m. The lithicwacke contains very fine grained, massive clasts of red-brown, pink, cream and grey colour. Quartz is minor. The lithicwacke beds may be very strongly disrupted such that irregularly shaped fragments of lithicwacke are surrounded by siltstone matrix. These fragments may be entrained parallel to shaly foliation. White calcite and calcite-quartz veinlets are common throughout the interval and there is an unusually thick vein with quartz-minor chlorite-trace pyrite at 104.1-104.3 m. Pyrite is absent from the red-brown lithologies, but present in the green-grey lithologies.										
							108.8 HQ to NQ									
							109 111.2	2.1	95							
							111.2 132.9	21.7	100							
							132.9 136	3.0	97							
							136 163	27.0	100							
				138.8	140.3	Gabbro Top contact alpha 45° and discordant with respect to overlying beds. Bottom contact alpha 40° and concordant with underlying beds. Fine grained (chilled) margins at top and bottom with 2-4 mm grain size between though grain margins are indistinct due to alteration. Negligible sulphide. Calcite, quartz, chlorite and a little epidote occur in cross cutting veinlets.										
							90 So 15	MF 81 138-138.8	288	89	<0.01					
							93 f-up	MF 81 138.8-140.3	129	107	<0.01					
							96.3 f-up	MF 81 140.3-141	59	83	<0.01					
							100 E 20									
							110 E 25									
							115 f-up									
				140.3	145.3	Red-brown and grey-green lithicwacke, etc. Siltstone and wacke are green for 200 mm beneath the gabbro; then red-brown at 140.5-143.2 m; green at 143.2-143.3 m; red-brown at 143.3-143.6 m; and dark green-grey with subtle pinkish bands at 143.6-145.3 m. The latter interval appears to have been hornfelsed.										
							120 So 60									
							128 f-up									
							130 So 40									
							132 f-up									
				145.3	158.8	Gabbro 145.3-147.7 m: Top contact alpha 30°. Contact intrusive and strongly discordant to overlying bedding. Maximum grain size 1-2 mm near contact, but grades to 3-5 mm at 147 m. Trace disseminated sulphide. Common earthy leucoxene. Calcite, quartz and chlorite may be present in veinlets in shears and fractures. 147.7-149.8 m: Massive interbanded, medium (<5 mm) and coarse grained (>5 mm) altered gabbro with sharp, though gradational, igneous contacts (eg. 149.6 m, alpha 55°). Minor disseminated sulphide. 149.8-153.76 m: Massive, medium grained to coarse grained, altered gabbro with indistinct grain boundaries. Common earthy leucoxene after ilmenite. Top contact is a 10 mm shear zone occupied by calcite, quartz, chlorite and ?pentlandite with alpha 40°. The bottom contact is a similar shear and shearing is common throughout. Overall 5-10% of disseminated, bronze-yellow sulphide. 153.76-155.6 m: Massive, altered, mafelsic (?intermediate) rock with maximum grain size 2-3 mm. The ferromagnesian grains are of a distinctive apple green colour. The bottom contact is a 130 mm wide, fine grained, banded shear zone of alpha 40° and consisting of cream carbonate, chlorite and minor quartz. Negligible sulphide. 155.6-158.8 m: Massive, medium grained and coarse grained gabbro with trace sulphide. Common, discrete shears. Bottom contact intrusive, but with an almost coincident shear. No chilled margin.	MF 81 144-145.3	29	69	<0.01						
							MF 81 145.3-146	91	189	0.01						
							MF 81 146-147	72	203	0.07						
							MF 81 147-147.7	47	196	0.12						
							MF 81 147.7-149	71	184	0.10						
							MF 81 149-149.8	210	347	0.19						
							MF 81 149.8-151	2814	3198	0.74	0.03	0.04	0.20			
							141 So 40	MF 81 151-152	6490	8253	2.50	0.25	0.07	0.34		
							141 f-up	MF 81 152-153	6770	8120	3.31	0.15	0.12	0.38		
								MF 81 153-153.76	6170	7658	3.47	0.11	0.08	0.28		
							145 So 70	MF 81 153.76-155.3	693	1344	0.58					
								MF 81 155.3-156	169	671	0.05					
								MF 81 156-157	161	698	0.11					
								MF 81 157-158	145	548	0.03					
								MF 81 158-158.8	153	577	0.04					
								MF 81 158.8-160	64	103	0.04					
				158.8	166.8	Red-brown and grey-green lithicwacke, etc. 0.2 m of fine grained, green-grey hornfels underly the gabbro and grade into red-brown siltstone and lithicwacke at 159 m. Chlorite-calcite-chalcocopyrite veinlets occur at 164-164.9 m. Starting 164.9 m there is a transition to dark grey, fine grained hornfels with common veinlets of chlorite, calcite, epidote, minor chalcocopyrite and a little hematite.										
							163 166	3.1	103							
							166 175	9.0	100							
							175 178	3.1	103							
							178 214	36.0	100							

Drillers'	Blocks	Recovery	Recovery	Geology		Structure	Core Assays	Cu	Ni	S	Au	Pt	Pd	Element	
				146.8	216.8	143.1-146.8 m: Massive gabbro with probable primary grain size of 5 mm. From 146 m the grain size reduces, becoming fine grained (chilled) at the bottom contact. Trace sulphide is present with a little more sulphide near the contact, which is parallel to underlying bedding and has alpha 65°.									
						White calcite veinlets are common throughout the gabbro.									
						Red-brown and grey-green lithicwacke, etc.									
						Lithicwacke and siltstone grades upwards from red-brown at 148.5 m through purple-brown to pale buff, pink and medium green within 0.2 m of the gabbro contact where there is also minor spotted texture (hornfels). Below 148.5 m there are many intervals of red-brown lithicwacke and siltstone interbanded with many intervals of green lithicwacke and siltstone. Colour boundaries are mostly sharp, but some are gradational. Lithicwacke beds in the red-brown intervals tend to contain more matrix than clasts whereas the situation tends to be the reverse in lithicwacke beds in the green intervals. Red-brown and pink clasts occur in both types of lithicwacke though green clasts predominate in the green lithicwacke. In the interval 214-216.8 m there is a transitional lithological change marked by a progressive downward decrease in the proportion of red and pink clasts in green lithicwacke, and in the proportion of pink interbands. Carbonaceous siltstone and mudstone are absent from the overall interval 146.8-216.8 m apart from a small occurrence at 178.7-183.4 m in medium green lithicwacke and siltstone. Pyrite occurs in the green intervals, but not the red-brown intervals.	150	So 45							
160	163	3.1	103				151.5	f-up							
163	172	9	100				153.9	f-up							
172	173.5	1.4	93				160	So 40							
173.5	174.5	0.6	60				170	So 60							
174.5	175.4	0.7	70				170.9	f-up							
175.4	178	2.5	96				180	So 20							
178	205	27	100				188.7	f-up							
205	208	3.1	103				190	E 35							
208	223	15	100				192.9	f-up							
223	225.8	2.7	96				195	So 50							
225.8	228.9	3.1	100				196	f-up							
228.9	230.8	1.8	95				200	So 55							
230.8	243	12.2	100				201	f-up							
							208.5	f-up							
							210	So 40							
							220	So 65							
							223.7	f-up							
							228.8	So 45							
				216.8	243	214.3 m: 25 mm of fine grained ?gabbro with disseminated pyrite and chalcopyrite									
						Grey quartz-feldspar wacke, carbonaceous mudstone, etc.									
						Medium grey, quartz-feldspar wacke and siltstone with interbanded dark grey, carbonaceous siltstone and black, carbonaceous mudstone.									
							234.7	f-up	Sample depth	Cu	Ni	S	Au	Pt	Pd
							235.6	f-up		ppm	ppm	%	ppm	ppm	ppm
							237.3	f-up		AAS	AAS	Leco	50qmFA	50qmFA	50qmFA
							240	So 25	MF 83 141.1-142.1	10	10	0.01%	0.01	0.01	0.01
243	EOH				243	EOH				6560	9100	n/a	n/a	n/a	n/a

Element
Units
Method
Sensitivity

Drillers'	Blocks	Recovery	Recovery	Geology		Structure		Core Assays	Cu	Ni	S	Au	Pt	Pd	Element
						minor sphalerite and galena.	270	So 45	MF 85 172.7-173	126	144	n/a			
									MF 85 212.2-212.7	43	15	n/a			
	270	EOH			270	EOH			MF 85 232.7-234	83	143	n/a			

Drillers'	Blocks	Recovery	Recovery	Geology		Structure	Core Assays	Cu	Ni	S	Au	Pt	Pd	Element			
							MF 89 336-337	7	650	0.24							
							MF 89 337-337.7	5	670	0.11							
							MF 89 337.7-339	154	158	0.02							
334	358	24	100	337.3	427	Medium grey, quartz-feldspar wacke and siltstone with substantial interbedded dark grey siltstone and minor black mudstone at 337.7-359.6 m and 400.3-421 m, but minor carbonaceous material elsewhere. Bands of unusual textures occur sporadically from the base of the gabbro to 348 m and probably reflect the extent of the thermal aureole. Blebs of pyrrhotite are present in the interval 348-367 m, most notably at 360.5-365 m. Bedding below about 385 m has been disrupted by soft sediment deformation and there is entrainment of disrupted wacke fragments in pelitic matrix.	340	So 75									
358	361	2.9	97				350	So 75	Duplicates								
361	373	12	100				358	So 80									
373	374.2	1.1	92				370	So 85	Sample depth	Cu	Ni	S	Au	Pt	Pd	Element	
374.2	388	13.8	100				380	So 85		ppm	ppm	%	ppm	ppm	ppm	Units	
388	391	2.9	97				391.3	E 30		AAS	AAS	Leco	50gmFA	50gmFA	50gmFA	Method	
391	397	6	100				400	E 40		10	10	0.01%	0.01	0.01	0.01	Sensitivity	
397	400	2.9	97				410	E 35	MF 89 93-94	179	323	n/a	n/a	n/a	n/a		
400	403	3	100				420	E 45	MF 89 225.5-225.7	81	64	n/a	n/a	n/a	n/a		
403	406	2.8	93						MF 89 277-277.7	35	31	n/a	n/a	n/a	n/a		
406	409	2.9	97						MF 89 300-301	68	107	n/a	n/a	n/a	n/a		
409	427	18	100						MF 89 319-320	83	447	n/a	n/a	n/a	n/a		
409	427	EOH					427	EOH	MF 89 337.7-339	154	161	n/a	n/a	n/a	n/a		

Appendix 2:
Assay data

Allegiance Metals Pty Limited
Despatch No. NIC12

Sample Type: Drill Core

Sample	Cu	Pb	Zn	Sb	Ag	As	Ni	S
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%
MF 79 15-16	291	38070	29900	81	350	141	171	5.72
MF 79 16-17	126	4144	8446	41	10	52	201	3.45
MF 79 17-18	70	363	452	65	3	<25	83	1.96
MF 79 18-19	105	131	212	36	2	64	111	6.33
MF 79 19-20	70	91	137	84	2	60	87	2.61
MF 79 20-21	61	73	102	70	2	64	95	3.58
MF 79 21-22	81	79	126	64	2	71	106	3.36
MF 79 22-23	106	76	128	44	1	73	109	4.30
MF 79 23-24	89	68	132	64	2	51	120	1.85
MF 79 38-38.95	104	n/a	n/a	n/a	n/a	n/a	104	2.76
MF 79 38.95-40	94	n/a	n/a	n/a	n/a	n/a	274	0.19
MF 79 40-41	90	n/a	n/a	n/a	n/a	n/a	254	0.08
MF 79 41-42	93	n/a	n/a	n/a	n/a	n/a	236	0.06
MF 79 42-42.4	469	n/a	n/a	n/a	n/a	n/a	96	0.15
MF 79 42.4-43	118	n/a	n/a	n/a	n/a	n/a	275	0.02
MF 79 43-44	100	n/a	n/a	n/a	n/a	n/a	286	0.01
MF 79 44-44.7	490	n/a	n/a	n/a	n/a	n/a	283	0.02
MF 79 44.7-45	394	n/a	n/a	n/a	n/a	n/a	88	0.02
MF 79 45-46	87	n/a	n/a	n/a	n/a	n/a	86	0.01
MF 79 46-47	5	n/a	n/a	n/a	n/a	n/a	87	0.05
MF 79 47-47.8	5	n/a	n/a	n/a	n/a	n/a	86	0.12
MF 79 47.8-49	76	n/a	n/a	n/a	n/a	n/a	203	0.09
MF 79 49-50	69	n/a	n/a	n/a	n/a	n/a	112	0.02
MF 79 50-51	68	n/a	n/a	n/a	n/a	n/a	103	0.05
MF 79 51-52	486	n/a	n/a	n/a	n/a	n/a	69	0.27
MF 79 52-53	90	n/a	n/a	n/a	n/a	n/a	351	0.12
MF 79 53-54	100	n/a	n/a	n/a	n/a	n/a	420	0.04
MF 79 54-55	72	n/a	n/a	n/a	n/a	n/a	384	0.06
MF 79 55-56	91	n/a	n/a	n/a	n/a	n/a	104	0.25
MF 79 56-57	71	n/a	n/a	n/a	n/a	n/a	85	0.11
MF 79 57-58	90	n/a	n/a	n/a	n/a	n/a	89	0.32
MF 79 58-59	51	n/a	n/a	n/a	n/a	n/a	103	0.09
MF 79 59-60	39	n/a	n/a	n/a	n/a	n/a	85	0.06
MF 79 60-61	76	n/a	n/a	n/a	n/a	n/a	282	0.02
MF 79 61-62	72	n/a	n/a	n/a	n/a	n/a	280	0.03
MF 79 62-62.5	17	n/a	n/a	n/a	n/a	n/a	283	0.04
MF 79 62.5-63.6	50	n/a	n/a	n/a	n/a	n/a	120	0.08
MF 79 63.6-65	45	n/a	n/a	n/a	n/a	n/a	366	0.06
MF 79 65-66	331	n/a	n/a	n/a	n/a	n/a	586	0.09
MF 79 66-67.07	33	n/a	n/a	n/a	n/a	n/a	287	0.16
MF 79 67.07-68	42	n/a	n/a	n/a	n/a	n/a	127	0.27
MF 79 70-71	81	n/a	n/a	n/a	n/a	n/a	119	0.36
MF 79 71-72.19	145	n/a	n/a	n/a	n/a	n/a	122	0.98
MF 79 72.19-72.78	131	n/a	n/a	n/a	n/a	n/a	307	0.08
MF 79 72.78-73.22	123	n/a	n/a	n/a	n/a	n/a	111	2.57
MF 79 73.22-74	207	n/a	n/a	n/a	n/a	n/a	296	0.40
MF 79 74-75	83	n/a	n/a	n/a	n/a	n/a	247	0.20
MF 79 75-76	149	n/a	n/a	n/a	n/a	n/a	276	0.22
MF 79 76-76.65	324	n/a	n/a	n/a	n/a	n/a	235	1.81
MF 79 76.65-77	223	n/a	n/a	n/a	n/a	n/a	90	0.35
MF 79 91-91.53	55	n/a	n/a	n/a	n/a	n/a	80	0.21
MF 79 91.53-92	175	n/a	n/a	n/a	n/a	n/a	103	0.08
MF 79 92.-93.4	86	n/a	n/a	n/a	n/a	n/a	111	0.09
MF 79 93.4-94	138	n/a	n/a	n/a	n/a	n/a	476	0.05
MF 79 94-95	127	n/a	n/a	n/a	n/a	n/a	650	0.06
MF 79 95-96	137	n/a	n/a	n/a	n/a	n/a	693	0.14
MF 79 96-97	136	n/a	n/a	n/a	n/a	n/a	643	0.15
MF 79 97-98	96	n/a	n/a	n/a	n/a	n/a	166	0.09
MF 79 98-99	17	n/a	n/a	n/a	n/a	n/a	187	0.12

