

#### KORAB HOUSE

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FPO SHARES
Issued: 195 mln
Market Cap: \$8 mln
ASX: KOR
Last Price: AU¢ 4.0
BERLIN: C6S.BE
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Wednesday, 4 November 2015

HEADS OF AGREEMENT FOR WINCHESTER MAGNESITE OUARRY

#### **KEY POINTS**

- HEADS OF AGREEMENT (HOA) SIGNED FOR AN OFFTAKE OF 1.5 MLN TONNES OF MAGNESIUM CARBONATE ROCK (MAGNESITE) ON ATTRACTIVE TERMS (300KT/YEAR FOR 5 YEARS)
- OFFTAKE CAN BE EXTEND FOR FURTHER PERIODS
- BY WAY OF THIS HOA THE BUYER CONFIRMS INTEREST IN:
  - ACQUIRING EQUITY STAKE IN AUSMAG FOR \$6 MILLION IN CASH
  - ASSISTING WITH CAPEX AND OPEX FUNDING FOR WINCHESTER BY WAY OF LOAN FACILITY ON COMMERCIAL TERMS
  - ASSISTING WITH DEVELOPMENT AND OPERATION OF THE QUARRY, AND
  - ASSISTING WITH DISTRIBUTION AND MARKETING OF QUARRY OUTPUT
- WINCHESTER AGGREGATE EBITDA OF \$395 MLN OVER QUARRY LIFE
- ATTRACTIVE LONG-RUN ANNUAL EBITDA OF \$32 MLN/YEAR (AT 800KT/YEAR SALES)
- LOW PROJECTED OPERATING COST IN THE LOWEST QUARTILE OF GLOBAL MAGNESITE PROJECTS
- EXCEPTIONALLY LOW CAPEX OF \$ 4 MLN
- QUARRY LIFE OF 14 YEARS BASED ON INDICATED RESOURCE OF 12.2 MLN TONNES OF MAGNESITE
- INDICATED AND INFERRED MINERAL RESOURCE OF 16.6 MLN TONNES OF MAGNESITE
- MINERAL LEASE GRANTED TO 20 OCTOBER 2040 AND CAN BE RENEWED
- DISCUSSIONS WITH FURTHER POTENTIAL FUNDERS AND MAGNESITE BUYERS ARE AT ADVANCED STAGE

Korab Resources Ltd ("Korab", or "Company") (ASX: KOR) is pleased to advise that its wholly owned subsidiary AusMag Pty Ltd ("AusMag") has entered into Heads of Agreement ("HoA") for an offtake of 1.5 million tonnes of magnesium carbonate rock (magnesite) with an unrelated Australian company referred to in the ASX report dated 16 June 2015 and titled "Winchester Magnesite Quarry Funding/Offtake Proposal". The offtake covers sales of 300KT/year of magnesite rock for 5 years and can be extended for further periods.

HoA also covers acquisition of an equity interest in AusMag for \$6 million, provision of assistance with funding of the CAPEX and OPEX of the project, assistance with the development of the quarry, assistance with its operations, and assistance with marketing of the output. The detailed terms on which this assistance may be provided will negotiated now following the signing of the HoA. Under the HoA, AusMag has committed to the offtake agreement, but is under no obligation to sell equity







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stake in AusMag, or to accept the assistance in any of the above areas should alternatives offered by other parties prove superior. Korab is in active discussions with further parties interested in acquiring stake in AusMag and other potential funders and magnesite buyers.

On 27 October 2015 Korab reported that it has been granted the mining lease covering the Winchester magnesite deposit. The Mineral Lease ML 30587 covers 352 hectares and has been granted for an initial period of 25 years to 20 October 2040. ML 30587 is located 2km from Batchelor in the Northern Territory. See Figure 1, Figure 7 and Figure 8 for details.

At the time Korab advised that the discussions with various parties regarding Winchester funding, offtakes and sales have been accelerated following the grant of the mineral lease and were at an advanced stage. This HoA is the first agreement signed by Korab with one of these parties. The HoA is conditional upon conditions precedent some of which are subject to temporal requirements.

