CIRCULAR DATED 15 SEPTEMBER 2021

THIS CIRCULAR IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION. PLEASE READ IT CAREFULLY.

This Circular is issued by Silkroad Nickel Ltd. (the "Company"). If you are in any doubt as to the course of action you should take, you should consult your stockbroker, bank manager, solicitor, accountant, tax adviser or other professional adviser immediately.

Unless otherwise stated, all capitalised terms on this cover are defined in this Circular under the section entitled "Definitions".

This Circular, together with the Notice of EGM and the accompanying Proxy Form, has been made available on SGXNET and on the Company's website at the URL https://silkroadnickel.com/sgx-announcements/. A printed copy of this Circular, together with the Notice of EGM and the accompanying Proxy Form, will NOT be despatched to Shareholders.

If you have sold or transferred all your Shares, you should immediately inform the purchaser or transferee, or the bank, stockbroker or agent through whom the sale or transfer was effected for onward notification to the purchaser or transferee, that this Circular, together with the Notice of EGM and the accompanying Proxy Form, may be accessed via SGXNET and on the Company's website at the URL https://silkroadnickel.com/sgx-announcements/.

This Circular has been prepared by the Company and its contents have been reviewed by the Sponsor in accordance with Rule 226(2)(b) of the Catalist Rules.

This Circular has not been examined or approved by the SGX-ST and the SGX-ST assumes no responsibility for the contents of this Circular, including the correctness of any statements or opinions made, or reports contained in this Circular.

The contact person for the Sponsor is Ms Alice Ng, Director of Continuing Sponsorship, ZICO Capital Pte. Ltd. at 8 Robinson Road, #09-00 ASO Building, Singapore 048544, telephone (65) 6636 4201.

SILKROAD NICKEL LTD.
(Incorporated in the Republic of Singapore)
(Company Registration No. 200512048E)

CIRCULAR TO SHAREHOLDERS

IN RELATION TO

(1) **THE POTENTIAL DILUTION OF THE COMPANY'S SHAREHOLDING INTEREST IN FE RESOURCES PTE. LTD. PURSUANT TO THE ISSUANCE OF AN OPTION BY FE RESOURCE PTE. LTD. TO GFL INTERNATIONAL CO., LIMITED (AND EXERCISE THEREOF BY (AND AT THE SOLE DISCRETION OF) GFL INTERNATIONAL CO., LIMITED) ("POTENTIAL DILUTION"); AND**

(2) **THE PROPOSED TRANSFER OF SHARES AMOUNTING TO 25% OF THE ISSUED SHARE CAPITAL IN FE RESOURCES PTE. LTD. HELD BY THE COMPANY TO GFL INTERNATIONAL CO., LIMITED PURSUANT TO THE GRANT OF AN EXCHANGE RIGHT TO GFL INTERNATIONAL CO., LIMITED ("PROPOSED TRANSFER") AND THE POTENTIAL DILUTION AS A MAJOR TRANSACTION UNDER CHAPTER 10 OF THE CATALIST RULES**

IMPORTANT DATES AND TIMES

Last date and time for lodgment of Proxy Form	:	27 September 2021 at 2.00 p.m.
Last date and time to pre-register online to attend the EGM remotely	:	27 September 2021 at 2.00 p.m.
Date and time of EGM	:	30 September 2021 at 2.00 p.m.
Place of EGM	:	The EGM will be held by way of electronic means. Please refer to Section 7 of this Circular and the Notice of EGM for information on how to participate in the EGM.

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DEFINITIONS

In this Circular, the following definitions shall apply throughout unless the context otherwise requires:

"**ACRA**"	:	Accounting and Corporate Regulatory Authority of Singapore
"**ATS**"	:	PT Anugrah Tambang Sejahtera, an indirect subsidiary of the Company
"**BMS**"	:	PT Bina Mitra Serasi
"**Bonds**"	:	The US$15,000,000 principal amount of 7.00% exchangeable bonds due 2024 to be issued by the Company to the Subscriber in accordance to the terms and conditions of the Subscription Agreement
"**Catalist**"	:	The Catalist board of the SGX-ST
"**Catalist Rules**"	:	The Listing Manual of the SGX-ST, Section B: Rules of Catalist, as amended, modified or supplemented from time to time
"**CDP**"	:	The Central Depository (Pte) Limited
"**Circular**"	:	This circular to Shareholders dated 15 September 2021
"**Companies Act**"	:	The Companies Act, Chapter 50 of Singapore
"**Company**"	:	Silkroad Nickel Ltd.
"**Completion**"	:	The completion of the Proposed Subscription in accordance with the terms and conditions set out in the Subscription Agreement
"**Completion Date**"	:	Has the meaning ascribed to it in Section 2.8.2 of this Circular
"**Conditions Precedent**"	:	Has the meaning ascribed to it in Section 2.7 of this Circular
"**Control Order Regulations**"	:	The COVID-19 (Temporary Measures) (Control Order) Regulations 2020, as amended, modified or supplemented from time to time
"**Controlling Shareholder**"	:	Has the meaning as defined under the Catalist Rules
"**COVID-19 Act**"	:	The COVID-19 (Temporary Measures) Act 2020, as amended, modified or supplemented from time to time
"**COVID-19 Order**"	:	The COVID-19 (Temporary Measures) (Alternative Arrangements for Meetings for Companies, Variable Capital Companies, Business Trusts, Unit Trusts and Debenture Holders) Order 2020, as amended, modified or supplemented from time to time
"**COVID-19 Order Guidance**"	:	The checklist first issued on 13 April 2020 and updated on 27 April 2020, 22 June 2020 and 1 October 2020 by ACRA, the Monetary Authority of Singapore and Singapore Exchange Regulation as guidance for listed and non-listed entities on the conduct of general meetings during the period when elevated safe distancing measures are in place
"**Directors**"	:	The directors of the Company for the time being

"**EGM**"	:	The extraordinary general meeting of the Company to be held on 30 September 2021 at 2.00 p.m., notice of which is given on pages N-1 to N-5 of this Circular
"**Exchange Period**"	:	Has the meaning ascribed to it in Section 2.1.1 of this Circular
"**Exchange Right**"	:	The right of the Subscriber to exchange the Bonds for the Exchange Shares in accordance with the terms and conditions of the Bonds
"**Exchange Shares**"	:	The number of shares in FER held by the Company amounting to 25% of the total issued and paid-up share capital of FER
"**Entire Transactions**"	:	Has the meaning ascribed to it in Section 2.10.1 of this Circular
"**FEM Undertaking**"	:	Has the meaning ascribed to it in Section 4 of this Circular
"**FER**"	:	FE Resources Pte. Ltd., a wholly-owned subsidiary of the Company
"**FER Group**"	:	FER and its subsidiaries (being ATS and TAS) from time to time
"**FY**"	:	Financial year ended or ending 31 December
"**Ganfeng Lithium**"	:	Ganfeng Lithium Co., Ltd.
"**Group**"	:	The Company and its subsidiaries from time to time
"**Independent Qualified Person**" or "**PT GAS**"	:	PT Geo Artha Selaras
"**Infectious Diseases Regulations**"	:	The Infectious Diseases (Measures to Prevent Spread of COVID-19) Regulations 2020
"**Issue Date**"	:	The issue date of the Bonds
"**Issue Price**"	:	Has the meaning ascribed to it in Section 2.5.1 of this Circular
"**Latest Practicable Date**"	:	14 September 2021, being the latest practicable date prior to the issue of this Circular
"**Market Day**"	:	A day on which the SGX-ST is open for trading in securities
"**Maturity Date**"	:	Three (3) years from the Issue Date
"**NTA**"	:	Net tangible asset
"**Net Proceeds**"	:	Has the meaning ascribed to it in Section 2.9.2 of this Circular
"**Option**"	:	The option to purchase the Option Shares, issued by FER to the Subscriber under the Subscription Agreement
"**Option Shares**"	:	Such number of newly allotted shares in FER to be issued by FER to the Subscriber upon exercise of the Option that, together with the Exchange Shares, represent 50% of the total enlarged issued and paid-up share capital of FER

"**Option Price**"	:	Has the meaning ascribed to it in Section 2.5.2 of this Circular
"**Option Proceeds**"	:	Has the meaning ascribed to it in Section 2.9.3 of this Circular
"**Ordinary Resolutions**"	:	The ordinary resolutions as set out in the Notice of EGM
"**Placement Agreement**"	:	Has the meaning ascribed to it in Section 1.3 of this Circular
"**Placement Shares**"	:	Has the meaning ascribed to it in Section 1.3 of this Circular
"**Potential Dilution**"	:	The potential dilution to the Company's shareholding interest in FER as a result of an exercise of the Option by the Subscriber
"**Principal Amount**"	:	US$15,000,000
"**PRC**"	:	People's Republic of China
"**PRC Approval**"	:	Has the meaning ascribed to it in Section 2.7 of this Circular
"**Proposed Placement**"	:	Has the meaning ascribed to it in Section 1.3 of this Circular
"**Proposed Subscription**"	:	The proposed issuance of the Bonds by the Company to the Subscriber pursuant to the Subscription Agreement
"**Proposed Corporate Transactions**"	:	The Potential Dilution and Proposed Transfer
"**Proposed Transfer**"	:	The proposed transfer of the Exchange Shares from the Company to the Subscriber, as a result of an exercise of the Exchange Right by the Subscriber
"**Qualified Person's Report**"	:	The qualified person's report dated 30 August 2021 prepared by the Independent Qualified Person in relation to TAS
"**Register of Members**"	:	The Register of Members of the Company
"**RMB**"	:	Chinese Yuan Renminbi
"**Securities Accounts**"	:	Securities accounts maintained by Depositors with CDP, but not including securities sub-accounts maintained with a Depository Agent
"**SFA**"	:	The Securities and Futures Act, Chapter 289 of Singapore
"**SGX-ST**"	:	Singapore Exchange Securities Trading Limited
"**Shareholders**"	:	Registered holders of Shares in the Register of Members, except that where the registered holder is CDP, the term "**Shareholders**" shall, in relation to such Shares, and where the context admits, mean the persons named as Depositors in the Depository Register maintained by the CDP and whose Securities Accounts maintained by the CDP are credited with those Shares

"**Shareholder Approval**"	:	Has the meaning ascribed to it in Section 2.7 of this Circular
"**Shares**"	:	Ordinary shares in the capital of the Company
"**Substantial Shareholder**"	:	A person who has an interest directly or indirectly in 5% or more of the total number of voting Shares of the Company
"**Subscriber**"	:	GFL International Co., Limited
"**Subscription Agreement**"	:	The subscription agreement entered between the Company, FER and the Subscriber dated 28 May 2021 (as amended and supplemented pursuant to the Supplemental Agreement dated 22 June 2021) in relation to the issuance of the Bonds by the Company to the Subscriber, and as may be amended and/or supplemented from time to time
"**Supplemental Agreement**"	:	Has the meaning ascribed to it in Section 1.3 of this Circular
"**TAS**"	:	PT Teknik Alum Service, an indirect subsidiary of the Company
"**VALMIN Code**"	:	The Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets 2015 Edition, prepared by the VALMIN Committee, a joint committee of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists, with the participation of the Minerals Council of Australia and other key stakeholder representatives
"**S$**" or "**$**" and "**cents**"	:	Singapore dollars and cents, respectively
"**USD**" or "**US$**"	:	United States dollars
"**%**" or "**per cent.**"	:	Percentage or per centum

The term "**subsidiary**" shall have the meaning ascribed to it in Section 5 of the Companies Act.

The terms "**Depositor**", "**Depository Agent**" and "**Depository Register**" shall have the meanings ascribed to them in Section 81SF of the SFA.

Words importing the singular shall, where applicable, include the plural and *vice versa*, and words importing the masculine gender shall, where applicable, include the feminine and neuter genders and *vice versa*. References to persons shall include corporations.

Any reference in this Circular to any statute or enactment is a reference to that statute or enactment for the time being. Any word defined under the Companies Act, the SFA, the Catalist Rules, The Singapore Code on Take-overs and Mergers or any relevant laws of the Republic of Singapore or any modification thereof and used in this Circular shall, where applicable, have the meaning assigned to it under the Companies Act, the SFA, the Catalist Rules, The Singapore Code on Take-overs and Mergers or any relevant laws of the Republic of Singapore or any modification thereof, as the case may be, unless otherwise provided.

The headings in this Circular are inserted for convenience only and shall be ignored in construing this Circular.

Any reference to a time of day and date in this Circular is a reference to Singapore time and date, respectively, unless otherwise stated.

Any discrepancies in figures included in this Circular between the amounts shown and the totals thereof are due to rounding. Accordingly, figures shown as totals in this Circular may not be an arithmetic aggregation of the figures that precede them.

Rajah & Tann Singapore LLP has been appointed as the Singapore legal adviser to the Company in relation to the Proposed Placement, the Proposed Subscription and the Proposed Corporate Transactions (comprising the Potential Dilution and the Proposed Transfer).

SILKROAD NICKEL LTD.
(Incorporated in the Republic of Singapore)
(Company Registration No. 200512048E)

Board of Directors	**Registered Office**
Mr. Eddy Pratomo (Independent Chairman)	50 Armenian Street
Mr. Hong Kah Ing (Executive Director and Chief Executive Officer)	Wilmer Place #03-04
Mr. Syed Abdel Nasser Bin Syed Hassan Aljunied (Executive Director)	Singapore 179938
Mr. Giang Sovann (Lead Independent Director)	
Mr. Omri Samosir (Independent Director)	

15 September 2021

To: The Shareholders of Silkroad Nickel Ltd.

Dear Sir / Madam

(1)   THE POTENTIAL DILUTION OF THE COMPANY'S SHAREHOLDING INTEREST IN FE RESOURCES PTE. LTD. PURSUANT TO THE ISSUANCE OF AN OPTION BY FE RESOURCE PTE. LTD. TO GFL INTERNATIONAL CO., LIMITED (AND EXERCISE THEREOF BY (AND AT THE SOLE DISCRETION OF) GFL INTERNATIONAL CO., LIMITED) ("POTENTIAL DILUTION"); AND

(2)   THE PROPOSED TRANSFER OF SHARES AMOUNTING TO 25% OF THE ISSUED SHARE CAPITAL IN FE RESOURCES PTE. LTD. HELD BY THE COMPANY TO GFL INTERNATIONAL CO., LIMITED PURSUANT TO THE GRANT OF AN EXCHANGE RIGHT TO GFL INTERNATIONAL CO., LIMITED ("PROPOSED TRANSFER") AND THE POTENTIAL DILUTION AS A MAJOR TRANSACTION UNDER CHAPTER 10 OF THE CATALIST RULES

1.   INTRODUCTION

1.1   On 28 May 2021, the Board announced that the Company had entered into the Subscription Agreement with the Subscriber and FER (as guarantor of the Company's obligations under the Subscription Agreement). Pursuant to the Subscription Agreement, the Subscriber shall subscribe for the Bonds (principal amount of US$15,000,000) at an issue price of 100% of the principal amount of the Bonds, on the terms and conditions of the Subscription Agreement. Under the terms and conditions of the Bonds, the Subscriber shall have at its sole option, a right to exchange ("**Exchange Right**") all but not some of the Bonds for shares representing 25% of the total issued and paid-up share capital in FER held by the Company ("**Exchange Shares**").

1.2   Under the Subscription Agreement, in consideration of the Subscriber agreeing to subscribe and pay for the Bonds, FER has granted to the Subscriber, with effect from the Issue Date, an option ("**Option**") to purchase such number of newly allotted shares in FER ("**Option Shares**"), that together with the Exchange Shares, represent 50% of the total enlarged issued and paid-up share capital in FER, at an aggregate consideration of US$15,000,000. The Option may only be exercised in whole and only in conjunction with the exercise of the Exchange Right.

