RioTinto

Notice to ASX

# Changes to Iron Ore Mineral Resources and Ore Reserves

**17 February 2021**

Rio Tinto today announces changes in Mineral Resources and Ore Reserves for Pilbara iron ore deposits in Western Australia. These changes will be included in Rio Tinto's 2020 Annual Report, to be released to the market by 22 February 2021, and are reportable changes compared to the previous estimates in the 2019 Annual Report.

The changes in Mineral Resources and Ore Reserves are required to be reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (JORC Code) and the ASX Listing Rules. Supporting information relating to the changes is set out in this release and its appendices.

Mineral Resources and Ore Reserves are quoted in this release on a 100 per cent basis as dry product tonnes. Rio Tinto's Mineral Resources and Ore Reserves as at 31 December 2020, and Rio Tinto's interests, are set out in full in its 2020 Annual Report. Mineral Resources are reported in addition to Ore Reserves.

Resource drilling campaigns from 2006 – 2019, and subsequent technical work, including a review of heritage sites in late 2020 have contributed to the changes in the following Mineral Resources and Ore Reserves, detailed in this release and its appendices:

**Table A - Material Changes to Mineral Resources and Ore Reserves 2020**

| | **Material changes to Mineral Resources and Ore Reserves** |
|---|---|
| **Arrowhead / Rhodes Ridge** | Update to the Mineral Resources (all Inferred) for Arrowhead and Rhodes Ridge Main has increased Mineral Resources for the Rhodes Ridge JV by:<br>• 76 Mt of Detrital Ore.<br>• 202 Mt of Marra Mamba Ore.<br>• 240 Mt of Brockman Process Ore.<br>• 418 Mt of Brockman Ore.<br>In addition there are other small net increases at other Rhodes Ridge JV deposits (Marra Mamba and Detrital). |
| **Poonda** | Initial declaration of a Mineral Resource (Inferred) for Poonda has increased Mineral Resources for Hamersley Iron by:<br>• 532 Mt of Boolgeeda Formation ore. |
| **Western Range** | Drilling, in conjunction with a new geological model and updates to the Resource classification, pit designs, and certain heritage sites at the Western Range 36w-50w deposit have resulted in the following Mineral Resource and Ore Reserve changes for Hamersley Iron:<br>• Overall Mineral Resource has increased by 13 Mt:<br>  ○ Measured Mineral Resource has decreased by 39 Mt.<br>  ○ Indicated Mineral Resource has increased by 8 Mt.<br>  ○ Inferred Mineral Resource has increased by 44 Mt.<br>• Overall Ore Reserve has decreased by 42 Mt (note 1 Mt discrepancy below due to rounding):<br>  ○ Proven Ore Reserve has decreased by 65 Mt.<br>  ○ Probable Ore Reserve has increased by 24 Mt. |

Changes in Rio Tinto's Pilbara iron ore Mineral Resources and Ore Reserves between the end of 2019 and the end of 2020 are shown below in Table B and Table C respectively.

**Table B - Aggregate changes to Rio Tinto's Pilbara iron ore Mineral Resource estimates between 31 Dec 2019 and 31 Dec 2020 (100% basis)**

| | Dry product (Mt) |
|---|---|
| **2019 Mineral Resources** | **23,004** |
| Arrowhead / Rhodes Ridge increases | 938 |
| Poonda increases | 532 |
| Net amount of other changes | 310 |
| **2020 Mineral Resources** | **24,784** |

**Table C - Aggregate changes to Rio Tinto's Pilbara iron ore Ore Reserve estimates between 31 Dec 2019 and 31 Dec 2020 (100% basis)**

| | Dry product (Mt) |
|---|---|
| **2019 Ore Reserves** | **3,332** |
| Western Range decreases | -42 |
| Net amount of other changes (including depletion) | -240 |
| **2020 Ore Reserves** | **3,050** |

The location of the deposits involved is shown in Figure 1.

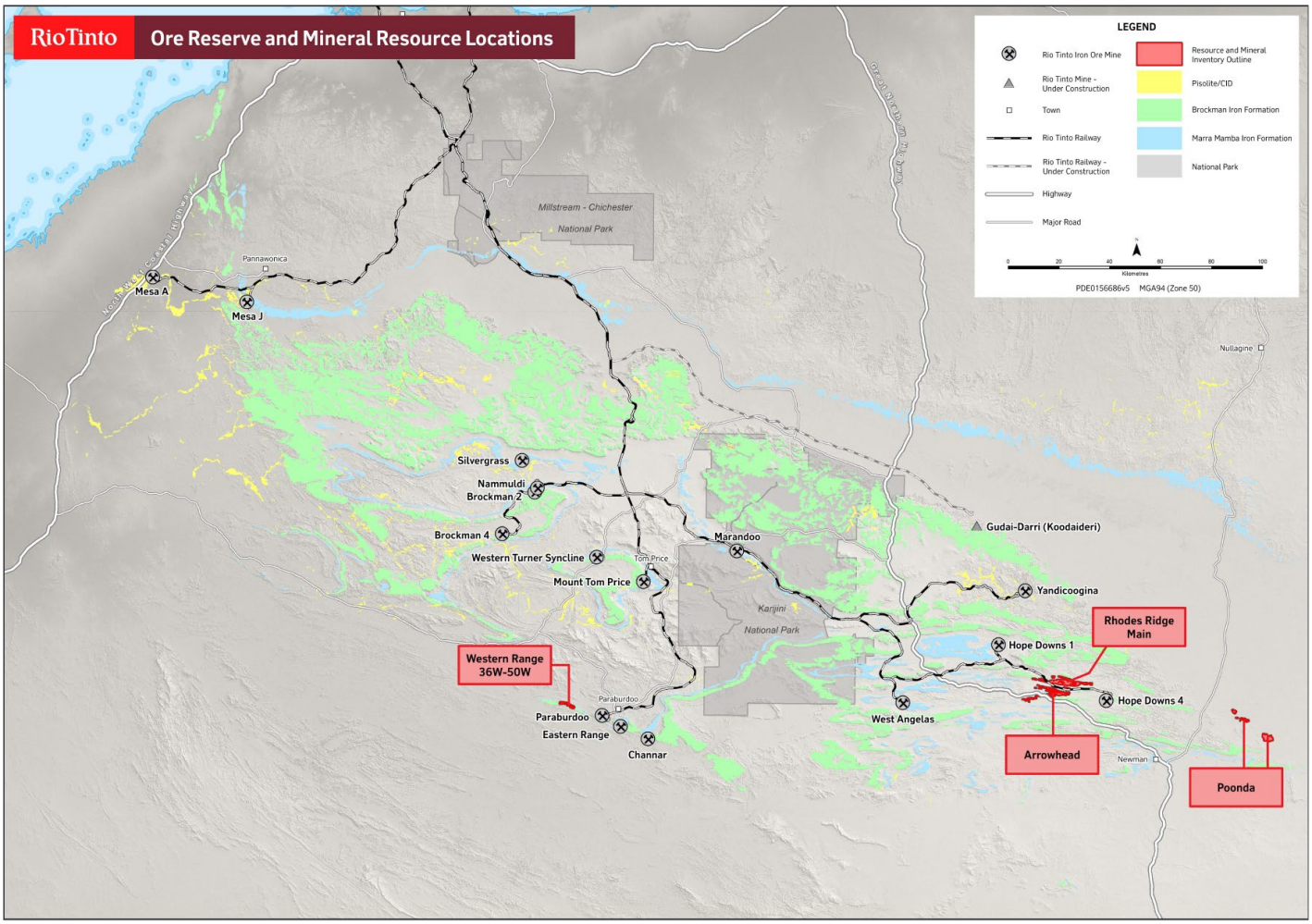


**Figure 1 Deposit location map**

**Summary of information to support the Mineral Resource and Ore Reserve estimates**

**Arrowhead & Rhodes Ridge Main**

Initial Mineral Resource estimates for the Arrowhead and Rhodes Ridge deposits are supported by the information set out in the Appendix to this release and located at riotinto.com/financial-news-performance/resources-and-reserves in accordance with the Table 1 checklist in the JORC Code. The following summary information is provided in accordance with rule 5.8 of the ASX Listing Rules.

Geology, drilling techniques, and geological interpretation

The Arrowhead and Rhodes Ridge Main deposits are located within the Hamersley Basin of Western Australia, the host to some of the most significant iron ore deposits in the world. Arrowhead mineralisation is primarily hosted by the Marra Mamba Iron Formation with additional detrital mineralisation present. Rhodes Ridge Main mineralisation is primarily hosted by the Brockman Iron Formation.

At Arrowhead, multiple reverse circulation (RC) drilling and diamond drilling campaigns have been carried out since 1984, with the majority of drilling data obtained between 2007 and 2019. A total of 627 RC holes were completed for 58,235 m, and a total of 39 diamond holes were completed for 3,526 m.

At Rhodes Ridge Main, multiple percussion, reverse circulation, and diamond drilling campaigns have been carried out since 1970, with the majority of drilling data obtained between 2010 and 2019. A total of 458 RC holes were completed for 48,735 m, and a total of 40 diamond holes were completed for 4,371 m. Only data from 2010 – 2019 was used for resource estimation. Pre-2010 data was used for geological interpretation only.

Geophysical logging was completed for most drill holes employing a suite of down hole tools to obtain calliper, natural gamma and other data to assist in the interpretation of the stratigraphy. Geological modelling was performed by Rio Tinto Iron Ore geologists. The method involved interpretation of stratigraphy and mineralisation using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.

Sampling, sub-sampling method and sample analysis method

For sampling since 2011, reverse circulation holes have been sub-sampled using rotary splitters. An ‘A’ and ‘B’ sub-sample, each representing 8% of the mass, were collected at 2 m intervals from the rotary cone splitter. Prior to 2011, reverse circulation samples were sub-sampled using a 3 or 4 tier riffle splitter. Diamond core was sampled as whole core.

Samples were sent for analysis by independent assay laboratories. At the laboratory the sample was dried at 105 degrees Celsius for a minimum of 24 hours. The sample was then crushed to less than 3 mm using a crusher and rotary/linear splitting device to produce a 1 to 2.5 kg sub-sample. The sub-sample was pulverised to 95% of weight passing 150 µm. Fe, $SiO_2$, $Al_2O_3$, P, Mn, MgO, $TiO_2$, CaO and S were assayed using industry standard X-Ray Fluorescence (XRF) analysis. Loss on Ignition (LOI) was determined using an industry standard Thermo-Gravimetric Analyser (TGA).

Estimation methodology

Modelling was completed using the Rio Tinto Iron Ore Pilbara geological modelling and estimation standards. Inverse distance weighting to the second power method was used to estimate Fe, $SiO_2$, $Al_2O_3$, P, Mn, LOI, LOI425, LOI650, S, $TiO_2$, MgO, and CaO grades into parent cells for both deposits. The grade estimation process was completed using Maptek™ Vulcan™ software.

Criteria used for classification

The Mineral Resource has been classified into the category of Inferred. The determination of the applicable category has considered the relevant factors (geology complexity, mineralisation continuity, sample spacing, data quality, and others as appropriate). The Arrowhead deposit data spacing is typically 400 m x 100 m to 400 m x 50 m. The Rhodes Ridge Main deposit data spacing is typically 400 m x 100 m.

Cut-off grades

At Arrowhead:

- The cut-off for Marra Mamba and associated detrital Mineral Resources is greater than or equal to 58% Fe.

At Rhodes Ridge:

- The cut-off for Brockman Mineral Resources is greater than or equal to 60% Fe.
- The cut-off for Brockman Process Ore Mineral Resources is material $50\% \leq Fe < 60\%$ and $3\% \leq Al_2O_3 < 6\%$.

Mining and metallurgical methods and parameters

Development of this Mineral Resource assumes mining using standard Rio Tinto Iron Ore equipment and methods similar to other Rio Tinto Iron Ore operations. The assumed mining method is conventional truck and shovel open pit mining at an appropriate bench height. Mining practices will include grade control utilising blast hole data.

It is assumed that standard crushing and screening processes used by Rio Tinto Iron Ore will be applicable for the processing of both Arrowhead and Rhodes Ridge.

Rio Tinto plans to blend ore from Arrowhead and Rhodes Ridge with ore from other Rio Tinto Iron Ore mine sites to make a saleable ore product. Arrowhead and Rhodes Ridge ore will not be marketed directly. This plan is in line with current Rio Tinto Iron Ore practices where ore from multiple mines is combined to produce the Pilbara Blend product.

No other significant modifying factors have yet been identified.

The Arrowhead deposit is located within Temporary Reserve Tenure (TR70/04737, TR70/04192, TR70/04882, TR70/04883). The Rhodes Ridge deposit is located within Temporary Reserve Tenure (TR70/04267, TR70/04266, TR70/04737, TR70/04192).

**2020 Annual Report Mineral Resources table, showing line items relating to Arrowhead and Rhodes Ridge**

| | Likely Mining Method (a) | Measured resources at end 2020 | | Indicated resources at end 2020 | | Inferred resources at end 2020 | | Total resources 2020 compared with 2019 | | | | Rio Tinto Interest % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tonnage | Grade | Tonnage | Grade | Tonnage | Grade | Tonnage | | Grade | | |
| | | | | | | | | **2020** | 2019 | **2020** | 2019 | |
| **IRON ORE (b)** | | millions of tonnes | %Fe | millions of tonnes | %Fe | millions of tonnes | %Fe | **millions of tonnes** | millions of tonnes | **%Fe** | %Fe | |
| Rhodes Ridge JV (Australia) (d) | | | | | | | | | | | | |
| - Brockman (g) | O/P | | | 565 | 63.9 | 1,880 | 62.9 | **2,445** | 2,027 | **63.1** | 62.9 | 50.0 |
| - Brockman Process Ore (h) | O/P | | | 176 | 57.6 | 724 | 56.8 | **900** | 660 | **56.9** | 56.8 | 50.0 |
| - Marra Mamba (i) | O/P | | | 25 | 61.3 | 2,844 | 62.0 | **2,869** | 2,591 | **61.9** | 62.0 | 50.0 |
| - Detrital (j) | O/P | | | | | 420 | 60.3 | **420** | 328 | **60.3** | 60.1 | 50.0 |

(a) Likely mining method: O/P = open pit; O/C = open cut; U/G = underground; D/O = dredging operation.
(b) Iron ore Resources tonnes are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
(d) The updated assessment of Mineral Resources reflects measures Rio Tinto has put in place following the events in the Juukan Gorge on 24 May 2020. These measures are intended to protect a number of sites, and to mitigate impacts to sites where there are existing heritage approvals authorising mining impacts, or a decision has been made not to seek regulatory approval to conduct mining activities, given the heritage considerations identified by Traditional Owners. The impact of the changes are not material to the total Resource. Rio Tinto's approach to cultural heritage management generally will continue to evolve in response to changes in agreements with Traditional Owners, further engagement with Traditional Owners and changing heritage legislation. Any material changes to Mineral Resources as a result of the further refinement of Rio Tinto's approach will be disclosed at the appropriate time.
(g) Rhodes Ridge JV (Brockman) Resource tonnes have increased following an updated geological model at Rhodes Ridge. A JORC Table 1 in support of this change will be released to the market contemporaneously with the release of this Annual Report and can be viewed at riotinto.com/invest/financial-news-performance/resources-and-reserves.
(h) Rhodes Ridge JV (Brockman Process Ore) Resources tonnes have increased following an updated geological model at Rhodes Ridge. A JORC Table 1 in support of this change will be released to the market contemporaneously with the release of this Annual Report and can be viewed at riotinto.com/invest/financial-news-performance/resources-and-reserves.
(i) Rhodes Ridge JV (Marra Mamba) Resources tonnes have increased mainly due to an updated geological model at Arrowhead. A JORC Table 1 in support of this change will be released to the market contemporaneously with the release of this Annual Report and can be viewed at riotinto.com/invest/financial-news-performance/resources-and-reserves.
(j) Rhodes Ridge JV (Brockman) (Detrital) Resource tonnes have increased mainly due to an updated geological model at Arrowhead.

**Poonda**

Initial Mineral Resource estimates for the Poonda deposit are supported by the information set out in the Appendix to this release and located at riotinto.com/financial-news-performance/resources-and-reserves in accordance with the Table 1 checklist in the JORC Code. The following summary information is provided in accordance with rule 5.8 of the ASX Listing Rules.

Geology, drilling techniques, and geological interpretation

The Poonda deposit is located within the Hamersley Basin of Western Australia, the host to some of the most significant iron ore deposits in the world. The deposit is located within Exploration Licenses E47/00580 and E47/00662. Poonda mineralisation is hosted by the Boolgeeda Iron Formation.

At Poonda, multiple reverse circulation (RC) drilling and diamond drilling campaigns have been carried between 2006 and 2019. A total of 328 RC holes were completed for 36,536 m, and a total of 8 diamond holes were completed for 642.3 m.

Geophysical logging was completed for most drill holes employing a suite of down-hole tools to obtain calliper, natural gamma and other data to assist in the interpretation of the stratigraphy. Geological modelling was performed by Rio Tinto Exploration (RTX) geologists. The method involved interpretation of stratigraphy and mineralisation using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.

Sampling, sub-sampling method and sample analysis method

For sampling since 2011, reverse circulation holes have been sub-sampled using rotary splitters. An 'A' and 'B' sub-sample, each representing 8% of the mass, were collected at 2 m intervals from the rotary cone splitter. Prior to 2011, reverse circulation samples were sub-sampled using a 3 or 4 tier riffle splitter. Diamond core was sampled as whole core.

Samples were then sent for analysis by independent assay laboratories. At the laboratory the sample was dried at 105 degrees Celsius for a minimum of 24 hours. The sample was then crushed to less than 3 mm using a boyd crusher and rotary/linear splitting device to produce a 1–2.5 kg sub-sample. The sub-sample was pulverised to 95% of weight passing 150 µm. Fe, $SiO_2$, $Al_2O_3$, P, Mn, MgO, $TiO_2$, CaO and S were assayed using industry standard X-Ray Fluorescence (XRF) analysis. Loss on Ignition (LOI) was determined using an industry standard Thermo-Gravimetric Analyser (TGA).

Estimation methodology

Modelling was completed using the Rio Tinto Iron Ore Pilbara geological modelling and estimation standards. Inverse distance weighting to the second power method was used to estimate Fe, $SiO_2$, $Al_2O_3$, P, Mn, LOI, LOI425, LOI650, S, $TiO_2$, MgO, and CaO grades into parent cells. The grade estimation process was completed using Maptek™ Vulcan™ software.

Criteria used for classification

The Mineral Resource has been classified into the category of Inferred. The determination of the applicable category has considered the relevant factors (geology complexity, mineralisation continuity, sample spacing, data quality, and others as appropriate). The Poonda deposit data spacing is typically 400 m x 100 m to 400 m x 50 m.

Cut-off grades

The cut-off for Boolgeeda Ore Mineral Resources is material Fe ≥ 55% and $Al_2O_3$ ≤ 6.5%.

Mining and metallurgical methods and parameters

Development of this Mineral Resource assumes mining using standard Rio Tinto Iron Ore equipment and methods similar to other Rio Tinto Iron Ore operations. The assumed mining method is conventional truck and shovel open pit mining at an appropriate bench height. Mining practices will include grade control utilising blast hole data.

It is assumed that standard crushing and screening processes used by Rio Tinto Iron Ore will be applicable for the processing of the Poonda deposit. It is further assumed that a concentrator will be applicable for the processing of Poonda ore by using gravity and heavy medium separation techniques. Predicted yield and upgrade are based on metallurgical test work conducted on representative samples collected from the Poonda deposit.

Rio Tinto plans to sell Poonda Lump and Fines ore as a stand-alone saleable ore product. Poonda ore will be marketed directly.

No other significant modifying factors have yet been identified.

**2020 Annual Report Mineral Resources table, showing line items relating to Poonda**

| | Likely Mining Method [a] | Measured resources at end 2020 | | Indicated resources at end 2020 | | Inferred resources at end 2020 | | Total resources 2020 compared with 2019 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tonnage | Grade | Tonnage | Grade | Tonnage | Grade | Tonnage | | Grade | | Rio Tinto Interest % |
| | | | | | | | | **2020** | 2019 | **2020** | 2019 | |
| **IRON ORE [b]** | | millions of tonnes | %Fe | millions of tonnes | %Fe | millions of tonnes | %Fe | **millions of tonnes** | millions of tonnes | **%Fe** | %Fe | |
| Hamersley Iron (Australia) [d] | | | | | | | | | | | | |
| - Boolgeeda [e] | O/P | | | | | 532 | 57.9 | **532** | - | **57.9** | - | 100.0 |

(a) Likely mining method: O/P = open pit; O/C = open cut; U/G = underground; D/O = dredging operation.
(b) Iron ore Resources tonnes are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
(d) The updated assessment of Mineral Resources reflects measures Rio Tinto has put in place following the events in the Juukan Gorge on 24 May 2020. These measures are intended to protect a number of sites, and to mitigate impacts to sites where there are existing heritage approvals authorising mining impacts, or a decision has been made not to seek regulatory approval to conduct mining activities, given the heritage considerations identified by Traditional Owners. The impact of the changes are not material to the total Resource. Rio Tinto's approach to cultural heritage management generally will continue to evolve in response to changes in agreements with Traditional Owners, further engagement with Traditional Owners and changing heritage legislation. Any material changes to Mineral Resources as a result of the further refinement of Rio Tinto's approach will be disclosed at the appropriate time.
(e) Hamersley Iron (Australia) - Boolgeeda Resources are being reported for the first time with the addition of the Poonda deposit. A JORC Table 1 in support of this change will be released to the market contemporaneously with the release of this Annual Report and can be viewed at riotinto.com/invest/financial-news-performance/resources-and-reserves.
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**Western Range 36W-50W**

Initial Ore Reserve and Mineral Resource estimates for the Western Range 36W–50W deposit are supported by the information set out in the Appendix to this release and located at riotinto.com/financial-news-performance/resources-and-reserves in accordance with the Table 1 checklist in the JORC Code. The following summary information is provided in accordance with rules 5.8 and 5.9 of the ASX Listing Rules.

Geology, drilling techniques, and geological interpretation:

The Western Range 36W–50W deposit is located within the Hamersley Basin of Western Australia, the host to some of the most significant iron ore deposits in the world. The Western Range 36W–50W deposit mineralisation is primarily hosted by the Brockman Iron Formation with additional detrital mineralisation present.

Percussion and reverse circulation (RC) drilling was carried out between 1968 and 2019. A total of 1170 holes were completed for 106,307.5 m. In addition to this, 102 diamond drill holes from various drilling campaigns from 2003 – 2019 are available for geological interpretation, geotechnical and metallurgical assessments. Geophysical logging was completed for the majority of the drill holes, employing a suite of down-hole tools to obtain calliper, gamma, and other data to assist in the interpretation of the stratigraphy.

