



POSITIVE SCOPING STUDY VALIDATES BUENA VISTA IRON PROJECT

Magnum Mining & Exploration (ASX:MGU, "Magnum" or "the Company") is delighted to announce the successful completion of a positive Scoping Study of its proposed Buena Vista Iron Project in Nevada, USA (Figure 1).

STUDY HIGHLIGHTS

- A Scoping Study of the Buena Vista Iron Project has been completed
 - The Scoping Study covers the mining and beneficiation of magnetite ores to Direct Reduction Iron grade concentrate
 - Technical and economic attractiveness of the proposed project is demonstrated
 - Project will access Buena Vista's 232Mt @ 22.6% DTR Indicated and Inferred resources¹
 - Production rate of up to 1.6Mtpa of DRI grade concentrate proposed
 - The market for DRI is buoyant and shows signs of strengthening
 - Scoping Study completed to a $\pm 35\%$ accuracy
-

CAUTIONARY STATEMENT

The Scoping Study referred to in this announcement has been undertaken to determine the likely economic potential of the Project and as a basis for moving on to a Prefeasibility Study. It is a preliminary technical and economic study of the potential viability of the Buena Vista Iron Project. It is based on low level technical and economic assessments that are not sufficient to support the estimation of ore reserves. Further evaluation work and appropriate studies are required before the Company will be in a position to estimate any ore reserves or to provide any assurance of an economic development case.

The Scoping Study is based on the material assumptions outlined in this release. These include assumptions about the availability of funding. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

¹ Refer to ASX:MGU – 'Maiden JORC 2012 Resource for Buena Vista Magnetite Project', 23 March 2021.

To achieve the range of outcomes indicated in the Scoping Study, funding in the order of US\$280 million will likely be required. Investors should note that there is no certainty that the Company will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares.

It is also possible that the Company could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company's proportionate ownership of the Project.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

BASIS OF THE SCOPING STUDY

This Scoping Study is based on the Feasibility Study undertaken by GR Engineering Services for Nevada Iron Limited, a 100% subsidiary of Richmond Mining Limited, in 2011². A Fatal Flaw analysis was carried out by SRK Consulting (U.S.), Inc in 2013 and a Process Design Criteria was completed by Samuel Engineering of Colorado, USA in 2014³. These were completed to $\pm 10\%$ accuracy. The first two studies were used by AMC Consulting to prepare and lodge an NI43-101 report for the North American market. GRES, SRK, and AMC are recognised world experts in the minerals industry.

The Buena Vista Iron Project is held by Nevada Iron LLC, a wholly owned subsidiary of Magnum. The design criteria for the Project remains unchanged in the areas of mining and beneficiation for this Scoping Study. MinRizon Projects Pty Ltd ("MinRizon"), an industry leader in magnetite beneficiation design and costing, was engaged to undertake the Scoping Study⁴. As the Feasibility Study design work is at a considerably higher level of specification than a Scoping Study, and using MinRizon's database of current capital costs, the resulting updating of those costs is considered to be at a $\pm 35\%$ accuracy level.

The Company considers the Project to be technically low risk given the well-studied metrics of the proposed mining and beneficiation operation.



Figure 1 Buena Vista Green Pig Iron Project Location, Nevada, USA

² ASX:RHM, "Richmond delivers positive feasibility study on the Buena Vista Iron Project", 9 May, 2011.

³ ASX:RHM, "Quarterly report for the period ended 30 June 2014", 30 July, 2014.

⁴ "Capital and Operating Cost Update of the Buena Vista Iron Project, Nevada, USA prepared for Magnum Mining and Exploration Ltd", MinRizon Projects, Report C1042 Rev, 5 April, 2023.

SCOPING STUDY HIGHLIGHTS

The Scoping Study demonstrates the potentially strong financial metrics for the Buena Vista Iron Project (Table 1). The assessment is based on a proposed stand-alone open pit mine supplying a conventional crush, grind, and magnetic separation process.

Magnum is targeting a 1.6 Million tonne per annum (Mtpa) Direct Reduction Iron (DRI) magnetite concentrate production rate over an initial Life of Mine of 25 years.

A capital cost (CAPEX) of US\$182 to \$378M and an operating cost (OPEX) of US\$44 to \$90/tonne are estimated. Revenues assume pricing based on a 68% Fe product with an applied DRI premium. Summaries of CAPEX, OPEX and potential financial outcomes are shown in Table 1.

Table 1 Scoping Study Parameters and Material Assumptions. All amounts are in US dollars.

Capital Costs (US\$) to an accuracy of ±35% (US\$ Millions)	
Beneficiation plant	\$96 - \$200
Infrastructure	\$28 - \$58
EPCM	\$28 - \$59
Owner's costs	\$9 - \$20
Operating Costs (US\$) to an accuracy of ±35% (US\$)	
Beneficiation costs	\$44 - \$90 /tonne
Economic Analysis (US\$)	
Internal Rate of Return (IRR)	26 – 54%
Net Present Value _{10%}	\$360M to \$748M
Pay-Back Period	3 - 5 years
DRI Concentrate price assumption	\$159/t
Initial Life of Mine	25 years
Concentrate production rate	1.6Mtpa

PROJECT LOCATION AND DESCRIPTION

The Buena Vista iron Project is located in central western Nevada, USA (Figure 1). The property, consisting of over 60km² of patented and unpatented claims, BLM land, and fee land is 160 km east-north-east of Reno and 35km southeast of Lovelock, Nevada. Lovelock is on State Highway 95 along which a railway runs.

GEOLOGY AND MINERALISATION

The Buena Vista magnetite deposit is associated with the Humboldt Gabbro lopolith. It is characterised by an assemblage scapolite-hornblende-clinopyroxene-calcite-magnetite, which can contain up to 100% magnetite, but generally contains 20 to 60% magnetite. The gabbro has been intensely altered by late-stage metasomatic processes and dissected by multiple phases of faults.

Magnetite mineralisation has been introduced by the alteration event and is controlled by faulting. Breccia zones and fine fractures are common. The relative abundance of these ground conditions produce the variations in mineralisation types from massive magnetite pods through to light disseminations. Iron grades vary from trace to 68% Fe².

Much of the magnetite at Buena Vista liberates at relatively coarse sizes. This allows for a considerable upgrading by the removal of barren material during the early stages of processing, reducing costs and allowing lower grade material to be utilised.

MINING AND MINERAL RESOURCES ESTIMATE

The Mineral Resource Estimate (MRE) used in the Scoping Study, at a 10% Fe grade cut-off, is shown in Table 2⁵. The Scoping Study considered accessing the West Deposit resource only.

Table 2 Mineral Resource Estimate at Buena Vista

Deposit	Resource Category	Tonnes Million	Fe %	DTR %
Section 5	Indicated	34	17.4	21.0
	Inferred	8.0	16	18
	Subtotal	42	17	20
West	Indicated	117	19.5	23.9
	Inferred	40	17	21
	Subtotal	157	19	23
East	Indicated	-	-	-
	Inferred	33	19	23
	Subtotal	33	19	23
Combined	Indicated	151	19.0	23.2
	Inferred	81	18	22
Total		232	18.6	22.6

While the head grade from the mining schedule varies from period to period, the overall head grade delivered to the beneficiation plant over the medium to long term closely mimics the MRE grade shown in Table 2.

