



**PROTO**

RESOURCES & INVESTMENTS LTD

**BARNES HILL PROJECT  
TASMANIA  
EL17/2006**

ANNUAL REPORT  
8<sup>TH</sup> AUGUST 2007 TO 7<sup>TH</sup> AUGUST 2008

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Proto Resources & Investments Ltd

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**Note: All figures and grids are according to the GDA94 datum and MGA94 grid system.**



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## **SUMMARY**

The Barnes Hill Project (EL17/2006) is located in northern Tasmania, 5km west of the township of Beaconsfield. The exploration licence covers an area of 76km<sup>2</sup>.

The main focus of Proto Resources & Investments Ltd (“Proto” or “the Company”) at the Barnes Hill Project is laterite nickel-cobalt mineralisation. The project area contains a 12.5Mt Australasian Joint Ore Reserves Committee (JORC) compliant indicated resource at 0.83% Ni & 0.07% Co (Douglas McKenna and Partners Pty Ltd, A. Jannink 2006). This resource is made up of three interconnected mineral deposits known as Barnes Hill, Mt Vulcan and Scott’s Hill. The laterite resources are wholly covered by licence EL17/2006, owned and managed by Proto.

Since purchase of the project, Proto has reclassified the previously defined resource to JORC indicated status, secured historical databases including drilling and geochemistry, purchased detailed Satellite imagery including ASTER multi channel and Quick-bird visual band (60cm cell) datasets, undertaken an aircore drilling program to validate historical drill results and commenced metallurgical testwork.

Work planned for the coming year will include continued metallurgical testing and upgrading of the Barnes Hill deposit indicated resource to the measured category via a substantial resource drilling program. The results of ongoing metallurgical testwork and resource re-estimation will be incorporated into a detailed feasibility study on the Barnes Hill Project due for completion in early 2009. Other planned work will include commencement of a more regional style soil sampling program to explore other parts of the EL17/2006 licence for further nickel laterite mineralisation along with assessing nickel sulphide and gold potential.

The Barnes Hill Project is the priority focus of Proto and joint venture partner Metals Finance Corporation. The partners aim to develop an open pit mining operation at Barnes Hill with processing and production of nickel metal on site. To allow development to occur in a timely manner Proto intends in the coming year to apply for a mining lease to cover the Barnes Hill deposit.

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## 1 INTRODUCTION

The Barnes Hill Project is located in northern Tasmania and contains a 12.5 million tonne (Mt) Australasian Joint Ore Reserves Committee (“JORC”) compliant indicated resource at 0.83% Nickel (Ni) and 0.07% Cobalt (Co). The resource is made up of three interconnected resources known as the Barnes Hill, Mt Vulcan and Scott’s Hill deposits (Figure 1).

Recent advances in pressure leaching techniques along with the current high nickel price make the Barnes Hill Project a valuable addition to Proto’s asset register. The project comes with a clear development path focused on metallurgical testing of the ore to determine the most viable processing technique and an already defined area to begin detailed drilling to upgrade the current indicated resource to a measured resource. The project also has significant exploration upside both around the existing resource and in the region.

## 2 PROPERTY DESCRIPTION AND TENURE

The Barnes Hill tenement EL17/2006 covers an area of 76km<sup>2</sup> and was granted on 8<sup>th</sup> August 2006 for a period of five years.