Geological modelling was performed by Rio Tinto Iron Ore geologists. The method involves interpretation of stratigraphy and mineralisation using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.

Sampling, sub-sampling method and sample analysis method

Dry samples were collected at 2 m intervals (Reverse Circulation) and 1.5 m (Percussion). Sub-sampling at the rig was carried out utilising a riffle splitter (2002 and earlier) or a rotary cone splitter (2011-2019).

The sample was then sent for analytical testing at Rio Tinto's internal laboratory at Dampier (2002 and earlier) or Bureau Veritas Laboratories (formerly Ultratrace Laboratories) for the 2011-2013 drilling programs, and Intertek Genalysis from the 2017-2019 drill programs. The majority of the samples were oven dried at 105 degrees Celsius for a minimum of 24 hours. Samples were then crushed, split and pulverised to produce a 100-150 g sample of - 150 µm (2002 onwards).

Fe, $SiO_2$, $Al_2O_3$, P, Mn, MgO, $TiO_2$, CaO and S were assayed using lithium tetraborate and metaborate fusion and X-Ray Fluorescence (XRF) analysis. Loss on Ignition (LOI) is determined using a Thermo-Gravimetric Analyser (TGA).

Greater detail of this process for each of the drilling generations is outlined in the appendix.

Estimation methodology

Modelling was completed using the Rio Tinto Iron Ore Pilbara geological modelling and estimation standards. Ordinary kriging and inverse distance weighting to the first and second power methods were used to estimate Fe, $SiO_2$, $Al_2O_3$, P, Mn, LOI, LOI425, LOI650, S, $TiO_2$, MgO, and CaO grades into parent cells. The grade estimation process was completed using Maptek™ Vulcan™ software.

Criteria used for classification

The Western Range 36W-50W Mineral Resource has seen some reclassification of Measured Resource into Indicated and Inferred from the previous resource model. By incorporating reconciliation findings from analogous mined deposits and having regard to the complex structure and mineralisation style of this deposit, the resource classification has been updated.

The Mineral Resource for the Western Range 36W-50W deposit has been classified into the category of Measured, Indicated and Inferred. The determination of the applicable category has considered the relevant factors (geology complexity, mineralisation continuity, sample spacing, data quality, and other factors as appropriate):

- Measured Resource is bedded mineralisation that demonstrates good or reasonable geological and grade continuity and is drilled at 30 m x 30 m spacing.
- Indicated Resource is bedded mineralisation that has reasonable geological and grade continuity and is drilled at 120 m x 60 m spacing.
- Inferred Resource is bedded mineralisation with drill spacing greater than 120 m x 60 m, or open mineralisation along domain margins and at depth with no drill support, or bedded mineralisation with limited continuity or limited drill support across strike, or Mature Detrital, or Hydrated mineralisation.

The Ore Reserve is the economically mineable part of a Mineral Resource. Ore Reserves include modifying factors such as, for example, mining and processing recoveries. For this deposit, economically mineable Measured Mineral Resources convert to Proved Ore Reserves and the economically mineable Indicated Mineral Resources convert to Probable Ore Reserves.

Economic assumptions

Rio Tinto applies a common process to the generation of commodity prices across the group. This involves generation of long-term price curves based on current sales contracts, industry capacity analysis, global commodity consumption and economic growth trends. In this process, a price curve rather than a single price point is used to develop estimates of mine returns over the life of the project. The detail of this process and of the price point curves is commercially sensitive and is not disclosed.

Mining and recovery factors

The Mineral Resource model was regularised to a block size which was determined to be the selective mining unit following an analysis of a range of selective mining units. Dilution and mining recovery were modelled by applying the regularisation process to the sub-block geological model.

Metallurgical models were applied to the regularised model in order to model product tonnage, grades and yields.

Pit optimisation utilising the Lerchs-Grossmann algorithm was undertaken applying applicable cost, revenue and geotechnical inputs. The resultant pit shells were used to develop detailed pit designs with due consideration of geotechnical, geometric and access constraints.

These pit designs were used as the basis for production scheduling and economic evaluation. Conventional mining methods (truck and shovel) similar to other Rio Tinto Iron Ore mines were selected.

The geotechnical parameters have been applied based on geotechnical studies informed by technical assessments of diamond drill holes drilled during the 2012 to 2019 drilling programmes, specifically drilled for geotechnical purposes on the surrounding host rock.

Processing

During drill campaigns from 2003-2019 a total of 3,382 m of metallurgical PQ diamond holes were drilled in the Western Range 36W–50W deposit. Data obtained from this core formed the basis for metallurgical test work which was utilised to develop metallurgical models representing different metallurgical domains which were considered representative of the ore body. The metallurgical models predict product tonnage and grade parameters for lump and fines products.

The Western Range 36W–50W ore, if developed, would be processed through the Paraburdoo processing facility, which comprises a dry crushing and screening facility with desliming. This style of processing is well suited to the Brockman ore at the Western Range 36W–50W deposit. The proposed metallurgical process is a well-tested and proven processing methodology, having been utilised at Rio Tinto Iron Ore mining operations for decades.

Rio Tinto plans to blend ore from Western Range 36W–50W with ore from other Rio Tinto Iron Ore mine sites to make a saleable ore product. If developed, Western Range 36W–50W ore, would not be marketed directly. This plan is in line with current Rio Tinto Iron Ore practices where ore from multiple mines is combined to produce the Pilbara Blend product.

Cut-off grades

For Mineral Resource reporting:

- The cut-off for Brockman Mineral Resources is greater than or equal to 60% Fe.
- The cut-off for Brockman Process Ore Mineral Resources is material $50\% \leq Fe < 60\%$ and $3\% \leq Al_2O_3 < 6\%$.

For Ore Reserves, the Western Range 36W–50W deposit is reported using variable cut-off grade (VCoG), in line with a number of other Pilbara deposits. Application of VCoG allows the varying of the head grade across the life of the deposit, to achieve desired product grades. At Western Range 36W–50W, this approximates to a cut-off of 58.5% Fe over the mine life.

Modifying factors

The Western Range 36W–50W deposit is located within existing Mining Lease AM70/00246 (ML246SA), which was granted pursuant to the Paraburdoo State Agreement.

Access to the Western Range 36W–50W deposit will be via an access road from the existing Paraburdoo mine. If developed, a crusher and conveyor will be built at the Greater Western Range operations (incorporating the 27W, 36W-50W and 55W-66W deposits), linking to the existing Paraburdoo mine processing plant. The Paraburdoo mine product stockpiles, rail and train load-out system will be utilised and ore will be railed to Rio Tinto ports at Dampier and Cape Lambert. The existing port and railway networks will have sufficient capacity to accommodate ore supply from the Western Range 36W-50W deposit.

Support facilities located at the Greater Western Range operations will include a fixed plant workshop, bulk fuel storage and refuelling facilities, and bulk lube storage. Existing support facilities at the Paraburdoo mine will be utilised, including heavy and light vehicle workshops, an explosive facility, and the waste fines storage facility. Electric power will be supplied via a 33kV connection to the Rio Tinto transmission network at Paraburdoo. Water will be sourced from bores at Western Range, supplemented by a connection to Paraburdoo borefields. Residential and Fly in, Fly out operations personnel will be accommodated in the Paraburdoo town, and utilise the Paraburdoo airport.

Ethnographic and archaeological surveys of the area have been completed and are regularly reviewed and updated; all known sites have been located, recorded and considered during mine planning and engineering activities.

Groundwater abstraction and quality will continue to be managed in accordance with the existing Greater Paraburdoo Groundwater Licences and associated Groundwater Operating Strategy, and any amendments as required. The Western Range 36W–50W deposit is located within the Shire of Ashburton. Rio Tinto Iron Ore has established an ongoing engagement with the Shire of Ashburton, which includes scheduled meetings and project updates.

The Greater Paraburdoo Iron Ore Hub (Proposal) was formally referred to the Environmental Protection Authority (EPA) under section 38 of the Environmental Protection Act 1986 (EP Act) on 5 November 2018. The Proposal was also referred to Department of the Agriculture, Water and Energy (DWAE). The delegate for the Commonwealth Minister for the Environment determined that the Proposal is a controlled action under s. 75 of the EPBC Act, requiring further assessment and approval.

The EPA is assessing the Proposal as an accredited assessment on behalf of the Commonwealth under s. 87 of the EPBC Act. The Environmental Scoping Document (ESD) identified the following key environmental factors relevant to the Proposal: Flora and Vegetation; Terrestrial Fauna; Subterranean Fauna; Inland Waters and Social Surroundings. The ESD was approved by the EPA in June 2019.

A Draft Environmental Review Document (ERD) was submitted to the EPA on 31 October 2019. The ERD provides assessment of the potential impacts of this Proposal on the key environmental factors to enable the EPA to determine the environmental acceptability of this Proposal.

Following multiple reviews of the Draft ERD by regulators, the ERD was released for a two-week public review period from 13-27 May 2020. Rio Tinto is currently preparing responses to the submissions received during the public review period.

For the Western Range 36W–50W, accuracy and confidence of modifying factors are generally consistent with the current level of study (Pre-Feasibility Study).

**2020 Annual Report Mineral Resources table, showing line items relating to Western Ranges 36W-50W**

| | Likely Mining Method [a] | Measured resources at end 2020 | | Indicated resources at end 2020 | | Inferred resources at end 2020 | | Total resources 2020 compared with 2019 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tonnage | Grade | Tonnage | Grade | Tonnage | Grade | Tonnage | | Grade | | Rio Tinto Interest % |
| | | | | | | | | **2020** | 2019 | **2020** | 2019 | |
| **IRON ORE [b]** | | millions of tonnes | %Fe | millions of tonnes | %Fe | millions of tonnes | %Fe | **millions of tonnes** | millions of tonnes | **%Fe** | %Fe | |
| Hamersley Iron (Australia) [c] [d] | | | | | | | | | | | | |
| - Brockman | O/P | 276 | 62.1 | 607 | 62.5 | 2,533 | 62.1 | **3,416** | 3,401 | **62.2** | 62.2 | 100.0 |
| - Brockman Process Ore | O/P | 218 | 57.3 | 231 | 56.9 | 765 | 57.4 | **1,214** | 1,190 | **57.3** | 57.3 | 100.0 |

(a) Likely mining method: O/P = open pit; U/G = underground; D/O = dredging operation.
(b) Iron Ore Resources are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
(c) Channar Resource tonnes previously reported under Channar JV (Australia) are now reported under Hamersley Iron (Australia) Brockman and Brockman Process Ore following the completion of the joint venture arrangement.
(d) The updated assessment of Mineral Resources reflects measures Rio Tinto has put in place following the events in the Juukan Gorge on 24 May 2020. These measures are intended to protect a number of sites, and to mitigate impacts to sites where there are existing heritage approvals authorising mining impacts, or a decision has been made not to seek regulatory approval to conduct mining activities, given the heritage considerations identified by Traditional Owners. The impact of the changes are not material to the total Resource. Rio Tinto's approach to cultural heritage management generally will continue to evolve in response to changes in agreements with Traditional Owners, further engagement with Traditional Owners and changing heritage legislation. Any material changes to Mineral Resources as a result of the further refinement of Rio Tinto's approach will be disclosed at the appropriate time.

**2020 Annual Report Ore Reserves table, showing line items relating to Western Ranges 36W-50W**

| | | Proved Ore Reserves at end 2020 | | Probable Ore Reserves at end 2020 | | Total Ore Reserves 2020 compared with 2019 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type of mine (a) | Tonnage | Grade | Tonnage | Grade | Tonnage | | Grade | | Interest % | Recoverable metal |
| | | | | | | **2020** | 2019 | **2020** | 2019 | | |
| **IRON ORE** (b) (c) | | millions of tonnes | %Fe | millions of tonnes | %Fe | **millions of tonnes** | millions of tonnes | **%Fe** | %Fe | | **Marketable product millions of tonnes** |
| **Reserves at development projects** | | | | | | | | | | | |
| Hamersley Iron (Australia) (d) | | | | | | | | | | | |
| - Western Range (Brockman ore) (n) | O/P | 106 | 62.2 | 53 | 62.0 | **159** | 201 | **62.2** | 62.5 | 100.0 | **159** |

(a) Type of mine: O/P = open pit, U/G = underground, D/O = dredging operation.
(b) Reserves of bauxite, diamonds and iron ore are shown as recoverable Reserves of marketable product after accounting for all mining and processing losses. Mill recoveries are therefore not shown.
(c) Australian iron ore Reserve tonnes are reported on a dry weight basis. As Rio Tinto only markets blended iron ore products from multiple mine sources, a detailed breakdown of constituent elements by individual deposit is not reported.
(d) The updated assessment of Ore Reserves reflects measures Rio Tinto has put in place following the events in the Juukan Gorge on 24 May 2020. These measures are intended to protect a number of sites, and to mitigate impacts to sites where there are existing heritage approvals authorising mining impacts, or a decision has been made not to seek regulatory approval to conduct mining activities, given the heritage considerations identified by Traditional Owners. As a result, Rio Tinto has removed 54 Mt from reserves across Brockman 4, Western Range, Gudai-Darri, Greater Brockman 2 Nammuldi and West Angelas, including the 17 Mt at Western Range, which is the subject of a separate Table 1 report. Rio Tinto's approach to cultural heritage management generally will continue to evolve in response to changes in agreements with Traditional Owners, further engagement with Traditional Owners and changing heritage legislation. Any material changes to Ore Reserves as a result of the further refinement of Rio Tinto's approach will be disclosed at the appropriate time.
(n) Western Range (Brockman ore) Reserve tonnes decreased following updates to the geological model and updated pit designs. A JORC Table 1 in support of this change will be released to the market contemporaneously with the release of this Annual Report and can be viewed at riotinto.com/invest/financial-news-performance/resources-and-reserves. Joint venture discussions with China Baowu Group covering the Western Range mining hub are continuing.

**Competent Persons' statement**

The information in this report that relates to Mineral Resources is based on information compiled under the supervision of Mr Bruce Sommerville, who is a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM). Mr Sommerville has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity to which he is undertaking to qualify as a Competent Person as defined in the JORC Code. Mr Sommerville is a full-time employee of Rio Tinto and consents to the inclusion in this report of the matters based on the information that he has prepared in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled under the supervision of Mr Rishi Verma, who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr Verma has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity to which he is undertaking to qualify as a Competent Person as defined in the JORC Code. Mr Verma is a full-time employee of Rio Tinto and consents to the inclusion in this report of the matters based on the information that he has prepared in the form and context in which it appears.

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This announcement is authorised for release to the market by Rio Tinto's Group Company Secretary.

## Rhodes Ridge Joint Venture: Arrowhead & Rhodes Ridge Main Deposits –Table 1

The following table provides a summary of important assessment and reporting criteria used at the Arrowhead and Rhodes Ridge Main deposits for the reporting of Mineral Resources and Ore Reserves, in accordance with the Table 1 checklist in *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition).* Criteria in each section apply to all preceding and succeeding sections.

General Statements apply to both Arrowhead and Rhodes Ridge Main, whereas deposit specific statements are noted separately.

### Section 1 Sampling Techniques and Data

| Criteria | Commentary |
|---|---|
| Sampling techniques | General Statements:<br>• Throughout the historic and modern drill programmes, samples were collected for geological logging, assay, metallurgical and density test work using percussion, reverse circulation (RC) and diamond drilling (DD) methods. The sampling techniques employed over the years vary over time and between different campaigns.<br>• Geological logging and assay samples were collected at 2 m intervals from reverse circulation drilling and in 1.5 m to 3 m intervals for percussion drilling; all intervals were sampled.<br>• Diamond core drilling uses double and triple-tube techniques and samples were taken at 1 m intervals.<br>• Dry core density samples were collected via diamond core drilling of PQ-3 core.<br>• Metallurgical core samples were collected via diamond core drilling of PQ-3 core.<br>• The most recent reverse circulation drilling utilised a rotary cone splitter beneath a cyclone return system to obtain a primary and secondary sample, with attention on samples collected being of comparable weights. The splitter produced two 8% samples ('A' and 'B') and one 84% reject sample. Primary 'A' sample was collected at 2 m intervals through 8% blades from the outer cone of rotary cone splitter.<br>• The presence of mineralisation was determined by a combination of geological logging and geochemical assay results.<br><br>Deposit Specific Statements:<br>• The Arrowhead deposit has seen multiple generations of drilling; 1980s (1984, 1985, 1986, 1987, 1988), 1990s (1990, 1991, 1992 and 1996), and recent drilling (2007, 2008, & 2019).<br>• The Rhodes Ridge deposit has seen multiple generations of drilling; 1970s (1970 & 1971), 1980s (1985 & 1986), 1990s (1991 and 1999), and modern drilling (2010, 2011, 2016, 2017,2019).<br><br>The sampling techniques at Arrowhead and Rhodes Ridge Main by programmes were as follows:<br>• 1984, 1985, 1986, 1987, 1988, 1990, 1991 and 1992: samples were collected at regular 3 m interval except for:<br>  ○ The first sample of the hole, which was from 0 to 4 m, to reflect the starting drilling string composed of a 3 m starter rod together with a 1 m stabiliser.<br>  ○ The sample at the changeover from conventional to reverse circulation drilling which was a 2 m sample.<br>• 1984, 1985, 1986, 1987 and 1988:<br>  ○ The dry samples were collected at 1.5 m intervals in a cyclone which was emptied into a steel tray and riffle split. One half was laid on the ground for geological logging, while the other half was kept in a steel tray. When the remaining 1.5 m of each sample interval was collected, one half was mixed with the half of the first 1.5 m sample kept in the steel tray. The combined sample was then riffled to provide two samples of approximately 1 kg each. The remaining half of the second 1.5 m sample was laid on the ground for geological logging.<br>• 1991 and 1992:<br>  ○ A 3 m sampling interval was used for the percussion drilling. The dry samples were collected in a cyclone at 1.5 m half sample intervals and then discharged into an 87.5% / 12.5% riffle splitter. The 87.5% split was collected in a wheelbarrow and placed in ordered rows on the ground for geological logging while the 12.5% split was retained in a large plastic sample bag. Similarly, with the second 1.5 m half sample, the 12.5% split was added to the first 12.5% sample in the large plastic sample bag. The samples in |

the plastic bags (each represented 3 m) were then riffled down to provide two samples of approximately 5 kg each. A 1 to 2 kg samples was further riffled from one of 5 kg splits to provide a duplicate sample of each interval.

- 1984 to 1992:
  - Wet samples obtained from percussion drilling during 1984 to 1992 programmes below water table entered a cyclone and were discharged partially into a 20 L bucket and partially into a wheelbarrow. The samples from the wheelbarrow were emptied on the ground for geological logging. The sample collected in the steel bucket was allowed to settle and supernatant water was siphoned off as much as possible without loss of any fines. The samples were then transported in buckets / drums to the camp where they were transferred to concrete trays and left to dry in the sun. Once dry, the samples were taken out of the trays and riffle split to produce two 1 kg samples for each sample interval.
- 1996 and 1999:
  - Each reverse circulation hole was sampled in 2 m composites from a multi-level riffle splitter. Two samples were collected from each 2 m composite:
    - One was the retention sample of 1 kg contained in a screw top plastic jar (honey pot) with a sample tag placed inside the container.
    - The second sample of approximately 5 kg was collected in a calico bag and sent for chemical analysis.
  - Excess sample material which was collected beneath the riffle splitter in a wheelbarrow and placed in orderly separate piles lined up on a cleared pad adjacent to the drill site. The labelled retention sample was placed on top of each sample pile in order to facilitate matching the sample numbers with the interval.
- 2007-2008:
  - Each reverse circulation hole was sampled in 2 m composites using a rotating cone splitter placed directly underneath the rig's cyclone. The rotating cone inside the splitter spun at a nominal 20 rpm producing splits of 88% waste, a 6% laboratory sample and a 6% retention sample.
  - For wet drilling, hoses were placed over the openings to guide the wet samples into the two calico lined buckets for laboratory and retention samples. The remainder of the sample fell through the base of the splitter into a wheelbarrow placed directly below it. Samples were collected into calico bags that lined 20 L plastic buckets with holes in the base to allow water to drain from the calico bag. The samples were left in the buckets and allowed to drain and dry. Once dry, the samples were collected for analysis. For each sample interval, one split was collected for sample analysis and the second was stored as a duplicate for retention.
- 2010 - 2019:
  - Each reverse circulation hole was sampled in 2 m composites utilising a rotary cone splitter with the split of 8% of Primary ('A' samples) and 8% Duplicate samples and 84% rejects.
  - Sample was collected in alpha-numerically numbered calico bags.
  - Due to the potential of fibrous mineral intersections, water injection was used throughout the programme.
  - 'A' split was always taken from the same respective chute of the splitter, keeping any possible biases constant.
  - Regular cleaning of the splitter and cyclone was undertaken to avoid smearing and contamination across intervals.
  - Respective 'A' splits were laid out in separate rows on the ground adjacent to bulk reject sample, avoiding mixing of bags.
  - In 2014 a 'third sample chute' was fitted to the splitter that collected a geologist sample in a 10 L bucket. The remaining sample was directed to a sump.
  - The retention samples ('B' splits) were collected and stored in a 200 L drum at site. As of January 2019, 'B' split was collected only for Field Duplicate analysis.

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| Drilling techniques | <u>General Statements:</u><br>• Percussion drilling from 1984 to 1988 programmes utilised a Schramm T685 with Sullair compressor rated at 850cfm/350 psi from Vaughan Burt Drilling Co. Ltd / Drillex, and a RCD100 with Atlas Copco compressor rated at 750 cfm/300 psi. The RCD100 was capable of conventional drilling only whereas the Schramm was set-up for both conventional hammer and face sampling (hollow) hammer. All holes were drilled vertically. Drilling above the water table was conducted |

by the conventional method using a down-hole hammer and below the water table by the reverse circulation method with either a down-hole hammer or rock roller bit assembly.

- Percussion drilling from 1990 to 1992 programmes utilised a Schramm T685 from Drillex capable of delivering 850 cfm/350 psi with variable hole diameters depending on the technique employee at the time (refer to Table 1). Above water table (AWT) drilling was conducted using conventional drilling method using down-hole hammer and below water table (BWT) drilling was carried out by reverse circulation using both hammer and roller bits.