MINING FACTORS AND ASSUMPTIONS

Mining is proposed to be completed by conventional open pit mining methods. Operations will consist of industry standard drill and blast, and load and haul to the on-site beneficiation plant. The open cut mine operations parameters are:

- Three initial stages of pit development
- Bulk mining by bench
- The resource block model was regularised to 30m x 15m x 15m parent blocks and 15.25x7.5x7.5m minimum sub blocks to reduce dilution for mining evaluation.
- 98% mining recovery through over mining. The contact between mineralisation and barren rock is gradational and defined economically. The mineralisation is not stratabound.
- Overall Pit slopes – 53°
- 5m benches
- 20m ramp width with maximum 10% gradient
- Contract mining

⁵ ASX:MGU – ‘Maiden JORC 2012 Resource for Buena Vista Magnetite Project’, 23 March, 2021.

- Mining production rate of circa 7.2Mtpa of ore delivered to the ROM pad. This may change going into a Prefeasibility Study

A prestrip is not required as the ore outcrops. The average Life of Mine stripping ratio is 0.46 and does not exceed 1.15.

METALLURGICAL FACTORS OR ASSUMPTIONS

Metallurgical recoveries used in the Scoping Study are based on extensive metallurgical test work undertaken from 2010 to 2023 by Colorado School of Mines Research Foundation, AMMTEC (Perth), FLSmidth, SGS, Hazen Research Inc, and COREM (Quebec). MinRizon were engaged to undertake a review of all historic work and oversee further test work by ALS Global.

Flowsheet simulation, prepared by GR Engineering Services, resulted in the assumptions shown as Table 3 being adopted. Mineral recovery is based on results from both historical and a current metallurgical test work program⁶.

Table 3 GRES recoveries for a 1,000kt notional low-grade ore run.

Item		kt	Fe%	Fe Units
LG Total		1,000	18.00	18,000
Coarse reject	5%	50	5.00	250
Balance		950	18.68	17,750
LIMS reject	40%	380	6.00	2,280
Balance		570	27.14	15,470
Wet plant feed		570	27.14	15,470
Recovered Fe	90.3%			13,977
Concentrate		207	68.1	

This is considered conservative as it uses an assumed ore grade lower than that of the MRE.

Grindability testing was undertaken by US Steel (in-house) and AMMTEC (Perth) with the latter returning the results shown in Table 4⁷.

Crush and bond work indices indicate the ore is moderately hard and amenable to crushing and grinding using industry standard equipment.

⁶ ASX:MGU "Test work confirms +68% Fe high grade iron ore", 10 March, 2023.

⁷ "Physical and Magnetic Characterisation conducted on Three (3) Iron Ore Rock Samples for Richmond Mining Limited", Report A12768, Aug 2010.

Table 4 Physical properties of Buena Vista ores.

Property	Value
Ball Mill Wi at 106 μ	12.4 kWh\short ton
Calculated Wi from Pilot Rod Mill	12.8 kWh\short ton
Pilotac Index	70
UCS (>60% Fe)	18.8 mPa (weak)
UCS (<14.8% Fe)	34.1 mPa (medium strong)
Abrasive Index (>60% Fe)	0.125
Abrasive Index (<14.8% Fe)	0.157

PROPOSED MINE SCHEDULE

The Project is based on a 25 year mining and magnetite concentrate production rate. It is proposed that an average of approximately 7.2Mt of ore and 3.6Mt of waste would be mined per year from the West Deposit which, for scheduling purposes, includes the Section 5 resource (Figure 3).

The summary of the notional annual schedule is shown in Figure 2. This schedule may change as the project progresses to Feasibility Study.

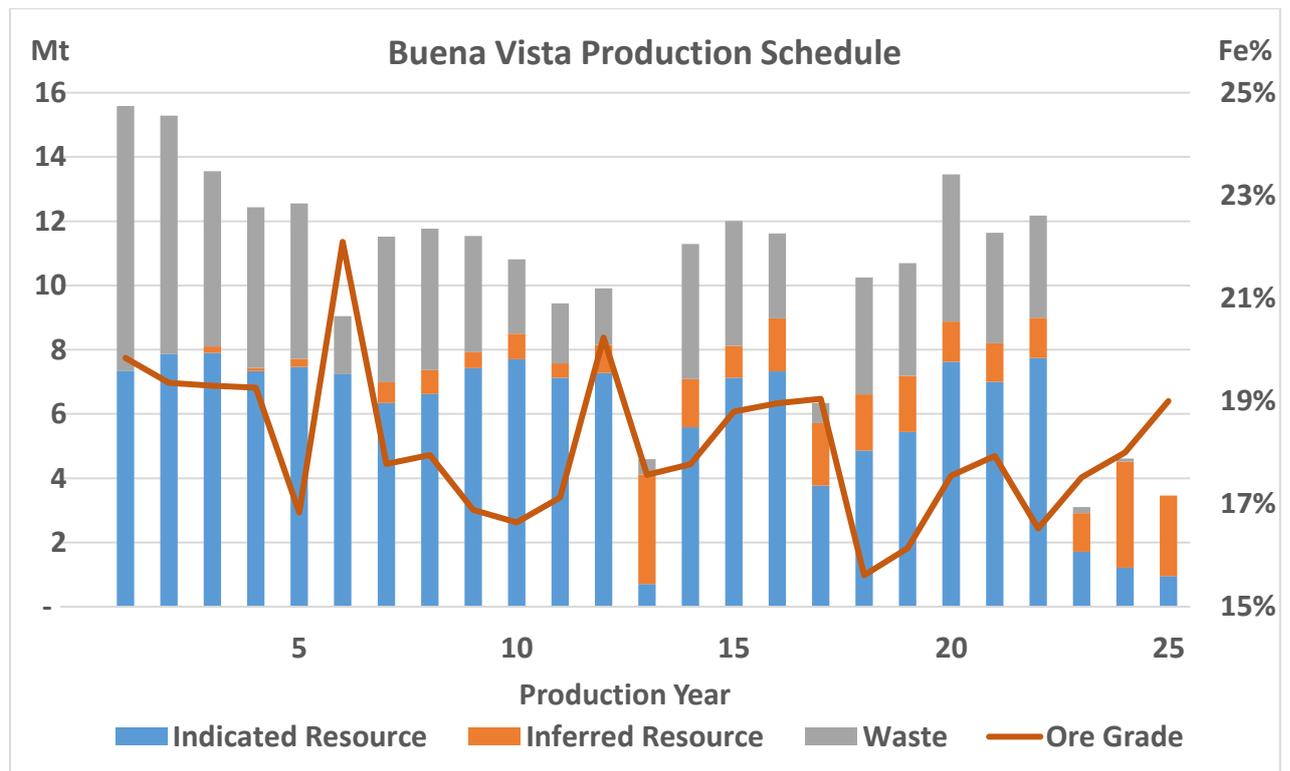


Figure 2 Notional production schedule for the Buena Vista Iron Mine

Over the 25 year current Life of Mine, 84% will be sourced from Indicated Resources and 16% from Inferred Resources. Indicated and Inferred resources will be mined contemporaneously as the pit advances. The risks of doing this are considered low as Inferred Resources are not bracketed by drill hole data that

intersected above the cut-off used in the MRE, yet are bracketed by holes exhibiting magnetite mineralisation. The proposed pit's depth extent accesses high grade ore in the final cut. The conversion of Inferred Resources to Indicated Resource category is considered highly probable by the independent expert⁸. There is a low level of geological confidence associated with Inferred Mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised. The stated production target is based on Magnum's current expectations of future results or events and should not be solely relied upon by investors when making investment decisions. Further evaluation work and appropriate studies are required to establish sufficient confidence that this target will be met.

Magnum advises that the Inferred Resources are not a determining factor in the Project's viability and that the Inferred Resources are not required early in the mine plan. No Exploration Target Estimates are used in the Scoping Study.