On 10 March 2015 Korab reported results from the pre-feasibility study conducted by the Company on the Winchester project which included the estimates of revenues and various additional material costs such as haulage, port charges, interest, debt repayment, royalties, overheads, etc. evaluated the economics of Winchester quarry assuming its development as a direct shipping ore (DSO) operation. Inclusion of additional information allowed estimation of earnings and the projected aggregate earnings before interest tax and amortisation (EBITDA). The quarry will be a simple operation with very basic mine infrastructure thus requiring low capital input. For details see Figure 2 and Figure 3.

The results of the pre-feasibility study without inclusion of the above additional factors were first announced to the market on 13 January 2015. The Company confirms that all material assumptions underpinning the production target in that announcement continue to apply and have not materially changed.

Results of the expanded study shown that the project has very attractive economics combined with ability to potentially generate significant pre-tax earnings of \$395 million over project life starting with the first year of operations. Estimates of potential earnings before interest, tax and amortisation but after payments for royalties, overheads etc. are shown in the following table:

Table 1 EBITDA (in AU\$ '000) at US\$80/T magnesite price and US\$0.82 exchange rate

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEARS 5-14	TOTAL
6,235	14,185	31,997	32,251	310,378	395,046

Importantly, in addition to having high EBITDA, Winchester quarry has a potential to generate very significant free cashflow of \$274 million after providing for interest, income tax, repayments of debt, royalties, overheads etc.. Estimate of Free Cash Flow from the quarry after payments for interest, income tax, repayments of debt, royalties, overheads etc. is shown in the following table:

Table 2 Free cashflow (in AU\$ '000) after tax, interest and debt repayments at US\$80/T magnesite price and US\$0.82 exchange rate

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEARS 5-14	TOTAL
3,050	8,041	22,519	22,697	217,992	274,298

Sensitivity study which assumes an exchange rate of US\$0.82 (recent US\$0.72) shows that Winchester quarry can be a very robust, high profit margin operation, with EBITDA and free cash flow remaining positive even at US\$50/T magnesite price and the quarry operating at only 25% of its nominal capacity. Sensitivity of the estimated earnings (EBITDA) to variations in the magnesite sale price is shown in the table below:







Table 3 EBITDA (in AU\$ '000) Sensitivity to magnesite selling price at US\$0.82 exchange rate

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Year/Volume Mag price	YEAR 1 @200KT	YEAR 2 @400KT	YEAR 3 @800KT	YEAR 4 @800KT	YEARS 5-14 @800KT
US\$50/T	897	3,508	10,642	10,897	108,582
US\$60/T	2,676	7,067	17,760	18,015	175,847
US\$70/T	4,456	10,626	24,879	25,133	243,113
US\$80/T	6,235	14,185	31,997	32,251	310,378
US\$90/T	8,015	17,744	39,115	39,369	377,644
US\$100/T	9,794	21,303	46,233	46,487	444,909
US\$110/T	11,574	24,862	53,351	53,605	512,175
US\$120/T	13,353	28,421	60,469	60,723	579,440

#### MAGNESIUM CARBONATE MARKET

Magnesite prices over medium to long term are driven by broadly similar factors that drive magnesium oxide prices. Magnesium oxide is produced by roasting magnesium carbonate rock at high temperatures. When pure, magnesite contains 47.8% MgO and 52.2% CO2.

Price movements of magnesite (which is the raw material used in production of magnesium oxide) tends to reflect price movements of magnesium oxide. Price chart showing magnesium oxide prices in US\$ from 1913 to 2013 is shown in Figure 4. These prices have experienced steady rising trend over several decades, recently reaching equilibrium within a broad range between US\$500 and US\$600 per tonne.