Table 1 1990 to 1992 Drilling Techniques and Hole Diameters

| Technique | 1990 | 1991 | 1992 |
|---|---|---|---|
| Conventional Blade | Not Used | Not Used | 158 mm |
| Conventional Hammer | 163 mm | 140 mm | 140-150 mm |
| RC Face Hammer | 163 mm | 139 mm | 140 mm |
| RC Roller Bit | 150 mm | | |

- Reverse circulation drilling during 1996 and 1999 programmes utilised 5.25-inch hammer and 4.5-inch drill rods. An auxiliary compressor plus a booster were used for holes deeper than 150 m.
- Reverse circulation drilling during 2010-2019 programmes utilised a 140 mm diameter face sampling bit with a sample shroud, attached to a pneumatic piston hammer. This was used to penetrate the ground and deliver the sample up the 6 m drill rod inner tubes (4 m starter rod) through to the cyclone and the rotary cone splitter.
- Wet drilling was introduced in late 2013. Pre-2013, predominantly dry drilling was employed.
- The reverse circulation drilling programmes were mostly vertical with some angled holes drilled (-60 to -85 degrees north and south), where there was limited area for a drill pad or specific geotechnical requirements.
- Diamond drilling was a combination of HQ and PQ core sizes (HQ-3 = 61.1 mm core diameter and PQ-3 = 83.0 mm core diameter) using double and triple tube techniques.
- Core orientation data were collected where possible, predominantly within banded iron formation (BIF), hydrated zones or intervals of consolidated core.
- The diamond drilling programmes were vertical to near vertical.

Deposit Specific Statements:

Arrowhead:

- 1980s drill campaigns: percussion drilling.
- 1990s drill campaigns: percussion (1990 to 1992) and reverse circulation (1996).
- All drilling from 2007 onwards has been diamond and reverse circulation drilling.

Rhodes Ridge Main:

- 1970s drill campaigns: percussion and diamond drilling.
- 1990s drill campaigns: percussion (1991) and reverse circulation (1999).
- All drilling from 2010 onwards has been diamond and reverse circulation drilling.

**Drill sample recovery**

General Statements:

- For reserve circulation samples, sample weights were recorded at laboratory as sample received and a qualitative estimate of sample loss per drilling interval was made at the rig.
- Diamond core recovery was maximised via the use of triple-tube sampling and additive drilling muds.
- Diamond core recovery was recorded using rock quality designation (RQD) measurements with all cavities and core loss recorded in the Rio Tinto Iron Ore acQuire™ database (RTIODB). Only 2 % for Arrowhead and 3% for Rhodes Ridge of the total diamond drilled meters recorded intervals of core loss greater than or equal to 0.1m.
- Sample recovery in some friable mineralisation may be reduced however, thorough analysis of duplicate sample performance does not indicate any chemical bias as a result of inequalities in sample recovery.

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| Logging | General Statements:<br>• All drill holes were geologically logged utilising standard Rio Tinto Iron Ore Material Type Classification Scheme (RTIO MTCS) logging codes and entered into the Rio Tinto Iron Ore acQuire™ database (RTIODB) on field Toughbook laptops. Pre-2004, this was performed using pre-formatted paper logging sheets and transferred manually to the RTIODB.<br>• Internal training and validation of logging included RTIO MTCS identification and calibration workshops, peer reviews and validation of logging versus assay results.<br>• Geological logging was performed on 2 m intervals for all reverse circulation drilling and 1.5 m to 3m intervals for percussion drilling.<br>• All diamond drill core was logged at either 1 m or 2 m intervals, depending on the level of detail required, and photographed digitally with the files stored on the Rio Tinto network.<br>• Post 2010, reverse circulation chip piles were also photographed digitally, and files stored on Rio Tinto network servers.<br>• Magnetic susceptibility readings were taken using a Kappameter for each interval.<br>• Since 2001, drill holes were geophysically logged using down-hole geophysical tools to record gamma trace, calliper, density, resistivity, magnetic susceptibility and magnetic deviation.<br><br>Deposit Specific Statements:<br><br>Arrowhead:<br>• 2019: open-hole acoustic and optical televiewer image data was collected in specific reverse circulation holes throughout the deposit for structural analyses.<br><br>Rhodes Ridge Main:<br>• 2016, 2017, 2019: open-hole acoustic and optical televiewer image data was collected in specific reverse circulation holes throughout the deposit for structural analyses. |
| Sub-sampling techniques and sample preparation | General Statements:<br><br>Sub-sampling techniques:<br>• Diamond core was sampled as whole core.<br>• 2010 to 2019:<br>  o Wet reverse circulation drilling was sampled at 2 m intervals. Sub-sampling was carried out using a rotary cone splitter beneath a cyclone return system, producing approximate mass splits of:<br>  ▪ 'A' split – Analytical sample – 8%<br>  ▪ 'B' split – Retention sample – 8%; all retention samples were placed in green plastic bags and stored in labelled 220 L steel drums.<br>  ▪ Bulk Reject – 84%.<br>• 1996 to 1999:<br>  o Dry reverse circulation drilling was samples at 2 m intervals.<br>  o Two samples were collected from each 2 m intervals via a multi-level riffle splitter.<br>  o One was the retention sample of 1 kg contained in a screw top plastic jar with a sample tag placed inside the container.<br>  o The second sample of approximately 5 kg was collected in a calico bag and sent for chemical analysis.<br>• 1984 to 1992:<br>  o A 3 m sampling interval was used for the historical percussion drilling.<br>  o The dry 3 m samples in plastic bags were riffle split down to provide two samples of approximately 1 kg each for laboratory analysis.<br>  o The wet 3 m sample collected in the bucket was allowed to settle and as much supernatant water decanted as possible without further loss of any fines. Samples were then transported in buckets to the camp where they were transferred to concrete troughs lined with black plastic and left to dry in the sun. Once dry, the sample were riffled to collect two samples of approximately 1 kg each from each sample interval. It is important to note that in some cases lighter material was lost when the bucket overflowed. This will have introduced a small bias (increase Fe and decrease Al2O3) to the below water table grades.<br>  o A 1 kg duplicate sample of each drilled interval duly labelled with its hole number, depth and sample number was stored in the Sample Shed at Rhodes Ridge camp.<br>  o The remaining 1 kg duplicate was:<br>  o If mineralised, the sample was labelled with sample number only and dispatch for assay. |

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| | ○ If waste, the sample was mixed to form a composite of like-lithology up to a maximum 9 m (ie 3 samples), and then riffled to produce a 1 kg sample that was dispatched for assay.<br><br>Sample preparation of the 'A' split sample:<br>• 2010 to 2019:<br>○ Samples were dried at 105 °C.<br>○ Samples were crushed to -3 mm using a Boyd Crusher and split using a rotary sample divider to capture 1 – 2.5 kg samples.<br>○ A robotic and manual LM5 was used to pulverise the total sample (1 to 2.5 kg) to 90% of the weight passing through a 150 micron (µm) sieve.<br>○ A 100 g sub-sample was collected for analysis.<br>○ Diamond drill core samples were crushed to -6 mm particle size (whole core sample) and followed the reverse circulation sample preparation procedure.<br>• 1984 to 1999:<br>○ Each second sample of approximately 5 kg was crushed to <3 mm then passed through a Jones riffle splitter and reduced to a 200 g sample. The reduced sample was dried at 105 °C for three hours, then crushed in a Siebtechnik disk mill to minus 155 µm. A 0.4 g aliquot of the Siebtechnik milling was taken and made into a fused borate glass bead.<br><br>The Competent Person considers that the sampling is representative of the in-situ material and that the procedures and sample sizes are appropriate for the style of mineralisation. Quality control samples, including duplicate samples were taken to check representivity as outlined below. |
| Quality of assay data and laboratory tests | General Statements:<br><br>Assay methods:<br>• All assaying of samples used in the Mineral Resource estimates have been performed by independent National Association of Testing Authorities (NATA) certified laboratories.<br>• 2016 to 2019 (Arrowhead and Rhodes Ridge Main):<br>○ Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, MgO, $K_2O$, Zn, Pb, Cu, Ba, V, Cr, Cl, As, Ni, Co, Sn, Sr, Zr and Na were assayed using industry standard lithium tetraborate and lithium metaborate fusion and X-Ray Fluorescence (XRF) analytical techniques.<br>○ Loss on Ignition (LOI) was determined using an industry standard Thermo-Gravimetric Analyser (TGA) and was measured at three steps of temperatures: 140 - 425 °C, 425 - 650 °C, 650 - 1000 °C. Total LOI was also reported.<br>○ Samples were dispatched to Perth for preparation and analytical testing at Intertek-Genalysis Laboratory.<br>• 2007 to 2010 (Arrowhead and Rhodes Ridge Main):<br>○ Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, MgO, $K_2O$, Zn, Pb, Cu, Ba, V, Cr, Cl, As, Ni, Co, Sn, Sr, Zr and Na were assayed using industry standard lithium tetraborate and lithium metaborate fusion and XRF analytical techniques.<br>○ LOI was measured using a TGA at a single temperature (1000 C) in 2007. During the 2008 drilling programme, LOI was analysed using a TGA at three step temperatures (140° - 425 °C, 425 - 650 °C, 650 - 1000 °C) and presented as a weight percentage lost between temperatures.<br>○ Samples were dispatched to Perth for preparation and analytical testing at Ultratrace Laboratories.<br>• 1992 to 1999 (Arrowhead and Rhodes Ridge Main):<br>○ The glass bead was analysed using a Philips 1600 XRF machine for the following constituents: Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, P, Mn, CaO, MgO and S.<br>○ LOI determinations were performed on a 1 g subsample split from the millings which were heated to 900 °C for 35 minutes.<br>○ Samples were dispatched to Dampier for preparation and analytical testing at Hamersley Iron Pty Limited Laboratories.<br>• 1987 to 1992 (Arrowhead and Rhodes Ridge Main):<br>○ Samples were analysed by XRF for the following constituents: Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, P, Mn, CaO, MgO and S.<br>○ LOI was determined using Classical Chemical Method at 900 °C.<br>○ Repeat analyses of 1 in 10 samples was completed for quality control. In addition, Fe was also determined for these repeats by titration. |

| | |
|---|---|
| | ○ Samples were dispatched to Dampier for preparation and analytical testing at Hamersley Iron Pty Limited Laboratories and at Australian Assay Laboratories (1987 to 1990).<br>• 1985 - 1986 (Arrowhead and Rhodes Ridge Main):<br>○ Samples were analysed by XRF for the following constituents: $SiO_2$, $Al_2O_3$, P, $TiO_2$, Mn, CaO, MgO and S. Fe was analysed by Precise Titration method and LOI was determined at 900 °C using the Classical Chemical Method.<br>○ Repeat analysis of 1 in 10 samples was completed for quality control. In addition, Fe was also determined for these repeats by titration.<br>○ Samples were dispatched to Perth for preparation and analytical testing at Australian Assay laboratories<br>• Pre 1984 - 1984 (Arrowhead and Rhodes Ridge Main):<br>○ Samples were analysed by Inductively Coupled Plasma Emission Spectroscopy (ICP-ES) for the following constituents $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO and MgO. S and P assay values were determined using Leco Furnace Analysis and Colourimetry analysis respectively. Fe was analysed by Precise Titration and LOI was determined using Classical Chemical method analysis.<br>○ Samples were dispatched to Pilbara Laboratories, Dampier.<br><br><u>Quality assurance measures:</u><br>• Insertion of coarse reference standards by Rio Tinto Iron Ore geologists at a rate of one in every 30 samples in mineralised zones and one in every 60 samples in waste zones with a minimum of one standard per drill hole. Reference material was prepared and certified by Rio Tinto Iron Ore following ISO 3082:2009 (Iron Ores – Sampling and sample preparation procedures) and ISO 9516-1:2003 (Iron Ores – Determination of various elements by X-ray fluorescence spectrometry – Part 1: Comprehensive procedure).<br>• Coarse reference standards contained a trace of strontium carbonate that was added at the time of preparation for ease of identification.<br>• Reverse circulation field duplicates were collected by using a 'B' split retention sample, which was taken directly from the rig splitter. Duplicate insertion occurred at a frequency of one in 20. Trace zinc was included in the duplicate sample for identification.<br>• At a frequency of one in 20, -3 mm splits and pulps were collected as laboratory splits and repeats respectively. These sub-samples were analysed at the same time as the original sample to assess sampling precision.<br>• Internal laboratory quality assurance and quality control measures involved the use of internal laboratory standards of certified reference material in the form of pulps; blanks and duplicates were also inserted in each batch.<br>• Random re-submission of pulps at an external laboratory was performed following analysis.<br>• Chemical Analysis Testing (CAT) and Analytical Precision Testing (APT) samples were collected at a frequency of one per batch. They were submitted to a third-party laboratory (Geostats Pty Ltd) to check analytical precision and accuracy, as part of the Rio Tinto Iron Ore's quality assurance and quality control (RTIO QA/QC) procedures.<br>• Analysis of the performance of certified standard and field duplicates has indicated an acceptable level of accuracy and precision with no significant bias or contamination. |
| Verification of sampling and assaying | <u>General Statements:</u><br>• Field data was logged directly onto field Toughbook laptops using pre-formatted and validated logging templates, with details uploaded to the Rio Tinto Iron Ore database (RTIODB) on a daily basis. Pre-2004, this was performed using pre-formatted paper logging sheets and transferred manually to the RTIODB.<br>• The assaying of post-2002 samples used in the Mineral Resource estimates were performed by independent National Association of Testing Authorities (NATA) certified laboratories. Samples from 2002 and earlier were assayed at Dampier which carried an ISO 9001 accreditation.<br>• Assay data was returned electronically from the laboratory and uploaded into the RTIODB.<br>• Assay data was only accepted into the RTIODB once the quality control assessment was completed via Batch Analysis Tool.<br>• Written procedures outline the processes of geological logging and data importing, quality assurance and quality control validation and assay importing. A robust, restricted-access database was in place to ensure that any requests to modify existing data go through appropriate channels and approvals, and that changes are tracked by date, time, and user.<br>• Comparison of close space drilling between 2019 reverse circulation and historic percussion drill hole data shows that the drilling methods have similar grade distributions verifying the suitability of samples from percussion drilling being included in the Mineral Resource estimate. |

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| Location of data points | General Statements:<br>• Drill hole collars from the 2007 to 2019 campaigns were surveyed by qualified RTIO surveyors using Differential Global Positioning System (DGPS) survey equipment (accurate to 10 cm in lateral and vertical directions) using the Geocentric Datum of Australia 1994 (GDA94) grid system.<br>• Collar location data was validated by checking actual versus planned coordinate discrepancies. Once validated, the survey data was uploaded into the drill hole database.<br>• Drill hole collars from the pre-2007 campaigns were surveyed but the methods used were unknown and not well documented from this time. The X (easting) and Y (northing) coordinates of these drill holes were checked in plan view to look for deviations from the planned drill hole locations. If the drill hole locations made sense in plan view then the surveyed collar coordinates were assumed to be acceptable for modelling purposes.<br>• The topographic surface was created from Light Detecting and Ranging (LiDAR) data (points spaced 5 m apart) captured in 2018.<br>• All drill holes from 1984 to 2019 had the surveyed reduced level (RL) compared against a 5 m resolution topographic surface derived from Light Detecting and Ranging (LiDAR) data captured in 2018. Any holes with significant differences in RL (>1 m) from topographic surface were investigated and actioned accordingly. If the deviation in RL could not be explained or accounted for, the hole was considered high risk and excluded from the dataset.<br>• Down-hole surveys were conducted on nearly every hole, with the exception of collapsed or otherwise hazardous holes; any significant, unexpected deviations were investigated and validated. Holes greater than 100 m depth were generally surveyed with an in-rod gyro tool. |
| Data spacing and distribution | General Statements:<br>• Variability in drill spacing across parts of the deposit is due to exclusion areas restricting access.<br>• Density and metallurgical drilling were variably spaced across the deposits, targeting specific stratigraphic units and material types.<br>• The data spacing and distribution is deemed sufficient by the Competent Person to establish geological and grade continuity appropriate for the Mineral Resource classification that has been applied.<br>• Sample compositing has not been performed as samples were collected almost exclusively at 2 m intervals (93% for Arrowhead and 100% for Rhodes Ridge).<br><br>Deposit Specific Statements:<br><br>Arrowhead:<br>• The reverse circulation drill programmes were conducted on an east to west (E-W) grid pattern, at a mostly 400 m x 100 m collar spacing and locally 400 m x 50 m.<br><br>Rhodes Ridge Main:<br>• The reverse circulation drill programmes were conducted on an east to west (E-W) grid pattern, at a mostly 400 m x 100 m collar spacing. |
| Orientation of data in relation to geological structure | General Statements:<br>• Both the Arrowhead and Rhodes Ridge Main deposits trend roughly east- west, and the drill lines were roughly north-south oriented, which is perpendicular to the ore body.<br>• Drilling was predominantly 85 degrees to vertical which is appropriate for the sub-horizontal to inclined stratigraphy.<br>• While mineralisation was frequently intersected at an angle, the orientation of mineralisation relevant to drilling was not considered likely to have introduced any material bias. |
| Sample security | General Statements:<br>• The sample chain of custody was managed by Rio Tinto Iron Ore Ltd.<br>• Analytical samples ('A' splits) were collected by field assistants, placed into bulk bags and delivered to Perth by recognised freight service and then to the assay laboratory by a Perth-based courier service. Whilst in storage the samples were kept in a locked yard.<br>• Pre 2019 retention samples ('B' splits) were collected and stored in drums at on-site facilities. In 2019 retention samples in a form of 'B' splits were not collected, with a 500 g coarse crushed split of 3 mm particle size stored at laboratory instead for 24 months.<br>• 150 g of excess pulps from primary samples are retained indefinitely at laboratories and external storage facilities at CTI Logistics Ltd in Perth, Western Australia. |

| | |
|---|---|
| Audits or reviews | General Statements:<br>• Whilst no external audits have been performed specifically on Arrowhead and Rhodes Ridge sampling techniques or data, external audits for sites (using the same techniques) have been completed and found the methods and procedures to be satisfactory.<br>• Internal Rio Tinto Iron Ore peer review processes and internal Rio Tinto technical reviews were completed. These reviews concluded that the fundamental data collection techniques were appropriate. |

## Section 2 Reporting of Exploration Results

| Criteria | Commentary |
|---|---|
| Mineral tenement and land tenure status | General Statements:<br>• The Arrowhead and Rhodes Ridge deposits form part of the Rhodes Ridge Joint Venture (RRJV) between Hamersley Resources Limited and Wright Prospecting Pty Ltd.<br>Deposit Specific Statements:<br>Arrowhead:<br>• The Arrowhead deposit is contained wholly within Temporary Reserve Tenure (TR70/04737, TR70/04192 TR70/04882, TR70/04883) which is managed by Hamersley Resources Limited on behalf of the Rhodes Ridge Joint Venture.<br>• Regarding any future effort to obtain a licence to operate, further studies, approvals and stakeholder engagement will be an important part of any development and these will be undertaken as required.<br>Rhodes Ridge Main:<br>• The Rhodes Ridge Main deposit is contained wholly within Temporary Reserve Tenure (TR70/04267, TR70/04266, TR70/04737, and TR70/04192) which is managed by Hamersley Resources Limited on behalf of the Rhodes Ridge Joint Venture.<br>• Regarding any future effort to obtain a licence to operate, further studies, approvals and stakeholder engagement will be an important part of any development and these will be undertaken as required. |
| Exploration done by other parties | • Pre-1981 exploration work was completed by Texas Gulf Inc. on behalf of the Joint Venture at the time.<br>• Post-1981 exploration work was carried out by Hamersley Resources Limited on behalf of the RRJV.<br>• All data is currently available within Rio Tinto databases and most of this data has been used for the Mineral Resource estimate. |
| Geology | Arrowhead:<br>• The Arrowhead deposit is hosted within the Marra Mamba Iron Formation of the Hamersley Group stratigraphy.<br>• Three faults have been interpreted from a 2019 mapping programme and one additional fault was identified through drill hole interpretation during the geological modelling process.<br>• The faults are sub-vertical to steeply dipping to the south. These faults are currently thought to originate as low-angle normal faults that formed during post-Opthalmia D2 crustal relaxation. These post D2 faults were subsequently re-activated and rotated during the Panhandle (D3) orogenic event.<br>• The bedded mineralisation occurs primarily with the Mount Newman Member with minor mineralisation within the West Angelas Member, MacLeod Member and Nammuldi Member.<br>• Mineralisation is generally capped by a hydrated zone which is overlain by a variable thickness zone of detrital material (red ochre detritals (oldest), limonite, clay-calcrete and immature detritals (youngest).<br>Rhodes Ridge Main:<br>• The Rhodes Ridge Main deposit is hosted within the Brockman Iron Formation of the Hamersley Group stratigraphy.<br>• The deposit is situated locally within a large, broad, tightly folded syncline.<br>• The bedded mineralisation occurs primarily with the Dales Gorge member with minor mineralisation within the Joffre and Whaleback units.<br>• Mineralisation is generally capped by a thick hydrated zone (up to 40 m) which is overlain by a |

| Criteria | Commentary |
|---|---|
| | variable thickness zone of Hamersley surface detrital material. |

**Drill hole Information**

Summary of drilling data used for the Geological Models and Mineral Resource estimates.

Arrowhead:

| Year | Diamond | | Reverse Circulation | | Percussion | |
|---|---|---|---|---|---|---|
| | # Holes | Meters | # Holes | Meters | # Holes | Meters |
| 1984 | - | - | - | - | 17 | 1,308 |
| 1985 | - | - | - | - | 22 | 2,321 |
| 1986 | - | - | - | - | 2 | 98 |
| 1987 | - | - | - | - | 30 | 3,087 |
| 1988 | - | - | - | - | 10 | 853 |
| 1990 | - | - | - | - | 4 | 471 |
| 1991 | - | - | - | - | 3 | 339 |
| 1992 | - | - | - | - | 9 | 917 |
| 1996 | - | - | 2 | 264 | - | - |
| 2007 | 2 | 173 | 27 | 3,469 | - | - |
| 2008 | 6 | 1,049 | 305 | 29,261 | - | - |
| 2019 | 31 | 2,304 | 293 | 25,241 | - | - |
| **Total** | **39** | **3,526** | **627** | **58,235** | **97** | **9,394** |

Rhodes Ridge Main:

| Year | Diamond | | Reverse Circulation | | Percussion | |
|---|---|---|---|---|---|---|
| | # Holes | Meters | # Holes | Meters | # Holes | Meters |
| 1970 | 18 | 2,524 | - | - | 301 | 19,690 |
| 1971 | - | - | - | - | 66 | 2,960 |
| 1985 | - | - | - | - | 1 | 46 |
| 1986 | - | - | - | - | 6 | 448 |
| 1991 | - | - | - | - | 7 | 1,099 |
| 1999 | - | - | 7 | 544 | - | - |
| 2010 | - | - | 35 | 2,828 | - | - |
| 2011 | - | - | 13 | 1,030 | - | - |
| 2016 | - | - | 101 | 10,282 | - | - |
| 2017 | - | - | 146 | 15,062 | - | - |
| 2019 | 22 | 1,847 | 156 | 18,989 | - | - |
| **Total** | **40** | **4,371** | **458** | **48,735** | **381** | **24,243** |

- Only data from 2010 to 2019 was used for grade estimation at Rhodes Ridge. Pre-2010 data was used for geological interpretation only.

