AMAPA PRE-FEASIBILITY REPORT

EXECUTIVE SUMMARY

SEPTEMBER 2023 // PREPARED BY wardell armstrong

THE AMAPA PROJECT

The Amapá iron ore project is an integrated mine with a well-established processing route, control over essential infrastructure, low capital intensity, and a well-regarded, high-quality product.

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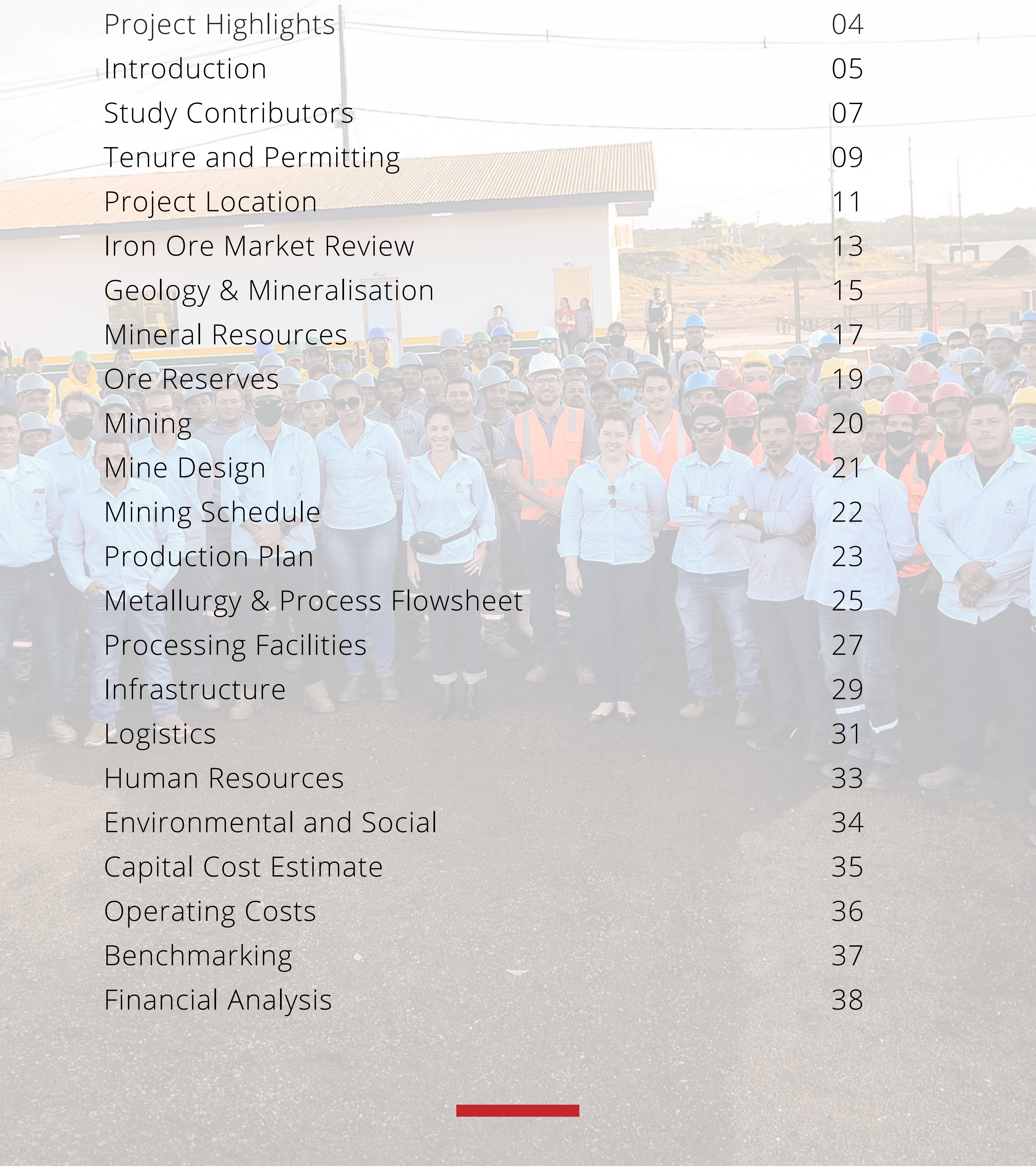
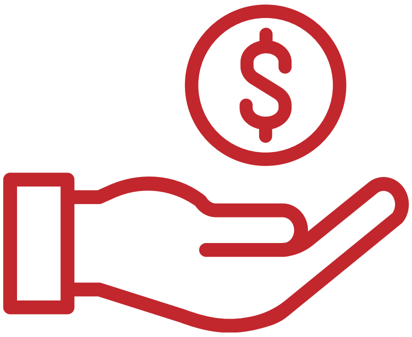
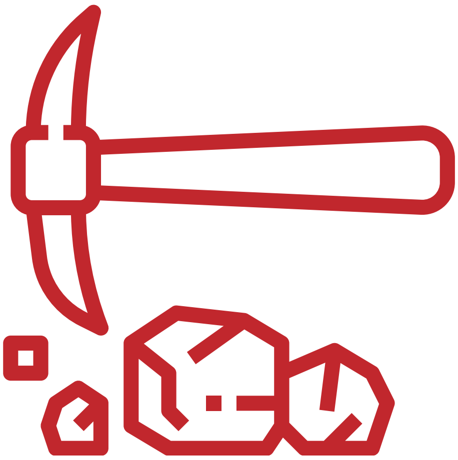


PROJECT HIGHLIGHTS



Project post-tax
NPV **US$949M**



Maiden Ore Reserve
195.8 Mt

IRR of **34%**

Life Of Mine
16 production years

5.28 Mtpa
Annual Production

INTRODUCTION

In January 2022, Cadence Minerals (AIM/NEX: KDNC; OTC: KDNCY) announced the completion of the Pre-Feasibility Study ("PFS") on the Amapá Iron Ore Project, Brazil ("Amapá" or the "Project").

The PFS confirms the potential for the Amapá Iron Ore Project to produce a high-grade iron ore concentrate and generate strong returns over its life of mine. Completing the PFS is a significant milestone in the Project's development, laying the foundations to advance Amapá to eventual production.

The Amapá Project is owned by DEV Mineração S.A. ("DEV") and its subsidiaries. DEV is owned by Pedra Branca Alliance Pte. Ltd. ("PBA"), a joint venture ("JV") between Cadence Minerals Plc ("Cadence") and Indo Sino Trade Pte Ltd ("Indo Sino").

Cadences owns 30% of PBA and a 30% indirect interest in the Amapá Project. Cadence has a first right of refusal to increase its stake in the Amapá Project to 49%.

The document represents an executive summary of the complete PFS study.

The PFS outlines a robust 5.28 Mtpa operation which can deliver excellent cash flows and a post-tax NPV of US$949 million.

PFS HIGHLIGHTS

- Annual average production of 5.28 million dry metric tonnes per annum ("Mtpa") (5.8 Mtpa (wet)) of Fe concentrate, consisting of 4.36 Mtpa at 65.4% Fe and 0.92 Mtpa at 62% Fe concentrate.
- Post-tax Net Present Value ("NPV") of US$949 million ("M") at a discount rate of 10%.
- Post-tax Internal Rate of Return of 34%, with an average annual life of mine EBITDA of US$235 M annually.
- Maiden Ore Reserve of 195.8 million tonnes ("Mt") at 39.34% Fe demonstrates an 85% Mineral Resource conversion.
- Free on Board ("FOB") C1 Cash Costs of US$35.53 / dry metric tonnes ("dmt") at the port of Santana. Cost and Freight ("CFR") C1 Cash Costs US$64.23/dmt in China.
- Pre-production capital cost estimate of US$399 million, including the improvement and rehabilitation of the processing facility and the restoration of the railway and the wholly owned port export facility
- Opportunities: exploration target at the Tucano Mine to further extend initial mine life and potential capital savings at port loading facilities.

PROJECT HISTORY

The Project comprises an open-pit iron ore mine, a processing and beneficiation plant, a railway line, and an export port terminal.

The Project ceased operations in 2014 after the port facility suffered a geotechnical failure, which limited the export of iron ore. Before the cessation of operations, the Project generated an underlying profit of US$54 million in 2012 and US$120 million in 2011. Operations commenced in December 2007, and in 2008, the Project produced 712 thousand tonnes of iron ore concentrate. Production steadily increased, producing 4.8 Mt and 6.1 Mt of iron ore concentrate products in 2011 and 2012, respectively.

Since the cessation of operations, the Amapá Project has remained dormant and mothballed; the mine, plant, rail and port need revitalisation.

MINING

Mining at the Amapá mine will use conventional open pit methods involving drilling, blasting, loading, and hauling ore and waste by a mining contractor. Operations will be conducted based on 365 operating days per year with three 8-hour shifts per day. An allowance has been made for the weather. Ore production is planned at an optimum rate of 12.6 Mtpa.

PROCESSING

Historically the beneficiation plant at the Amapá Project produced four product iron ore concentrates. The development strategy of DEV is to simplify the product stream and focus on higher-grade and higher-value products. The plan is to produce 5.28 Mtpa (dry) of Fe concentrate, consisting of 4.23 Mtpa at 65.4% Fe and 0.92 Mtpa at 62% Fe concentrate.

The process flow sheet consists of an initial crushing, screening, and homogenisation stage. This is followed by a spiral circuit that produces the 62% Fe product.

The material not passing through the spiral circuit is milled and passed through a magnetic separator circuit. The product from this circuit is then passed onto the reverse flotation circuit.

The reverse floatation consists of three stages. The final cleaner stage produces an iron concentrate. This iron concentrate is fed into a concentrate thickener and a filter plant. The filtered concentrate is conveyed to the 65.4% Fe product stockpile.

LOGISTICS

DEV owns or has concessions over the critical logistics from the mine site to loading vessels at the Port of Santana on the Amazon River. The intent is to rehabilitate the logistics to the required capacity for all of the products from the Amapá mine.

The rail infrastructure is 194 km in length, with a distance of 180 km between the railhead and the port. The railway's estimated cargo handling capacity will be 6.4 million wet tonnes of ore.

The original port facility was constructed in the 1950s to handle manganese ore. In March 2013, the port suffered a failure. After the failure, DEV engaged an EPCM contractor to oversee the design and reconstruction of the port facility and associated works. Phase one of the work was completed; however, work stopped shortly after in 2014. Since operations ceased, the port was abandoned and fell into disrepair. The PFS study and CAPEX anticipate the continuation of the works per the EPCM contractor design—the repair of the jack-up rig and the rehabilitation of the port facilities.

STUDY CONTRIBUTORS

This PFS study builds on existing work and studies undertaken on the Project. The PFS has been a cumulative effort from PBA, Cadence, PROMINAS, and Wardell Armstrong International ("WAI"), where WAI reviewed and compiled the PFS.

AREA	CONTRIBUTOR
Introduction	DEV & PBA
General Information	DEV & PBA
Market Analysis	DEV & PBA
Risk Management	PBA & WAI
Geology and Mineral Resources	PROMINAS & WAI
MRE Sign-off	PROMINAS
Mine Operations and Ore Reserve Estimation	PBA, DEV & WAI
ORE Sign-off	PROMINAS
Metallurgy/Testwork	DEV, ECM & WAI
Processing and Beneficiation Plant	DEV, IDG, ECM, SAFF & WAI
Infrastructure	DEV, IDG, ECM, SAFF & WAI
Logistics	DEV,IDG, TECH, MIPTEC
Project Execution	DEV & ECM
Operational Resources	DEV & PBA
Human Resources	DEV & PBA
Information Management	DEV & PBA
Health, Safety, Environment and Community	DEV, PBA & CERN
External Relations	DEV & PBA

DEV Mineração S.A. (“DEV”), Pedra Branca Alliance Pte. Ltd. (“PBA”), Prominas Mining ("Prominas"), ECM Projetos Industriais ("ECM"), IDG Engenharia e Consultoria ("IDG", SAFF Engenharia ("SAFF"), Technicontrol Consultoria ("TECH"), MIPTEC Engenharia & Consultoria ("MIPTEC"), CERN Environmental Consultancy ("CERN").

AREA	CONTRIBUTOR
Capital Costs	DEV, PBA, CERN, MIPTEC, IDG, ECM, SAFF
Operating Costs	DEV, PBA, CERN, MIPTEC, IDG, ECM, SAFF
Ownership, Legal and Contractual	DEV & PBA
Investment Evaluation	WAI
Conclusions	WAI
Workplan to DFS	DEV & PBA

DEV Mineração S.A. ("DEV"), Pedra Branca Alliance Pte. Ltd. ("PBA"), Prominas Mining ("Prominas"), ECM Projetos Industriais ("ECM"), IDG Engenharia e Consultoria ("IDG", SAFF Engenharia ("SAFF"), Technicontrol Consultoria ("TECH"), MIPTEC Engenharia & Consultoria ("MIPTEC"), CERN Environmental Consultancy ("CERN").

