

# PROTO



RESOURCES & INVESTMENTS LTD

## STOCK EXCHANGE ANNOUNCEMENT

April 28, 2011

### Quarterly Activity Report ending 31 March 2011

#### ASX Release: PRW

*Proto has continued to focus on its flagship nickel-cobalt-iron project at Barnes Hill near Beaconsfield in Tasmania. The final shipment of bulk ore samples from Barnes Hill arrived at the mainland laboratory during the quarter. Full pilot plant processing of the bulk ore samples commenced in February with the leaching of the ore now well advanced. The Barnes Hill ore has proven to be quite reactive with results of the leach testwork expected shortly.*

*Proto also made advances across its exploration portfolio during the quarter, with a new Cu-Pb-Zn anomaly identified adjacent to the Barnes Hill Ni-Co ore body and a major ZTEM airborne geophysical survey completed with joint venture partner Peak Mining and Exploration Limited across the Lindeman's Bore and Wave Hill Projects in the Northern Territory.*

#### Highlights

- Barnes Hill (Tasmania) – Proto Resources & Investments Ltd ("Proto", "the Company") has continued to focus on its flagship nickel-cobalt-iron project at Barnes Hill near Beaconsfield in Tasmania. During the quarter Proto completed a program of Reverse Circulation ("RC") drilling at the Barnes Hill Project to source the necessary tonnage of bulk material from the proposed mine area to meet the needs of the full pilot plant test work. This bulk ore sample was transported to the laboratory in Evans Head, New South Wales where leaching of the ore commenced in February. The full pilot plant testwork will determine the optimal metallurgical process circuit with work already promising significant power savings.
- Barrier Bay Pty Ltd ("Barrier Bay") the technology company 50% owned by Proto, continued to build upon its innovative technology, which is now believed to hold potential beyond nickel laterite, with potential application to other metals including copper, zinc and rare earths. This new development is believed to hold considerable potential to further enhance the commercial value of the Barrier Bay process and Proto's equity in it.
- Metals Finance Limited ("Metals Finance") has advised Proto that the Barnes Hill Feasibility and Detailed Engineering Study for the Barnes Hill Project continues to progress with completion expected in mid-2011. Proto is liaising with Mineral Resources Tasmania ("MRT") in order to finalise the terms of the environmental security bond for the Barnes Hill mining lease. Upon

**Proto Resources & Investments Ltd**

ACN: 108 507 517

Suite 1901, Level 19, 109 Pitt St,  
Sydney 2000 NSW Australia

PO Box R1870  
Royal Exchange NSW 1225

**p:** +61 2 9225 4000

**f:** +61 2 9235 3889

**e:** [info@protoresources.com.au](mailto:info@protoresources.com.au)

**w:** [www.protoresources.com.au](http://www.protoresources.com.au)



## STOCK EXCHANGE ANNOUNCEMENT

lodgement of the bond Proto expects the grant of the mining license to occur shortly thereafter. During the quarter Proto also circulated the Development Proposal and Environmental Management Plan (“DPEMP”) to the Tasmanian authorities and stakeholders for final comment prior to formal submission for assessment.

- Barnes Hill West (Tasmania) – On the 18<sup>th</sup> of January 2011 Proto reported the delineation of a Cu-Pb-Zn anomaly at the Barnes Hill Extension Prospect which corresponds with a northwest trending fault identified from airborne magnetics data. The soil anomaly returned a peak zinc result of 415ppm, peak lead result of 198ppm and a peak copper result of 137ppm.
- Wave Hill & Lindeman’s Bore (NT) – During the quarter Proto and joint venture partner Peak Mining and Exploration Limited announced the completion of a Z-Axis Tipper Electromagnetic System (“ZTEM”) airborne geophysical survey across the Lindeman’s Bore and Wave Hill project areas in the Northern Territory. Subsequent to the end of the quarter Proto announced the receipt of results from the ZTEM survey with early interpretation identifying anomalies at both Wave Hill and Lindeman’s Bore.
- There were also a number of positive corporate and commercial events during the quarter. Firstly, RB Milestone Group (“RB Milestone”) produced an updated independent research report on the Company during the quarter with a revised share price target of A\$0.36 cents. Proto also increased its strategic equity investment holdings in Metals Finance during the period. Proto now holds more than 9% of the issued capital in Metals Finance. Proto was also successful in engaging Macquarie Bank as a financier to the Company. Macquarie Bank has purchased options which, if fully exercised, will result in an additional capital injection of up to A\$4 million.