**Data aggregation methods**

General Statements:

- Not relevant as exploration results are not being reported.

**Relationship between mineralisation widths and intercept lengths**

General Statements:

- Geometry of the mineralisation with respect to the drill hole angle was well-defined in most areas of the deposit. Drilling is predominantly vertical which is appropriate for the sub-horizontal to inclined stratigraphy of the majority of the deposit; and hence intercept lengths are approximately equivalent to true width of mineralisation.

| Criteria | Commentary |
|---|---|
| Diagrams | |

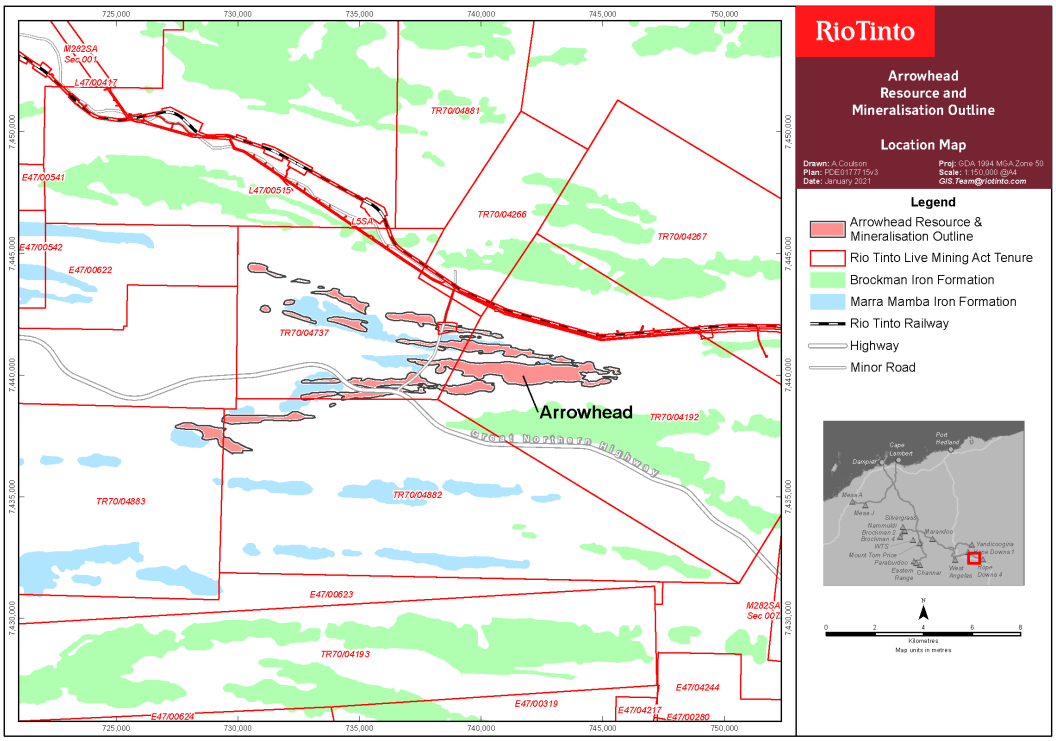



Figure 1 Arrowhead deposit location map

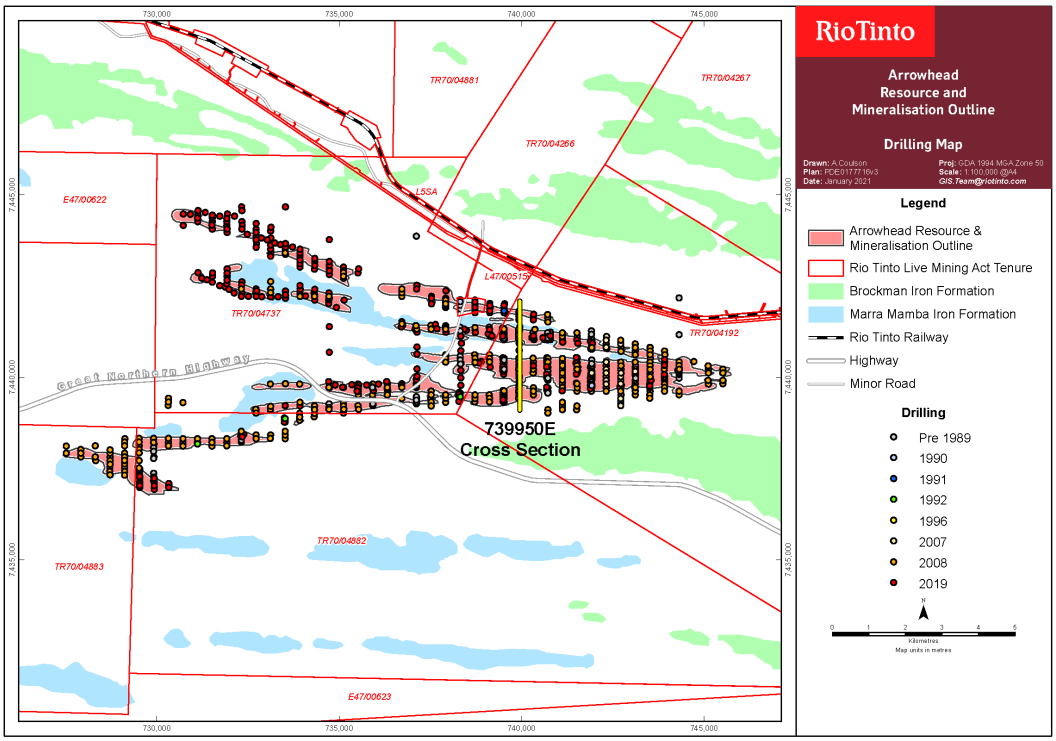



Figure 2 Arrowhead drill hole location map

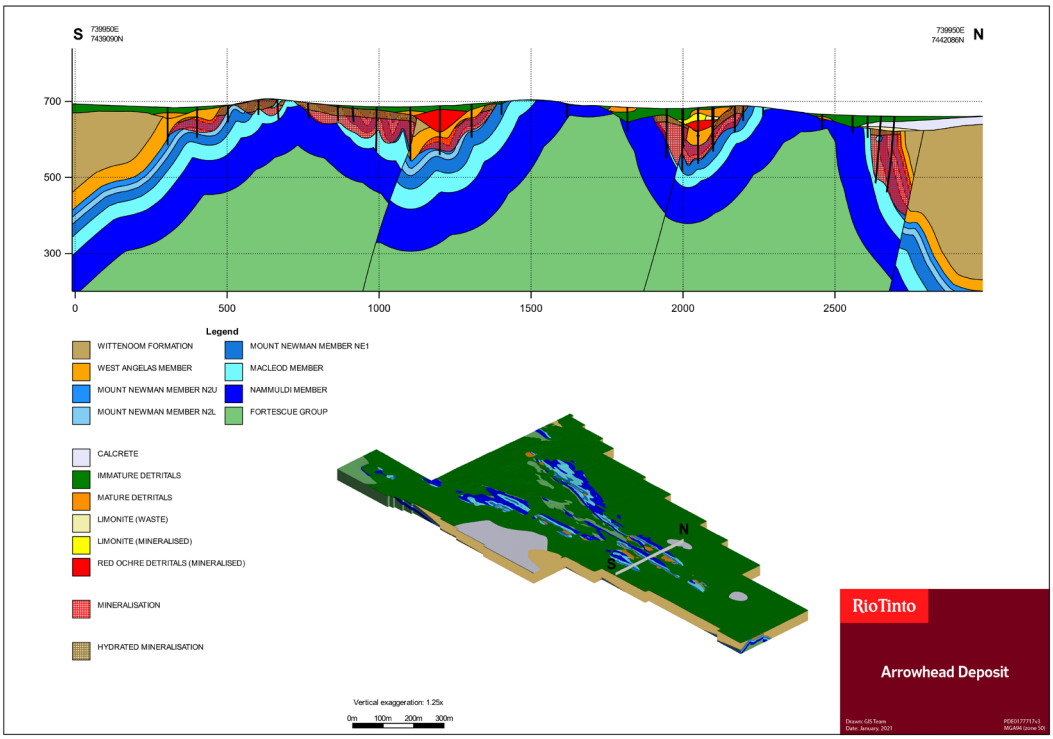



Figure 3 Arrowhead cross section 739950 mE

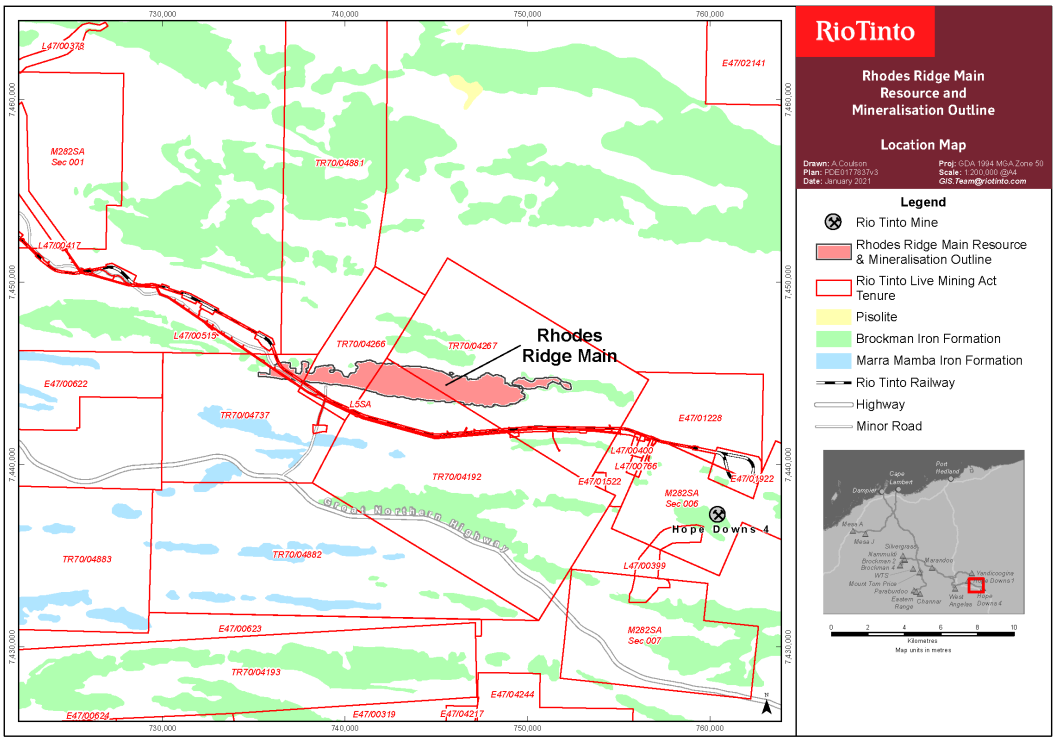



Figure 4 Rhodes Ridge Main deposit location map

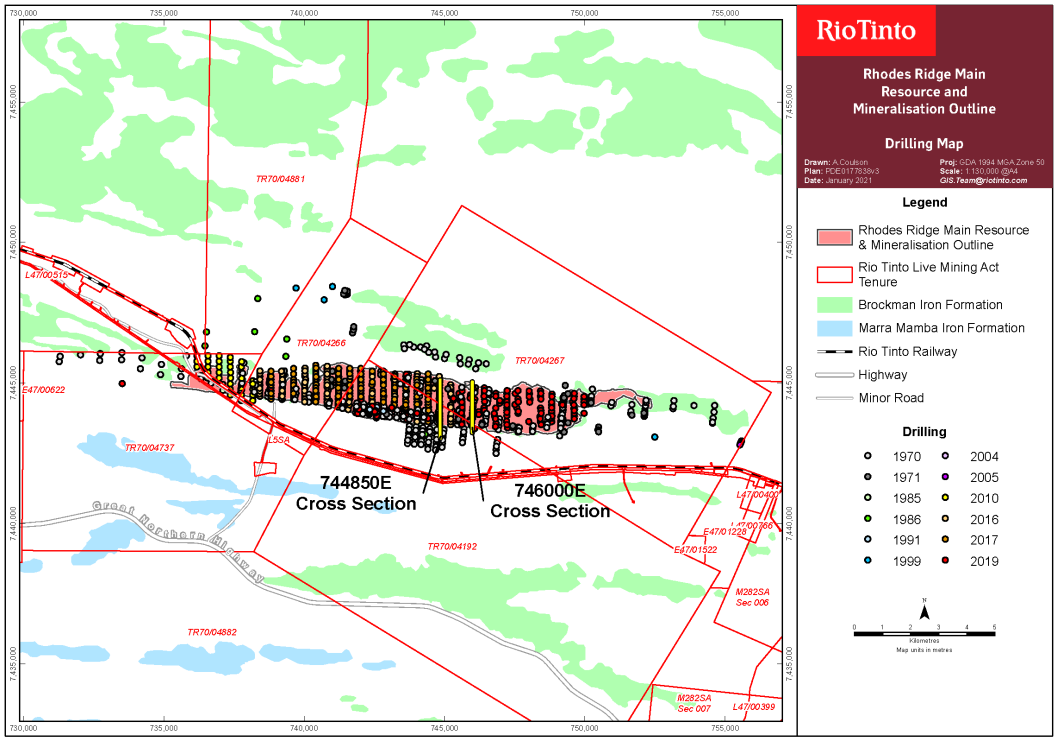



Figure 5 Rhodes Ridge Main drill hole location map

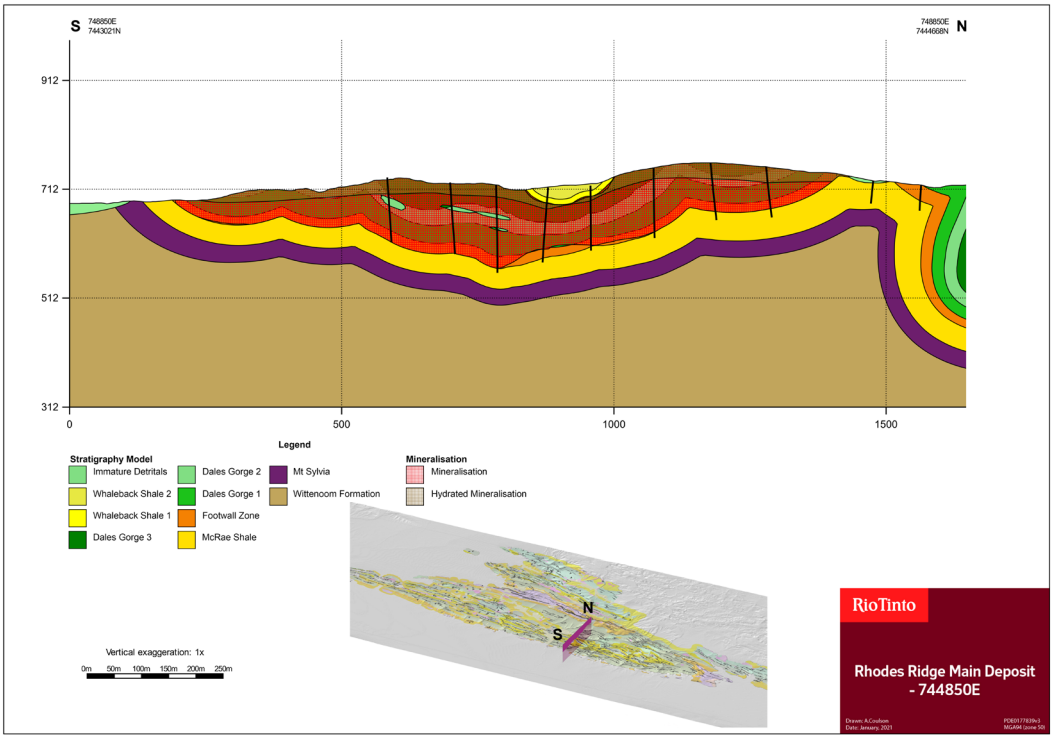
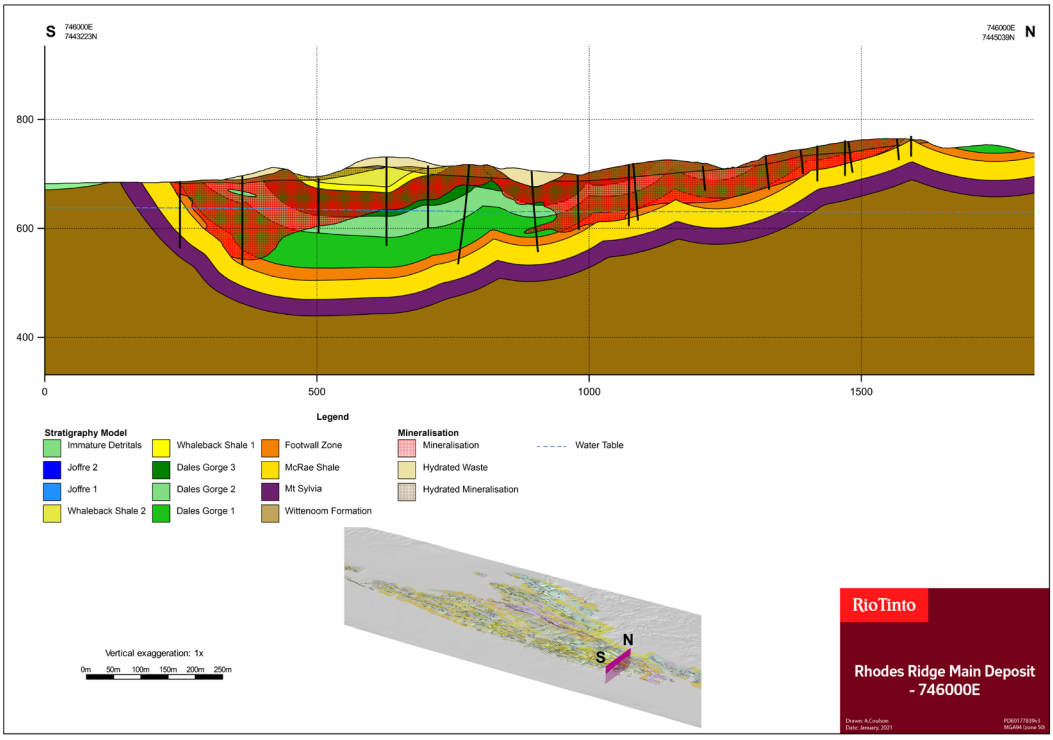



Figure 6 Rhodes Ridge Main deposit cross section 744850 mE

| Criteria | Commentary |
|---|---|
| |  <br>Figure 7 Rhodes Ridge Main deposit cross section 746000 mE |
| Balanced reporting | • Not applicable, as Rio Tinto has not specifically released Exploration Results for this deposit. |
| Other substantive exploration data | <u>Deposit Specific Statements</u>:<br><br><u>Arrowhead:</u><br>• Detailed geological surface mapping was collected across the Arrowhead deposit in 2019 at 1:5,000 scale (Duncan et al., 2019). This replaced the previous 1985 geological mapping programme.<br>• District scale gravity ground gravity survey was carried out over the Rhodes Ridge Arrowhead area in 2019. The data acquired from this survey was processed to produce the standard suite of 1VD, Residual and TDR images to aid in future exploration activities in the Rhodes Ridge JV area.<br><br><u>Rhodes Ridge Main:</u><br>• Detailed geological surface mapping was collected across the Rhodes Ridge deposit in 1994 at 1:10,000 scale (Goddard et al., 1994). |
| Further work | <u>General Statements:</u><br>• Further work at Arrowhead and Rhodes Ridge Main is planned to better define the orebody and improve structural understanding. Additional staged in-fill reverse circulation drilling, tests for lateral extensions and large-scale step-out drilling are required across the deposit.<br>• Further diamond drilling for metallurgical, density, and geotechnical information is also required across the deposits.<br>• Heritage and environmental surveys, and associated consultation will be undertaken in the future as required. |

## Section 3 Estimation and Reporting of Mineral Resources

| Criteria | Commentary |
|---|---|
| Database integrity | General Statements:<br>• All drilling data is securely stored in the Rio Tinto Iron Ore acQuire™ database (RTIODB), managed by dedicated personnel within Rio Tinto Iron Ore. The system is backed up nightly on servers located in Perth, Western Australia. The backup system was tested in Sept 2020, demonstrating that the system is effective.<br>• The import/exporting process requires limited keyboard transcription and has multiple built in safeguards to ensure information is not overwritten or deleted, these include:<br>  o The data is imported and exported through automated interfaces, with limited manual input;<br>  o Inbuilt validation checks ensure errors are identified prior to import;<br>  o Once within the RTIODB, editing is very limited and warning messages ensure accidental changes are not made;<br>  o Audit trail records updates and deletions should an anomaly be identified;<br>  o Export interface ensures the correct tables, fields and format are selected.<br>• The drill hole database used for Mineral Resource estimation has been internally validated. Methods include checking:<br>  o acQuire™ scripts for relational integrity, duplicates, total assay and missing/blank assay values;<br>  o Grade ranges in each domain;<br>  o Domain names;<br>  o Survey data down-hole consistency;<br>  o Null and negative grade values;<br>  o Missing or overlapping intervals;<br>  o Duplicate data.<br>• Drill hole data was also validated visually by domain and compared to the geological model. |
| Site visits | • The Competent Person visited both the Arrowhead and Rhodes Ridge deposits in 2020. No follow up was required as a result of this visit, and there has been no material changes at site since this time. |
| Geological interpretation | General Statements:<br>• Overall, the Competent Person's confidence in the geological interpretation of the area is good, based on the quantity and quality of data available, and the continuity and nature of the mineralisation.<br>• Geological modelling was performed by Rio Tinto Iron Ore geologists. The method involves interpretation of stratigraphy using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.<br>• Cross-sectional interpretation of each stratigraphic unit was performed followed by interpretation of mineralisation and hydration boundaries based on mapping, and drilling data. Three-dimensional wireframes of the sectional interpretations are created to produce the geological model.<br>• The geological model was subdivided into domains defined by stratigraphy and mineralisation and both the composites and model blocks are coded with these domains. Blocks in domains are estimated using composites from the same domain.<br>• Mineralisation is continuous. It is affected by stratigraphy, structure and weathering. The drill hole spacing is sufficient to capture density, grade and geology variation for Mineral Resource reporting. |
| Dimensions | Deposit Specific Statements:<br><br>Arrowhead:<br>• Mineralisation extends approximately 18.5 km in the east-west Direction and approximately 8 km north-south at its widest point in the western part of the deposit. Mineralisation extends to depths greater than 280 m beneath the surface in some areas of the deposit.<br><br>Rhodes Ridge Main:<br>• Mineralisation extends approximately 16 km in the east-west direction and approximately 1.8 km north-south. Mineralisation extends to depths of greater than 200 m from surface in some areas of the deposit. |