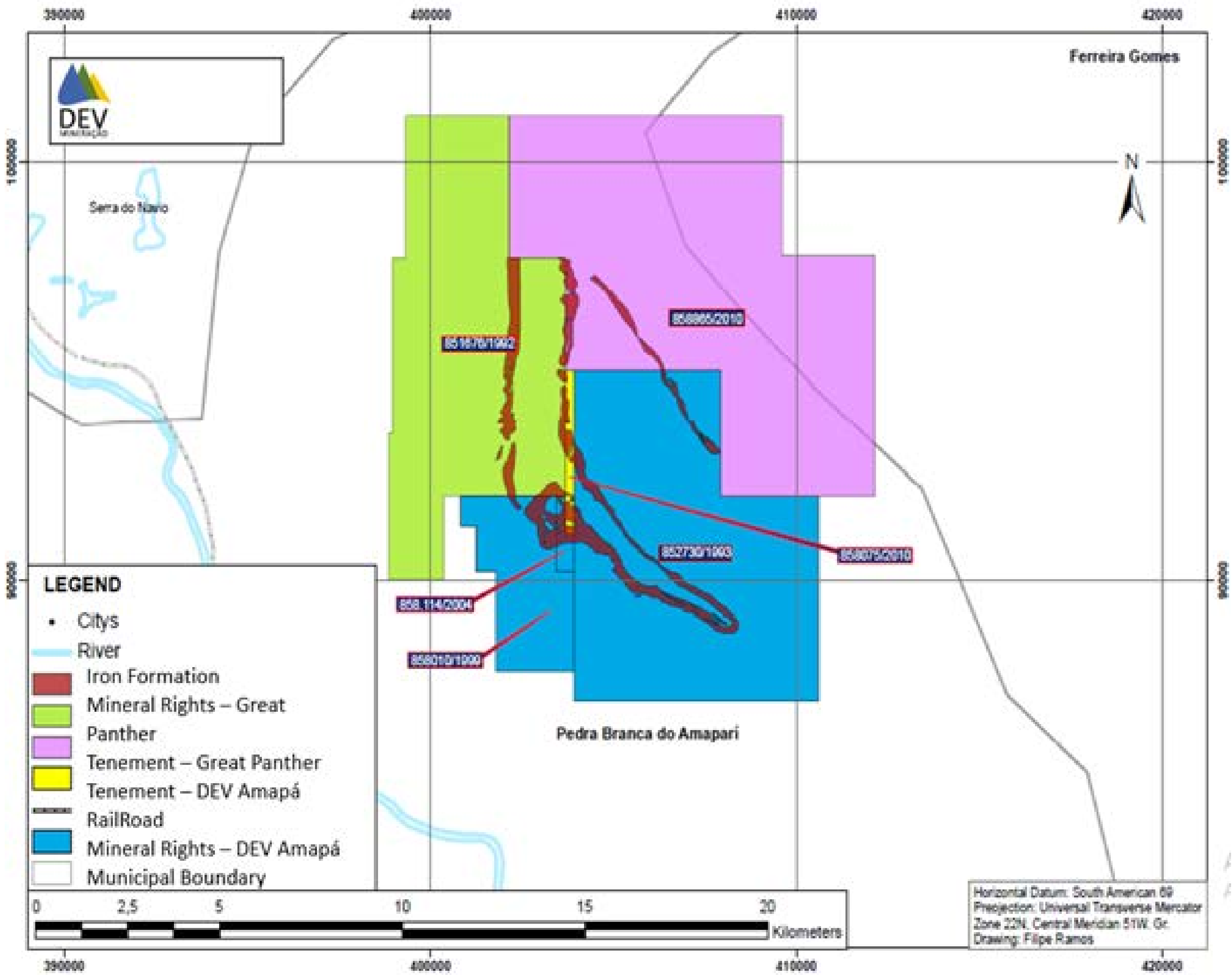
The Mineral Resource and Ore Reserve statements have been prepared following the Guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves, the JORC Code, 2012 Edition (JORC Code (2012)). Cost estimations were prepared by DEV, with input from third-party independent engineers and subsequently reviewed by WAI using the internationally accepted practice for PFS-level studies.

TENURE AND PERMITTING

DEV Mineração S.A. owns the Amapá Project and its licenses, mining rights and concessions.

DEV and its subsidiaries own the Amapá Project and its licenses, mining rights and concessions. As the Project previously operated, it held all the necessary permission to use. However, since it ceased operations, some of these permits and licenses have lapsed and are in the process of being renewed.

DEV owns four Mining Concessions. The first three concessions are for iron ore, and the last is a gold extraction license. DEV has a joint venture with Mina Tucano Ltda ("Mina Tucano"), which allows Mina Tucano to mine gold and allows DEV to mine iron ore from Mina Tucano's license. None of the historical mineral resources on license Mina Tucano is included in this PFS.



Outline of the Amapá Project Minerals Rights

Although DEV owns the Mining Concessions, it does not have a Mine Extraction and Processing Permit. To do so, DEV must obtain an Operational License ("LO") from the state environment authority. Once this has been completed, DEV will apply for Mine Extraction Permit. Since the Project was acquired by its current owners in 2022, DEV has made the required regulatory filings and embarked on studies and maintenance works to comply with the National Mineral Agency requirements.

In 2022 DEV began the regularisation of the expired environmental permits. In consultation with the Amapá State Environmental Agency and the relevant state authorities, DEV has requested that the requirement for an environmental impact study be waived.

This request for a waiver was on the basis that the previous LOs were granted on an operation that is substantially the same as is currently planned and remains applicable to future operations. DEV proposes that the company submits an Environmental Control Plan - "PCA" (Plano de Controle Ambiental); and Environmental Control Report - "RCA" (Relatório de Controle Ambiental). DEV has begun its proposed permit pathway for the Project based on the above requirements of a PCA and RCA.

The proposed permit pathway for the Project has both legal and practical precedent and is a reasonable approach, given the Project's status and level of development.

The state owns the railway line and associated land; therefore, for the Project to utilise this, it requires both the LO and a concession agreement with the State of Amapá. The previous operators of the Project were granted this concession in 2006 for 20 years under specific terms and conditions. The reinstatement of this concession to one of DEV's 100% owned subsidiaries was in December 2019 and was extended to 2046. The concession allows DEV's 100% owned subsidiary to operate the railway to primarily transport iron ore from the mine to its port in Santana. The State of Amapá owns the surface rights associated with the railway, and under the Railway Concession, DEV has been granted use over these surface rights.

In addition to the LO detailed above, the company's port is regulated by the Agencia Nacional de Transportes Aquaviários ("ANTAQ"). As a result of the change of ultimate beneficiary of DEV, a change of control request was filed. This change of control was granted in November 2021. As part of the port change of control, ANTAQ has agreed to cease the recommended abrogation of the port concession. DEV owns the surface rights associated with the port.

The principal surface rights applicable to the Project are those above the mining concessions, those associated with the railway from the mine to the port and those associated with the port in Santana, Amapá. The surface rights above the Mining Concessions cover approximately 5,580 ha. DEV has lease agreements which cover this area.

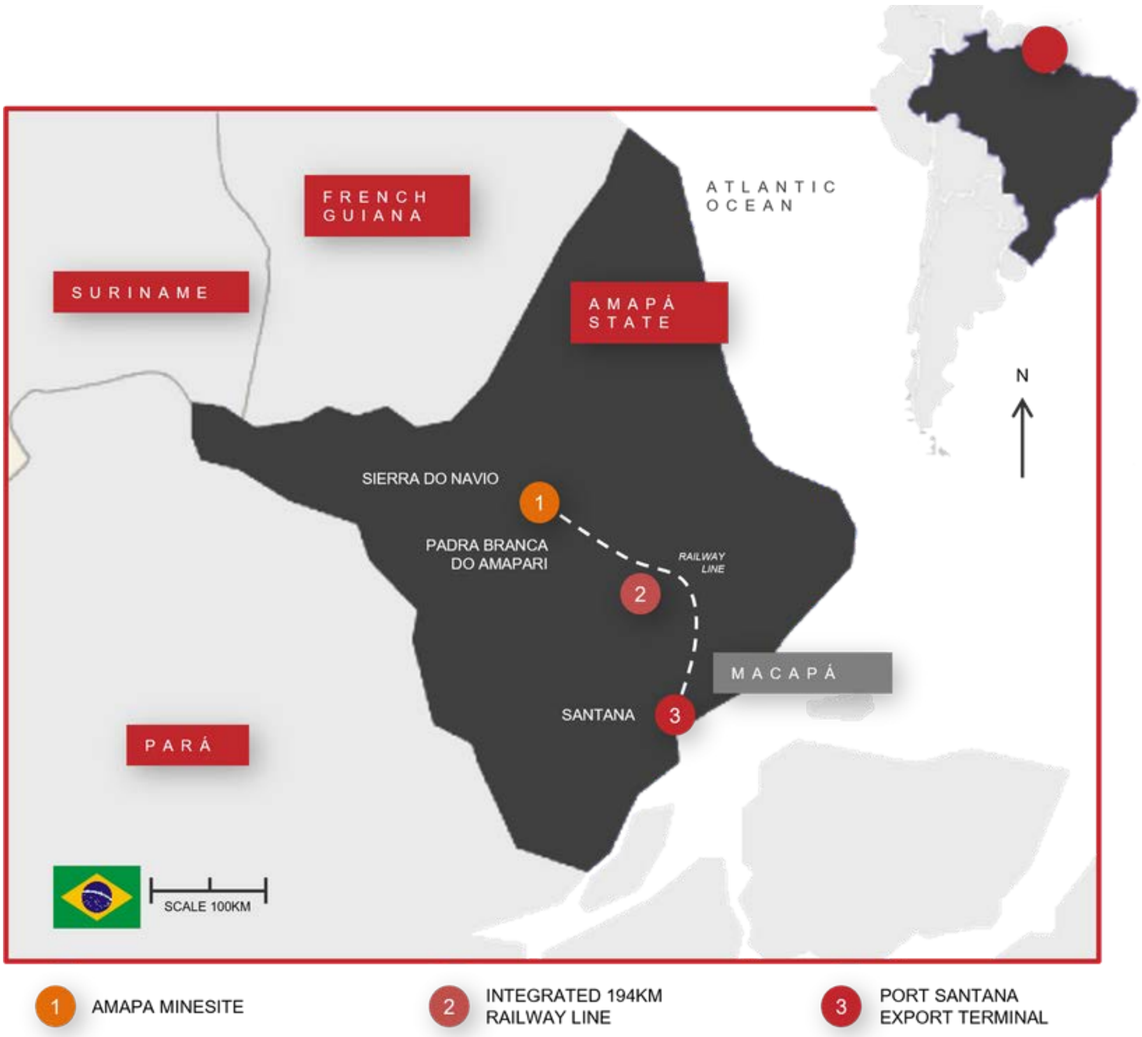
PROJECT LOCATION

The Amapá Project is in Amapá state, northeast Brazil. Amapá is the second least populous state and the eighteenth largest by area. Most of the Amapá state territory is rainforested, while the remaining areas are covered with savannah and plains.