1.3   On 22 June 2021, the Board announced that following signing of the Subscription Agreement, the Company was informed by the Subscriber that the relevant authorities in the PRC require the Subscriber, in addition to its investment in the Bonds, to be a shareholder in the Company. Specifically (and as explained by the Company in response to the query raised by SGX-ST on the Proposed Placement on 25 June 2021), the Subscriber will be seeking approval from the

Provincial Development and Reform Commission, the Ministry of Commerce and the State Administration of Foreign Exchange for the Proposed Placement and the Proposed Subscription, and in accordance with the Notice of the State Administration of Foreign Exchange on Issues Concerning Foreign Exchange Administration of Overseas Loans by Domestic Enterprises, Huifa 2009 No. 24 ("**Notice**") provided by the Subscriber, domestic enterprises in the PRC can provide financing to their overseas wholly-owned subsidiaries or overseas companies which they hold an equity stake in.

As such, in compliance with the guidelines set out under the Notice, it is proposed that the Subscriber will undertake a new investment of US$2,000,000 by way of subscription for new Shares in the Company which will result in the Subscriber becoming a Shareholder in the Company. Thereafter, the Subscriber (being a domestic enterprise in the PRC under the Notice) will be able to provide financing directly to the Company (being an overseas company which the Subscriber holds an equity stake in under the Notice) via the Proposed Subscription.

Pursuant to discussions with the Subscriber, the Board agreed to the Subscriber's foregoing proposal of a new investment of US$2,000,000 by way of subscription for new Shares in the Company.

Accordingly, on 22 June 2021, the Company entered into (i) a supplemental agreement to the Subscription Agreement with the Subscriber and FER ("**Supplemental Agreement**"); and (ii) a placement agreement ("**Placement Agreement**") with the Subscriber, pursuant to which the Company has agreed to allot and issue, and the Subscriber has agreed to subscribe for, an aggregate of 6,000,000 new Shares ("**Placement Shares**") at an issue price of approximately S$0.44 for each Placement Share ("**Proposed Placement**"), for a total consideration of S$2,640,000 (equivalent to the aforesaid investment amount of US$2,000,000). The Placement Shares will be allotted and issued pursuant to the share issue mandate approved by Shareholders at the annual general meeting of the Company held on 30 April 2021. Shareholders are advised to refer to the Company's announcement dated 22 June 2021 (and the Company's response to the query raised by SGX-ST on the Proposed Placement, announced by the Company on 25 June 2021) for further details on the Proposed Placement.

1.4 As at the Latest Practicable Date, the Company holds two (2) ordinary shares in FER, representing 100% of the existing issued and paid-up share capital in FER. In the event that the Subscriber exercises the Exchange Right and the Option, it will result in the Proposed Corporate Transactions being undertaken, comprising (a) the Proposed Transfer where the Company will transfer the Exchange Shares to the Subscriber; and (b) the Potential Dilution where FER will allot and issue new ordinary shares in FER, that together with the Proposed Transfer, will result in the Subscriber holding 50% of the total enlarged issued and paid-up share capital of FER. The Option when exercised, will result in the Proposed Dilution, involving a percentage reduction of more than 20% in the Company's shareholding interest in FER following the allotment and issuance of the Option Shares by FER to the Subscriber. For the avoidance of doubt, given that there are only two (2) ordinary shares in the share capital of FER as at the Latest Practicable Date, it is contemplated that FER will undergo a capital restruturing exercise prior to the Proposed Transfer to facilitate the transfer of the Exchange Shares from the Company to the Subscriber, in the event the Exchange Right is exercised by the Subscriber.

1.5 The Company is seeking Shareholders' approval for the Proposed Corporate Transactions (comprising the Potential Dilution and the Proposed Transfer) due to the following reasons:

(a) **the Potential Dilution**: where the Option, when exercised, involves the issuance of the Option Shares by the Company's principal subsidiary, being FER, to the Subscriber that may result in the Potential Dilution, involving a percentage reduction of more than 20% of the Company's equity interest in FER. As such, the Potential Dilution is subject to Shareholders' approval pursuant to Rule 805(2) of the Catalist Rules; and

(b) **the Proposed Transfer and the Potential Dilution**: where, in the event that both the

Exchange Right and the Option are exercised by the Subscriber, while the relative figures for the Proposed Corporate Transactions as computed on the bases set out in Rule 1006 of the Catalist Rules do not exceed 50%, the relative figure set out in Rule 1006(e) of the Catalist Rules equals 50%. Accordingly, as a matter of good corporate governance, the Company intends to seek Shareholders' approval for the Proposed Corporate Transactions as a "major transaction" and to comply with all relevant Catalist Rules with respect to a "major transaction" in relation to the Proposed Corporate Transactions.

1.6 **EGM.** The Directors are convening an EGM to be held by way of electronic means on 30 September 2021 at 2.00 p.m., the notice of which is set out at pages N-1 to N-5 of this Circular, to seek Shareholders' approval for the Proposed Corporate Transactions.

1.7 **Circular.** The purpose of this Circular is to provide Shareholders with information relating to the Proposed Subscription and to seek Shareholders' approval for the Potential Dilution (Ordinary Resolution 1) and the Proposed Transfer (Ordinary Resolution 2) at the EGM to be held on 30 September 2021 at 2.00 p.m.. Shareholders should note that Ordinary Resolution 1 and Ordinary Resolution 2 are inter-conditional upon each other. Accordingly, in the event that any of these resolutions is not approved, the other resolution will not be passed.

1.8 **SGX-ST.** The SGX-ST assumes no responsibility for the contents of the Circular including the correctness of any of the statements made or opinions expressed or reports contained in this Circular. If a Shareholder is in doubt as to the action he should take, he should consult his stockbroker, bank manager, solicitor, accountant, tax advisor or other professional adviser(s) immediately.

2. INFORMATION ON THE PROPOSED SUBSCRIPTION

2.1 Background

Pursuant to the Subscription Agreement, the Company has agreed to issue the Bonds to the Subscriber at an issue price equivalent to its principal amount (being US$15,000,000) subject to the terms and conditions of the Subscription Agreement, and FER has agreed to act as a guarantor to guarantee to the Subscriber the due and punctual performance, observance and discharge by the Company of its present and future obligations under the Subscription Agreement and the Bonds.

There is no placement agent appointed in connection with the Proposed Subscription. The Proposed Subscription is by way of a private placement pursuant to an exempted offer under Section 274 or 275 of the SFA. Hence, no prospectus or offer information statement in connection with the Proposed Subscription will be lodged with the SGX-ST acting as agent on behalf of the Monetary Authority of Singapore

2.1.1 <u>Details of the Exchange Right</u>

Under the terms and conditions of the Bonds, the Subscriber will be able to exercise the Exchange Right for all (and not some only) of the Bonds in exchange for the Exchange Shares at any time on or after the six (6) months from the Completion Date up to the close of business on the date one (1) month prior to the Maturity Date ("**Exchange Period**"), by delivering the certificates for the Bonds to the Company in accordance with the terms and conditions of the Subscription Agreement and the Bonds.

The Exchange Shares will be shares in FER held by the Company constituting 25% of the total issued and paid-up shares in FER at the time the Exercise Right is exercised by the Subscriber. Under the terms and conditions of the Bonds, it will be a condition precedent to the delivery of the Exchange Shares that the Company, FER and the Subscriber enter into a shareholders'

agreement relating to FER and that the security given to the Subscriber in connection to the Bonds have been discharged.

2.1.2 Details of the Option

The Option entitles the Subscriber to purchase the Option Shares at an aggregate consideration of US$15,000,000. The Option may only be exercised by the Subscriber in whole and in conjunction with the Exchange Right, by delivering a notice of exercise to FER in accordance with the terms and conditions of the Subscription Agreement.

The Option Shares will be new shares in FER which will be allotted and issued by FER to the Subscriber upon exercise of the Option, where the number of the Option Shares together with the Exchange Shares will represent 50% of the total enlarged issued and paid-up share capital of FER after the issuance of the Option Shares. The delivery of the Option Shares to the Subscriber will be made concurrently with the delivery of the Exchange Shares by the Company to the Subscriber.

2.2 Information on the Subscriber

The Subscriber is a wholly-owned subsidiary of Ganfeng Lithium, a publicly listed company on both the Shenzhen Stock Exchange (stock code: 002460.SZ) and Hong Kong Stock Exchange (stock code: 1772) with a market capitalisation of approximately US$39 billion (as at the Latest Practicable Date). Based on its annual report for the year ended 31 December 2020, Ganfeng Lithium reported a revenue of approximately RMB5.5 billion and a net profit of RMB1.1 billion. Established in 2000, Ganfeng Lithium has cultivated a deep expertise in the lithium industry and its mission is to utilize limited lithium resources to create a green, clean and healthy lifestyle for human development and progress. Ganfeng Lithium is one of the world's largest lithium compound producers and the leading producer in China operating across the entire lithium-ion battery supply chain, including lithium resource development, refining and processing, battery manufacturing and battery recycling. Ganfeng Lithium operates its vertically integrated business across China, Australia, Argentina, Mexico and Ireland with over 5,000 employees worldwide.

The Company confirms that, to the best of its knowledge, none of its Directors or substantial Shareholders has any relationships/connections (including business relationships) with the Subscriber as well as its directors and controlling shareholders / ultimate beneficial owners.

2.3 Information on the FER Group

FER is a private company limited by shares incorporated under the laws of Singapore on 30 September 2016. As at the Latest Practicable Date, FER is a wholly-owned subsidiary of the Company with an issued and paid-up share capital of S$2.00 comprising two (2) ordinary shares held by the Company. FER is primarily involved in investment holding activities as the direct holding entity for PT Anugrah Tambang Sejahtera (ATS) and indirect holding entity for PT Teknik Alum Service (TAS).

ATS is a limited liability company incorporated under the laws of Indonesia on 11 February 2008, as a foreign investment company. As at the Latest Practicable Date, ATS is an indirect subsidiary of the Company, with an issued and paid-up capital of US$500,000 consisting of 500,000 ordinary shares, which are held by FER and PT Bina Mitra Serasi ("**BMS**") in the proportion 99.0% and 1.0% respectively, in compliance with Indonesian laws which require a minimum of two (2) shareholders in a limited liability company. BMS, an investment holding company incorporated in Indonesia, is 4% and 96% owned by Mr Hong Kah Ing (Executive Director and Chief Executive Officer of the Company) and Mr Hong Kah Ing's spouse, respectively. In this regard, BMS had on 29 March 2017 executed a deed of assignment and a power of attorney, as well as other documents necessary to assign its shareholder and voting rights in ATS to FER.

TAS is a limited liability company incorporated under the laws of Indonesia on 29 October 2007. As at the Latest Practicable Date, TAS is an indirect subsidiary of the Company, with an issued and paid-up capital of US$25,000 consisting of 2,500 ordinary shares, which are held by ATS and Mr Hong Kah Ing in the proportion 99.0% and 1.0% respectively, in compliance with the relevant Indonesian laws as mentioned above. In this regard, Mr Hong Kah Ing had on 5 October 2016 executed a deed of assignment and a power of attorney, as well as other documents necessary to assign his shareholder and voting rights in TAS to ATS.

The FER Group is principally engaged in the business of exploration, mining, production in Indonesia and the sale of nickel ore.

2.4 Financial Information on the FER Group

2.4.1 Based on the audited consolidated financial statements of the Group and the unaudited consolidated financial statements of the FER Group for FY2020:

(a) each of the unaudited consolidated net asset value and the NTA of the FER Group amounted to approximately US$8.16 million as at 31 December 2020;

(b) the carrying value of the Company's investment in the FER Group amounted to approximately US$66.24 million as at 31 December 2020; and

(c) the net loss of the FER Group amounted to approximately US$2.48 million in FY2020.

2.4.2 The open market value of the shares of FER is not available as the shares of FER are not publicly traded and no valuation of FER has been commissioned for the purposes of the Subscription Agreement. Please refer to Section 2.5.3 below for further information.

2.4.3 Assuming:

(a) the exercise of the Exchange Right only on 31 December 2020, after adjusting for non-controlling interests and considering the carrying value of the Company's investment in the FER Group and the estimated transaction related expenses of approximately US$0.2 million, the Exchange Right will represent a loss on disposal (attributable to Shareholders) (which is equivalent to the deficit of the proceeds over the book value) of approximately US$1.5 million as at 31 December 2020; and

(b) the exercise of both the Exchange Right and the Option on 31 December 2020, after adjusting for non-controlling interests and considering the carrying value of the Company's investment in the FER Group and the estimated transaction related expenses of approximately US$0.2 million, the Exchange Right and the Option will represent a loss on disposal (attributable to Shareholders) (which is equivalent to the deficit of the proceeds over the book value) of approximately US$3.0 million as at 31 December 2020.

2.5 Consideration

2.5.1 Issue Price

Under the terms of the Subscription Agreement, the Bonds will be issued by the Company and will be subscribed by the Subscriber at an issue price amounting to 100% of the Principal Amount, being US$15,000,000 ("**Issue Price**"). The Issue Price will be fully satisfied in cash by the Subscriber upon Completion on the Completion Date. Upon issuance of the Bonds to the Subscriber, the Subscriber will be entitled to exercise the Exchange Right and exchange the Bonds for the Exchange Shares, in accordance with the terms and conditions of the Bonds.

2.5.2 Option Price

Separately, the Subscriber may exercise the Option and purchase the Option Shares for an aggregate consideration of US$15,000,000 payable to FER ("**Option Price**") under the terms and conditions of the Subscription Agreement. The Option Price will be paid by the Subscriber to FER in immediately available and freely transferable funds upon the exercise of the Exchange Right by the Subscriber.

Both the Issue Price and Option Price were arrived at after arms' length negotiations between the Company, the Subscriber and FER on a 'willing buyer-willing seller' basis, with reference to the unaudited consolidated net asset value of the FER Group of approximately US$8.16 million as at 31 December 2020, and taking into consideration factors, including the working capital requirements of the Group, external factors affecting the growth prospects of the Group (in particular, the Indonesian government's ban on nickel ore export, and the impact of the COVID-19 pandemic on the Group's business operations), as well as the Group being able to be a participant in the growing electric vehicle industry and certainty of funding following discussions with several potential investors and lenders since 2019.

2.5.3 Valuation of the FER Group

No valuation exercise of the FER Group has been commissioned for the purposes of the Subscription Agreement and the Proposed Corporate Transactions due to time and cost considerations, and the terms of the Subscription Agreement (including the Issue Price and Option Price) are arrived at after arms' length negotiations between the Company, the Subscriber and FER on a 'willing buyer-willing seller' basis, with reference to (i) the unaudited consolidated net asset value of the FER Group of approximately US$8.16 million as at 31 December 2020; (ii) the carrying value of the Company's investment in the FER Group of approximately US$66.24 million as at 31 December 2020; and (iii) taking into consideration the factors as set out in Section 2.5.2 above. In addition, the open market value of the shares of FER is not available as the shares of FER are not publicly traded.

However, in connection with the acquisition by the Company[1] of the entire issued and paid-up share capital of FER (the "**Acquisition**") which was completed in July 2018, an independent valuation of a total coverage area of 494 hectares ("**Concession Block 1**") within the 1,301 hectares mining concession area in the Morowali Regency, Central Sulawesi, Indonesia granted to TAS ("**Mining Concession Area**") was conducted by an independent valuer on a Market Value (as defined in the VALMIN Code) basis. Based on the independent valuer's investigations and analysis outlined in its independent valuation report (that meets (i) the standards of the VALMIN Code; and (ii) the requirements for mineral, oil and gas companies as set out in the Catalist Rules), the independent valuer had estimated that the Market Value of Concession Block 1 as at 31 December 2017 is in the range of US$25.4 million to US$66.1 million, with a preferred Market Value of US$58.0 million. For more information on the aforesaid valuation of Concession Block 1, please refer to the Company's circular to Shareholders dated 31 May 2018.

Further, subsequent to the completion of the Acquisition and in accordance with the terms of the Acquisition, an independent valuation of the remaining 807 hectares ("**Concession Block 2**") of the Mining Concession Area was conducted by an independent valuer. In valuing the Concession Block 2, the independent valuer had considered that the income valuation approach was the most appropriate valuation methodology, supported by a market valuation approach derived from relevant comparable transactions. The independent valuer had concluded that the Market Value of Concession Block 2 as at 27 May 2019 ranges from US$55 million to US$114 million with a preferred value of US$84 million. For more information on the aforesaid valuation of Concession Block 2, please refer to the Company's announcement dated 19 November 2019.

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[1] Formerly known as China Bearing (Singapore) Pte. Ltd.