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| Estimation and modelling techniques | General Statements:<br><br>• Twelve grade attributes (Fe, SiO2, Al2O3, P, Mn, LOI, LOI425, LOI650, S, TiO2, MgO, and CaO), and density were estimated into the block model.<br>• Estimates were completed into parent blocks (block size of 100 m (X) × 25 m (Y) × 5 m (Z)).<br>• Parent blocks were sub-celled to the geological boundaries to preserve volume.<br>• Mineralised domains were estimated by inverse distance to the power of two (ID2) with a small number of blocks (<10%) being assigned average grades via scripting. Non-mineralised domains were estimated by inverse distance weighting to the first power (ID1) with some blocks (40%) assigned average grades in minor domains via scripting where sufficient data was not available. These methods were deemed appropriate by the Competent Person for estimating the tonnes and grade of the reported Mineral Resources.<br>• The grade estimation process was completed using Maptek™ Vulcan™ software.<br>• Grades were extrapolated to a maximum distance of approximately 400 m from data points.<br>• Statistical analysis was carried out on data for all domains.<br>• The estimated model was validated using a combination of visual and statistical methods that showed that the estimate was reasonable.<br>• No production data is available for reconciliation.<br><br>Deposit Specific Statements:<br><br>Arrowhead:<br><br>• High yield limits were placed on some minor variables (CaO, MgO, Mn) to limit the influence of outlier sample data as deemed appropriate for the dataset. |
| Moisture | General Statements:<br><br>• All Mineral Resource tonnages are estimated and reported on a dry basis. |
| Cut-off parameters | General Statements:<br><br>• The cut-off for reporting of Marra Mamba Mineral Resources and associated detrital Mineral Resource is material greater than or equal to 58% Fe.<br>• The cut-off for reporting of Brockman Mineral Resources is greater than or equal to 60% Fe*.<br>• The cut-off for reporting of Brockman Process Ore Mineral Resources is material 50% ≤ Fe < 60% and 3% ≤ Al2O3 < 6%*.<br>*geology domain must be Dales Gorge, Joffre or Footwall Zone for inclusion in the Mineral Resource. |
| Mining factors or assumptions | General Statements:<br><br>• Development of these Mineral Resources assumes mining using standard Rio Tinto Iron Ore equipment and methods similar to other Rio Tinto Iron Ore operations. The assumed mining method is conventional truck and shovel, open pit mining at an appropriate bench height. Mining practices will include grade control utilising blast hole data.<br>• Rio Tinto Iron Ore plans to blend ore from the Arrowhead and Rhodes Ridge deposits with ore from other Rio Tinto Iron Ore mine sites to make a saleable ore product. This plan is in line with current Rio Tinto Iron Ore practices where ore from multiple mines is combined to produce the Pilbara Blend product. |
| Metallurgical factors or assumptions | General Statements:<br><br>• Standard crushing and screening processes used by Rio Tinto Iron Ore are assumed applicable for processing of both the Arrowhead and Rhodes Ridge deposit. |
| Environmental factors or assumptions | General Statements:<br><br>• Rio Tinto Iron Ore has an extensive environmental approval process. A review of requirements for approvals will be undertaken as part of future studies.<br>• Mapping of oxidised shales, black carbonaceous shales, lignite, and the location of the water table, is used in prediction and planning for the treatment of potential environmental impacts. This process is in accordance with Rio Tinto's Chemically Reactive Mineral Waste Standard. |
| Bulk density | General Statements: |

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|---|---|
| | • Dry bulk density was derived from gamma-density data collected at 10 cm intervals from down-hole geophysical sondes. Accepted gamma-density data was corrected for moisture using Diamond drill core specifically drilled throughout the deposit.<br>• Dry core densities were generated via the following process:<br>  o The core volume was measured in the split and the mass of the core is measured and recorded.<br>  o Wet core densities were calculated by the split and by the tray.<br>  o Core recovery was recorded.<br>  o The core was then dried and dry core masses are measured and recorded.<br>  o Dry core densities were then calculated.<br>• Accepted gamma-density values at Arrowhead and Rhodes Ridge were estimated using inverse distance weighted to the second power (ID2) (80% of blocks) or scripted average in mineralised zones (20% of blocks) and inverse distance weighted to the first power (ID1) (40% of blocks) or scripted average in waste zones (60% of blocks). |
| Classification | Deposit Specific Statements:<br><br>Arrowhead:<br>• The Mineral Resource has been classified into the Inferred category as a result of the broad drill spacing. The determination of the applicable resource category has considered the relevant factors (geology, mineralisation continuity, sample spacing, data quality, and others).<br>• The Competent Person is satisfied that the stated Mineral Resource classification reflects the relevant factors of the deposit.<br><br>Rhodes Ridge:<br>• The Mineral Resource has been classified into the Inferred category as a result of the broad drill spacing. The determination of the applicable resource category has considered the relevant factors (geology, mineralisation continuity, sample spacing, data quality, and others).<br>• The Competent Person is satisfied that the stated Mineral Resource classification reflects the relevant factors of the deposit. |
| Audits or reviews | General Statements:<br>• All stages of Mineral Resource estimation have undergone a documented internal peer review process, which has reviewed all phases of the process. No material issues were raised during the review. |
| Discussion of relative accuracy/ confidence | General Statements:<br>• Rio Tinto Iron Ore operates multiple mines in the Pilbara region of Western Australia. The Mineral Resource data collection and estimation techniques used for Arrowhead and Rhodes Ridge are consistent with those applied at other deposits where mining has commenced. Reconciliation of actual production with the Mineral Resource estimates for individual deposits is generally accurate to within 10% for tonnes on an annual basis. This result is indicative of a robust process. |

## Poonda - Table 1

The following table provides a summary of important assessment and reporting criteria used at the Poonda deposit for the reporting of Mineral Resources and Ore Reserves in accordance with the Table 1 checklist in *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition).* Criteria in each section apply to all preceding and succeeding sections.

### Section 1 Sampling Techniques and Data

| Criteria | Commentary |
|---|---|
| Sampling techniques | • Geological logging and assay samples were collected at 2 m intervals from reverse circulation (RC) and 1 m intervals from diamond (DD) drilling. All intervals were sampled.<br>• Reverse circulation drilling during 2011 – 2019 utilised a rotary cone splitter beneath a cyclone return system to obtain a primary and secondary sample, with attention on samples collected being of comparable weights. The splitter produced two 8% samples ('A' and 'B') and one 84% reject sample. Primary 'A' sample was collected at 2 m intervals through 8% blades from the outer cone of the rotary cone splitter.<br>• Reverse circulation drilling during 2006 - 2009 utilised various tiered riffle splitters where samples passed through beneath the cyclone to produce a 1 kg (retention) and 5 kg (analytical) sample. The laboratory sample was collected for analysis in a calico bag.<br>• Diamond core drilling uses double and triple-tube techniques and samples were taken at 1 m intervals.<br>• Dry core density samples were collected via diamond core drilling of HQ-3 and PQ-3 core.<br>• Dry bulk density was derived from accepted gamma-density data collected at 10 cm intervals from down-hole geophysical sondes. Density measured from accepted gamma-density was corrected for moisture from diamond drill core twinned with reverse circulation drilling.<br>• Metallurgical core samples were collected via diamond core drilling of PQ-3 core.<br>• The presence of mineralisation was determined by a combination of geological logging and geochemical assay results. |
| Drilling techniques | • Reverse circulation drilling utilised 140 mm diameter face sampling bit with sample shroud, attached to a pneumatic piston hammer used to penetrate ground and deliver sample up 6 m drill rod inner tubes (4 m starter rod) to the cyclone and cone splitter with the aid of rig and auxiliary booster compressed air.<br>• Wet drilling was introduced in late 2013; pre-2013, predominantly dry drilling was employed.<br>• Drill holes completed as part of reverse circulation drilling programmes were mostly vertical with some angled holes drilled at -85 degrees for the purpose of downhole geophysics survey.<br>• Diamond drilling was a combination of HQ and PQ core sizes (HQ-3 = 61.1 mm core diameter and PQ-3 = 83.0 mm core diameter) using double and triple tube techniques.<br>• Core orientation data was collected where possible, predominantly within banded iron formation (BIF), hydrated zones or intervals of consolidated core.<br>• Drill holes completed as part of the diamond drilling programmes were oriented vertical to near vertical. |
| Drill sample recovery | • For reserve circulation samples, sample weights were recorded at the laboratory as sample received, and a quantitative estimate of sample loss was made per drilling interval at the rig.<br>• Diamond core recovery was maximised via the use of triple-tube sampling and additive drilling muds.<br>• Diamond core recovery was recorded using rock quality designation (RQD) measurements with all cavities and core loss recorded in the Rio Tinto Iron Ore acQuire™ database. Only 2% of the total diamond drilled meters recorded intervals of core loss greater than or equal to 0.1 m.<br>• Sample recovery in some friable mineralisation may be reduced however, thorough analysis of duplicate sample performance does not indicate any chemical bias as a result of inequalities in sample recovery. |
| Logging | • All drill holes were geologically logged utilising standard Rio Tinto Iron Ore Material Type Classification Scheme (RTIO MTCS) logging codes and entered into the acQuire™ database package on field Toughbook laptops.<br>• Internal training and validation of logging includes RTIO MTCS identification and calibration workshops, peer reviews and validation of logging versus assay results.<br>• Geological logging was performed on 2 m intervals for all reverse circulation drilling, and either 1 m or 2 m intervals for diamond holes, depending on the level of detail required.<br>• All diamond drill core was photographed digitally, and files stored on Rio Tinto network servers.<br>• Magnetic susceptibility readings were taken using a Kappameter for each interval.<br>• Down hole geophysical surveys (in-rod gamma) were completed on most holes since 2008 and |

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|---|---|
| | some of the holes from 2006 to 2007, with a further 94 holes surveyed for open-hole geophysical data (gamma, resistivity, magnetic susceptibility) from 2011 through 2019. Additional structural tele-viewer data was captured from 12 open holes in 2019. |
| Sub-sampling techniques and sample preparation | <u>Sub-sampling techniques:</u><br>• Diamond core was sampled as whole core.<br>• 2011 to 2019:<br>  o Reverse circulation sub sampling was carried out using a rotary cone splitter beneath a cyclone return system, producing approximate mass splits of:<br>  ▪ 'A' Split – Analytical sample – 8%<br>  ▪ 'B' Split – Retention sample – 8%; all retention samples were placed in green plastic bags and stored in labelled 220 L steel drums.<br>  ▪ Bulk Reject – 84%.<br>• 2006 to 2009:<br>  o Reverse circulation samples were passed through a four and three - tiered riffle splitter attached beneath the cyclone to produce approximate splits of:<br>  ▪ 'A' Split – Analytical sample – 5 kg<br>  ▪ 'B' Split – Retention sample – 1 kg<br>  ▪ Bulk Reject<br><u>Sample preparation of the 'A' split sample:</u><br>• 2011 to 2019:<br>  o 'A' split sample dried at 105 °C.<br>  o Sample crushed to -3 mm using Boyd Crusher and split using a linear and rotary sample divider to capture 1 – 2.5 kg samples.<br>  o Robotic and Manual LM5 used to pulverise total sample (1 to 2.5 kg) to 90% of weight passing 150 micron (µm) sieve.<br>  o A 100 g sub-sample was collected for analysis.<br>  o Diamond drill core samples were crushed to -6 mm particle size (whole core sample) and followed the reverse circulation sample preparation procedure.<br>• 2006 to 2009:<br>  o Samples sorted, dried at 105 °C, weighed and crushed to -2 mm. Riffle split and pulverised to 95% passing 100 µm.<br>The Competent Person considers that the sampling is representative of the in-situ material and that the procedures and sample sizes are appropriate for the style of mineralisation. Quality control samples, including duplicate samples were taken to check representivity as outlined below. |
| Quality of assay data and laboratory tests | <u>Assay methods:</u><br>• All assaying of samples used in Mineral Resource estimates have been performed by independent, National Association of Testing Authorities (NATA) certified laboratories.<br>• 2011 to 2019:<br>  o Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, MgO, $K_2O$, Zn, Pb, Cu, Ba, V, Cr, Cl, As, Ni, Co, Sn, Sr, Zr, Na were assayed using industry standard lithium tetraborate and lithium metaborate fusion and X-Ray Fluorescence (XRF) analytical technique.<br>  o Loss on Ignition (LOI) was determined using industry standard Thermo-Gravimetric Analyser (TGA) and was measured at three steps of temperatures: 140 – 425 °C, 425 – 650 °C, 650 - 1000 °C.<br>  o 2011 to 2018 samples were submitted to Genalysis Laboratory in Perth. 2019 samples were submitted to Bureau Veritas (formerly Ultratrace Laboratories) in Perth.<br>• 2006 to 2009:<br>  o XRF analytical using fused bead technique for the following elements: Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, MgO, $K_2O$, Zn, Pb, Cu, Ba, V, Cr, Cl, As, Ni, Co, Sn, Sr, Zr, Na, U, Th.<br>  o LOI using Thermo Gravimetric Analysers at 371 °C, 372 -538 °C and 539 -1000 °C and LOI 1000 °C.<br>  o 2006-2009 samples were submitted to Ultratrace Laboratories in Perth.<br><br><u>Quality assurance measures:</u><br>• Insertion of coarse reference standard by Rio Tinto geologists at a rate of one in every 30 samples in mineralised zones and one in every 60 samples in waste zones with a minimum of one standard per drill hole. Reference material was prepared and certified by Rio Tinto Iron Ore following ISO 3082:2009 (Iron Ores – Sampling and sample preparation procedures) and ISO 9516-1:2003 (Iron Ores – Determination of various elements by X-ray fluorescence spectrometry – Part 1: |

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| | Comprehensive procedure).<br>• Coarse reference standards contain a trace of strontium carbonate that was added at the time of preparation for ease of identification.<br>• Reverse circulation field duplicates were collected by using a 'B' split retention sample, which was taken directly from the rig splitter. Duplicate insertion occurred at a frequency of one in 20. Trace zinc was included in the duplicate sample for later identification.<br>• At a frequency of one in 20, -3 mm splits and pulps were collected as laboratory splits and repeats respectively. These sub-samples were analysed at the same time as the original sample to assess sampling precision.<br>• Internal laboratory quality assurance and quality control measures involved the use of internal laboratory standards using certified reference material in the form of pulps; blanks and pulp duplicates were also inserted in each batch.<br>• Random re-submission of pulps at an external laboratory was performed following initial analysis.<br>• Chemical Analysis Testing (CAT) and Analytical Precision Testing (APT) samples were collected one per batch and submitted to a third-party (Geostats Pty Ltd) to check analytical precision and accuracy as part of Rio Tinto Iron Ore's quality assurance and quality control (RTIO QA/QC) procedures.<br>• Analysis of the performance of certified standards, field duplicates, blanks and third-party check assaying has indicated an acceptable level of accuracy and precision with no significant bias or contamination. |
| Verification of sampling and assaying | • Comparison of reverse circulation and twinned diamond drill core assay data distributions show that the drilling methods have similar grade distributions, verifying the suitability of using reverse circulation and diamond samples in the Mineral Resource estimate.<br>• Field data was logged directly onto field Toughbook laptops using pre-formatted and validated logging templates, with details uploaded to the acQuire™ database on a daily basis.<br>• Assay data was returned electronically from the laboratory and uploaded into the acQuire™ database.<br>• 2012-2019, assay data were only accepted in acQuire™ database once the quality control process was completed, utilising Batch Analysis tool.<br>• Written procedures outline the processes of geological logging and data importing, quality assurance and quality control validation and assay importing. A robust, restricted-access database is in place to ensure that any requests to modify existing data go through appropriate channels and approvals, and that changes are tracked by date, time, and user. |
| Location of data points | • Drill hole collar reduced level (RL) data was compared to detailed topographic maps and showed that the collar survey data was accurate.<br>• 2012 to 2019 drill holes were surveyed in Mine Grid of Australia 1994 (MGA94) Zone 50 coordinates using Differential Global Positioning System (DGPS) survey equipment, accurate to 10 cm in both horizontal and vertical directions.<br>• Collar location data was validated by checking actual versus planned coordinate discrepancies. Once validated, the survey data was uploaded into the acQuire™ database<br>• 2006 to 2009 drill hole locations were acquired using handheld GPS, and then registered to topographic surface as they were captured using less accurate equipment.<br>• Down-hole surveys with an in-rod gyro tool were conducted on approximately 40% of drill holes, generally for 2012 to 2019 holes greater than 100 m in depth.<br>• The topographic surface was created from 30 m Shuttle Radar Topography Mission (SRTM) grid data, 25 m Rio Tinto Exploration (RTX) surveyed Airborne Gravity Gradiometry – Digital Elevation Model (AGG DEM) data and combined with the surveyed drill collar locations. These three sets of points were then triangulated to produce the current topographic surface. |
| Data spacing and distribution | • The drill spacing across the deposit varies from 400 m x 100 m to 400 m x 400 m.<br>• The data spacing and distribution is deemed sufficient by the Competent Person to establish geological and grade continuity appropriate for the Mineral Resource classification that has been applied.<br>• Sample compositing has not been performed as samples were collected almost exclusively at 2 m intervals (98%). |
| Orientation of data in relation to geological structure | • Drill lines were orientated predominantly in a north-south direction perpendicular to the strike of the deposit.<br>• Drill holes were predominantly vertical, which has been deemed appropriate given the overall flat to moderate dipping stratigraphy and mineralisation. |

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| Sample security | • The sample chain of custody was managed by Rio Tinto Iron Ore<br>• Analytical samples ('A' splits) were collected by field assistants, placed onto steel sample racks and delivered to Perth by a recognised freight service and then to the assay laboratory by a Perth-based courier service. Whilst in storage the samples were kept in a locked yard.<br>• Retention samples ('B' splits) were collected and stored in drums at on-site facilities up until 2018. From 2019 onwards retention samples in a form of 'B' splits were not collected, with a 500 g coarse crushed split of 3 mm particle size stored at laboratory instead for 24 months.<br>• 150 g of excess pulps from primary samples are retained indefinitely at laboratories and Rio Tinto Exploration pulp storage in Perth, Western Australia. |
| Audits or reviews | • Whilst no external audits have been performed specifically on Poonda sampling techniques or data, external audits for sites (using the same techniques) have been completed and found the methods and procedures to be satisfactory.<br>• Internal Rio Tinto Iron Ore peer review processes and internal Rio Tinto technical reviews have been completed. These reviews concluded that the fundamental data collection techniques are appropriate. |

## Section 2 Reporting of Exploration Results

| Criteria | Commentary |
|---|---|
| Mineral tenement and land tenure status | • The Poonda and Poonda North tenements (E46/00580 and E46/00662) are located approximately 40 km northeast of Newman in the Shire of East Pilbara, Western Australia. The tenure is 100% owned and administered by Hamersley Iron Pty. Limited.<br>• The reported resource sits within the Nyiyaparli Native Title claim.<br>• There are numerous, small areas of designated archeological or heritage significance scattered throughout the modelled area. In consultation with the Rio Tinto Heritage Team and the Nyiyaparli People, at this stage, no sites have been excised from the Mineral Resource. Heritage and environmental surveys, and consultation with various groups and authorities will be an important part of any development and these will be undertaken as required.<br>• There is no (other) known impediment to mining the Poonda deposit at this time |
| Exploration done by other parties | • Pre-2006 drilling was conducted by CRA; all data is currently available within Rio Tinto databases and no further historical work in the project area has been completed to our knowledge |
| Geology | • The Poonda deposit is a high phosphorous hematite-goethite Boolgeeda (BOL) Iron Formation deposit. Secondary mature Fe rich detrital deposits are also common to the area.<br>• The Boolgeeda Iron Formation is the uppermost unit of the Hamersley Group, which is characterized by fine grained, finely laminated, iron oxide rich bands interbedded with thin shale laminations.<br>• Mineralisation occurs as hematite-goethite and goethite, interpreted to be primarily derived from supergene leaching of Boolgeeda Iron Formation.<br>• Within the project area, the geology is made up of Weeli Wolli Formation, Wongarra Formation, Boolgeeda Iron Formation and the Turee Creek Group, which are un-conformably overlain by Cretaceous and Tertiary sands.<br>• The structure within the project area is dominated by the Poonda Fault, a regional scale northwest-southeast trending lineament in the north of the project area. This structure is interpreted to have up thrown the Hamersley Group against the Manganese Group to the north. The folding is usually open and symmetrical dome and basin type with axes predominantly orientated north-south and northeast-southwest with a later east-west Ophthalmia deformational event overprint. |

**Drill hole Information**

Summary of drilling data used for the Poonda Mineral Resource estimate:

| Year | Diamond | | Reverse Circulation | |
|---|---|---|---|---|
| | # Holes | Meters | # Holes | Meters |
| 2006 | - | - | 31 | 3,263 |
| 2007 | - | - | 32 | 4,366 |
| 2008 | - | - | 72 | 8,356 |
| 2009 | - | - | 5 | 554 |
| 2012 | - | - | 4 | 442 |
| 2013 | - | - | 21 | 2,707 |
| 2014 | - | - | 43 | 4,228 |
| 2015 | - | - | 16 | 1,806 |
| 2016 | 4 | 420 | 18 | 2,012 |
| 2017 | - | - | 30 | 2,872 |
| 2018 | - | - | 22 | 2,806 |
| 2019 | - | - | 34 | 3,124 |
| **Total** | **4** | **420** | **328** | **36,536** |

- An additional four (4) un-assayed diamond holes for 222 m were collected in 2012 for use in metallurgical test work.

**Data aggregation methods**

- Not relevant as exploration results are not being reported.

**Relationship between mineralisation widths and intercept lengths**

- Geometry of the mineralisation with respect to the drill hole angle is well-defined in most areas of the deposit. Local mapping, drilling and regional context indicate that the deposit is gently folded and slightly dipping to the southwest and mineralization is up to a maximum depth of 260 m.
- The majority of drilling is vertical, perpendicular to the flat lying mineralisation, and hence intercept lengths are approximately equivalent to true width of mineralisation.