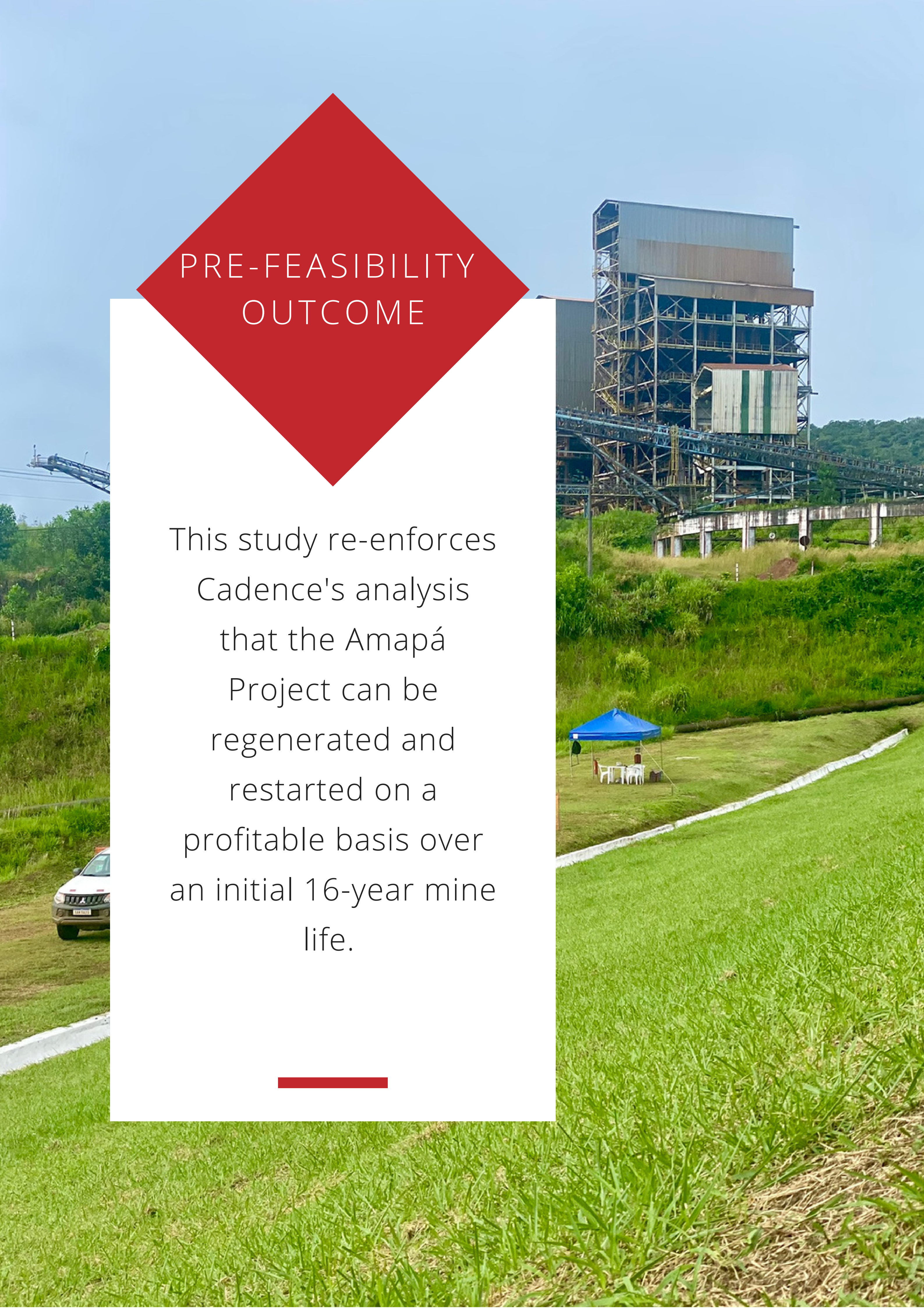
The State capital and largest city is Macapá (pop. circa 500,000), with the similarly sized municipality of Santana (pop. circa 120,000) located just 14 km to the southwest.

The Amapá mine is 125 km northeast of the state capital Macapá, and the port facility is located on the Amazon River in the municipality of Santana,

The port site in the municipality of Santana is located 90 km from the mouth of the Amazon River. The nearest populace centre to the Amapá mine is Pedra Branca Do Amapari, some 10 km west, with the larger conurbation of Serra do Navio 18 km to the northwest.



Location of the Amapá Project and Port Facility, Brazil



PRE-FEASIBILITY OUTCOME

This study re-enforces Cadence's analysis that the Amapá Project can be regenerated and restarted on a profitable basis over an initial 16-year mine life.

IRON ORE MARKET REVIEW

GLOBAL STEEL OUTLOOK

China is currently the world's largest producer and consumer of steel, but the country's steel consumption is forecast to decline by around 370 Mt between 2020 and 2040. Nevertheless, global steel demand is expected to grow by 11% over the next 20 years, and the driver will shift away from China to growth in other developing countries, particularly in Asia. India will be the leading source of growth, contributing to approximately 27% of total steel demand growth during 2020 - 2040.

World crude steel production jumped sharply to a new record in 2021, and it is expected to keep growing at a more moderate pace, with Electric Arc Furnaces (EAFs) accounting for a growing share of total production. This is a natural course for the industry as the tremendous pace and scale of steel-intensive development in China slows, and the economy matures.

Forecasts suggest that, overall, Blast Oxygen Furnace (BF-BOF) production reached its peak in 2021, and EAFs will, to some extent, be replaced by Direct Reduction Iron (DRI) - and we expect consumption of DRI to grow by over 65% in the next 15 years.

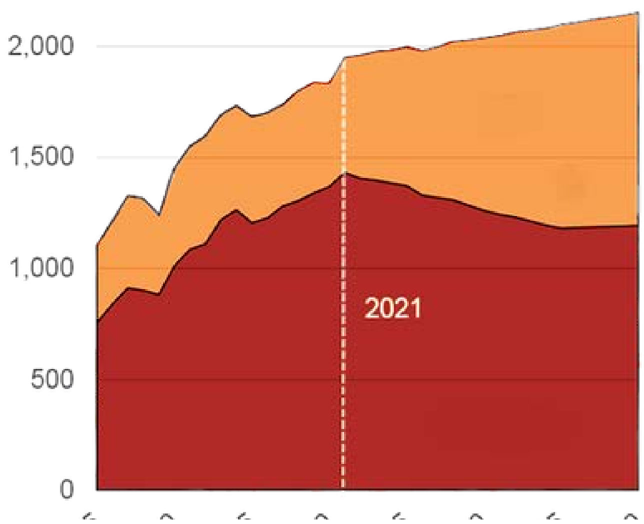
IRON ORE SUPPLY

South America has always dominated the supply of seaborne pellet feed, specifically by Brazilian iron ore major Vale.

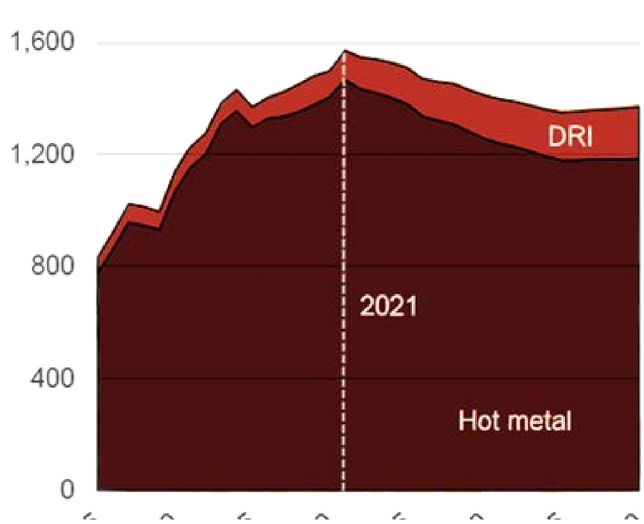
Vale, and other Brazilian producers (CSN, MMX and Samarco), are expected to expand capacity to meet seaborne demand over the forecast period. In addition, new producers are expected to emerge in Brazil, producing pellet feed to serve the export market.

The high-grade segment continues to be the focus for investors looking to invest in new iron ore projects. Despite high iron ore prices in the past year and multiple DRI/HBI projects being announced, the pipeline for pellet feed remains relatively unchanged.

CARBON CRUDE STEEL PRODUCTION, GLOBAL, MT



HOT METAL AND DRI PRODUCTION, GLOBAL, MT



Crude Steel Output and Hot Metal Production (Source: CRU)

IRON ORE PRODUCTS

Saleable iron ore products are typically sold in the following physical forms:

- Lumps – sized between approximately 6mm up to 30-35mm;
- Fines – sized between ~0.150mm to 6.3mm (and sometimes up to 10mm);
- Concentrates – intensively processed ore with particles less than 1mm;
- Pellet feed – fine concentrates with most particles typically less than 0.050mm (50 microns); and
- Pellets – 6mm to 18mm balls made by the agglomeration of pellet feed.

Lump and pellet products are generally referred to as "direct charge" products as they are suitable for directly charging into a blast furnace. In contrast, fines and concentrates first must be agglomerated into a lumpy material, either by sintering to form a clinker-like material or by pelletising it to form pellets.

The Amapá Project intends to produce 4.4Mtpa of 65% Fe grade Blast Furnace Pellet Feed product (dry basis) and 0.9Mtpa of 62% Spiral concentrate (dry basis).

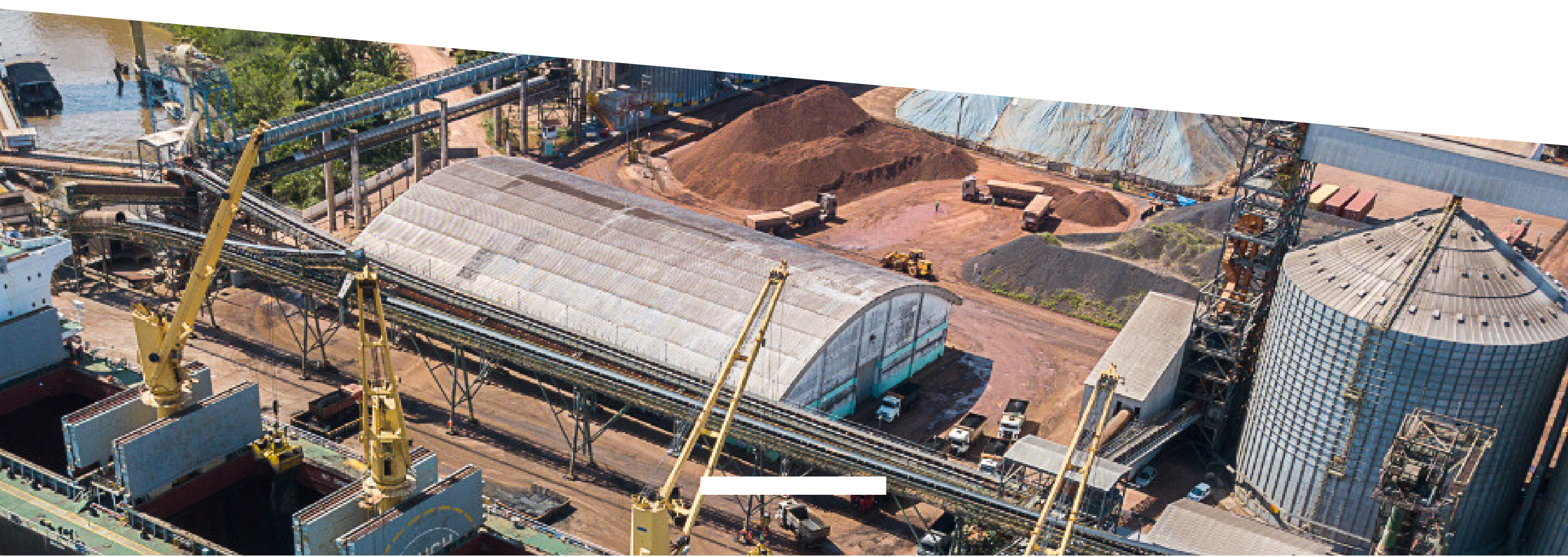
IRON ORE PRICING

The long-term iron ore price forecast, used in the project financial analysis was constructed using assumptions of iron ore supply and demand and assumptions about future steel demand. The pricing mechanism for the PFS is based on the 62% Fe fines index.

The 15-year (2007 to 2022) average for 62% Fe CFR China is US$ 110/dmt. However, for PFS, Cadence has assumed that the 62% Fe index will trend close to the 10-year average to December 2021 over the long term.

With commercial production for the Project scheduled to begin in 2026, the Company has utilised a long-term price of US$95/dmt and US$23.8/dmt premium for 65.4% iron ore concentrate, both quoted on a Cost and Freight (CFR) basis.

It has been assumed that the long-term transition towards lower emissions and decarbonised steel will result in the average price spread between 62% Fe CFR China and 65% Fe CFR fines products widening beyond 2022. Therefore, a premium of 25% to the 62% Fe reference price has been adopted for 65% Fe fines for this PFS.