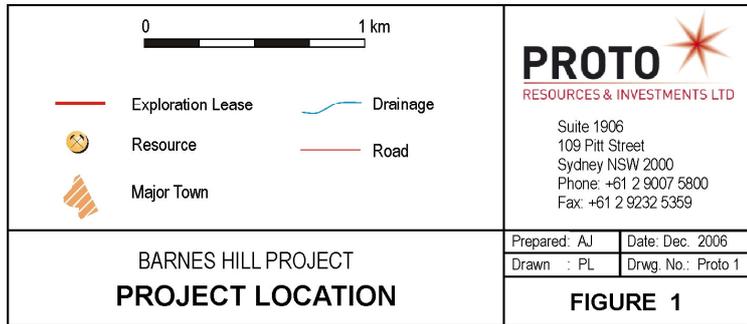
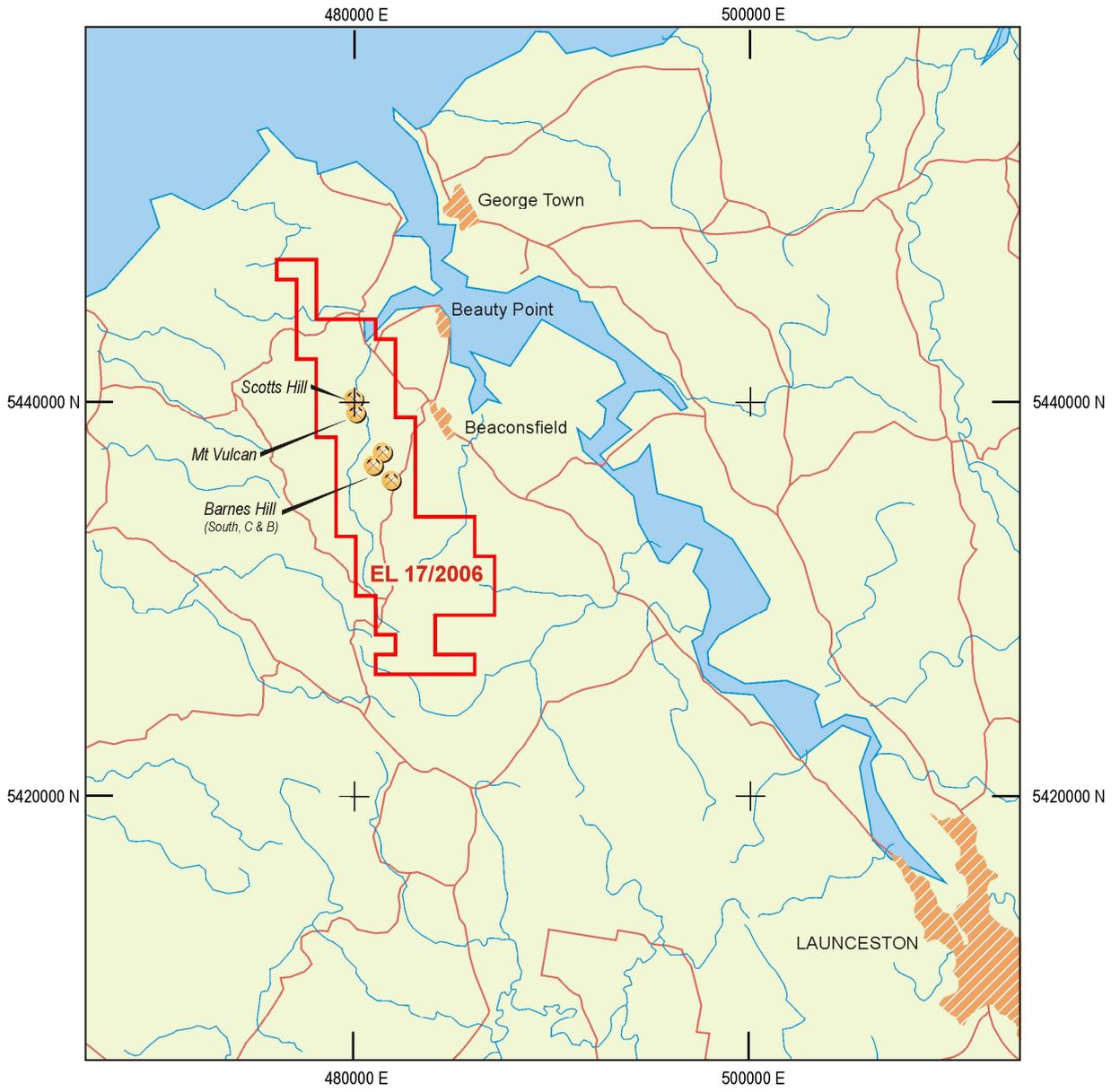
The land status plan shows EL17/2006 is covered by both Crown and Private Land. The Crown Land is variously classified. The main areas of private land relevant to the known Ni-Co resource areas are in the east and the north. Exploration and mining are permitted on Private Land but must be preceded by negotiation of an access and compensation agreement with the landowner. This agreement must be concluded in writing and lodged with Mineral Resources Tasmania (MRT).

Most of the Crown Land is classified either as Multiple Use Forest (“MUF”) or Recommended Area for Protection (“RAP”), both administered by the Forestry Commission. Several reserves and mining tenements also exist within the area of EL17/2006.

Superimposed over much of the licence area is the Mt Vulcan - Simmonds Hill Australian Heritage Act (“AHA”) Registered Entry. This AHA area covers both Private and Crown Land. Whilst AHA areas do affect some conditions of exploration access, this classification does not represent significant impediment to access. The prime reason for the AHA and Dans Hill Recommended Area for Protection (“RAP”) areas is to protect two plant species: *Tetratheca gunni* and *Epacris virgata*.

Exploration on a RAP is possible, and has occurred during past exploration, but is subject to program approval and conditions. With good planning and supervision, a RAP should not be an impediment to exploration activities.

There are gravel reserves on EL 17/2006. Gravel Reserves may or may not be subject to the Mining Act. They are usually held by government authorities for road works and can generally be accessed for exploration by negotiation.



### **3 ACCESS AND INFRASTRUCTURE**

The Barnes Hill EL17/2006 licence is located approximately 30km north of Launceston and 5km west of Beaconsfield near the Tamar River in northern Tasmania.

The Barnes Hill tenement can be accessed via a number of gazetted roads on the western side of the Tamar River. The Barnes Hill resource can be directly accessed using either Hinds or Tattersall's roads, just west of Beaconsfield.

A wide range of infrastructure and heavy industry occurs in the district including the nearby Beaconsfield Gold mining operation, the Bell Bay Power Station, the Temco Magnesium Refinery and the Bell Bay Alumina Refinery. The area also has deep water port facilities at Bell Bay and Beauty Point along with rail facilities. The regional City of Launceston has a population of over 90 thousand people and offers all the services of a major regional city including airport, university and advanced engineering facilities.

### **4 ENVIRONMENTAL CONSIDERATIONS**

Allegiance Mining, Jervois Mining and Placeco Australia have all recognised and tabled the existence of endangered flora species in the Barnes Hill area, including *Tetratheca gunni* and *Epacris virgata*.