MF 79 99-100.1	94	n/a	n/a	n/a	n/a	n/a	148	0.12
MF 79 100.1-101	14	n/a	n/a	n/a	n/a	n/a	67	0.17
MF 79 121-122.35	73	n/a	n/a	n/a	n/a	n/a	88	0.58
MF 79 122.35-123	63	n/a	n/a	n/a	n/a	n/a	67	0.45
MF 79 123-124	82	n/a	n/a	n/a	n/a	n/a	55	0.25
MF 79 124-124.82	79	n/a	n/a	n/a	n/a	n/a	227	0.19
MF 79 124.82-126	25	n/a	n/a	n/a	n/a	n/a	76	0.12
MF 79 185.5-186.1	1148	n/a	n/a	n/a	n/a	n/a	83	0.38
MF 79 186.1-186.22	75	n/a	n/a	n/a	n/a	n/a	161	0.29
MF 79 186.22-186.5	75	n/a	n/a	n/a	n/a	n/a	84	0.18

Duplicates

Sample	Cu	Pb	Zn	Sb	Ag	As	Ni	S
	ppm	%						
MF 79 49-50	69	n/a	n/a	n/a	n/a	n/a	109	n/a
MF 79 74-75	86	n/a	n/a	n/a	n/a	n/a	255	n/a
MF 79 186.22-186.5	74	n/a	n/a	n/a	n/a	n/a	86	n/a

Allegiance Metals Pty Limited
Despatch No. NIC13

Sample Type: Drill Core

Sample	Cu	Ni	S
	ppm	ppm	%
MF 80 51-51.42	116	123	0.03
MF 80 51.42-52	205	346	0.02
MF 80 52-52.8	151	341	<0.01
MF 80 52.8-54	93	221	0.04
MF 80 66-67	16	131	0.13
MF 80 67-67.26	1151	155	2.21
MF 80 67.26-68	107	368	0.03
MF 80 68-69	120	318	0.05
MF 80 69-70	252	314	0.08
MF 80 70-71.27	144	315	0.09
MF 80 71.27-72	69	109	0.07
MF 80 93-93.85	88	103	0.01
MF 80 93-85-95	125	179	0.11
MF 80 95-96	70	130	0.12
MF 80 96-97	75	360	0.09
MF 80 97-98	101	447	0.25
MF 80 98-98.56	139	384	0.08
MF 80 98.56-99	81	106	0.04
MF 80 105-106.1	72	89	0.34
MF 80 106.1-107	104	145	0.35
MF 80 107-107.9	60	124	0.57
MF 80 107.9-109	191	129	0.05
MF 80 109-110	82	142	0.02
MF 80 110-111.15	241	222	0.04
MF 80 111.15-112	49	193	0.12
MF 80 112-113	79	240	0.09
MF 80 113-114	145	424	0.09
MF 80 114-115.36	1243	1624	0.55
MF 80 115.36-116	142	168	1.20
MF 80 170-171.23	146	193	0.34
MF 80 171.23-172	5903	8191	2.72
MF 80 172-172.73	7696	10200	3.38
MF 80 172.73-174	448	698	0.34
MF 80 204-204.75	270	133	0.08
MF 80 204.75-206	159	293	0.08
MF 80 206-207	732	285	0.07
MF 80 207-208	80	252	0.06
MF 80 208-209	78	226	0.09
MF 80 209-210	74	262	0.11
MF 80 210-211	257	391	0.39
MF 80 211-211.94	315	666	0.18
MF 80 211.94-213	2507	3493	0.52
MF 80 213-214	7539	8488	3.31
MF 80 214-215	4637	5822	1.77
MF 80 215-215.53	4860	6597	2.41
MF 80 215.53-217	318	468	0.74

Duplicates

Sample	Cu	Ni	S
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	ppm	ppm	%
MF 80 109-110	88	138	n/a
MF 80 215.53-217	315	512	n/a

Allegiance Metals Pty Limited
Despatch No. NIC14

Sample Type: Drill Core

Sample	Cu	Ni	S
	ppm	ppm	%
MF 81 53-54.1	58	329	0.05
MF 81 54.1-55.1	88	191	0.05
MF 81 55.1-55.7	36	105	0.07
MF 81 55.7-56.1	88	159	0.07
MF 81 56.1-57	45	85	0.19
MF 81 64-64.95	89	80	0.31
MF 81 64.95-65.1	63	331	0.01
MF 81 65.1-66	72	94	0.01
MF 81 78-78.9	19	81	<0.01
MF 81 78.9-79.8	151	460	<0.01
MF 81 79.8-81	39	128	0.01
MF 81 138-138.8	288	89	<0.01
MF 81 138.8-140.3	129	107	<0.01
MF 81 140.3-141	59	83	<0.01
MF 81 144-145.3	29	69	<0.01
MF 81 145.3-146	91	189	0.01
MF 81 146-147	72	203	0.07
MF 81 147-147.7	47	196	0.12
MF 81 147.7-149	71	184	0.10
MF 81 149-149.8	210	347	0.19
MF 81 149.8-151	2814	3198	0.74
MF 81 151-152	6490	8253	2.50
MF 81 152-153	6770	8120	3.31
MF 81 153-153.76	6170	7658	3.47
MF 81 153.76-155.3	693	1344	0.58
MF 81 155.3-156	169	671	0.05
MF 81 156-157	161	698	0.11
MF 81 157-158	145	548	0.03
MF 81 158-158.8	153	577	0.04
MF 81 158.8-160	64	103	0.04
MF 81 164-165	307	98	0.03
MF 81 165-166	52	71	0.05
MF 81 166-166.7	196	74	0.04
MF 81 166.7-168	130	224	0.07
MF 81 168-169	93	202	0.12
MF 81 169-170.2	128	244	0.13
MF 81 170.2-171	10600	7995	3.03
MF 81 171-172	8250	7488	2.49
MF 81 172-173.12	8180	7144	1.83
MF 81 173.12-174	374	459	0.31
MF 81 223-224	190	192	0.02
MF 81 224-224.5	117	237	0.14
MF 81 224.5-225	183	129	0.33

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 81 151-152	6480	7953	n/a
MF 81 224.5-225	190	127	n/a

Allegiance Metals Pty Limited
Despatch No. NIC16

Sample Type: Drill Core

Sample	Cu	Ni	S
	ppm	ppm	%
MF 81A 174.1-174.8	38100	108000	35.3
MF 83 137-137.9	243	156	0.19
MF 83 137.9-138.4	77	131	0.15
MF 83 138.4-139.2	5156	7420	1.89
MF 83 139.2-140.2	16900	22000	8.72
MF 83 140.2-141.1	13600	18800	8.06
MF 83 141.1-142.1	6450	8780	2.86
MF 83 142.1-143.1	4262	7440	3.11
MF 83 143.1-144	361	625	0.20
MF 83 144-145	337	456	0.10
MF 83 145-146	229	390	0.08
MF 83 146-146.8	1047	340	0.16
MF 83 146.8-147.4	128	118	0.02
MF 83 147.4-148	37	117	0.03

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 83 141.1-142.1	6560	9100	n/a

Allegiance Metals Pty Limited
Despatch No. NIC15

Sample Type: Drill Core

Sample	Cu	Ni	S
	ppm	ppm	%
MF 82 90-91.1	41	147	0.06
MF 82 91.1-92	71	189	<0.01
MF 82 92-93	94	177	0.03
MF 82 93-94	65	211	0.04
MF 82 94-95	61	178	0.03
MF 82 95-96	53	230	0.04
MF 82 96-97	63	237	0.03
MF 82 97-98	59	182	0.01
MF 82 98-99	64	175	0.01
MF 82 99-100	50	146	0.05
MF 82 100-100.7	55	176	0.05
MF 82 100.7-102	19	115	0.04
MF 82 168-169.3	69	111	0.10
MF 82 169.3-170.2	399	843	0.30
MF 82 170.2-171	7570	9160	2.77
MF 82 171-172.1	3648	4616	1.51
MF 82 172.1-173	232	516	0.14
MF 82 173-173.9	134	366	0.14
MF 82 173.9-175	131	106	0.12
MF 82 175-176.1	18	95	0.12
MF 82 176.1-177	106	113	0.12
MF 82 177-177.75	191	424	0.16
MF 82 177.75-179	136	136	0.28
MF 82 202-203.2	221	90	0.01
MF 82 203.2-204.53	75	207	0.01
MF 82 204.53-205	117	66	0.65
MF 82 207-208	279	95	0.02
MF 82 208-209	85	92	0.01
MF 82 209-210	74	196	0.01
MF 82 210-211	89	237	0.03
MF 82 211-212	123	227	0.02
MF 82 212-213	77	240	0.03
MF 82 213-214.1	147	248	0.04
MF 82 214.1-215	104	252	0.09
MF 82 215-215.5	177	414	0.10
MF 82 215.5-216.1	5488	15400	5.65
MF 82 216.1-216.92	1713	2110	0.55
MF 82 216.92-218	296	420	0.18

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 82 177.75-179	192	127	n/a
MF 82 216.92-218	302	436	n/a

Allegiance Metals
Despatch No. NIC2-08

Sample Type: Drillcore

Sample	Cu ppm	Ni ppm	S %
MF 85 183-184.2	50	120	0.05
MF 85 184.2-185	138	541	<0.01
MF 85 185-186	99	520	<0.01
MF 85 186-187	112	489	<0.01
MF 85 187-188	174	448	<0.01
MF 85 188-189	159	400	<0.01
MF 85 189-189.9	115	317	<0.01
MF 85 189.9-191	105	97	0.15
MF 85 200-201	53	97	0.18
MF 85 201-202.3	133	205	0.77
MF 85 202.3-203	119	125	0.03
MF 85 203-204	90	114	<0.01
MF 85 205-205.9	66	55	<0.01
MF 85 205.9-207	48	34	0.64
MF 85 207-208	51	29	0.53
MF 85 208-208.6	43	25	0.39
MF 85 208.6-210	56	16	0.20
MF 85 210-211	37	21	0.12
MF 85 211-212.2	36	23	0.09
MF 85 212.2-212.7	45	12	0.80
MF 85 213.1-214	78	49	<0.01
MF 85 214-215	53	46	<0.01
MF 85 215-216	84	73	0.01
MF 85 216-217	77	67	<0.01
MF 85 217-218	51	78	<0.01
MF 85 218-219	91	62	0.01
MF 85 219-220	77	62	0.05
MF 85 220-221	73	70	0.01
MF 85 221-222	68	56	0.01
MF 85 222-223	55	67	<0.01
MF 85 223-224	55	57	<0.01
MF 85 224-225	61	70	0.01
MF 85 225-226	54	63	<0.01
MF 85 226-227	78	310	<0.01

MF 85 227-228	72	88	0.08
MF 85 228-229	71	69	0.07
MF 85 229-230	102	72	0.04
MF 85 230.6-232	114	518	<0.01
MF 85 232-232.7	97	1028	<0.01
MF 85 232.7-234	73	141	0.48
MF 86 11-12.2	574	113	0.24
MF 86 12.2-13.5	227	336	0.04
MF 86 13.5-14	482	100	0.77
MF 86 39-40.2	63	86	0.01
MF 86 40.2-41	132	321	0.01
MF 86 41-42	113	327	0.01
MF 86 42-43	116	261	0.05
MF 86 43-44	103	186	0.04
MF 86 44-45	112	56	0.16
MF 86 45-46	91	104	0.08
MF 86 46-47	83	92	0.12
MF 86 47-48	100	115	0.03
MF 86 48-49	117	182	0.07
MF 86 49-50	149	198	0.04
MF 86 50-51	123	379	<0.01
MF 86 51-52	112	322	0.03
MF 86 52-53	117	340	0.02
MF 86 53-54	125	374	0.04
MF 86 54-55	129	320	0.04
MF 86 55-56	175	352	<0.01
MF 86 56-57	160	324	<0.01
MF 86 57-58.4	143	336	<0.01
MF 86 58.4-59	71	71	<0.01
MF 86 138-138.8	107	58	0.01
MF 86 138.8-140	283	270	<0.01
MF 86 140-141	197	209	<0.01
MF 86 141-142	172	301	<0.01
MF 86 142-143	93	215	<0.01
MF 86 143-144	92	240	0.02
MF 86 144-145	100	267	<0.01
MF 86 145-146	116	188	<0.01
MF 86 146-147	114	222	<0.01
MF 86 147-148	111	256	0.02
MF 86 148-149	120	290	<0.01
MF 86 149-150	98	398	<0.01

MF 86 150-151	170	479	<0.01
MF 86 151-152	219	520	<0.01
MF 86 152-153	110	399	0.02
MF 86 153-154	211	455	0.04
MF 86 154-155	218	522	<0.01
MF 86 155-156.3	168	446	<0.01
MF 86 156.3-157.3	175	473	0.38
MF 86 157.3-158	185	415	<0.01
MF 86 158-159	181	424	<0.01
MF 86 159-160	173	375	<0.01
MF 86 160-161	126	385	<0.01
MF 86 161-162	125	367	<0.01
MF 86 162-163.2	119	389	<0.01
MF 86 163.2-164	39	146	0.79
MF 87 8-8.5	99	341	0.09
MF 87 8.5-9	94	246	0.07
MF 87 9-10	76	133	0.03
MF 87 10-11	71	131	0.25
MF 87 11-12	80	112	0.09
MF 87 12-13	84	205	0.11
MF 87 13-14	151	390	0.02
MF 87 14-15	144	434	0.03
MF 87 15-16	152	422	0.02
MF 87 16-17	137	370	<0.01
MF 87 17-17.5	585	358	0.11
MF 87 17.5-18	204	128	0.13
MF 87 18-19	199	131	0.02
MF 87 19-19.7	20	133	0.09
MF 87 19.7-21	177	116	<0.01
MF 87 32-32.4	75	93	0.02
MF 87 32.4-33	109	173	0.06
MF 87 33-34	112	187	0.14
MF 87 34-34.05	111	203	0.01
MF 87 34.05-35	90	148	0.19
MF 87 110.3-111.3	50	123	0.02
MF 87 111.3-112.2	77	283	<0.01
MF 87 112.2-113.2	17	126	0.06
MF 87 115-116	81	130	0.14
MF 87 116.-116.25	5067	6715	2.54
MF 87 116.25-117	3457	4679	1.27
MF 87 117-118.2	2476	3373	0.97

Width (m)	*Cu	*Ni	Width (m)	*Cu	*Ni
0.25	1267	1679	0.25	1267	1679
0.75	2593	3509	0.75	2593	3509
1.2	2971	4048	1.2	2971	4048