The East Deposit may be considered for extending the LOM at a later date, though this extension is notional only and not part of this Scoping Study, nor does the Scoping Study depend on that extension.

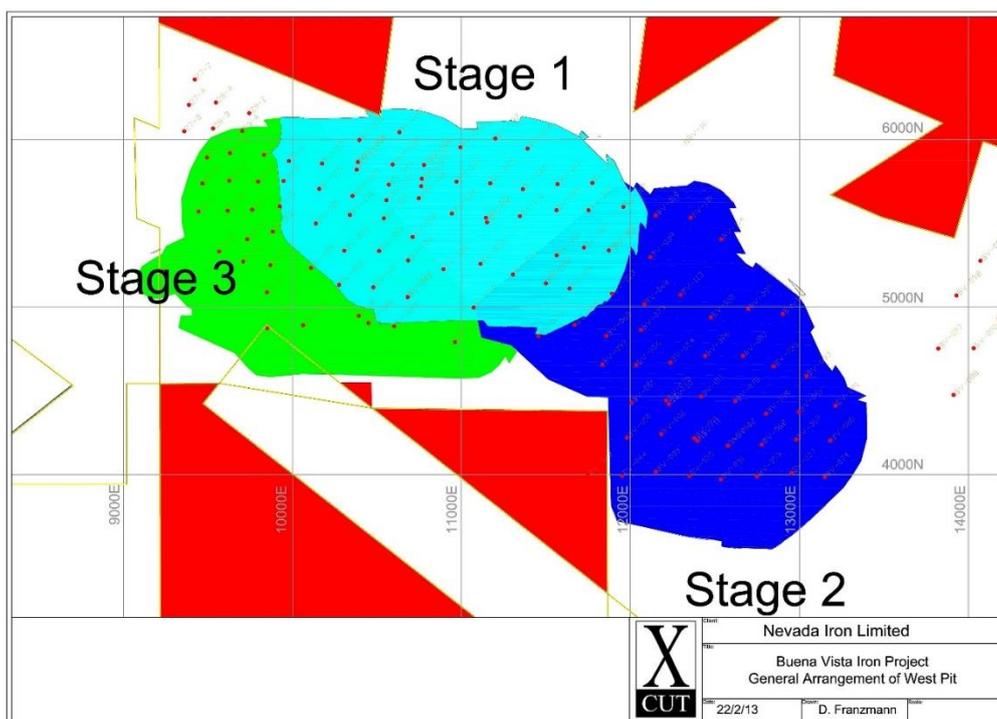


Figure 3 Mining sequence at the Buena Vista Iron Mine.

INDUSTRY STANDARD, LOW-COST PROCESSING

Buena Vista's magnetite ore will be beneficiated using industry standard methods: primary, secondary and tertiary crushing, followed by coarse wet magnetic separators to reject nonmagnetic portions to waste.

⁸ "Capital and Operating Cost Update of the Buena Vista Iron Project, Nevada, USA prepared for Magnum Mining and Exploration Ltd", MinRizon Projects, Report C1042 Rev, 5 Pp 4-5, April, 2023.

The upgraded magnetic portion is the fed into a primary ball mill to reduce material to a nominal P_{80} of $500\mu\text{m}$. This then feeds into a parallel set of wet low Intensity magnetic separators (WLIMS) from which the magnetic component then undergoes secondary grinding to a $65\mu\text{m}$ sizing. Tertiary grinding to $-40\mu\text{m}$ sizing will be required for low grade ore. A secondary WLIMS circuit produces the final +68% Fe magnetite concentrate. The plant has a nameplate capacity of 1.6Mt per year magnetite concentrate.

The overall processing iron recovery is estimated at 77.65%.

Concentrate and tailings filtration will be used to minimise water usage and to allow dry stacking of tailings.

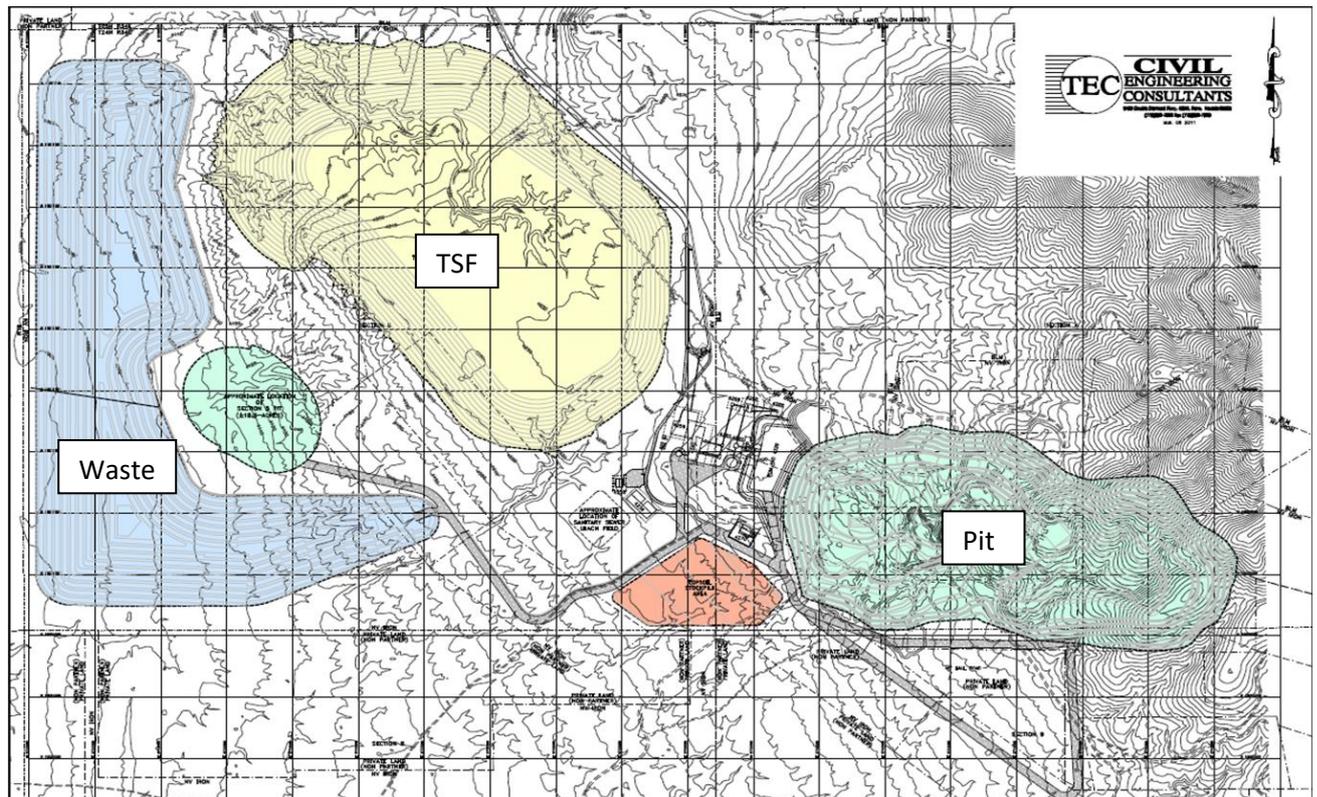


Figure 4 Proposed mine site layout.

INFRASTRUCTURE

The plant and infrastructure associated with the Scoping Study comprises:

- Process plant, office, laboratory and workshop facilities
- Mine, stockpiles and waste dumps
- Tails Storage Facility (TSF)
- Water supply bore field and pipe routes
- Access roads to and within the plant, mine and site

The general proposed Project site plan is shown in figure 4

The power requirements for the operation have been calculated as 12.3MW. The power is proposed to be drawn from the high voltage grid that is proximal to the site. This power line is dominated by renewable

power from Nevada's geothermal power generation capacity and the state's existing and proposed solar power sources. No power supply contracts have been put in place yet.