2.6   Qualified Person's Report

Pursuant to Rule 1014(2) of the Catalist Rules, if a "major transaction" relates to an acquisition or disposal of mineral, oil or gas asset of a mineral, oil and gas company (please refer to Section 2.12 below for the relative figures under Chapter 10 of the Catalist Rules), the circular to shareholders must, among others, contain a qualified person's report that is prepared by an independent qualified person. In compliance with the aforesaid requirement, the Company has appointed PT GAS as the Independent Qualified Person to prepare the Qualified Person's Report to among others, assess and determine the aggregate volume or amount of proved and probable reserves in FER to be disposed of in the context of the Proposed Corporate Transactions, as compared with the aggregate of the Group's proved and probable reserves, in accordance with Rules 1014(2) and 1014(4) of the Catalist Rules.

A copy of the Qualified Person's Report dated 30 August 2021 (which is also its effective date) ("**Effective Date**") is set out in Appendix A to this Circular. The Board confirms that no material changes have occurred since the Effective Date.

2.7   Principal Terms of the Subscription Agreement

Principal Amount	US$15,000,000
Issue Price	100% of the principal amount of the Bonds
Interest Rate	Seven per cent (7.0%) per annum, to be paid annually
Bondholder	The Subscriber
Maturity Date	Three (3) years from the Issue Date The Bonds shall be redeemable by the Issuer at 100% of its principal amount, together with all accrued and unpaid interest at the Maturity Date
Conditions Precedent	Completion of the Proposed Subscription is subject to certain conditions precedent being satisfied or waived in accordance with the Subscription Agreement (as amended by the Supplemental Agreement), including, *inter alia*, the following: (a) that Shareholders' approval having been obtained by the Company in relation to the grant and exercise of the Exchange Right and the Option and such approval being in full force and effect as at Completion Date ("**Shareholder Approval**"); (b) the undertaking letter from Far East Mining Pte. Ltd. (the Controlling Shareholder of the Company) having been executed and delivered to the Subscriber, to vote in favour of the Shareholder Approval at the EGM to be convened;

	(c) the representations and warranties of the Company contained in the Subscription Agreement being true and accurate as at, and as if made on, the Issue Date, and the Company having performed all of its undertakings, agreements or obligations under the Subscription Agreement to be performed on or before the Issue Date; (d) the Subscriber to receive the approval from the relevant Provincial Development and Reform Commission, the Ministry of Commerce and the State Administration of Foreign Exchange, each in the People's Republic of China, for the performance of the Subscriber's obligations under the Subscription Agreement ("**PRC Approval**"); and (e) for the purposes of obtaining the PRC Approval, the Subscriber becoming the holder of 6,000,000 new Shares at an issue price of S$0.44 per Share pursuant to the Placement Agreement, (collectively, the "**Conditions Precedent**") Save for point (b) above, none of the aforesaid Conditions Precedent has been satisfied as at the Latest Practicable Date.
Subscription	On the Issue Date, the Subscriber is to deliver a subscription notice in the form set out in the Subscription Agreement, setting out the subscribed amount equal to the Principal Amount
Listing status	The Bonds will not be listed and quoted
Transfer	The Bonds are non-transferrable and the Bondholder shall not be entitled to transfer or create any security interest in respect of all or any part of the Bonds without the Company's prior written consent
Status of the Exchangeable Bonds	The Exchangeable Bonds will be secured against share pledge of 100% equity interests in FER and ATS
Exchange Right	The Subscriber, at its sole option, has the Exchange Right to exchange all (but not some only) of the Bonds for a 25% equity interest in FER. Subject to and upon compliance with the provisions of the conditions under the Subscription Agreement, the Exchange Right attaching to the Bonds may

	be exercised, at the option of the Subscriber thereof, at any time on or after six months after the Issue Date up to the close of business on the date one month prior to the Maturity Date
Option	In consideration of the Subscriber agreeing to subscribe and pay for the Exchangeable Bonds at the request of FER, FER has granted to the Subscriber, with effect from the Issue Date, the Option to purchase the Option Shares, that together with the Exchange Shares, represent 50% of the total enlarged issued and paid-up share capital of FER after the issuance of the Option Shares, at an aggregate consideration of US$15,000,000, subject to and in accordance with the terms of the Subscription Agreement. The Option may be exercised in whole but only in conjunction with the exercise of the Exchange Right
Governing Law	Laws of Singapore

2.8   Other Material Terms

2.8.1   Commercial Undertakings

The Company and the Subscriber mutually agree to the following, subject to the entry of definitive agreements:

(a)   the Subscriber shall have the right to co-participate to acquire equal percentage of shareholding in any future nickel ore mining acquisitions, partnerships or joint ventures sourced and identified by the Company in Indonesia;

(b)   the Subscriber shall cause the Company to be designated as the business partner in any electric vehicle business initiative undertaken by the Ganfeng Lithium group in Indonesia provided the Shareholder Approval has been granted;

(c)   following the exercise of the Exchange Right and the Option and the Subscriber's receipt of the Exchange Shares and the Option Shares, the Company, the Subscriber and FER will enter into a shareholders agreement to set out the governance, roles and responsibilities of the parties with respect to FER; and

(d)   the Company, the Subscriber and FER shall, at the Subscriber's sole and absolute discretion, undertake to enter into a long-term nickel ore offtake agreement, the key terms of which will include, but not limited to, the following:

(i)   the Subscriber or another member of the Ganfeng Lithium group (the "**GF entity**") will enter into a 10-year offtake agreement with TAS;

(ii)   TAS to sell at least 1 million tons of nickel ore to the GF entity per annum at market prices;

(iii)   the GF entity will have an option to increase the offtake requirement by an additional 0.5 million tons of nickel ore per annum; and

(iv)   the GF entity will also have the right to choose to extend the offtake agreement for a further 5-year period.

For the avoidance of doubt, in the event the Subscriber chooses not to enter into the aforesaid long-term nickel ore offtake agreement, the Subscriber shall not abuse its shareholder rights after exercising the Exchange Right and the Option, directly or indirectly, to prevent TAS from selling its nickel ore products to other third parties whose business is similar to, or competes with or is likely to be in competition with the business carried on for the time being by the Subscriber at the fair market price in line with its normal business operation.

2.8.2   <u>Completion Date</u>

The date of completion of the Proposed Subscription ("**Completion Date**") shall be a date to be agreed between the Company and the Subscriber, provided that the Completion Date shall be no later than five (5) business days after all of the Conditions Precedent are satisfied or waived (as the case may be) in accordance with the Subscription Agreement.

2.8.3   <u>Long Stop Date</u>

If any of the Conditions Precedent is not satisfied, or waived by the Subscriber on or before 31 October 2021 or such other date as the parties may agree in writing, the Subscription Agreement shall lapse and cease to have any effect and all obligations and liabilities of the parties thereunder shall cease and determine and none of the parties shall have any claim against the other party for costs, damages, compensation or otherwise other than in respect of any antecedent breach of the Subscription Agreement.

2.9   **Rationale for the Proposed Subscription, the Exchange Right and the Option, and Use of Proceeds**

2.9.1   The rationale for the Group to enter into the Subscription Agreement, is to engage in a strategic partnership with Ganfeng Lithium to enable the Group to:

(a)   expand its upstream mining business;

(b)   execute its downstream smelter production strategy;

(c)   pursue potential strategic partnership initiatives in the electric vehicle battery space; and

(d)   strengthen the Group's financial and liquidity position.

2.9.2   Pursuant to the Proposed Subscription, upon the issuance of the Bonds, the Company expects to receive net proceeds of approximately US$14,800,000 (after deducting estimated expenses to be incurred of approximately US$200,000) ("**Net Proceeds**"). The Maturity Date of the Bonds is three (3) years from the Issue Date. The Net Proceeds shall be allocated for the following purposes and manner:

(a)   the expansion of the Group's upstream and downstream developments in Indonesia (60% - 70%);

(b)   the refinancing of the Group's existing debts (25% - 30%); and

(c)   the Group's general working capital requirements (5% - 10%).

2.9.3 Further, assuming the Subscriber exercises the Option, the Group (via FER) expects to receive proceeds of US$15,000,000 ("**Option Proceeds**"), which shall be allocated for the following purposes and manner:

(a) the expansion of the Group's upstream and downstream developments in Indonesia (70% - 80%);

(b) the refinancing of the Group's existing debts (10% - 15%); and

(c) the Group's general working capital requirements (10% - 15%).

2.9.4 Pending the deployment of the Net Proceeds and the Option Proceeds, such proceeds may be deposited with banks or financial institutions, invested in short-term money market instruments or marketable securities, and/or used for any other purpose on a short-term basis, as the Company may, in its absolute discretion, deem fit from time to time.

2.9.5 The Company will make periodic announcement(s) as to the use of the Net Proceeds and the Option Proceeds as and when such proceeds are materially disbursed and whether such use is in accordance with the stated use. The Company will also provide a status report on the use of the Net Proceeds and the Option Proceeds in the Company's interim and full-year financial statements issued under Rule 705 of the Catalist Rules and the Company's annual report. Where the Net Proceeds and the Option Proceeds have been used for working capital purposes, the Company will provide a breakdown with specific details on how such proceeds have been applied in the relevant announcements and annual reports of the Company. Where there is any material deviation from the stated use of proceeds, the Company will announce the reasons for such deviation.

2.9.6 In view of the factors considered above, the Board is of the view that the Proposed Subscription, the Exchange Right and the Option pursuant to the Subscription Agreement are in the best interest of the Company and its Shareholders.

2.10 Financial Effects of the Proposed Subscription, and the Exercise of the Exchange Right and the Option

2.10.1 <u>Assumptions</u>

As explained in Section 1.3 above, the Proposed Placement will be undertaken in connection with and in order to facilitate the Proposed Subscription under the Subscription Agreement. As such, the Company has presented the *pro forma* financial effects of the Proposed Placement, the Proposed Subscription, as well as the exercise of the Exchange Right and the Option together in this Section.

The *pro forma* financial effects of the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option (collectively, referred herein as the "**Entire Transactions**"), are presented for illustrative purposes only and are not intended to be indicative or reflective of the actual future financial position of the Company or the Group after the Entire Transactions.

The *pro forma* financial effects of the Entire Transactions have been computed based on the audited consolidated financial statements of the Group for FY2020, on the following bases and assumptions:

(a) the financial effect on the consolidated NTA per Share is computed based on the assumption that the Entire Transactions were completed on 31 December 2020;

(b) the financial effect on the consolidated loss per share ("**LPS")** is computed based on the assumption that the Entire Transactions were completed on 1 January 2020;

(c) the Bonds are fully subscribed by the Subscriber at a principal amount of US$15,000,000; and

(d) estimated expenses to be incurred in respect of the Entire Transactions is approximately US$215,000 (comprising approximately US$15,000 for the Proposed Placement, and US$200,000 for the Proposed Subscription).

2.10.2 <u>NTA per Share</u>

As at 31 December 2020	Before the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement, but before the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement and the Proposed Subscription, but before the exercise of the Exchange Right and the Option	After the Proposed Placement, the Proposed Subscription and the exercise of the Exchange Right only	After the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option
NTA[1] attributable to Shareholders (US$ 000)	8,781	10,766[2]	10,710[3]	9,066[4]	7,566
Number of Shares	261,213,792	267,213,792	267,213,792	267,213,792	267,213,792
NTA per Share (US$ cents)	3.36	4.03	4.01	3.39	2.83

Notes:

(1) NTA attributable to Shareholders means total assets less total liabilities and any intangible assets, and excludes non-controlling interests.

(2) On the assumption that US$15,000 has been deducted from the Placement Proceeds as estimated expenses for the Proposed Placement.

(3) On the assumption that US$56,000 has been deducted from the Net Proceeds as estimated expenses for the Proposed Subscription.

(4) On the assumption that US$144,000 has been deducted from the Net Proceeds as estimated expenses for the exercise of the Exchange Right.

2.10.3 <u>LPS</u>

As at 31 December 2020	Before the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement, but before the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement and the Proposed Subscription, but before the exercise of the Exchange Right and the Option	After the Proposed Placement, the Proposed Subscription and the exercise of the Exchange Right only	After the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option
Net loss attributable to Shareholders (US$ 000)	(3,641)	(3,656)	(3,712)	(4,736)	(5,616)

As at 31 December 2020	Before the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement, but before the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement and the Proposed Subscription, but before the exercise of the Exchange Right and the Option	After the Proposed Placement, the Proposed Subscription and the exercise of the Exchange Right only	After the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option
Weighted average number of Shares	261,213,792	267,213,792	267,213,792	267,213,792	267,213,792
LPS (US$ cents)	(1.39)	(1.37)	(1.39)	(1.77)	(2.10)

2.10.4 <u>Gearing</u>

As at 31 December 2020	Before the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement, but before the Proposed Subscription, and the exercise of the Exchange Right and the Option	After the Proposed Placement and the Proposed Subscription, but before the exercise of the Exchange Right and the Option	After the Proposed Placement, the Proposed Subscription and the exercise of the Exchange Right only	After the Proposed Placement, the Proposed Subscription, and the exercise of the Exchange Right and the Option
Net borrowings[1] (US$ 000)	3,475	1,490	1,546	-[3]	-
Total equity[4] (US$ 000)	8,781	10,766	10,710	9,066	7,566
Gearing[2] ratio	0.40	0.14	0.14	0.00	0.00

Notes:
(1) Net borrowings mean total borrowings less cash and bank balances.
(2) Gearing refers to the ratio of "Net borrowings" to "Total equity".
(3) Assumes full repayment of the "Net borrowings".
(4) Total equity refers to total equity attributable to Shareholders (excluding non-controlling interests).

2.11 The Potential Dilution and Chapter 8 of the Catalist Rules

Under Rule 805(2) of the Catalist Rules, an issuer must obtain the prior approval of its shareholders in a general meeting if a principal subsidiary of the issuer issues shares that will or may result in (a) the principal subsidiary ceasing to be a subsidiary of the issuer; or (b) a percentage reduction of 20% or more of the issuer's equity interest in the principal subsidiary.

A "principal subsidiary" is a subsidiary whose latest audited consolidated pre-tax profits/loss as compared with the latest audited consolidated pre-tax profits/loss of the group accounts for 20% or more of such pre-tax profits/loss of the group. Based on the latest audited consolidated financial statements of the Group for FY2020, FER Group's unaudited consolidated pre-tax loss accounted for more than 20% (being 68%) of the pre-tax loss of the Group. Accordingly, FER Group is a principal subsidiary of the Company.

Pursuant to the terms of the Subscription agreement, in connection with the Proposed Subscription, FER, being a principal subsidiary of the Company, has granted the Option to the Subscriber, with effect from the Issue Date, to purchase the Option Shares, that together with the Exchange Shares, represent 50% of the total enlarged issued and paid-up share capital of FER after the issuance of the Option Shares. As a result of the proposed grant of Option by FER to the Subscriber and assuming that the Subscriber exercises the Option, the Company's shareholding interest in FER will be diluted by more than 20% from its current shareholding interest. Accordingly, the Company is required to seek prior Shareholders' approval at the EGM for the Potential Dilution which arises from the grant of the Option by FER, pursuant to Rule 805(2)(b) of the Catalist Rules.

2.12 The Proposed Corporate Transactions and Relative Figures under Chapter 10 of the Catalist Rules

The relative figures for the maximum scenario assuming the exercise of both the Exchange Right and the Option, as computed on the bases set out in Rule 1006 of the Catalist Rules and the latest audited consolidated financial statements of the Group for FY2020 are as follows:

Rule 1006	Bases	Relative Figures (%)
(a)	The net asset value of the assets to be disposed of compared with the Group's net asset value	46.5%[1]
(b)	The net loss attributable to the assets disposed of, compared with the Group's net loss	34.0%[2]
(c)	The aggregate value of the consideration received, compared with the Group's market capitalization	36.6%[3]
(d)	The number of equity securities issued by the Group as consideration for the proposed acquisition as compared with the number of equity securities previously in issue	Not applicable[4]
(e)	The aggregate volume or amount of proved and probable reserves to be disposed of compared with the Group's proved and probable reserves	50.0%[5]

Notes:

(1) Computed based on (i) the net asset value of the assets to be disposed of, being 50% of the FER Group, which amounted to approximately US$4.08 million; and (ii) the net asset value of the Group which amounted to approximately US$8.78 million, as at 31 December 2020.