Market for magnesite has been also growing at a strong historical trend rate over several decades with the trend pointing to yet higher consumption over coming years. Chart showing global annual consumption of magnesium oxide from 1913 to 2013 is shown in Figure 5. The main uses for magnesium oxide is in production of various types of magnesium oxides. Magnesite is also used to produce magnesium metal which is the lightest of all metals, being about two-thirds lighter than aluminium but stronger then steel. Magnesium is non-toxic, non-magnetic, has high-impact strength and is resistant to denting.

The main sectors where magnesium oxide is used include refractory bricks which are used to line steel and iron furnaces; production of flame retardants; production of fire resistant and moisture resistant building materials like mag wall, MgO board and mag cement; production of magnesium alloys used extensively in cars, airplanes, tanks, APC-s and other defence uses; hydrometallurgy, primarily for nickel and cobalt production; water purification and soil treatment and feedstock.

Experts expect that the market for magnesium carbonate will continue to expand due to the growth in all these sectors, however the potential game changer is the recent development of magnesium-ion batteries which have 8 to 12 times greater capacity than lithium-ion batteries and can be charged in as little as 36 minutes. Magnesium-ion battery's charge/discharge efficiency is 5 times higher than a lithium-ion battery. Another advantage of magnesium-ion batteries is their ability to perform at temperatures as low as -30°C and as high as +55°C whereas lithium-ion batteries cease to function at around -15°C. Additional benefit of magnesium-ion batteries is that they do not use graphite and consequently are not dependant on supply of this relatively expensive material.

The variety of uses and the relative size of the magnesite, magnesium oxide and magnesium alloys markets are of obvious benefit to magnesite producers. By comparison, the magnesium oxide market





**TOTAL** 

134,526

221,366

308,206

**395,046** 481,886 568,727 655,567 742,407



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is approximately 40 times bigger than the lithium carbonate market and approximately 22 times bigger than the graphite market. Global consumption of magnesium oxide, graphite and lithium carbonate between 1913 and 2013 is shown in Figure 6.

#### PRE-FEASIBILITY STUDY

Expanded pre-feasibility study assumed a 14 year quarry life based on indicated mineral resource estimate of 12.2 million tonnes of magnesite rock (see Table 6 for detailed mineral resources estimate). Production was assumed to start at 200,000 tonnes/year of saleable magnesite rock in Year 1 and increase to 800,000 tonnes/year of saleable magnesite rock in Year 3. The study assumed a selling price of magnesite rock of US\$80 per tonne FOB basis and a US\$/AU\$ exchange rate of US\$0.82. Exchange rate at the time of writing of this report is approximately US\$0.72. Government rate of 20% (after allowable deductions) and Company tax rate of 30% were used in the study. Study assumed that debt funding will be provided at an interest rate of 12% pa with repayments spread over 3 years. Material modifying factors concerning this project are provided in Table 7.

This study was completed by the Company using information collated and prepared by Golder Associates Pty Ltd, the Company, URS, Bateman Tenova and Devmin Consultants. Assumptions and inputs (mining work rates, labour costs, maintenance costs, selling prices, haulage and port loading costs, royalties, tax rates, interest costs as well as other input variables) underpinning this study which generated the estimates of revenue, capital and operating costs and the NPV were sourced from appropriate consultants and contractors and publicly available data. This is a prefeasibility level study with estimated accuracy of +/-30% and consequently 30% contingency has been added to all capital and operating costs other than taxes, royalties and interest.

This study assessed estimated potential revenue, capital and operating costs of Winchester project supplying a direct shipping ore crushed on site to 25mm and screened to separate fines (minus 6mm). No additional processing of magnesite rock is planned. The output from the quarry would consist of crushed magnesite rock with a waste stream consisting of waste rock and fines which would be stored on site. The estimated ratio of coarse saleable magnesite rock to fines is 80%.

#### Operating Cost Estimates

Operating cost at 1,000,000T/y ROM output capacity (800,000T/y of saleable rock) is estimated at \$21/T of saleable coarse magnesite (including 30% contingency). Estimated project operating costs at various output capacities are shown in Table 4.