Water rights for the supply of water to the beneficiation plant have been secured. This includes a Permit to Appropriate Water from state lands. While monitor water bores have been completed, the production bore field is yet to be established.

The Project site is approximately 51km by road from a rail siding and high voltage powerlines. Magnum has secured an option for land at the siding for load out facilities.

Three Pacific coast ports, namely Sacramento, Richmond, and San Francisco, are serviced by the rail. The rail is part of the US rail network, potentially allowing raiing to domestic customers. Negotiations are yet to be completed on access and final cost structure for the Project's transport needs.

A mine camp will not be required due to the proximity of the towns of Lovelock, Fallon, Winnemucca, and the city of Reno.

PERMITTING, ENVIRONMENTAL AND SOCIAL

The Project site is a fully permitted mine due to its previous history of production. It is located entirely on private land. As a consequence, requirements of the National Environmental Policy Act do not apply. The Company's proposed activities fall under the Nevada State mandated environmental compliance processes. Under that regulatory regime, the following permitting has been obtained, or ready to be enacted on commencement of mining:

Environmental		
Air Quality Operating Permit	Surface Area Disturbance Permit	Cultural Resources
Endangered Species Act	Hazardous Materials Permit	Hazardous Waste EPA ID
Industrial Artificial Pond Permit	Protection of wildlife	State Groundwater
Stormwater NPDES General Permit	Water Pollution Control Permit	Abatement of Hazardous Conditions at Abandoned Mine
Mining		
Permit to construct dam	Permit to Appropriate Public Waters	Permit to Purchase, Transport or Store Explosives
Opening and Closing Mines	Notification of Commencement of Operation	Mining Reclamation Permit
Mineral Exploration hole plugging	Mine Registry Form	Mine Individual Identification Number
License for radioactive materials	Fire & Safety	Drinking Water Supply Facilities
Annual Status & Production Report	Right of way for electric transmission on BLM land	Road access on BLM land
Sanitation facilities	Special Use Permit	Use of BLM Administered Land
Transport		
Oversize Hauling Charges	Occupancy Permit	Grading Permit
Road Maintenance Agreements	Building Permit	

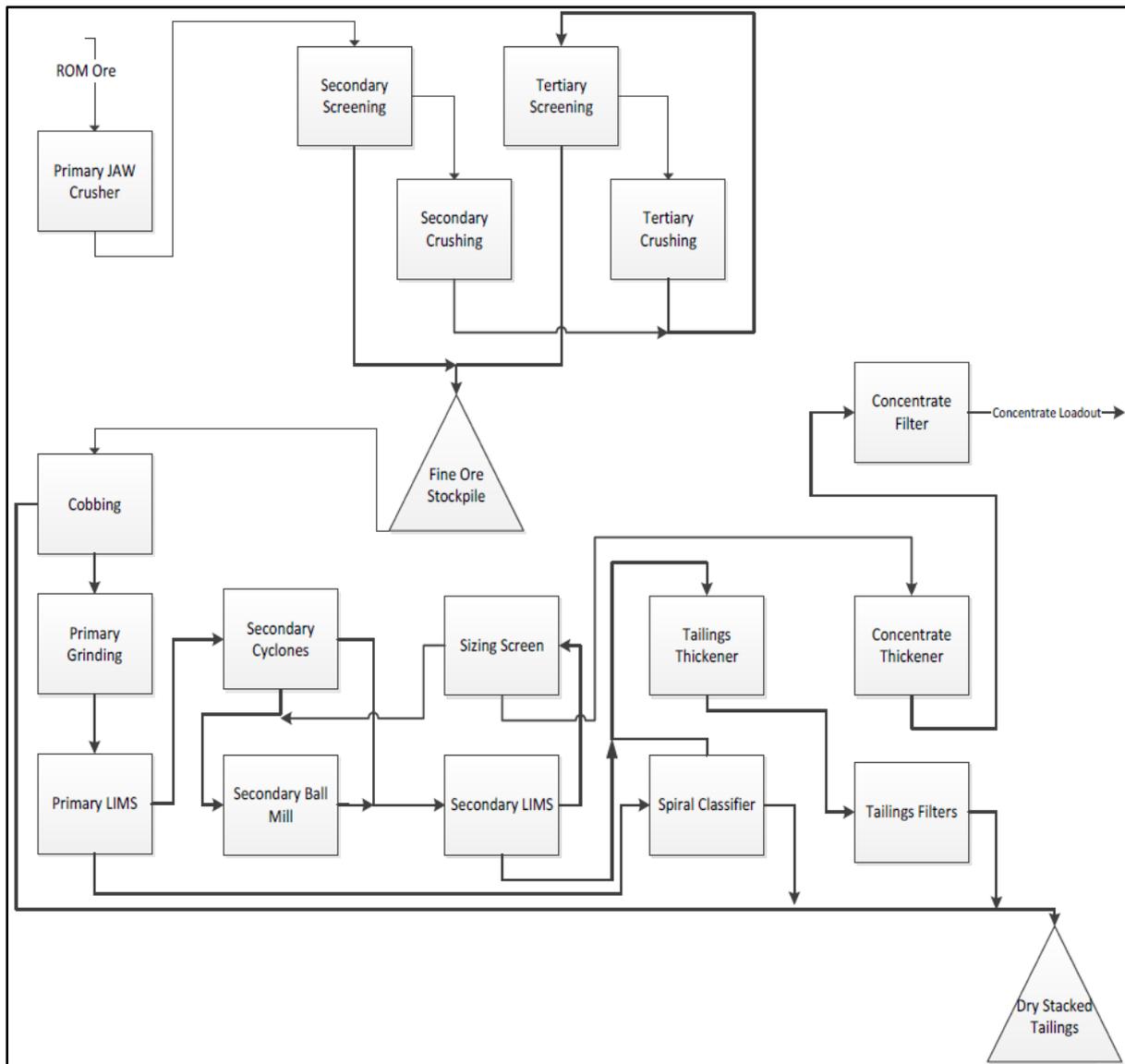


Figure 5 Proposed processing flowsheet for ore beneficiation at Buena Vista.

No waste or tailings remediation is required as these do not form toxic run-off⁹. Protection of existing waterways are covered under the Water Pollution Control Permit. Where infrastructure crosses Bureau of Land Management land, permits from that authority may be required. Magnum expects additional work to be undertaken if these permits are required.

As the mine area occurs on private property it is not subject to Native American land claims. There are no such claims currently before the Supreme Court of the USA for this area.

Consultation with local communities, the general public and private interests (e.g. tourism, environmental organisations, local taxpayer's organisation, etc.) is ongoing. No significant environmental or stakeholder issues have been identified with strong support shown for the Project from County and State authorities.

⁹ Nevada Administrative Code (NAC) 445A.401, Nevada Iron LLC, Buena Vista Mine, NEV2014122 (New 2015, Fact Sheet Revision 00), 23 June, 2015.

CAPITAL AND OPERATING COSTS

Capital cost items are based on the existing Feasibility Study Report. The capital cost estimates have been developed using MinRizon's project experience, the Engineer's Project Cost Database and manufacture/supplier pricing for major plant and equipment. All equipment has been assumed to be purchased new, as OEM systems.

Table 5 Beneficiation Plant CAPEX estimates. All amounts are in US dollars.