**Diagrams**

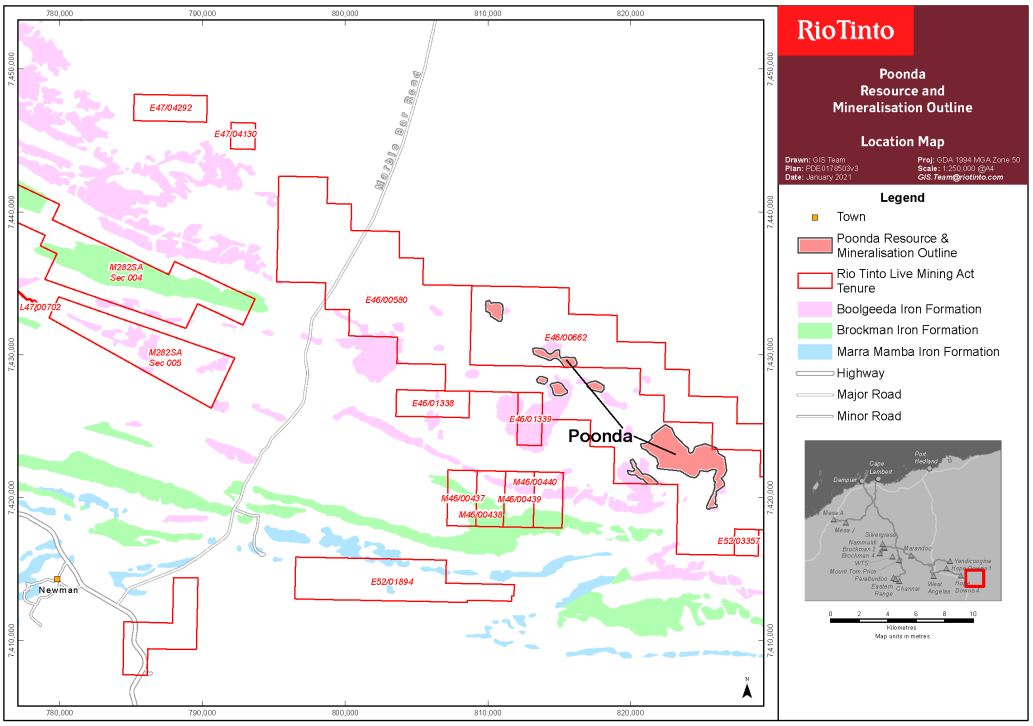


Figure 1 Poonda deposit location map

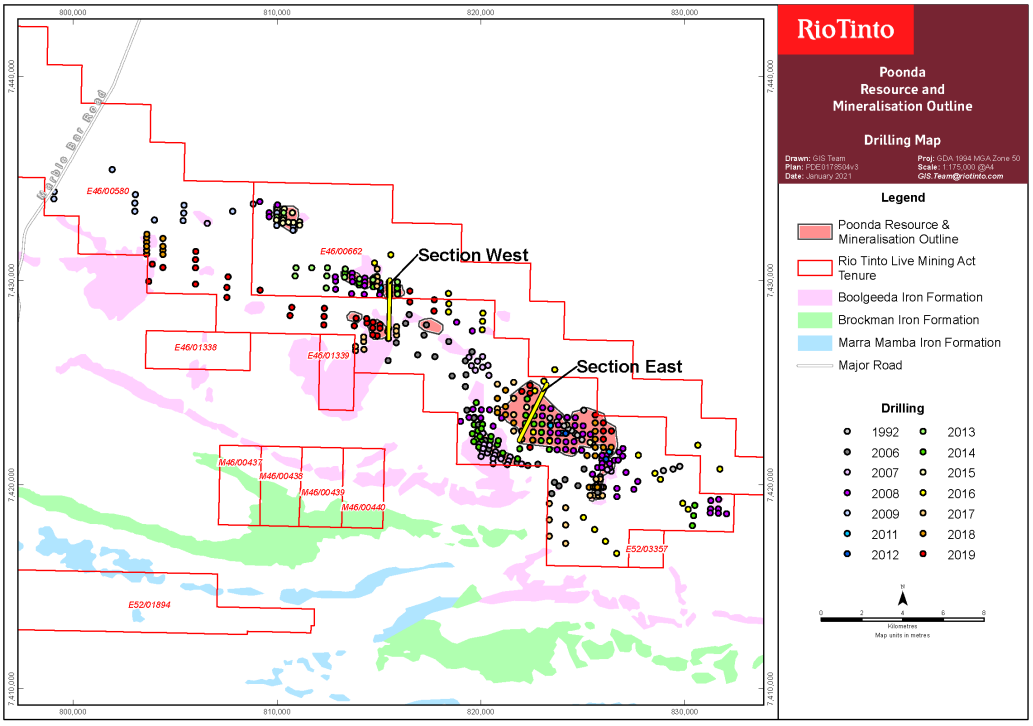


Figure 2 Poonda deposit drill hole location map

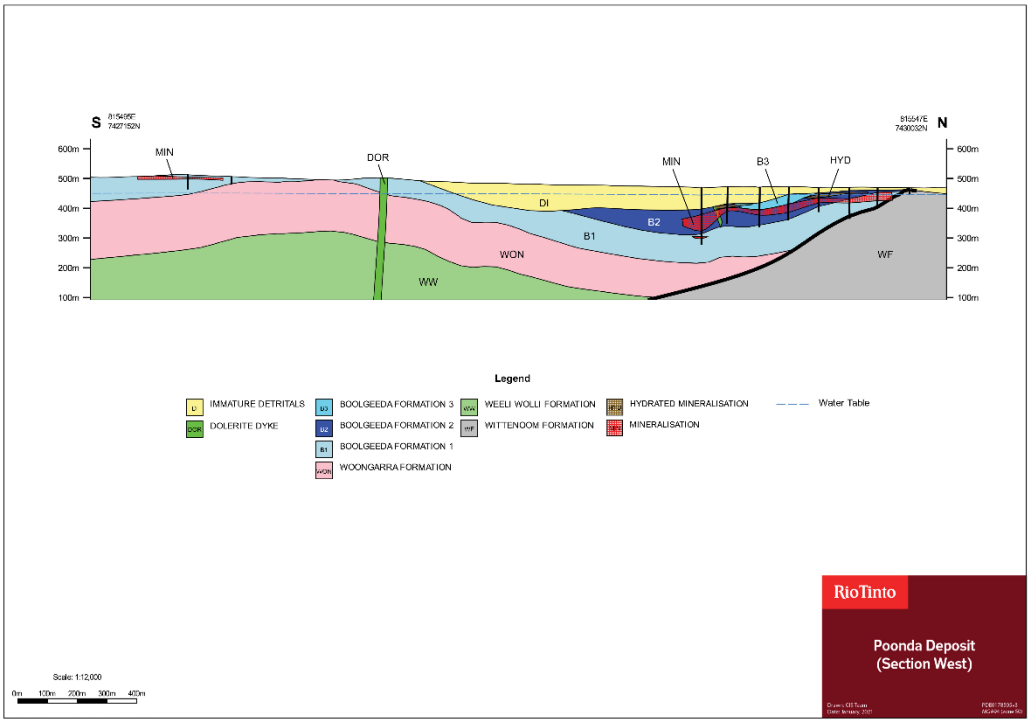


Figure 3 Poonda deposit west cross section

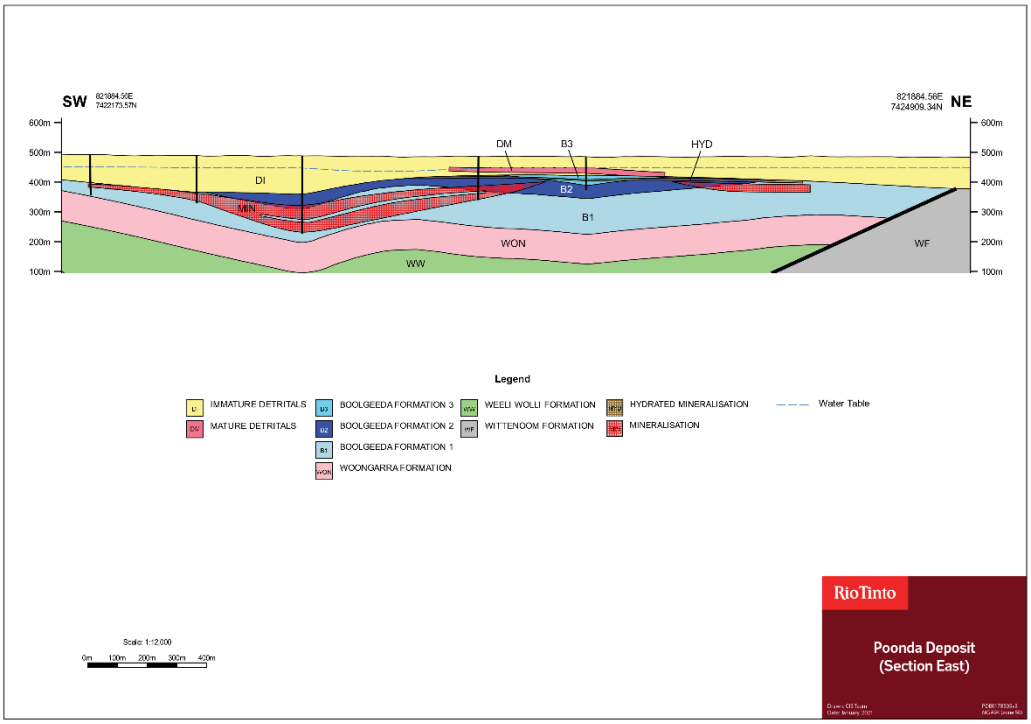


Figure 4 Poonda deposit east cross section

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| Balanced reporting | • Not applicable as Rio Tinto Ltd has not released Exploration Results for this deposit. |
| Other substantive exploration data | • Geological surface mapping data has been collected across the Poonda deposit at 1:10,000 scale in 2004, and at 1:5,000 scale in 2014 and 2019.<br>• Close spaced low-level aeromagnetic survey completed in 2007.<br>• Ground Gravity surveys carried out in 2016 and 2017.<br>• Metallurgical PQ Diamond drilling conducted in 2011 and 2018.<br>• Density Diamond Drilling conducted in 2016. |

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| Further work | • Further work at Poonda is planned to better define the orebody and improve structural understanding. Additional staged in-fill reverse circulation drilling, tests for lateral extensions and large-scale step-out drilling are required across the deposit.<br>• Further diamond drilling for metallurgical, density, and geotechnical information is also required across the deposit. |

## Section 3 Estimation and Reporting of Mineral Resources

| Criteria | Commentary |
|---|---|
| Database integrity | • All drilling data is securely stored in the Rio Tinto Iron Ore acQuire™ database (RTIODB), managed by dedicated personnel within Rio Tinto Iron Ore. The system is backed up nightly on servers located in Perth, Western Australia. The backup system was tested in September 2020, demonstrating that the system is effective.<br>• The import/exporting process requires limited keyboard transcription and has multiple built in safeguards to ensure information is not overwritten or deleted. These include:<br>  o Data is imported and exported through automated interfaces, with limited manual input;<br>  o In-built validation checks ensure errors are identified prior to import;<br>  o Once within the RTIODB, editing is very limited and warning messages ensure accidental changes are not made;<br>  o Audit trail records updates and deletions should an anomaly be identified;<br>  o Export interface ensures the correct tables, fields and format are selected.<br>• The drill hole database used for Mineral Resource estimation has been internally validated. Methods include checking:<br>  o acQuire™ scripts for relational integrity, duplicates, total assay and missing / blank assay values;<br>  o Grade ranges in each domain;<br>  o Domain names;<br>  o Survey data down-hole consistency;<br>  o Null and negative grade values;<br>  o Missing or overlapping intervals;<br>  o Duplicate data.<br>• Drill hole data was also validated visually by domain and compared to the geological model. |
| Site visits | • The RTIO Competent Persons have visited the Poonda deposit in 2017. No follow up was required as a result of this visit, and there have been no material changes at site since this time. |
| Geological interpretation | • Overall, the Competent Person's confidence in the geological interpretation of the area is good, based on the quantity and quality of data available, and the continuity and nature of the mineralisation.<br>• Geological modelling was undertaken by Rio Tinto geologists. The method involves interpretation of down-hole stratigraphy using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.<br>• Cross-sectional interpretation of each stratigraphic unit was performed followed by interpretation of mineralisation and hydration boundaries based on mapping, and drilling data. Three-dimensional wireframes of the sectional interpretations are created to produce the geological model.<br>• The geological model was subdivided into domains defined by stratigraphy and mineralisation and both the composites and model blocks are coded with these domains. Blocks in domains are estimated using composites from the same domain.<br>• The mineralisation is continuous. It is affected by stratigraphy, structure and weathering. The drill hole spacing is sufficient to capture grade and geology changes at a large scale. Mineralisation extends from surface to a maximum depth of 260 m. |
| Dimensions | • The Poonda deposit is divided into 2 lenses. The Eastern Lens extends approximately 5 km east-west along strike and 2 km along a north-south orientation. The Western Lens extends approximately 2 km east-west along strike and 500 m along a north-south orientation. |
| Estimation and modelling techniques | • Twelve grade attributes (Fe, $SiO_2$, $Al_2O_3$, P, Mn, LOI, LOI425, LOI650, S, $TiO_2$, MgO, and CaO), and density were estimated into the block model.<br>• Estimates were completed into parent blocks (block size of 100 m (X) × 25 m (Y) × 5 m (Z)).<br>• Parent blocks were sub-celled to the geological boundaries to preserve volume. |

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| | • Mineralised domains were estimated by inverse distance to the power of two ($ID^2$) with a small number of blocks (<10%) being assigned average grades via scripting. Non-mineralised domains were estimated by inverse distance weighting to the first power ($ID^1$) or assigned average grades in minor domains via scripting where sufficient data was not available. These methods were deemed appropriate by the Competent Person for estimating the tonnes and grade of the reported Mineral Resources<br>• The grade estimation process was completed using Maptek™ Vulcan™ software.<br>• High yield limits were placed on minor variables (CaO, MgO, Mn) in some geological units to limit the influence of outlier sample data as deemed appropriate for the dataset.<br>• Grades were extrapolated to a maximum distance of approximately 500 m from data points.<br>• Statistical analysis was carried out on data for all domains.<br>• The estimated model was validated using a combination of visual and statistical methods that showed that the estimate was reasonable.<br>• No production data is available for reconciliation. |
| Moisture | • All Mineral Resource tonnages were estimated and reported on a dry basis. |
| Cut-off parameters | • The cut-off parameters applied for reporting of the Boolgeeda Mineral Resource is Fe ≥ 55% and $Al_2O_3$ ≤ 6.5%. |
| Mining factors or assumptions | • It is assumed that standard crushing and screening processes used by Rio Tinto Iron Ore will be applicable for the processing of Poonda Ore. |
| Metallurgical factors or assumptions | • It is assumed that a beneficiation plant will be applicable for the processing of Poonda ore by using gravity and heavy medium separation techniques.<br>• Predicted yield and upgrade are based on metallurgical test work conducted on representative samples collected from the Poonda deposit. |
| Environmental factors or assumptions | • Rio Tinto Iron Ore has an extensive environmental approval process, and environmental studies will be completed during the project study phases to determine if the project requires formal State and Commonwealth environmental assessment and approval.<br>• Mapping of oxidised shales, black carbonaceous shales, lignite, and the location of the water table, is used in prediction and planning for the treatment of potential environmental impacts. This process is in accordance with Rio Tinto's Chemically Reactive Mineral Waste Standard. |
| Bulk density | • Dry bulk density was derived from gamma-density data collected at 10 cm intervals from down-hole geophysical sondes. Accepted gamma-density data was corrected for moisture using diamond drill core specifically drilled throughout the deposit.<br>Dry core densities were generated via the following process:<br>o The core volume was measured in the split and the mass of the core was measured and recorded.<br>o Wet core densities were calculated by the split and by the tray.<br>o Core recovery was recorded.<br>o The core was then dried and dry core masses were measured and recorded.<br>o Dry core densities were then calculated.<br>• Accepted gamma-density values at Poonda were estimated using inverse distance weighted to the second power ($ID^2$) (40% of blocks) or scripted average (60% of blocks) in mineralised zones and inverse distance weighted to the first power $ID^1$(40% of blocks) or scripted average (60% of blocks) in waste zones. |
| Classification | • The Mineral Resource has been classified into the Inferred category as a result of the wide drill hole spacing. The determination of the applicable resource category has considered the relevant factors (geology, mineralisation continuity, sample spacing, data quality, and others).<br>• The Competent Person is satisfied that the stated Mineral Resource classification reflects the relevant factors of the deposit. |
| Audits or reviews | • All stages of Mineral Resource estimation have undergone an internal peer review process, which has documented all phases of the process. No material issues were raised in the review. |
| Discussion of relative accuracy/ confidence | • Rio Tinto Iron Ore operates multiple mines in the Pilbara region of Western Australia. The Mineral Resource data collection and estimation techniques used for Poonda are consistent with those applied at other deposits where mining has commenced. Reconciliation of actual production with the Mineral Resource estimates for individual deposits is generally accurate to within 10% for tonnes on an annual basis. This result is indicative of a robust process. |

## Western Range 36W–50W Deposit - Table 1

The following table provides a summary of important assessment and reporting criteria used at the Western Range 36W-50W deposit for the reporting of Mineral Resources and Ore Reserves, in accordance with the Table 1 checklist in *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition)*. Criteria in each section apply to all preceding and succeeding sections.

### Section 1 Sampling Techniques and Data

| Criteria | Commentary |
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| Sampling techniques | • Geological logging and assay samples were collected at 2 m intervals from reverse circulation (RC) drilling and from 1.5 m intervals for percussion drilling; all intervals were sampled.<br>• Density and metallurgical samples were collected from PQ diamond (DD) core drilling.<br>• Geotechnical samples were partly collected from HQ diamond core drilling.<br>• Diamond core drilling uses double and triple-tube techniques and samples were taken at 1 m intervals.<br>• Reverse circulation drilling utilised a rotary cone splitter beneath a cyclone return system to obtain a primary and secondary sample, with particular attention paid to samples collected being of comparable weights. The splitter produced two 8% samples ('A' and 'B') and one 84% reject sample. The primary 'A' sample was collected at 2 m intervals through 8% blades from the outer cone of the rotary cone splitter.<br>• Percussion drilling utilised an extensive modified Schramm T64 rig with 900/350 air, which was supported by an auxiliary booster and high-volume air compressors.<br>• The presence of mineralisation was determined by a combination of geological logging and geochemical assay results. |
| Drilling techniques | • Reverse circulation drilling utilised a 140 mm diameter face sampling bit with a sample shroud, attached to a pneumatic piston hammer. This was used to penetrate the ground and deliver the sample up the 6 m drill rod inner tubes (4 m starter rod) through to the cyclone and the rotary cone splitter.<br>• Dry drilling was implemented as standard procedure for all drill holes up to 2014. As of 2014 wet drilling was implemented in order to mitigate the risks associated with fibrous mineral intersections.<br>• Diamond drilling was HQ and PQ core sizes using double and triple tube techniques.<br>• Core orientation data was collected where possible, predominantly within banded iron formation (BIF), hydrated zones or intervals of consolidated core.<br>• Percussion drilling utilised an extensive modified Schramm T64 rig with 900/350 air, which was supported by an auxiliary booster and high-volume air compressors.<br>• The drilling programmes were mostly vertical with some angled holes drilled (-60 to -85 degrees north and south), where there was limited area for a drill pad or specific geotechnical requirements. |
| Drill sample recovery | • For Reverse Circulation samples a qualitative estimate of sample loss at the rig was made, and in most cases a good representative sample was collected. Sample weights were recorded at the laboratory, upon receipt and after oven drying during 2011- 2019 drilling programmes.<br>• Diamond core recovery was maximised via the use of triple-tube sampling and additive drilling muds.<br>• Diamond core recovery was recorded using rock quality designation (RQD) measurements with all cavities and core loss recorded in the Rio Tinto Iron Ore acQuire™ database (RTIODB). Only 2% of the total diamond drilled meters recorded intervals of core loss greater than or equal to 0.1m.<br>• Sample recovery in some friable mineralisation may be reduced however, thorough analysis of duplicate sample performance does not indicate any chemical bias as a result of inequalities in sample recovery. |
| Logging | • All drill holes were geologically logged utilising standard Rio Tinto Iron Ore Material Type Classification Scheme (RTIO MTCS) logging codes and entered into the Rio Tinto Iron Ore acQuire™ database (RTIODB) on field Toughbook laptops. Pre-2004, this was performed using pre-formatted paper logging sheets and transferred manually to the RTIODB.<br>• Internal training and validation of logging included RTIO MTCS identification and calibration workshops, peer reviews and validation of logging versus assay results.<br>• Geological logging was performed on 2 m intervals for all reverse circulation drilling and 1.5 m intervals for percussion drilling.<br>• Magnetic susceptibility readings were taken using a Kappameter for each interval.<br>• Open-hole acoustic and optical televiewer image data was collected in specific Reverse |