GEOLOGY& MINERALISATION

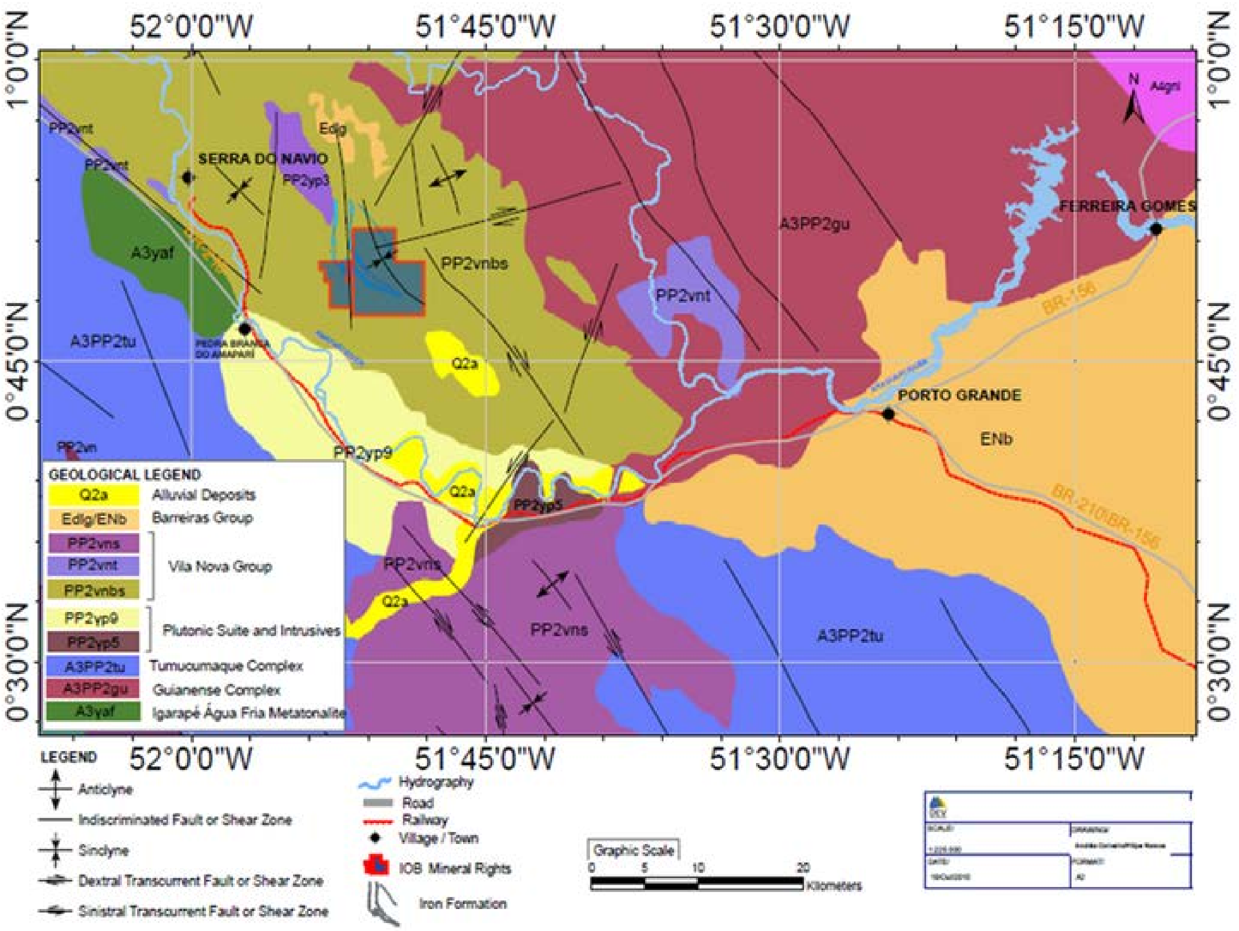
GEOLOGICAL OVERVIEW

The Amapá System hosts important Banded Iron Formations (BIF) mineralisation. The geologic units that underlie the region consist of Archean basement rocks, TTG terrains (Guianense Complex, Tumucumaque Complex and Água Fria Metatonalite), discordantly overlaid by Paleoproterozoic greenstone belts, in turn, overlain by Cenozoic lateritic deposits and Quaternary alluvial materials.

In the Amapá System area, the iron ore (oxide and silicate facies itabirites), calc-silicate and carbonatic rocks occur in two regions.

The first is a synform (locally named APW/APS) above the unit of metabasic rocks (mainly amphibolites) and quartz mica schist biotite and muscovite-bearing schist, where the mine is located. The second is Dragão, a mineralised body located 3.5 km to NE with orientation NW/SE, assumed as a potential resource and not included in this mineral resources estimate.

Mineralisation extends approximately 6.5 km in strike length, 1.5 km in width and exists in some areas to more than 100 m in depth. Geological processes have weathered this proto-resource, the hard itabirite (ITC), actually considered waste, transforming part of the volume into mineral resources, the soft itabirite (ITB).



Amapá Regional Geological Map

LOCAL GEOLOGY

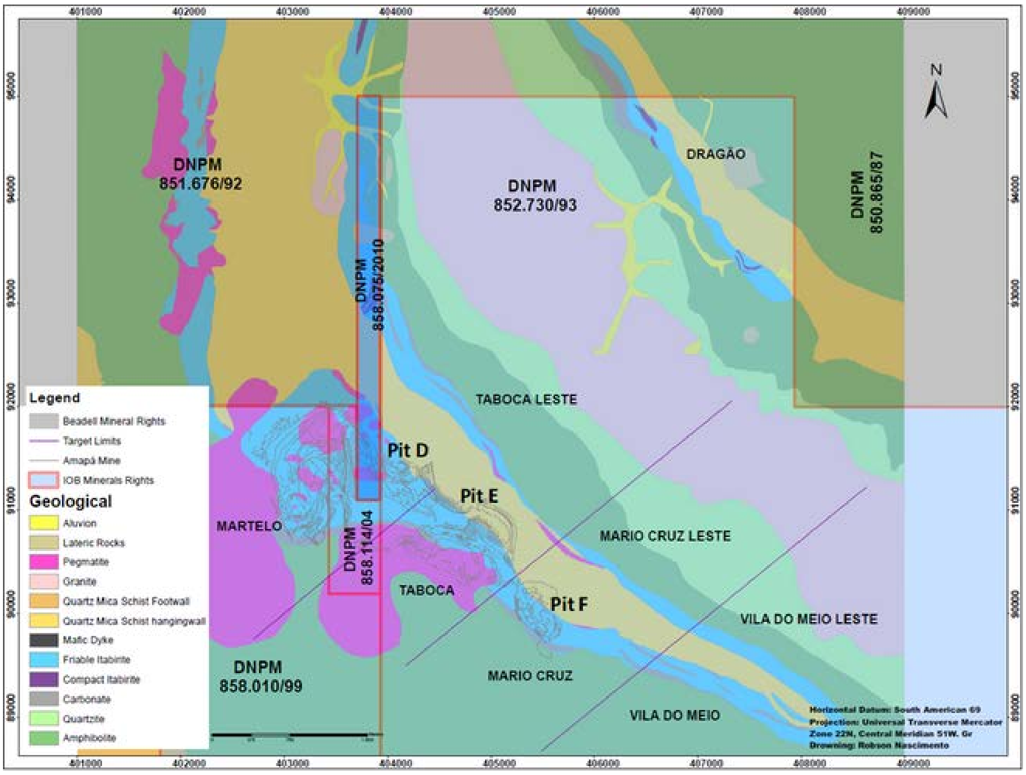
Iron mineralisation occurs as itabirites, powdery hematites, colluvium, hydrothermal altered zone, and canga. The itabirites, originally Banded Iron Formations (BIFs) that were metamorphosed in amphibolite grade, are hosted by Vila Nova Group, a sequence of metavolcanic and metasedimentary rocks. Colluvium and canga occur at the top of the stratigraphic sequence, covering all the other lithotypes along the Amapá System. The itabirites and hematite ore bodies occur as part of a large structure known as Boomerang Structure; the Amapá System is located in the southern portion.

Mineralisation extends approximately 6.5 km in strike length, 1.5 km in width and exists in some areas to more than 100 m in depth.

Pegmatite intrusions cross-cut the itabirites, metabasic unit and sedimentary packages creating alteration zones parallel to foliation (N340° Az). Later on, in the Cenozoic era, itabirites were submitted to weathering process, which leached away portions of quartz, resulting in enriched friable iron ore.

Amapá Drill Core in Core Boxes

Hitabirites are classified into two distinct types: Oxide Facies Itabirite (silica-rich friable itabirite, ITBF) and Silicatic Facies Itabirite (amphibole and/or pyroxene rich friable itabirite, ITAF). Along the APW and Taboca Leste areas, the friable altered itabirite is slightly more prominent than the friable itabirite.

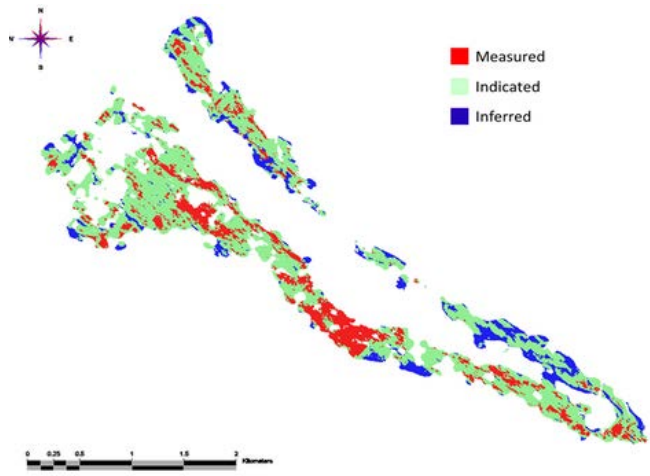


Local Geological Map

MINERAL RESOURCES

The Mineral Resource Estimate (MRE) for the Amapa Iron Ore Project was undertaken by Prominas in October 2022. A 3D geological model was built by an implicit modelling method based on interpreted geological domains using the drillhole database and study of the old sections provided by DEV, then used to flag the sample data for statistical analysis and to limit the resource estimation. For this study, statistical and geostatistical analysis was conducted on drilling data composited to 4 m downhole for APW/APS only. This included variography to model spatial continuity relationships in the geological domains.

Geostatistical analysis and interpolation were undertaken using MinePlan© proprietary software. The Ordinary Kriging interpolation method was used for the estimation of Fe, Al2O3, SiO2, P, and Mn, using variogram parameters defined from the geostatistical analysis for the APW/APS domains.



Mineral Resource Classification Across the Deposit

Mineral Resource Estimate

The Amapá mineralisation has been classified as Measured, Indicated, and Inferred. The MRE is JORC Code (2012) compliant, and has been reported at a cut-off grade of 25% Fe and constrained by a resource open pit shell. The MRE has been estimated, considering a product revenue of US$ 120 /t.

The October 2022 MRE reports Measured and Indicated Resources of 229.48 Mt at 38.76% Fe and an Inferred Mineral Resource of 46.76 Mt at 36.20% Fe.

Mineral Resources for the Amapá Project (effective October 2022)

Classification	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	Mn (%)
Measured	55.33	39.26	30.4	6.54	0.16	1.03
Indicated	174.15	38.6	28.75	7.86	0.16	0.91
M + I	**229.48**	**38.76**	**29.15**	**7.54**	**0.16**	**0.94**
Inferred	46.76	36.2	27.62	10.49	0.14	0.86
Total	**276.24**	**38.33**	**28.89**	**8.04**	**0.15**	**0.93**


AP

ORE RESERVES

The mine engineering and design work for the PFS, including operational logistics, equipment requirements, mining strategy, and Ore Reserve Estimation, have been undertaken by a Brazilian mining consultancy, Prominas Mining Ltd. These works have been conducted at the PFS level and incorporate an Ore Reserve Estimate for open pit mining, which was prepared under the guidelines of the JORC Code (2012).

Under the guidelines of the JORC Code (2012), an 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level, as appropriate, that include the application of considerations to convert Mineral Resources to Mineral Reserves.

These considerations include mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, and governmental factors, called 'Modifying Factors'.

The maiden Ore Reserve estimated for the Amapá Project totals 195.8 Mt Proven and Probable ore tonnes, at an average grade of 39.34% Fe.

The estimate used a cut-off grade of 25% Fe and is presented in the table below. This represents an 85% conversion from Mineral Resource.

Ore Reserve Estimate for the Amapá Project (effective January 2023)

Classification	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	Mn (%)
Proven	50.7	39.58	29.88	6.56	0.16	1.04
Probable	145.1	39.26	27.53	7.98	0.16	0.89
Total	**195.8**	**39.34**	**28.14**	**7.61**	**0.16**	**0.93**

1. The effective date of the Ore Reserve Estimate is 5th October 2022.
2. Ore Reserves are reported in accordance with the guidelines of the JORC Code (2012).
3. The Ore Reserve Estimate is reported to a cut-off of 25% Fe.
4. Ore Reserves were estimated at a selling price of US$120/t (FOB) and include modifying factors related to geotechnical parameters, mining cost, dilution and recovery, process recoveries and costs, G&A, royalties and rehabilitation costs.
5. A mining dilution factor of 3.0% and a mine recovery of 94% has been calculated and applied for the Ore Reserve Estimate.
6. Figures have been rounded to an appropriate level of precision for the reporting of Ore Reserves.
7. Due to rounding, some columns or rows may not compute exactly as shown.
8. The Ore Reserves are stated as wet (in-situ) tonnes processed at the crusher.
9. All figures are in metric tonnes.