(2) Computed based on (i) the net loss attributable to the assets to be disposed of, being 50% of the FER Group, which amounted to approximately US$1.24 million; and (ii) the net loss recorded by the Group which amounted to approximately US$3.65 million, for FY2020.

(3) Computed based on (i) the sum of the principal amount of the Bonds and the aggregate consideration for the exercise of the Option, of US$30 million; and (ii) the Company's market capitalisation of approximately US$82.1 million (based on an exchange rate of S$1.32826 : US$1.00) as at 27 May 2021. Under Rule 1002(5) of the Catalist Rules, the market capitalisation of the Company is determined by multiplying the number of Shares in issue (excluding treasury shares) being 261,213,792 shares by the weighted average price of S$0.4174 on 27 May 2021 (being the last market day on which the Shares were traded prior to the date of signing of the Subscription Agreement).

(4)   Rule 1006(d) of the Catalist Rules is not applicable to a disposal of assets.

(5)   The Group's total reserves are in the FER Group and the disposal of 50% of the FER Group (via the exercise of the Exchange Right and the Option) will equate to a disposal of 50% of the Group's total reserves.

Pursuant to Rule 1014 of the Catalist Rules, in respect of a disposal or provision of financial assistance, where any of the relative figures as computed on the bases set out in Rule 1006 of the Catalist Rules exceeds 50%, the transaction is classified as a "major transaction" and shall be made conditional upon approval by shareholders in general meeting. Notwithstanding that none of the relative figures set out above exceeds 50%, as the relative figure set out in Rule 1006(e) of the Catalist Rules equals 50%, the Company wishes to seek the approval of Shareholders for the grant (and the exercise, at the sole discretion of the Subscriber) of the Exchange Right and the Option pursuant to the Proposed Subscription as a "major transaction" and the Company will comply with all relevant Catalist Rules with respect to a "major transaction".

2.13   Rule 1018 of the Catalist Rules

Pursuant to Rule 1018(1) of the Catalist Rules, where an option to dispose of assets is not exercisable at the discretion of the Company, the Company is required to obtain the Shareholders' approval at the time of grant of the option.

Accordingly, as the Exchange Right will be exercisable by the Subscriber at the sole discretion of the Subscriber in accordance with the terms of the Subscription Agreement, the Company will be required to seek Shareholders' approval at the EGM for the grant of the Exchange Right to the Subscriber, pursuant to Rule 1018(b) of the Catalist Rules.

2.14   Directors' Service Contracts

No person is proposed to be appointed as a director of the Company in connection with the Proposed Subscription, the Exchange Right and the Option. Accordingly, no service contract is proposed to be entered into.

3.   DIRECTORS' AND SUBSTANTIAL SHAREHOLDERS' INTERESTS

3.1   **Directors' Interests.** The interests of the Directors in the Shares, as recorded in the Register of Directors' Shareholdings of the Company, as at the Latest Practicable Date are set out below:

Directors	Direct Interest		Deemed Interest		Total Interest	
	No. of Shares	%[1]	No. of Shares	%[1]	No. of Shares	%[1]
Eddy Pratomo	-	-	-	-	-	-
Hong Kah Ing[2]	-	-	162,318,253	62.10	162,318,253	62.10
Syed Abdel Nasser Bin Syed Hassan Aljunied[3]	-	-	162,318,253	62.10	162,318,253	62.10
Giang Sovann	-	-	-	-	-	-
Omri Samosir	-	-	-	-	-	-

Notes:

(1)   Based on 261,213,792 Shares in issue as at the Latest Practicable Date.

(2)   Mr. Hong Kah Ing owns 70.5% of the issued share capital of Far East Mining Pte. Ltd.. As such, he is deemed to be interested in the Shares owned by Far East Ming Pte. Ltd. pursuant to Section 4 of the SFA.

(3)   Mr. Aljunied owns 26.6% of the issued share capital of Far East Mining Pte. Ltd.. As such, he is deemed to be interested in the Shares owned by Far East Mining Pte. Ltd. pursuant to Section 4 of the SFA.

3.2   **Substantial Shareholders' Interests.** The interests of the Substantial Shareholders in the Shares, as recorded from the Register of Substantial Shareholders of the Company, as at the Latest Practicable Date are set out below:

Substantial Shareholders	Direct Interest		Deemed Interest		Total Interest	
	No. of Shares	%[1]	No. of Shares	%[1]	No. of Shares	%[1]
Far East Mining Pte. Ltd.	162,318,253	62.10	-	-	162,318,253	62.10
Hong Kah Ing[2]	-	-	162,318,253	62.10	162,318,253	62.10
Syed Abdel Nasser Bin Syed Hassan Aljunied[3]	-	-	162,318,253	62.10	162,318,253	62.10

Notes:

(1)   Based on 261,213,792 Shares in issue as at the Latest Practicable Date.

(2)   Mr. Hong Kah Ing owns 70.5% of the issued share capital of Far East Mining Pte. Ltd.. As such, he is deemed to be interested in the Shares owned by Far East Ming Pte. Ltd. pursuant to Section 4 of the SFA.

(3)   Mr. Aljunied owns 26.6% of the issued share capital of Far East Mining Pte. Ltd.. As such, he is deemed to be interested in the Shares owned by Far East Mining Pte. Ltd. pursuant to Section 4 of the SFA.

3.3   **Interests of Directors and Substantial Shareholders.** None of the Directors and their respective associates, and to the best of the knowledge of the Directors, none of the substantial Shareholders of the Company, as well as their respective associates, has any interest, whether direct or indirect, in the Proposed Placement, Proposed Subscription, the Exchange Right and the Option (other than in his capacity as Director or Shareholder, as the case may be).

4.   UNDERTAKING BY COMPANY'S CONTROLLING SHAREHOLDER

Far East Mining Pte. Ltd., being the Company's Controlling Shareholder holding 162,318,253 Shares (representing approximately 62.1% of the total number of Shares) as at the Latest Practicable Date, has on 9 September 2021 provided a written undertaking ("**FEM Undertaking**") to the Company and the Subscriber that it will, in relation to all the Shares it owns in the Company, vote, and procure the voting of, in favour of each of the resolutions in relation to the Proposed Corporate Transactions at the EGM.

The FEM Undertaking is effective until the earlier of the following events: (a) the Proposed Corporate Transactions are not proceeded with for any reason whatsoever; (b) Far East Mining Pte. Ltd. ceases to be a Controlling Shareholder of the Company; and (c) the Company ceases to be listed on the Catalist.

5.   DIRECTORS' RECOMMENDATIONS

Shareholders should read and consider carefully the terms and conditions of the Proposed Subscription, the rationale for the Proposed Subscription, the Exchange Right and the Option, and the financial effects of the Proposed Subscription and the Proposed Corporate Transactions, as set out in this Circular. Shareholders are also advised to read and consider the Qualified Person's Report issued by the Independent Qualified Person and set out in Appendix A of this Circular carefully in making their decision.

The Directors, having considered and reviewed, among other things, the terms of the Proposed Subscription, the rationale for the Proposed Subscription, Exchange Right and the Option, the financial effects of the Proposed Subscription and Proposed Corporate Transactions, and all the other relevant information (including the Qualified Person's Report) set out in this Circular, are of the opinion that the Proposed Subscription and Proposed Corporate Transactions are in the best interests of the Company and Shareholders. Accordingly, the Directors recommend that Shareholders vote in favour of the ordinary resolutions relating to the Potential Dilution and Proposed Transfer at the EGM.

6. EXTRAORDINARY GENERAL MEETING

The EGM, notice of which is set out on pages N-1 to N-5 of this Circular, will be held by way of electronic means on 30 September 2021 at 2.00 p.m. for the purpose of considering and, if thought fit, passing with or without modifications, the Ordinary Resolutions set out in the notice of EGM on pages N-1 to N-2 of this Circular.

COVID-19 Measures

The COVID-19 Order was issued on 13 April 2020 pursuant to the COVID-19 Act and was gazetted to take effect from 27 March 2020. The COVID-19 Order prescribes alternative arrangements for the conduct of general meetings of companies and compliance with these alternative arrangements will be deemed to be compliant with the relevant provisions of written law or legal instrument in respect of which the alternative arrangements are made. Such alternative arrangements include the conduct of a general meeting of a company wholly or partly by electronic means provided that a listed company must publish the minutes of the meeting on SGXNET and the company's website (if available) within one month after the date of the relevant meeting.

On the same day, ACRA, the Monetary Authority of Singapore and Singapore Exchange Regulation issued the COVID-19 Order Guidance comprising a checklist to guide listed and non-listed entities on the conduct of general meetings during the period when elevated safe distancing measures are in place. The COVID-19 Order Guidance provides further guidance on Part 4 of the COVID-19 Act and the COVID-19 Order, and states that listed entities should refer to the COVID-19 Order Guidance when conducting general meetings during this elevated safe distancing period.

At the forthcoming EGM, the Company will comply with the COVID-19 precautionary measures recommended or imposed by the Singapore Government to minimise the risk of community spread of COVID-19 as may be appropriate, including the Infectious Diseases Regulations and COVID-19 Order, on the holding of general meetings amid COVID-19. Please refer to Section 7 of this Circular for more details on the action Shareholders should take pursuant to the COVID-19 Act and any regulations promulgated thereunder, including without limitation, the COVID-19 Order, as well as the COVID-19 Order Guidance.

Shareholders should note that the Company may make further changes to its EGM arrangements as the COVID-19 situation evolves. Shareholders are advised to keep abreast of any such changes as may be announced by the Company as may be made from time to time on SGXNET.

7. ACTION TO BE TAKEN BY SHAREHOLDERS

7.1 Shareholders should note and consider taking the following actions:

(a) No attendance at EGM

In view of the elevated safe distancing measures pursuant to the Infectious Diseases Regulations and COVID-19 Regulations, Shareholders will not be able to attend the EGM in person. Instead, alternative arrangements have been put in place to allow Shareholders to participate at the EGM by (i) watching the EGM proceedings via "live" webcast or listening to the EGM proceedings via "live" audio feed, (ii) submitting questions in advance of the EGM, and/or (iii) voting by proxy at the EGM. Please see the paragraphs below for these alternative arrangements.

Persons who hold the Shares of the Company through relevant intermediaries (as defined in Section 181 of the Companies Act), including SRS investors, and who wish to participate at the EGM by (i) watching the EGM proceedings via "live" webcast or listening to the EGM proceedings via "live" audio feed, (ii) submitting questions in advance of the EGM, and/or (iii) voting by proxy at the EGM, should contact the relevant intermediary (which would include, in the case of SRS investors, their respective SRS Operators) through which they hold such Shares of the Company as soon as possible in order for the necessary arrangements to be made for their participation at the EGM.

(b) Registration to attend the EGM Remotely

The proceedings of the EGM will be conducted by electronic means. Shareholders will be able to watch the proceedings of the EGM through a "live" webcast via their mobile phones, tablets or computers or listen to these proceedings through a "live" audio feed via telephone. In order to do so, Shareholders must follow these steps:

(i) Shareholders who wish to watch the "live" webcast or listen to the "live" audio feed must pre-register by **2.00 p.m. on 27 September 2021** ("**Registration Cut-Off Date**") (being **72 hours** before the time fixed for the EGM), at the URL http://srn.availeasemgdwebinar.com/. Shareholders will be required to provide their full name, NRIC/Passport No./Company Registration No. and address for verification purposes.

Upon successful registration, authenticated Shareholders will receive an email confirmation by **2.00 p.m. on 29 September 2021** with their user log-in details, access password and the link to access the "live" webcast and/or telephone number for "live" audio feed of the EGM proceedings.

(ii) Shareholders who do not receive any email by **2.00 p.m. on 29 September 2021**, but who have registered by the Registration Cut-Off Date, should contact the Company at the following email address: enquiries@silkroadnickel.com.

(c) Prior submission of questions

Shareholders who pre-register to watch the "live" webcast or listen to the "live" audio feed may also submit questions related to the resolutions to be tabled for approval for the EGM:

(i)   All questions must be submitted by **2.00 p.m. on 27 September 2021** (being **72 hours** before the time fixed for the EGM):

- via the pre-registration website at the URL http://srn.availeasemgdwebinar.com/;

- in hard copy by sending personally or by post and lodging the same at the Company's Share Registrar, Tricor Barbinder Share Registration Services (a division of Tricor Singapore Pte Ltd), 80 Robinson Road, #11-02, Singapore 068898; or

- by email to the Company at enquiries@silkroadnickel.com.

(ii)   The Company will address substantial and relevant questions relating to the resolutions to be tabled for approval for the EGM either before the EGM on SGXNET and the Company's website at the URL https://silkroadnickel.com/sgx-announcements/ or during the EGM, in accordance with the COVID-19 Order Guidance.

(iii)   The Company will, within one month after the date of the EGM, publish the minutes of the EGM on SGXNET and the Company's website, and the minutes will include the responses to the questions referred to above.

(iv)   Please note that Shareholders will not be able to ask questions at the EGM "live" during the webcast and the audio feed, and therefore it is important for Shareholders to pre-register their participation in order to be able to submit their questions in advance of the EGM.

(d)   Voting by proxy only

Pursuant to the COVID-19 Order, Shareholders will not be able to vote online on the resolutions to be tabled for approval at the EGM. Instead, if Shareholders (whether individual or corporate) wishes to exercise their voting rights at the EGM, they must each submit an instrument of proxy to appoint the Chairman of the EGM as their proxy to attend, speak and vote on their respective behalves at the EGM:

(i)   Shareholders (whether individual or corporate) appointing the Chairman of the Meeting as proxy must give specific instructions as to his manner of voting, or abstentions from voting, in the instrument of proxy, failing which the appointment will be treated as invalid.

(ii)   The instrument of proxy, together with the letter or power of attorney or other authority under which it is signed (if applicable) or a duly certified copy thereof, must:

- if sent personally or by post, be lodged at the Company's Share Registrar, Tricor Barbinder Share Registration Services (a division of

Tricor Singapore Pte Ltd), 80 Robinson Road, #11-02, Singapore 068898; or

- if by email, be received by the Company's Share Registrar at sg.is.proxy@sg.tricorglobal.com,

in either case, by **2.00 p.m. on 27 September 2021** (being 72 hours before the time fixed for the EGM).

SRS investors who wish to appoint the Chairman of the EGM as proxy should approach their respective SRS Operators to submit their votes by **2.00 p.m. on 21 September 2021**, being 7 working days before the date of the EGM.

7.2 **Depositor not member.** A Depositor will not be regarded as a member of the Company entitled to attend the EGM and to speak and vote thereat unless he is shown to have Shares entered against his name in the Depository Register as certified by CDP to the Company at least 72 hours before the EGM.

8. DIRECTORS' RESPONSIBILITY STATEMENT

The Directors collectively and individually accept full responsibility for the accuracy of the information given in this Circular and confirm after making all reasonable enquiries that, to the best of their knowledge and belief, this Circular constitutes full and true disclosure of all material facts about the Proposed Subscription, the Proposed Corporate Transactions and the Company and its subsidiaries, and the Directors are not aware of any facts the omission of which would make any statement in this Circular misleading. Where information in this Circular has been extracted from published or otherwise publicly available sources or obtained from a named source, the sole responsibility of the Directors has been to ensure that such information has been accurately and correctly extracted from those sources and/or reproduced in this Circular in its proper form and context.

9. CONSENT

PT Geo Artha Selaras, the Independent Qualified Person in respect of the Proposed Corporate Transactions, has given and has not withdrawn its written consent to the issue of this Circular, with the inclusion of its name and the Qualified Person's Report as set out in **Appendix A** to this Circular and all references thereto, in the form and context in which they appear in this Circular and to act in such capacity in relation to this Circular.

10. INSPECTION OF DOCUMENTS

Subject to prevailing COVID-19 Order restrictions, the following documents are available for inspection at the registered office of the Company at 50 Armenian Street, Wilmer Place #03-04 Singapore 179938 during normal business hours for three (3) months from the date of this Circular:

(a)   the Subscription Agreement;

(b)   the Constitution of the Company;

(c)   the annual report of the Company for FY2020;

(d)   the consent letter referred to in Section 9 of this Circular; and

(e)   the Qualified Person's Report.