Beneficiation Process Plant by Area	
Area	Direct Cost (US\$)
Primary Crusher	1842990 - 3827749
Stockpile	5180093 - 10758654
AG mill	18136612 - 37668348
RMS concentration	2384560 - 4952549
Ball Mill Grind	9519749 - 19771788
Secondary Magnetic Separators	1309583 - 2719904
Concentrate Thickener	2189847 - 4548144
Filtration Plant	6438780 - 13372851
Water Systems	2268086 - 4710641
Misc. systems	21202179 - 44035296
Tailings Thickener	5743194 - 11928173
Tails Filtration	1609284 - 3342359
Tails Conveyor	546432 - 1134899
Buildings	4397778 - 9133847
Other NPI	982943 - 2041497
Regrind Mill	8281784 - 17200629
Cleaner Magnetic Separators	4112455 - 8541252
Total Direct Cost	\$96 to \$200M

Table 6 Infrastructure CAPEX estimates. All amounts are in US dollars.

Onsite and Offsite Infrastructure	
Specific Description	Direct Cost (US\$)
Colado Side Rail Facility	7096675 - 14739250
Transport Logistics Coal Canyon Road	2538861 - 5273020
Site base Infrastructure	3563261 - 7400619
Offsite Infrastructure	14898117 - 30942243
Total Infrastructure	\$28 to \$58M

The capital estimate is considered to have an accuracy of $\pm 35\%$. The above figures were converted to ranges using this $\pm 35\%$ as required by the ASX. Contingencies have been included in line items as required.

The operating costs used in the Study have been derived from MinRizon's operational experience and benchmarks factored to reflect costs in Nevada, USA. The operating costs used in the economic assessment are summarised in Table 7, Table 8 and Table 9.

Table 7 Manning and mining operating costs. All amounts are in US dollars.

OPEX	
Description	Annual Rate (US\$)
Project Manager	162500 - 337500
Alternate Project Manager	120250 - 249750
Mining Administrator	120250 - 249750
Workshop Superintendent	175500 - 364500
Site Engineer	321750 - 668250
Grade control Geologist	107250 - 222750
Mining Supervisor	192400 - 399600
Safety Training	192400 - 399600
Subtotal	1392300 - 2891700
Manning (Inc R&R) all in costs	5785325 - 12015675
Primary Mining Plant Annualised	
CAT 992K- FEL	154440 - 320760
Cat D10 Dozer	163800 - 340200
CAT16G Grader	74100 - 153900
CAT773W/C Water Cart	85800 - 178200
Hitachi EX1200 Excavator	312000 - 648000
Hitachi EX1900 Excavator	530400 - 1101600
PC3600 Excavator	943800 - 1960200
Dump Truck 785G	486720 - 1010880
Dump Truck 785G	608400 - 1263600
Dump Truck 785G	243360 - 505440
Control Grade Drill Rig	78000 - 162000
Light Vehicles	147420 - 306180
Mining Operating Costs	
Light Truck	49140 - 102060
Bus	84240 - 174960
Lighting Plants	121680 - 252720
Service Truck	112320 - 233280
Blast and Wash Trailer	19890 - 41310
Service Trailers	23400 - 48600
SubTotal	4238910 - 8803890
Fuel oils consumables	2730000 - 5670000
Mining Op Cost/tonne of concentrate	\$14.14 to \$29.38

Table 8 Processing plant operating costs. All amounts are in US dollars.

Operating Costs Breakdown - Processing	
Process Plant	Cost (\$US/t)
Power	8.45 - 17.55
Process Water	0.01 - 0.04
Flocculent	0.24 - 0.51
Grinding Media	0.39 - 0.81
Tailing Disposal	1.17 - 2.43
Vehicles Process	0.12 - 0.25
Conveying	0.02 - 0.05
Filter Media	0.8 - 1.67
Jaw Liners	0.05 - 0.1
Ag Mills	0.05 - 0.12
BM Liner 4 Mw	0.01 - 0.02
Office	0.05 - 0.1
Insurances	0.18 - 0.37
Consumable General	0.08 - 0.17
Maintenance	1.28 - 2.67
Personnel	2.73 - 5.67
Miscellaneous Cost	0.09 - 0.18
Contingency	1.56 - 3.25
Processing Op Cost/ tonne of concentrate	\$17.35 - \$36.03

LOGISTICS

The Transport and Logistics operational costs are shown in Table 9.

Table 9 Transport operating costs. All amounts are in US dollars.

Operating Costs Breakdown - Logistics	
Process Plant	Cost (\$US/t)
Road Haulage to rail siding	5.23 – 10.83
Rail to Port	7.15 – 14.85
Port costs	12.53 – 26.03
Shipping costs, notionally to China	11.70 – 24.30
Logistics Op Cost/ tonne of concentrate	\$36.61 - \$76.01

MARKET ASSESSMENT

DRI grade magnetite concentrate is freely traded around the world. The spot price is open and transparent. While major part of that market is in seaborne trade, a notable demand for DRI grade feeds is opening up in the USA steel industry. That demand, and the pricing premium it is driving, is caused by a desire to lower steel maker's emissions in response to the Paris Agreement on reducing greenhouse gas emissions. Magnum has entered into an MOU with Mitsubishi as a prelude to a negotiated offtake agreement to

supply this high-grade magnetite concentrate to them in the USA¹⁰. While there is no guarantee that an agreement will be finalised, it nonetheless shows the interest there is locally in a high value DRI product.

PREMIUM GRADE CONCENTRATE FOR A LOW EMISSIONS FUTURE

Magnum's business model is driven by:

- Ownership of one of the largest iron resources outside the Lake Superior iron mining district
- Focussing on producing sought after DRI grade concentrate to reduce steel mill carbon emissions
- Fully permitted iron ore mine on private property
- Ready access to rail, road, gas, power, and port infrastructure
- Direct rail access to Pacific ports
- Large water permits in place
- Building certification as a net zero carbon emissions business through the use of locally available renewable electricity

POTENTIAL PROJECT FUNDING

Magnum is in negotiations with a number of multinational organisations for project collaboration, models for which include product off-take agreements with pre-payment arrangements, equity involvement, and debt financing. Magnum has already entered into one such arrangement and expects to be able to secure others¹¹.



Magnum currently holds a favourable A\$20 million convertible note facility which provides flexibility to allow it to undertake feasibility studies¹². Ongoing discussions with international banks and consultants are also exploring financing options in the debt and equity markets to facilitate possible capital raisings¹³.

The Directors of Magnum have considered the risks of funding, taking into account:

- Future steel maker's needs for high grade iron feeds¹⁴
- The growing premium being paid for green iron and the expectation that this will escalate as the world approaches a zero-emissions requirement for new projects¹⁵
- The state of the global equities market and the timing or required funding for this Project

¹⁰ ASX:MGU "Mitsubishi enters into offtake MOU with Magnum", 10 May, 2023.

¹¹ ASX:MGU "Mitsubishi enters into an offtake MOU with Magnum", 10 May, 2023.

¹² ASX:MGU – "Magnum secures funding facility", 2 May, 2022.

¹³ ASX:MGU – "Magnum appoints New York based EAS Advisers to advance its financing strategy", 16 June, 2023

¹⁴ 'High-grade iron ore, metallics in focus to enable DRI, low-emissions steel' - S&P Global Commodity Insights, 6 July, 2022.

¹⁵ 'Global Merchant Pig Iron Market Expected to Attain 8.7% CAGR And Reach US\$1,24,179 Million By 2027: Facts & Factors' – Global News Wire, 17 March 2021.

