

# AUSROCKS PTY LTD

CONSULTING MINING ENGINEERS

ABN 64 056 939 014

## AUSROCKS NEWSLETTER No 10 Autumn 2012

### Introduction

We are well underway with 2012 and there are a number of exciting projects in the Ausrocks portfolio.

The excavation of the Legacy Way Conveyor Tunnel by WDS Contracting is now complete. This 525m long 4.5m x 4.5 m tunnel from the 30 mRL bench at Mt Coot-tha Quarry under the Botanical Gardens to the Legacy Way TBM Portal Area was completed in approximately 16 weeks by drill and blast methods. Blasting was carried out by our Associates Perfect Shafts Pty Ltd. Excavation by the TBMs on the main Legacy Way Tunnel is expected to commence in August 2012.

Ausrocks are proud to be associated with the Legacy Way Conveyor Tunnel project because:

- Our original concept study for the BCC Major Projects Infrastructure Office (MIPO) for the spoil placement of the Legacy Way (previously the Northern Link project) TBM material included a tunnel access for spoil placement as an alternative option to an overland conveyor.
- The success of the tunnelling works, in particular in respect of geotechnical stability, has indicated the future suitability of the Mt Coot-tha rock for underground quarrying. This is an option promoted by Ausrocks since the late 1990s. Under the current long term plan, the quarry could go underground by 2030.
- The successful and complex integration of the tunnel works with the Mt Coot-tha Quarry operations managed by Quarry Manager Rob Bell and his dynamic team.

From my perspective, an integrated tunnel and quarry project is a once in a lifetime experience although this concept may become more commonplace in the future—watch this Newsletter!!!!.

From Alan Robertson, Director.  
[Alan.Robertson@ausrocks.com.au](mailto:Alan.Robertson@ausrocks.com.au)

### Mechanical Cutting of Rock in Open Cut Mining and Quarrying

Ausrocks has been a long term supporter of mechanical cutting of rock in underground and open cut mining. The history of roadheaders in underground mining provides a good parallel to the potential of surface miners in open-cut mining, potentially without the initial “teething” problems of roadheaders in medium to hard rock in the latter part of the 20<sup>th</sup> Century. The problem with the “hard rock” roadheaders was that they were initially designed for “softer” rock (up to 50 MPa UCS) but with some minor modifications were classed as being capable of cutting “medium hardness rock” ie up to 120 MPa. After some disastrous results for roadheaders in Australian tunnelling a “new wave” of roadheaders appeared, including the Voest Alpine (now Sandvik) ICutroc technology. This involved a variable speed cutting head and other significant design changes including a two speed transmission for full torque at low speeds as well as a large 300 kW cutting motor and a telescoping cutting boom. The AM105 ICutroc certainly proved productive in 100MPa rock.

The story of the Vermeer Mining Surface Levellers is similarly one of progressive development of the machines to be more productive and to cut harder rock. Recent developments based on the T1255 Terrain Leveller (weight 109t, drum width 3.7m, power 447 kW, cutting depth 300mm -400mm) have included:

- Option of a direct drive drum instead of chain drive
- An upgrade of the T1255, the *soon to be released* 181t T1655 (974 kW) with a drum width of 4.6m and a cutting depth of 76 cm.



For more details, contact Craig Batten at Vermeer:  
[cbatten@vermeer.com.au](mailto:cbatten@vermeer.com.au)

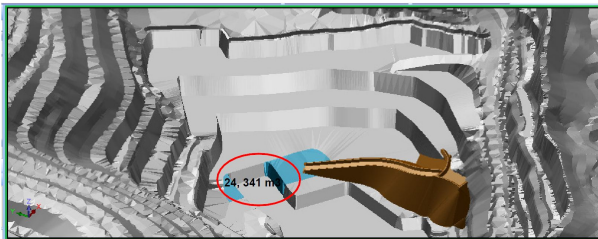
# Clever Innovation in the Mining and Quarrying Industry”<sup>2</sup>

## Quarry Management Plans- Ausrocks can help you!!!!

Ausrocks has completed a number of Quarry Management Plans (QMPs) for large and small quarries throughout Queensland. Whilst on site we can complete a Differential GPS (DGPS) survey and if necessary, engage a Geotechnical Consultant such as Graham Shorten from Environment and Community Risk International (ECRI). The QMP (for the life of the quarry or the next five to ten years) addresses the following key issues in regard to quarry planning and operations:

- The size of the resource and the potential life of the project.
- The quarry layout including stockpiles, fixed and mobile plant location and quarry access roads and their gradient and width based on the equipment that is planned to be used.
- Site drainage (surface and groundwater).
- The sequence of extraction of the quarry, taking into account geotechnical and rock quality parameters.
- The optimum blast sizes in respect of blast damage minimisation, air blast and ground vibration at sensitive receptors.
- The key design parameters for the quarry in terms of bench height, width, batter angle and bench orientation, particularly in respect of geotechnical data.
- Rehabilitation profiling, in particular to establish a workable rehabilitation method.

A number of software packages can be utilised including NearMap (data source), MapInfo, SURPAC and Global Mapper.



Proposed Blast Area 6&7, July 2012 (After completion of stacker installation)

### 3D Quarry Blast Sequencing Mt Coot-tha Quarry

Over the past two years Ausrocks has completed 12 QMPs in Queensland, New South Wales and New Guinea, ranging from a 500,000 t/a production quarry to a quarry with less than 10,000 t/a.

For more details on our capabilities methodologies and pricing, do not hesitate to contact Carl Morandy or Adebayo Bayooke.

## Signs We Have Noticed



This is one of the evaporator fans used for Tailings evaporation at the old Gympie Eldorado Gold Mine. The 90 kW underground fan sucks in the water and then atomises it. **An awesome safety shower!!**



This one spotted somewhere in America!!

If you have seen an interesting sign please send it to: [alan.robertson@ausrocks.com.au](mailto:alan.robertson@ausrocks.com.au)

Kayleigh Jones joined Ausrocks as part of her student training. Kayleigh is an Environmental Management student at the University of Qld and in 2012 continues part time with Ausrocks.

For any information about Ausrocks or its capabilities, please go to: [www.ausrocks.com.au](http://www.ausrocks.com.au) or contact:

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