MF 87 118.2-119	876	1476	0.20
MF 87 119-120	931	1583	0.24
MF 87 120-121	670	1052	0.17
MF 87 121-122	773	1519	0.45
MF 87 122-123	670	1162	0.23
MF 87 123-123.6	691	1126	0.16
MF 87 123.6-123.7	2024	2619	1.22
MF 87 123.7-124.6	1030	1260	0.28
MF 87 124.6-125.9	1786	2490	0.95
MF 87 125.9-127	949	1548	0.57
MF 87 127-128	855	1124	0.29
MF 87 128-129	809	931	0.28
MF 87 129-130	1199	1730	0.48
MF 87 130-131	1059	1507	0.44
MF 87 131-132	749	1116	0.32
MF 87 132-133	840	1261	0.28
MF 87 133-134	968	1382	0.22
MF 87 134-135	682	1015	0.10
MF 87 135-135.9	820	1247	0.17
MF 87 135.9-137	56	144	0.47
MF 87 204-205	93	180	<0.01
MF 87 205-205.7	47	139	0.26
MF 87 205.7-206.1	40	58	0.18
MF 87 206.1-207	45	136	<0.01
MF 87 207-208	60	175	<0.01
MF 87 208-209	74	115	0.03
MF 87 209-210	56	76	0.07
MF 87 210-211	52	50	<0.01
MF 87 211-211.9	37	56	<0.01
MF 87 211.9-212.6	46	43	0.61
MF 87 212.6-213.1	18	73	0.04
MF 87 230-230.6	88	102	<0.01

	0.8	701	1181				
	1	931	1583				
	1	670	1052				
	1	773	1519				
	1	670	1162				
	0.6	415	676				
	0.1	202	262				
	0.9	927	1134				
	1.3	2322	3237				
	1.1	1044	1703				
	1	855	1124				
	1	809	931				
	1	1199	1730				
	1	1059	1507				
	1	749	1116				
	1	840	1261				
	1	968	1382				
	1	682	1015				
	0.9	738	1122.3				
Totals	19.9	23384	33932	Totals	2.2	6831	9236
Average grade in ppm		1175	1705	Average grade in ppm		3105	4198

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 85 212.2-212.7	43	15	n/a
MF 85 232.7-234	83	143	n/a
MF 86 58.4-59	47	88	n/a
MF 86 160-161	132	380	n/a

MF 87 34.05-35	92	154	n/a
MF 87 132-133	830	1248	n/a
MF 87 230-230.6	80	94	n/a

Allegiance Metals
Despatch No. NIC3-08

Sample Type: Drillcore

Sample	Cu ppm	Ni ppm	S %
MF 88 18-18.4	66	134	0.37
MF 88 18.4-19	83	113	0.12
MF 88 19-20	82	133	0.22
MF 88 20-21	92	241	0.17
MF 88 21-22	90	363	0.09
MF 88 22-23	124	446	0.08
MF 88 23-24	115	428	0.08
MF 88 24-25	130	445	0.11
MF 88 25-26	85	325	0.10
MF 88 26-27	98	353	0.12
MF 88 27-28	88	341	0.11
MF 88 28-29	99	355	0.14
MF 88 29-30	118	413	0.15
MF 88 30-31	135	395	0.16
MF 88 31-32	291	560	0.19
MF 88 32-33	114	377	0.13
MF 88 33-34	117	351	0.10
MF 88 34-35	110	313	0.13
MF 88 35-36.2	146	346	0.13
MF 88 36.2-37	18	106	0.40
MF 88 57-58.2	39	101	0.31
MF 88 58.2-59	101	155	0.18
MF 88 59-60	106	154	0.20
MF 88 60-61	98	140	0.20
MF 88 61-62	73	148	0.19
MF 88 62-63	98	128	0.20
MF 88 63-64	107	113	0.22
MF 88 64-65	89	120	0.18
MF 88 65-66	92	122	0.16
MF 88 66-67.5	131	198	0.17
MF 88 67.5-69	154	603	0.15
MF 88 69-71	166	737	0.04
MF 88 71-71.9	143	785	0.12
MF 88 71.9-73.6	2309	4286	1.18

Width (m) *Cu *Ni
1.4 3233 6000

Width (m) *Cu *Ni

MF 88 73.6-75	804	1191	0.42
MF 88 75-76	4738	6349	2.10
MF 88 76-77	5403	6880	2.69
MF 88 77-78	6309	7839	2.65
MF 88 78-79	9017	11452	3.70
MF 88 79-80.1	8048	8877	2.86
MF 88 80.1-81	294	323	0.63
MF 88 161-161.6	52	153	0.16
MF 88 161.6-163	308	675	0.05
MF 88 163-164	146	419	0.03
MF 88 164-165	111	347	0.02
MF 88 165-166	114	337	0.03
MF 88 166-167	108	325	0.05
MF 88 167-168	108	327	0.04
MF 88 168-168.9	102	353	0.02
MF 88 168.9-170	138	128	0.03

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 88 59-60	114	165	n/a
MF 88 164-165	107	345	n/a

	1.4	1126	1667
	1	4738	6349
	1	5403	6880
	1	6309	7839
	1	9017	11452
	1.1	8853	9765
Totals	7.9	38678	49953
Average grade in ppm		4896	6323

	1	4738	6349
	1	5403	6880
	1	6309	7839
	1	9017	11452
	1.1	8853	9765
Totals	5.1	34320	42285
Average grade in ppm		6729	8291

Allegiance Metals
Despatch No. NIC4-08

Sample Type: Drillcore

Sample	Cu ppm	Ni ppm	S %
MF 89 50-50.6	50	77	0.44
MF 89 50.6-52	235	323	0.25
MF 89 52-53	104	233	0.21
MF 89 53-54	113	211	0.22
MF 89 54-55	93	361	0.10
MF 89 55-56	112	400	0.11
MF 89 56-57.4	134	3660	0.12
MF 89 57.4-58	73	123	0.11
MF 89 69-69.7	26	82	0.12
MF 89 69.7-71.4	101	203	0.09
MF 89 71.4-72	124	95	0.40
MF 89 73-73.7	79	123	0.17
MF 89 73.7-74.7	110	242	0.07
MF 89 74.7-76	136	97	0.09
MF 89 90-91.4	14	74	0.14
MF 89 91.4-92	75	266	0.23
MF 89 92-93	76	265	0.07
MF 89 93-94	182	316	0.53
MF 89 94-94.7	131	397	0.12
MF 89 94.7-95.7	1090	1740	0.50
MF 89 95.7-97	5899	6835	2.22
MF 89 97-98	7351	9424	4.10
MF 89 98-98.9	5022	5823	8.64
MF 89 98.9-100	979	1446	0.45
MF 89 100-101	227	461	0.46
MF 89 101-102.2	146	362	0.13
MF 89 102.2-103	401	102	0.22
MF 89 170-171	21	114	0.07
MF 89 171-172	98	279	0.08
MF 89 172-173	92	347	0.06
MF 89 173-174	223	668	0.07
MF 89 174-175	269	765	0.12
MF 89 175-175.8	306	951	0.11
MF 89 175.8-177	145	147	0.09

	Width (m)	*Cu	*Ni		Width (m)	*Cu	*Ni
	1	1090	1740				
	1.3	7669	8886		1.3	7669	8886
	1	7351	9424		1	7351	9424
	0.9	4520	5241		0.9	4520	5241
	1.1	1077	1591				
Totals	5.3	21706	26881	Totals	3.2	19540	23551
Average grade in ppm		4096	5072	Average grade in ppm		6106	7360

MF 89 219-220.2	45	116	0.17
MF 89 220.2-221	91	264	0.06
MF 89 221-222	79	264	0.06
MF 89 222-223	78	253	0.06
MF 89 223-224	77	248	0.02
MF 89 224-225.5	89	270	0.06
MF 89 225.5-225.7	71	67	1.36
MF 89 225.7-227	127	484	0.03
MF 89 227-228	129	529	0.02
MF 89 228-229	138	489	0.04
MF 89 229-230	136	482	0.06
MF 89 230-231	136	471	0.05
MF 89 231-232	132	445	0.10
MF 89 232-233	110	401	0.05
MF 89 233-234	110	319	0.03
MF 89 234-235	113	292	0.03
MF 89 235-235.6	112	277	0.02
MF 89 235.6-236.8	27	145	0.41
MF 89 236.8-238	12	174	0.63
MF 89 267-268.4	372	237	0.29
MF 89 268.4-269	99	94	0.10
MF 89 269-270	60	70	0.02
MF 89 270-271	43	26	0.21
MF 89 271-272	39	30	0.13
MF 89 272-273	45	35	0.17
MF 89 273-274	54	36	0.26
MF 89 274-275	50	49	0.26
MF 89 275-276	39	31	0.20
MF 89 276-277	39	28	0.04
MF 89 277-277.7	35	35	0.21
MF 89 277.7-279	44	40	0.11
MF 89 279-280	35	67	0.65
MF 89 280-281.4	50	40	0.22
MF 89 281.4-282	72	62	0.14
MF 89 282-283	73	62	0.05
MF 89 283-284	69	55	0.13
MF 89 284-285	67	55	0.10
MF 89 285-286	69	50	0.14
MF 89 286-287	71	62	0.11
MF 89 287-288	61	54	0.68
MF 89 288-289	57	38	0.12

MF 89 289-290	55	73	0.08
MF 89 290-291	66	82	0.17
MF 89 291-292	65	63	0.17
MF 89 292-293	49	65	0.18
MF 89 293-294	78	92	0.14
MF 89 294-295	76	102	0.08
MF 89 295-296	71	79	0.18
MF 89 296-297	67	89	0.16
MF 89 297-298	98	111	0.20
MF 89 298-299	66	86	0.14
MF 89 299-300	73	96	0.08
MF 89 300-301	69	118	0.14
MF 89 301-302.4	65	100	0.13
MF 89 302.4-303	60	105	0.22
MF 89 303-304	55	138	0.13
MF 89 304-305	103	154	0.22
MF 89 305-306	82	140	0.17
MF 89 306-307	67	141	0.13
MF 89 307-308	88	137	0.11
MF 89 308-309	57	115	0.14
MF 89 309-310	57	159	0.07
MF 89 310-311	69	225	0.04
MF 89 311-312	32	220	0.04
MF 89 312-313	8	257	0.08
MF 89 313-314	25	273	0.04
MF 89 314-315	81	277	0.06
MF 89 315-316	71	338	0.08
MF 89 316-317	98	408	0.07
MF 89 317-318	84	408	0.08
MF 89 318-319	58	390	0.05
MF 89 319-320	80	453	0.07
MF 89 320-321	66	404	0.09
MF 89 321-322	70	345	0.06
MF 89 322-323	69	270	0.10
MF 89 323-324	72	239	0.09
MF 89 324-325	89	273	0.12
MF 89 325-326	60	234	0.05
MF 89 326-327	41	218	0.03
MF 89 327-328	53	205	0.05
MF 89 328-329	52	168	0.04
MF 89 329-330	54	174	0.05

MF 89 330-331	74	207	0.06
MF 89 331-331.8	101	294	0.05
MF 89 331.8-333	288	857	0.25
MF 89 333-334	192	1146	0.29
MF 89 334-335	288	1091	0.14
MF 89 335-336	17	534	0.14
MF 89 336-337	7	650	0.24
MF 89 337-337.7	5	670	0.11
MF 89 337.7-339	154	158	0.02

Duplicates

Sample	Cu	Ni	S
	ppm	ppm	%
MF 89 93-94	179	323	n/a
MF 89 225.5-225.7	81	64	n/a
MF 89 277-277.7	35	31	n/a
MF 89 300-301	68	107	n/a
MF 89 319-320	83	447	n/a
MF 89 337.7-339	154	161	n/a

Appendix 3:
Notice of Intent to DTAE

19 October 2007

The Chairperson
Board of Environmental Management
and Pollution Control
GPO Box 44
Hobart Tas 7001

Dear Chairperson

**Notice of Intent
Melba Flats Project
Mining Operation**

Allegiance Mining NL is the holder of Mining Lease 2M/2007 of 269 sq km at Melba Flats north of Zeehan.

Exploration programs over the past 10 years have identified a resource of 100,000-200,000 t of nickel-copper sulfide mineralisation accompanied by significant cobalt-gold-platinum group metals. It is anticipated that on-going exploration will expand this resource base.

On behalf of Allegiance I herein advise that the Company proposes developing these resources by way of small open-cut operations and underground mines.

Guidelines are requested for the preparation of a Development Proposal & Environmental Management Plan to facilitate this mining.

Project Title and Location:

Melba Flats (ML2M/2007), 10 km north of Zeehan

Proponent details:

ML2M/2007 is held 100% by:

Allegiance Mining NL
Level 11, Quantum House
49-51 York Street
Sydney NSW 2000

The DPEMP will be co-ordinated and managed by:

Newnham Exploration & Mining Services
PO Box 183
Exeter Tas 7275
Contact: Lindsay Newnham 0418 386 229

Allegiance has been exploring and evaluating the Melba area since 1997 and expenditure to date is \$2,500,000. The Company is well established and committed to the minerals industry in Tasmania.

Principal activities are:

- development of Avebury Nickel mine west of Zeehan
- major base metal exploration programs in western Tasmania
- geothermal energy exploration in Tasmania

Project

Description:

The identified resources at Melba consist of narrow intermittent zones of disseminated and massive Cu-Ni sulfides developed in gabbro dikes with moderate dips to the east.

Two main areas of mineralisation have been identified to date:

- Nickel Reward in the South
- North Cuni-Genets in the North

Other minor deposits have been identified elsewhere at South Cuni, Vaudeau and Devereau sites.

Drilling and surface sampling is continuing in all of the above areas to test for lateral and depth extensions which may support larger and/or longer-life operations.

Mineralisation typically outcrops at surface and has been traced by drilling to date to depths of up to 200 m.

Current development plans involve the following key features:

- development of small open-cuts on the outcropping mineralisation at Nickel Reward and North Cuni-Genets with a combined ore output of 50,000 tpa, and an ore:waste ratio of approximately 1:6, to a depth of approximately 50 m

- extraction of identified resources below 50 m by small-sized declines servicing narrow mechanised stopes
- crushing the ore mined on site to facilitate transport
- trucking the crushed ore to a district mill (probably a special circuit developed in the Avebury Mill)
- there would be no processing beyond primary crushing on-site
- mine waste rock would be utilised as far as possible by other activities in the area; eg, forestry roads, tourist road upgrades (NE Dundas Tram), exploration access roads, etc

**Conceptual
Layout:**

A conceptual plan showing the initial open-cut and underground development, waste dumps, creek diversions, sedimentation dams and ROM-pads/crusher areas is attached.

Total affected area is estimated as 30 ha.

The proposed operations illustrated on the attached drawings represent plans for currently identified areas. A major program of exploration is continuing in the area and there is a high probability that further operations will emerge as this work continues.

For example, recent discoveries in the quarry area south of North Cuni and at the Devereau Workings west of Nickel Reward could lead to development proposals in these areas if drilling continues to return positive results.

Any such new developments would be submitted to DTAE for consideration as variations on the initial DPEMP for North Cuni-Genets and Nickel Reward.

Stakeholders:

The main stakeholders are Forestry Tasmania who manage the Lease area as Multiple Use State Forest and DIER who manage the Murchison Highway which would be the main access to and from the site.

**Physical
Involvement:**

The project area is relatively flat and close to (but not visible from) the Murchison Highway. Much of the area is currently being clear felled ahead of Forestry Tasmania plantation development.