MINING

Historically, Amapá was successfully operated as a conventional open pit. The new mining plan will be mined much the same way, using an experienced local mining contractor to conduct mine operations, including ore grade control, production drilling, blasting, loading, hauling, and pit, haul road and stockpile maintenance functions.

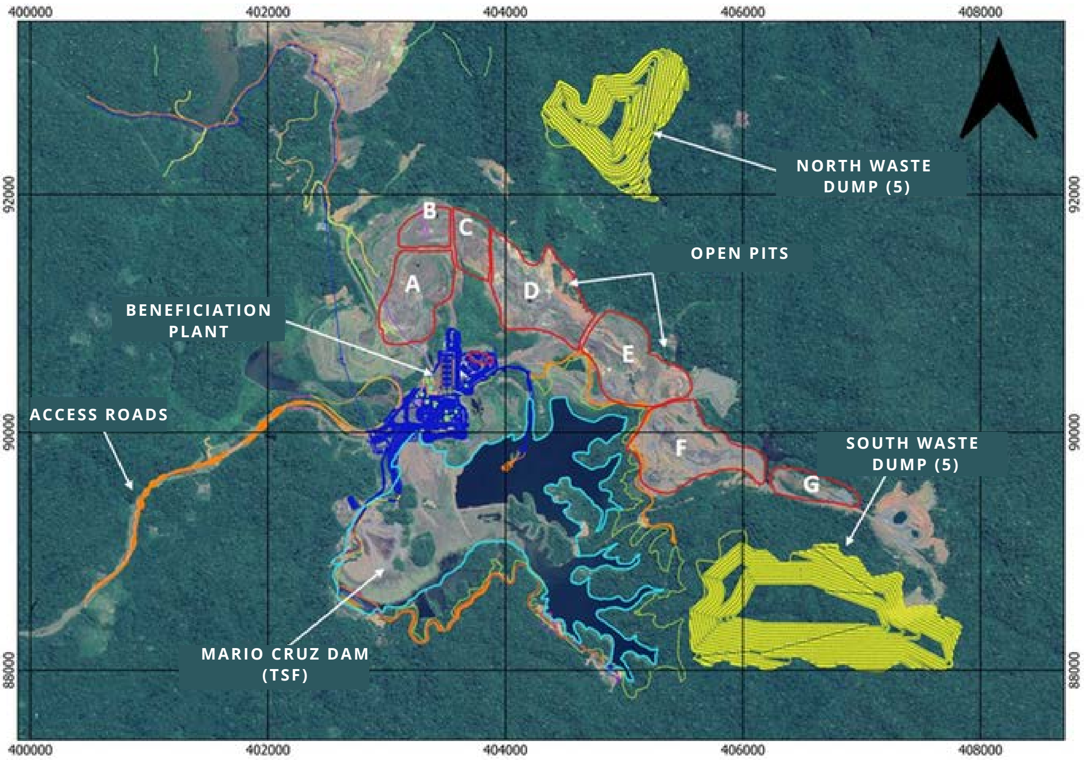
The mining contractor will provide and maintain the main mining equipment, consisting of production drills, hydraulic shovels and loaders, and a fleet of diesel haul trucks. In-pit dewatering systems will be established for each pit. as an open pit mine using conventional load, haul, drill and blast.

Three main stockpiles will also be utilised, with mined ore delivered to the crusher, the crusher ROM stockpile, or the main ore stockpiles dependent on rock type and grade.

The mining contractor will use grade control drilling to delineate the ore zones for excavation, as well as low-grade material and waste. Drilling and blasting of ore and waste rock will be required, while overburden materials will be free digging.

Ore and waste will be loaded into 100t capacity off-highway haul trucks (CAT 777) to stockpiles or to designated waste dumps. Some waste-rock will be used as rockfill to construct the tailings dam, roads, or other engineering requirements as necessary.

The different ore types must be blended before being fed to the process plant to attain the optimum Fe, P, Al2O3, and Mn levels required within the final saleable product. To achieve this, the secondary crushed ore will be blended at a homogenisation yard before feeding tertiary crushing.



General Amapá Mine Site Layout

MINE DESIGN

Pit optimisation studies undertaken by Prominas defined an optimum economic final pit outline for the Project. This optimised pit formed the basis of a detailed, geotechnically directed mine design, including pit phases and pushbacks.

The optimisation and design contain only those Mineral Resources that are classified as Measured and Indicated. Material classified as Inferred has not been included as ore within the mine plan. The mine was designed at a 25% Fe cut-off grade to reflect the head grade requirements of the processing plant.

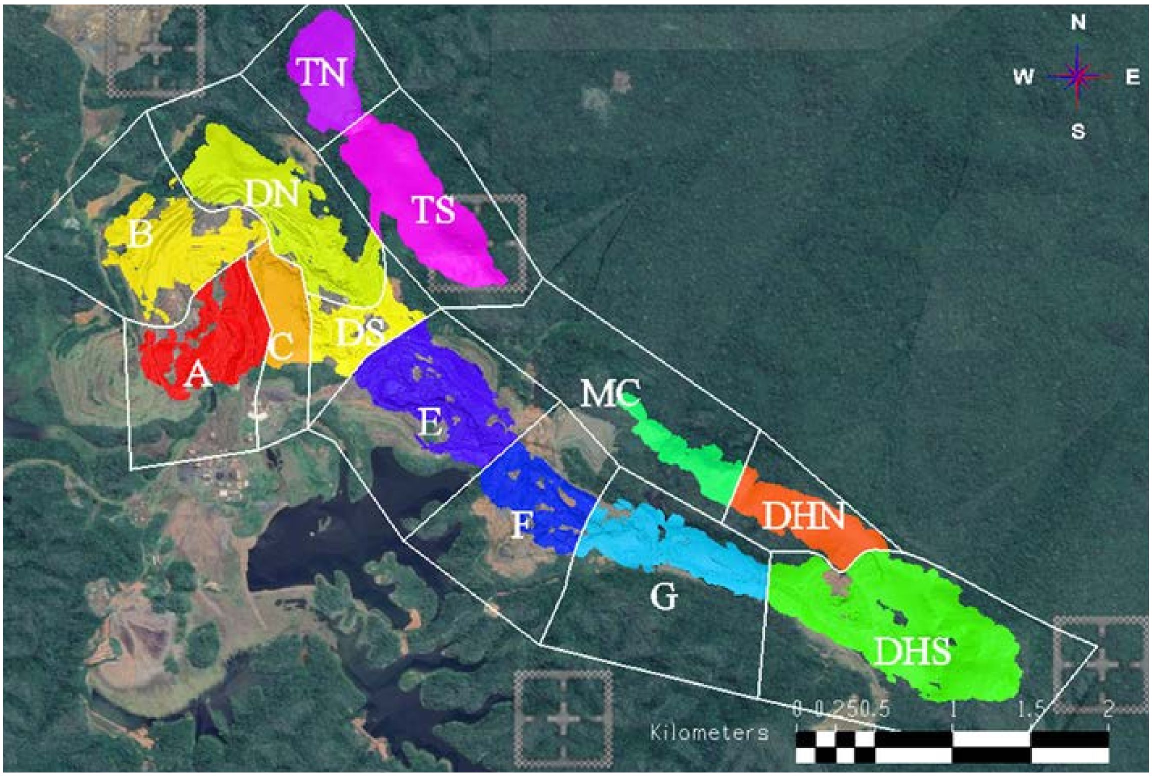
The pit shell selected for design was the US$45/t price shell, which allowed for a 16-year mine life with 195 Mt of ore, and a reduced Life-of-Mine waste tonnage compared to the 100% price factor (US$120 /t) pit shell.

Pit designs and pushbacks were generated based on the selected optimised pit shell and using MinePlan software. As a result of the simulation modelling, a mining dilution factor of 3.0% and a mine recovery of 94% were applied for the block model, whilst an SMU (Selective Mining Unit) of 100 m x 200 m x 4 m was used.

Modifying factors for geotechnical, hydrological, cost and density parameters were applied. The designs include benches, berms and haul roads.

Design Parameter	Value
Final Wall Bench Height	8 m
Ramp Width	25 m
Berm Width	6 m
Overall Angle	Variable (max. 48°)
Ramp Gradient	10%

The mine design was split into 13 distinct pit areas (phases), as depicted below.



Open Pit Design Phases

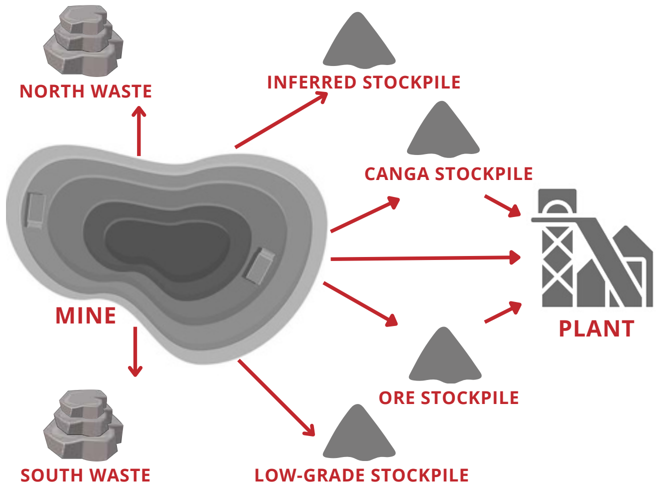
MINING SCHEDULE

A Life of Mine (LOM) production plan was generated to maximise economic return while targeting the stockpile and blending requirements for the final product.

The production plan was scheduled using MinePlan Scheduler Optimizer. The schedule has been sequenced using the mining blocks within the final pit design.

Operations will be conducted based on 365 operating days per year with three 8-hour shifts per day. An allowance has been made in the mining schedule for the rainy seasons. Ore production is planned at an optimum rate of 12.6 Mtpa, whilst total rock movement targets 20 Mtpa.

The mining schedule allows for reduced mill feed in year one for the process plant commissioning and ramp-up schedule.



As illustrated above, the mining schedule incorporates stockpiling of different ore types and grades, allowing ore blending to optimise the plant feed and ensure the grade and Fe, P, Al2O3, and Mn content meet the most favourable saleable product specifications.

The life of mine schedule allows for over 16 years of production with the current economic values and cut-off of 25% Fe and is presented graphically below for each of the 13 pit areas.

Simplified Pit Phase Schedule Per Year

PRODUCTION PLAN

MINING AND PROCESS SCHEDULE

Periods (Year)	Ore Mined (Mt wet)	Waste Mined (t)	Ore to Mill (Mt wet)	Grade (Fe%)	BFPF Conc (Mt wmt)	Fe Grade BFPF Conc (%)	Spiral Conc (Mt wet)	Fe Grade Spiral Conc (%)
1	11.01	4.77	9.80	39.38	3.40	65.40	0.72	62.00
2	12.90	4.20	12.60	39.39	4.39	65.40	0.92	62.00
3	13.76	3.69	12.60	39.39	4.36	65.40	0.92	62.00
4	12.44	4.79	12.60	39.39	4.36	65.40	0.92	62.00
5	14.58	3.74	12.60	39.39	4.38	65.40	0.92	62.00
6	12.54	4.16	12.60	39.39	4.36	65.40	0.92	62.00
7	13.03	2.66	12.60	39.39	4.37	65.40	0.92	62.00
8	13.29	3.47	12.60	39.39	4.37	65.40	0.92	62.00
9	14.07	2.47	12.60	39.39	4.35	65.40	0.92	62.00
10	10.19	3.00	12.60	39.39	4.33	65.40	0.91	62.00
11	13.22	3.67	12.60	39.39	4.37	65.40	0.92	62.00
12	10.15	3.99	12.60	39.39	4.34	65.40	0.92	62.00
13	14.14	3.11	12.60	39.39	4.35	65.40	0.92	62.00
14	11.26	4.02	12.60	39.39	4.35	65.40	0.92	62.00
15	12.77	2.61	12.60	39.39	4.35	65.40	0.92	62.00
16	6.51	2.49	9.52	39.39	3.20	65.40	0.67	62.00
Grand Total	195.76	56.79	195.76	38.44	67.64	65.40	14.26	62.00

METALLURGY AND PROCESS FLOWSHEET

The metallurgical testwork programs were conducted using both bench-scale and pilot-scale testing, with the bulk of the work conducted by external consultants and service providers in 2013. In early 2014, additional in-house variability testwork was conducted by Zamin metallurgical and laboratory staff at the Amapá operation. No further testwork was undertaken.

The 2014 Zamin testwork included the following:

- Jig Tailings Testwork.
- Jig Feed Testwork.
- Spiral Feed Cyclone Overflow Testwork.
- Spiral Tailings Testwork.
- Bench-Scale Flotation Circuit Rejects Testwork.
- Mill Recirculating Load Testwork.