- Comparable projects and their pathway from junior explorer to mid and large tier producer in relatively short time (eg, Champion Iron, Fortescue Metals Group).

The Directors of Magnum consider that the Company has reasonable prospects of engaging with a major investor to fund the Buena Vista Iron Project. Engagement may include, but is not limited to:

- a prepayment off-take agreement
- a farm-in joint venture
- an outright sale of the Project

In relation to the above, Magnum also confirms that it has commenced confidential discussions with potential funding parties as follows:

1. Magnum is in the final stages of negotiations with a US investment bank for a dual listing on the NASDAQ.
2. Magnum is in discussions with major international mining houses for financing, and pre-payment off take funding options.
3. Magnum has commenced preliminary discussions with possible debt financiers.
4. Steel suppliers both in Asia and the Gulf have commenced early discussions with agents of the Company.
5. Magnum is in early discussions with an ESG fund in relation to an investment in the Company.

MARGIN OF ERROR AND SENSITIVITY

The Study outcome was sensitivity tested for key financial inputs including: iron concentrate price, operating costs, and capital costs. These inputs were tested by flexing with variations of $\pm 15\%$ (Figure 6). The Project is most sensitive to revenue (product pricing) streams.

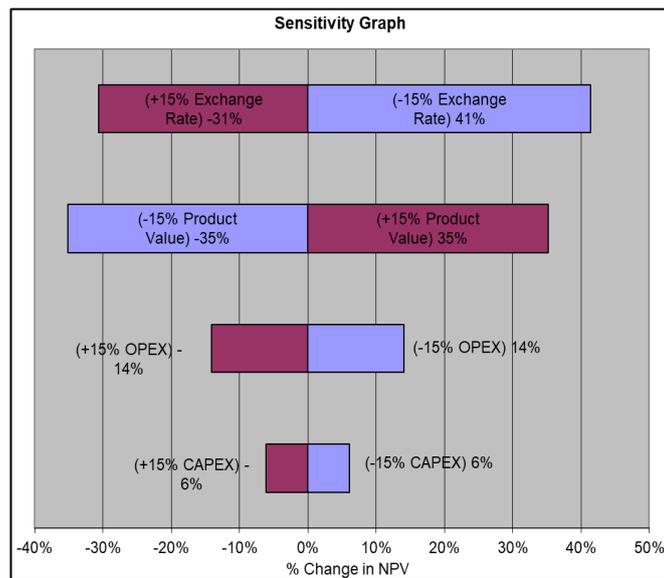


Figure 6 Sensitivity analysis for the Buena Vista Iron Project

TIME FRAME FOR DEVELOPMENT

Magnum is progressing the Project rapidly. The Company expects to embark on a Prefeasibility Study within a year, followed by the Feasibility Study. Both Studies are expected to take approximately one year each. Magnum is currently seeking funding to advance these studies and to secure funding optionality for Project development.

IDENTIFIED RISKS

Risks identified for the Project include:

- Volatility in iron pricing and demand
- Industry inflation rates that may impact CAPEX and OPEX estimates
- Supply chain issues to support the project's build

OPPORTUNITIES AND NEXT STEPS

As the Project moves to Prefeasibility Study, the Company will, through additional drilling, seek to have the current Indicated Resources reclassified as Probable Reserves. However, there is no certainty that further exploration will be successful or that a Probable Reserve will be identified.

The Scoping Study covers the mining and beneficiation of magnetite ores to DRI grade concentrate. Magnum will continue to pursue downstream iron processing through the application of HIs melt technology. HIs melt has the proven ability to deliver green, high purity pig iron using renewable

biomass. Magnum has inked an agreement with Renex Group to undertake feasibility studies for the provision of a biochar facility for this purpose. Along with this, Magnum has recently completed a digital twin that is a collection of simulated data from all production facilities and stores them on an immutable block-chain database. Use of this data will allow auditing and certification of the carbon credits captured via the use of sustainably sourced biomass. The link <https://magnum.demo.tymlez.com/> connects to a live “digital twin” of Magnum’s proposed iron ore mine, biochar plant, and pig iron plant¹⁶. These investigations may not prove successful and / or economic and the production of green pig iron may not be feasible.

A nonbinding MOU has been signed with Shandong Province Metallurgical Engineering Co. Ltd (“SDM”) to perform a Feasibility Study for a HIs melt Plant at the Buena Vista Iron Project in Nevada, USA¹⁷. In addition, a tripartite agreement clears the way for Magnum to be awarded a license to build and operate a HIs melt plant¹⁸.

The US Senate is considering an appropriations application through sponsor Senator Manchin of West Virginia to assist Magnum in establishing a HIs melt facility in that state¹⁹.

Optimisation of the mining and beneficiation process is being pursued. On the mining side:

- Identification of possible early production high grade iron is underway with a shallow drilling campaign to identify possible Direct Shipping Ore sources
- Review of crushing, screening, and dry magnetic separation flowsheets to produce a lower cost concentrate
- Evaluation of existing historic “low grade” and “disseminated ore” stockpiles on the mine site that remained from high grade mining in the 1960s
- Investigations into construction of a pilot plant to fully characterise and test metallurgical test work recovery outcomes.



Figure 7 Existing pit at the Buena Vista. The mine and unmined resources, the subject of the Scoping Study are situated on private land and so are not subject to many of the permits and regulatory requirements that apply to public lands.

¹⁶ ASX:MGU “Biochar agreement signed with Renex”, 8 February, 2023.

¹⁷ ASX:MGU “SDM signs landmark agreement with Magnum”, 10 May, 2023.

¹⁸ ASX:MGU “Magnum secures pathway to HIs melt license”, 18 May, 2023.

¹⁹ ASX:MGU “US Senator Manchin requests appropriation in support of Magnum’s Appalachian Iron Project, 17 May, 2023.

THE BUENA VISTA IRON DEPOSIT

Buena Vista Iron Deposit is located approximately 160km east-north-east of Reno in the mining friendly state of Nevada, United States. It was discovered in the late 1890's and in the late 1950's to early 1960's around 900,000 tonnes of direct shipping magnetite ore with an estimated grade of 58% Fe was mined.

In the 1960's, US Steel Corporation acquired the Buena Vista Project and carried out an extensive exploration program including 230 diamond drill holes and considerable metallurgical test work. Richmond Mining Limited, an ASX listed company, acquired Buena Vista in 2009 and commenced a detailed exploration program culminating in a definitive feasibility study in 2012. A key component of these studies was extensive investigation of the optimal logistics plan for the deposit's development. This included the negotiation of in-principle agreements with existing rail and port operators and the securing of all major mining permits. Detailed costings were completed on the trucking or slurry pipeline options to deliver the concentrate to the rail head located some 50 kilometres from mine site. A significant decline in iron ore prices to less than US\$50/tonne caused the then proposed development of Buena Vista to be deferred.

Geology

The Buena Vista Project magnetite deposits are the product of late-stage alteration of a localised intrusive local gabbro that resulted in intensely scapolitised lithologies and the deposition of magnetite. The most well-known example of this type of magnetite mineralisation is the Kiruna magnetite deposit in Sweden, which has been in production since the early 1900's.

The distribution and nature of the magnetite mineralisation at Buena Vista is a function of ground preparation by faulting and fracturing, forming a series of open fractures and breccia zones. These ground conditions produce variations in mineralisation types from massive pods grading +60% magnetite to lighter disseminations grading 10-20% magnetite.

Metasomatic magnetite deposits such as those at Buena Vista have important positive beneficiation characteristics over the other main type of magnetite deposit, which is a banded iron hosted magnetite, also known as a taconite.

