



BLACK CANYON

ASX Announcement



16 January 2024

ASX:BCA

Substantial Manganese Potential Identified at Balfour

- Significant upside potential has been identified at the Balfour Manganese Field (BMF), with the completion of two JORC 2012 Exploration Target Estimates (ETE).
- The ETE for the Pickering and Balfour East prospects is in addition to the Global Mineral Resources across the BMF projects that total **314 Mt @ 10.5% Mn containing 33.1 Mt of manganese** (7% Mn cut-off) classified as Measured (32%) Indicated (48%) and Inferred (20%).¹
- Balfour East's ETE expands on Balfour East's Inferred MRE totalling **32 Mt @ 11.9% Mn¹**
- Numerous thick and higher-grade reverse circulation drill results from the Pickering and Balfour East Targets have been reviewed and validated to support the ETE.
- MRE infill and extension drill programs in addition to a diamond core drill program for metallurgical testwork processing are planned for the 2024 field season.
- Manganese concentrate for the steel alloy industry and High Purity Manganese Sulphate (HPMSM) testwork will continue with multiple feedstock options now identified from several Mineral Resources across the BMF.

Australian manganese explorer and developer, Black Canyon Limited (**Black Canyon or the Company**) (**ASX: BCA**) is pleased to announce Exploration Target Estimates (ETE) for the Pickering and Balfour East Targets (Table 1), which form part of the Balfour Manganese Field (BMF). The total ETE estimated as a range across the Balfour Manganese Field is:

160 – 215 Mt @ 11 – 12% Mn, containing between 18 – 23 Mt of manganese.

The potential tonnage, grade and quantity of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource for the target area reported. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

¹ BCA Announcement 12 December 2023 – Global Balfour Manganese Field Mineral Resource Estimates Exceed 300Mt

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Black Canyon's Executive Director Brendan Cummins said: "The size of the Exploration Target Estimate reinforces the prospectivity of the Balfour Manganese Field. The Company has already delineated a substantial Global Mineral Resource Estimate across the BMF, which now exceeds 300 Mt containing more than 33 Mt of manganese. Subject to exploration risk, further exploration drilling and analysis, we hope to convert these Exploration Targets to Mineral Resource Estimates as they can potentially add between 18 and 23 Mt of contained manganese to our MRE position. This is significant in the Global context because outside of Africa there are few deposits of this size and scale located in mining and infrastructure friendly jurisdictions like Western Australia."

"We are excited by the continued global demand of steel products which require manganese (as alloys) which is non-substitutable and increases the hardenability and corrosion resistance of steel with each tonne of steel produced containing about 10kg of manganese. This is supported by demand for iron ore from China in 2023 which will likely plateau in 2024 and significant growth potential emerging from India which looks positive for further manganese utilisation."

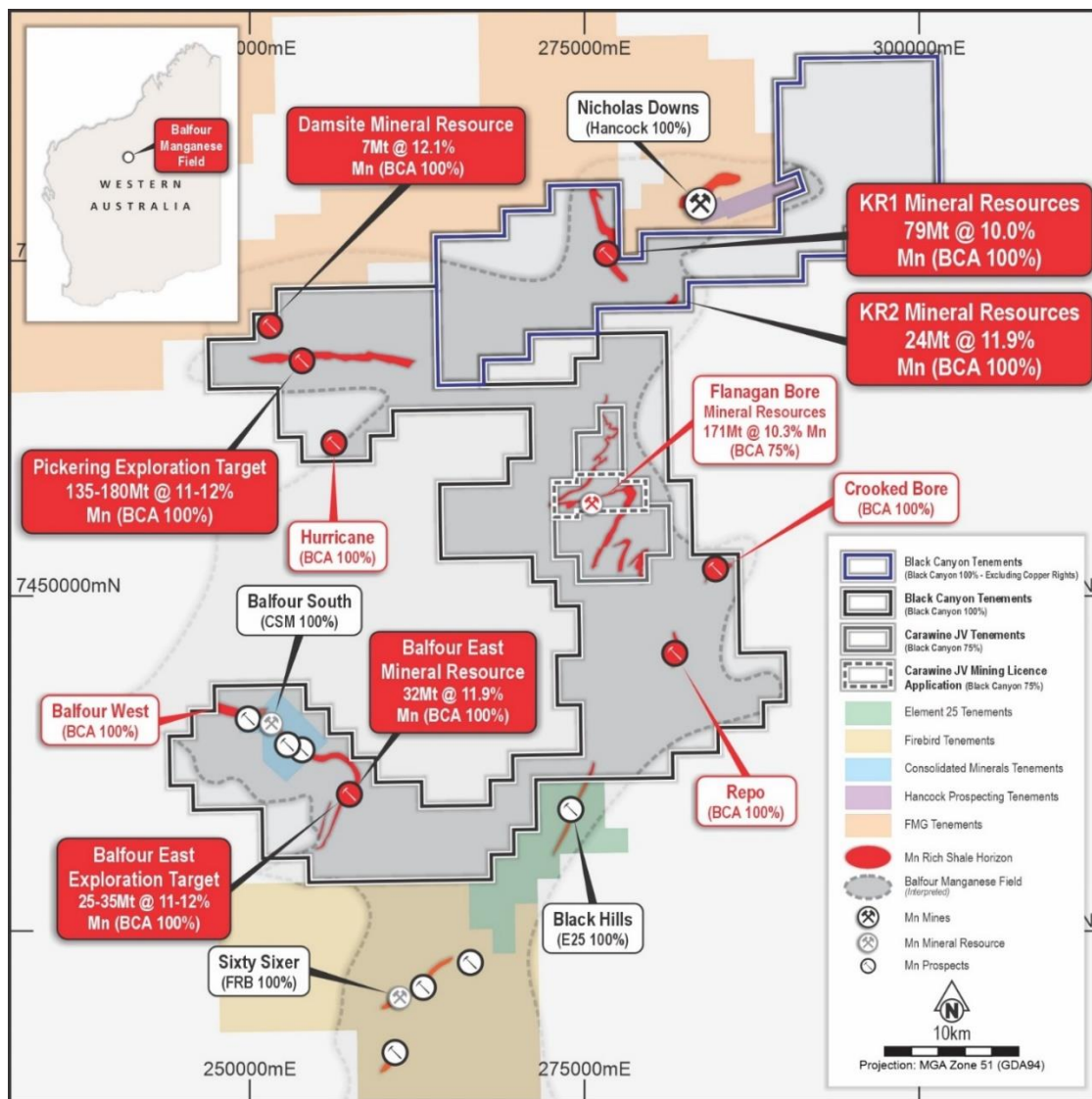


Figure 1. Location of the KR1, KR2, Balfour East, Damsite deposits and Pickering Exploration Target across the Balfour Manganese Field. Mn shale target horizon (red solid outlines).

Pickering and Balfour East Exploration Target

Reverse Circulation drill results from the Pickering and Balfour East prospects completed in July 2023 by the Company have been reviewed and validated for the Exploration Targets. The work was completed under the supervision of Greg Jones, a specialist consultant in Mineral Resource Estimates, metallurgy and processing technology, who is employed by IHC Mining (refer to Competent Person statement).

An Exploration Target has been established for the Pickering and Balfour East targets and comprises:

160 – 215 Mt @ 11 – 12% Mn for between 18 – 23 Mt of contained manganese.