Yours faithfully

For and on behalf of the Board of Directors of
SILKROAD NICKEL LTD.

Mr. Eddy Pratomo
Independent Chairman

INDEPENDENT QUALIFIED PERSONS TECHNICAL REPORT

MINERAL RESOURCE AND ORE RESERVE ESTIMATE OF PT TEKNIK ALUM SERVICE

BULELENG & TORETE NICKEL CONCESSION, CENTRAL SULAWESI PROVINCE, INDONESIA
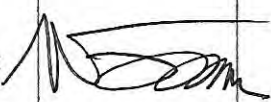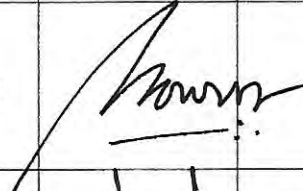
Report Prepared for
PT Teknik Alum Service

Report Prepared by
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KAV VTA Pondok Indah
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DOCUMENT CONTROL

Client Name	
PT Teknik Alum Service	
Report Name	
INDEPENDENT QUALIFIED PERSONS TECHNICAL REPORT MINERAL RESOURCE AND ORE RESERVE ESTIMATE OF PT TEKNIK ALUM SERVICE	30 August 2021
Location	**Revision No.**
Buleleng and Torete villages, South Bungku District, Morowali Regency, Central Sulawesi Province – Indonesia.	0

Authorisations				
	Name	**Position**	**Signature**	**Date**
Prepared By:	Dinda Savira	Consultant Geologist		03/08 '21
Reviewed By:	W. Asmantowi	Snr. Executive Consultant Geologist		03/09 '21
	Lesbon Sitorus	Snr. Executive Independent Mining Engineer		03/09 '21
Approved By:	Edy Santi	TAS President Director		03/09 '21

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Organisation	**Recipient**	**No. of Hard Copies**	**No. of Electronic Copies**	**Comment**
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5. Mining Unknown Factors

The ability of any person to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond PT GAS's control and that PT GAS cannot anticipate. These factors include, but are not limited to, site-specific mining and geological conditions, management and personnel capabilities, availability of funding to properly operate and capitalize the operation, variations in cost elements and market conditions, developing and operating the mine in an efficient manner, unforeseen changes in legislation and new industry developments. Any of these factors may substantially alter the performance of any mining operation.

EXECUTIVE SUMMARY

This report has been produced by or on behalf of PT Geo Artha Selaras ("PT GAS") solely for PT Teknik Alum Service (the "Client" or "PT TAS").

PT Geo Artha Selaras, ("PT GAS"), was commissioned by PT Teknik Alum Service, ("PT TAS", "the Company", or "the Client") to complete an Independent Qualified Persons Technical Report Mineral Resource and Ore Reserve Estimate of PT Teknik Alum Service, Buleleng and Torete Nickel Project (the "Statement" or the "Report") for the PT TAS Concession ("the Concession"). The Concession is located near Buleleng and Torete villages in the South Bungku District, Central Sulawesi Province, Indonesia, approximately 180 km northwest of the provincial city of Kendari. The Mineral Resource and Ore Reserves have been estimated in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Geoscientists and Minerals Council of Australia (The JORC Code 2012).

The Mineral Resource and Ore Reserve estimates as set out in this Report have been estimated by a Competent Person as defined by the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves JORC Code (2012 Edition) ("JORC Code"). The JORC Code is a Code for Public Reporting not a Code that regulates the manner in which a Competent Person estimates Mineral Resources or Ore Reserves.

The Independent Qualified Persons Technical Report Mineral Resources and Ore Reserves estimates in this report relies largely on information provided by the Client, either directly from the sites and other offices, or from reports by other organisations whose work is the property of the Client. The data relied upon for the Mineral Resources and Ore Reserves estimates independently completed by PT GAS have been compiled primarily by the Client and subsequently reviewed and verified where possible by PT GAS. The report is based on information made available to PT GAS during the period of June to July 2021, however several datasets were provided after this date upon request by PT GAS.

Concession Summary

The Concession is located near Buleleng and Torete villages in the South Bungku District, Central Sulawesi Province, Indonesia, approximately 180 km northwest of the provincial city of Kendari. The Concession consists of 2 (two) blocks of nickel laterite deposit. The concession covers an area of approximately 1,301 Ha, has had a significant amount of exploration work conducted and currently in production.

The Concession consists of ultramafic complex with peridotite as bedrock. The core drilling exploration program is focused on areas of ultramafic rocks weathering. Nickel laterite deposits are formed as a result of lateritic weathering of ultramafic rock (peridotite). Laterisation processes have resulted in the formation of oxide laterites comprised largely of Fe hydroxides and oxides in the upper part of the profile, overlying altered or fresh bedrock that has a potential for medium to high-grade Ni mineralisation. The mineralisation results in a distinct vertical zonation forming overburden, limonite, saprolite and bedrock zones. Economic Ni mineralisation is predominantly associated with the limonite and saprolite zones.

Mineral Resource Estimate Statement

The PT TAS drill hole database used for estimates contains 779 holes, containing a cumulative length of 9,275.6 m, divided in two deposits i.e. Torete at the north and Buleleng at the south. Torete block contains 702 holes with a cumulative length of 7,669 m, while Buleleng block contains 77 holes with a cumulative length of 1,607. Drill hole spacing over the deposit is approximately 25 m by 25 m in the well- drilled portions, and around 50 m by 50 m and up to 200 m by 200 m.

Mineralisation was modelled in two block models that encompassed all mineralisation within the Concession. The block models were created and estimated in Surpac using Ordinary Kriging ("OK") grade interpolation. The mineralisation was constrained by geological domains based on surfaces defining the base of the lithological/weathering zones with no cut-off grades applied and a boundary around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or less. All mineralisation intersections were defined with a minimum down hole length of 1 m.

The block dimensions used in the model were 12.5 m NS by 12.5 m EW by 1.0 m vertical. The parent block dimensions were selected based on the drill spacing and current mining methods. Bulk densities and moisture contents were assigned by domain based on available determinations from test pits samples within the Concession area.

The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 50 m by 50 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 50 m by 50 m, often on the periphery of the Indicated Resources. PT GAS notes that there are large areas of the Concession defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated category due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited of bulk density and moisture determinations evenly spread over the areas.

The Mineral Resource tonnages and grades were estimated on a dry in-situ basis. Wet quantities were calculated from the estimated dry quantities and grades.

The models are undiluted, so appropriate dilution needs to be incorporated in any evaluation of the deposits. The Mineral Resource is reported at variable grade ranges of Ni and Co that define potentially economic mineralisation in each lithological zone. Cut-off grade parameters were selected based on limited information from the Client grade specification requirements for the smelters receiving the DSO and other similar projects in the region.

The mineralisation within the defined lithological/weathering domains shows good continuity and consistency as expected for this deposit style. In PT GAS's experience, the Mineral Resource quantities and grades are comparable with other nickel laterite deposits in the region.

The information in this report that relates to Mineral Resources is based on information compiled by Mr. Wahyu Asmantowi who is a Member of the Australian Institute of Mining and Metallurgy. Mr. Asmantowi has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Asmantowi consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Results of the Independent Qualified Persons Technical Report Mineral Resource estimate by PT GAS for the Concession are tabulated in the Statement of Mineral Resources in **Table ES.1 and summarized on Table ES.8**. The reported Mineral Resource figures in the table below represent estimates at 30th August 2021.

Table ES.1   Total Concession Mineral Resource estimate

Area and Category	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BULELENG: Measured	-	-	-	-	-	-	-	-	-	-	-
BULELENG: Indicated	27.9	17.9	0.93	0.04	21.68	28.12	10.64	0.46	1.64	1.05	35.57
BULELENG: Inferred	32.7	20.5	1.00	0.05	25.67	26.14	12.06	0.77	1.66	1.04	36.94
BULELENG: Subtotal	**60.7**	**38.4**	**0.97**	**0.05**	**23.81**	**27.06**	**11.40**	**0.63**	**1.65**	**1.05**	**36.30**
TORETE: Measured	-	-	-	-	-	-	-	-	-	-	-
TORETE: Indicated	23.3	17.1	1.10	0.07	28.47	21.70	9.75	0.27	1.64	1.20	26.93
TORETE: Inferred	55.0	40.2	1.00	0.07	29.91	21.62	10.27	0.24	1.65	1.20	27.27
TORETE: Subtotal	**78.4**	**57.3**	**1.03**	**0.07**	**29.48**	**21.65**	**10.12**	**0.25**	**1.65**	**1.20**	**27.17**
CONCESSION: Measured	-	-	-	-	-	-	-	-	-	-	-
CONCESSION: Indicated	51.3	35.0	1.01	0.06	25.00	24.98	10.21	0.37	1.64	1.13	31.34
CONCESSION: Inferred	87.8	60.7	1.00	0.07	28.48	23.15	10.88	0.42	1.65	1.15	30.54
CONCESSION: Total	**139.0**	**95.6**	**1.00**	**0.06**	**27.21**	**23.82**	**10.63**	**0.40**	**1.65**	**1.14**	**30.83**

- All Mineral Resources figures reported in this table above represent estimates depleted using topographic survey and mine out area data as at 30th August 2021.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- Mineral Resources are inclusive of Ore Reserves

Table ES.2 Cobalt-rich Nickel Mineral Resource estimate

Deposit	Class	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content %
BUL	IND	Ni < 1.0	Co ≥ 0.03	Lim	7.8	4.6	0.78	0.08	37.47	11.95	2.51	0.07	1.71	1.02	40.33
				Sap	2.0	1.3	0.84	0.04	14.86	43.64	16.92	0.90	1.60	1.07	32.62
				Sub-total	**9.8**	**6.0**	**0.79**	**0.07**	**32.40**	**19.06**	**5.74**	**0.26**	**1.69**	**1.03**	**38.60**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.7	1.0	1.17	0.08	41.42	10.10	2.14	0.07	1.71	1.02	40.33
				Sap	3.7	2.5	1.20	0.04	16.58	41.54	15.33	0.79	1.60	1.07	32.62
				Sub-total	**5.4**	**3.5**	**1.19**	**0.05**	**23.78**	**32.43**	**11.51**	**0.58**	**1.63**	**1.06**	**34.85**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	0.2	0.1	1.45	0.10	43.81	6.36	0.69	0.02	1.71	1.02	40.33
				Sap	1.7	1.1	1.68	0.04	18.48	37.56	14.98	0.70	1.60	1.07	32.62
				Sub-total	**1.9**	**1.2**	**1.65**	**0.05**	**20.93**	**34.54**	**13.60**	**0.63**	**1.61**	**1.07**	**33.37**
		Total - Indicated			**17.0**	**10.7**	**1.02**	**0.06**	**28.27**	**25.19**	**8.52**	**0.41**	**1.66**	**1.04**	**36.78**
	INF	Ni < 1.0	Co ≥ 0.03	Lim	11.8	7.0	0.80	0.07	33.30	15.07	6.23	0.80	1.71	1.02	40.33
				Sap	1.5	1.0	0.85	0.05	19.10	40.80	16.75	0.47	1.60	1.07	32.62
				Sub-total	**13.4**	**8.1**	**0.81**	**0.07**	**31.48**	**18.36**	**7.57**	**0.76**	**1.70**	**1.03**	**39.34**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	5.3	3.1	1.14	0.09	39.96	11.52	3.84	0.10	1.71	1.02	40.33
				Sap	4.2	2.8	1.20	0.04	16.32	40.62	18.45	0.61	1.60	1.07	32.62
				Sub-total	**9.5**	**6.0**	**1.17**	**0.07**	**28.77**	**25.29**	**10.76**	**0.34**	**1.66**	**1.04**	**36.68**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	0.7	0.4	1.50	0.11	44.43	5.16	0.51	0.00	1.71	1.02	40.33
				Sap	0.6	0.4	1.60	0.04	18.54	36.70	16.57	0.69	1.60	1.07	32.62
				Sub-total	**1.3**	**0.8**	**1.55**	**0.08**	**31.58**	**20.82**	**8.48**	**0.34**	**1.66**	**1.04**	**36.50**
		Total - Inferred			**24.1**	**14.9**	**0.99**	**0.07**	**30.40**	**21.28**	**8.90**	**0.57**	**1.68**	**1.03**	**38.12**
TOR	IND	Ni < 1.0	Co ≥ 0.001	Lim	7.0	4.9	0.90	0.10	40.81	11.00	4.06	0.10	1.71	1.20	29.94
				Sap	2.2	1.7	0.86	0.03	14.48	34.05	16.75	0.55	1.56	1.21	23.35
				Sub-total	**9.2**	**6.6**	**0.89**	**0.08**	**34.03**	**16.93**	**7.32**	**0.22**	**1.67**	**1.20**	**28.24**
		1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	6.0	4.2	1.09	0.10	40.30	11.69	3.43	0.17	1.71	1.20	29.94
				Sap	5.7	4.4	1.19	0.03	14.04	34.52	17.16	0.43	1.56	1.21	23.35
				Sub-total	**11.7**	**8.6**	**1.14**	**0.06**	**26.96**	**23.29**	**10.40**	**0.30**	**1.63**	**1.21**	**26.59**
		Ni ≥ 1.40	Co ≥ 0.001	Lim	0.2	0.2	1.46	0.15	42.32	9.80	4.46	0.10	1.71	1.20	29.94
				Sap	2.2	1.7	1.69	0.03	13.63	32.97	16.17	0.31	1.56	1.21	23.35
				Sub-total	**2.5**	**1.9**	**1.67**	**0.04**	**16.05**	**31.02**	**15.18**	**0.29**	**1.57**	**1.21**	**23.91**
		Total - Indicated			**23.3**	**17.1**	**1.10**	**0.07**	**28.47**	**21.70**	**9.75**	**0.27**	**1.64**	**1.20**	**26.93**
	INF	Ni < 1.0	Co ≥ 0.001	Lim	24.6	17.3	0.92	0.10	40.54	12.15	3.98	0.13	1.71	1.20	29.94
				Sap	7.8	6.0	0.83	0.03	14.86	35.57	17.91	0.42	1.56	1.21	23.35
				Sub-total	**32.4**	**23.3**	**0.90**	**0.08**	**33.89**	**18.22**	**7.59**	**0.20**	**1.67**	**1.20**	**28.23**
		1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	9.3	6.5	1.08	0.11	39.83	11.45	4.00	0.20	1.71	1.20	29.94
				Sap	12.2	9.5	1.13	0.03	14.42	36.13	20.32	0.35	1.56	1.21	23.35
				Sub-total	**21.5**	**16.0**	**1.11**	**0.06**	**24.78**	**26.08**	**13.67**	**0.29**	**1.62**	**1.21**	**26.04**
		Ni ≥ 1.40	Co ≥ 0.001	Lim	0.1	0.1	1.41	0.28	44.75	5.54	2.18	0.04	1.71	1.20	29.94
				Sap	1.0	0.8	1.56	0.03	14.01	34.52	22.30	0.37	1.56	1.21	23.35
				Sub-total	**1.1**	**0.9**	**1.54**	**0.06**	**17.60**	**31.13**	**19.95**	**0.33**	**1.58**	**1.21**	**24.12**
		Total - Inferred			**55.0**	**40.2**	**1.00**	**0.07**	**29.91**	**21.62**	**10.27**	**0.24**	**1.65**	**1.20**	**27.27**
Buleleng		**Total - Indicated**			**17.0**	**10.7**	**1.02**	**0.06**	**28.27**	**25.19**	**8.52**	**0.41**	**1.66**	**1.04**	**36.78**
		Total - Inferred			**24.1**	**14.9**	**0.99**	**0.07**	**30.40**	**21.28**	**8.90**	**0.57**	**1.68**	**1.03**	**38.12**
Torete		**Total - Inferred**			**23.3**	**17.1**	**1.10**	**0.07**	**28.47**	**21.70**	**9.75**	**0.27**	**1.64**	**1.20**	**26.93**
		Total - Indicated			**55.0**	**40.2**	**1.00**	**0.07**	**29.91**	**21.62**	**10.27**	**0.24**	**1.65**	**1.20**	**27.27**
		GRAND TOTAL			**119.5**	**82.8**	**1.02**	**0.07**	**29.49**	**22.04**	**9.69**	**0.33**	**1.65**	**1.15**	**30.37**