Development will require diversion of several local creeks to facilitate the open-cuts.

The area is remote from towns or other human habitation, so noise impacts will be minimal. New development work will impact on some former mine workings from the period 1920-1960.

Key Issues: Key issues associated with the proposed development are:

- creek diversion
- management of potential acid-mine drainage
- waste rock usage
- historical issues associated with former workings
- trucking of ore
- quantifying social and economic benefits

Proposed Studies:

Guidelines from DTAE will determine studies for inclusion in the DPEMP, but it is envisaged that they will include:

- flora and fauna
- cultural heritage
- aboriginal heritage
- drainage impacts
- acid mine drainage management
- traffic impact assessment

Timetable:

Allegiance is keen to commence the DPEMP as soon as possible, with a view to commencing production in the second half of 2008.

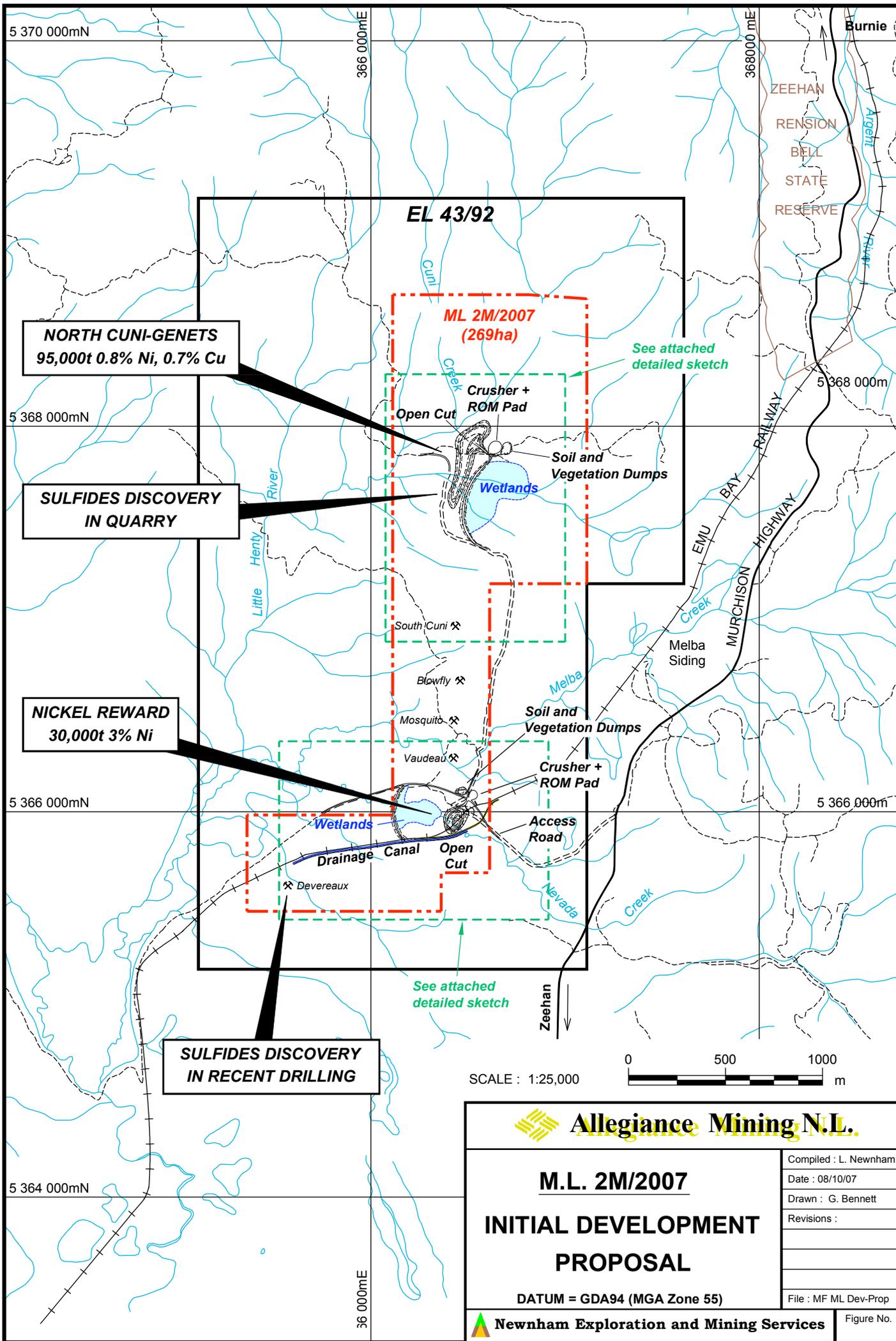
We look forward to receiving the DPEMP guidelines at your earliest convenience.

Yours faithfully

Lindsay Newnham

General Manager - Exploration
Allegiance Mining NL

cc: Allegiance, Sydney
Forestry, Strahan
MRT



NORTH CUNI-GENETS
95,000t 0.8% Ni, 0.7% Cu

SULFIDES DISCOVERY
IN QUARRY

NICKEL REWARD
30,000t 3% Ni

SULFIDES DISCOVERY
IN RECENT DRILLING

EL 43/92

ML 2M/2007
(269ha)

Crusher + ROM Pad
Open Cut

Wetlands

Soil and Vegetation Dumps

South Cuni

Blowfly

Mosquito

Vaudeau

Wetlands

Devereaux

Drainage Canal

Open Cut

Soil and Vegetation Dumps

Crusher + ROM Pad

Access Road

Wetlands

See attached detailed sketch

See attached detailed sketch

SCALE : 1:25,000



Allegiance Mining N.L.

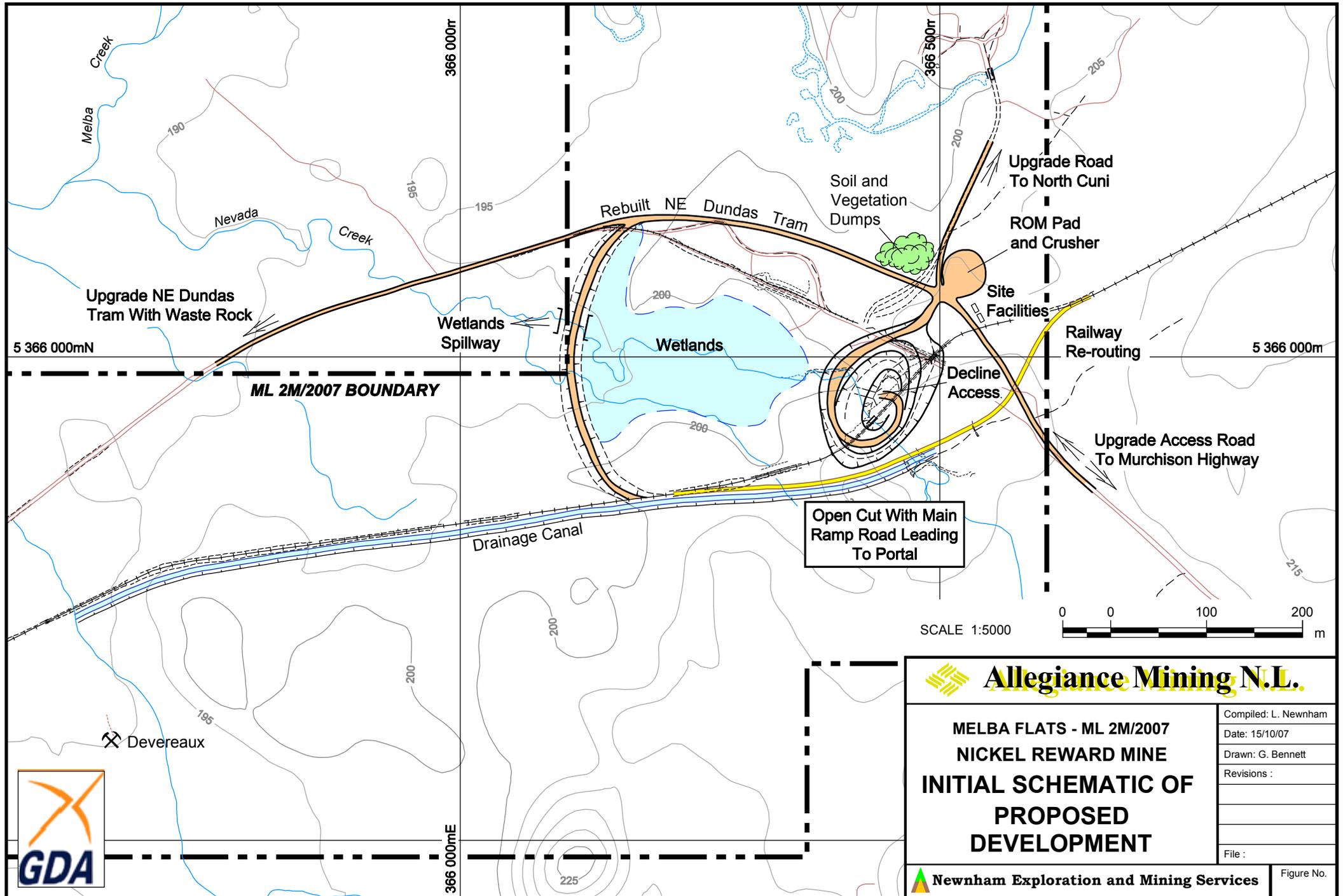
M.L. 2M/2007
INITIAL DEVELOPMENT
PROPOSAL

DATUM = GDA94 (MGA Zone 55)

Newnham Exploration and Mining Services

Compiled : L. Newnham
Date : 08/10/07
Drawn : G. Bennett
Revisions :
File : MF ML Dev-Prop

Figure No.



Open Cut With Main Ramp Road Leading To Portal

Decline Access

ROM Pad and Crusher

Soil and Vegetation Dumps

Site Facilities

Wetlands Area

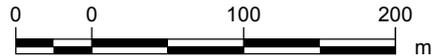
Wetlands Spillway

Upgrade Main Access Road

Forestry Road By-Pass

Cuni Creek

SCALE 1:5000



 **Allegiance Mining N.L.**

MELBA FLATS - ML 2M/2007
NORTH CUNI MINE
**INITIAL SCHEMATIC OF
PROPOSED
DEVELOPMENT**

Compiled: L. Newnham

Date: 15/10/07

Drawn: G. Bennett

Revisions :

File :



Newnham Exploration and Mining Services

Figure No.



ML 2M/2007 BOUNDARY

5 368 000mN

5 368 000m

5 367 500mN

5 367 500m

5 367 000mN

366 500mE

36 500mE

225

210

205

210

210

215

215

210

215

Appendix 4:
Guidelines from DTAE

Department of Tourism, Arts and the Environment

ENVIRONMENT DIVISION

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1751, Hobart, TAS 7001 Australia

Enquiries:

Ph: +61 3 6233 2105 Fax +61 3 6233 3800
Email: darryl.cook@environment.tas.gov.au
Web: www.environment.tas.gov.au
Our Ref: 110651:eo/assess/p/allegiance/c/C02_PLetter_1B]ars



30 November 2007

Mr Lindsay Newnham
General Manager - Exploration
Allegiance Mining NL
PO Box 183
EXETER TAS 7275

Dear Mr Newnham

Allegiance Mining NL - Melba Flats Mining Operation DPEMP GUIDELINES

I refer to the Notice of Intent for Allegiance's proposed Melba Flats project received on 22 October 2007.

Assessment and approvals process

Based on the information contained in the Notice of Intent, the project would be defined as a 'level 2 activity' under the *Environmental Management and Pollution Control Act 1994* (EMPC Act), and as such West Coast Council would be required to refer any permit application to the Board of Environmental Management and Pollution Control for assessment under the EMPC Act.

The Board requires that information outlining the case for assessment of the project be provided in the form of a Development Proposal and Environmental Management Plan (DPEMP).

Once a satisfactory DPEMP has been received, the application and supporting information will be advertised and the public invited to make representations in relation to the project. The application will also be referred to relevant State and Commonwealth Government agencies for comment at that time.

At the end of the public consultation period, you will be given an opportunity to provide the Board with additional supporting information or to modify the project in response to the public and agency comments. This may take the form of a supplement to the DPEMP.

On completion of its assessment, the Board will notify Council of the results of the assessment and of any conditions or restrictions which the Board requires to be contained in a permit granted by Council, or direct Council to refuse to grant a permit. The Board will advise you of its decision at this time.

Development Proposal and Environmental Management Plan (DPEMP) Guidelines

In order to facilitate the assessment and approvals process, the following documents are enclosed:

- *General Guidelines for the Preparation of a Development Proposal and Environmental Management Plan (DPEMP General Guidelines)*;

- *Allegiance Mining NL- Melba Flats Mining Operation – DPEMP Project Specific Guidelines.*

The DPEMP General Guidelines provide general information on the preparation of DPEMPs.

The DPEMP Project Specific Guidelines have been prepared based on the Notice of Intent, and should be read in conjunction with the DPEMP General Guidelines.

Allegiance Mining NL is now required to prepare a DPEMP for the project which satisfies the requirements of the DPEMP Project Specific Guidelines and the relevant sections of the DPEMP General Guidelines.

Close consultation with the Division and Council during the preparation of the DPEMP is recommended. In particular, a draft of the document should be submitted for review prior to the submission of a permit application for the project.

Please also note that if the project should change from that described in the Notice of Intent, then the DPEMP Project Specific Guidelines may need to be modified.

Finally, I would appreciate prior notice of when it is intended to lodge the permit application with Council. This will ensure there are no unnecessary delays in proceeding with the assessment process for the project.

Commonwealth government involvement

In addition to State Government requirements, the Commonwealth Government may also have a role in the environmental assessment and approval of the project.

The new Commonwealth environment legislation, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) replaces a number of pieces of legislation, including the *Environment Protection (Impact of Proposals) Act 1974*. Under the EPBC Act Commonwealth approval is required for an action which has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The matters of national environmental significance are World Heritage properties, National Heritage Places, wetlands of international importance (Ramsar wetlands), nationally listed threatened species and communities, nationally listed migratory species, Commonwealth marine areas and nuclear actions.

Information on the EPBC Act can be obtained from the Department of Environment and Water Resources' website at <http://www.environment.gov.au/epbc/> or by calling 1800 803 772.

I hope this information is of assistance. If you have any queries regarding the above, please contact the officer nominated at the head of this correspondence.

Yours sincerely



for Warren Jones

DIRECTOR OF ENVIRONMENTAL MANAGEMENT

Encl.

cc Mr Peter Harder, General Manager, West Coast Council, PO Box 40, Zeehan, Tas, 7469
CEO, Allegiance Mining NL, Level 11, Quantum House, 49-51 York St, Sydney, NSW, 2000

Development Proposal and
Environmental Management Plan
Project Specific Guidelines

for

Allegiance Mining NL
Melba Flats Mining Operation

Off Murchison Highway, Melba Flats

Department of
Tourism, Arts and the Environment

December 2007



1. *General*

This document identifies the key issues that must be addressed in the Development Proposal and Environmental Management Plan (DPEMP) for Allegiance Mining NL's proposed Melba Flats Mining Operation. This document should be read in conjunction with the *General Guidelines for the preparation of a Development Proposal and Environmental Management Plan* (DPEMP General Guidelines - DTAE), which provides general information on preparing a DPEMP.