### ***Barnes Hill, Tasmania (Nickel Laterite, Cobalt and Iron Ore)***

During the quarter Proto completed a program of RC drilling at the Barnes Hill Project (see Figure 1). This programme collected the necessary tonnage of bulk material to conduct commercial scale pilot plant testwork. The RC drilling was conducted at both the northern and southern sections of the proposed mine area with the nickel ore transported to the mainland where it was processed and blended to ensure a representative sample. The first batches of this nickel ore are currently being leached within the pilot plant to establish the optimal circuit for the project. A total of 10t of ore will be processed during this pilot stage. Early results from this leach work show that the ore is quite reactive with results from the leaching phase expected shortly. This testwork is being conducted by Barrier Bay Pty Ltd, the technology company, part owned by Proto. Other processing tests completed during the period identified significant additional power savings for the optimised process circuit. These newly identified power savings will result in significantly improved economics for the Barnes Hill project.

The nickel processing technology which Proto and Metals Finance will be applying at Barnes Hill, and which is being optimised under the current full pilot plant testwork, combines two separate technologies into a complete processing circuit for nickel laterite ore. The front end technology is a low pH nickel system developed by Metals Finance. Metals Finance operated the system for two and a half years at the Palabora mine in South Africa before their joint venture partner, a subsidiary of Rio Tinto, bought out the remaining share of the plant that had operated under an initial joint venture. The low pH system developed by Metals Finance employs a Dow Chemical Company resin. Rio Tinto’s commercial endorsement of the low pH system coupled with the technology’s demonstrated commercial effectiveness provide great confidence in the application of this front end system to Barnes Hill.



# STOCK EXCHANGE ANNOUNCEMENT



*Figure 1 – Reverse Circulation Drilling at the Barnes Hill Project, Tasmania*

The back end system to be applied at Barnes Hill is the Barrier Bay technology which endows major cost savings over existing nickel laterite processing technologies. The Barrier Bay technology provides major costs savings over traditional technologies by converting iron and magnesium sulphates into saleable products while recycling much of the sulphuric acid and water inputs.

Proto has been informed by Metals Finance that the Feasibility Study and Detailed Engineering Study for the Barnes Hill Development is advancing with both studies slated for completion in mid-2011. The completion of both studies will allow Proto and Metals Finance to raise the funds needed to meet the capital expenditure requirements for mine development and commissioning, which are estimated to be approximately AUD\$50 million. By the end of the quarter, Proto had already engaged several potential finance partners with strong indications that the approximate capital expenditure on the Barnes Hill project will be easily achievable in the current economic climate.

Proto is also in discussions with the Mineral Resources of Tasmania (MRT) to finalise the terms of the environmental security bond. These discussions are focussed upon designing a staged-bond payment which aligns with the financing of the construction and commissioning of the plant at Barnes Hill. Once the security bond is lodged Proto expects the mining licence to be granted shortly thereafter with this announcement to be made in conjunction with the Tasmanian authorities. Proto has provided the substantially complete DPEMP detailing the proposed Barnes Hill mine and processing facility to the Tasmanian Government. Final submission of the DPEMP is now imminent. Proto has been very pleased at the level of support the project has received from both the local community and the Tasmanian environmental consultants who prepared the majority of the DPEMP.