The potential tonnage, grade and quantity of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource for the target area reported. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

These targets can be evaluated and potentially upgraded to Mineral Resources with further infill and exploration drilling.

Table 1. Summary of Mineral Exploration Targets for Balfour East and Pickering across the Balfour Manganese Field, January 2024

Summary of Exploration Targets ⁽¹⁻³⁾							
Deposit	Category	Material (Mt) ⁽²⁾	In Situ Mn (Mt)	Mn (%)	Fe (%)	Si (%)	Al (%)
Pickering	Exploration Target	135 – 180	15 - 19	11 - 12	8	15	4
Balfour East	Exploration Target	25 – 35	3 - 4	11 - 12	8 - 9	19	5
Grand Total		160 - 215	18 - 23	11 - 12	8	15	4

Notes:

- (1) Exploration Target reported at a cut-off grade range of 4% and 10% Mn.
- (2) Appropriate rounding has been applied.
- (3) Refer to Appendix 1 JORC Table 1, Sections 1 to 3 and Appendix 2 for further details.

A total of 24 holes for 606m were completed across the Pickering Target, and 606 assays were submitted for XRF analysis. These results have been used to estimate grade for the Exploration Target.

- The drill hole and assay information were used to develop a 3D block model (Figures 2 to 4) in Datamine using the following steps:
- The 24 drill hole collars were projected to the 1m contour SRTM topographic DTM surface that was supplied by Black Canyon.
- The end of hole was used as the lower basement constraint. These constraints were selected to prevent assay grades from being interpolated below maximum drill hole depths.
- A perimeter string was developed around the drill hole collar locations with an offset of approx. 100m north and south and 3,700m – 4,000m east and west. The expanded east-west perimeter strings is based on electromagnetic geophysical data, satellite imagery and on-site geological reconnaissance forming the basis of this extension of the model at this stage of exploration.
- A block model was created by filling cells between the two constraining surfaces using a parent cell size of 400 x 50 x 1m in XYZ.
- Assay grades were interpolated into the block model using inverse distance weighting (cubed).
- No assumed minimum thicknesses or other constraints were used to estimate the ETE
- An assumed bulk density of 2.52 gcm⁻³ was used to estimate tonnages.

The Exploration Target was estimated by reporting tonnages between two grade cut-off ranges, the lower at 4% Mn and the upper at 10% Mn.

Balfour East Exploration Target Development

A total of 13 holes for 306m were completed across the Balfour East Target, and 306 assays were submitted for XRF analysis. These results have been used to estimate grade for the Exploration Target.

- The drill hole and assay information were used to develop a 3D block model (Figure 5) in Datamine using the following steps:
- The 13 drill hole collars were projected to the 1 m contour SRTM topographic DTM surface that was supplied by Black Canyon.
- The end of hole was used as the lower basement constraint. These constraints were selected to prevent assay grades from being interpolated below maximum drill hole depths.
- A perimeter string was developed around the drill hole collar locations with an offset of approximately 200m north and south and 200m east and west. The north-east region of the deposit has had the perimeter string extended to approximately 750m from the north-eastern drill collars based on electromagnetic geophysical data, satellite imagery and on-site geological reconnaissance forming the basis of this extension of the model north-east.
- A block model was created by filling cells between the two constraining surfaces using a parent cell size of 100 x 100 x 1m in XYZ.
- Assay grades were interpolated into the block model using inverse distance weighting (cubed).
- No assumed minimum thicknesses or other constraints were used to estimate the Exploration Target.
- An assumed bulk density of 2.5 gcm⁻³ was used to estimate tonnages.

The Exploration Target was estimated by reporting tonnages between two grade cut-off ranges, the lower at 4% Mn and the upper at 10% Mn.

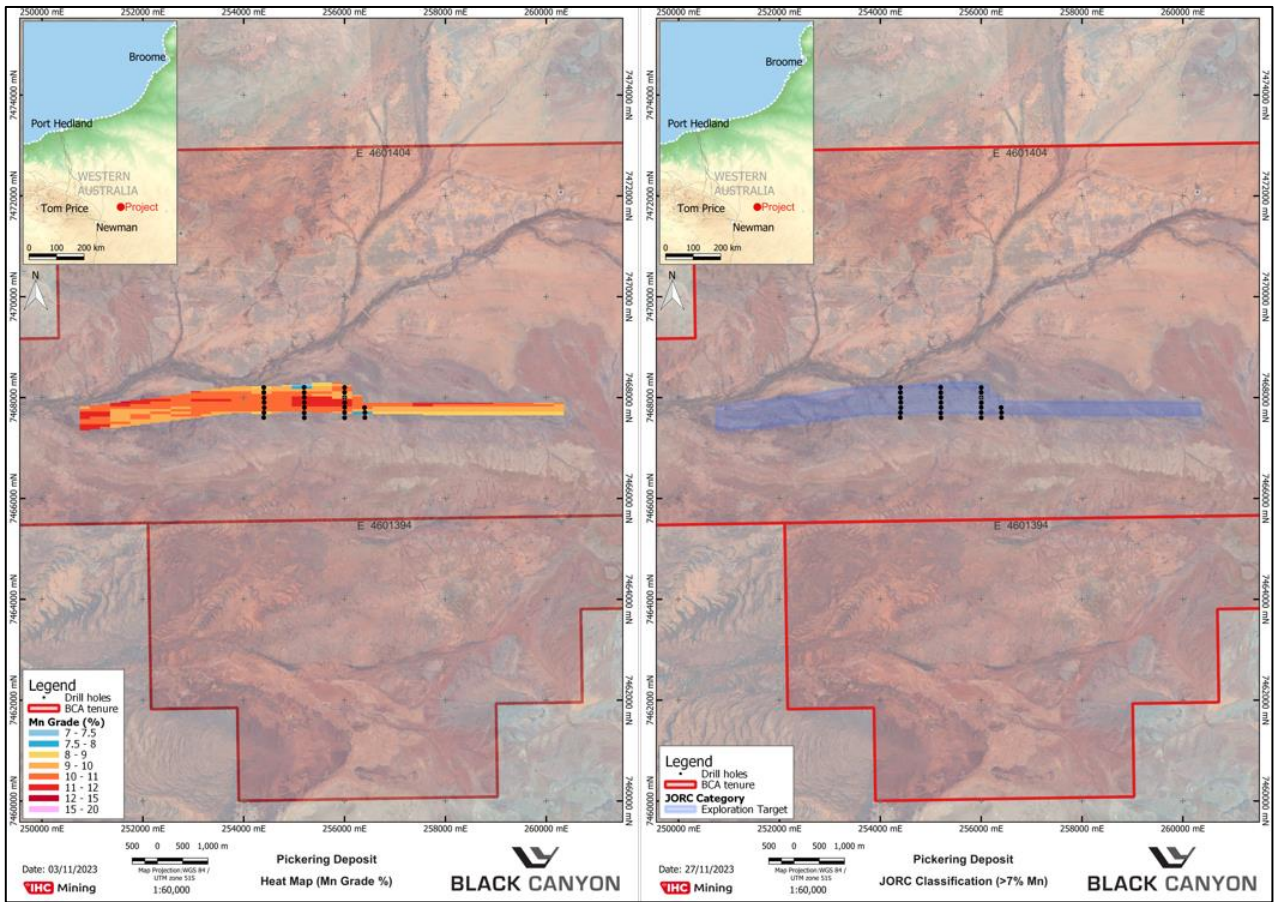


Figure 2. Pickering Exploration Target manganese grade distribution projected to surface and Exploration Target outline (4 - 10% Mn).