The Buena Vista ore is of magmatic origin and as a consequence is coarser grained and softer than banded iron hosted ores. Industry standard crushing, grinding and magnetic separation produces a concentrate grade of +67.5% Fe with very low levels of impurities.

Resource

The Mineral Resource Estimate (JORC(2012)) at Buena Vista is²⁰:

Category	Million Tonnes	Fe %	DTR %
Indicated Resource	151	19	23.2
Inferred Resource	81	18	22
Total Resource	232	18.6	22.6

The Company confirms that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

Additionally, an Exploration Target has been identified²¹:

The potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Development

Mining permits are in place to develop the Buena Vista Iron Mine. The Company has re-aligned the project from a simple mining, concentration and exporting model to a proposed green pig iron producer. Using cutting edge technology in tandem with biochar sources, the Company aims to capitalise on a first-mover advantage to supply green pig iron to the USA steel industry.

²⁰ ASX:MGU – 'Maiden JORC 2012 Resource for Buena Vista Magnetite Project', 23 March 2021.

²¹ ASX:MGU – 'Significant Exploration Target Defined', 13 January 2023.

CAUTIONARY STATEMENTS

COMPETENT PERSON'S STATEMENT – RESOURCE ESTIMATION

The information in this announcement that relates to Mineral Resources is based on information compiled by Mr Jonathon Abbott, a Competent Person who is a Member of the Australian Institute of Geoscientists and a full time employee of MPR Geological Consultants Pty Ltd. Mr Abbott has sufficient experience which is 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 2012 edition of the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves". Mr Abbott consents to the inclusion of the matters outlined in this announcement in the form and context in which they appear.

COMPETENT PERSON'S STATEMENT – EXPLORATION TARGET ESTIMATION

The information in this announcement that relates to an Exploration Target is based on information compiled by Mr Marcus Flis, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy and a full time employee of Rountree Pty Ltd. Mr Flis has sufficient experience which is 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 2012 edition of the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves." Mr Flis consents to the inclusion of the matters outlined in this announcement the form and context in which they appear.

The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified.

NO NEW INFORMATION

The Company confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters underpinning the estimates in the announcement of the 'Maiden JORC Resources for the Buena Vista Magnetite Project' dated 23 March 2021 continue to apply and have not materially changed.

PRODUCT PRICING

Pricing assumptions are based on current and forecast economic conditions and may change as the proposed Project moves to production.

MODIFYING FACTORS

The Buena Vista Iron Project has undergone a full Feasibility Study in 2011 and was set to start operation in 2012 before iron price fluctuations caused the project to be put on hold. The Company does not consider that any significant Modifying Factors related to mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental regulations exist that will have a significant impact on the ability for this project to proceed.

FORWARD LOOKING STATEMENTS

This release contains "forward-looking information" that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to studies, the Company's business strategy, plan, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this news release are cautioned that such statements are only predictions, and that the Company's actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information.

Forward-looking information is developed based on assumptions about such risks, uncertainties and other factors set out herein, including but not limited to general business, economic, competitive, political and social

uncertainties; the actual results of current development activities; conclusions of economic evaluations; changes in project parameters as plans continue to be refined; future prices of metals; failure of plant, equipment or processes to operate as anticipated; accident, labour disputes and other risks of the mining industry; and delays in obtaining governmental approvals or financing or in the completion of development or construction activities. This list is not exhaustive of the factors that may affect our forward-looking information. These and other factors should be considered carefully, and readers should not place undue reliance on such forward-looking information.

Neither the Company, nor any other person, gives any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. Except as required by law, and only to the extent so required, none of the Company, its subsidiaries or its or their directors, officers, employees, advisors or agents or any other person shall in any way be liable to any person or body for any loss, claim, demand, damages, costs or expenses of whatever nature arising in any way out of, or in connection with, the information contained in this document. The Company disclaims any intent or obligations to or revise any forward-looking statements whether as a result of new information, estimates, or options, future events or results or otherwise, unless required to do so by law.

BY ORDER OF THE BOARD

Luke Martino

Company Secretary

Email: info@mmel.com.au

Phone: +61 403 635 555

Evan Smith

Investor Relations

evan.smith@advisir.com.au

Phone: +61 431 176 607

APPENDIX 1: Material Assumptions

Subject	Commentary																																													
Study status	The Study has been prepared with an accuracy of $\pm 35\%$. There is no certainty that the conclusions of the Study can be realised.																																													
Land holding	Magnum holds in excess of 60km ² held under patented and unpatented claims, BLM land, and fee land. These are not subject to expiry while annual fees are paid.																																													
Study based on Mineral Resource Estimate	The Mineral Resource Estimate used in this Scoping Study was released to the market on 23 March 2021. It was prepared by a Competent Person in accordance with the JORC Code 2012. An Ore Reserve is not declared at this time. The Scoping Study assumes the mining plan will access 92% Indicated Mineral Resources and 8% of Inferred Mineral Resources.																																													
Mining factors or assumptions	<p>Mining is proposed to be completed by conventional open pit mining methods. The open cut mine operations parameters are:</p> <ul style="list-style-type: none"> • Bulk mining by bench • The resource block model was regularized to 30m x 15m x 15m parent blocks and 15.25x7.5x7.5m minimum sub blocks to reduce dilution for mining evaluation. • 100% mining recovery. • Overall Pit slopes – 53° • Mining production rate of circa 8Mtpa of ore delivered to the ROM pad. <p>The open pit mine was designed and scheduled with the following parameters:</p> <ul style="list-style-type: none"> • Three stages of mining. • 5m benches. • 20m ramp width with maximum 10% gradient. • Contract mining. • A production rate of circa 8Mtpa of ore is based on optimising beneficiation equipment capital costs. This may change going into a prefeasibility study. 																																													
Metallurgical factors or assumptions	<p>Recovery numbers were based on results from both historical and a current metallurgical test work program.</p> <p>Metallurgical recoveries used in the Study are based on extensive metallurgical test work undertaken during 2010 to 2023 by Colorado School of Mines Research Foundation, AMMTEC (Perth), FLSmidth, SGS, Hazen Research Inc, and COREM (Quebec). MinRizon were engaged to undertake a review of all historic work and oversee further test work by ALS Global as required.</p> <p>Flowsheet simulation, prepared by GR Engineering services, resulted in the following assumptions being adopted:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th></th> <th>kt</th> <th>Fe%</th> <th>Fe Units</th> </tr> </thead> <tbody> <tr> <td>LG Total</td> <td></td> <td>1,000</td> <td>18.00</td> <td>18,000</td> </tr> <tr> <td>Coarse reject</td> <td>5%</td> <td>50</td> <td>5.00</td> <td>250</td> </tr> <tr> <td>Balance</td> <td></td> <td>950</td> <td>18.68</td> <td>17,750</td> </tr> <tr> <td>LIMS reject</td> <td>40%</td> <td>380</td> <td>6.00</td> <td>2,280</td> </tr> <tr> <td>Balance</td> <td></td> <td>570</td> <td>27.14</td> <td>15,470</td> </tr> <tr> <td>Wet plant feed</td> <td></td> <td>570</td> <td>27.14</td> <td>15,470</td> </tr> <tr> <td>Recovered Fe</td> <td>90.3%</td> <td></td> <td></td> <td>13,977</td> </tr> <tr> <td>Concentrate</td> <td></td> <td>207</td> <td>68.1</td> <td></td> </tr> </tbody> </table>			kt	Fe%	Fe Units	LG Total		1,000	18.00	18,000	Coarse reject	5%	50	5.00	250	Balance		950	18.68	17,750	LIMS reject	40%	380	6.00	2,280	Balance		570	27.14	15,470	Wet plant feed		570	27.14	15,470	Recovered Fe	90.3%			13,977	Concentrate		207	68.1	
		kt	Fe%	Fe Units																																										
LG Total		1,000	18.00	18,000																																										
Coarse reject	5%	50	5.00	250																																										
Balance		950	18.68	17,750																																										
LIMS reject	40%	380	6.00	2,280																																										
Balance		570	27.14	15,470																																										
Wet plant feed		570	27.14	15,470																																										
Recovered Fe	90.3%			13,977																																										
Concentrate		207	68.1																																											