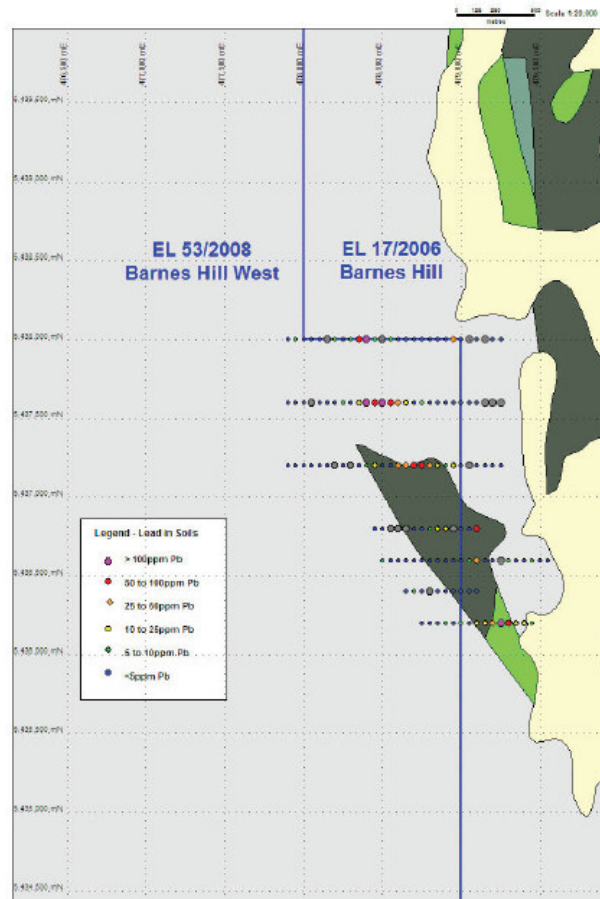


# STOCK EXCHANGE ANNOUNCEMENT

Proto will continue to focus its energies towards the development of Barnes Hill with mining planned to commence at the end of 2012/early 2013. The next few quarters will see major milestones passed in shifting to production status with the results of the full pilot plant testwork, final submission of the DPMP, resolution of the environmental bond arrangements, granting of the mining licence and completion of the feasibility and detailed engineering studies all slated to occur.

### ***Barnes Hill West, Tasmania (Copper, Gold and Nickel Sulphide)***

During the quarter Proto received the results of extensive soil sampling completed late last year. This comprised 551 samples taken across four discrete prospects areas identified at the Barnes Hill and Barnes Hill West project areas. This program delineated a coincident area of raised Cu-Pb-Zn that was anomalous compared to background (see Figure 2) at the Barnes Hill Extension Prospect located on exploration licence EL 53/2008.



**Figure 2 – Lead in soils at the Barnes Hill Extension Prospect with geology as background (light grey colour is Badger Head Block and the dark grey and green colours are the Andersons Creek Ultramafic Complex)**



## STOCK EXCHANGE ANNOUNCEMENT

This area of elevated Cu-Pb-Zn coincided with a northwest trending fault identified from aeromagnetics data and is in close proximity to the contact between sedimentary rocks of the Proterozoic Badger Head Block to the west and the Cambrian Andersons Creek Ultramafic Complex. The Cu-Pb-Zn anomaly, while moderate in intensity, is far above background levels with a peak zinc result of 415ppm, a peak lead result of 198ppm and a peak copper result of 137ppm.

### ***Waterloo, Wave Hill & Lindeman's Bore, NT (Nickel Sulphide, Copper and PGEs)***

During the quarter Proto and joint venture partner Peak Mining and Exploration Limited announced the completion of a ZTEM airborne geophysical survey at the Lindeman's Bore (EL25307) and Wave Hill (EL27413, EL27617 & EL27618) project areas. Peak Mining and Exploration Limited will be earning a 10% interest in the Lindeman's Bore Project under an earn-in arrangement by spending \$300,000 on exploration by the end of this year. Approximately 918 line kilometres of ZTEM were flown over the project areas at line spacings of 1km with this program representing the first large scale commercial use of ZTEM in Australia. ZTEM has the capacity to see to a depth of up to two kilometres in resistive environments and Proto considers it an excellent geophysical tool in the hunt for Noril'sk style Ni-Cu-PGE mineralisation.

Proto's exploration target in the Northern Territory is for Noril'sk style Ni-Cu-PGE mineralisation within mafic feeders to the Antrim Plateau Volcanics ("APV"). The Noril'sk-Talnakh deposits, hosted within the intrusive structures which make-up the Continental Flood Basalts of the Siberian Traps Igneous Province of Russia, are the largest nickel-copper-palladium deposits in the world. Proto believes that the Continental Flood Basalts in the APV of the Northern Territory of Australia are similar to those of Russia and hence also prospective for such systems. This belief builds upon a body of accumulated research exploring such potential including analysis conducted by the Northern Territory Geological Survey. Proto will be working with both the Queensland University of Technology and the Open University, UK through the remainder of the year with further extended personnel deployments planned.

Subsequent to the end of the quarter Proto announced the receipt of results from the ZTEM survey. Early interpretation has identified anomalies at both the Lindeman's Bore and the Wave Hill Project areas. When the data is fully compiled and analysis complete Proto plans to conduct ground EM surveys across the most promising anomalies to provide potential drill hole targets.