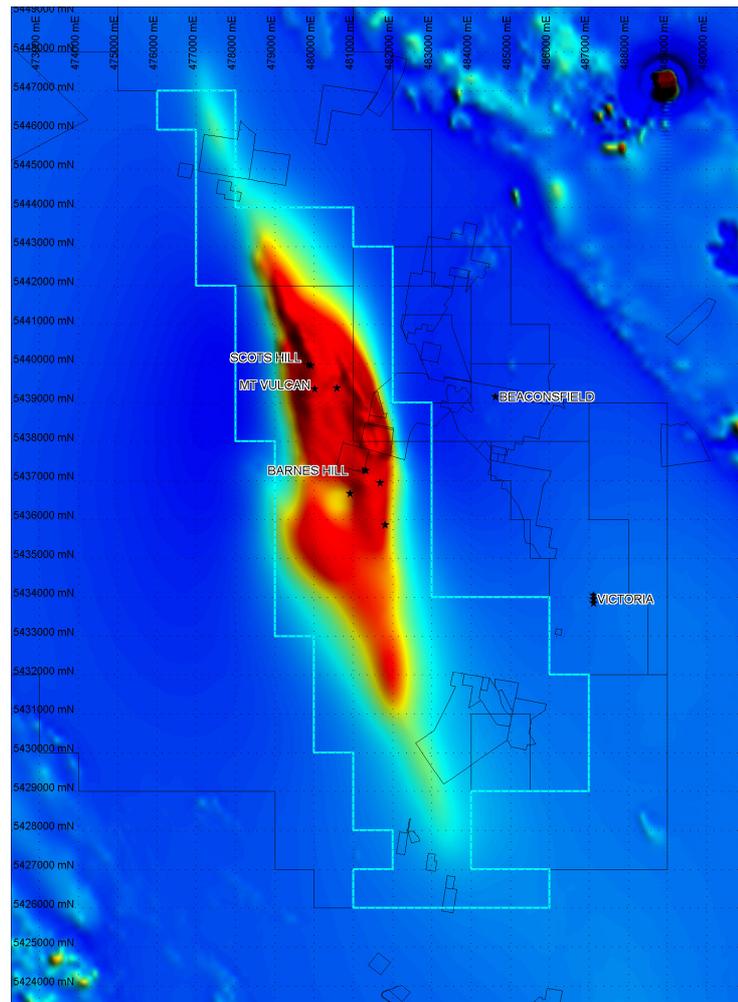
From existing work it seems *Tetratheca gunni* is present in only three known locations, none of these occurring over the Ni-Co resource areas. *Epacris virgata* is more widely distributed including parts of the Scott's Hill and Mt Vulcan Ni-Co resource areas.

Proto has engaged North Barker Ecosystem Services to assist with environmental assessment and requirements for exploration permitting. A "Botanical Survey and Fauna Habitat Assessment" report by North Barker on the three nickel-cobalt laterite deposit areas is included as Appendix B.

### **5 GEOLOGICAL SETTING**

The Barnes Hill tenement sits in the Badger Head region of northern Tasmania, an important structural location, considered to be the area in which the Tamar Fracture System separates the western and eastern Tasmanian terrains. The area has a complex nature, a result of thrusting during the Devonian and later normal faulting in the Jurassic and Tertiary. The Precambrian Badger Head Block possibly overlies younger units of the Cambrian Port Sorell Block. The Andersons Creek Ultramafic Complex is considered to be a thrust slice caught up in this deformation. The magnetic data over the area is dominated by the response of the Anderson Creek Ultramafic Complex with much of the surrounding geology having only subtle responses (Figure 2). Gravity is also dominated by the considerable differences in density between the Precambrian, Cambrian and later Devonian and Permian units. The Devonian geology also contains granites of that age with stark density contrasts to surrounding units especially the ultramafics.

Further to the east Ordovician Cabbage Tree Formation is thrust over the Anderson Creek Complex (ACC), and further east again the Beaconsfield Gold field sits on the western side of the Tamar River in possibly a zone of Devonian aged Mathinna beds. The Beaconsfield gold mineralisation has a similar nature to Victorian quartz reef gold systems.



**Figure 2 Barnes Hill EL17/2006 with total magnetic intensity as background clearly showing extent of the Andersons Creek Complex**

## 5.1 Tenement Geology / Nickel Laterite Geology

**Precambrian** metamorphosed graywackes and sub-graywackes outcrop along the western extremities of EL 17/2006.

**Cambrian** aged schist's and micaceous sandstone are found faulted against the Precambrian Badger Head stratigraphy and Andersons Creek Ultramafic Complex to the east. These units are considered similar to the Sorell Block characterised by sandstones, graywackes, siltstones and slates.

**The Andersons Creek Complex (ACC)** is a layered wedge of Cambrian mafic and ultramafic stratigraphy consisting mainly of serpentinite, pyroxenite and gabbro. It has been thrust into a sequence of Cambrian sediments lying on the eastern margin of the Badger Head Precambrian Block. The Andersons Creek Complex is probably Early Cambrian in age (neo-Cambrian) and one of 15 discrete ultramafic/mafic complexes found mainly on the north west and west coasts of Tasmania.

Upper Palaeozoic tectonism has resulted in Ordovician Cabbage Tree Formation sediments being thrust over the eastern margin of the ultramafics.

Aero-magnetics show the ACC as being a NNW trending lozenge shaped body approximately 20 km long and up to 3 km wide (Figure 2). It outcrops over a NNW length of 6.5 km, a width of 1.5 km, and plunges to the north and south beneath Permian sediments.

The ACC has been extensively and variably altered. Serpentinisation is pervasive, and probably reflects alteration of peridotites and gabbros. In the Scott's Hill area, a pyroxenite has been described as having been replaced by amphibole and then altered to talc, magnetite and calcite.

In the Barnes Hill South area, a rock called rodingite has been formed as the result of lime metasomatism of coarse hornblende gabbro prior to serpentinisation.