Table 4 Project estimated operating costs in AU\$ (shovel and truck, drill and blast)

<u>Description</u>	250KT/Y	500KT/Y	1,000KT/Y
WATER MANAGEMENT (\$/YR.)	440,000	440,000	440,000
WASTE DUMPS (\$/YR.)	180,000	180,000	180,000
QUARRY AND CRUSHING (\$/YR.)	3,906,452	7,137,186	12,421,015
SUBTOTAL (\$/YR.)	4,526,452	7,757,186	13,041,015
CONTINGENCY (30%)	1,357,935	2,327,156	3,912,304
TOTAL ESTIMATE	5,884,387	10,084,342	16,953,319
CAPACITY OUTPUT ROM MAGNESITE (T/YR.)	250,000	500,000	1,000,000
SALEABLE COARSE MAGNESITE COST (\$/T)	29	25	21
COARSE MAGNESITE/FINES	80%	80%	80%
CAPACITY OUTPUT COARSE SALEABLE MAGNESITE (T/YR.)	200,000	400,000	800,000
CAPACITY OUTPUT FINES (T/YR.)	50,000	100,000	200,000







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Above variant shown in Table 4 assumed standard shovel and truck mining method with limited drill and blasting.

The Company also undertook high level assessment of alternative method relying on continuous surface miners and ancillary equipment for moving the in-situ crushed ore and for direct loading onto trucks. This option reduces the handling costs, drilling and blasting and eliminates the need for primary crushing (and potentially secondary crushing). Preliminary assessment of the alternative method suggests that the use of continuous miners with either an integrated loading system, or a wheel loader and conveyor would yield 20%-30% operating cost savings compared to the shovel and truck method. Consequently, the Company will undertake more detailed assessment of this method.

Capital Cost Estimates

Capital costs of the Winchester project have been estimated at approximately \$4 million (including 30% contingency). Components of the capital costs of the project are shown in Table 5. Results of the study show that main components of capital expenditure are not sensitive to output capacity and that the capacity is primarily the function of demand for the magnesite rock. Level of production from the guarry would therefore ultimately depend on volume of off-take and/or long term sale agreements in place at the time. The study assumed that contractors would be used for majority of project operating tasks thus reducing capital costs by limiting the need for owner operated equipment. Capital cost has been estimated for the development of open pit operations with required access roads, diversion channels, waste and water management and site infrastructure etc. Two variants were evaluated, bench-bench and staged development. The study was based on a conceptual quarry that could operate at various capacity levels, 250,000T/y ROM capacity, 500,000T/y ROM capacity and 1,000,000T/y ROM capacity. Capital cost estimates shown in Table 5 assume bench-by-bench development scenario. Under the staged development variant the capital costs will be slightly reduced but the operating costs will not change. The difference in capital costs estimates between the two development variants (bench-by-bench and staged development) is negligible and can be disregarded for the purposes of this study. Layout of the project under bench-by-bench operating scenario with quarry and dewatering infrastructure is shown in Figure 2 and Figure 3.

Table 5 Project estimated capital costs in AU\$

SUMMARY	
WATER MANAGEMENT	626,810
SITE INFRASTRUCTURE	1,079,310
WASTE DUMPS	108,925
QUARRY	1,293,290
SUBTOTAL	3,108,335
CONTINGENCY (30%)	932,501
TOTAL ESTIMATE	4,040,836

#### Mining Plan

Results of the study show that average waste rock to ore ratio for the entire mining operation is 0.5 to 1 T/T. The average ratio of all waste (overburden plus waste rock) to ore for the entire mining operation was 0.6 to 1 T/T.