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| | Circulation holes throughout the deposit for structural analyses.<br>• All diamond drill core and reverse circulation chip piles were photographed digitally, and files stored on Rio Tinto network servers.<br>• 2011 to 2019: in-rod gamma trace and deviation with calliper, density, resistivity, and magnetic susceptibility was also captured for selected holes.<br>• 2002: drill holes were logged for downhole deviation using a gyroscope and magnetic susceptibility.<br>• Pre-2002: gamma logging was conducted using a portable downhole unit. |
| Sub-sampling techniques and sample preparation | <u>Sub-sampling techniques</u><br>• Diamond core was sampled as whole core.<br>• 2011 – 2019:<br>  o Dry and wet reverse circulation drilling was sampled at 2 m intervals. Sub-sampling was carried out using a rotary cone splitter beneath a cyclone return system, producing approximate mass splits of:<br>  ▪ 'A' Split – Analytical sample – 8%<br>  ▪ 'B' Split – Retention sample – 8%; all retention samples were placed in green plastic bags and stored in labelled 220 L steel drums.<br>  ▪ Bulk Reject – 84%.<br>• 2002:<br>  o Dry reverse circulation drilling was sampled at 2 m intervals. Sub-sampling was carried out using a 4-way Jones riffle splitter attached beneath the cyclone, with the final splits being: 87.5% waste; 6.25% laboratory sample and 6.25% retention sample.<br>  o The laboratory sample was collected in a calico bag, and the retention sample was collected in a plastic 'honey-pot' (screw-top plastic jar).<br>• Pre-2002:<br>  o Dry reverse circulation drilling was sampled at 2 m intervals (Reverse Circulation) and 1.5 m (Percussion) utilising a riffle splitter. If the samples were wet, a dual adjustable divider, which filled a 20 litre bucket lined with a large calico sample bag, was used. These sample bags were then placed in sample racks for drying.<br>  o One reference sample of approximately 1 kg was collected in a 'honey pot' with a sample tag placed inside the container.<br><br><u>Sample preparation of the 'A' split sample:</u><br>• 2011 – 2019:<br>  o Samples were dried at 105 °C.<br>  o Samples were crushed to -3 mm using a Boyd Crusher and split using a rotary sample divider to capture 1 – 2.5 kg samples.<br>  o Manual LM5 was used to pulverise the total sample (1 –to2.5 kg) to 90% of the weight passing through a 150 micron (µm) sieve.<br>  o A 100 g sub-sample was collected for analysis.<br>  o Diamond drill core samples were crushed to -6 mm particle size (whole core sample) and followed the reverse circulation sample preparation procedure.<br>• 2002:<br>  o The samples were dried for over 16 hrs and then cooled before preparation. The samples barcode was read, and a vial label printed.<br>  o The sample was either poured into the crusher splitter (samples < 7 kg) or a preliminary splitting stage was performed.<br>  o A 100 to 150 g portion was generated and placed in a labelled sample vial which travelled automatically to one of two automatic mills. The sample was pulverised for 90 seconds to 95% passing -150 µm.<br>• Pre-2002:<br>  o The 5 kg drill sample was crushed to <3 mm, then passed through a Jones Riffle splitter and reduced to a 200 g sample. The sample was then dried at 105 °C for three hours, then crushed in a Siebtechnik disc mill to a minus 150 µm sieve.<br>  o A 0.4 g aliquot of the Siebtechnik milled sample was taken and made into a fused borate glass bead. The bead was analysed by using a Philips 1600 XRF machine.<br><br>The Competent Person considers that the sampling is representative of the in-situ material and that the procedures and sample sizes are appropriate for the style of mineralisation. Quality control samples, including duplicate samples were taken to check representivity as outlined below. |

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| Quality of assay data and laboratory tests | <u>Assay methods</u><br><br>• All assaying of samples used in the Mineral Resource estimates have been performed by independent National Association of Testing Authorities (NATA) certified laboratories.<br>• 2011 to 2019:<br>  o Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, MgO, $K_2O$, Zn, Pb, Cu, Ba, V, Cr, Cl, As, Ni, Co, Sn, Sr, Zr and Na were assayed using industry standard lithium tetraborate and lithium metaborate fusion and X-Ray Fluorescence (XRF) analytical techniques.<br>  o Loss on Ignition (LOI) was determined using an industry standard Thermo-Gravimetric Analyser (TGA) and was measured at three steps of temperatures: 140° - 425° C, 425° - 650° C, 650° - 1000° C.<br>  o Samples were dispatched to Perth for preparation and analytical testing at Bureau Veritas Laboratories in Perth (formerly Ultratrace Laboratories for 2011 to 2013 programmes) and to Intertek/Genalysis in Perth for 2017 to 2019 programmes.<br>• 2002:<br>  o Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, Mn, CaO, P, S, and MgO were assayed using industry standard lithium tetraborate and lithium metaborate fusion and XRF analytical techniques.<br>  o LOI was measured using a thermogravimetric analyser and measured at a single temperature (1000 °C).<br>  o Samples were dispatched to Rio Tinto's internal laboratory at Dampier for preparation and analytical testing.<br>• Pre-2002:<br>  o Fe, $SiO_2$, $Al_2O_3$, $TiO_2$, MnO, CaO, P, S, and MgO, were assayed using a borate flux to make a fused glass bead. The bead was then analysed by XRF.<br>  o LOI determination was performed on a 1 g sub-sample, split from the millings which were heated to 900° C for 35 minutes using a LECO TGA 500 analyser.<br>  o Samples were dispatched to Rio Tinto's internal laboratory at Dampier for preparation and analytical testing.<br><br><u>Quality assurance measures:</u><br><br>• 2011 – 2012 to present:<br>  o Insertion of coarse reference standard by Rio Tinto geologists at a rate of one in every 30 samples in mineralised zones and one in every 60 samples in waste zones with a minimum of one standard per drill hole. Reference material was prepared and certified by Rio Tinto Iron Ore following ISO 3082:2009 (Iron Ores – Sampling and sample preparation procedures) and ISO 9516-1:2003 (Iron Ores – Determination of various elements by X-ray fluorescence spectrometry – Part 1: Comprehensive procedure).<br>  o Coarse reference standards contain a trace of strontium carbonate that was added at the time of preparation for ease of identification.<br>  o Reverse circulation field duplicates were collected by using a 'B' split retention sample, which was taken directly from the rig splitter. Duplicate insertion occurred at a frequency of one in 20. Trace zinc was included in the duplicate sample for later identification.<br>  o At a frequency of one in 20, -3 mm splits and pulps were collected as laboratory splits and repeats respectively. These sub-samples were analysed at the same time as the original sample to assess sampling precision.<br>  o Internal laboratory quality assurance and quality control measures involved the use of internal laboratory standards using certified reference material in the form of pulps; blanks and pulp duplicates were also inserted in each batch.<br>  o Random re-submission of pulps at an external laboratory was performed following initial analysis.<br>  o Chemical Analysis Testing (CAT) and Analytical Precision Testing (APT) samples were collected one per batch and submitted to a third-party (Geostats Pty Ltd) to check analytical precision and accuracy as part of Rio Tinto Iron Ore's quality assurance and quality control (RTIO QA/QC) procedures.<br>  o Analysis of the performance of certified standards, field duplicates, blanks and third-party check assaying has indicated an acceptable level of accuracy and precision with no significant bias or contamination.<br>• 2002:<br>  o A duplicate sample was collected from the mineralised zone, at a frequency of approximately one per hole for the purpose of measuring sampling precision. The duplicate sample replaced one of the retention samples and was allocated a laboratory sample number in sequence within the mineralised zone.<br>  o At an approximate rate of one every hole, a pre-prepared standard sample of known |

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| | analysis was introduced into the samples, for the purpose of monitoring accuracy of the laboratory. These check standards were allocated a laboratory sample number in sequence within mineralised zone.<br>• Pre 2002:<br>  ○ Duplicate samples were taken from selected intervals at conclusion of drilling. Standards were also introduced into the system at a frequency of 1 per hole, or if the hole was <100m in depth, at a frequency of approximately every 100 m of sampling. |
| Verification of sampling and assaying | • Field data was logged directly onto field Toughbook laptops using pre-formatted and validated logging templates, with details uploaded to the Rio Tinto Iron Ore database (RTIODB) on a daily basis. Pre-2004 this was performed using pre-formatted paper logging sheets and transferred manually to the RTIODB.<br>• The assaying of post 2002 samples used in the Mineral Resource estimates were performed by independent National Association of Testing Authorities (NATA) certified laboratories. Samples from 2002 and earlier were assayed at Dampier which carried an ISO9001 accreditation.<br>• Assay data was returned electronically from the laboratory and uploaded into the RTIODB.<br>• Assay data was only accepted into the RTIODB once the quality control assessment was completed.<br>• Written procedures outline the processes of geological logging and data importing, quality assurance and quality control validation and assay importing. A robust, restricted-access database was in place to ensure that any requests to modify existing data go through appropriate channels and approvals, and that changes are tracked by date, time, and user.<br>• Assay data has not been adjusted.<br>• In 2011, twenty-six (26) PQ diamond holes were drilled as twins for Metallurgical purposes.<br>• Analysis of the twinned drill hole assay data distributions (except for one hole which was used for metallurgical testing) showed that the drilling methods displayed similar grade and geological distributions and verified the suitability for all samples to be used in the Mineral Resource estimate. |
| Location of data points | • The drill holes were surveyed in Mine Grid of Australia 1994 (MGA94) Zone 50 coordinates using Differential Global Positioning System (DGPS) survey equipment, which was accurate to 10 cm in both horizontal and vertical directions. Upon receipt of the coordinate data it was validated against the planned drill hole coordinates, and then uploaded to the drill hole database. All holes were surveyed by qualified surveyors.<br>• The topographic surface was created from Light Detecting and Ranging (LiDAR) data (points spaced 5 m apart) captured in 2017.<br>• Drill hole collar reduced level (RL) data was validated against 5 m 2017 LiDAR topographic survey and showed that the collar survey data was accurate.<br>• Down-hole surveys were conducted on every hole, with the exception of collapsed or otherwise hazardous holes. Significant, unexpected deviations were investigated and validated. Holes greater than 100 m depth were surveyed with an in-rod gyro tool.<br>• The pre-1997 drill holes were re-surveyed using DGPS; however, not all holes could be located and therefore the survey method for these holes is unknown and presumed to be planned coordinates. This has been taken into consideration in the resource classification. |
| Data spacing and distribution | • The drill spacing across the deposit is mostly 60 m x 60 m with some parts of the deposit drilled out to 30 m x 30 m.<br>• The data spacing and distribution is deemed sufficient by the Competent Person to establish geological and grade continuity appropriate for the Mineral Resource classification that has been applied.<br>• Samples were composited to 2 m. |
| Orientation of data in relation to geological structure | • Drill lines were perpendicular to geological structure at an approximate of 333 degrees north.<br>• Drilling was predominantly vertical which is appropriate for the sub-horizontal to inclined stratigraphy of the majority of the deposit.<br>• Angled holes were drilled where appropriate and also for geotechnical purposes.<br>• While mineralisation was frequently intersected at an angle, the orientation of mineralisation relevant to drilling was not considered likely to have introduced any material bias. |
| Sample security | • The sample chain of custody was managed by Rio Tinto Iron Ore .<br>• Analytical samples ('A' splits) were collected by field assistants, placed into bulk bags and delivered to Perth by a recognised freight service and then to the assay laboratory by a Perth-based courier service. Whilst in storage, the samples were kept in a locked yard.<br>• Retention samples ('B' splits) were collected and stored in drums at on-site facilities up to end |

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| | of 2018 drill programmes. In 2019 retention samples in a form of 'B' splits were not collected, with a 500 g coarse crushed split of 3 mm particle size stored at laboratory instead for 24 months.<br>• 150 g of excess pulps from primary samples are retained indefinitely at laboratories and external storage facilities at CTI Logistics Ltd in Perth, Western Australia. |
| Audits or reviews | • Rio Tinto Group Internal Audit engages SRK Consulting to complete an audit on 36W-50W in 2020, including all aspects of data, interpretation, estimation, and mine planning with the result being satisfactory. No material findings were identified.<br>• Internal Rio Tinto Iron Ore peer review processes and internal Rio Tinto technical reviews were completed. These reviews concluded that the fundamental data collection and modelling techniques were appropriate. |

## Section 2 Reporting of Exploration Results

| Criteria | Commentary |
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| Mineral tenement and land tenure status | • The Western Range 36W-50W deposit is located within Mining Lease AM70/00246 (ML246SA).<br>• Discussions about a Joint Venture covering the Western Range mining hub with China Baowu Group are continuing. |
| Exploration done by other parties | • In 1968 and from 1979 to 1996 exploration drilling was conducted by Hamersley Exploration (Task Force) and CRA Exploration; all data is currently available within Rio Tinto databases. |
| Geology | • The Western Range 36W-50W deposit is a typical high-phosphorus, martite-goethite Brockman type deposit.<br>• Mineralisation occurs within both the Dales Gorge and Joffre Members of the Brockman Iron Formation. Minor mineralisation also occurs in the Whaleback Shale, Yandicoogina Shale and Weeli Wolli Members.<br>• There is minor detrital mineralisation, which occurs as shallow fan shaped deposits to the south of the range and small canga deposits close to the range front.<br>• Western Range is bounded to the east by the 36W steep reverse fault and to the west by the 72W fault.<br>• There are numerous smaller scale faults trending northwest and east-northeast. Numerous dolerite dyke intrusions cross cut and overprint faults. There are also numerous dolerite sills in the area within the Whaleback Shale, Joffre, Yandicoogina Shale and Weeli Wolli Members.<br>• Eighteen (18) mapped faults lie within the Western Range 36W-50W deposit, with varying trends and throws.<br>• Several dolerite dykes bisect the area, and largely follow fault lines which tend to trend northwest to southeast.<br>• The major Joffre sill runs east to west across the area and is offset by the northwest-southeast trending faults. Another minor sill lies within the Whaleback Shale 2 layer, but this is only present in 36W.<br>• Approximately 90% of the Mineral Resource lies above the water table. |
| Drill hole Information | • Summary of drilling data used for the Western Range 36W-50W Mineral Resource estimate. |

| Year | Diamond | | Percussion | | Reverse Circulation | |
|---|---|---|---|---|---|---|
| | # Holes | Metres | # Holes | Metres | # Holes | Metres |
| 1968 | - | - | 6 | 352 | - | - |
| 1979 | - | - | 22 | 2219 | - | - |
| 1980 | - | - | 26 | 3030 | - | - |
| 1987 | - | - | 1 | 279 | - | - |
| 1989 | - | - | 17 | 1005 | - | - |
| 1990 | - | - | 11 | 1143 | - | - |

| Criteria | Commentary |
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| 1992 | - | - | - | - | 12 | 1929 |
| 1993 | - | - | - | - | 18 | 2749 |
| 1996 | - | - | - | - | 30 | 3672 |
| 2002 | - | - | - | - | 347 | 26856 |
| 2011 | 26 | 1,803 | - | - | 260 | 22,108 |
| 2012 | 39 | 4,203 | - | - | 190 | 15,175 |
| 2017 | - | - | - | - | 1 | 130.1 |
| 2018 | 20 | 1,820 | - | - | 37 | 3,026 |
| 2019 | 6 | 681 | - | - | 92 | 10,404 |
| **Total** | **91** | **8,507** | **83** | **8028** | **987** | **86,049** |

- Only data from 1996 to 2019 was used for grade estimation. Pre-1996 data was used for geological interpretation only.
- There has been an update to the Western Range 36W-50W drillhole database from what was reported in the 2019 JORC Table 1 following a review of drilling data

**Data aggregation methods**

- Not relevant as exploration results are not being reported.

**Relationship between mineralisation widths and intercept lengths**

- Geometry of the mineralisation with respect to the drill hole angle was well-defined in most areas of the deposit. Drilling was predominantly vertical which is appropriate for the sub-horizontal to inclined stratigraphy of the majority of the deposit; and hence intercept lengths are approximately equivalent to true width of mineralisation.

**Diagrams**

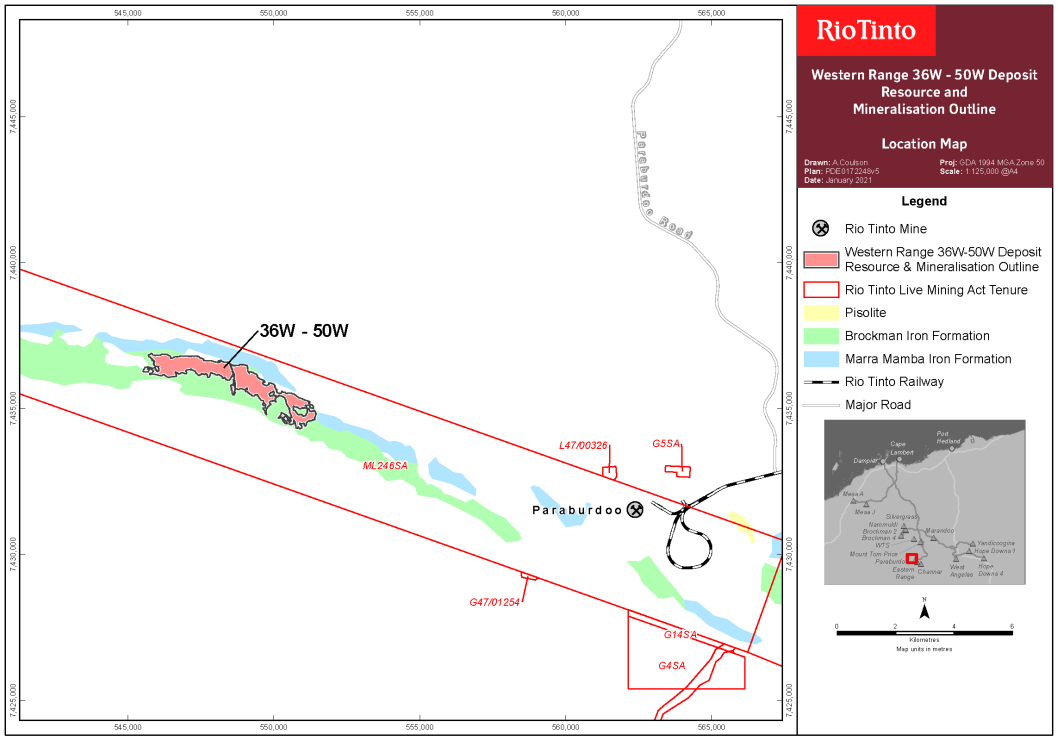


Figure 1 Western Range 36W-50W deposit location map

| Criteria | Commentary |
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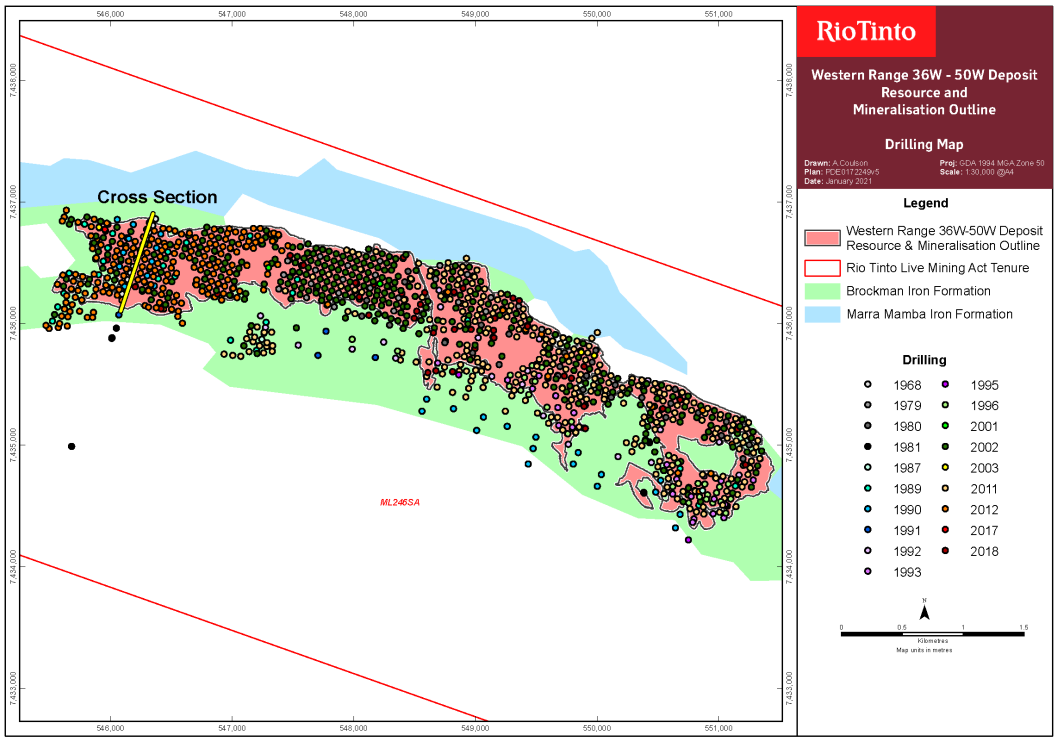


Figure 2 Western Range 36W-50W deposit drill hole location map

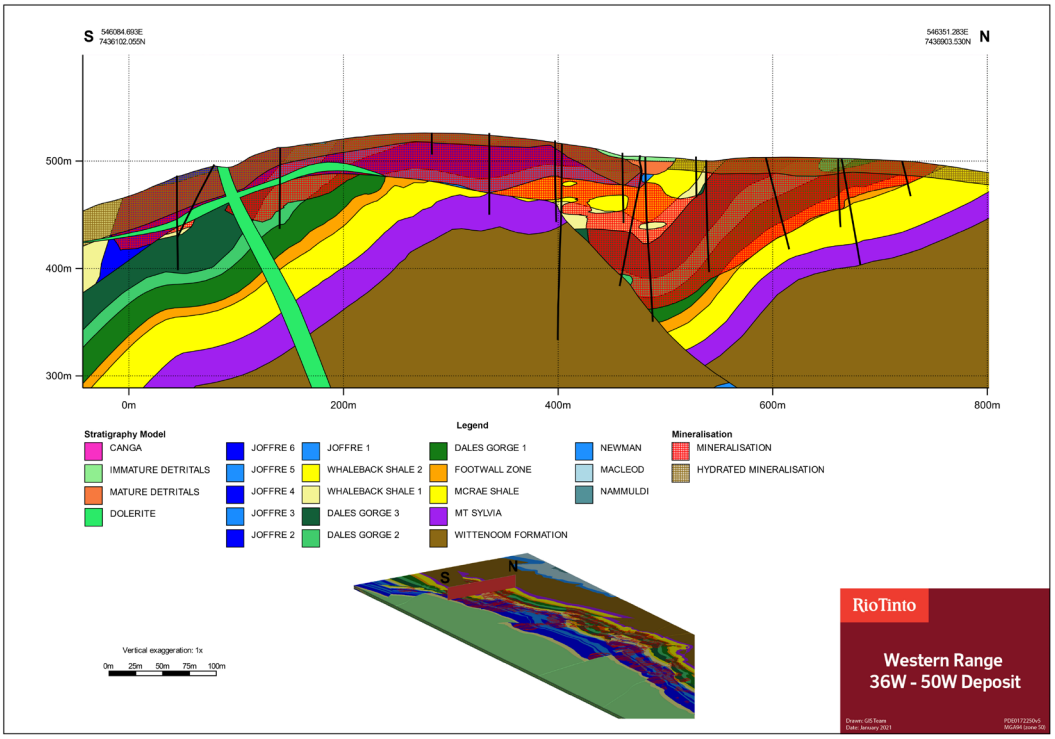


Figure 3 Western Range 36W-50W deposit cross section

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| Balanced reporting | • Not applicable, as Rio Tinto has not specifically released Exploration Results for this deposit. |

| Criteria | Commentary |
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| Other substantive exploration data | • Geological mapping data was collected across the Western Range 36W-50W deposit in 2011 at the 1:5,000 scale. |
| Further work | • Further work at the Western Range 36W-50W deposit is planned to better define the orebody and improve structural understanding. Additional infill reverse circulation drilling is required across the deposit.<br>• Further diamond drilling for metallurgical, density, and geotechnical information is also required across the deposit. |