While the DPEMP should evaluate all potential effects of the proposal, the DPEMP should be principally focused on these key issues. This document identifies the minimum survey requirements and studies required as part of the DPEMP in relation to the key issues.

The level of detail provided on other issues should be appropriate to the level of significance of that issue for the proposal. This document identifies the relevant sections of the DPEMP General Guidelines in relation to other issues.

This document has been prepared on the basis of a Notice of Intent.

This document should not be interpreted as excluding from consideration other matters deemed to be significant or matters that emerge as significant from environmental studies, public comments or otherwise during the course of the preparation of the DPEMP.

2. *Key issues*

The key issues that have been identified for consideration in relation to the proposal, and which should be the principal focus of the DPEMP, are as follows:

Key issue	
1	Potential impacts upon water quality arising from the mining operation
2	Mine waste management including measures to prevent or mitigate the formation of acid rock drainage
3	Mine closure and rehabilitation

3. Survey and study requirements

The following surveys and studies will be required as part of the DPEMP in relation to the key issues. The relevant sections of the DPEMP General Guidelines are also identified.

Key Issue	Survey requirements for DPEMP	Other studies for DPEMP	Relevant section of DPEMP General Guidelines
1	<ul style="list-style-type: none"> Ambient water quality survey of the pre-existing receiving environment (evaluation of historical sources of pollution including mass loadings at various flows) 	Provide an assessment of the potential impact of aqueous emissions from the operation upon the receiving environment	3.2
2	<ul style="list-style-type: none"> Quantify the nature and distribution of potentially acid forming rock types within areas to be mined through geochemical test work and predictive modelling. 		4.3

4. Detailed requirements for the DPEMP

The following DPEMP requirements are in addition to the requirements of the DPEMP General Guidelines. These additional requirements are grouped under the relevant section number corresponding to the DPEMP General Guidelines.

2.1 Project Outline

In addition to the matters stipulated in Section 2.1 of the DPEMP General Guidelines the DPEMP must contain the following:

- Location and dimension of any dams
- Description of chosen mining method(s) - open cut versus underground methods
- Description of any processing of ore that will occur on site
- Proposed mining rate and mine life

2.1.2 Construction phase

In addition to the matters stipulated in Section 2.1.2 of the DPEMP General Guidelines the DPEMP must contain the following:

- Measures to prevent or mitigate impacts from erosion and transport of sediment resulting from creek diversion, removal of vegetation and other works
- Measures designed to prevent the introduction or spread of introduced plant species, weeds, pests and diseases (such as *phytophthora cinnamomi*) during construction works

2.2 Site Plan

In addition to the matters stipulated in Section 2.2 of the DPEMP General Guidelines the DPEMP must contain the following:

- Location of waste rock dumps, ore storage areas, crushing machinery, open cut pits, wetlands and haul roads.

- Detailed plans and description of proposed stream diversions
- Plans or diagrams depicting the proposed means of access to and from the Murchison Highway

3.2 Existing environment

In addition to the matters stipulated in Section 3.2 of the DPEMP General Guidelines the DPEMP must contain the following:

- Results of an ambient water quality survey. Wherever possible mass loading of pollutants from historical sources should be quantified across a range of flow conditions.

4.2 Liquid Waste

In addition to the matters stipulated in Section 4.2 of the DPEMP General Guidelines the DPEMP must contain the following:

- Best Practice Environmental Management measures to prevent or mitigate the formation of acid rock drainage, including segregation and management of acid generating and potentially acid generating rock types (including ore) to prevent oxidation of sulphidic minerals (*eg* disposal under permanent water cover or removal from site).
- Best Practice Environmental Management measures for ongoing collection and treatment of acid rock drainage which cannot be prevented from occurring (*eg* from mine pit walls) to remove pollutants prior to discharge (note treatment of at least an equivalent amount of historic pollution may be an acceptable alternative)
- Measures to prevent transport of sediment off site in stormwater runoff, including estimation of runoff volume and available detention capacity/time.
- Identification of principle discharge points from the activity to the receiving environment
- Expected water quality of emitted water and expected annual mass loadings discharged should be reviewed in comparison to ambient water quality. Proposed discharges must satisfy the *State Policy on Water Quality Management 1997*
- Consideration of long term stability (*ie* post-mine closure) of wetlands and mine pit walls

4.3 Solid Waste

In addition to the matters stipulated in Section 4.3 of the DPEMP General Guidelines the DPEMP must contain the following:

- Description of waste rock types and their mineralogy, grain sizes and geochemical characteristics in relation to their potential to contribute to acid rock drainage
- Estimated quantities of waste rock and their acid generating (or neutralising) potential
- Details of proposed reuse of non-acid forming waste rock types for civil construction or other purposes
- Detailed description of waste rock disposal practices including segregation, blending, capping and measures to ensure long term geotechnical stability of any dump slopes.

4.7 Biodiversity and nature conservation values

In addition to the matters stipulated in Section 4.7 of the DPEMP General Guidelines the DPEMP must contain the following:

- Results of surveys for any rare, threatened, endangered and locally endemic species that will potentially be impacted by the proposal.
- A baselines study of wetlands condition and conservation significance

4.10 Heritage

In addition to the matters stipulated in Section 4.10 of the DPEMP General Guidelines the DPEMP must contain the following:

- The results of a survey of European heritage items in the area to be disturbed by the activity.
- Measures relating to protection of the Lead Blocks mine site should be detailed.
- The results of a survey of aboriginal heritage items in the area to be disturbed by the activity

4.12 Visual effects

In addition to the matters stipulated in Section 4.12 of the DPEMP General Guidelines the DPEMP must contain the following:

- Details of visual impact (if any) of ore stockpiles, buildings or any other elevated structures from the Murchison Highway.

4.20 Traffic Impact Assessment

In addition to the matters stipulated in the DPEMP General Guidelines, the Department of Energy Infrastructure and Resources has requested that the DPEMP contain the following:

- A traffic impact assessment containing the following information; intended mode of transport (road or rail), vehicle type, expected tonnages and truck movements for both the construction and operational phases and any new road accesses.

5.0 Monitoring and review

In addition to the matters stipulated in Section 5.0 of the DPEMP General Guidelines the DPEMP must contain the following:

- Details of monitoring of aqueous emissions for oxidation products which may be precursor indicators of acid rock drainage.

6.0 Mine closure and rehabilitation

Due to the finite nature of mining operations and their susceptibility to external economic influences, mine closure planning should commence before the operation commences. The DPEMP should contain sufficient detail to enable a bond to be established to protect the Crown from future liabilities in the event of unforeseen mine closure or company failure.

In addition to the matters stipulated in Section 6.0 of the DPEMP General Guidelines the DPEMP must contain the following:

- A conceptual mine closure plan (note a detailed mine closure plan will be required to be submitted by the first anniversary of the granting of any permit)

5. DPEMP General Guidelines

Other sections of the DPEMP General Guidelines relevant to the proposal are identified below.

Relevant section	Title	Comment
1.0	Introduction	<ul style="list-style-type: none"> Points (a) to (i) should be addressed
2.0	Proposal description	<ul style="list-style-type: none"> This section is generally relevant
2.1	<i>Proposal outline</i>	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
2.1.1	General	<ul style="list-style-type: none"> All points should be addressed
2.1.2	Construction	<ul style="list-style-type: none"> All points should be addressed Note additional comments detailed above.
2.1.3	Commissioning	<ul style="list-style-type: none"> All points should be addressed
2.2	<i>Site plan</i>	<ul style="list-style-type: none"> Relevant points should be addressed. Note additional comments detailed above.
2.3	<i>Off-site infrastructure</i>	<ul style="list-style-type: none"> Relevant points should be addressed
2.4	<i>Technical and management alternatives</i>	<ul style="list-style-type: none"> Should be addressed
3.0	The existing environment	<ul style="list-style-type: none"> This section is generally relevant
3.1	<i>Planning aspects</i>	<ul style="list-style-type: none"> Relevant points should be addressed
3.2	<i>Environmental aspects</i>	<ul style="list-style-type: none"> Points (a) to (f) should be addressed Note additional comments detailed above.
3.3	<i>Socio-economic aspects</i>	<ul style="list-style-type: none"> Points (a) and (b) need only be addressed in a general sense
3.4	<i>Alternative sites</i>	<ul style="list-style-type: none"> Should be addressed
4.0	Potential effects and their management	<ul style="list-style-type: none"> This section is generally relevant, although some issues are not relevant to the proposal, and the level of detail required on other issues will vary
4.1	<i>Air emissions</i>	<ul style="list-style-type: none"> This section is generally relevant
4.1.1	Legislative and policy	<ul style="list-style-type: none"> This section should be addressed
4.1.2	Other issues	<ul style="list-style-type: none"> Point (d) is not relevant to proposal
4.2	<i>Liquid waste</i>	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
4.2.1	Legislative and policy	<ul style="list-style-type: none"> This section should be addressed
4.2.2	Discharge of wastewater	<ul style="list-style-type: none"> This section should be addressed
4.2.3	Other issues	<ul style="list-style-type: none"> Points (a), (b) are unlikely to be relevant
4.3	<i>Groundwater</i>	<ul style="list-style-type: none"> This section should be addressed Note additional comments detailed above.
4.4	<i>Noise emissions</i>	<ul style="list-style-type: none"> Limited information required only Points (b) and (c) are unlikely to be relevant.
4.5	<i>Solid and controlled waste</i>	<ul style="list-style-type: none"> All points should be addressed
4.6	<i>Dangerous goods</i>	<ul style="list-style-type: none"> This section should be considered
4.7	<i>Biodiversity and conservation</i>	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
4.7.1	Key legislative and policy	<ul style="list-style-type: none"> This section should be addressed
4.7.2	Other issues	<ul style="list-style-type: none"> Points (d) and (f) are unlikely to be relevant
4.8	<i>Marine and coastal</i>	<ul style="list-style-type: none"> Not relevant to proposal
4.8.1	Legislative and policy	<ul style="list-style-type: none"> Not relevant to proposal
4.8.2	Other issues	<ul style="list-style-type: none"> Not relevant to proposal
4.9	<i>Greenhouse and ozone</i>	<ul style="list-style-type: none"> This section is generally relevant
4.9.1	Estimate of emissions	<ul style="list-style-type: none"> Not relevant to proposal
4.9.2	Greenhouse best practice	<ul style="list-style-type: none"> This section should be addressed
4.9.3	Ozone	<ul style="list-style-type: none"> This section should be addressed
4.10	<i>Heritage</i>	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
4.10.1	General	<ul style="list-style-type: none"> This section is generally relevant
4.10.2	Surveys	<ul style="list-style-type: none"> This section is relevant if surveys are undertaken

4.10.3	Aboriginal heritage	<ul style="list-style-type: none"> This section is generally relevant
4.10.4	Historic heritage	<ul style="list-style-type: none"> This section is generally relevant
4.10.5	Consultation	<ul style="list-style-type: none"> This section is generally relevant
4.10.6	Commonwealth	<ul style="list-style-type: none"> This section is generally relevant
4.11	<i>Land use and development</i>	<ul style="list-style-type: none"> Points (b) to (d) are unlikely to be relevant
4.12	<i>Visual</i>	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
4.13	<i>Socio-economic</i>	<ul style="list-style-type: none"> Limited information required only.
4.14	<i>Health and safety</i>	<ul style="list-style-type: none"> Limited information required only
4.15	<i>Hazard analysis and risk</i>	<ul style="list-style-type: none"> Not relevant to proposal
4.16	<i>Fire risk</i>	<ul style="list-style-type: none"> This section should be addressed
4.17	<i>Infrastructure and off-site</i>	<ul style="list-style-type: none"> Limited information required only
4.18	<i>Environmental management systems</i>	<ul style="list-style-type: none"> Limited information required only
4.19	<i>Cumulative and interactive</i>	<ul style="list-style-type: none"> Unlikely to be relevant to proposal
5.0	Monitoring and review	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
6.0	Decommissioning and rehabilitation	<ul style="list-style-type: none"> This section is generally relevant Note additional comments detailed above.
7.0	Commitments	<ul style="list-style-type: none"> This section should be addressed
8.0	Conclusion	<ul style="list-style-type: none"> This section is generally relevant.

General Guidelines for the preparation of a

Development Proposal and
Environmental Management Plan

for

Level 2 Activities and 'called in' Activities

Department of
Tourism, Arts and the Environment

December 2007



Tasmania
Explore the possibilities

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GENERAL INFORMATION FOR THE PROPONENT

General

These guidelines provide general information on preparing a Development Proposal and Environmental Management Plan (DPEMP) for a Level 2 activity as defined in Schedule 2 of the *Environmental Management and Pollution Control Act 1994*.

All issues nominated in these guidelines will not have the same degree of relevance to all proposed activities. Depending on the nature of the proposed activity and its location, some of the issues may be more relevant than others, while others will not be applicable at all. It is essential that the DPEMP be focussed on the key issues for the proposal. The level of detail provided on other issues should be appropriate to the level of significance of that issue for the proposal. Project specific guidelines identifying the key issues will be prepared by the Board and the planning authority (the assessing agencies) for use in conjunction with these general guidelines. The assessing agencies can advise on the sections of these general guidelines that are unlikely to be relevant to the proposal.

While these guidelines are intended to identify issues likely to be associated with a typical Level 2 activity, they are not necessarily exhaustive. The guidelines should not be interpreted as excluding from consideration other matters deemed to be significant or matters that emerge as significant from environmental studies, public comments or otherwise during the course of the preparation of the DPEMP.

It should be noted that the preparation of a DPEMP is not required for all proposed Level 2 activities. For some smaller activities, the Director of Environmental Management may specify that the completion of an Environmental Effects Report only is required.

Objectives and content

The DPEMP should aim to provide:

- (a) A source of information from which individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment that it would affect, the effects that may occur and the measures taken to minimise any adverse effects.
- (b) A basis for public consultation and informed comment on the proposal.
- (c) A framework against which decision makers (and in particular the Board and the planning authority) can consider the proposal and determine the conditions under which any approval would be given.

The DPEMP should provide details of the proposal, describe the existing environment in the vicinity of the proposal site, identify all significant environmental, social, health and economic effects associated with the proposal, detail proposed measures to avoid or reduce potential adverse effects and identify opportunities for protection and enhancement of the environment.

It is recognised that some construction and operational details may not have been finalised at the time the DPEMP is submitted for assessment. The information presented in the document should

be as up to date as possible. Where information is unavailable or details have not yet been finalised, estimates and the range of alternative options should be provided. It should be noted, however, that sufficient technical detail must be provided to enable an appropriate level of assessment to be undertaken.

The main text of the DPEMP should be written in a clear and concise style that is easily understood by the general reader. Technical terminology should be avoided as far as possible. The detailed technical data and supplementary reports necessary to support the main text should be included in appendices. All sources of information should be referenced. An indication should also be given of the currency of the information used and how the reliability of the information was tested. In particular, the degree of confidence attached to any predictions should be indicated. It is recommended that information be presented on maps, diagrams and site plans to enhance the level of understanding.

Where sensitive information needs to be provided (e.g. information on production processes, or sites or areas of conservation, scientific, archaeological and cultural heritage or other special significance), this information should be provided in a separate, confidential appendix. A comment should be provided in the DPEMP to the effect that the information has been so provided.