Various weathering profiles with differing mineral assemblages and metal concentrations are developed on the ultramafic complex. An appreciation of the ultramafic weathering profile is important because they contain most of the higher grade Ni-Co mineralisation. In the Barnes Hill-Mt Vulcan area, the weathering profile consists of an upper zone of secondary iron oxides (goethite, hematite, limonite) overlying a clay rich zone dominated by smectite, weathered serpentinite and chlorite, which in turn overlies fresh serpentinite (Table 1). Meteoric waters periodically leached soluble ions from the surface (lateritic) zone and enriched these ions (Ni) in the clay zone at the base of the weathering profile. A typical weathering profile is listed in Table 1.

**Table 1 Idealised Barnes Hill Laterite Profile**

<u>Laterites</u>	Pisolitic Zone	Hard ironstone with red clay matrix
	Ferruginous Red Zone	Soft red clay, pisolitic grains and black ironstone
	Limonitic Yellow Zone	Soft yellow-orange clay with some red clay
	Mottled Zone	Soft bright red, brown, yellow, purple clay with black and white specks
<u>Clays</u>	Transition Zone	Soft decomposed green serpentinite with minor red clay
	Bleached Zone	Soft, pale yellow green serpentinite with some magnetite.
<u>Serpentinite</u>	Fresh Zone	Moderately hard dark green serpentinite

Most of the Ni > 1% occurs in the Transition Zone and to a slightly lesser extent in the Mottled and Bleached Zones. The Ni is largely contained in clay (smectite), serpentinite and chlorite.

In the Scott's Hill area, the pyroxenite has been extensively replaced by amphibole, then altered to talc, magnesite and calcite which has then weathered to clay and chlorite. Ni is contained in talc, chlorite and serpentinite.

In the Barnes Hill South area, work completed in the late 1950s by Enterprise Exploration suggests the Ni (up to 3%) is concentrated in weathered serpentinite adjacent to rodingite dykes in this area. Rodingite formed as a result of lime metasomatism of coarse hornblende-gabbro dykes, prior to pervasive serpentinisation. Garnierite (hydrous nickel silicate) was developed as colloform growth layers often associated with opal. Secondary enrichment of Ni was highly variable and was deepest adjacent to rodingite dykes because of the high relative permeability in these contact zones.

Ni in the Barnes Hill South area was therefore thought to occur as garnierite, in serpentinite, chlorite and hydrated iron oxides. Thus, in the three areas, Scott's Hill, Barnes Hill-Mt Vulcan, and Barnes Hill South, Ni possibly occurs as different species, concentrated in different hosts in the weathering profiles of different ultramafic areas. However, whilst there is mineralogical and host variation, a common feature is that the greatest concentration of Ni occurs in thick clay within partly decomposed serpentinite zones towards the base of the weathering profile. Substantial tonnages of this favorable zone are only likely to exist beneath the protective cover of either laterites, or Tertiary gravels, either of which may be concealed beneath Quaternary sediments.

**Ordovician Junee Group** consists of sandstone, siltstone, slate, limestone, quartzites and quartz conglomerates. Locally the tenement covers the Blyth's Creek Formation and Cabbage Tree Conglomerate, Caroline Creek Sandstone and Gordon Limestone all of the Junee Group.

**Permian Sediments** are reasonably abundant in the tenement area lying unconformably over older stratigraphy. Units include the Quamby, Golden Valley, Mersey, Woodbridge and Ferntree groups and Cygnet Coal measures.

**Tertiary Sediments** consist mainly of sandy clays and sandstones and north of Beaconsfield white quartz gravels. The laterite formed over the Andersons Creek Complex Ultramafics was formed in the Tertiary.

**Igneous Rocks** other than the Anderson Creek Complex, include minor Jurassic dolerite and Tertiary Basalt. Tertiary basalt overlies Tertiary sediments in most cases. Both dolerite and basalt form magnetic features in the regional magnetic data, however their responses are much less significant than the major ACC response.

## 6 EXPLORATION HISTORY

Substantial exploration has been carried out over the last 50 years. A summary table below has been compiled by assessing old reports and specifically compilations made by Lindsay Newham (1997). King Island Scheelite (KIS), Allegiance Mining and Jervois Mining completed most of the recent work on the Barnes Hill Ni-Co Laterite.

**Table 2 Summary of historic exploration activities**

Company	Start	Finish	Focus	Work Completed	Results	Conclusion	Report/EL
Jervois Mining	2001	2004	Ni, Co	Re-assaying, campsite sampling for met work	12.5 Mt at 1.07%Ni combined (Ni Co)	spending and budget pressure meant area dropped to focus on other projects	ETA 504
Allegiance	1996	2000	Ni, Co	Historical data compilation, Shallow drilling, Resource calculation environmental studies, metallurgical studies, 116 air core and 8 diamond holes		Low Ni prices and restricted tenement meant re focus on other projects	97_4013
CRA Exploration	1994	1995	NiS	Rock Chip surveys and IP survey	Rock chip sample 1.7% Ni in Serpentinite	not considered economic.	EL35/92
Placeco Australia	1988	1988	PGM, Au	Rock Chips composite sand samples	Failed to detect economic quantities of target minerals	No sampling of Laterite	EL 18/87
Northern Chromite	1969	1981	Cr	Cr production on western flank of Barnes hill, drilling at Rifle Range south	660,000t at 12% Cr defined at Rifle Range and Barnes Hill	Mined Cr no Ni production	
Department of Mines	1979	1980	Cr	16 percussion holes, serpentinite clays intersected but not tested		Reconnaissance Cr drilling	
Allstate Exploration	1971	1972	Ashb	15 Core holes and trenching	tope weathered section (Laterite not sampled)	No Ni Focus	
King Island Scheelite	1968	1969	Ni, Co, Cr	37 Holes , metallurgy test work resource calculation, environmental studies	6.014 long tonnes @1.04%ni and 0.06% Co	sub economic in terms of size	69_544
BHP Minerals	1965	1967	Fe, Ni, Cu, Zn, Mb, Cr, limestone	Stream sediment sampling, aero magnetic survey, Drilling, trenching, 99 - 3m deep pits	Drilling intersected magnetite bearing serpentinite. (CRA re-sampling gave 3m at 1g/t)	Sub economic mineral grades in all elements tested.	67_465
Consolidated Zinc	1957	1958	Ni	Series of auger samples at 100ft and 200ft intervals focused on previous work by Ben Lomond mining intervals resulting in	Intersected Ni grades between 1.2 to 1.8%	Didn't meet expected grade of 2.5%Ni considered economic at time.	58_0195