Based on the testwork studies, an optimal flowsheet was recommended, including upgrading some of the existing infrastructure. The recommendations include the following:

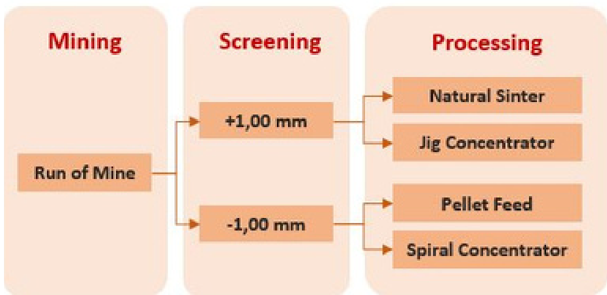
- The existing ball milling circuit classification performance can be improved by using Derrick screens instead of the original hydrocyclones, reducing the high recirculating loads.

- Certain tailings and internal streams will increase processing using magnetic separation, improving product quality via increased deleterious element rejection. Spiral tailings streams will be processed via WHIMS with the magnetic concentrate ground in the new Ball Mill circuit treating the coarse size fraction.

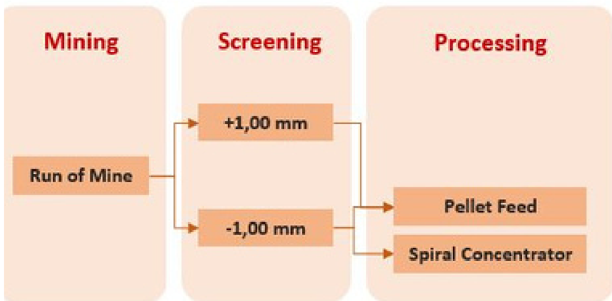
- Spiral feed cyclone overflow will also be processed via WHIMS after desliming, with the magnetic concentrate reporting to the existing flotation circuit.

- The circuit front-end will be debottlenecked to marginally increase the average hourly throughput to 1,800 tph and with improved circuit availability. This will allow the ROM plant feed target tonnage of 12.60 Mtpa to be achieved.

- The previous non-performing jig circuit will not be re-commissioned. The coarse size fraction (-12 +1mm) will be ground to flotation feed size in a new Ball Mill circuit and processed via WHIMS after desliming, with the magnetic concentrate reporting to the existing flotation circuit.

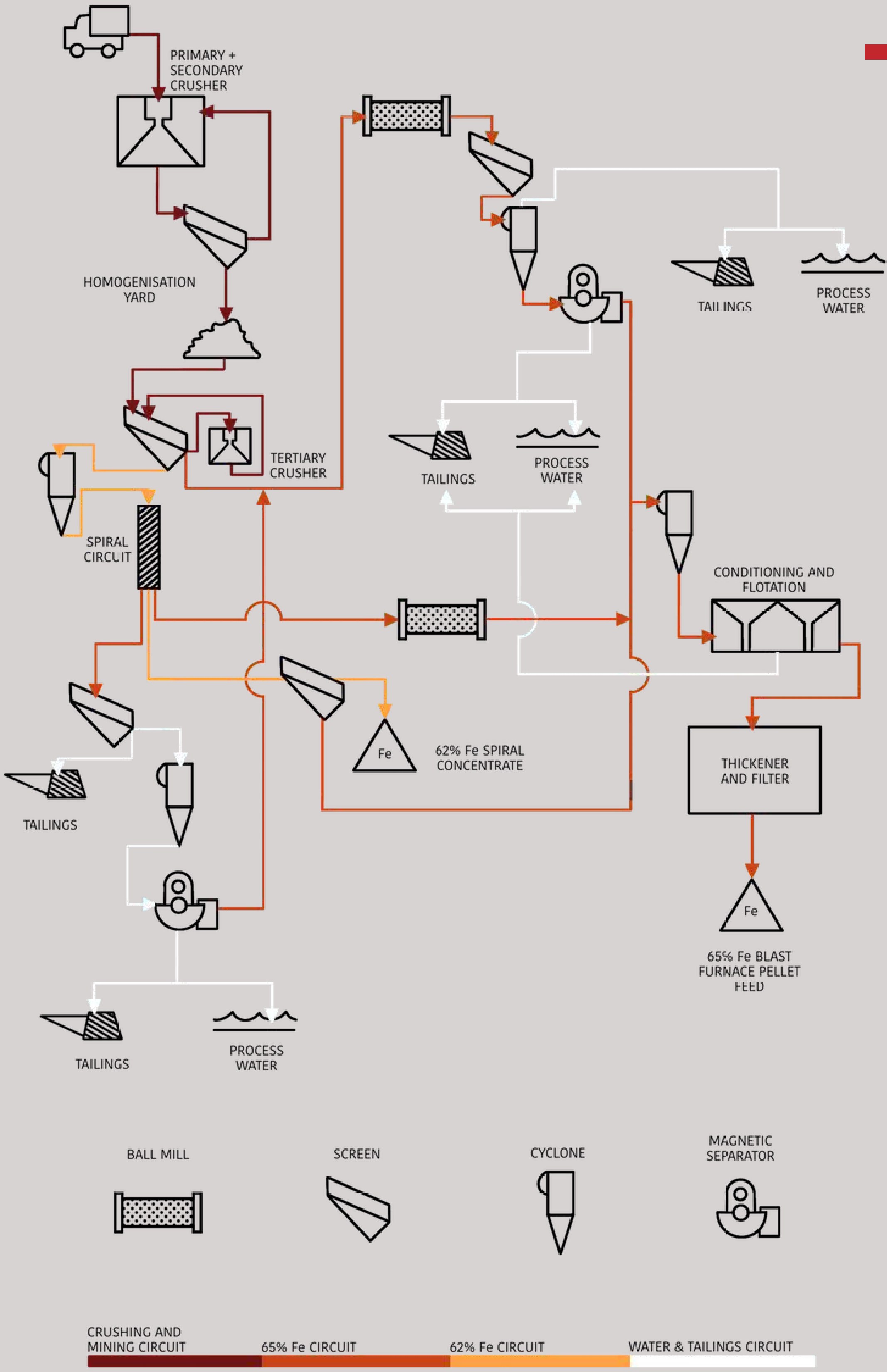


Summary of Previous Flowsheet



Summary of Upgraded Flowsheet

PROCESS FLOWSHEET



Optimal Flowsheet Including Circuit Upgrades Required

PROCESSING FACILITIES

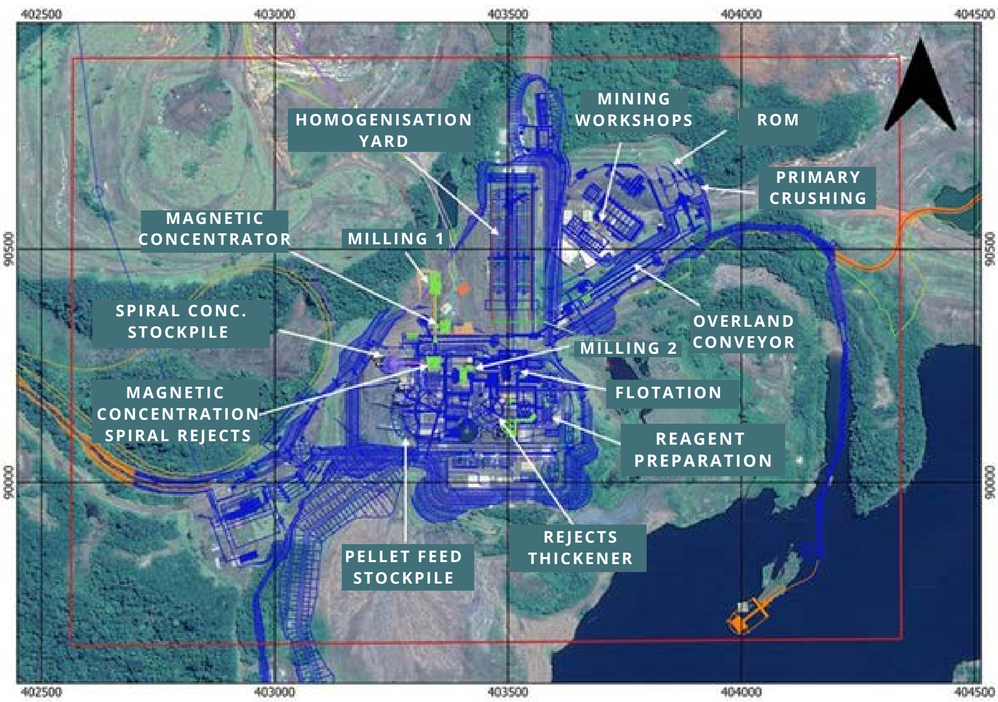
In terms of the process plant, there are two main work programmes: one is the current condition of the plant and infrastructure as it was operated and the work required to refurbish the plant back to its previous condition. Second, is the flowsheet upgrade and improvements required to achieve product quantity and quality (4.36 Mtpa of BFPF at 65.4% Fe and 0.92 Mtpa of Spiral concentrate at 62% Fe).

An inspection and Condition Report of the existing plant was undertaken by IDG, as well as cost estimates. The study involved reviewing the condition of the plant and establishing the current cost of refurbishing the plant and associated infrastructure.

ECM was responsible for the design and costing of the process flowsheet modifications and upgrades required, and there was some overlap with IDG's cost estimates and with the jig circuit no longer required.

The process flowsheet includes the following main operational areas:

- Primary Crushing;
- Primary Screening & Secondary Crushing;
- Homogenisation Yard;
- Secondary Screening & Tertiary Crushing;
- Spiral Concentration & Concentrate Dewatering;
- Magnetic Concentration of Spiral Tails;
- Milling 1;
- Magnetic Concentration (Ground + Natural Fines);
- Milling 2;
- Primary, Secondary and Tertiary Desliming;
- Reverse Flotation;
- Thickening (Concentrate, Sludge & Rejects);
- Filtering;
- Pellet Feed Stacking;
- Water Reticulation System; and
- Reagent Preparation.



Plant Layout

INFRASTRUCTURE

The mine site is accessed from the federal highway BR 210 through a primary access route of bidirectional traffic. Roads connect the Beneficiation Plant, industrial, administrative facilities, tailings dam and all locations within the site.

DEV intends to maintain the structures of the original mine through the recovery of the road and rail systems, drainage system, reform of various structures, and construction of buildings that cannot be recovered.

The product will be transported from the mine, initially by road to the railhead (circa 12 km) and then onwards by rail to Santana Port (circa 193 km). During the initial re-start of the mine, it is proposed to design and build a dedicated conveyor system to transport products from the mine to the railhead.

As part of the historic concession agreement, a passenger service operated on the railway. Anglo American and Zamin also committed to a refurbishment programme, with 61.5km of track completed by early 2013.

The remaining 131.5 km was due to be completed within another three years. Transport on the railway was interrupted in 2014, and a rail study was conducted, which highlighted the elements that require refurbishment.

The export port terminal is an integrated industrial port site, privately owned and controlled by DEV Mineração. The port has been partially rebuilt because the facility suffered a catastrophic failure in March 2013. The port will be fully refurbished to allow for product export from Amapá.

Amapá Rail Wagons

Current Ore Loading

The Amapá Mining Complex incorporates an open-pit iron ore mine with several active pits and an iron ore concentration and beneficiation plant.

The existing buildings in the mine will be renovated for the return of operations:

- Reception/truck weighing scale.
- Fire brigade.
- Training centre.
- Ambulatory / First AID.
- Locker room (operation).
- Kitchen, dining room and leisure centre.
- Technical and administrative office.
- IT centre.
- Beneficiation plant office with central control room.
- Laboratory.
- Geological core shed.
- Maintenance workshop and office.
- Warehouse.
- Inflammable warehouse.
- Plate work and welding workshop.
- Electrical and instrumentation workshop.
- Light vehicles fuelling station.
- Tyre repair workshop.
- Electrical local substations.
- Main electrical substation (turnkey).
- Mine support offices (to be analysed in the DFS phase).
- Explosive and accessories storage and facilities.

MIPTEC has evaluated these buildings and will be recovered for the return of operations.

To meet power supply demands, the construction of a new 120 km transmission line at 138 kV is required. This will run from the UHE Coaracy Nunes to the city of Porto Grande before running parallel with the railway line to the city of Pedra Branca do Amapári and connected to a new 138kV - 30 MVA substation

The Tailings Storage Facility (TSF) is located immediately to the south and east of the process plant, less than 500m from the current location of the open pit workings. The TSF is a complex facility formed from the natural valley topography, four main embankment dams and two minor dykes.