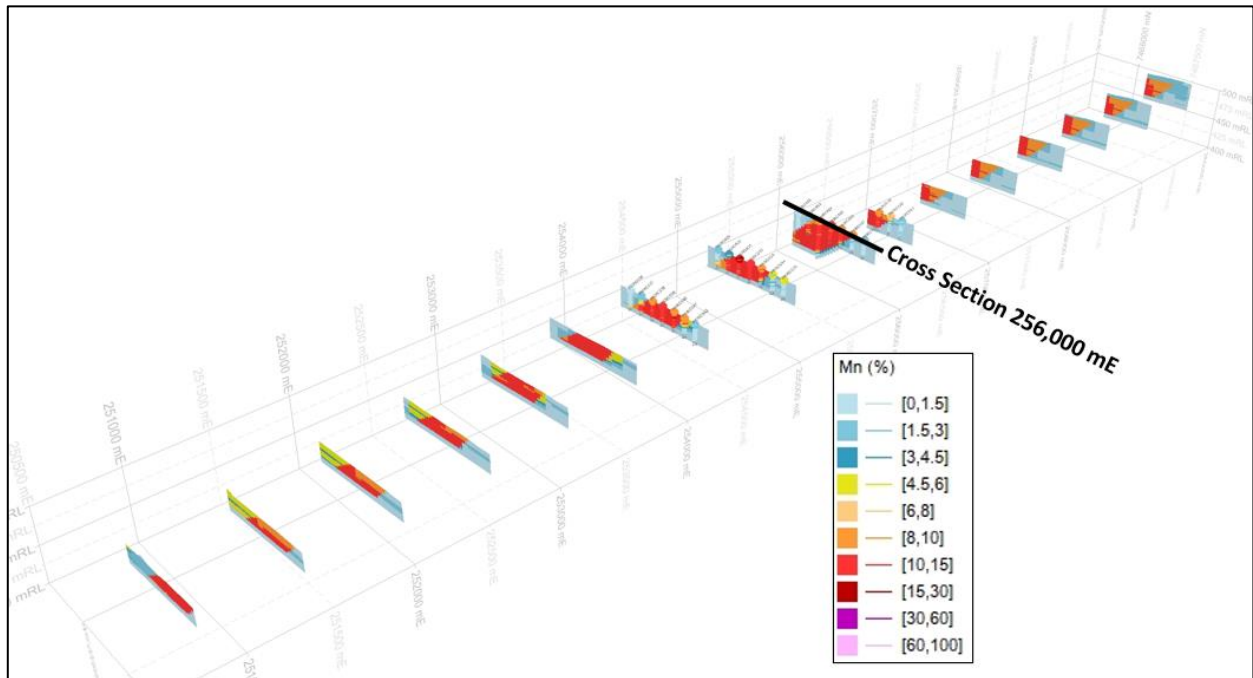


Figure 3. Oblique view of the Pickering Exploration Target area coloured by Mn grade (%)

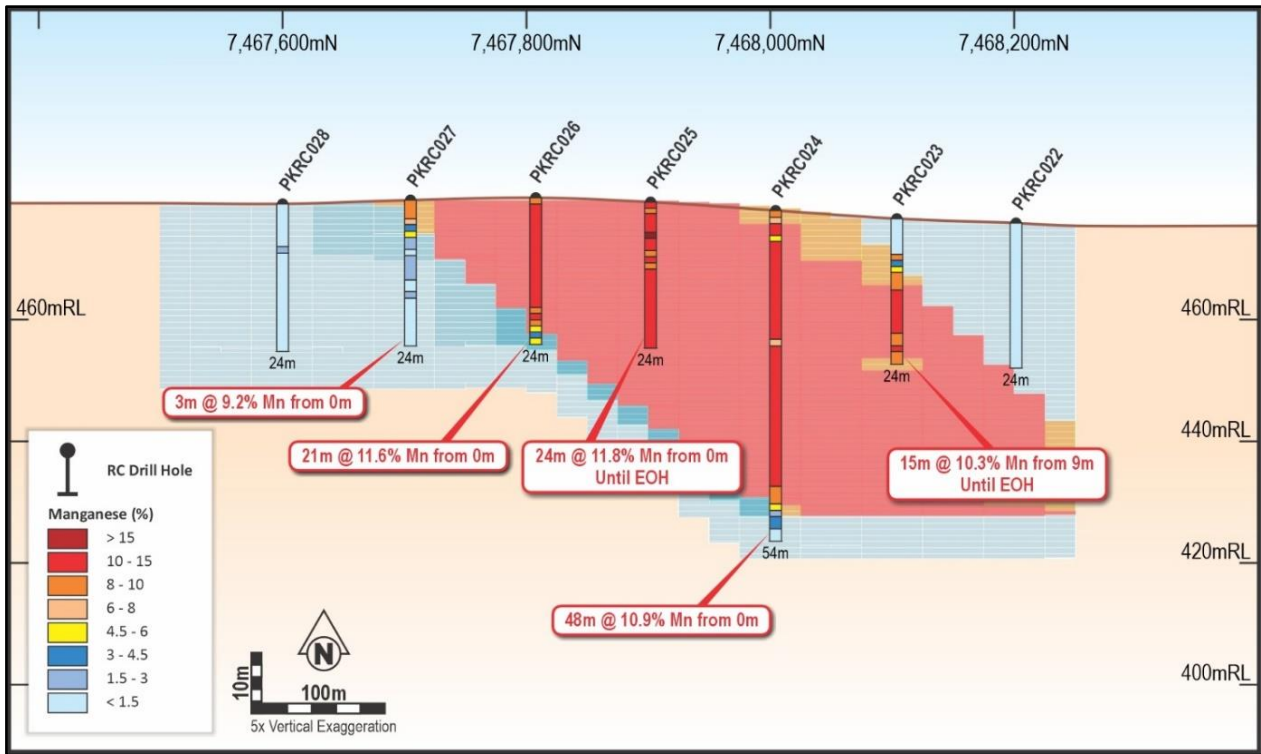


Figure 4. Cross section 256,000 mE (looking west) showing the Pickering Exploration Target model cells and drill holes coloured by Mn grade (%).