## Section 3 Estimation and Reporting of Mineral Resources

| Criteria | Commentary |
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| Database integrity | • All drilling data is securely stored in the Rio Tinto Iron Ore acQuire™ database (RTIODB), managed by dedicated personnel within Rio Tinto Iron Ore. The system is backed up nightly on servers located in Perth, Western Australia. The backup system was tested in September 2020, demonstrating that the system is effective.<br>• The import/exporting process requires limited keyboard transcription and has multiple built in safeguards to ensure information is not overwritten or deleted. These include:<br>  ○ Data is imported and exported through automated interfaces, with limited manual input;<br>  ○ Inbuilt validation checks ensure errors are identified prior to import;<br>  ○ Once within the RTIODB, editing is very limited and warning messages ensure accidental changes were not made;<br>  ○ Audit trail records updates and deletions should an anomaly be identified;<br>  ○ Export interface ensures the correct tables, fields and format are selected.<br>• The drill hole database used for Mineral Resource estimation has been internally validated. Methods include checking:<br>  ○ acQuire™ scripts for relational integrity, duplicates, total assay and missing / blank assay values;<br>  ○ Grade ranges in each domain;<br>  ○ Domain names;<br>  ○ Survey data down-hole consistency;<br>  ○ Null and negative grade values;<br>  ○ Missing or overlapping intervals;<br>  ○ Duplicate data.<br>• Drill hole data was also validated visually by domain and compared to the geological model. |
| Site visits | • The Competent Person visited the Western Range 36W-50W deposit in 2018. No follow up was required as a result of this visit, and there has been no material changes at site since this time. |
| Geological interpretation | • Overall the Competent Person's confidence in the geological interpretation of the area is good, based on the quantity and quality of data available, and the continuity and nature of the mineralisation.<br>• Geological modelling was performed by Rio Tinto Iron Ore geologists. The method involves interpretation of stratigraphy using surface geological mapping, lithological logging data, down-hole gamma data, and assay data.<br>• Cross-sectional interpretation of each stratigraphic unit was performed followed by interpretation of mineralisation and hydration boundaries based on mapping, and drilling data. Three-dimensional wireframes of the sectional interpretations are created to produce the geological model.<br>• The geological model was subdivided into domains defined by stratigraphy and mineralisation and both the composites and model blocks are coded with these domains. Blocks in domains are estimated using composites from the same domain.<br>• Mineralisation is continuous. It is affected by stratigraphy, structure and weathering. The drill hole spacing is sufficient to capture density, grade and geology variation for Mineral Resource reporting. |
| Dimensions | • The Western Range 36W-50W deposit strikes approximately east-west with an along strike extent of approximately 6 km and a width of up to approximately 1 km. The mineralisation extends from surface to a depth of 250 m. |

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| Estimation and modelling techniques | • Twelve grade attributes (Fe, $SiO_2$, $Al_2O_3$, P, Mn, LOI, LOI425, LOI650, S, $TiO_2$, MgO, and CaO), and density were estimated into the block model.<br>• Estimates were completed into parent blocks (block size of 30 m (X) × 30 m (Y) × 5 m (Z)).<br>• Parent blocks are sub-celled to the geological boundaries to preserve volume.<br>• The grade estimation process was completed using Maptek™ Vulcan™ software.<br>• Estimates were completed on parent blocks.<br>• Mineralised domains were estimated by ordinary kriging or inverse distance to the power of two (ID2) (>70% of blocks) with approximately 30% of blocks being assigned average grades via scripting. Non-mineralised domains were estimated by inverse distance weighting to the first power (ID1) or assigned average grades in minor domains via scripting where sufficient data was not available. These methods are deemed appropriate by the Competent Person for estimating the tonnes and grade of the reported Mineral Resources.<br>• Grades were extrapolated to a maximum distance of approximately 400 m from data points.<br>• Statistical analysis was carried out on data for all domains.<br>• The estimated model was validated using a combination of visual and statistical methods that showed that the estimate was reasonable.<br>• No production data is available for reconciliation. |
| Moisture | • All Mineral Resource tonnages are estimated and reported on a dry basis. |
| Cut-off parameters | • The cut-off for reporting of Brockman Mineral Resources is greater than or equal to 60% Fe*.<br>• The cut-off for reporting of Brockman Process Ore Mineral Resources is material 50% ≤ Fe < 60% and 3% ≤ $Al_2O_3$ < 6%*.<br><br>*geology domain must be Dales Gorge, Joffre or Footwall Zone for inclusion in the Mineral Resource. |
| Mining factors or assumptions | • Development of this Mineral Resource assumes mining using standard Rio Tinto Iron Ore equipment and methods similar to other Rio Tinto Iron Ore operations. The assumed mining method is conventional truck and shovel, open pit mining at an appropriate bench height. Mining practices will include grade control utilising blast hole data.<br>• Rio Tinto Iron Ore plans to blend ore from Western Range 36W-50W deposit with ore from other Rio Tinto Iron Ore mine sites to make a saleable ore product. This plan is in line with current Rio Tinto Iron Ore practices where ore from multiple mines is combined to produce the Pilbara Blend product. |
| Metallurgical factors or assumptions | • The technologies assumed applicable for the processing of the Western Range 36W-50W deposit are standard crushing and screening processes followed by desliming of fines ore. |
| Environmental factors or assumptions | • Rio Tinto Iron Ore has an extensive environmental approval process. A review of these requirements was undertaken as part of a Pre-feasibility Study and based on this work the proposal was determined to require formal State environmental assessment and approval. This is documented in greater detail in Section 4.<br>• Mapping of oxidised shales, black carbonaceous shales, lignite, and the location of the water table, is used in prediction and planning for the treatment of potential environmental impacts. This process is in accordance with Rio Tinto's Chemically Reactive Mineral Waste Standard. |
| Bulk density | • Dry bulk density was derived from gamma-density data collected at 10 cm intervals from down-hole geophysical sondes. Accepted gamma-density data was corrected for moisture using diamond drill core specifically drilled throughout the deposit.<br>• Dry core densities were generated via the following process:<br>  o The core volume was measured in the split and the mass of the core was measured and recorded.<br>  o Wet core densities were calculated by the split and by the tray.<br>  o Core recovery was recorded.<br>  o The core was then dried and dry core masses are measured and recorded.<br>  o Dry core densities were then calculated.<br>• Accepted gamma-density values at Western Range 36W-50W were estimated using ordinary kriging or inverse distance weighted to the second power (ID2) (>60% of blocks) or scripted average (40% of blocks) in mineralised zones and inverse distance weighted to the first power ID1or scripted average in waste zones. |
| Classification | • The Mineral Resource has been classified into the categories of Measured, Indicated and Inferred. The determination of the applicable resource category has considered the relevant factors |

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| | (geology, mineralisation continuity, sample spacing, data quality, and others).<br>• The Western Range 36W-50W Mineral Resource has seen some reclassification of Measured Resource into Indicated and Inferred from the previous resource model. By incorporating reconciliation findings from analogous mined deposits and having regard to the complex structure and mineralisation style of this deposit, the resource classification has been updated .<br>• Measured Resource is bedded mineralisation that demonstrates good or reasonable geological and grade continuity and is drilled at 30 m x 30 m spacing.<br>• Indicated Resource is bedded mineralisation that has reasonable geological and grade continuity and is drilled at 120 m x 60 m spacing.<br>• Inferred Resource is bedded mineralisation with drill spacing greater than 30 m x 60 m, or open mineralisation along domain margins and at depth with no drill support, or bedded mineralisation with limited continuity or limited drill support across strike, or Mature Detrital, or Hydated mineralisation.<br>• Approximately 90% of the Western Range 36W-50W Mineral Resource lies above the water table. The Competent Person is satisfied that the stated Mineral Resource classification reflects the relevant factors of the deposit. |
| Audits or reviews | • All stages of Mineral Resource estimation have undergone a documented internal peer review process, which has reviewed all phases of the process. No material issues were raised during the review.<br>• Rio Tinto Group Internal Audit engages SRK Consulting to complete an audit on 36W-50W in 2020, including all aspects of data, interpretation, estimation, and mine planning with the result being satisfactory. No material findings were identified. |
| Discussion of relative accuracy/ confidence | • Rio Tinto Iron Ore operates multiple mines in the Pilbara region of Western Australia. The Mineral Resource data collection and estimation techniques used for Western Range 36W-50W deposit are consistent with those applied at other deposits which are being mined. Reconciliation of actual production with the Mineral Resource estimates for individual deposits is generally accurate to within ten percent for tonnes on an annual basis. This result is indicative of a robust process.<br>• The accuracy and confidence of the Mineral Resource estimate is consistent with the current level of study (Pre-Feasibility Study). |

## Section 4 Estimation and Reporting of Ore Reserves

| Criteria | Commentary |
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| Mineral Resource estimate for conversion to Ore Reserves | • Generation of the modifying factors for this Ore Reserve estimate were based on a Mineral Resource estimate for Western Range 36W-50W, completed in January 2020.<br>• The most recent Mineral Resource estimate together with the latest update of pit designs were used for reporting Ore Reserves.<br>• The declared Ore Reserves are for the Western Range 36W-50W deposit.<br>• Mineral Resources are reported additional to Ore Reserves. |
| Site visits | • The Competent Person visited the Western Range 36W-50W deposit in 2018. |
| Study status | • The Greater Paraburdoo mine site is an existing operation. The Western Range 36W-50W deposit forms an extension to the operating life of the Greater Paraburdoo operations.<br>• The Pre-Feasibility Study was completed in Q3 2019. Currently conducting the Feasibility Study with expected completion in 2022. |
| Cut-off parameters | • The Western Range 36W-50W deposit is reported using variable cut-off grade (VCoG), in line with a number of other Pilbara deposits. Application of VCoG allows the variation of the head grade across the life of the deposit, to achieve desired product grades. At Western Range 36W-50W, this approximates to a cut-off of 58.5% Fe over the mine life. |
| Mining factors or assumptions | • The Mineral Resource models for Western Range 36W-50W were regularised to a block size of 15 m (X) x 15 m (Y) x 10 m (Z) which was determined as the selective mining unit, following an analysis of a range of potential selective mining units.<br>• Metallurgical models were applied to the regularised model in order to model product tonnages, grades and yields. |

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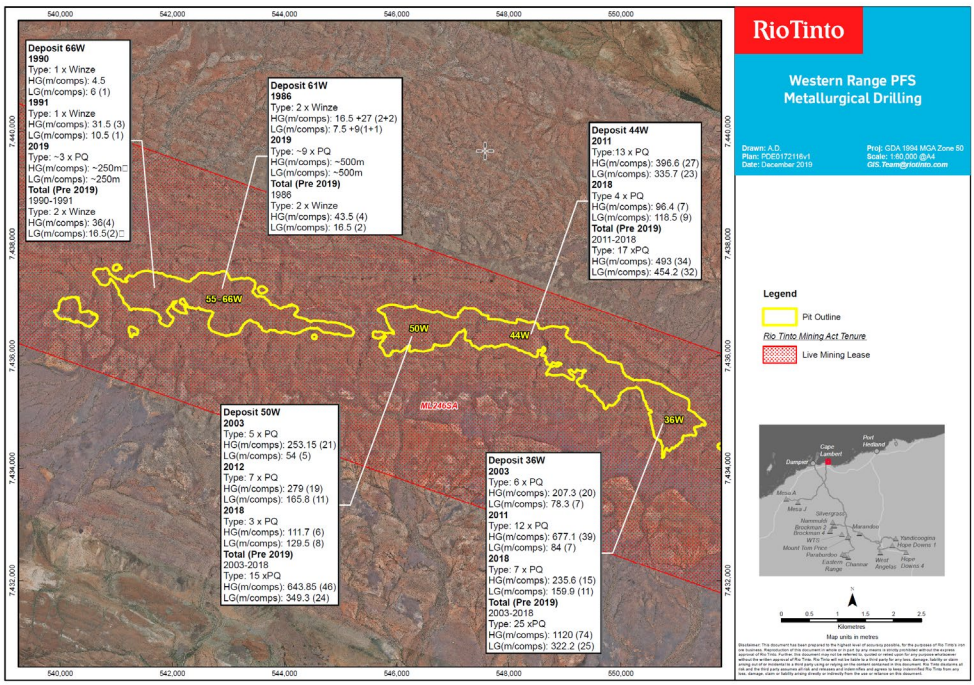
| | • Pit optimisations utilising the Lerchs-Grossmann algorithm with industry standard software were undertaken. This optimisation utilised the regularised Mineral Resource model, together with cost, revenue, and geotechnical inputs. The resultant pit shells were used to develop detailed pit designs with due consideration of geotechnical, geometric and access constraints. These pit designs were used as the basis for production scheduling and economic evaluation.<br>• During the above process, Inferred Mineral Resources were excluded from mine schedules and economic valuations were utilised to validate the economic viability of the Ore Reserves.<br>• The Western Range 36W-50W Mineral Resource has seen some reclassification of Measured Resource into Indicated and Inferred from the previous resource model, resulting in this material being removed from the Ore Reserve. By incorporating reconciliation findings from analogous mined deposits and having regard to the complex structure and mineralisation style of this deposit, the resource classification has been updated.<br>• Conventional mining methods (truck and shovel), similar to other Rio Tinto Iron Ore operating mines, were selected.<br>• Applied geotechnical parameters are based on geotechnical studies informed by technical assessment of 78 drill holes drilled, specifically for geotechnical purposes between 2012 and 2019. The resultant inter-ramp slope angles vary between 24° and 52°, depending on slope sector rock mass and/or structural geological conditions.<br>• The Pre-Feasibility Study considered the infrastructure requirements associated with the conventional truck and shovel mining operation, including crushing and conveying systems, dump and stockpile locations, maintenance facilities, access routes, explosive storage, water, and power.<br>• The Ore Reserves are 99% above water table. |
| Metallurgical factors or assumptions | • The Western Range 36W-50W ore will be processed through the Paraburdoo processing facility, which comprises a dry crushing and screening facility with desliming. This style of processing is well suited to the Brockman ore at Western Range 36W-50W deposit.<br>• Dry crushing and screening with desliming of fine ore has been utilised at Paraburdoo since 1996 and is well understood.<br>• Metallurgical drilling campaigns have been conducted at Greater Western Range operations (incorporating the 27W, 36W-50W and 55-66W deposits) from 2003-2018, with 57 PQ diamond holes drilled specifically throughout the Western Range 36W-50W deposit. A total of 154 composites of high-grade ore (totalling 2,257 m) and 81 composites of low-grade ore (totalling 1125 m), were processed using the standard Brockman plant mimic, which has been calibrated to produce representative plant products. A map of the metallurgical drilling is shown below.<br>  <br><br>Figure 4 Metallurgical drilling locations<br>• The diamond drill core test results were utilised to develop metallurgical models representing different metallurgical domains that were considered representative of the ore body. The metallurgical models predict product tonnage and grade parameters for lump and fines products. |

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| Environmental | • The Greater Paraburdoo Iron Ore Hub (Proposal) was formally referred to the Environmental Protection Authority (EPA) under section 38 of the Environmental Protection Act 1986 (EP Act) on 5 November 2018. The EPA determined that the Proposal warranted assessment at the level of Public Environmental Review with a two-week public review period (EPA Assessment No. 2189) on 7 December 2018.<br>• The Proposal was also referred to the Department of Agriculture, Water and the Environment (DAWE) on 6 December 2018 (EPBC Act reference: EPBC 2018/8341) and on 24 January 2019, the delegate for the Commonwealth Minister for the Environment determined that the Proposal is a controlled action under s. 75 of the EPBC Act, requiring further assessment and approval.<br>• The EPA is assessing the Proposal as an accredited assessment on behalf of the Commonwealth under s. 87 of the EPBC Act. This assessment provides for a single environmental assessment process conducted by the State. At the completion of the assessment, the EPA's Report is provided to the DAWE assessing the likely impacts of the Proposal on Matters of National Environmental Significance.<br>• The Proponent (Rio Tinto) prepared an Environmental Scoping Document (ESD) in January 2019. The ESD identified the following key environmental factors relevant to the Proposal: Flora and Vegetation; Terrestrial Fauna; Subterranean Fauna; Inland Waters and Social Surroundings. The ESD was approved by the EPA in June 2019.<br>• A Draft Environmental Review Document (ERD) was submitted to the EPA on 31 October 2019. The ERD provides assessment of the potential impacts of this Proposal on the key environmental factors to enable the EPA to determine the environmental acceptability of this Proposal.<br>• Following multiple reviews of the Draft ERD by regulators, the ERD was released for a two-week public review period from 13-27 May 2020. The proponent is currently preparing responses to the submissions received during the public review period. |
| Infrastructure | • Access to the 36W-50W deposits will be via an access road from the existing Paraburdoo mine.<br>• A crusher and conveyor will be built at the Greater Western Range operations, linking to the existing Paraburdoo mine processing plant. The Paraburdoo mine product stockpiles, rail and train load-out system will be utilised.<br>• Ore will be railed to Rio Tinto ports at Dampier and Cape Lambert. The existing port and railway networks have sufficient capacity to accommodate ore supply from the Western Range 36W-50W deposit.<br>• Support facilities located at the Greater Western Range operations will include fixed plant workshop, bulk fuel storage and refuelling facilities, and bulk lube storage.<br>• Existing support facilities at the Paraburdoo mine will be utilised including heavy and light vehicle workshops, explosive facility, and waste fines storage facility.<br>• Electric power will be supplied to the Greater Western Range operations via a 33 kV connection to the Rio Tinto transmission network at Paraburdoo.<br>• Water for the Greater Western Range construction and operations will be sourced from bores at Western Range, supplemented by a connection to Paraburdoo borefields.<br>• Residential and Fly In, Fly Out operations personnel will be accommodated in the Paraburdoo town, and utilise the Paraburdoo airport. |
| Costs | • Operating costs were benchmarked against similar operating Rio Tinto Iron Ore mine sites.<br>• The capital costs for Western Range 36W-50W are based on the Pre-Feasibility Study, utilising experience from the construction of similar Rio Tinto Iron Ore projects in the Pilbara, Western Australia.<br>• Exchange rates were forecast by analysing and forecasting macro-economic trends in the Australian and World economy.<br>• Transportation costs were based on existing operating experience at Rio Tinto Iron Ore mine sites in the Pilbara, Western Australia.<br>• Allowances have been made for royalties to the Western Australian government and other private stakeholders. |
| Revenue factors | • Rio Tinto applies a common process to the generation of commodity prices across the group. This involves generation of long-term price curves based on current sales contracts, industry capacity analysis, global commodity consumption and economic growth trends. In this process, a price curve, rather than a single price point, is used to develop estimates of mine returns over the life of the project. The detail of this process and of the price point curves is commercially sensitive and is not disclosed. |
| Market assessment | • Rio Tinto Iron Ore plans to blend ore from Western Range 36W-50W deposit with ore from other Rio Tinto Iron Ore mine sites to make a saleable ore product. Western Range 36W-50W ore will not be marketed directly. This plan is in line with current Rio Tinto Iron Ore practices where ore from |

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| | multiple mines is combined to produce the Pilbara Blend product.<br>• Blending of iron ore from Brockman and Marra Mamba sources results in achieving Pilbara Blend Fe requirement, whilst reducing both the average values, and variability, of $SiO_2$, $Al_2O3$, and P. This product attracts a market premium and accounts for annual sales in excess of 250 Mt/a.<br>• The supply and demand situation for iron ore is affected by a wide range of factors. As iron and steel consumption changes with economic development and circumstances, Rio Tinto Iron Ore delivers products aligned with its Mineral Resources and Ore Reserves. These products have changed over time and successfully competed with iron ore products supplied by other companies. |
| Economic | • Economic inputs such as foreign exchange rates, carbon pricing, and inflation rates are also generated internally at Rio Tinto. The detail of this process is commercially sensitive and is not disclosed.<br>• Sensitivity testing of the Western Range 36W-50W Brockman Ore Reserves using both Rio Tinto long-term prices and a range of published benchmark prices demonstrates a positive net present value for the project sufficient to meet Rio Tinto Limited investment criteria. |
| Social | • The Western Range 36W-50W deposit is located on Mining Lease AM70/00246 (ML246SA), granted pursuant to the Paraburdoo State Agreement.<br>• Discussions about a Joint Venture covering the Western Range mining hub with China Baowu Group are continuing.<br>• The Western Range 36W-50W deposit falls within the area of the Yinhawangka Native Title determination.<br>• Extensive archaeological and ethnographic surveys have been undertaken over the majority of the Greater Paraburdoo area. Surveys are ongoing and will continue into 2021. These have been undertaken with full participation and involvement of the Yinhawangka People.<br>• Adjustments to the proposed pit design Western Range 36W-50W were completed to reflect feedback provided by the Yinhawangka people in relation to specific sites of very high heritage significance. Groundwater abstraction and quality will continue to be managed in accordance with the existing Greater Paraburdoo Groundwater Licences and associated Groundwater Operating Strategy, and any amendments as required.<br>• The Western Range 36W-50W deposit is located within the Shire of Ashburton. Rio Tinto Iron Ore has established an ongoing engagement with the Shire of Ashburton, which includes scheduled meetings and project updates. |
| Other | • Semi-quantitative risk assessments have been undertaken throughout the Western Range study phases. No material naturally-occurring risks have been identified through this process.<br>• Discussions about a Joint Venture covering Western Ranges mining hub with China Baowu Group are continuing. |
| Classification | • The Ore Reserves for Western Range 36W-50W consist of 67% Proved Reserves and 33% Probable (no Probable is derived from Measured Resource) Reserves.<br>• The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of technical and economic studies. |
| Audits or reviews | • Rio Tinto Group Internal Audit engages SRK Consulting to complete an audit on 36W-50W in 2020, including all aspects of data, interpretation, estimation, and mine planning with the result being satisfactory. No material findings were identified.<br>• Rio Tinto Iron Ore peer review processes and internal Rio Tinto technical reviews have been completed. These reviews concluded that the fundamental data collection techniques are appropriate. |
| Discussion of relative accuracy/ confidence | • Rio Tinto Iron Ore operates multiple mines in the Pilbara region of Western Australia. The Ore Reserve estimation techniques utilised for the Western Range 36W-50W Brockman deposit are consistent with those applied at the existing operations. Reconciliation of actual production with the Ore Reserve estimate for individual deposits is generally within 10% for tonnes on an annual basis. This result is indicative of a robust Ore Reserve estimation process.<br>• For the Western Range 36W-50W, accuracy and confidence of modifying factors are generally consistent with the current level of study (Pre-Feasibility Study). |