LOGISTICS

TAgemar UK Ltd was commissioned to complete a Marine Operations Study to simulate the transhipment and freight solutions for exporting iron ore from Santana Port.

As a result of the study, the selected option is the utility of Capesize vessels partially loaded at the berth and topped off in the open ocean 200 nautical miles from the berth.

For ocean freight, selling on a FOB (Free on Board) basis was compared to selling on a CFR (Cost and Freight Rates) basis, and it was concluded that PBA should look to control as much of the freight process as possible, which means making the sales via CFR contracts.

3D Rendering of Loading System at Port

This will also ensure that demurrage is reasonable by giving greater control of the scheduling process and removing the potential for a large number of smaller FOB vessels arriving. Lack of control of either of these areas would limit export tonnes, potentially strain the supply chain and add significant additional costs on transhipment.

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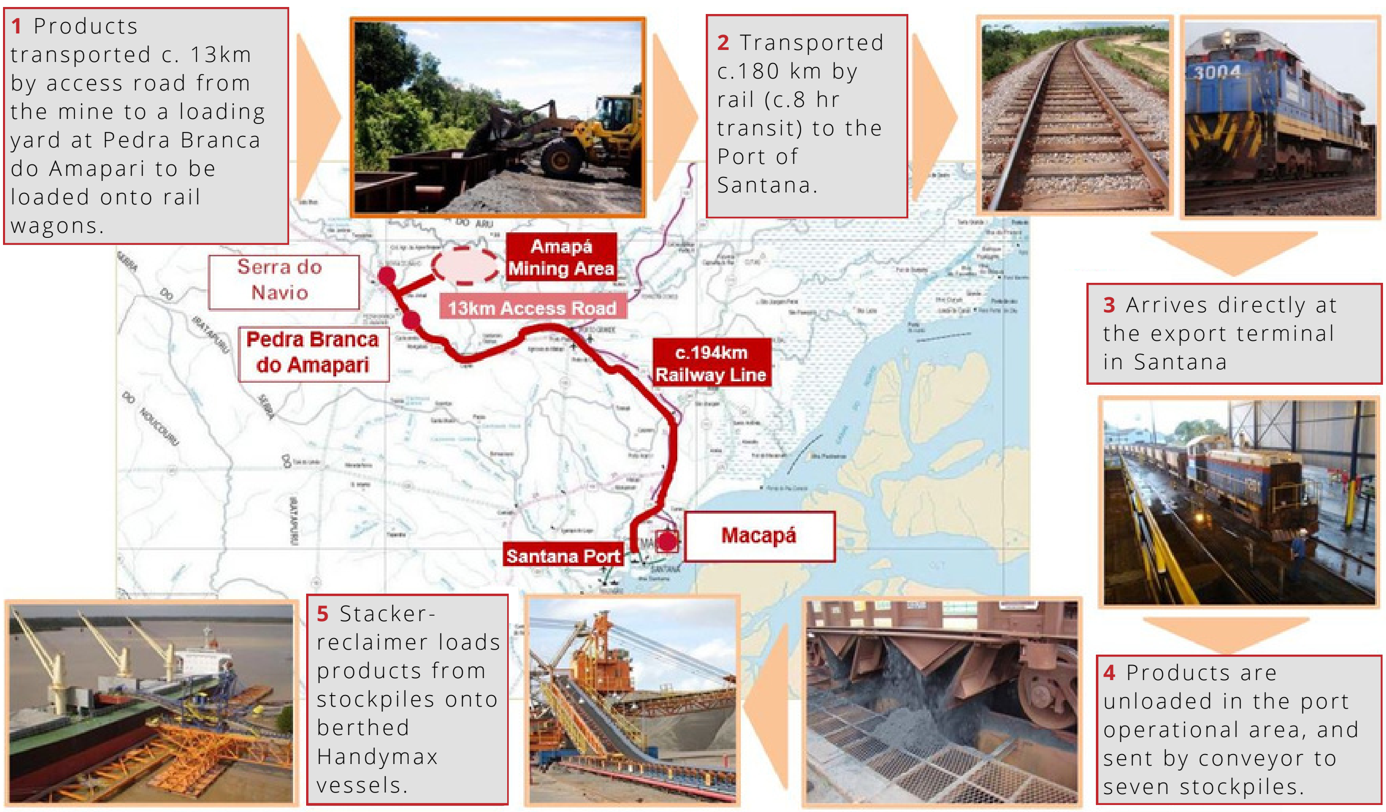
Intergrated Rail and Port Infrastructure



HUMAN RESOURCES

The Project aims to develop an environmentally and socially sustainable operation in compliance with labour requirements. The Project intends to:

- Establish systems to recruit, select and mobilise people with the required qualifications to support the Project;
- Prioritise the recruitment of local employees where feasible and provide the required training to address workforce needs;
- Establish an effective labour relations system; and
- A local skill base not geared towards the mining industry will be enhanced through sector-specific training to build local capacity and convert transferable skills from other local industries.

The Project currently employs 15 people (4 women and 11 men). It is estimated that the Project will provide around 450 local employment opportunities during operation, including 220 - 260 for mining operations, 314 for processing and maintenance, and a further 50 staff for general administrative and minor services works.

Workforce requirements for the construction and operation stages will be estimated in the DFS. It is expected that the construction workforce will come from Pedra Branca. Engineering personnel will likely come from Macapá and further away from different regions.

PBA expects that staff will either live in Macapá (the State capital), Santana (Port's location), or Pedra Branca do Amapari, approximately 14 km from the Amapá mine complex.

A detailed study of availability and access will be examined during the DFS phase of the Project.

ENVIRONMENTAL AND SOCIAL

Environmental, Health, Safety and Community (HSEC) aspects of the Amapá Project cover the following areas:

- Applicable environmental regulatory framework.
- Environmental licenses and permit process.
- Environmental and social setting.
- Monitoring studies and management programmes.
- Social aspects and community agreements.
- Mine closure and rehabilitation.

LICENSES AND PERMITS

Environmental licenses are regulated by the National Environmental Policy (Art. 10 of Federal Law 6,938 from 1981) and registered in the National Environmental System (SISNAMA in Portuguese).

The environmental licensing processes for the Project activities include:

- Preliminary License (LP).
- Installation License (LI).
- Operation License (LO).
- Alternative Land Use Authorization.
- Water Use Concession Right.

ENVIRONMENTAL STUDIES AND MONITORING

To meet international standards, the following will require monitoring:

- Climate
- Land Use
- Soils
- Waste
- Archaeology and Cultural Heritage
- Noise and Vibration
- Water Resources
- Biodiversity
- Population and Economy
- Air Quality

STAKEHOLDER ENGAGEMENT

Preliminary work was undertaken to identify the Project stakeholders and establish the External Relations Programme [CA1] for PBA. This will eventually need to be reformulated into a Stakeholder Engagement Plan (SEP).

Forums have been established to facilitate stakeholder engagement. The broad generic stakeholder groups that have been identified across PBA's developments include:

- Local communities.
- Non-government Organizations (NGOs).
- Other civil society groups.
- Businesses.
- Municipal, state and federal governments.

PBA fully adheres to the principles underpinning Corporate Social Responsibility and understands that project development must co-occur with the development of communities where it operates. PBA, therefore, intends to carry out projects and activities aimed at improving the development of its business while improving the quality of life for its host communities.

Community Contribution Exercises

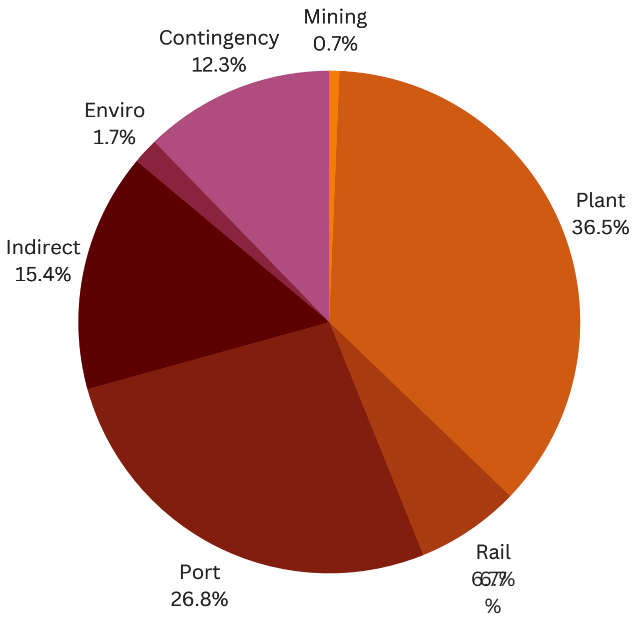
CAPITAL COST ESTIMATE

The Capital Costs (Capex) are based on the layout for all areas of the Project and are supported by mechanical equipment lists and engineering drawings. The Capex is in US dollars, has been prepared to a minimum of an AACE Class 3 estimate and has a base date of 1 June 2022.

The Project benefits from integrated infrastructure under the owner's control, a well-established processing route, low capital intensity and a quality product with an international reputation.

The pre-production capital cost required for the Amapá Project was estimated at **US$ 399.1M**. Post-production capital costs, including staying in business and closure costs were estimated at **US$244.5** to be spent over the life of the mine.

It includes refurbishing the existing plant, rail and port, supply and construction to upgrade the processing plant, TSF modifications, and other onsite and offsite infrastructure.



PRE-PRODUCTION
CAPITAL COST ESTIMATES

Description	Cost US$ Million
Direct Capex	
Mining	2.8
Process Plant	155.1
Phase 1 Rail	28.5
Port	113.9
Indirect Capex	65.2
Environmental and Community	7.1
Deduct Tax Credit	25.6
Contingency	52.1
Total Pre-Production Capex Cost	**399.1**

POST-PRODUCTION
CAPITAL COSTE STIMATES

Description	Cost US$ Million
Railway - Phase III	20.0
Tailings Storage Facility	9.8
Pipeline Construction	61.2
Stay-in-Business Amapá System	90.7
Closure Costs	62.8
LOM Sustaining Capital Costs	**244.5**

OPERATING COSTS

US$ 32.10/t (FOB)
US$ 58.03/t (CFR)

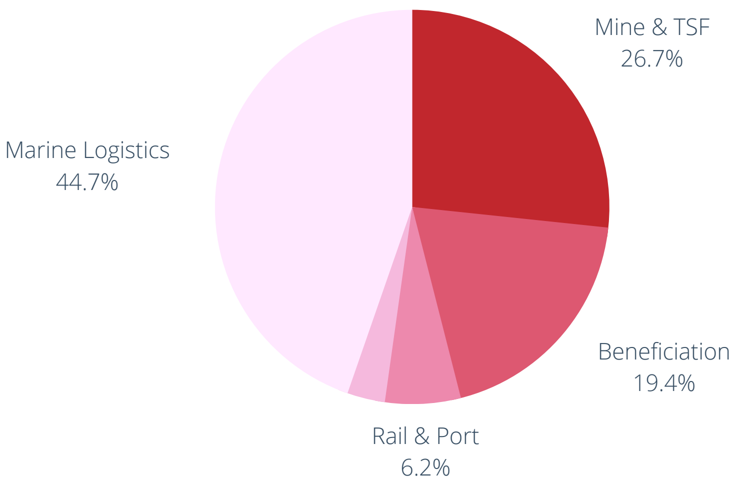
LYEAR 2- 16 OPEX

Cadence compiled the operating cost (opex) estimate using the information provided by the mining contractor, IDG, SAFF, and MIPTEC with an estimated accuracy range in line with PFS requirements of ±25%.

Following ore commissioning, the production achieves design capacity (5.8Mtpa) within six months. The first four years of operation will use a contractor to haul the product from the plant site, a 12.4km route to the rail loadout. From production year three onwards, the product will be transported to the rail loadout by a conveyor, and the beneficiation cost will decrease from US$ 14.71/t to US$ 10.78/t of the product.

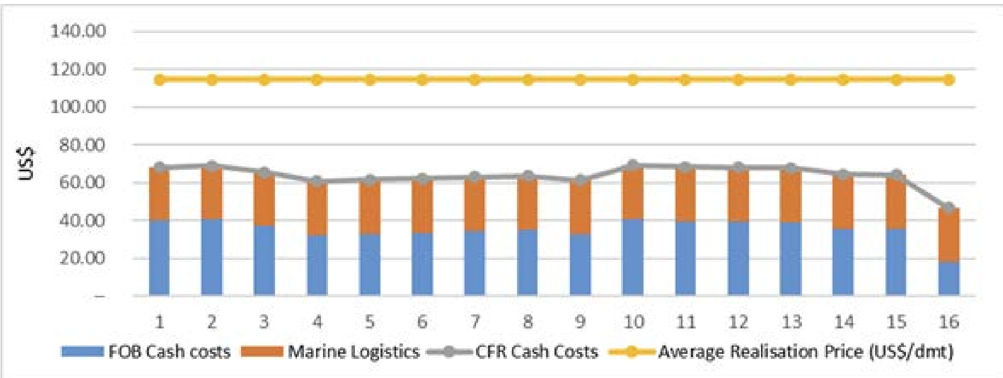
The average opex for Years 1 and 2 will be **US$36.48 FOB** or **US$61.86/t CFR**, whereas the average opex for Years 2 to 16 will be **US$32.10/t [FOB]** or **US$58.03/t CFR**.