- All Mineral Resources figures reported in this table above represent estimates depleted using topographic survey and mine out area data as at 30th August 2021.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- Mineral Resources are inclusive of Ore Reserves

Table ES.3 Cobalt-depleted Nickel Mineral Resource estimate

Deposit	Class	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content %
BUL	IND	Ni < 1.0	Co ≥ 0.03	Lim	1.8	1.1	0.23	0.01	16.17	3.39	0.64	0.03	1.71	1.02	40.33
				Sap	5.2	3.5	0.61	0.02	9.90	33.89	13.20	0.59	1.60	1.07	32.62
				Sub-total	**7.0**	**4.6**	**0.52**	**0.02**	**11.37**	**26.74**	**10.25**	**0.46**	**1.63**	**1.06**	**34.43**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.0	0.0	1.14	0.02	45.21	1.30	0.04	0.00	1.71	1.02	40.33
				Sap	2.8	1.9	1.17	0.02	12.47	44.50	19.36	0.72	1.60	1.07	32.62
				Sub-total	**2.8**	**1.9**	**1.17**	**0.02**	**12.58**	**44.36**	**19.30**	**0.71**	**1.60**	**1.07**	**32.65**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	1.1	0.7	1.63	0.02	13.59	37.23	21.44	0.66	1.60	1.07	32.62
				Sub-total	**1.1**	**0.7**	**1.63**	**0.02**	**13.59**	**37.23**	**21.44**	**0.66**	**1.60**	**1.07**	**32.62**
		Total - Indicated			**11.0**	**7.2**	**0.80**	**0.02**	**11.92**	**32.47**	**13.78**	**0.55**	**1.62**	**1.06**	**33.77**
	INF	Ni < 1.0	Co ≥ 0.03	Lim	1.5	0.9	0.55	0.02	17.47	24.29	15.45	5.59	1.71	1.02	40.33
				Sap	1.7	1.2	0.73	0.02	10.78	36.71	18.52	0.62	1.60	1.07	32.62
				Sub-total	**3.2**	**2.1**	**0.65**	**0.02**	**13.69**	**31.32**	**17.19**	**2.78**	**1.65**	**1.05**	**35.97**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.0	0.0	1.15	0.01	10.60	28.75	22.19	1.21	1.71	1.02	40.33
				Sap	4.9	3.3	1.18	0.03	12.98	42.65	22.42	0.46	1.60	1.07	32.62
				Sub-total	**4.9**	**3.3**	**1.18**	**0.02**	**12.97**	**42.63**	**22.42**	**0.46**	**1.60**	**1.07**	**32.63**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	0.5	0.3	1.54	0.02	13.02	49.19	19.80	0.33	1.60	1.07	32.62
				Sub-total	**0.5**	**0.3**	**1.54**	**0.02**	**13.02**	**49.19**	**19.80**	**0.33**	**1.60**	**1.07**	**32.62**
		Total - Inferred			**8.6**	**5.7**	**1.01**	**0.02**	**13.23**	**38.91**	**20.37**	**1.29**	**1.62**	**1.06**	**33.84**
TOR	IND	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	INF	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Inferred			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Buleleng		**Total - Indicated**			**11.0**	**7.2**	**0.80**	**0.02**	**11.92**	**32.47**	**13.78**	**0.55**	**1.62**	**1.06**	**33.77**
		Total - Inferred			**8.6**	**5.7**	**1.01**	**0.02**	**13.23**	**38.91**	**20.37**	**1.29**	**1.62**	**1.06**	**33.84**
Torete		**Total - Inferred**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
GRAND TOTAL					**19.6**	**12.8**	**0.89**	**0.02**	**12.50**	**35.30**	**16.68**	**0.87**	**1.62**	**1.06**	**33.80**

- All Mineral Resources figures reported in this table above represent estimates depleted using topographic survey and mine out area data as at 30th August 2021.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- Mineral Resources are inclusive of Ore Reserves

Mineral Resource Risks

PT GAS has identified some risks associated with the Concession:

- PT GAS considers there is a low risk of material variation of bulk density and moisture content within each domain. The number and geospatial locations of bulk density and moisture determinations is insufficient for higher classification of Mineral Resource. The bulk density and moisture contents are critical to determining the in-situ Mineral Resource quantity and in providing data for accurate reconciliation after mining. The low variation observed with the provided data however indicates this has minimal impact on global tonnages, but potentially may impact local tonnages.

- Topography data is very important data since the mining activities have been running, the update of resource should be calculated using the latest topography data.

- Quality Assurance and Quality Control (QA/QC) exploration samples for the lab. PT GAS recommends the Client to add and continue the QA/QC program for all samples exploration which is being analyzed external or internal. By having QA/QC the Client will knowing and have confident on exploration data result, also knowing which external lab have the best quality of precision and accuracy.

- Block model had been created for various drill spacing and the block size used for modeling is half of the close spacing drilling. It can be made smoother in areas where drill holes spacing is greater than 100 meters.

Mineral Resource Opportunities

PT GAS notes there are several opportunities to increase the quality and quantity of the current Mineral Resources. These include:

- Laterite profile in PT TAS show enrichment of Ni in saprolite zone from upper until lower saprolite while some drill holes in PT TAS not penetrated into whole profile. Deeper drilling into bedrock can increase resources.

- Potential to classify additional Indicated Mineral Resources within all deposits. Additional data would have to be included in the Mineral Resources such as QAQC sample program, detailed topography, twin holes data, bulk density, and reconciliation data. PT GAS is happy to assist the Client with these requirements.

- Infill drilling program to add new data. With this program can increase the resources. PT GAS is happy to assist with any drill design or procedures that may be required by the Client.

- Any further exploration detail should be accompanied by appropriate analytical QA/QC, bulk density and topography programs to allow the highest classification possible for any future Mineral Resources.

Ore Reserves Estimate Statement

The JORC Ore Reserves for the Concession have been independently estimated by PT GAS in accordance with the JORC Code. PT GAS has determined suitable technical parameters to apply in the Ore Reserve estimation process including proposed life of mine plans, mining method, and historical and forecast processing plant recoveries to the areas of the Concession where Indicated Resources have been estimated.

The Ore Reserves have been classified based on the level of detail completed in the mine planning, practical pit design and the level of confidence in the Mineral Resources. On this basis the majority of Ore Reserves are considered as Probable Reserves and Proven Reserves. Ore Reserves estimates for the Concession are summarised in **Table ES.4, and the detail summarized in Table ES.5, Table ES.6, Table ES.7 and Table ES.8**. The Mineral Resources are reported inclusive of Ore Reserves, (that is, Ore Reserves are not additional to Mineral Resources).

Mining quantities were evaluated so that only Indicated and Measured Mineral Resources, within pit areas inside concession boundaries were considered in the Ore Reserves estimate. The Ore Reserve estimate was based on in situ moisture and dry density and reported using Wet Metric Tons.

Appropriate modifying factors were applied to the Resources to determine the Reserves. These modifying factors also considered loss and dilution parameters, exclusion criteria such as lease boundaries, and the economics of the operations.

Table ES.4   Total Ore Reserves of PT TAS

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.01 0.1 ≤ Ni < 1.0	LIM SAP	11.01	6.57	0.62	0.05	26.57	16.80	4.95	0.20	1.71	1.02	40.33
		Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	8.62	5.81	1.14	0.04	19.42	37.05	14.47	0.63	1.60	1.08	32.62
		High Grade ORE (HGO)	Ni ≥ 1.4	LIM SAP	2.50	1.69	1.59	0.04	18.22	35.56	16.05	0.57	1.60	1.08	32.62
TOR	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.03 0.5 ≤ Ni < 1.0	LIM SAP	6.35	4.45	0.87	0.10	40.03	11.96	4.59	0.12	1.71	1.20	29.94
		Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	10.32	7.91	1.12	0.06	26.49	23.67	10.68	0.30	1.56	1.20	23.35
		High Grade ORE (HGO)	Ni ≥ 1.4	LIM SAP	2.59	1.99	1.66	0.03	15.33	30.52	14.92	0.29	1.56	1.20	23.35
Total					**41.39**	**28.41**	**1.03**	**0.06**	**25.91**	**24.17**	**9.79**	**0.33**	**1.63**	**1.12**	**30.75**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

All the estimates are reported on a WMT basis.

Table ES.5 — Total Concession Cobalt-Rich Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Cobalt Rich Ore	0.1 ≤ Ni Lim < 1.0 0.1 < Ni Sap < 0.7	LIM + SAP	11.01	6.57	0.62	0.05	26.57	16.8	4.95	0.2	1.71	1.02	40.33
TOR	Probable	Cobalt Rich Ore	0.5 ≤ Ni Lim < 1.0 0.1 < Ni Sap < 0.7	LIM + SAP	6.35	4.45	0.87	0.1	40.03	11.96	4.59	0.12	1.71	1.2	29.94
Total					**17.36**	**11.02**	**0.72**	**0.07**	**32**	**14.85**	**4.81**	**0.17**	**1.71**	**1.09**	**36.14**

Table ES.6 — Total Concession Medium Grade Nickel Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM + SAP	8.62	5.81	1.19	0.03	14.86	42.61	17.12	0.74	1.6	1.08	32.62
TOR	Probable	Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM + SAP	10.32	7.91	1.2	0.03	14.08	34.46	16.97	0.42	1.56	1.2	23.35
Total					**18.94**	**13.72**	**1.2**	**0.03**	**14.47**	**38.47**	**17.04**	**0.58**	**1.58**	**1.14**	**27.92**

Table ES.7 — Total Concession High Grade Nickel Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	High Grade Ore (HGO)	Ni ≥ 1.4	LIM + SAP	2.5	1.69	1.58	0.03	16.12	37.85	17.27	0.59	1.6	1.08	32.62
TOR	Probable	High Grade Ore (HGO)	Ni ≥ 1.4	LIM + SAP	2.59	1.99	1.64	0.03	13.23	32.07	15.76	0.31	1.56	1.2	23.35
Total					**5.1**	**3.67**	**1.61**	**0.03**	**14.59**	**34.78**	**16.47**	**0.44**	**1.58**	**1.14**	**27.7**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.
All the estimates are reported on a WMT basis.

Table ES.8   **Summary Mineral Resources and Ore Reserves**

CATEGORY	MINERAL TYPE	GROSS ATTRIBUTABLE TO LICENSE					NET ATTRIBUTABLE TO THE COMPANY					
		Wet Tonnes (Millions)	Dry Tonnes (Millions)	Grade %			Wet Tonnes (Millions)	Dry Tonnes (Millions)	Grade %			Change from previous update (Wet Tonnes Millions)
				Ni (%)	Co (%)	Fe (%)			Ni (%)	Co (%)	Fe (%)	
RESERVES												
Proved	-	-	-	-	-	-	-	-	-	-	-	-
Probable	LIM	17.4	11.0	0.72	0.07	32.00	17.4	11.0	0.72	0.07	32.00	- 1.90
	LIM & SAP	18.9	13.7	1.20	0.03	14.47	18.9	13.7	1.20	0.03	14.47	- 0.70
	SAP	5.1	3.7	1.61	0.03	14.59	5.1	3.7	1.61	0.03	14.59	- 0.50
Total		**41.4**	**28.4**	**1.03**	**0.06**	**25.91**	**41.4**	**28.4**	**1.03**	**0.06**	**25.91**	**- 3.10**
RESOURCES												
Measured	-	-	-	-	-	-	-	-	-	-	-	-
Indicated	LIM & SAP	51.3	35.0	1.01	0.06	25.00	51.3	35.0	1.01	0.06	25.00	- 5.50
Inferred	LIM & SAP	87.8	60.7	1.00	0.07	28.48	87.8	60.7	1.00	0.07	28.48	- 1.90
Total		**139.0**	**95.6**	**1.00**	**0.06**	**27.21**	**139.0**	**95.6**	**1.00**	**0.06**	**27.21**	**- 7.60**

- Mineral Resources are inclusive of Ore Reserves
- All estimates are depleted using topographic survey data as at 30th August 2021
- All grades are reported on a dry basis
- Minimum cut-off criterion of 0.5% Ni was used to report Mineral Resources
- Mineral Resource and Ore Reserve estimates are not precise calculations. The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies
- Previous Mineral Resource estimate reported at an effective date of September 30th 2019
- Net Attributable to the Company (Mineral Resources & Ore Reserves) is 100% of the Gross Attributable to License
- LIM: Limonite, SAP: Saprolite, WMT: Wet Metric Tonne, Ni: Nickel, Co: Cobalt, Fe: Iron

Change from Previous Estimate:
The Mineral Resources reported in the IQPR dated 30th September 2019 were 146.6 MWMT. The reduction of 7.6 MWMT to 139.0 MWMT in the current Mineral Resources report is after considering changes in topography, new pit designs, mined out areas, and actual mining activity and production to date.

The selected mining method is an open cut shallow, truck and excavator mining method where dumping is initially ex-pit and then in-pit dumping where possible using a haul-back method. The mining factors applied to the resource models for deriving mining quantities were selected based on the use of excavators and trucks.

Ore Reserves Opportunities and Risks

As part of the analysis, there were a number of opportunities and risks identified that should be evaluated further in future work.

Potential opportunities to improve the schedule include:

- Further optimisation of waste haul distances,

- Other options of ex-pit or in-pit dump spreader use are possible,

- Evaluation of economic ore limits underneath existing resources, overburden dumps and reclaimed areas, such as resources with high iron content (Fe>40%),

- Continued detailed exploration drilling within the Inferred Mineral Resource classification area and recognising drilling for all areas inside concession.

Key risks and issues include:

- Revenue and cost factors based on certain forward-looking assumptions that must be periodically reviewed.

- No geotechnical study has been completed to confirm pit depths under current parameters.

- Use of small equipment may create substantial congestion as pit depths increase and working areas decrease.

- In-pit water management requires further improvement to minimise potential disruption to ore production.

Conclusions and Recommendations

Total Mineral Resources reported for the Concession at an effective date of 30th August 2021 totaled 139 MWMT, with Ore Reserves of 41.39 MWMT. Resources were classified as Indicated and Inferred, and Ore Reserves reported as Probable Reserves at the time.

Further work is recommended to mitigate the risks identified and assess opportunities, including:

- Undertake a geotechnical study to confirm all pits and dump stability parameters.

- Potential to classify additional Indicated Mineral Resources within all deposits by Infill drilling program. Additional data would have to be included in the Mineral Resources such as QAQC sample program, detailed topography, twin holes data, bulk density, and reconciliation data. PT GAS is happy to assist the Client with these requirements.

- Update the geological models.

- Investigate the blending options between pits.

- Evaluate the replacement of the infrastructure preventing the increase in the optimum pit selection.

- Investigate in-pit dumping option and selective mining method study.

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1. INTRODUCTION

This Independent Qualified Persons technical report Mineral Resources and Ore Reserves Estimate (the "Report") contains an independent estimate (the "Statement") prepared by PT Geo Artha Selaras ("PT GAS") for PT Teknik Alum Service, ("PT TAS" or the "Client"), of the Mineral Resources and Ore Reserves of the PT TAS Nickel Concession ("the Concession") located near in South Bungku District, Central Sulawesi Province, Indonesia. The Statement reports the Mineral Resources and Ore Reserves for the PT TAS Nickel Concession estimated as at 30th August 2021 in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Geoscientists and Minerals Council of Australia ("the JORC Code 2012").

1.1. Scope of Work

The scope of work ("SOW") was divided into three stages; Stage 1 - Concession Status Review, Stage 2 - Mineral Resource Estimation and Stage 3 - Ore Reserves Estimation.

The Stage 1 was conducted in 2 parts: Part 1 Geological Data Review and Part 2 Mining Data Review.

The Part 1 Geology Data review included examination of:
- Exploration drilling and geological database;
- Drill core recovery;
- Sampling and sub-sampling procedures;
- Quality Assurance / Quality Control (QA/QC) data;
- Bulk density and moisture data;
- Topography data.
- Geological model including lithological coding and estimation of block model; and
- Model statistical analyses and variography.