### ***Corporate Developments***

#### **Barrier Bay Technology and the Nickel Market**

As previously announced Barrier Bay, the technology company 50% owned by Proto, is undertaking advanced commercial trials of the nickel laterite processing technology which yields, in addition to nickel and cobalt, saleable iron and magnesium products. The process also regenerates the vast majority of sulphuric acid consumed in the leaching process. It is Proto's objective to demonstrate the commercial viability and benefits of the Barrier Bay technology at Barnes Hill before applying the technology to other nickel laterite projects around the world. The potential future commercial value of the Barrier Bay technology to the global mining industry received a significant leap forward during the quarter when it was announced that the technology also holds potential beyond nickel laterite with potential applications for other metals including copper and zinc in addition to rare earths.

Test work to date has confirmed that the Barrier Bay Technology can recycle more than 80% of the sulphuric acid input – a pivotal breakthrough given that sulphuric acid represents one of the principal operating costs of nickel laterite operations. The capacity to economise on both sulphuric acid and water in



## STOCK EXCHANGE ANNOUNCEMENT

nickel laterite production also marks the technology as a major improvement on existing technologies in terms of environmental sustainability. Additionally, the Barrier Bay technology allows the iron and magnesium sulphate contained within the nickel ore to be transformed into saleable products as credits to the Project's nickel and cobalt revenue streams. This is in contrast to existing nickel laterite operations where the iron and magnesium sulphates must be neutralised and stored at great expense. The Barrier Bay technology has won competitive funding from the Commonwealth Government of Australia and has intellectual property protection under an international patent.

Utilising this innovative processing circuit, Proto is aiming to commence mining at Barnes Hill with production of 2,100 tonnes of nickel per annum at a cash cost of US\$2 per pound. With production slated to commence from Barnes Hill in late 2012/early 2013 Proto is pleased to note the sustained long-term strength in the nickel price which, at present, is trading at approximately US\$12 per pound on the spot market. As a near-term producer the nickel price will be an important factor in determining the level of profitability at Barnes Hill. However as noted, due in large measure to the Barrier Bay technology and the ideal logistics of Barnes Hill itself, Proto expects to produce nickel at a cash cost of approximately US\$2 per pound. The Barnes Hill project will be insulated from gyrations in the nickel price given it will be a polymetallic mine with cobalt, magnesium and iron credits. While the robust economics of Barnes Hill provides a wide buffer against adverse movements in the nickel price, Proto remains confident of the long-term outlook for nickel. As a near-term nickel producer, Proto wishes to provide some general information herein regarding the overall nickel market for the benefit of its investors.

Approximately two-thirds of nickel production is consumed as an alloying agent in the manufacture of stainless steel, with much of the demand for the metal in recent decades driven by the continued urbanisation and development of industrialising nations like China. In this context, it is Proto's opinion that the most fundamental change underway in the nickel market at present is a global shift away from nickel sulphide production towards nickel laterite production. While the traditional difficulties associated with nickel laterite production and metallurgy still apply, this shift is being driven by necessity, with no new nickel sulphide discoveries of global significance occurring. At present total nickel production is fairly evenly split between both sulphide and laterite mines. Yet nickel laterite's share of total production is in the process of eclipsing nickel sulphide's share, with approximately 70% of the world's known nickel resources being laterite. The Australian Bureau of Agricultural and Resource Economics ("ABARE") drew attention to this point when they noted, "Of the 12 nickel projects outside China currently scheduled to commence before 2015, only two are sulphide projects, accounting for around 5 per cent of the total planned capacity. As a result, laterite production is expected to become relatively more important to world nickel output. For these projects to remain economic and nickel production to increase, prices will need to remain high enough to cover the costs of these projects."<sup>1</sup> Consequently, as ABARE concludes, the major market forces supporting the sustained rise of the nickel price, lie not only on the demand side through the rapid growth in China and other rapidly industrialising nations, but also in a shift away from increasingly exhausted low cost production sources, namely nickel sulphide ore, to a relatively higher cost source, namely nickel laterite.

Given this macro shift in the nickel industry, towards increasing reliance upon nickel laterite production to meet the world's growing demand for nickel, Proto is well placed to help solve this great challenge through the Barrier Bay technology. This technology promises to dramatically improve the cost competitiveness of nickel laterite generally and mitigate its environmental footprint. As such, it is Proto's ambition to

---

<sup>1</sup> [http://www.abare.gov.au/interactive/09ac\\_mar/htm/nickel.htm](http://www.abare.gov.au/interactive/09ac_mar/htm/nickel.htm)



## STOCK EXCHANGE ANNOUNCEMENT

demonstrate the commercial superiority of the technology at Barnes Hill, before applying the technology to other nickel laterite projects.