AMAPA OPEX (CFR) BY COST CENTRE



AMAPA OPERATING COST ESTIMATE

Description	US$/dmt conc	Average US$ Mpa
Mine	17.1	94.0
Tailings Storage Facility	0.1	0.5
Beneficiation (& road, conveyor, rail loading)	12.4	65.0
Rail Freight	2.4	13.0
Port	1.5	8.0
G&A	1.9	11.0
Sub-Total FOB	**35.5**	**191.0**
Marine Logistics	28.7	152.0
TOTAL CFR	**64.23**	**343.0**



Project Cash Costs per Tonne of Dry Product

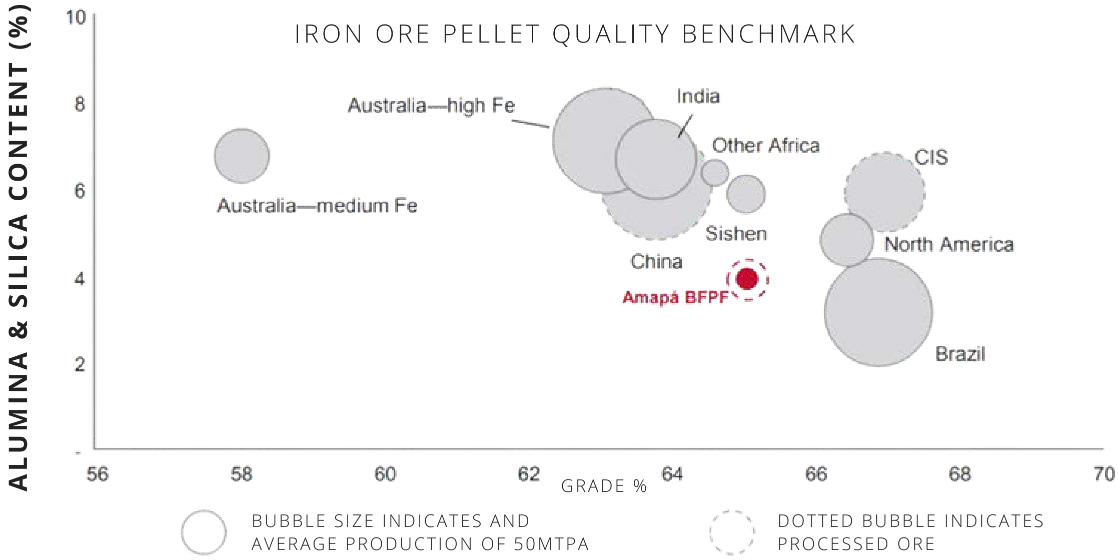
BENCHMARKING

The Project benefits from integrated infrastructure under the owner's control, a well-established processing route, **low capital intensity** and a **quality product** with an international reputation.

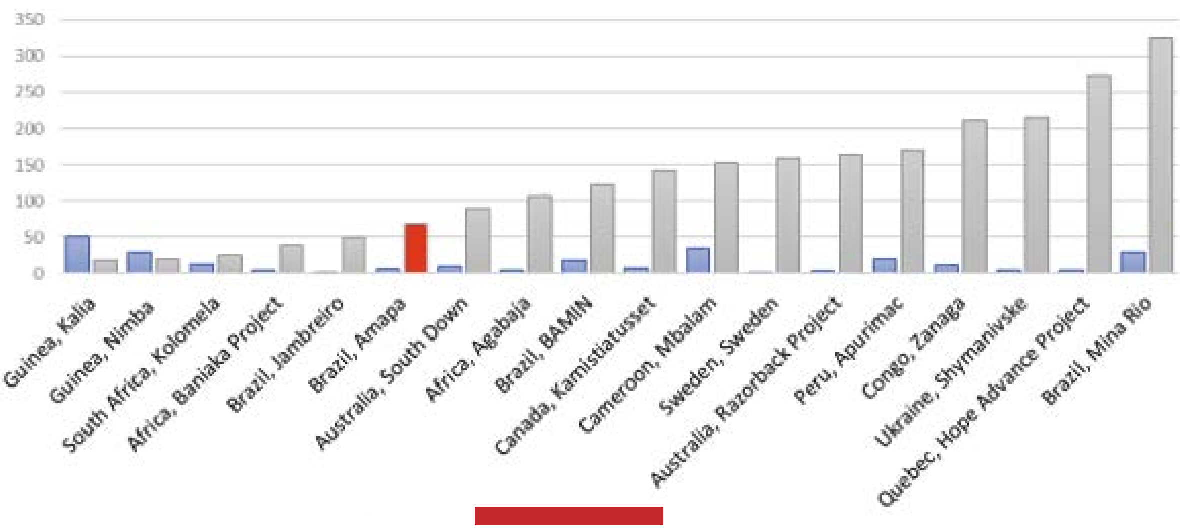
Historical sales and tests on Amapá iron-ore samples yielded a high-quality concentrate with low contaminant content. The typical product quality produced by the Amapá Project is summarised in the corresponding table and compared to other regions in the following figure below - showing a good Fe grade and relatively low level of alumina and silica within the pellet product.

Amapá Product Quality

Parameter	Blast Furnace	Spiral Concentrate
Mtpa	4.349	0.914
% H2O	10%	8.90%
% Fe	65.40%	62.00%
% SiO2	1.42%	9.50%
% Al2O3	1.28%	1.00%
% P	0.11%	0.08%
% Mn	0.82%	1.49%



CAPITAL INTENSITY FOR GLOBAL FE PROJECTS



FINANCIAL ANALYSIS

The Amapá Project has been examined from a financial perspective using Discounted Cash Flow (DCF) analysis, from which post-tax Net Present Value (NPV), Internal Rate of Return (IRR), payback period along with other metrics of economic project viability have been determined.

The Project post-tax NPV is US$949M, at a 10% base case discount rate, with an IRR of 34%.

The model was based on the PFS technical and economic inputs. The Project was evaluated on a 100% equity basis without any new external funding but considers existing liabilities and debt obligations.

Regarding project execution, the mine requires nominally two years of procurement and construction, plant, railway and port refurbishment and improvements, and increased capacity (height) tailings dam construction, before actual production mining operations can commence with a 12-month ramp-up period.

The model captures a total Life of Mine (LOM) of 16 production years following plant upgrade and re-commissioning. During the first two years of production, a conveyor will be installed to transport concentrate from the plant to the rail loading area.

Project Revenue has been based on the realisation of a spiral (62% Fe) and BFPF (65.4%) concentrates, total wet weight of 5.8 Mtpa.

The model uses a base price assumption of US$ 95/dmt, CFR China 62% Fe Fines. An overall price premium to the 62% Fe price of US$ 23.75/dmt is used for the 65% Amapá concentrate. A project break-even analysis is presented in the Table below.

KPI	Unit	Value
Break-Even Fe Price		
BFPF Concentrate (65.4%)	US$/t	87.02
Spiral Concentrate (62%)	US$/t	69.62

US$949M
NET PRESENT VALUE (10%) (POST-TAX)

US$2.6BN
TOTAL PROFIT AFTER TAX LOM

US$35.53
FOB CASH COSTS PER TONNE FE CONC

US$399M
INITIAL CAPITAL REQUIRED

US$235M
AVERAGE EBITDA P/A LOM

5.3MTPA
PRODUCTION OF 62% & 65% IRON ORE CONCENTRATE LOM

16 YEARS
INITIAL MINE LIFE

34%
INTERNAL RATE OF RETURN

4 YEAR
PROJECT PAYBACK

The tax treatment adopted in the financial evaluation was based on DEV's estimates which DEV's legal advisors have reviewed. Import duties, withholding and purchase taxes are based on advice from DEV's legal advisors, who advised that certain available exemptions, indirect taxation incentives and tax credits be applied to the cash flow model.

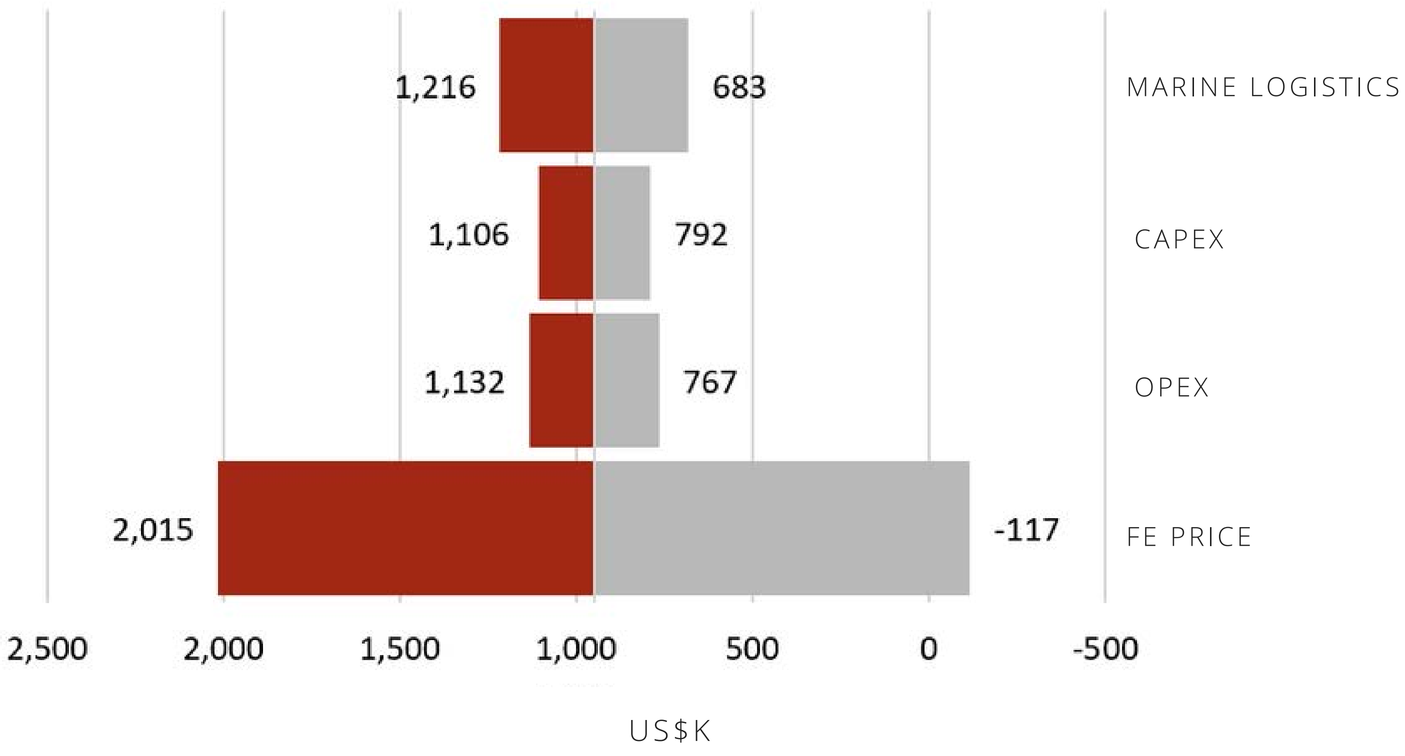
Project Taxes and Royalty (LOM US$ M)	
Mining Tax (CFEM	246.3
TRFM (State Tax)	61.1
Royalty Payable to Right Owners	65.2
Annual Tax per Hectare (TAH)	0.1
Corporate Income Tax	368.4
Capital VAT Rebate/Recovery	-25.6

A sensitivity analysis was performed on key parameters within the financial Model to assess the impact of changes on the post-tax NPV of the Project (debt-free). These parameters are as follows:

- Realisation Price
- Project Operating Costs
- Marine logistics
- Project CAPEX;

Each cost factor was independently flexed within a range of +/- 30%, and the discount rate was varied within the 8%-15% range. The Project sensitivity analysis demonstrates that the Amapá Project is mainly sensitive to a change in Fe price, followed by Logistics costs (Marine Shipment charges), operating costs and least sensitive to deviation in CAPEX.

SENSITIVITY ANALYSIS (US$K): PROJECT NPV @10% DISCOUNT RATE (+/- 30%)




CADENCE