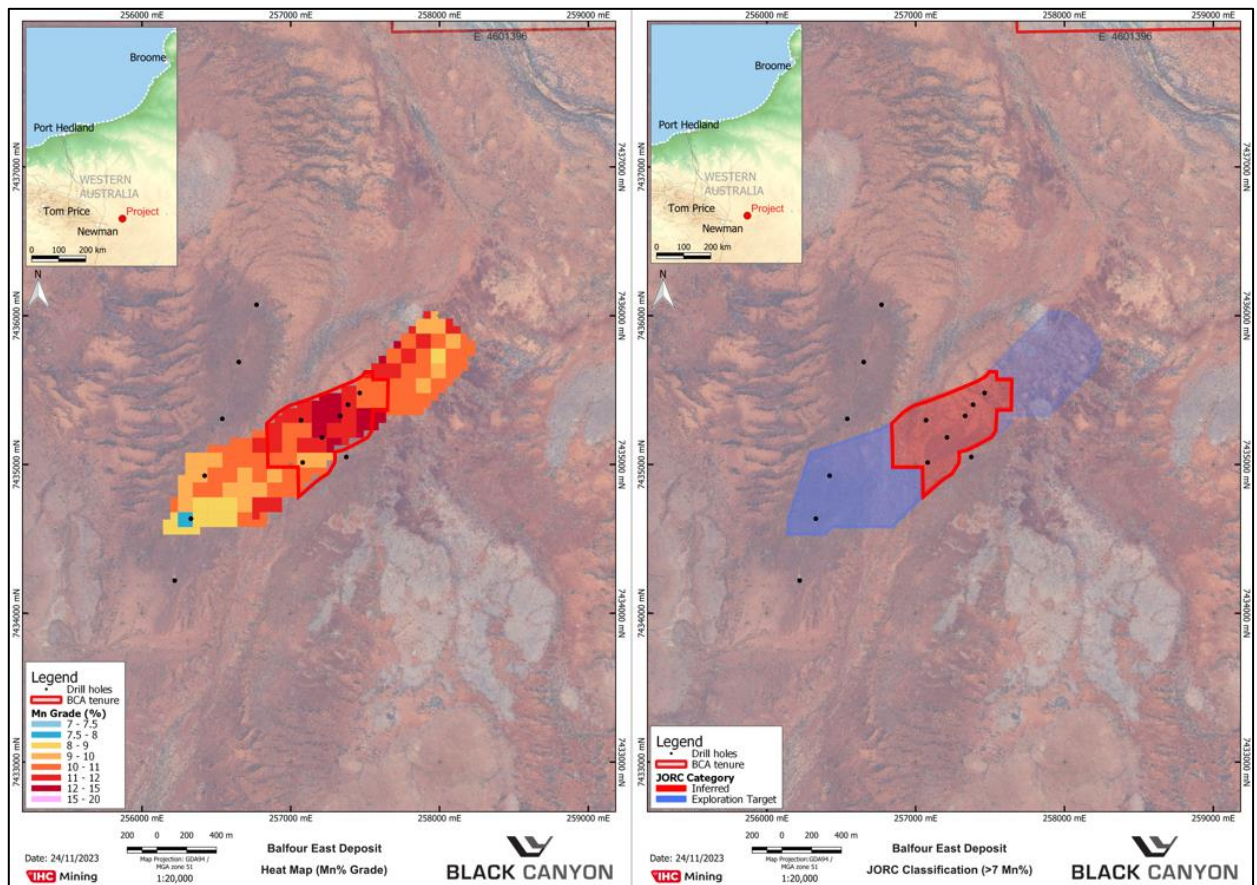


Figure 5. Balfour East deposit manganese grade distribution projected to surface and Inferred Mineral Resource (> 7% Mn) and adjacent Exploration Target outlines (4 -10% Mn)

This announcement has been approved by the Board of Black Canyon Limited.

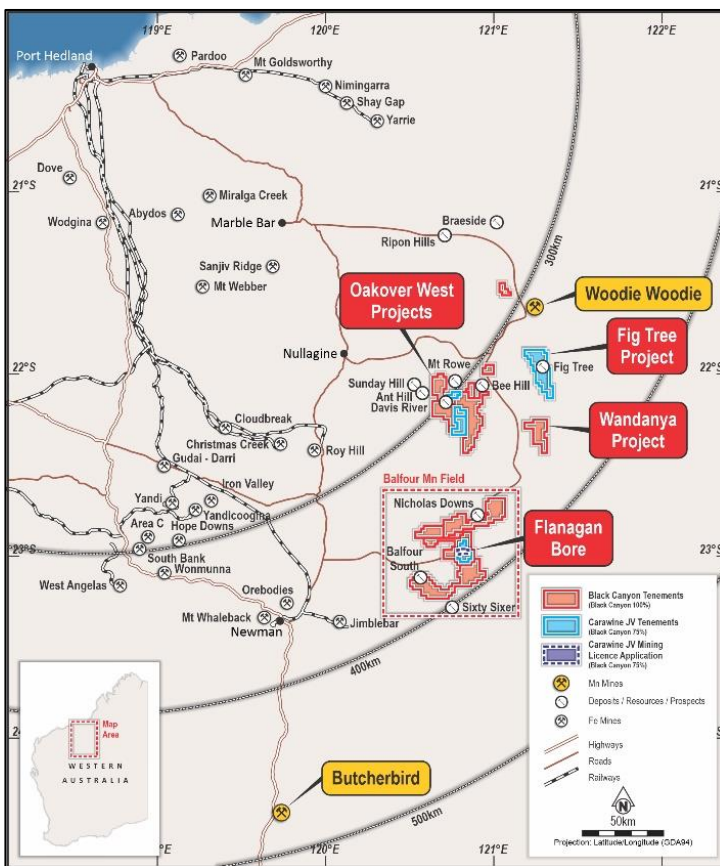
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About Black Canyon



Black Canyon has consolidated a significant land holding totalling 2,400km² in the underexplored Balfour Manganese Field and across the Oakover Basin, in Western Australia.

The emerging potential for the Balfour Manganese Field is evident by the size of the geological basin, mineral resources identified to date, distance from port, potential for shallow open pit mining and a likely beneficiated Mn oxide concentrate product grading between 30 and 33% Mn. Black Canyon holds several exploration licenses 100% within the Balfour Manganese Field along with a 75% interest in the Carawine Joint Venture with ASX listed Carawine Resources Limited. A Global Mineral Resource (Measured, Indicated & Inferred) of **314 Mt @ 10.4% Mn** has been defined across the Balfour Manganese Field projects ¹.

Manganese continues to have attractive fundamentals where it is essential and non-substitutable in the manufacturing of alloys for the steel industry and a critical mineral in the cathodes of Li-ion batteries.

Compliance Statements

Reporting of Exploration Results and Previously Reported Information

The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation reviewed by Mr Brendan Cummins, Executive Director of Black Canyon Limited. Mr Cummins is a member of the Australian Institute of Geoscientists, and he has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Cummins consents to the inclusion in this release of the matters based on the information in the form and context in which they appear. Mr Cummins is a shareholder of Black Canyon Limited.



The information in this report that relates to Exploration Target is based on, and fairly represents, information and supporting documentation prepared by Mr Greg Jones, (Consultant to Black Canyon and Geological Services Manager for IHC Mining). Mr Jones is a Fellow of the Australasian Institute of Mining and Metallurgy and has sufficient experience of relevance to the style of mineralisation and type of deposit under consideration, and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Jones consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.

For further information, please refer to ASX announcements dated 17 May 2021, 10 June 2021, 7 July 2021, 5 October 2021, 4 January 2022, 8 February 2022, 21 February 2022, 2 March 2022, 23 March 2022, 13 April 2022, 9 June 2022, 7 September 2022, 15 September 2022, 11 October, 21 & 24 November 2022, 5 December 2022, 28 December 2022, 14 February 2023, 27 March 2023, June 1 2023, June 14 2023, June 17 2023, July 14 2023, 23 August 2023, 5 September 2023, 26 September 2023, 12 October 2023, 27 November 2023 and 12 December 2023 which are available from the ASX Announcement web page on the Company's website. The Company confirms that there is no new information or data that materially affects the information presented in this release that relate to Exploration Results and Mineral Resources in the original market announcements.