Ben Lomond Mining	1955	1956	Ni	Reconnaissance Sampling	Results showed Ni rich clays developed on Mafics/serpentinites were more wide spread than previously known.	JV sort with Consolidated Zinc.	
Department of Mines	1929	1929	Ni	13 holes - location information sketchy	Difficulty in locating holes	Reconnaissance Ni laterite drilling	

## 6.1 Barnes Hill Nickel Laterite Resource

Previous explorers of the Barnes Hill laterite have drilled 161 holes including 37 diamond drill holes for approximately 580 meters in the late 1960's. More recently, Allegiance Mining drilled 1178.4 meters in 116 aircore holes along with eight diamond drill holes in 1997. The laterites have been drilled at a density of 100 to 150 meter centres.

The nickel laterite is developed above serpentinites of the Andersons Creek Ultramafic Complex. Three separate deposits are known in the area, Barnes Hill, Mt Vulcan and Scott's Hill.

Resources have been calculated using both King Island Scheelite and Allegiance Mining assay data. The lithologies are based on re-logging of the Allegiance Mining chip trays. A summary of the resources is given below:

**Table 3 Combined Resources for the Barnes Hill, Mt Vulcan and Scott's Hill Deposits**

Lithology	Ni	Co	Tonnes	%Ni	Percentage		
	%	%		Equivalent	Tonnes	Ni	Co
Hematite	0.63	0.12	167,657	1.05	1.3%	1.0%	2.3%
Limonite	0.39	0.12	794,699	0.81	6.4%	3.0%	11.3%
Saprolite	0.88	0.07	9,213,728	1.13	73.8%	77.7%	75.9%
Weathered Serpentinite	0.82	0.04	2,301,870	0.96	18.5%	18.3%	10.5%
<b>Totals</b>	<b>0.83</b>	<b>0.07</b>	<b>12,477,955</b>	<b>1.07</b>			

The parameters used in the calculations were:

Area	Plan Polygonal Blocks
Volume	Area x drill thickness
Density	1.8
Minimum Thickness	2m
Cut-off Grade	0.6% Ni Equivalent (= %Ni + 3.5 x %Co)
Assay Grade	Averaged per drill hole
Minimum Overburden	1m
Overburden Ratio	0.9:1

From the calculations above it can be extrapolated that 96% of the nickel and 86.4% of the cobalt occur in the saprolite and weathered serpentinite lithologies. Furthermore, the Barnes Hill saprolite and weathered serpentinite holds 8.3 million tonnes (66.8% of total tonnage) containing 72.5% of the nickel and 57.4% of the cobalt. (Douglas McKenna & Partners Pty Ltd)

## 6.2 Barnes Hill Metallurgy

Allegiance Mining submitted nine composite samples to Amdel Laboratories for high pressure acid leach metallurgical testing (two from Scott's Hill, three from Mt Vulcan and four from Barnes Hill). The samples averaged 1.16% nickel oxide (0.91% nickel) and 920ppm cobalt. Lithologically this composition is fairly close to the resources calculated above, although the nickel and cobalt grades are slightly higher.

The results of the High Pressure Acid Leach ("HPAL") testing were good (especially when considered as preliminary testwork) with high recoveries and low acid consumption. Tests were done at 2400°C and 2600°C producing the following average recoveries after two hours of leaching:

**Table 4 HPAL Testwork Results for the Barnes Hill, Mt Vulcan and Scott's Hill Deposits**

Temperature	Recovered Ni	Recovered Co	Acid Consumption (kg/t)
2400 °C	89%	83%	397
2600 °C	92%	93%	326

## 7 EXPLORATION COMPLETED DURING THE PERIOD

Exploration completed during the reporting period has included completion of a high level review of the Barnes Hill Project and drillhole database by Snowden Mining Industry Consultants, an aircore drilling program completed to validate historic drilling results and to provide samples for metallurgical testwork, planning of a resource drilling program at Barnes Hill, detailed flora and fauna assessment of the resource areas by North Barker Ecosystem Services, cutting and assaying of some historic diamond core holes held at the MRT Rockstore in Mornington and ongoing metallurgical testwork at HRL Testing in Brisbane.

### 7.1 High Level Overview of Drillhole Spacing

In early 2008, Proto engaged Snowden Mining Industry Consultants to complete a review of historic exploration, review the drillhole database and review the historic resource work at the Barnes Hill Project. The aim of this work was to provide an indication of what drillhole spacing would most likely be necessary to upgrade the current project resource to a JORC compliant measured category. Snowden's technical report is included as Appendix A.

The report suggests that some further drillhole validation is required, that some 10m spaced drillhole traverses should be completed as part of the resource drillout to validate the geological and resource model and to test for changes in grade distribution and that the overall drillhole spacing should be completed initially on a 50m x 50m grid.