The Part 2 Mining Data review included examination of:
- Current life-of-mine (LOM) plan;
- Key mining parameters for determining pit limits including Concession operating cost and ore pricing, pit cut-off grades, production target, etc.;
- Infrastructure; haul roads, site access, power, services and other facilities;
- Marketing arrangements, product specifications and long-term ore prices;
- Environmental and social; approvals documentation, others key social factors may impact to Ore Reserves; and
- Water management.

The purpose of Stage 1 was to ensure the work was suitable to proceed to Stage 2, with the provided geological models and data being accepted and used by PT GAS if they were deemed suitable after PT GAS's review and verification procedures.

The Stage 2 Mineral Resources and Stage 3 Ore Reserves estimate comprised the following tasks:

Estimation of Mineral Resources
- Prepare a resource geological model using a method appropriate to the number of sample locations and style of deposit being modelled;
- Classification of the Mineral Resource quantities as Measured, Indicated or Inferred categories for all assets; and
- Estimate Mineral Resources.

Estimation of Ore Reserves

- Apply Mining Modifying factors to convert the in situ geological model to a run-of-mine (ROM) model;

- Determine economic and practical mining limits using pit limit optimization software;

- Select and design ultimate pit shell for each asset;

- Estimate mining quantities within ultimate pit shell;

- Complete LOM mining schedule and economic model to confirm practical and economic extraction for the Concession;

- Estimate Ore Reserves in Proved and Probable categories based on Mineral Resource categories, and

- Prepare a Report that meets the guidelines of the JORC Code (2012 Edition).

The scope of work primarily focused on the estimation of Mineral Resources and Ore Reserves at the PT TAS nickel laterite concessions. The scope excluded a detail review of Processing, Legal, Commercial, Permitting, and Environmental matters though relevant items to the estimation of Reserves were considered for reasonableness.

1.2. Purpose of the Report

This report has been prepared for the client and used for updating the mineral resources and ore reserves estimate of PT TAS that meets (i) the standards of the JORC Code; and (ii) the requirements for mineral, oil and gas companies as set out in the Catalist Rules.

The SGX Catalist Rules specify that a listing applicant must substantiate the existence of adequate Mineral Resources through the publication of an IQPR that complies with the Catalist Rules of the SGX (the "Catalist Rules") and Practice Note 4C, which set out the disclosure requirements for Mineral, Oil and Gas Companies. This Report has been prepared to meet the requirements of the Catalist Rules for new listings and as specified in Practice Note 4C.

1.3. Relevant Assets

The Relevant Asset is PT TAS nickel concessions located in South Bungku District, Central Sulawesi Province, Indonesia. The PT TAS concession contains 2 (two) blocks of nickel laterite deposit. The concession covers an area of approximately 1,301 Ha, has had a significant amount of exploration work conducted and currently in production.

1.4. Approach

The process adopted for PT TAS is described below:

- Stage 1 review of existing data including block models and surface DTMs. If existing data validated proceed to JORC Classification and reporting.

- If the existing data could not be validated, geological models to be recreated.

- Surface DTMs were created by PT GAS for most updated drilling data using Surpac software. The surfaces were interpreted using down-hole geochemistry and geological logging.

- The underlying raw data, such as drill hole logs, quality control reports and assay logs were reviewed by PT GAS and are considered to be suitable for use in estimating the Mineral Resource.

- An Ordinary Kriging ("OK") interpolation was used to estimate Ni, Co, Fe, SiO2, and MgO grades within the block model, using four estimation passes.

- Preliminary classification of the lodes in the block model into the Indicated and Inferred confidence areas was based on data quality, geological confidence and drill hole spacing.

Mineralisation volumes and tonnages were estimated and reported in this category after applying any cut-off criteria.

- Checks were undertaken and results and supporting information documented in this Report.
- Reviewed the pit shells using pit cut off incremental analysis.
- Reviewed the unit costs.
- Reviewed the commodity price.
- Reviewed Life of Mine, ("LOM") data.
- Reviewed revenue and cost factors which include operating and capital cost to determine the viability of the operations as per contemporary industry expectations of the JORC Code.

The JORC Code "framework for classifying tonnage and grade estimates to reflect different levels of geological confidence and different degrees of technical and economic evaluation" applied in the estimation of the Mineral Resource and Ore Reserve is shown in **Figure 1.1**.

Figure 1.1   General Relationship Between Exploration Results, Mineral Resources, and Ore Reserves (Source: Australasian Code for Reporting of Mineral Resources and Ore Reserves, The JORC Code 2012 Edition)
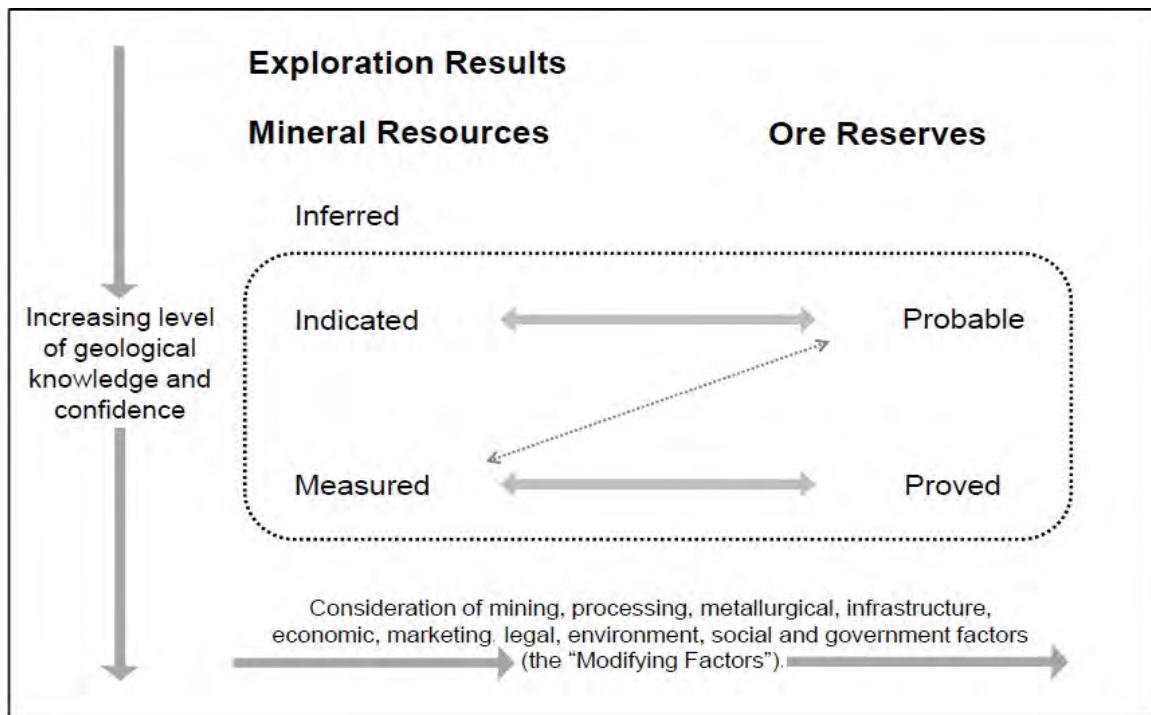
1.5.   Site Visit

A site visit was not undertaken because of the Covid-19 pandemic situation in Indonesia. However, PT GAS is familiar with PT TAS's mine operations and relied on information provided by PT TAS, either directly from the site and other offices, or from reports by other organisations whose work is the property of PT TAS.

1.6.   Information Sources

This report relies largely on information provided by PT TAS, either directly from the site and other offices, or from reports by other organisations whose work is the property of the Client. The following reports, documents and studies were used as reference material in the preparation of the Statement.

- Standard Operating Procedures (SOPs).

- Technical reports, documents and studies are used as reference material in the preparation of the statement such as:
    - Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, (The "JORC Code 2012"), 2012.
    - Regional Geology of the Lasusua - Kendari sheet, Sulawesi. By E. Rusmana, Sukido, D.Sukarna, E. Haryono and T.O.Simandjuntak, 1993;
    - Geological Map of Bungku Quadrangle, Sulawesi. Scale 1:250.000 by Simandjuntak, T.O., Rusmana, E., Supandjono, J.B., Koswara, A. 1993
    - Feasibility study report PT TAS, September, 2008. "Laporan Studi Kelayakan Proyek Pembangunan Tambang Bijih Nikel di Desa Buleleng dan Desa Torete Kecamatan Bungku Selatan Kabupaten Morowali Provinsi Sulawesi Tengah";
    - Independent Qualified Persons Report, September 30 2019, By PT Geo Artha Selaras

- PT TAS drilling database, which is a comprehensive archive of all drilling-related data, including collar locations, geological logging and geochemical assays (including Quality Control and Quality Assurance data).

- Assay certificates, from relevant geochemical laboratories.

- Legal permitting (Exploration Permit, Exploitation Permit, IPPKH permit, CNC Certificate, Penetapan Terminal Khusus / TERSUS).

- Digital elevation model (DEM) of the PT TAS areas from LIDAR survey.

1.7. Limitations and Exclusions

PT GAS's review was based on various reports, plans and tabulations provided by the Client either directly from the mine site and other offices, or from reports by other organisations whose work is the property of the Client. The Client has not advised PT GAS of any material change, or event likely to cause material change, to the operations or forecasts since the date of asset validation.

The work undertaken for this Report is that required for a technical review of the information, coupled with such inspections as PT GAS's team of consultants (the "Team") considered appropriate to estimate Mineral Resources and Ore Reserves.

It specifically excludes all aspects of mining and processing, legal issues, commercial and financing matters, land titles and agreements, except such aspects as may directly influence technical, operational or cost issues as applicable to the JORC Code guidelines.

1.7.1. Limited Liability

This Report has been prepared by PT GAS for PT TAS and is not to be used or relied upon for any other purpose. PT GAS will not be liable for any loss or damage suffered by a third party relying on this report or any references or extracts therefrom contrary to the purpose (regardless of the cause of action, whether breach of contract, tort (including negligence or otherwise) unless and to the extent that PT GAS has consented to such reliance or use. This report has been prepared for the client and used for updating the mineral resources and ore reserves estimate of PT TAS.

1.7.2. Responsibility and Context of this Report

The contents of this report have been based upon and created using data and information provided by or on behalf of the Client. PT GAS accepts no liability for the accuracy or completeness of data and information provided to it by, or obtained by it from, the Client or any third parties, even if that data and information has been incorporated into or relied upon in creating this report. The report has been produced by PT GAS in good faith using information that was available to PT GAS as at the date stated on the cover page.

This Report contains findings that may materially change in the event that any of the information supplied to PT GAS is inaccurate or is materially changed. PT GAS is under no obligation to update the information contained in this Report.

Notwithstanding the above, in PT GAS's opinion, the data and information provided by or on behalf of PT TAS was reasonable and nothing discovered during the preparation of this Report suggests that there was a significant error or misrepresentation of the data or information.

1.7.3. Indemnification

The Client indemnified and held harmless PT GAS and its subcontractors, consultants, agents, officers, directors, and employees from and against any and all claims, liabilities, damages, losses, and expenses (including lawyers' fees and other costs of litigation, arbitration or mediation) arising out of or in any way related to:

- PT GAS's reliance on any information provided by the Client; or
- PT GAS's services or materials; or
- Any use of or reliance on these services.

1.7.4. Mining Unknown Factors

The findings and opinions presented herein are not warranted in any manner, expressed or implied. The ability of the operator, or any other related business unit, to achieve forward-looking production and economic targets is dependent upon numerous factors that are beyond PT GAS's control and which cannot be fully anticipated by PT GAS. These factors include site-specific mining and geological conditions, the capabilities of management and employees, availability of funding to properly operate and capitalise the operation, variations in cost elements and market conditions, developing and operating the mine in an efficient manner, etc. Unforeseen changes in legislation and new industry developments could substantially alter the performance of any mining operation.

1.7.5. Capability and Independence

PT GAS provides advisory services to the mining and finance sectors. Within its core expertise it provides independent technical reviews, resource evaluation, mining engineering and mine valuation services to the resources and financial services industries.

PT GAS has independently assessed the Relevant Assets of the Concession by reviewing pertinent data. All opinions, findings and conclusions expressed in this Report are those of PT GAS and its specialist advisors.

PT GAS has been paid, and has agreed to be paid, professional fees based on a time and materials estimate for its preparation of this Report. Its remuneration is not dependent upon the findings of this Report or on the outcome of the transaction.

None of PT GAS or its directors, staff or specialists who contributed to this Report have any economic or beneficial interest (present or contingent), in:

- the Concession, securities of the companies associated with the Client or that of PT GAS; or
- the right or options in the Relevant Assets; or
- the outcome of any proposed transaction.

This Report was compiled on behalf of PT GAS by the signatories to this Report. The specialists who contributed to the findings within this Report have each consented to the matters based on their information in the form and context in which it appears.

1.8. Study Team

The Study Team comprised of professionals from PT GAS's Jakarta offices.

2. CONSENT STATEMENTS

2.1. Qualified Person – Mineral Resources

I, Wahyu Asmantowi, confirm that I am associate Principal Consultant Geologist of PT GAS and that I directly supervised the production of the Report titled "Independent Qualified Persons Technical Report Mineral Resource and Ore Reserve Estimate of PT Teknik Alum Service, Buleleng and Torete Nickel Project, Central Sulawesi Province, Indonesia" with an effective date of 30th August 2021, in accordance with Rule 442 of the SGX Catalist Rules.

I confirm that my firm's directors, substantial shareholders, employees and I are independent of PT TAS and each of their directors and substantial shareholders, and their associates. In addition, my firm's directors, substantial shareholders, employees, and I have no interest, direct or indirect, in PT TAS or associated companies, and will not receive benefits other than remuneration paid to PT GAS in connection with this Independent Qualified Persons Report. Remuneration paid to PT GAS is not dependent on the findings of this Independent Qualified Persons Report.

I am a Member of The Australasian Institute of Mining and Metallurgy ("AusIMM") and Indonesian Association of Geologist ("IAGI"). I have not been found in breach of any relevant rule or law of those Institutes, and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

I have read and understood the requirements of the 2012 Edition of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

I am a Competent Person as defined by the JORC Code, 2012 Edition, having sufficient experience that is relevant to the style of mineralisation and type of deposit described in this Independent Qualified Persons Report, and to the activity for which I am accepting responsibility.

I verify that this Independent Qualified Persons Report is based on and fairly and accurately reflects, in the form and context in which it appears, the information in the supporting documentation relating to Mineral Resources. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

....
Wahyu Asmantowi, B.Sc (Geology), MAusIMM.

2.2. Qualified Person – Ore Reserves

I, Lesbon Sitorus, confirm that I am Associate Senior Mining Engineer of PT GAS and that I directly supervised the production of the Report titled "Independent Qualified Persons Technical Report Mineral Resource and Ore Reserve Estimate of PT Teknik Alum Service, Buleleng and Torete Nickel Project, Central Sulawesi Province, Indonesia" with an effective date of 30th August 2021, in accordance with Rule 442 of the SGX Catalist Rules.

I confirm that my firm's directors, substantial shareholders, employees and I are independent of PT and each of their directors and substantial shareholders, and their associates. In addition, my firm's directors, substantial shareholders, employees, and I have no interest, direct or indirect, in PT TAS or associated companies, and will not receive benefits other than remuneration paid to PT GAS in connection with this Independent Qualified Persons Report. Remuneration paid to PT GAS is not dependent on the findings of this Independent Qualified Persons Report.

I am a Member of The Australasian Institute of Mining and Metallurgy ("AusIMM") and Indonesian Association of Engineers ("PERHAPI"). I have not been found in breach of any relevant rule or law of those Institutes, and I am not the subject of any disciplinary proceeding. I am not the subject of any investigation that might lead to a disciplinary proceeding by any regulatory authority or any professional association. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

I have read and understood the requirements of the 2012 Edition of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).

I am a Competent Person as defined by the JORC Code, 2012 Edition, having sufficient experience that is relevant to the style of mineralisation and type of deposit described in this Independent Qualified Persons Report, and to the activity for which I am accepting responsibility.