Management commitments should be clearly identified in the text and included in the commitments table referred to in Section 7.0 of these guidelines.

Where appropriate, refer to information provided in other sections to minimise duplication.

The DPEMP should contain a summary table showing compliance with the project specific guidelines and the relevant sections of these general guidelines.

Commonwealth environmental approval

In addition to State Government requirements, the Commonwealth Government may also have a role in the environmental assessment and approval of the proposal.

Under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), Commonwealth approval is required for an action which has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The EPBC Act also applies to actions involving Commonwealth land and actions by the Commonwealth and Commonwealth agencies (“Commonwealth Actions”).

The matters of national environmental significance are World Heritage properties, National Heritage Places, wetlands of international importance (Ramsar wetlands), nationally listed threatened species and communities, nationally listed migratory species, Commonwealth marine areas and nuclear actions.

It is important that, prior to preparing a DPEMP, consideration is given to submitting a referral to the Commonwealth Department of the Environment and Heritage to ascertain whether or not the Commonwealth has an interest in the proposal. This will ensure that, if the action is determined to be a controlled action, the bilateral assessment process can be invoked and key issues of concern to the Commonwealth are not overlooked or public consultation undertaken prematurely. Information on the EPBC Act can be obtained from the Department of Environment and Water Resources’ website at <http://www.environment.gov.au/epbc/> or by calling 1800 803 772.

The Commonwealth and Tasmanian Governments have signed a bilateral agreement relating to impact assessment under section 45 of the EPBC Act which effectively accredits the State Level 2 and Level 3 assessment processes. Where the proposal has been determined to be a controlled action under the EPBC Act and is being assessed in accordance with the bilateral agreement, the DPEMP should specifically describe the implications of the proposal for the relevant EPBC Act controlling provisions.

If the proposal is being assessed under the bilateral agreement, then the DPEMP should contain a summary table showing that it addresses the matters specified in Schedule 4 of the Commonwealth *Environment Protection and Biodiversity Conservation Regulations 2000*.

Consultation and submission of draft document

Environmental aspects of the proposal will be assessed by the Board of Environmental Management and Pollution Control (the Board), while planning aspects of the proposal will be assessed by the relevant planning authority. The Board has authorised the Environment Division to undertake the administrative tasks and establish the information base to inform its decision making on its behalf. As such, close consultation with the Environment Division and the relevant planning authority during the preparation of the DPEMP is therefore recommended. It is recommended that the proponent submit a draft DPEMP to both agencies for review prior to its finalisation. Please note that draft documents may be rejected without detailed review if they are incomplete, contain significant formatting or typographical errors or do not comply with the project specific guidelines and relevant sections of these general guidelines. More than one draft may be necessary before the document is considered suitable for public release.

Following the public consultation phase, the DPEMP may require amendment as a result of consideration of public and government agency submissions. This generally takes the form of a supplement to the DPEMP.

Submission

The DPEMP is to be submitted in a printed format and in electronic format for use with a word processor (such as Microsoft Word), and suitable for publishing on the internet (preferably PDF format). Individual documents should generally be under 1Mb in size, so the DPEMP may need to be submitted in a series of PDF documents. Images within the document should be optimised for the internet and font choices should be restricted to those most commonly used. Being judicious about the number of images and/or design elements can avoid unnecessarily adding to the file size.

Copies are to be made available to the public upon request for a nominal fee, in either printed or electronic format (CD ROM). If practical, the proponent should also make the document available on the internet.

Structure and content

The following sections have been set out in a manner which may be adopted as the structure for the DPEMP. The proposed structure of the DPEMP must focus on the key issues for the proposal as outlined in the project specific guidelines, and be approved by the assessing agencies.

Any significant departure from the requirements and intent of the relevant sections of these general guidelines must be approved by the assessing agencies.

CONTENTS OF THE DPEMP

FOREWORD

This section should briefly outline the assessment and approvals process and explain the function of the DPEMP in this process.

TABLE OF CONTENTS

This section should contain a table of the contents of the report with reference to the relevant page numbers. It should also contain a list of figures and tables.

EXECUTIVE SUMMARY

This section should provide an executive summary of the DPEMP to give a clear and concise overview of the proposal and its environmental implications. It should contain headings corresponding to the main section headings of the DPEMP.

For larger DPEMPs, it is recommended that the executive summary be written as a stand alone document, able to be provided on request to interested parties who may not wish to read or purchase the full DPEMP.

1.0 INTRODUCTION

This section should provide information on the following:

- (a) Title of the proposal.
- (b) Name and address of the proponent and general background, such as relevant development or operational experience. Where the proponent is a registered company, its Australian Company Number and Registered Office address should be included.
- (c) Details of any proceedings against the proponent under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.
- (d) Relevant background information on the proposal, including the current status of the proposal, a general overview of the principal components of the proposal and the proposal location, the rationale and need for the proposal, anticipated establishment costs, likely markets for the product, and the possibilities for future expansion.
- (e) An examination of how the proposal relates to any other proposals that have been or are being developed or that have been approved in the region affected by the proposal.
- (f) An outline of the State¹ and Commonwealth legislation under which approval or consideration is required for the proposal (or specific aspects of the proposal) to proceed. The status of each approval should be stated.
- (g) Environmental standards and guidelines that will be applicable (such as policies, regulations and industry codes of practice).
- (h) Other relevant Commonwealth, State and Local Government policies, strategies and management plans with which the proposal would be expected to comply.
- (i) Details of the nature and results of public consultation undertaken (if any) by the proponent during project formulation, project planning and preparation of the DPEMP, as well as any proposals for further public consultation during and beyond project implementation.

¹ Tasmanian legislation can be found online at www.thelaw.tas.gov.au. Tasmanian Environment Protection Policies and various environmental guidelines are located at 'Environmental Regulation' at www.environment.tas.gov.au.

2.0 PROPOSAL DESCRIPTION

This section should provide a full description of the proposal, including the construction, commissioning, operational and decommissioning phases, as well as any infrastructure and off-site ancillary facilities required for the proposal.

2.1 Proposal outline

This section should provide a detailed description of key physical components of the proposal, including their function, composition, size, capacity, operational life, technical and performance requirements, inter-relationships and method of construction, operation and maintenance. Explanatory diagrams should be used wherever possible to augment text.

The following information should typically be provided.

2.1.1 General

- (a) The process should be described and illustrated in a step-by-step manner from the delivery and storage of raw materials through to the storage and shipment of products. Flow charts, diagrams etc should be used where appropriate.
- (b) The major items of equipment (including pollution control equipment) and on-site facilities should be described. Detailed technical information on major items of equipment may be included in appendices.
- (c) The raw materials required for the proposal (including water) should be specified. Quantities, characteristics and optional sources of supply should be given.
- (d) Energy requirements for the proposal should be outlined and the means of meeting this demand described.
- (e) All sources of waste (liquid, atmospheric or solid) including by-products from the various stages of the process should be identified and the wastes characterised and quantified. Any foreseeable variations in waste generated during the start-up phase should be identified and any temporary storage requirements specified.
- (f) Facilities to collect and treat wastes should be described together with the resultant concentrations and mass loads of pollutants to be emitted after treatment. The dynamic performance of waste treatment systems is acknowledged and estimates of performance ranges are required. Maintenance requirements should be included.
- (g) Any proposed new point source wastewater discharge points should be identified.
- (h) Any proposed new point source atmospheric discharge points should be identified.
- (i) All major sources of noise should be identified.
- (j) Details of production capacity and production rates for relevant processes including (as a minimum) both peak rates and daily average rates. Include details of all final products of the proposal and proposed annual production rates.
- (k) The hours of operation for the proposal (hours per day and specific days per week) including any seasonal variations.

- (l) The volume, composition, origin, destination and route for vehicle movements (including road, rail, shipping and air) likely to be generated during the operational phase, including a break-down for over-dimension and heavy road vehicles.
- (m) A timetable for construction, commissioning, any staged development and decommissioning of the proposal.

2.1.2 Construction

- (a) A step-by-step description and timetable for major construction phase activities. Indicative timeframes for the completion of major steps, and the likely sequencing of steps.
- (b) An outline of any proposed site preparation works on the site, including temporary and permanent removal of vegetation.
- (c) Estimates of the quantities of major raw materials required for construction activities (such as sand, aggregate, fill and road gravel) and their likely sources.
- (d) Details of the nature, capacity and location of temporary construction equipment required on site (such as cranes, concrete batch plants, rock crushers, construction camps).
- (e) The number of construction workers required in the various stages of construction, sources of labour, accommodation and support servicing requirements.
- (f) The proposed hours per day and days per week of construction activities.
- (g) The volume, composition, origin, destination and route for vehicle movements (including road, rail, shipping and air) likely to be generated during the construction phase, including a breakdown for over-dimension and heavy vehicles.

2.1.3 Commissioning

- (a) A step-by-step description of major commissioning activities.
- (b) Indicative timeframes for the completion of major steps, and the likely sequencing of steps.

2.2 Site plan

Site plans are required which identify the proposal site and which include the following² (where relevant).

- (a) The boundary of the proposal site.
- (b) The position of buildings and significant structures on the site (existing and proposed).
- (c) A floor plan showing the location of all major items of equipment and facilities and their position relative to property boundaries.
- (d) The location of all point sources of atmospheric emissions.

² When providing maps or referring to spatial databases, the coordinate reference system being used should be specified (ie. Australian Geodetic Datum (AGD) or GDA (Geocentric Datum of Australia))

- (e) The location of all major sources of noise.
- (f) The location of all point sources of liquid emissions (including stormwater).
- (g) The route of any pipelines, tracks, conveyors or similar means of transporting on-site materials.
- (h) The location of raw materials storage areas.
- (i) The location of temporary and permanent dangerous goods (including hazardous wastes) storage areas.
- (j) The location of stormwater collection systems.
- (k) The location of loading or unloading areas.
- (l) The location of all monitoring sites.

2.3 Off-site infrastructure

Any new infrastructure or off-site ancillary facilities required to allow the proposal to proceed should be described, including the following (where relevant):

- (a) Requirements for new transport infrastructure, and specifically for upgraded, realigned or new roadways.
- (b) Requirements for new or altered port facilities.
- (c) Requirements for new or upgraded power transmission and distribution systems.
- (d) Water supply requirements for the proposal during construction and operational phases.
- (e) Requirements for the realignment of energy, communication, water, waste or other infrastructure affected by the proposal.

2.4 Technical and management alternatives

A critique of other available technologies and the reason for the selection of the preferred technology from an environmental perspective should be included where relevant.

For any part of the proposal where alternative technologies, design options or management practices with different environmental consequences may exist, the alternatives should be identified, their environmental performance evaluated and the reason for the proposed choice justified.

3.0 THE EXISTING ENVIRONMENT

This section should describe the proposal site location and provide an overview of the existing environment which may be affected by the construction and operation of the proposal, including areas associated with any ancillary activities.

It should include details of salient features of the existing environment and, where appropriate, include maps, plans, photographs, diagrams or other descriptive detail.

The following details should be included.

3.1 Planning aspects

- (a) The location of the proposal site and the associated infrastructure.
- (b) Information on land tenure and property boundaries of the proposal site, with title details.
- (c) Land zonings for the proposal site and surrounding areas, and any by-laws or special planning controls that may apply to the site and surrounding areas.
- (d) Any rights of way, easements and covenants affecting the proposal site.
- (e) Land use and planning history of the proposal site, including the potential for site contamination³, the present use of the site and any existing buildings and significant structures.
- (f) A description of land use and ownership in the vicinity of the proposal site and those areas which may be affected by the proposal. The location and nature of industrial facilities, the location of individual residences, schools, hospitals, caravan parks and similar sensitive uses, and the location of any tourist or recreation facilities or routes (such as camping areas, picnic areas, walking tracks, historic routes) within 500 metres of the proposal site should be included (except where a greater or lesser distance has been specified by the Environment Division). Any proposed sensitive uses within this distance of the proposal site for which planning approval has been granted should be identified.

3.2 Environmental aspects

- (a) A description of the general physical characteristics of the proposal site and surrounding area, including topography, geology, geomorphology, soils (including erodibility), vegetation, fauna, coastal processes (including erosion and deposition), groundwater and surface drainage (including waterways, lakes, wetlands, coastal areas etc.).
- (b) A description of natural processes of particular importance for the maintenance of the existing environment (e.g. fire, flooding, etc).
- (c) Any existing conservation reserves located on or within 500 metres of the proposal site (except where a greater or lesser distance has been specified by the Environment Division).

³ Information on potentially contaminating activities and contaminated site assessment can be found online at 'Environmental Regulation' at www.environment.tas.gov.au

- (d) Any high quality wilderness areas identified in the *Tasmanian Regional Forest Agreement* located on or within twenty kilometres of the proposal site.
- (e) Information on species, sites or areas of landscape, aesthetic, wilderness, scientific or otherwise special conservation significance which may be affected by the proposal.
- (f) An assessment of the vulnerability of the site to natural hazards (e.g. flooding, seismic activity, fire, landslips or strong winds).
- (g) Identify any freshwater ecosystems of high conservation management priority using the Conservation of Freshwater Ecosystem Values (CFEV) database (accessible on the internet under <http://water.dpiw.tas.gov.au/wist/ui>). The scope of investigation should encompass the vicinity of the proposed development where there is likelihood of alteration to the existing environment. The specific CFEV information used for DPEMP's should be Conservation Management Priority_Potential which is appropriate for Development Proposals.

3.3 Socio-economic aspects

This section should describe the existing social and economic environment that may be affected by the proposal, including information on the following:

- (a) A summary of the social/demographic characteristics of the population living in the vicinity of the proposal site, identifying any special characteristics which may make people more sensitive to effects from the proposal than might otherwise be expected.
- (b) A summary of the characteristics of the local and regional economy (e.g. existing employment trends, land values).

3.4 Alternative sites

This section should describe the site selection process, including consultation, assessment criteria, alternative sites considered and an assessment of these alternatives. The assessment should compare alternatives according to clearly defined environmental, social, economic and technical criteria, and provide a justification for the preferred site. Any community consultation undertaken and the effect it had on the selection process should be detailed.

4.0 POTENTIAL EFFECTS AND THEIR MANAGEMENT

This section should identify baseline conditions, evaluate the potential effects related to the proposal and describe measures to avoid or mitigate adverse effects. For each effect or combination of related effects, the evaluation should be presented in the following format:

- (a) **Existing conditions** – where relevant, an outline of the existing conditions relevant to that effect (with cross referencing where appropriate to other sections).
- (b) **Performance requirements** – define the environmental performance requirements to be achieved for that effect. See below for further information.
- (c) **Potential effects** – an outline of all potential environmental effects of the proposal (positive and negative) in the absence of special control measures. The pre-construction, construction, commissioning, operation, maintenance and decommissioning phases of the proposal must be considered.
- (d) **Avoidance and mitigation measures** – a description and list of the measures proposed to avoid or mitigate potential adverse effects in order to achieve the environmental performance requirements (such as through pollution control technology or management practices). Any compensatory actions proposed for unavoidable residual adverse effects should be identified.
- (e) **Assessment of effects** – an assessment of the overall effects of the development on the environment after allowing for the implementation of proposed avoidance and mitigation measures. This should include an evaluation of the significance of effects and comparison with state, national and international regulations and standards. Any net benefits likely to result from the proposal should be identified.