Turning again to the nickel market in general, Proto has followed with interest the rise in recent years of pig iron production in China. At present 155,000 metric tons of nickel pig iron are being produced in China with approximately one-third of primary nickel being substituted by Chinese stainless steel makers by nickel pig iron. While this represents a significant new source of supply for the Chinese nickel market it remains one of the most expensive ways to produce nickel, with the most efficient Chinese operators only able to produce nickel at a cash cost of US\$7 to US\$8 per pound. Furthermore, nickel pig iron bears a very high environmental cost, with much of China's current nickel pig iron production sourced from old blast furnaces. To this end the Chinese Government has been actively closing-down nickel pig iron producers deemed too environmentally harmful and energy intensive. Yet, the emergence of nickel pig iron does act, in so far as the nickel price increases above \$7 to \$8 per pound, as a dampening agent against over-exuberance within the nickel market. Again, Proto wishes to emphasise that Barnes Hill is projected to produce nickel at a cash cost of around US\$2 per pound, such that, even in the event that the nickel price fell to US\$7 to US\$8 per pound, Barnes Hill will remain a highly profitable operation. In addition, it is important to bear in mind that although nickel pig iron represents a new source of supply capable of meeting a certain proportion of China's overall nickel demand there are, equally, new sources of demand emerging which will have a significant positive impact on the nickel market. One such new source of demand for nickel is seen in the market for rechargeable batteries - with demand for nickel-metal-hydride batteries, which are employed in hybrid motor vehicles, and electronic goods such as mobile phones, representing a major growth market.

### **Strategic Investment in Metals Finance**

During the quarter Proto increased its strategic equity position in its Barnes Hill joint venture partner Metals Finance Limited (ASX: MFC) through on-market share purchases. As a result of these transactions Proto now holds 9.16% of the issued equity (equal to 6,698,766 fully paid ordinary shares) of Metals Finance.

### **Updated RB Milestone Research Report**

RB Milestone Group, LLC ("RB Milestone"), an independent equity research firm based on Wall Street, New York released an updated research report on Proto during the quarter. The research report provides a broad evaluation of Proto's projects and an updated share price target of AUD \$0.36 cents.

The report, as well as other recent analyst reports, can be accessed on the Proto website or by copying the URL that follows into your browser: [protoresources.com.au/reports/broker](http://protoresources.com.au/reports/broker)

### **Issue to Frankfurt Cornerstone Investor**

As announced late last year Proto has moved to broaden its international investor base with the Company debuting on the Frankfurt stock exchange on the 23<sup>rd</sup> of August 2010. Proto has received great support from the international investing community. During the quarter Proto announced the issue of 15,000,000 shares at 6 cents raising A\$900,000 to an overseas cornerstone investor as part of the Frankfurt initiative.

### **JP Morgan Nominees Holding**

On the 1<sup>st</sup> of March 2011 Proto advised that JP Morgan Nominees held approximately 34.50% of the Proto register. Since this date this figure has further increased so that JP Morgan Nominees currently hold

**PROTO**



RESOURCES & INVESTMENTS LTD

## STOCK EXCHANGE ANNOUNCEMENT

40.97% of the issued capital in Proto Resources. As previously noted a tracing notice has been received from JP Morgan Nominees Australia Limited <Cash Income Account> pursuant to Section 672A of the Corporations Act which indicates that the beneficial owners of these ordinary fully paid shares are international-based investors.

### **Macquarie Bank Finance**

During the quarter Proto entered upon an agreement with Macquarie Bank for the issue of a series of moving strike options and fixed options which, if fully exercised, would result in a capital injection of up to AUD\$4 million. Proto is pleased by the support demonstrated by Macquarie Bank particularly since Macquarie Bank is purchasing the options as principal (from its own balance sheet) rather than for any institutional or retail clients.

Enquiries:

Mr Andrew Mortimer  
Chairman and Joint Managing Director  
Proto Resources & Investments Ltd  
Office: +61 (2) 9225 4000  
Mobile: +61 (0)433 894 923

*The information in this report that relates to Exploration Results for projects other than Clara Hill is based on information compiled by Andrew Jones, who is a Member of the Australasian Institute of Mining & Metallurgy. Mr Jones is a full-time employee of TasEx Geological Services Pty Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Jones consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*