### 7.2 Aircore Drilling Program

During the reporting period Proto completed an aircore drilling program consisting of 17 drillholes for 202m. The drilling program was completed by Tasmanian Drilling Services of Hobart using a truck mounted drill rig. The holes were completed in seven locations with up to three holes completed within metres of each other at any one location. Drilling was undertaken with the dual purpose of validating assay grade data from historic drilling by Allegiance Mining

and also to provide enough drill spoil material to allow some column leach metallurgical testwork to be commenced at HRL Testing in Brisbane.

Proto hole numbers are the same as Allegiance Mining (i.e. Allegiance hole number S31 equals Proto hole number 31). All holes were drilled vertically. A plan showing drillhole locations is given as Figure 3 while best intercepts are tabulated below. A table with collar locations and assay results is included as Appendix B. Samples to validate historic drilling by Allegiance Mining were sent to ALS Chemex in Brisbane for assay. Best results are tabulated below in Table 5.

**Table 5 Best Aircore Drillhole Intercepts – Proto 2007**

<b>Drillhole</b>	<b>Intercept</b>
Hole 31	12m @ 0.96% Ni + 0.06% Co from 5m
Hole 32	10m @ 1.18% Ni + 0.03% Co from 5m
Hole 39	7m @ 1.37% Ni + 0.04% Co from 3m
Hole 63	10m @ 0.68% Ni + 0.05% Co from 6m
Hole 65	8m @ 0.64% Ni + 0.09% Co from 2m
Hole 121	10m @ 0.94% Ni + 0.06% Co from 6m

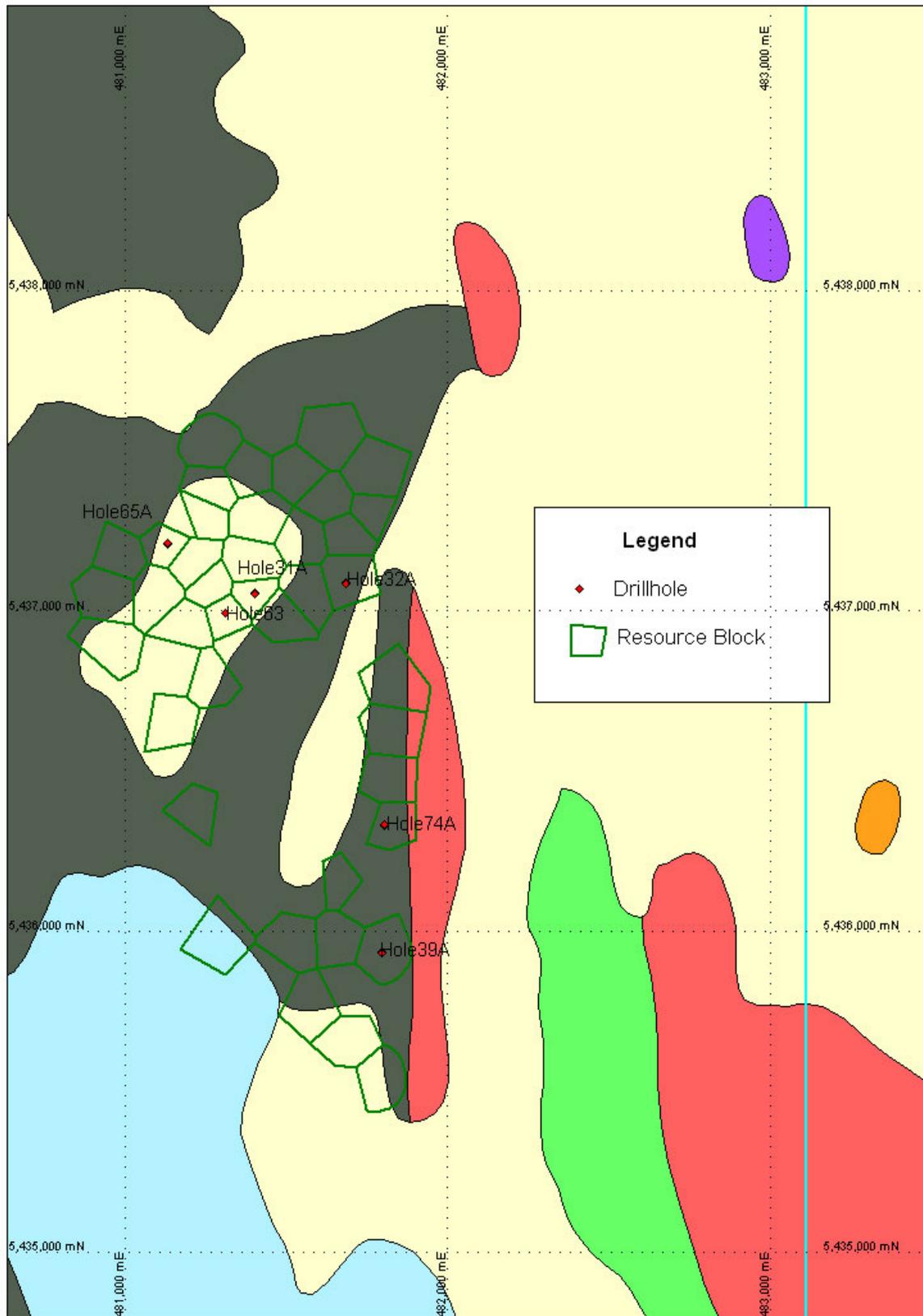
### **7.3 Planned Resource Drilling Program**

A substantial resource drilling program of approximately 735 holes for an estimated 15,000m has been planned for the Barnes Hill Deposit (not Mt Vulcan or Scott's Hill). This drilling program is designed to infill areas of historic drilling on either a 50m x 50m or 100m x 100m spacing and provide enough information for the Barnes Hill resource to be re-estimated and hopefully upgraded to a measured category.