	<p>This is considered conservative as it uses an assumed ore grade lower than that of the MRE.</p> <p>Grindability testing was undertaken by US Steel (in-house) and AMMTEC (Perth). The AMMTEC (report A12768, Aug 2010) tests returned the following results:</p> <table> <tr> <td>Ball Mill Wi at 106 microns</td> <td>12.4 kWh\short ton</td> </tr> <tr> <td>Calculated Wi from Pilot Rod Mill</td> <td>12.8 kWh\short ton</td> </tr> <tr> <td>Pilotac Index</td> <td>70</td> </tr> <tr> <td>UCS (>60% Fe)</td> <td>18.8 mPa (weak)</td> </tr> <tr> <td>UCS (<14.8% Fe)</td> <td>34.1 mPa (medium strong)</td> </tr> <tr> <td>Abrasive Index (>60% Fe)</td> <td>0.125</td> </tr> <tr> <td>Abrasive Index (<14.8% Fe)</td> <td>0.157</td> </tr> </table> <p>Crush and bond work indices indicate the ore is moderately hard and amenable to crushing and grinding using industry standard equipment.</p>	Ball Mill Wi at 106 microns	12.4 kWh\short ton	Calculated Wi from Pilot Rod Mill	12.8 kWh\short ton	Pilotac Index	70	UCS (>60% Fe)	18.8 mPa (weak)	UCS (<14.8% Fe)	34.1 mPa (medium strong)	Abrasive Index (>60% Fe)	0.125	Abrasive Index (<14.8% Fe)	0.157
Ball Mill Wi at 106 microns	12.4 kWh\short ton														
Calculated Wi from Pilot Rod Mill	12.8 kWh\short ton														
Pilotac Index	70														
UCS (>60% Fe)	18.8 mPa (weak)														
UCS (<14.8% Fe)	34.1 mPa (medium strong)														
Abrasive Index (>60% Fe)	0.125														
Abrasive Index (<14.8% Fe)	0.157														
Environmental and Native Title	<p>No significant environmental issues have been identified and permits are in place. The area is not subject to any Native American land claims. All permits and approvals to mine and explore the claims are in good standing.</p>														
Infrastructure	<p>Buena Vista mine site is approximately 40km from a rail siding and high voltage powerlines.</p> <p>Three Pacific coast ports, viz, Sacramento, Richmond, and San Francisco, are serviced by the rail.</p> <p>A mine camp will not be required due to the proximity of the towns of Lovelock, Fallon, and Winnemucca, and the city of Reno.</p>														
Capital costs	<p>Capital costs for each component are identified and detailed in the body of the report. The capital estimate is considered to have an accuracy of $\pm 35\%$. The capital cost estimates were converted to ranges using this $\pm 35\%$ as required by the ASX. Contingencies have been included in line items as required.</p> <p>All equipment has been assumed to be purchased new, as OEM systems. As such, opportunities may exist to reduce capital by sourcing reconditioned plant and equipment. The capital cost estimates have been developed using past project experience, the MinRizon's project cost database and manufacture/supplier budget pricing for major plant and equipment.</p>														
Operating costs	<p>Operating costs include all costs associated with mining and beneficiation, These costs were calculated from first principles and where applicable, referenced against similar operations as a check. The operating costs are tabulated in the body of the report and quoted as a $\pm 35\%$ range.</p>														
Revenue factors	<p>The following revenue factors have been used:</p> <p>Head Grade is estimated from the Mineral Resource Estimate. No mining dilution has been applied as the mineralisation does not have a distinct and abrupt grade boundary, nor is it stratabound. Over-mining will not affect the grade delivered to the processing plant to any significant degree.</p> <p>The Scoping Study uses the Platts price of US\$109/t for 62% Fe plus a US\$50/t premium for DRI grade. The premium is expressed as a dollar amount for product grade per percent above the 62% Fe benchmark.</p> <p>No penalties have been applied to the product as it is planned to be a premium grade product which will attract premium pricing.</p> <p>Exchange rates are not applied as all amounts quoted are in USA dollars. Commodity pricing is in USA dollars.</p> <p>Treatment charges for the product are included in the report as operating costs.</p> <p>No Net Smelter Return pricing is included as there is no charges additional to the processing operating costs quoted.</p>														

	<p>The principle and only metal that constitutes the product is iron. There are no by-products considered in this study.</p> <p>Transport costs are not considered as the product will be targeted at the USA steel industry; the product will be sold at the mine gate.</p>															
Schedule and Project timing	The next stage of Project development commences with a number of Option Studies that will be used to feed into a Prefeasibility Study (PFS). While the Option Studies are being completed, further resources work and drilling will be undertaken, the results of which will be included in future studies.															
Market assessment	The global traded iron ore and concentrate market is mature and well developed. Third party assessments of supply and demand are monitored and incorporated into the Company's strategy.															
Economic parameters	A discount rate of 10% has been used for financial modelling. This number was selected as a Weighted Average Cost of Capital and is considered as a prudent and suitable discount rate for funding of a mining and beneficiation project in Nevada. The model has been run as a LOM model. The Study outcome was sensitivity tested with $\pm 15\%$ variations in key financial inputs including: iron concentrate price, operating costs, and capital costs.															
Sensitivity Analysis	<p>The sensitivity of the NPV to the foreign exchange rate, iron product pricing, operating cost (OPEX), and capital requirements (CAPEX) is shown in the graph below.</p> <p style="text-align: center;">Sensitivity Graph</p> <table border="1"> <caption>Sensitivity Graph Data</caption> <thead> <tr> <th>Input</th> <th>+15% Variation</th> <th>-15% Variation</th> </tr> </thead> <tbody> <tr> <td>Exchange Rate</td> <td>-31%</td> <td>+41%</td> </tr> <tr> <td>Product Value</td> <td>-35%</td> <td>+35%</td> </tr> <tr> <td>OPEX</td> <td>-14%</td> <td>+14%</td> </tr> <tr> <td>CAPEX</td> <td>-6%</td> <td>+6%</td> </tr> </tbody> </table>	Input	+15% Variation	-15% Variation	Exchange Rate	-31%	+41%	Product Value	-35%	+35%	OPEX	-14%	+14%	CAPEX	-6%	+6%
Input	+15% Variation	-15% Variation														
Exchange Rate	-31%	+41%														
Product Value	-35%	+35%														
OPEX	-14%	+14%														
CAPEX	-6%	+6%														
Exchange rates	The Study revenues and costs are in USA dollars.															
Community and social responsibility	Consultation with local communities, the general public and private interests (e.g. tourism, environmental organizations, local taxpayer's organisation, etc.) is ongoing. No significant environmental or stakeholder issues have been identified with strong support shown for the Project from County and State authorities.															
Permitting	The Buena Vista Mine is a permitted mine site. Ancillary permits for the Project are either granted or are in the process of being applied for. Regulatory authorities at															

	federal, state and county governments are being engaged to facilitate the permits that can only be applied for prior to construction work commencing.
--	---