APPENDIX 1: JORC 2012: TABLE 1

Section 1 Sampling Techniques and Data		
Criteria	Explanation	Comment
Sampling techniques	<p><i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></p> <p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></p> <p><i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual</i></p>	<p><i>Reverse circulation ('RC) was used as the primary drilling technique for the projects.</i></p> <p><i>RC cuttings were continuously sampled at 1 m intervals. All drill holes were sampled from surface to end of hole or depth of mineralisation.</i></p> <p><i>Drilling completed by Black Canyon have been used for the projects.</i></p> <p><i>All drill samples were logged for weathering, colour, lithology and mineralogy (+ %).</i></p> <p><i>RC samples were collected and placed in marked plastic bags in order at each collar position.</i></p> <p><i>Black Canyon drill samples were collected on 1m intervals, pulverised and submitted for 'LOI (TGA), Whole Rock by Fusion (XRF)' using assay code XF103 completed by Bureau Veritas Minerals.</i></p> <p><i>The 1m interval samples are considered industry standard and representative of the material being tested.</i></p>



Criteria	Explanation	Comment
	<i>commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i>	
<i>Drilling techniques</i>	<i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i>	<i>Black Canyon drilling was completed using RC technique at 90-degree angle to collect 1 m samples as RC chips. Drill diameter is considered to be 5.25 inches as per standard RC sizing. A face sampling hammer was used to drill and sample the holes. The July 2023 drill campaign across of the projects contracted Impact Drilling.</i>
<i>Drill sample recovery</i>	<i>Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	<i>The 2023 drill campaign recorded satisfactory drill sample recovery. The sample weights were not recorded on site, but the samples were weighted once received at the laboratory. The samples weights show good overall recoveries with smaller samples weights recorded in the top 1-2m. During the 2023 drill program the 1m samples were collected from a levelled cone splitter affixed to the side of the drill rig. It is unlikely the lower weights encountered in the top 1 -2m of the holes has biased the samples particularly with the style of mineralisation.</i>



Criteria	Explanation	Comment
Logging	<p>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</p> <p>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</p> <p>The total length and percentage of the relevant intersections logged.</p>	<p>Geological logs exist for the 2023 drill programs.</p> <p>Logging of individual 1 metre intervals was completed using logging code dictionary which recorded weathering, colour, lithology and observed commentary to assist with determining manganese mineralisation.</p> <p>Logging and sampling has been carried out to industry standards to a level sufficient to support Exploration Target Estimates.</p> <p>Drill holes were geologically logged in their entirety and a reference set of drill chips were collected in 20m interval chip trays for the 2023 drill program.</p>
Sub-sampling techniques and sample preparation	<p>If core, whether cut or sawn and whether quarter, half or all core taken.</p> <p>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</p> <p>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</p> <p>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</p> <p>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</p> <p>Whether sample sizes are appropriate to the grain size of the material being sampled.</p>	<p>Not applicable, no diamond drilling assays results have been used in this mineral resource estimate.</p> <p>The drill holes were completed using RC drilling technique and the 1m samples were dry split using an on-board cone splitter set to deliver a 2-3kg samples. This technique is considered best practice and appropriate for sample generation.</p> <p>Field duplicates were undertaken at a rate of 2 per 100 samples. The field duplicates were split from the cone splitter simultaneously.</p> <p>The samples sizes collected from the cone splitter are considered appropriate for the commodity being investigated.</p>



Criteria	Explanation	Comment
Quality of assay data and laboratory tests	<p>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</p> <p>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</p> <p>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</p>	<p>The 2023 drill samples were analysed at Bureau Veritas Minerals Perth, Western Australia utilising ore-grade XRF analysis which is considered industry standard for manganese ores.</p> <p>Elemental oxides assayed using XRF analysis include:</p> <p>Al₂O₃, BaO, CaO, Cr₂O₃, Fe, Fe₂O₃, K₂O, MgO, Mn, MnO, Na₂O, P₂O₅, SiO₂, SrO, TiO₂</p> <p>Oxides were converted to primary elements using standard conversion factors outlined by ALS.</p> <p>QA/QC was conducted by Black Canyon on the 2023 drill data by the following methods.</p> <ul style="list-style-type: none"> • inserting 2 certified reference samples every 100 • inserting 2 blanks every 100 • conducting field duplicates at a rate of 2 in every 100 • submitting a 200g pulped lab duplicate to a secondary laboratory for check XRF analysis at a rate of approximately 2 in every 100 samples for the 2023 drill program. <p>The Company has reviewed the QAQC data and is satisfied that acceptable levels of precision and accuracy have been achieved through the sampling and assaying program and there is no evidence of bias. The data set is of a high standard and appropriate for use in Mineral Resource estimation</p>
Verification of sampling and assaying	<p>The verification of significant intersections by either independent or alternative company personnel.</p> <p>The use of twinned holes.</p> <p>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</p> <p>Discuss any adjustment to assay data.</p>	<p>Validation of the drilling files (collar, assay and lithology) was undertaken by IHC Mining.</p> <p>All historic data was stored digitally using separate .txt files for collar, assay and lithology.</p> <p>Adjustment of elemental oxides to primary element was completed using well known conversion factors outlined by ALS.</p>
Location of data points	<p>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</p> <p>Specification of the grid system used.</p> <p>Quality and adequacy of topographic control.</p>	<p>All drill holes in the project area were surveyed by handheld GPS with an accuracy of +/-5 m. The accuracy of the location of the drill collars is sufficient at this stage of exploration and resource development.</p> <p>Grid system used is WGS 84 / UTM zone 51S.</p> <p>IHC Mining deems all drill collar positions within the project areas to be satisfactory at this stage of exploration and to support the Exploration Target Estimate as reported.</p> <p>A 1m contour based topographic DTM surface was supplied by Black Canyon to IHC Mining and is considered satisfactory at this stage of exploration and to support the Exploration Target Estimate as reported.</p>