A detailed flora and fauna assessment of the resource areas has been completed by North Barker Ecosystem Services to allow the drilling program to be approved. The survey by North Barker has formed the basis of a Forest Practices Plan that is currently awaiting certification.

It is hoped that drilling will commence in July or August following MRT approval.

The proposed resource drilling program is included as Appendix C.



**Figure 3** Location of Proto aircore drillholes at Barnes Hill with geology as background.

## 7.4 Assaying of Historic Drillcore

Core from two historic diamond drillholes stored at Mineral Resources Tasmania's coreshed in Mornington were logged and selectively sampled in April 2008. Eleven samples were sent to ALS Chemex Laboratories in Adelaide for assay and full assay results are given in Appendix D. The drillholes were Scott's Hill 1 drilled by BHP Ltd in 1966 at the Scott's Hill Deposit and Andersons Creek 1 drilled to the southwest of the Barnes Hill Ni-Co deposit by MRT in 1970 (Figure 4).

### Drillhole Scotts Hill 1 (SH-1)

Scott's Hill 1 was not assayed by BHP although a 3m section originally logged as "buck quartz" was assayed in 1995 by CRA Exploration returning an assay of 3m @ 1.04g/t Au, 2.41% Zn & 0.21% Pb from 91m downhole. From company reports it appears hole Scott's Hill 1 was drilled towards the southwest and after passing through 94m of sandstone, mudstone and chert passed into serpentinised ultramafic units (serpentinite) which continued until end of hole at 205m.

Seven drillcore samples were taken from drillhole Scott's Hill 1. Assay results failed to indicate any anomalism but elevated nickel and chrome correspond with the occurrence of serpentinite (Appendix D).

### Drillhole Andersons Creek 1 (AC-1)

Andersons Creek 1 was drilled 400m southwest of the Barnes Hill Ni-Co deposit by MRT in 1970. Geological logs or assay data could not be located for this hole and upon inspection in Hobart it is apparent that it had not been assayed previously. The hole was drilled vertically and passed through sedimentary units down to 144m where it then passes into serpentinised ultramafics which continued until end of hole at 153m.

Four drillcore samples were taken from drillhole Andersons Creek 1. Assay results failed to indicate any anomalism but once again elevated nickel and chrome correspond with the occurrence of serpentinite (Appendix D).

**Table 6 Summary Geological Log of Scotts Hill 1 (SH-1)**

<b>From</b>	<b>To</b>	<b>Description</b>
0	18m	Core missing
18	27m	Brown mudstone
27	41m	Sandstone
41	91m	Grey siliceous sandstone ± conglomerate (pyritic in places)
91	94m	Brecciated chert with sulphide matrix - visible pyrite ± pyrrhotite ± galena ± sphalerite - assayed interval of 3m @ 1.04g/t Au, 2.41% Zn & 0.21% Pb (CRA)
94	94.5m	Black shale and some core loss
94.5	140m	Green serpentinite with talc-antigorite-magnetite-chromite
140	177m	Finer grained serpentinite with magnetite-chromite
177	205.13m	Ultramafic – possible cumulate textures with magnetite veinlets

**Table 7 Summary Geological Log of Andersons Creek 1 (AC-1)**

<b>From</b>	<b>To</b>	<b>Description</b>
0	8.5m	Yellow sand - clay
8.5	50m	Interbedded mudstone and minor conglomerate ± fossils
50	82m	Interbedded mudstone and minor conglomerate with possible white mineral (anthophyllite) exsolving from core (post-drilling)
82	92m	Sandstone ± mudstone ± conglomerate
92	117m	Mudstone matrix conglomerate with rounded – subrounded clasts
117	122m	Sandy conglomerate with rounded clasts
122	138m	Mudstone – sandstone matrix supported conglomerate - 20cm zone at 127m of quartz conglomerate with >10% pyrite - minor thin 1-2cm quartz-carbonate ± sulphide veins from 128-138m
138	144m	Brown mudstone – minor faulted zones
144	152m	Serpentinised ultramafic with antigorite-magnetite-chromite
152	153.54m	Ultramafic – serpentine & granular metamorphic olivine(?)