Over the life of the project the ratio will fluctuate. Initially, the waste rock to ore ratio would be about 1 to 1, while towards the end of quarry-life the ratio would be less than 0.2 to 1. The study shows that variable costs of mining and the waste/ore ratio would have little impact upon the size and shape of the open pit excavation over the quarry life examined in this study. The design criteria for the open pit and slope design parameters used in this study were summarised in the ASX report released on 13 January 2015. Link to this report appears below:







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http://www.asx.com.au/asx/statistics/displayAnnouncement.do?display=pdf&idsId=01590863

A thin layer (up to 5m) of unconsolidated soil and unconsolidated alluvium overlies the massive magnesite at the Winchester deposit. This overburden would require progressive removal to expose the hard, consolidated magnesite. It is expected that the unconsolidated, overburden could be removed by tractor scraper. Under shovel and drill/blast option, conventional open pit mining methods using rubber-tyred trucks and either a hydraulic excavator or rubber-tyred, front end loader were proposed for excavation of the open pit materials.

The second alternative is to use continuous miners with wheel loaders and/or conveyors. This option would reduce the mining costs by removing the need for blasting and possibly crushing of ore as well. Preliminary assessment based on quotations from contractors suggests a 20%-30% reduction in mining/crushing costs per tonne over the life of quarry.

Mineral Resources Estimates for Winchester Magnesite Deposit

This pre-feasibility study was based on the indicated mineral resource only. Current estimated mineral resources at Winchester, including both indicated and inferred categories, are shown in the following table:

Table 6 Mineral resources estimates

At 40% MgO Cut-Off	MgCO Mass	MgO grade	
	'000 Tonnes	%	
Indicated Resources	12,200	43.1	
Inferred Resources	4,400	43.6	
Total	16,600	43.2	

There has been no change to the Winchester mineral resource estimate since it was last reported in the Annual Report 2015. This information was prepared and first disclosed under the JORC Code 2004 on 17 July 2007. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported. The author of this report is not aware of any new information or data that materially affects the information included in the report released on 17 July 2007 and, in the case of mineral resources that all the material assumptions and technical parameters underpinning the estimates in the report released on 17 July 2007 continue to apply and have not materially changed. The form and context in which the findings of the report released on 17 July 2007 are presented have not been materially modified.

Support for Local Economy and Business

Winchester magnesite quarry has a potential to bring substantial economic and social benefits. Once operational, the quarry will generate significant royalties' income for the Northern Territory government. In addition to providing revenue stream for the government, the quarry will also directly benefit Territorians by supporting local businesses and providing jobs. Whilst there is no legal requirement to utilise local contractors and labour, local businesses and labour would be given preference as long as this would not have negative impact on the viability of the project. The project will aim to utilise local contractors operating on a campaign basis. Other than contractor's staff, there would also be a number of local personnel involved in establishing and operating the quarry

#### Location And Tenure

Winchester magnesite deposit is located within the Batchelor project near town of Batchelor, some 85km south of Darwin in the Northern Territory of Australia. See Figure 1, Figure 7 and Figure 8 for details. The deposit is located on a granted Mineral Lease ML30587 which is 100% owned by







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AusMag Pty Ltd, a wholly owned subsidiary of Korab Resources Ltd. Material modifying factors regarding the project, its development, offtakes, marketing and other aspects are listed in Table 7.

#### CONTACT

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#### ABOUT KORAB RESOURCES

Korab Resources Ltd is an international mining and exploration company with operations in Australia and Europe. Korab's projects include gold and silver deposit at Bobrikovo in eastern Ukraine, Geolsec phosphate rock deposit and Winchester magnesite deposit at Batchelor in the Northern Territory of Australia. The Company also explores for gold and copper at Ashburton Downs in Western Australia and for polymetallic deposits at Batchelor in the Northern Territory. More information about Korab's projects can be sourced from Korab's website at <a href="www.korab.com.au">www.korab.com.au</a>. Korab's shares are traded on Australian Securities Exchange (ASX) and on the Berlin Stock Exchange (Berliner Börse) through Equiduct electronic trading platform.