It should be noted that not all of the issues nominated in this section will be relevant to all proposed activities. Depending on the nature of the proposed activity and its location, some of the issues may be more relevant than others, while others will not be applicable at all.

It is essential that the DPEMP be focussed on the key issues for the proposal identified in the project specific guidelines. The level of detail provided on other issues should be appropriate to the level of significance of that issue for the proposal. The assessing agencies can advise on the sections of these general guidelines that are unlikely to be relevant to the proposal.

4.0.1 Identification and evaluation of effects

Predictions and evaluations of effects should be based on scientifically supportable data. The methodologies used or relied on should be referenced, together with the relevant research and investigations supporting them. Assumptions, simplifications and scientific judgements should be stated clearly, and the nature and magnitude of uncertainties should be clearly defined. Where relevant, the choice of a particular methodology over alternative methodologies should be explained. Where effects are not quantifiable, they should be adequately described.

The evaluation of potential effects should identify plausible worst case consequences, the vulnerability of the affected environment to the potential effects, and the reversibility of the effects. Potential cumulative effects also need to be addressed. Interactions between biophysical,

socio-economic and cultural effects should be identified. The representation of the above information on maps, diagrams, site plans and photographs is recommended.

4.0.2 Consideration of alternatives

Where there are clear, alternative avoidance or mitigation measures for a particular adverse environmental effect, the alternatives should be reviewed and the preferred option justified.

4.0.3 Performance requirements

Performance requirements should be identified for each environmental effect and evidence provided to demonstrate that these can be complied with. These may be standards or requirements specified in legislation, codes of practice, state policies, or determined by agreement with the assessing agencies. Industry best practice standards should be referred to where appropriate. Unsupported assertions that performance requirements will be achieved will not be considered adequate.

4.0.4 Sustainable development objectives

Attention should be paid to demonstrating that the proposal is consistent with objectives as required by the relevant Commonwealth and Tasmanian statutes and policies, including the National Strategy for Ecologically Sustainable Development, the Tasmanian Resource Management and Planning System and the Environmental Management and Pollution Control System.

4.0.5 Waste management hierarchy

For each waste (gas, liquid and solid) it should be demonstrated that all reasonable and practicable measures have been taken to avoid producing that waste and to reduce the amount of waste requiring disposal, having regard to best practice environmental management and cleaner production. The measures must be in accordance with the following hierarchy of waste management, arranged in decreasing order of desirability:

- (a) waste avoidance;
- (b) waste recycling/reclamation;
- (c) waste re-use;
- (d) waste treatment to reduce potentially adverse effects; and
- (e) waste disposal.

4.0.6 Mitigating adverse effects

Where adverse environmental effects are unavoidable, the proposed measures to reduce the effects (e.g. pollution control equipment, treatment processes, management practices) should be described in detail. The extent to which they will overcome the anticipated effects should be specified.

Where pollution control equipment and/or treatment processes are key factors in achieving satisfactory environmental performance, contingencies in the event of breakdown or malfunction of the equipment or processes should be discussed. It should be demonstrated that the maintenance

of pollution control equipment can be provided for without causing performance requirements to be exceeded.

Where measures to control effects are necessary, but are not the responsibility of the proponent, this should be indicated together with any information regarding the commitment by the responsible party to implement the measures. Any influence the proponent may bring to bear to ensure that the necessary measures are implemented should be identified. For example, if plant maintenance or the operation of a section of the plant which has potential for adverse environmental effects is not to be the responsibility of the proponent, then this should be identified and the relevant details of the lease or other documentation defining responsibility should be included.

4.0.7 Offsetting unavoidable adverse effects

If adverse residual environmental effects from the proposal are considered unavoidable despite the adoption of best practice environmental management avoidance and mitigation measures, then proposals to offset such effects should be detailed. For example, if the loss of conservation values, community assets or amenities is considered unavoidable, measures to compensate for the conservation values to be lost, or the community assets or amenities to be affected should be proposed. Any offset actions proposed must be demonstrated to be 'real' actions. That is, the actions must have a measurable offset effect that can be generally related to the actual adverse effect of the proposal, and the actions must be ones which would otherwise not have occurred.

4.1 Air emissions

This section should identify existing conditions, identify performance requirements to be achieved, identify any potential effects of the proposal on the local, regional and global air environment, identify measures to avoid and mitigate any possible adverse effects and assess the overall effects on the air environment following implementation of the proposed avoidance and mitigation measures.

4.1.1 Legislative and policy requirements

Consideration should be given to the requirements of the Tasmanian *Environment Protection Policy (Air Quality)*.

4.1.2 Other issues

The following issues should be addressed (where relevant).

- (a) The characteristics of the final plant emissions should be predicted and compared with appropriate performance requirements.
- (b) The location of emission points should be specified and mapped.
- (c) Potential sources of fugitive emissions (including odour and dust from transport, loading and unloading).
- (d) Estimates of ambient ground level concentrations of pollutants under normal and plausible worst case dispersion scenarios may be required (e.g. inversion layers).

- (e) The potential for emissions to cause environmental and health effects should be evaluated. This should include consideration of normal operating conditions and during periods when pollution control equipment may fail or be shut-down.
- (f) Any foreseeable variations in emissions generated during commissioning and during routine start-up and shut-down phases should be identified and any temporary mitigation requirements specified.

4.2 Liquid waste

This section should identify existing conditions, detail the performance requirements to be achieved, identify potential effects of the proposal on the receiving environment (including surface water, groundwater and soil), identify measures to avoid and mitigate potential adverse effects and assess the overall effects on the receiving environment following the implementation of the proposed avoidance and mitigation measures. This section should demonstrate that all reasonable and practicable measures have been taken having regard to best practice environmental management to avoid producing liquid waste, or to reduce the amount of liquid waste to be discharged consistent with the waste management hierarchy.

4.2.1 Legislative and policy requirements

It must be demonstrated that the proposal is consistent with the objectives and requirements of relevant water management policies and legislation, including the *Water Management Act 1999*, *State Policy on Water Quality Management 1997* (Water Policy), the *Inland Fisheries Act 1995*, the *Living Marine Resources Management Act 1995* and the *Tasmanian State Coastal Policy 1996*. In particular, it must be demonstrated that the proposal will not prejudice the achievement of any water quality objectives set for water bodies under the Water Policy. Where water quality objectives have not yet been set, the Environment Division should be consulted to identify the baseline water quality data required to enable the water quality objectives to be determined.

4.2.2 Discharge of wastewater to the environment

If the proposal is to include a discharge of wastewater to the environment, then the following details are required.

- (a) The characteristics of the final effluent following treatment should be predicted and compared with appropriate performance requirements.
- (b) The location and depth of the discharge point should be specified and mapped.
- (c) The potential for the effluent to cause environmental and health effects should be evaluated. This should include consideration of normal operating conditions and during periods when pollution control equipment may fail or be shut-down.
- (d) Demonstrated compliance with any emission limit guidelines for the proposed activity published by the Board under the Water Policy.

4.2.3 Other issues

The following issues should be addressed (where relevant).

- (a) If the proposal is to include a discharge to the municipal sewerage system including pump-out, then the requirements specified for that discharge to the sewerage system should be detailed. An assessment of the capacity of the sewerage system and its ability to satisfactorily treat the proposal discharge should be provided. Any predicted changes to the characteristics of the sewerage system discharge as a result of the proposal should be identified and compared with appropriate performance requirements.
- (b) If wastewater reuse is intended, details should be provided with reference to the *Environmental Guidelines for the Use of Recycled Water in Tasmania*, December 2002, Environment Division, Department of Primary Industries, Water and Environment (DPIWE).
- (c) Details of stormwater management (including storm events) on the proposal site should be provided.
- (d) Details should also be provided of management practices for areas disturbed during the construction phase to prevent sediment movement into watercourses. This should include contingencies for failure of control measures, such as during heavy rainfall or flooding.
- (e) Details of any additional liquid wastes should be included.
- (f) Any foreseeable variations in emissions generated during commissioning and during routine start-up and shut-down phases should be identified and any temporary mitigation requirements specified.

4.3 Groundwater

This section should identify existing conditions, identify performance requirements to be achieved, identify any potential effects of the proposal on groundwater quality or quantity, identify measures to avoid and mitigate any possible adverse effects, and assess the overall effects on groundwater following implementation of the proposed avoidance and mitigation measures.

It must be demonstrated that the proposal is consistent with the objectives and requirements of all relevant water management policies and legislation, including the *Water Management Act 1999* and the *State Policy on Water Quality Management 1997*.

The following issues should be addressed (where relevant).

- (a) Protection of the quality and quantity of the region's groundwater resources.
- (b) Maintenance of the beneficial use of groundwater and its quality to ensure ecosystem maintenance.

Groundwater monitoring - in order to protect and maintain the quality and quantity of the identified groundwater resources an appropriate groundwater monitoring and annual reporting program should be provided under section 5.0 below.

4.4 Noise emissions

This section should identify existing conditions, identify performance requirements to be achieved, identify any potential effects of the proposal on ambient noise levels (during both the construction and operational phases), identify measures to avoid and mitigate any possible adverse effects, and assess the overall effects on ambient noise levels following implementation of the proposed avoidance and mitigation measures.

It must be demonstrated that the proposal will comply with the *Environmental Management and Pollution Control (Miscellaneous Noise) Regulations 2004*.

The following issues should be addressed.

- (a) All major sources of noise should be identified, including sound power levels.
- (b) The potential for noise emissions (during both the construction and operational phases) to cause nuisance for nearby land users. The assessment of potential nuisance should take into account changes in noise frequencies and tonal components, increases in ambient noise levels, the time varying nature of emissions (e.g. modulation, impulsive or intermittent noise) and the temporal span of the noise emissions.
- (c) Where practicable, the potential for noise emissions to affect terrestrial, marine and freshwater wildlife and livestock.
- (d) Any foreseeable variations in noise generated during the start-up phase should be identified and any temporary mitigation requirements specified.

4.5 Solid and controlled waste management

This section should demonstrate that all reasonable and practicable measures have been taken to avoid producing each type of solid or controlled waste and to reduce the amount of waste requiring disposal, having regard to best practice environmental management. The measures must be in accordance with the hierarchy of waste management.

Controlled waste is defined in the *Environmental Management and Pollution Control Act 1994* and the *Environmental Management and Pollution Control (Waste Management) Regulations 2000*.

The following issues should be addressed.

- (a) The source, nature and quantities of all solid wastes likely to be generated should be identified.
- (b) Methods proposed to collect, store, reuse, treat or dispose of each solid waste stream should be identified.
- (c) Any controlled waste that will be generated should be identified. The source, nature, quantity, and method of treatment, storage and disposal for each controlled waste should be described.
- (d) The potential for human health to be affected by solid and controlled wastes from the proposal, during handling, transport or as a result of disposal, should be reviewed and evaluated.

- (e) Any foreseeable variations in wastes generated during the start-up phase should be identified and any temporary storage requirements specified.

4.6 Dangerous goods

This section should identify any potential effects from the transport, storage and usage of dangerous goods associated with the proposal, identify measures to avoid and mitigate any possible adverse effects and assess the overall effects following implementation of the proposed avoidance and mitigation measures.

The following issues should be addressed (where relevant).

- (a) The nature, quantity and storage location of all dangerous goods, as defined in Section 1.1.3 of the *Australian Code for the Transport of Dangerous Goods by Road and Rail*, to be used during the construction and operation of the proposal.
- (b) The means to achieve safe transport and storage of dangerous goods, including compliance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail*, the *Dangerous Goods Act 1998* and associated regulations.
- (c) The measures to be adopted to prevent or control any accidental releases of dangerous goods (including bunding arrangements⁴).
- (d) Contingency plans for when control measures/equipment breakdowns or accidental releases to the environment occur, including proposed emergency and clean-up measures. A proposed recording and notification procedure should be detailed. It should be shown that any contingency plans are consistent with any local or regional response plans.
- (e) Identify any safety management requirements for the protection of human health and safety affecting the community.
- (f) Particular reference should be made to the management of fuels and lubricants required for equipment during construction, operational and maintenance activities.

4.7 Biodiversity and nature conservation values

This section should identify existing conditions, identify performance requirements to be achieved, identify any potential effects of the proposal, including the development of infrastructure directly related to the proposal, on biodiversity and nature conservation values. It should identify measures to avoid and mitigate any possible adverse effects and assess the overall effects on biodiversity and nature conservation values following implementation of the proposed avoidance and mitigation measures. It should address these issues in the context of the terrestrial and aquatic environment as appropriate.

⁴ Bunding requirements should be in accordance with the *Dangerous Goods Regulations 1998* (Part 7, Section 44) and relevant Australian Standards, including AS 1940 (1993) and AS 3780 (1994). As a minimum, all bunding should be impervious to and unreactive with the materials stored in the bunds and be able to contain at least 110% of the volume of the largest vessel stored in the bund.

4.7.1 Key legislative and policy requirements

Regard should be given to the *National Strategy for the Conservation of Australia's Biological Diversity*, the draft *Tasmania's Nature Conservation Strategy* and the *Threatened Species Strategy for Tasmania*.

4.7.2 Other issues

The following issues should be addressed (where relevant).

- (a) Effects on flora, vegetation communities and habitat, with particular reference to rare and threatened species, communities and habitats, including those listed under the relevant Schedules of the Commonwealth EPBC Act and the Tasmanian *Threatened Species Protection Act 1995*.
- (b) Effects on fauna, including effects on species, communities and habitats, with particular reference to rare and threatened species, migratory species, communities and habitats, including those listed under the relevant Schedules of the Commonwealth EPBC Act and the Tasmanian *Threatened Species Protection Act 1995*.
- (c) Effects on identified areas or habitats of conservation significance, including designated conservation areas, areas relating to the requirements of international treaties (e.g. Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar (wetlands) Convention), or wetlands listed in *A Directory of Important Wetlands in Australia* (2nd Edition).
- (d) Effects on migratory bird species listed under international agreements (e.g. JAMBA/CAMBA, Bonn Convention).
- (e) Effects on sites of geoconservation significance or natural processes (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.
- (f) Effects on existing conservation reserves which may be affected by the proposal, with reference to the management objectives of the reserve(s) and the reserve management plan(s) (if any).
- (g) Effects on any high quality wilderness areas identified in the *Tasmanian Regional Forest Agreement* (Tasmanian RFA) which may be affected by the proposal.
- (h) Effects on other species, sites or areas of landscape, aesthetic, wilderness, scientific, geodiversity or otherwise special conservation significance.
- (i) Clearing of native vegetation and habitat associated with the construction and maintenance of the proposal and the impact of any clearing on sites, species or ecological communities of special conservation significance, including any impact on the comprehensive, adequate and representative reserve system identified as part of the Tasmanian RFA, on wildlife habitat strips under the *Tasmanian Forest Practices Code 1995* and on non-forest bioregional forest communities.
- (j) The proposed measures to mitigate and/or compensate adverse effects on biodiversity and nature conservation values.

- (k) The potential for migration and/or introduction of pests, weeds and plant and animal diseases as a result of the proposal.
- (l) Rehabilitation of disturbed areas following the completion of construction activities, including any proposed seed collection and progressive rehabilitation programme.
- (m) Reference should be made to potential effects of vehicle movements on wildlife as a result of the proposal, and to proposed mitigation measures for any wildlife priority areas.