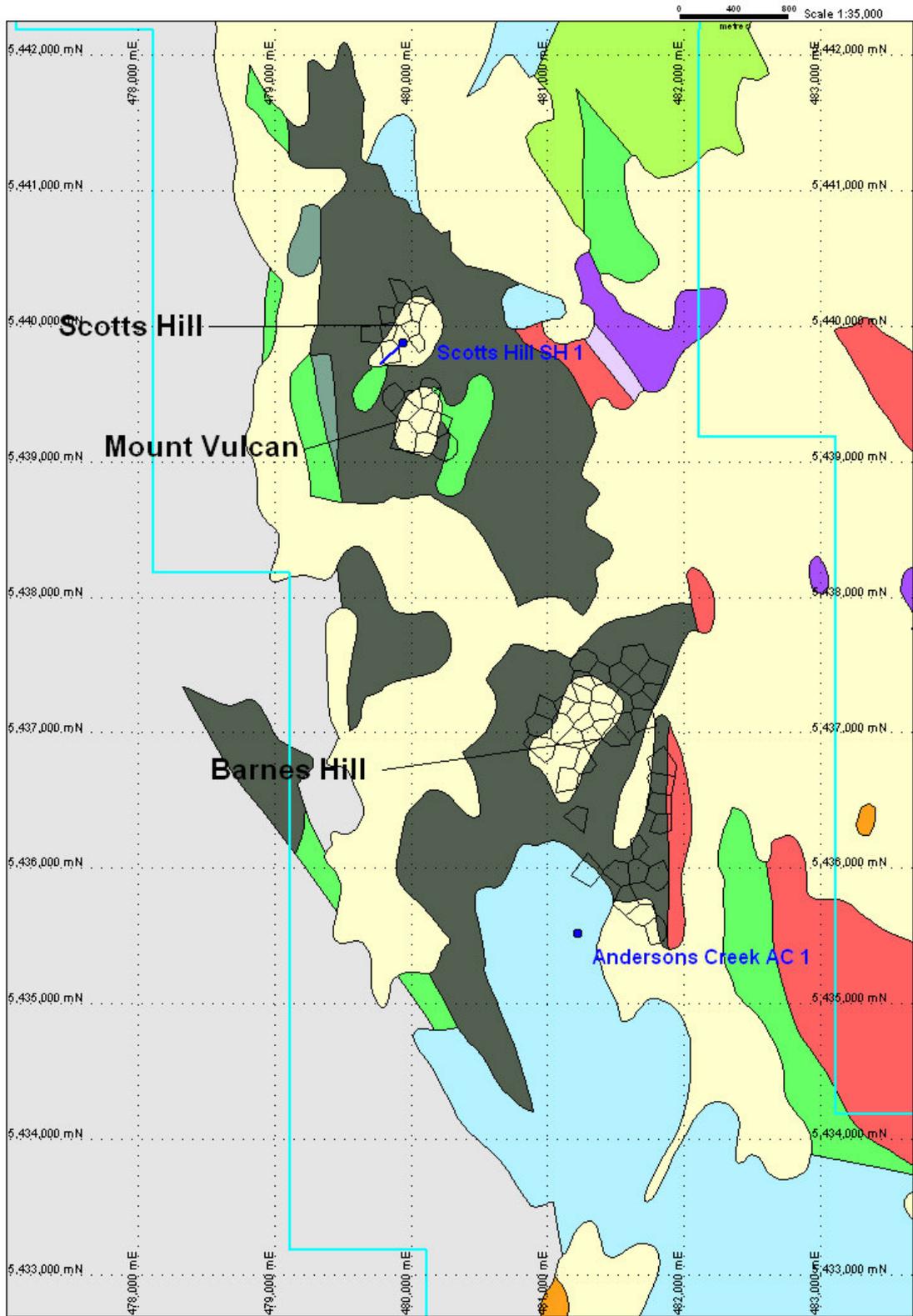
## **7.5 Metallurgical Testwork**

Five bulk samples were composited from separate aircore drillholes drilled by Proto (refer section 7.2). The drillholes composited were 31, 32, 39, 65 and 74. Assay testing of the samples indicated that 74 had only low grade Ni and this sample was discarded from further testwork.

The four samples have undergone numerous tests at HRL Testing in Brisbane of which column leach testwork is still ongoing. Other testwork includes acid consumption, bulk density, ore density, moisture content and head grade analysis (Appendix E). Column leach testwork results have indicated relatively high recoveries at low acid consumption levels. The four samples have been under irrigation within the columns for 78 days as at 7 July and this testing is ongoing. Recoveries to date are summarized below.

**Table 8 Column Leach Testwork Results**

Sample Number	31	32	39	65
Days under irrigation	78	78	78	78
Acid consumption (kg/t)	290	237	325	272
Ni extraction (%w/w)	47.7	59.8	39.1	38.9
Co extraction (%w/w)	23.2	64.0	14.8	29.6



**Figure 4** Location of drill holes Scotts Hill 1 and Andersons Creek 1 on the Barnes Hill tenement. Scotts Hill 1 was drilled towards the southwest while Andersons Creek 1 is a vertical hole.

## 8 EXPENDITURE

Expenditure from 8<sup>th</sup> August 2007 to 7<sup>th</sup> August 2008 is tabulated below for the Barnes Hill EL17/2006 licence.

**Table 9 Expenditure 8 August 2007 to 7 August 2008.**

	<b>Aug-07 to Aug-08</b>
<b>Administration</b>	\$16,879
<b>Geology - Personnel/Equipment</b>	\$85,376
<b>Gridding</b>	
<b>Geochemistry</b>	
<b>Geophysics</b>	\$17,683
<b>Drilling</b>	\$20,678
<b>Feasibility Studies</b>	\$75,680
<b>Land Access Costs</b> - including landholder negotiations - including environmental surveys	\$56,737
<b>Rehabilitation</b>	
<b>Safety</b>	
<b>Other – Rental Fees, Drafting</b>	\$725
<b>TOTAL - ELIGIBLE</b>	<b>\$273,758</b>

## 9 PROPOSED EXPLORATION

A variety of activities are proposed to be undertaken at the Barnes Hill Project in the coming term including:

- Resource drilling program and resource re-estimation to upgrade the nickel-cobalt resource at the Barnes Hill deposit
- A soil sampling program stepping out northwards and southwards from currently defined nickel-cobalt resource areas
- Continued metallurgical testwork
- Apply for a mining lease to cover the Barnes Hill deposit and areas needed for related processing and administration infrastructure

## 10 KEY REFERENCES

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**Appendix A**  
**High Level Overview of Drillhole Spacing**

**Appendix B**  
**Aircore Drilling Collar Locations & Assay Results**

**Appendix C**  
**Planned Resource Drilling Program**

**Appendix D**  
**Historic Core With New Assay Results**

**Appendix E**  
**Metallurgical Testwork Report**