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able 7 Material modifying factors			
MODIFYING FACTOR Legal	COMMENTS  Winchester deposit is located within granted Mineral Lease (mining licence) ML30587 which covers 352 ha. The lease has been granted to 20 October 2040 and can be renewed. East Africa Resources Limited (ASX: EAF) is entitled to a royalty of 5% of net profits achieved after deduction of all operating costs, transportation and sales costs and all taxes, government charges, royalties and fees on sales of magnesite rock mined from Winchester deposit.		
Infrastructure	The deposit is located 2km east from the town of Batchelor along Batchelor road and 93km from Port of Darwin along Stuart Highway. Darwin to Adelaide rail line runs approximately 5km from the deposit. High voltage power runs along the Batchelor road next to the deposit. Additional high voltage power lines run across the project 2 km to the east of the deposit. Gas pipeline runs approximately 3 km east of the deposit. Potable water is available on site. Accommodation is available at Batchelor with alternative accommodation available in Darwin.		
Transportation	Sea transport is available from Darwin Port's East Arm which is located 93km to the north of the project. Bulk materials handling facility at East Arm includes an 850m rail spur, 1,500T/H rail bottom dump station, stockpiles, haul roads and a 2,000T/H travelling gantry shiploader. The shiploader is designed for Panamax class ships. Road transport by haulage trucks is available to the Darwin port and to South Australia, Victoria, New South Wales and Queensland via Batchelor road and then via Stuart Highway. Darwin to Adelaide railway line runs along Stuart Highway and is transected by Batchelor road approximately 5km from the deposit. Currently there are no rail loading facilities either at Batchelor or near the point where Batchelor road transects the railway line.		
Mineral Resources Classification	The mineral resources estimates that were used to underpin this report are classified as indicated mineral resources.		
Marketing (Off-take or Sale Agreements)	Development of Winchester depends on one or more long-term sale, or off-take agreements being signed by AusMag P/L ("AusMag"), the wholly owned subsidiary of Korab Resources Ltd and the owner of the Winchester magnesite project. Korab and AusMag have signed a heads of Agreement for an Offtake to supply 300KT/year for 5 years and are currently negotiating further sale agreements and offtakes for the ore from Winchester. Any offtake is contingent on AusMag receiving all government and other permits, authorisations and approvals required to develop the mine (see Mine Permitting below), and having the funding to develop and operate the mine. AusMag has entered into HoA regarding the funding for the development and operation of the quarry detailed terms of which are to be agreed following the signing of HoA.		
Mine Permitting	Winchester deposit is located on granted mineral lease ML 30587 held by Korab's wholly owned subsidiary AusMag Pty Ltd. Before the quarry can be established, an appropriate Mine Management Plan (MMP) will need to be submitted to the Northern Territory Department of Mines and Energy and AusMag will need to receive the authorisation to implement this MMP.		
Environmental studies	Environmental impact studies have been undertaken for the Winchester magnesite project and the assessment shows that the magnesite quarry will have a minimal impact. This is primarily because the project would be developed as a magnesite rock quarry with no processing of the rock other		







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	than crushing and screening. The quarry and associated infrastructure will have a very small footprint. Mobile equipment, including crushers will be utilised were possible. There are several rock quarries in the vicinity of the town of Batchelor, some abandoned and some in operation.
Native Title	Winchester deposit and the mineral lease are located wholly on freehold land and no native title approvals would be required to establish a quarry. However, any sacred sites and sites of anthropological or historical significance that may be located within the project area will be protected.
Social	Winchester magnesite quarry has a potential to generate significant royalties income for the Northern Territory government over the 14-year life of the project. In addition to providing revenue stream for the government, the quarry would also directly benefit Territorians by supporting local businesses and providing jobs. Whilst there is no legal requirement to utilise local contractors and labour, local businesses and labour would be given preference as long as this would not have negative impact on the viability of the project. The project will aim to utilise local contractors operating on a campaign basis. Other than contractor's staff, there would be a number of local staff involved in establishing and operating the quarry.