4.7.3 Requirements for surveys

Any terrestrial flora and fauna surveys must, as a minimum, comply with the requirements of the document *A Brief for Consultants* published by the Nature Conservation Branch, Resource Management and Conservation Division of the Department of Primary Industries, Water and Environment (DPIWE). The methodology for surveys should be developed in consultation with DPIWE.

4.8 Marine and coastal

This section should identify any potential effects of the proposal on marine and coastal areas not addressed in other sections. It should identify measures to avoid and mitigate any possible adverse effects and assess the overall effects on marine and coastal areas following implementation of the proposed avoidance and mitigation measures. Cross referencing should be made to other relevant sections dealing with conservation values (marine flora and fauna, geoconservation) and coastal effects.

4.8.1 Legislative and policy requirements

It must be demonstrated that the proposal is consistent with the objectives and requirements of all relevant marine and coastal policies and legislation, including the *Living Marine Resources Management Act 1995*, *State Policy on Water Quality Management 1997* and the *Tasmanian State Coastal Policy 1996*.

4.8.2 Other issues

The following issues should be addressed where structures are proposed within the marine or coastal environment (where relevant).

- (a) The effects of structures on marine and coastal processes, including wave patterns, sediment dynamics, currents and tidal flows. Hydrodynamic modelling may be required to clearly demonstrate that structures will not have a significant impact on coastal processes.
- (b) The effects of the proposal on coastal geomorphology, including dune systems and other coastal landforms. Proposed measures to avoid/minimise disturbance to vegetated mobile landforms should be detailed. Where disturbance will occur, proposed rehabilitation measures should be outlined.
- (c) The effects on recreational and commercial fishing activities.
- (d) The effects on marine navigation in the area.
- (e) The effects on marine aquaculture operations in the area.

- (f) The effects of climate change-induced sea level rise on the proposal.
- (g) Public health and safety issues associated with structures.
- (h) Public access issues associated with the proposal.

4.9 Greenhouse gases and ozone depleting substances

Where relevant to the proposal, this section should contain an assessment of the proposal in terms of the National Greenhouse Strategy⁵. The direct and indirect effects of the proposal on greenhouse gas production and ozone depleting substances should be described, including an assessment of the net impact on state and national greenhouse gas emissions over the lifetime of the proposal.

4.9.1 Estimate of greenhouse gas emissions

An estimate of annual emissions of greenhouse gases generated on site should be presented in terms of carbon dioxide mass equivalents. It should be demonstrated how such emissions will be minimised or offset by the use of best practice environmental management. Reference should be made to the Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks workbooks, produced by the National Greenhouse Gas Inventory Committee and available from the Australian Greenhouse Office.

4.9.2 Implementing greenhouse best practice

It should be demonstrated that the development will implement cost-effective greenhouse best practice measures to achieve an ongoing minimising of greenhouse gas emissions.

Details of any feasible alternative ways of providing energy for the proposal, transporting materials to and from the proposal, design and construction of components or otherwise implementing the proposal so as to have a lesser impact on the enhanced greenhouse effect, and the justification for not adopting these alternatives should be included.

4.9.3 Ozone depleting substances

Any generation or use of ozone depleting substances in the proposal (such as in refrigeration or firefighting) should be identified and justified.

4.10 Heritage

This section should identify potential effects of the proposal, including the development of infrastructure directly related to the proposal, on Aboriginal and non-Aboriginal cultural heritage sites and areas. It should identify recommended measures to avoid or mitigate any potential adverse effects on cultural heritage sites and assess the overall effects of the proposal on cultural heritage sites following implementation of the proposed avoidance and mitigation measures.

⁵ The *National Greenhouse Strategy, Strategic Framework for Advancing Australia's Greenhouse Response*, published by the Commonwealth of Australia, 1998, is available on the internet at: www.greenhouse.gov.au

4.10.1 General

Potential effects on the following should be addressed (where relevant).

- (a) Declared World Heritage Area properties and values.
- (b) Any places listed on the National Heritage List and values.
- (c) Any places listed or interim listed on the Register of the National Estate and values.
- (d) Any places listed on the Tasmanian Heritage Register (maintained by the Tasmanian Heritage Council), including consideration of cultural landscapes.
- (e) Any places on the Tasmanian Historic Places Inventory (maintained by the Tasmanian Heritage Office).
- (f) Any places on the Tasmanian Aboriginal Site Index (maintained by the Tasmanian Heritage Office), including consideration of cultural landscapes.
- (g) Local government planning scheme heritage schedules.
- (h) Any other places of heritage significance.

4.10.2 Requirements for surveys

Any cultural heritage surveys must, as a minimum, comply with the requirements of the *Aboriginal and Historic Cultural Heritage Survey and Recording Standards Consultancy Brief* and the *Guidance for the Production of Cultural Heritage Survey Reports* prepared by the Tasmanian Heritage Office.

4.10.3 Aboriginal heritage

The advice of the Tasmanian Heritage Office should be sought to establish regulatory requirements for Aboriginal heritage values, places and landscapes. Any Aboriginal heritage material identified must be reported to the Director of National Parks and Wildlife and dealt with in accordance with the *Aboriginal Relics Act 1975*. Where a request is made to seek to disturb, destroy or otherwise deal with an Aboriginal relic as per Section 14 (1) of the *Aboriginal Relics Act 1975*, information relevant to a permit under that Act will be required. The status of existing or pending permit applications should be given.

4.10.4 Historic heritage

The advice of the Tasmanian Heritage Office should be sought with regard to effects on places listed on the Tasmanian Heritage Register and to establish regulatory requirements for heritage values, places and landscapes. Any approvals required under the *Historic Cultural Heritage Act 1995* should be identified.

4.10.5 Consultation

Consultation with the Tasmanian Aboriginal Lands Council, Tasmanian Office of Aboriginal Affairs, the Tasmanian Heritage Office, as well as with Aboriginal communities, should occur prior to any survey of potential sites to establish regulatory requirements for heritage values, places and landscapes.

4.10.6 Commonwealth Government requirements

The requirements of the Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* should also be considered where there is a threat of injury or desecration to an area which is significant as part of Aboriginal tradition, and potential impacts identified, assessed and managed in consultation with the traditional owners, Native Title claimants and any other indigenous people with rights and interests in the area.

The Australian Heritage Office can provide advice on places listed in the National Heritage List and Register of the National Estate.

4.11 Land use and development

This section should identify any potential effects of the proposal in terms of constraints or benefits it may place on the current or future use of land within the proposal site and surrounding area. It should identify measures to avoid, mitigate and compensate for any possible adverse effects.

The following issues should be addressed (where relevant).

- (a) Effects on existing or proposed tourist or recreation activities, such as camping areas, picnic areas, walking tracks, horse riding tracks, heritage trails etc.
- (b) Effects on residential activities.
- (c) Effects on industrial activities.
- (d) Effects on agricultural activities, including any requirement of the *State Policy for the Protection of Agricultural Land (2000)*.
- (e) Effects on local and regional tourism.
- (f) Effects on other commercial activities.

4.12 Visual effects

This section should outline the existing visual setting within which the proposal infrastructure will be located and assess the capacity of the landscape to absorb any visual changes to the landscape as a result of the proposal. The assessment should also take account of the appearance of the proposal from significant vantage points. These should include points both inside and outside the site and should include viewpoints likely to be visited by tourists or recreational users. The methodology used and assumptions made in the assessment should be clearly identified.

Measures to avoid and mitigate potential adverse visual effects should be identified, such as minimising vegetation clearance, facility height, size, design, colour, separation and post-construction revegetation.

4.13 Socio-economic issues

This section should contain information on the social and economic effects of the proposal during the construction, operation and decommissioning phases.

The following issues should be addressed (where relevant).

- (a) An estimate of total capital investment for the proposal.

- (b) The effects on local and State labour markets for both the construction and operational phases of the proposal. Skills and training opportunities should also be discussed.
- (c) The effects on upstream/downstream industries, both locally and for the State.
- (d) The extent to which raw materials and services will be sourced locally.
- (e) A qualitative assessment of community infrastructure effects, including recreational, cultural, health and sporting facilities and services. Any proposals to enhance or provide additional community services or facilities.
- (f) Community demographic effects (changes to cultural background, occupation, incomes).
- (g) Effects on land values, and demand for land and housing.
- (h) Effects on the local, regional, state and national economies.

4.14 Health and safety issues

This section should review any health and safety issues relating to employees, site visitors and the public which have not been addressed in other sections.

It must be demonstrated that occupational health and safety issues have been taken into account during the planning of the proposal, including an analysis of alternatives. It should be demonstrated that compliance with the *Workplace Health and Safety Act 1995* and the *Workplace Health and Safety Regulations 1998* will be achieved. Safety management systems to be used during construction and operational phases should be described.

The following issues should be addressed.

- (a) Construction phase safety issues.
- (b) Security arrangements to prevent unauthorised access to the proposal site during construction.
- (c) Operations, maintenance and inspection safety issues.

4.15 Hazard analysis and risk assessment

Where relevant to the proposal, this section should contain a preliminary hazard analysis providing all relevant information of significant risks and proposed safeguards. The analysis should systematically identify all potential major hazard events (internal and external) associated with the construction, operation, maintenance and decommissioning of the proposal to people and the environment. A risk assessment incorporating the requirements of Australian/New Zealand Standard AS/NZS 4360:1995 *Risk Management*, or equivalent, should be conducted, to identify all credible risks associated with specific major hazard events identified in the hazard analysis. The risk assessment should identify measures to avoid and mitigate potential adverse effects. A quantified risk assessment should be conducted if the preliminary risk assessment indicates that risks above the acceptable criteria determined by legislation and community expectation may extend beyond the proposal site boundary.

The following issues should be addressed (where relevant).

- (a) Identify hazard events with the potential to cause a major accident or significant impact on people or the environment. This should include consideration of the risks posed by accidents or fires, in addition to those posed by natural disasters such as storms, bushfires, seismic activity and floods. For each hazard event, estimate the frequency and consequence of such an event occurring.
- (b) Identify high risk locations and facilities.
- (c) Describe technical and management safeguards to be employed to assess and minimise the likelihood of occurrence and the consequences of identified hazard events.
- (d) The objectives and management principles to be adopted for the preparation of a detailed emergency plan (including emergency response and recovery/cleanup procedures – consultation with the relevant emergency services should be undertaken).

4.16 Fire risk

This section should identify the potential fire risk associated with the proposal. This should include consideration of fire within the site, fire escaping from the site and the effect of wildfire originating outside the development. Measures to avoid and mitigate potential adverse effects should be outlined, including the objectives and management principles to be adopted for the preparation of a fire response plan. The proponent should demonstrate compliance with the relevant requirements of the *Fire Services Act 1979* and the *Workplace Health and Safety Act 1995*.

Where relevant, the fire response plan should be fully integrated with other relevant documents, such as a Tasmania Fire Service Local Area Fire Management Plan, a Forestry Tasmania Fire Management Plan and a Parks and Wildlife Service Fire Action Plan for relevant districts.

4.17 Infrastructure and off-site ancillary facilities

This section should identify potential effects on any significant off-site or infrastructure facilities (including increased use of existing infrastructure, such as roads, ports and quarries), identify measures to avoid and mitigate any possible adverse effects and assess the overall effects following implementation of the proposed avoidance and mitigation measures. For example, upgrading or re-routing of roads, rail or other services required as a result of the proposal, should be detailed.

The following issues should be addressed (where relevant).

- (a) Identify roads to be used by vehicles for the proposal (construction and operation) and the likely volume and nature of traffic and timing of traffic flows, including details of the current usage of these roads. Potential for adverse effects of traffic, including noise, dust, vibration, safety, congestion and effects on road pavements, bridges and culverts should be assessed.
- (b) Identify possible interruptions to public services (e.g. roads, rail, power supply), their predicted effect, and measures proposed to minimise or compensate for any adverse effects.

4.18 Environmental management systems

This section should provide information on strategic matters relating to environmental management of the proposal, including a description of the following.

- (a) Any environmental management systems or environmental policies implemented or proposed by the proponent, which are relevant to the environmental management of the proposal.
- (b) Organisational structure and environmental responsibility within that structure for the proposal.
- (c) Procedures and instructions to employees (including contractors) on minimising adverse environmental effects of activities, as well as employee induction and education programs to ensure an appropriate response to operational environmental concerns should be included in relevant sections.

4.19 Cumulative and interactive effects

Where relevant, this section should contain an assessment of the potential cumulative effects of the proposal, based on existing and other formally proposed developments in the region, which have not been addressed in previous sections. Interactions between biophysical, socio-economic and cultural effects of the proposal should be discussed.

5.0 MONITORING AND REVIEW

This section should provide an outline of a monitoring, review and reporting programme for each sector of the proposal. The programme should be designed to meet the following objectives.

- Monitoring compliance with emission standards and other performance requirements identified in the DPEMP.
- Assessing the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives.
- Assessing the extent to which the predictions of environmental effects in the DPEMP have eventuated.
- Assessing compliance with commitments made in the DPEMP.

The programme should contain the following.

- (a) Details of any pre-commissioning monitoring/studies.
- (b) The sites to be sampled.
- (c) A site plan showing sampling locations.
- (d) The sampling procedures.
- (e) The parameters to be analysed.
- (f) The frequency of sampling.

- (g) The format and frequency of reporting.
- (h) A post-commissioning review of the DPEMP (a 12 month review of the operations and associated management plans is typically undertaken, with subsequent reviews at three yearly intervals thereafter).
- (i) A programme summary table.

6.0 DECOMMISSIONING AND REHABILITATION

The DPEMP should describe an on-going, staged approach to site decommissioning and rehabilitation throughout the proposal life.

A preliminary Decommissioning and Rehabilitation Plan should be outlined. This should be regularly updated as part of the operational environmental management plan review process for the site.

7.0 COMMITMENTS

This section should contain a consolidated commitments table containing all of the major commitments made in the DPEMP for each sector of the proposal. For each specific commitment, the table should specify when the commitment is to be implemented, specify who is responsible for the undertaking of the commitment, and refer to the section of the DPEMP where the commitment is detailed.

The commitments will provide a basis for the preparation of conditions of approval, should approval be granted.

8.0 CONCLUSION

This section should briefly describe the proposal and draw together the critical environmental effects of the proposal, both positive and negative. It should present a balanced overview of the net environmental effects of the proposal, and the extent to which any adverse effects on the environment can be satisfactorily avoided, mitigated, remediated or compensated. The conclusion should also describe how the proposal meets the objectives of relevant Commonwealth and State assessment and planning policies and legislation.

9.0 REFERENCES

This section should provide details of authorities consulted, reference documents etc.

10.0 APPENDICES

As a means of improving readability of the document, detailed technical information which supports the DPEMP should be included in appendices. The salient features of the appendices should be included in the main body of the DPEMP.

<h2>GLOSSARY</h2>

DPEMP – Development Proposal and Environmental Management Plan

DPIWE - Department of Primary Industries, Water and Environment

EMPC Act – *Environmental Management and Pollution Control Act 1994*

EPBC Act - *Environment Protection and Biodiversity Conservation Act 1999* (Cth)

JAMBA/CAMBA - Japan-Australia and China-Australia Migratory Bird Agreements

Tasmanian RFA - *Tasmanian Regional Forest Agreement*