Criteria	Explanation	Comment
		<i>It is recommended future drill programs use DGPS as drill collar survey pickup and LIDAR for development of a high-resolution topographic surface.</i>
<i>Data spacing and distribution</i>	<p><i>Data spacing for reporting of Exploration Results.</i></p> <p><i>Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></p> <p><i>Whether sample compositing has been applied.</i></p>	<p><i>The 2023 drilling completed at Balfour East The reconnaissance program was drilled along the long axis of the trend of the mineralisation using 100m or 200m centres. Single holes were drilled stepping out 200m to the northwest and southeast to help determine width. The drill program was successful in extending the mineralisation from 300m long in outcrop to 600m based on the limited drilling completed to date. The drill spacing was sufficient to establish grade and geological continuity.</i></p> <p><i>At Pickering the drill lines are oriented perpendicular to the interpreted strike of the outcropping mineralisation and are aligned north-south.</i></p> <p><i>Variography has demonstrated current drill spacing supports the estimation of Exploration Targets</i></p> <p><i>No sample compositing has been applied.</i></p>
<i>Orientation of data in relation to geological structure</i>	<p><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></p> <p><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></p>	<p><i>At Balfour East the geometry of the mineralisation is not fully understood with limited drilling, but a northeast strike is presumed where the main zone of mineralisation appears to trend to the southwest to hole BSRC039, which is located 650m away. The mineralisation appears to be open in all directions except to the southeast where only one hole has been drilled. The drill holes were completed at 90 degrees (vertical).</i></p> <p><i>At Pickering the drill lines are oriented perpendicular to the interpreted strike of the outcropping mineralisation and are aligned north-south. The drill holes were completed at 90 degrees (vertical).</i></p> <p><i>The drill grids are generally designed to be oriented both perpendicular to the planar orientation of the key mineralised horizon with no or limited bias introduced with respect to the strike or dip of the mineralised horizon.</i></p>
<i>Sample security</i>	<i>The measures taken to ensure sample security.</i>	<p><i>All samples were dispatched directly from site to at Bureau Veritas Minerals Perth, Western Australia. There has been no documentation stating any problems during sample transportation from site to at Bureau Veritas Minerals.</i></p> <p><i>Given the location of the project it is not considered high risk in the context of which samples were reported.</i></p>
<i>Audits or reviews</i>	<i>The results of any audits or reviews of sampling techniques and data.</i>	<i>Senior Black Canyon geological personnel have reviewed the data prior to use in the Exploration Target Estimate. No independent audits have been undertaken as they are not considered to be necessary at this stage.</i>
Section 2 Reporting of Exploration Results		



Criteria	Explanation	Comment
<i>Mineral tenement and land tenure status</i>	<p><i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></p> <p><i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></p>	<p><i>The drilling was undertaken on granted tenements E46/1404 and E46/1396</i></p> <p><i>The tenements and all mineral rights are 100% owned by Black Canyon Ltd.</i></p> <p><i>The tenements have Native Title Heritage Protection Agreements in place with the Karlka Nyiyaparli People that required a Heritage Survey to be undertaken prior to ground disturbing activities. Both Ethnographic and Archeologic surveys have been completed prior to commencement of site activities.</i></p> <p><i>There are no other known impediments to exploring the listed tenements</i></p>
<i>Exploration done by other parties</i>	<p><i>Acknowledgment and appraisal of exploration by other parties.</i></p>	<p><i>No other historic exploration has been completed on the tenement for manganese.</i></p> <p><i>Black Canyon completed a ground reconnaissance exercise in early 2023 to map the manganese enriched shales and determine down dip upside. The exercise proved significant manganese enriched shale throughout the project both as outcropping, sub-cropping and as substantial float material. The early reconnaissance groundwork by Black Canyon was used as a basis for the 2023 RC drilling programme.</i></p>
<i>Geology</i>	<p><i>Deposit type, geological setting and style of mineralisation.</i></p>	<p><i>The mineralisation is a sediment hosted supergene and weathered manganese enrichment derived from original high manganese content shales.</i></p> <p><i>The lithological sequence of the project principally consists of the Balfour Formation shales from the Proterozoic Manganese Group of the southern Oakover Basin which is overlain by Quaternary cover.</i></p> <p><i>The Balfour East and Pickering deposits can be separated into three primary units, the unmineralised Balfour shale, the mineralised Balfour shale and the lower basal shale unit. The unmineralised shale is brown grey in colour and the manganiferous shale unit contains a supergene enriched manganiferous horizon which exhibits thickness range between 5 m to 30 m depth. The manganese layers are confined to distinct banding within the Balfour and there are also minor occurrences of interbedded red/brown shales intermixed with minor saprolitic clay bands.</i></p> <p><i>Further information is provided in the text of the release.</i></p>



Criteria	Explanation	Comment
<i>Drill hole Information</i>	<p>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</p> <ul style="list-style-type: none">• easting and northing of the drill hole collar• elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar• dip and azimuth of the hole• down hole length and interception depth• hole length. <p>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</p>	<p>See drill hole location plans and figures in main body of the release.</p> <p>A listing of drill holes and their corresponding coordinates, elevation and depth and composited drill results are listed in Appendix 2.</p>
<i>Data aggregation methods</i>	<p>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</p> <p>Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</p> <p>The assumptions used for any reporting of metal equivalent values should be clearly stated.</p>	<p>No grade cutting to assays has been undertaken.</p> <p>No aggregation of samples has been undertaken.</p> <p>Assays have been reported as oxides. Appropriate conversion from oxides to elements has been completed using standard conversion factors.</p>



Criteria	Explanation	Comment
<i>Relationship between mineralisation widths and intercept lengths</i>	<p><i>These relationships are particularly important in the reporting of Exploration Results.</i></p> <p><i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></p> <p><i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i></p>	<p><i>The Balfour East and Pickering deposits are interpreted to be mostly flat lying exhibiting gently dipping mineralisation.</i></p> <p><i>At this initial stage drilling 90-degree (vertical) drill holes are considered appropriate.</i></p>
<i>Diagrams</i>	<p><i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i></p>	<p><i>Refer to body of release for maps and sections of drilling data.</i></p>
<i>Balanced reporting</i>	<p><i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i></p>	<p><i>Exploration results are not being reported at this time.</i></p>
<i>Other substantive exploration data</i>	<p><i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></p>	<p><i>Diamond Core drilling is planned to generate bulk sample for metallurgical testwork.</i></p> <p><i>In other projects managed by Black Canyon Scoping Level metallurgical testwork on similar manganese enriched shale mineralisation has demonstrated the amenability of the 10 to 15% Mn materials to upgrading with beneficiation to 30 to 33% Mn concentrates.</i></p> <p><i>The manganese mineralisation discovered at Balfour East and Damsite are all hosted in manganese enriched shale.</i></p>
<i>Further work</i>	<p><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p> <p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p><i>IHC has been advised that Black Canyon will be undertaking scoping and feasibility related studies on developing the Balfour Mn Projects which includes a further metallurgical testwork to be followed by process equipment selection, design and engineering studies for manganese concentrates and downstream processing to HPMSM.</i></p> <p><i>It is recommended that the Company undertake infill and expansion drilling to upgrade the Exploration Targets to Mineral Resource Estimates and undertake a suitable topographic survey (preferably LiDAR) to improve accuracy of the topographic DTM surface used for modelling purposes.</i></p>