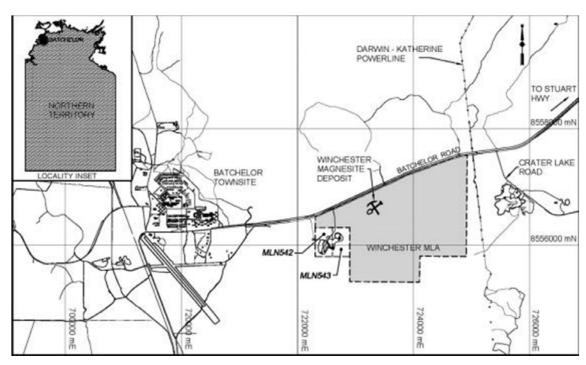


Figure 1 Site locality plan







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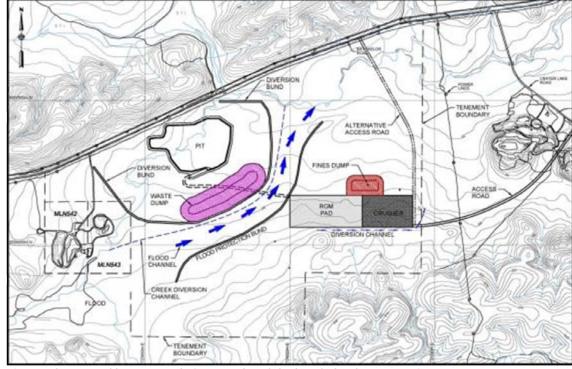


Figure 2 Conceptual layout at end of year 3 – bench-by-bench development variant

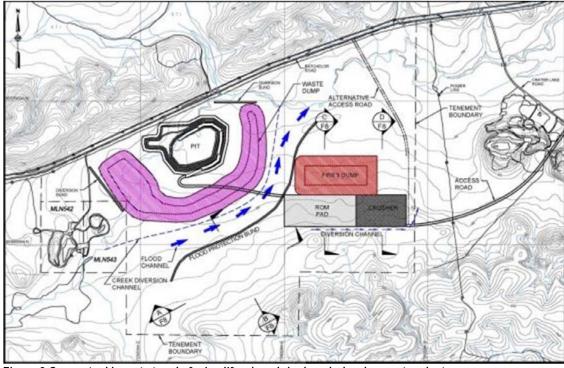


Figure 3 Conceptual layout at end of mine life - bench-by-bench development variant







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## MgO pricing (1913 - 2013)

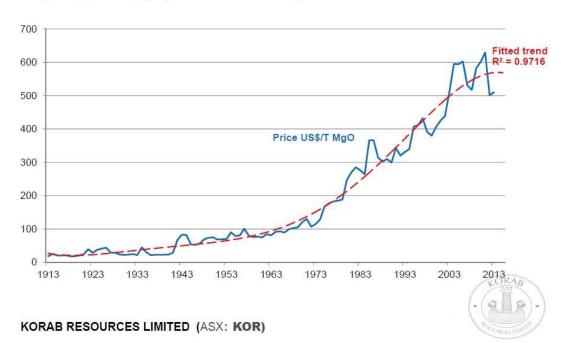


Figure 4 Magnesium oxide price in US\$

## World consumption of MgO (1913 - 2013)

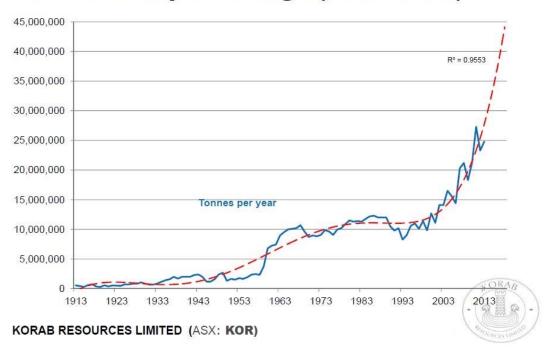


Figure 5 World consumption of magnesium oxide







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## Magnesite, lithium, graphite consumption



Figure 6 Magnesite market vs lithium and graphite



Figure 7 Location of Winchester quarry relative to Darwin







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Figure 8 Winchester Magnesite deposit relative to road, rail and sea freight transportation