Section 3 Estimation and Reporting of Mineral Resources

Criteria	Explanation	Comment
Database integrity	<p>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</p> <p>Data validation procedures used.</p>	<p>Exploration data was provided by the Company to IHC Mining in the form of Excel datasheets relating to collar, lithology and assay data,</p> <p>Geological interpretations also provided by the Company to IHC Mining in the form of PowerPoint presentations for both Balfour East and Pickering deposits.</p> <p>Data in the form of individual Excel files (‘.csv’) was independently checked and reviewed by IHC Mining. Data review included:</p> <ul style="list-style-type: none"> • Assay review for out-of-range values • Sample gaps • Overlapping sample intervals <p>Checks of data by visually inspecting on screen (to identify translation of samples).</p> <p>Visual and statistical comparison was undertaken to check for validity of results.</p>
Site visits	<p>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</p> <p>If no site visits have been undertaken indicate why this is the case.</p>	<p>Black Canyon Limited has completed a number of site trips between 2021 - 2023 to manganese targets across the Balfour Manganese Field prospects to map and visually inspect the drill targets. The Company managed and supervised the July 2023 RC drill program.</p> <p>This was completed by the Executive Director Mr Cummins who is a current member of the AIG. Mr Cummins is the Competent Person for the Exploration Results used as a basis for the Mineral Resource estimate. Mr Cummins conducted a site visit for the July 2023 drill program.</p> <p>The Competent Person Greg Jones has not yet conducted a site trip, however given his experience with the style of mineralisation in question, site visits to other manganese stratabound deposits, in addition to the extensive photography, videos and site visit reports, he considers this not to be of sufficient risk to prevent the estimation and classification of Exploration Targets and Mineral Resources</p>
Geological interpretation	<p>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</p> <p>Nature of the data used and of any assumptions made.</p> <p>The effect, if any, of alternative interpretations on Mineral Resource estimation.</p> <p>The use of geology in guiding and controlling Mineral Resource estimation.</p> <p>The factors affecting continuity both of grade and geology.</p>	<p>The geological interpretation was undertaken by IHC Mining and then validated using logging data, sampling information, geological surface mapping and observations. Three main domains were identified based on the manganese grades and lithological logging and these domains are noted as Zones. The Balfour East and Pickering deposits share similar geological characteristics and therefore consist of the same geological domains.</p> <p>Zones were identified as Zone 1, 2 and 200 in the resource estimation process. Zone 1 consists of brownish background low grade manganese Balfour shale. Zone 2 is the brownish grey target high grade manganese enriched Balfour shale which exhibits elevated grades typically above 5% Mn. Zone 200 is considered basement and is informed by a sharp reduction in Mn</p>



Criteria	Explanation	Comment
		<p>grade at depth or by end of hole 'EOH' where drilling terminated in mineralisation.</p> <p>It should be noted that Zone 2 contains minor instances of lower grade interbedded shales, and these have not been excluded given their thin and discontinuous nature. The occasional low grade Mn intercepts in Zone 2 are typically associated with Balfour shale lithology consisting of unmineralised interbedded shale or ferruginous material.</p> <p>The RC drilling also logged the weathering profile 'WEATH' for each 1 m down hole interval as oxidised 'OX' or fresh 'FR'. Blank intervals are considered to be a transition zone between oxidised and fresh material. This oxidised material was domained (refer 'WZONE' field in model whereby WZONE=2 is oxidised material and WZONE=1 is fresh material) to exclude all transitional and fresh material.</p> <p>This approach of domaining by Mn grade 'ZONE' and oxidised material 'WZONE=2' provides a suitable approach for the company to report the resource model using a combination of the two fields.</p> <p>The mineralised zones generally strike northeast (45 degrees) for the Balfour East deposit forming a 250m long outcrop. The dominant northeast strike direction was confirmed by horizontal continuity and variography analysis. Airborne EM and aerial magnetics also support this strike direction.</p> <p>The mineralised horizon at Pickering is interpreted to be dipping shallowly to the north and strong geological and mineralised continuity is demonstrated along strike over several kilometres in an east-west direction.</p>
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<p>Continuous manganese mineralisation was encountered at Balfour East with stronger zones of surface and shallow covered manganese enrichment intersected along 650 m of striking outcrop. The mineralised shale is between 400 m and 500 m wide, 2000 m long and extends 10 m to 35 m downhole with a small number of holes ending in mineralisation.</p> <p>The Pickering Exploration Target is 9.7 km long and between 400 m to 800 m wide. The depth of mineralisation varies from 24m to 48 m</p>
Estimation and modelling techniques	<p>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</p> <p>The availability of check estimates, previous estimates and/or mine production records</p>	<p>Inverse distance cubed (ID3) was used to interpolate grades and values into the block model. Part of the rationale for using ID3 is centred on the continuity of mineralisation for the manganese enriched Balfour shale both along strike, across strike and down hole.</p> <p>Ordinary Kriging was also used to interpolate Mn grade into the block model (defined as model field 'Mn_OK') to be used as a validation check against the inverse distance weighting technique.</p> <p>Effectively there is an averaging over the length of the sample interval down hole (in this case being 1 m) therefore there is already a dilution effect on any potential high-grade mineralisation leading to inverse distance being a less complex and more straight forward methodology.</p>



Criteria	Explanation	Comment
	<p><i>and whether the Mineral Resource estimate takes appropriate account of such data.</i></p> <p><i>The assumptions made regarding recovery of by-products.</i></p> <p><i>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</i></p> <p><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></p> <p><i>Any assumptions behind modelling of selective mining units.</i></p> <p><i>Any assumptions about correlation between variables.</i></p> <p><i>Description of how the geological interpretation was used to control the resource estimates.</i></p> <p><i>Discussion of basis for using or not using grade cutting or capping.</i></p> <p><i>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</i></p>	<p><i>No mine production records recorded as this is not applicable at this stage of exploration.</i></p> <p><i>No assumptions have been made regarding recovery of by-products.</i></p> <p><i>The parent cell size used in the grade interpolation is typically half the average drill hole spacing on the X and Y axes.</i></p> <p><i>The parent cell size for this resource estimate is 100 x 100 x 1 (XYZ) for Balfour East and 400 x 50 x 1 (XYZ) for Pickering.</i></p> <p><i>No assumptions have been made regarding modelling of selected mining units.</i></p> <p><i>Validation was undertaken by use of swathe plots, population distribution analysis and visual inspection.</i></p> <p><i>The geological zones 'ZONE' were used to control the grade interpolation. 'WZONE' was also used as a secondary constraint to report oxide material only (excluding fresh and transitional material) as an internal company check. Oxidised material WZONE=1 and fresh material WZONE=2.</i></p>
Moisture	<p><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i></p>	<p><i>Tonnages were estimated on assumed dry basis. No account has been made nor current test work completed to determine moisture.</i></p>
Cut-off parameters	<p><i>The basis of the adopted cut-off grade(s) or quality parameters applied.</i></p>	<p><i>No top or bottom cuts were used for grade interpolation.</i></p> <p><i>The Exploration Targets applied cut off grades between 4 and 10% Mn</i></p>
Mining factors or assumptions	<p><i>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral</i></p>	<p><i>No specific mining method is assumed other than potentially open pit mining methods. No minimum thickness was assumed for reporting of the Exploration Target Estimate.</i></p>



Criteria	Explanation	Comment
	<i>Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</i>	
<i>Metallurgical factors or assumptions</i>	<i>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</i>	<i>The material targeted for extraction is predominantly manganese hosted in manganese enriched shale. No specific detail and assumptions have been applied in the estimation for the Exploration Targets and only allow for preliminary commentary with no detailed chemistry or sizing of mineral species. Based on another manganese hosted shale deposit currently being mined in the Pilbara it is reasonable to assume that the Balfour Manganese deposits also have reasonable prospect for economic extraction</i>
<i>Environmental factors or assumptions</i>	<i>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</i>	<i>No assumptions have been made regarding waste products at this stage of exploration, however it is reasonable to assume the creation and storage of waste products on site will not be of great concern for future mining activities. No environmental concerns or issues were identified during this phase of exploration.</i>
<i>Bulk density</i>	<i>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size</i>	<i>At this stage of exploration average density values were applied to Balfour East and Pickering deposits by geological domain based on the downhole geophysics work completed by Black Canyon during their previous exploration campaign for the FB3 and LR1 deposits. Details of the downhole geophysics program are described below:</i>



Criteria	Explanation	Comment
	<p>and representativeness of the samples.</p> <p>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</p> <p>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</p>	<p>'A downhole geophysics program was completed by ABIM Solutions Pty Ltd who captured short (SSD) and long spaced density (LSD), caliper, magnetic susceptibility and natural gamma during Black Canyons previous drilling programme for deposits FB3 and LR1. Density measurements were collected using a down hole logging probe that provides a continuous record of a formation's bulk density along the length of a borehole. A total of 85 holes representing approximately 28,000 density measurements (0.1 m recordings) were surveyed across the LR1 and FB3 deposits access the RC holes drilled primarily in Dec 2021 which were spaced 200 x 100m apart'.</p> <p>Average densities by domain were calculated from this work and have been applied to Balfour East and Pickering deposits. These density values by domain are as follows:</p> <p>Zone 1 (unmineralised material) = 2.38</p> <p>Zone 2 (mineralised material) = 2.52</p> <p>Zone 200 (basement) = 2.69</p> <p>It is recommended that future studies include further down hole density work for each deposit.</p>
Classification	<p>The basis for the classification of the Mineral Resources into varying confidence categories.</p> <p>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</p> <p>Whether the result appropriately reflects the Competent Person's view of the deposit.</p>	<p>The Exploration Target classifications were based on the following supporting criteria: drill hole spacing, down hole density spacing, appropriate grade constraints and domain controlled variography.</p> <p>The Exploration Target extents along and across strike were based on drill hole spacing, down hole sampling which were further supported by electromagnetic targets, satellite imagery depicting target outcrops and manganese at surface. Field reconnaissance and geological mapping by company geologist also supports Exploration Target extents.</p> <p>As Competent Person Greg Jones considers that the result appropriately reflects a reasonable view of the deposit JORC categorisation.</p>
Audits or reviews.	<p>The results of any audits or reviews of Mineral Resource estimates.</p>	<p>No recent audits or reviews of the Exploration Target Estimate has been undertaken.</p>
Discussion of relative accuracy/ confidence	<p>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that</p>	<p>Variography was used to support the drill hole spacing for the selected JORC Classification.</p> <p>Validation of the model vs drill hole grades was carried out by direct observation and comparison of the results on screen.</p> <p>The Exploration Target statement is a global estimate for the Balfour East and Pickering deposits within the tenement area between a cut-off grade range of 4% Mn – 10% Mn.</p> <p>The potential tonnage, grade and quantity of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource for the target area reported. It is uncertain if further exploration will result in the estimation of a Mineral Resource</p> <p>There has been no production to date.</p>



Criteria	Explanation	Comment
	<p><i>could affect the relative accuracy and confidence of the estimate.</i></p> <p><i>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</i></p> <p><i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i></p>	

**APPENDIX 2: SUMMARY DRILL HOLE COLLAR AND COMPOSITES (>7% Mn)**

Hole id	East (WGS84)	North (WGS84)	RI	Dip	Azimuth	Deposit	From depth (m)	To depth (m)	Interval (m)	Mn %	Fe %	Al %	Si %	Zone
BSRC032	257332	7435327	465	-90	360	Balfour East	2	35	33	13.5	8.7	5.3	19.5	2
BSRC033	257210	7435182	478	-90	360	Balfour East	0	13	13	13.3	8.9	4.9	21.2	2
BSRC033	257210	7435182	461	-90	360	Balfour East	15	32	17	10.5	6.8	5.2	18.9	2
BSRC034	257080	7435014	483	-90	360	Balfour East	1	2	1	9.2	3.9	2.9	11.5	1
BSRC034	257080	7435014	463	-90	360	Balfour East	5	39	34	11.6	8.9	4.5	16.9	2
BSRC034	257080	7435014	444	-90	360	Balfour East	39	42	3	10.4	6.5	4.3	15.2	200
BSRC036	257069	7435298	465	-90	360	Balfour East	2	36	34	11.3	7.5	4.4	16.2	2
BSRC039	256421	7434925	462	-90	360	Balfour East	1	46	45	9.9	7.1	4.7	16.8	2
BSRC040	256329	7434636	457	-90	360	Balfour East	26	36	10	8.9	7.6	4.8	16.3	2
BSRC043	257385	7435402	481	-90	360	Balfour East	2	3	1	7.4	10.5	5.5	24.1	2
BSRC043	257385	7435402	470	-90	360	Balfour East	4	23	19	13.7	9.1	4.7	18.9	2
BSRC043	257385	7435402	448	-90	360	Balfour East	24	48	24	10.4	6.4	4.9	17.3	2
BSRC043	257385	7435402	427	-90	360	Balfour East	56	57	1	7.1	6.6	6.4	23.0	200
BSRC044	257463	7435481	478	-90	360	Balfour East	5	6	1	7.3	7.4	6.8	24.9	1
BSRC044	257463	7435481	476	-90	360	Balfour East	7	8	1	13.9	7.4	5.9	20.8	2
BSRC044	257463	7435481	474	-90	360	Balfour East	9	10	1	15.4	11.7	5.6	17.9	2
BSRC044	257463	7435481	468	-90	360	Balfour East	12	19	7	15.3	10.7	5.1	19.1	2
BSRC044	257463	7435481	449	-90	360	Balfour East	20	48	28	12.1	8.5	4.7	17.3	2
PKRC002	252397	7471101	476	-90	360	Damsite	0	5	5	14.0	11.3	3.0	15.5	2
PKRC002	252397	7471101	464	-90	360	Damsite	7	22	15	13.3	9.5	4.0	16.1	2
PKRC003	252403	7471200	476	-90	360	Damsite	0	5	5	13.6	9.2	4.0	19.1	2
PKRC003	252403	7471200	470	-90	360	Damsite	7	10	3	16.2	10.1	4.2	18.1	2
PKRC004	252401	7471301	472	-90	360	Damsite	0	14	14	14.2	10.1	3.8	17.0	2
PKRC004	252401	7471301	462	-90	360	Damsite	15	19	4	8.8	7.9	5.0	18.3	2
PKRC005	252402	7471403	467	-90	360	Damsite	1	19	18	14.0	9.8	3.3	14.2	2
PKRC005	252402	7471403	455	-90	360	Damsite	20	24	4	11.3	9.6	3.4	13.8	2
PKRC006	252403	7471500	462	-90	360	Damsite	8	21	13	13.4	9.3	3.4	14.1	2
PKRC006	252403	7471500	454	-90	360	Damsite	22	24	2	10.3	8.2	4.0	14.6	2
PKRC007	252202	7471507	470	-90	360	Damsite	0	19	19	11.9	9.9	4.3	17.7	2
PKRC008	252203	7471404	476	-90	360	Damsite	0	7	7	14.0	9.4	3.4	16.4	2
PKRC008	252203	7471404	467	-90	360	Damsite	8	16	8	13.3	10.2	4.3	17.9	2
PKRC009	252199	7471303	474	-90	360	Damsite	1	9	8	10.6	9.1	5.0	20.6	2
PKRC009	252199	7471303	468	-90	360	Damsite	10	12	2	11.3	8.5	6.1	21.9	2
PKRC013	252020	7471506	473	-90	360	Damsite	0	12	12	11.9	10.7	5.1	20.5	2
PKRC018	252020	7470997	467	-90	360	Damsite	9	10	1	7.0	3.1	8.0	26.1	200