I verify that this Independent Qualified Persons Report is based on and fairly and accurately reflects, in the form and context in which it appears, the information in the supporting documentation relating to Ore Reserves. I have reviewed this Independent Qualified Persons Report to which this Consent Statement applies.

....
Lesbon Sitorus, B.Eng (Mining Engineering), MAusIMM.

3. CONCESSION DESCRIPTION

3.1. Location and Access

The Concession is located near Buleleng and Torete villages, South Bungku District, Morowali Regency, Central Sulawesi Province, approximately 180 km northwest of the provincial city of Kendari, Indonesia. The central coordinate of the Concession area is X: 122° 13' 34.32" E and Y: 3° 0' 30.96" S, taken using a projected coordinate system WGS 1984. The access to the concession is by commercial flights from Jakarta to Kendari (three and a half hours duration), then from Kendari driving along sealed provincial roads (six hours duration). The Concession location is shown in Figure **Figure 3.1.**

Figure 3.1   Concession Location

Source: PT TAS Exploration Drilling Report

Road access between the main cities in the region is generally fairly good road condition. The Concession area itself is accessible via the all-weather gravel mining road which connects the concession areas to the nearest village (Buleleng and Torete).

3.2.   Tenure and Permit

3.2.1.   Tenements and Land Tenure

PT TAS consists of two deposits; Buleleng and Torete deposits located within the same concession boundary. The Concession covers a total area of 1,301 Ha. The IUP Exploration and Production operation concession for nickel commodity was issued by Regent of Morowali Regency under the decree IUP number 188.45/SK.0756/DISTAMBEN/07 and 540.3/SK.002/DESDM/VI/2012 **(Table 3.1 and Table 3.2).** The coordinates of the concession, as outlined within the statutory documents, are outlined in **Table 3.4.**

Table 3.1   TAS Exploration Mining Permit Details

Company Name	PT Teknik Alum Services
Certificate Type	**Exploration licence**
Certificate No.	188.45 / SK.0756 / DISTAMBEN / 07
Mine Right Holder	PT Teknik Alum Services
Address	Jl. MT. Haryono Komp. Balikpapan Baru Blok AB-I No.11 RT.052 Kel. Damai Balikpapan-Kalimantan Timur Telp (0542) 733826
Commodities	Nickel and other associated commodities
Coverage Area	6,602 Ha
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Validity	September 20th, 2017
Issue Date	September 20th, 2007

Table 3.2   TAS Production Mining Permit Details

Company Name	PT Teknik Alum Services
Certificate Type	**Production licence**
Certificate No.	540.3 / SK.002 / DESDM / VI / 2012
Mine Right Holder	PT Teknik Alum Services
Share Holder	(1) The Agam Tirto Buwono (90%) Jl. Sumbawa No 20 Surabaya 60281 (2) PT Teknik Alum Services (10%) Jl. MT. Haryono Komp. Balikpapan Baru Blok AB-I No.11 RT.052 Kel. Damai Balikpapan-Kalimantan Timur
Commodities	Nickel and other associated commodities
Coverage Area	1,301 Ha
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Validity	June 19th, 2032
Issue Date	Junei 19th, 2012

Table 3.3   Coordinates of PT TAS IUP Production License Details

No	Longitude			Latitude		
	Degree	**Minute**	**Second**	**Degree**	**Minute**	**Second**
1	122	11	0.92	-2	56	59.42
2	122	11	58.05	-2	56	59.42
3	122	11	58.05	-2	57	59.35
4	122	13	2.04	-2	57	59.35
5	122	13	2.04	-2	58	56.04
6	122	16	46.92	-2	58	56.04
7	122	16	46.92	-2	59	15.54
8	122	16	38.61	-2	59	15.54
9	122	16	38.61	-2	59	39.73
10	122	16	27.4	-2	59	39.73
11	122	16	27.4	-2	59	52
12	122	16	0	-2	59	52
13	122	16	0	-3	0	10.06
14	122	15	40.04	-3	0	10.06
15	122	15	40.04	-3	0	25.22
16	122	15	14.73	-3	0	25.22
17	122	15	14.73	-3	1	49.71
18	122	11	27.32	-3	1	49.71
19	122	11	27.32	-3	0	56.28
20	122	7	44.6	-3	0	56.28
21	122	7	44.6	-3	0	3.2
22	122	11	0.92	-3	0	3.2

PT GAS sighted the Certificate

Figure 3.2   Concession area of IUP PT TAS
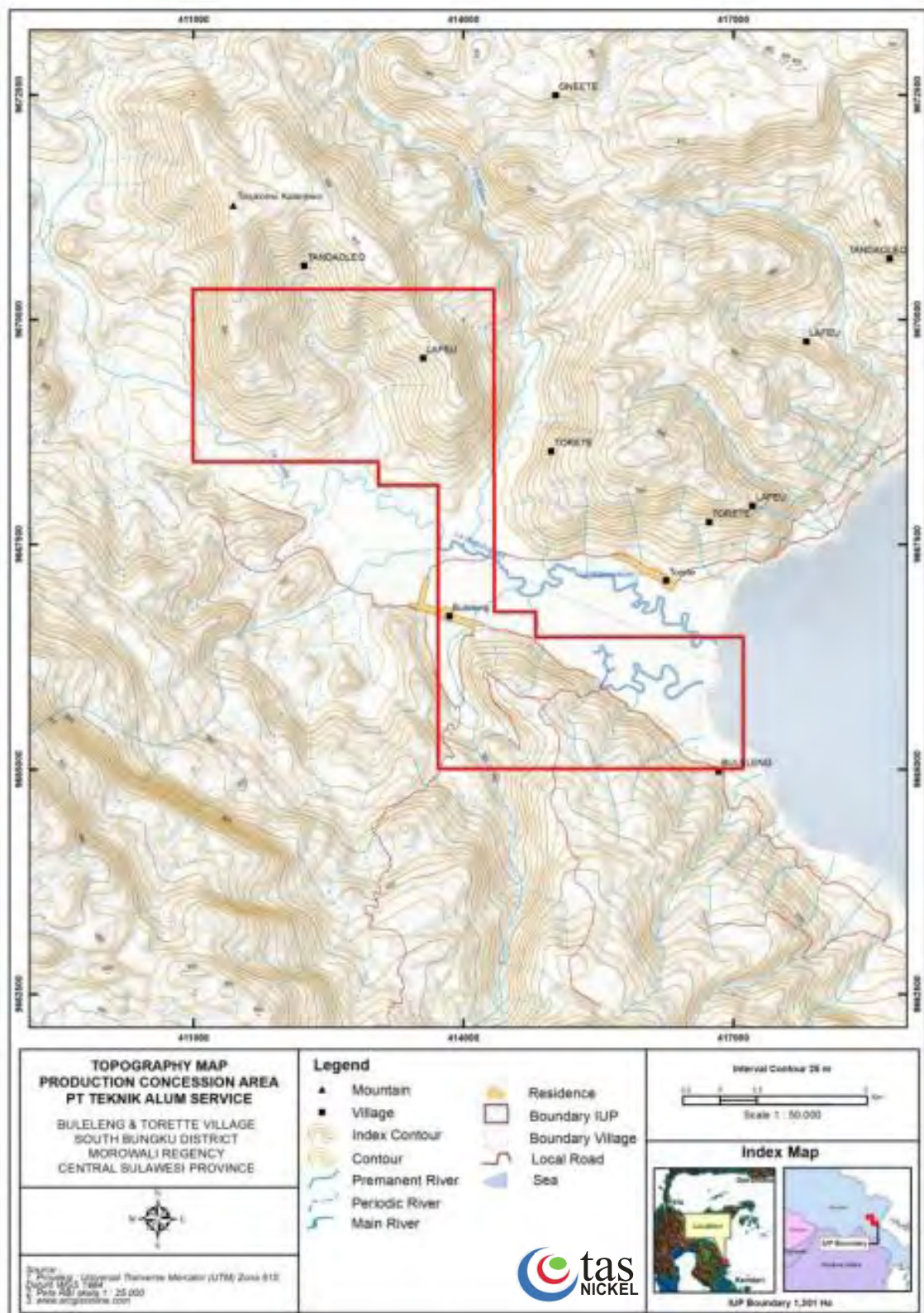
Source: PT TAS Exploration Drilling Report

3.2.2. Clear and Clean

PT TAS holds Clean and Clear certificates, which ensure no overlap with other mining licenses. Certificate issued by Director General for Coal and Minerals under the decree 517/Min/12/2013 dated 20 February 2013 (**Table 3.2**)

Table 3.4   PT TAS Clear and Clean Certificate Details

Company Name	PT Teknik Alum Services
Certificate Type	**Clear and Clean**
Certificate No.	517 / Min / 12 / 2013
Mine Right Holder	PT Teknik Alum Services
Mining Licence	540.3 / SK.002 / DESDM / II / 2012
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Issue Date	February 20th, 2013

PT GAS sighted the Certificate

3.2.3. Special Terminal Mining License

The terminal of mining or jetty is needed to maintain the smooth logistics for mining operations and for to the delivery of raw nickel ore products from the area to the plant. In accordance with the transportation regulations, mining terminal permits are required before building and operating mine terminal.

PT TAS has obtained a special terminal permit for nickel mine based on Decree of the Minister of Transportation No. B.X- 507 / PP 008 dated 7th October 2015 located in Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province. The mining terminal or jetty has been connected via the gravel road to the mine site.

Table 3.5   PT TAS Establishment of Special Terminal Locations

Company Name	PT Teknik Alum Services
Certificate Type	**Special Terminal Mining**
Certificate No.	B.X- 507 / PP 008
Mine Right Holder	PT Teknik Alum Services
Coordinates	a. 03º - 01' - 31" LS / 122º - 15' - 21" BT
	b. 03º - 01' - 39" LS / 122º - 15' - 03" BT
	c. 03º - 01' - 15" LS / 122º - 15' - 03" BT
	d. 03º - 01' - 15" LS / 122º - 15' - 28" BT
	e. 03º - 01' - 39" LS / 122º - 15' - 28" BT
Location	Buleleng and Torete Villages, South Bungku District, Morowali Regency, Central Sulawesi Province
Validity	October 7th, 2025
Issue Date	October 7th, 2015

PT GAS sighted the Certificate

3.2.4. Forestry Permits

The forestry zonation of the Concession area, an important aspect of any mining project in Indonesia, according to Forestry Map of North Maluku Province (attachment decree of the Minister of Forestry number SK.869/Menhut-11/2014; dated 29th September 2014) shows that the concession area consists of Conversion Production Forest (Hutan Produksi Konversi/HPK) in the north-east of the concession and Other Usage Area (Area Penggunaan Lain/APL) in the south part of the concession. Conversion Production Forest (HPK) requires the consent in accordance with the provisions of the Forestry laws, in the form of Borrow and Use Permit (Izin Pinjam Pakai Kawasan Hutan / IPPKH) if the IUP holder is planning to conduct exploration and mining activities. PT TAS has submitted the application for the Borrow-Use Permit Forestry (IPPKH; "Ijin Pinjam Pakai Kawasan Hutan").

Figure 3.3   Forestry status of PT TAS

Source: PT TAS Exploration Drilling Report
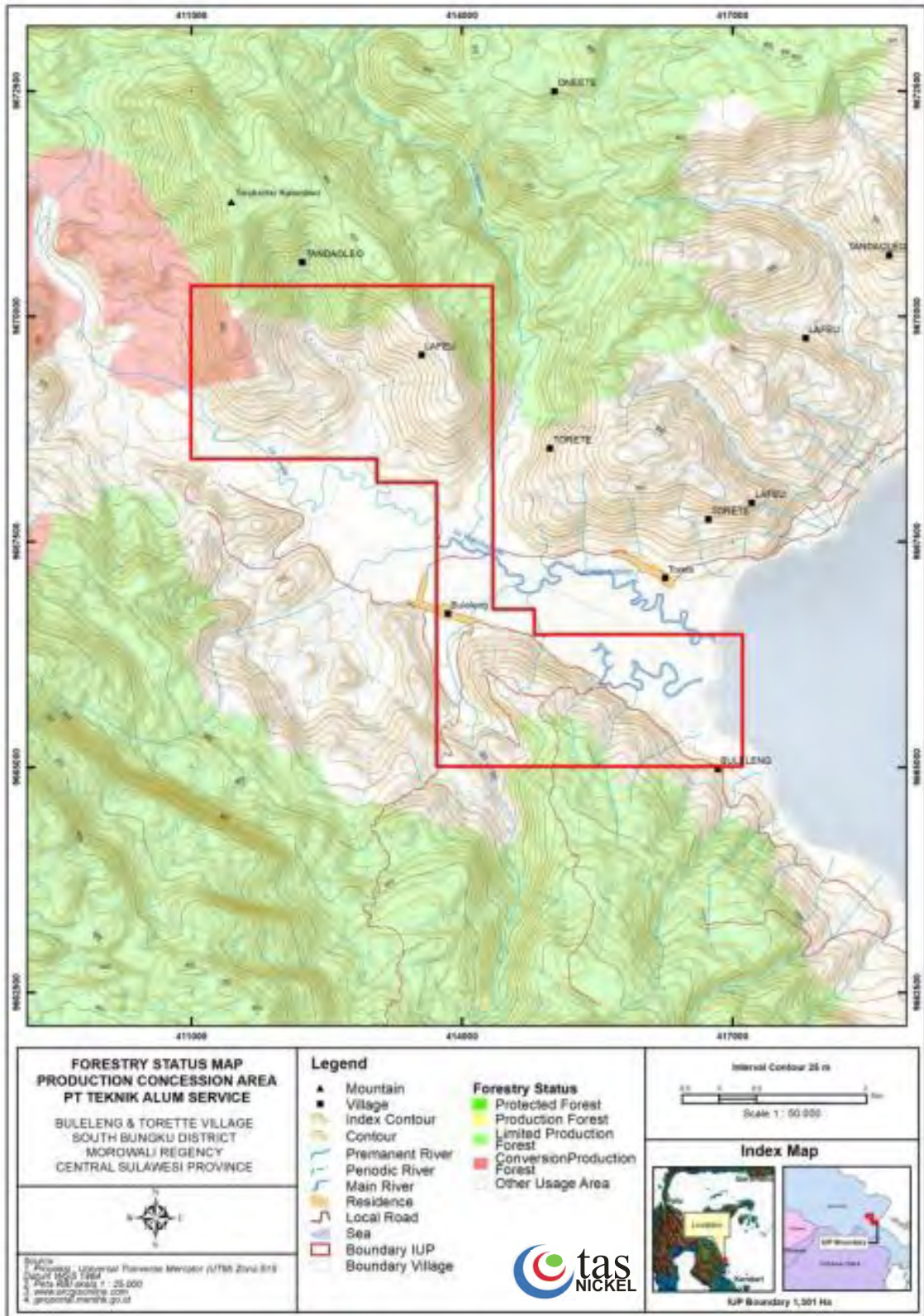
3.3. Regional Environment

3.3.1. Topography

The topography of the Concession area is in the form of hills and plains (**Figure 3.4** and **3.5**). The plains area is located in the northern part of the concession area. The hilly area is generally located in the southern part of the concession area. The trending ridge line is oriented northeast to southwest with an elevation in this area of 50 - 425 m above sea level ("ASL"). Drainage occurs through a series of near-parallel tributaries on either side of the ridge line.

Figure 3.4   Torete Terrain Overview (View toward Northwest)

Source: PT TAS Exploration Drilling Report

Figure 3.5   Torete Terrain Overview (View toward South)

Source: PT TAS Exploration Drilling Report

3.3.2. Climate

Like other regions in Indonesia, Concession area has two seasons namely dry and rainy or wet season. The situation is much influenced by the current season winds blow over the region. The area has a typical wet and humid tropical climate with abundant rainfall. The temperature generally ranges from 26°C to 30ºC, with cooler temperatures at higher elevations. The wet season is typically from December to February and the dry season from June to November. Annual precipitation is about 2,000 mm.

3.3.3. Flora and Fauna

The Concession area have been used for coconut and cocoa plantations, generally located around villages on the coast. The vegetation consists dominantly of Nani and Papua trees which thrive in high iron soils. Fauna that can still be found in the area include wild boar, snakes and many species of birds.

3.3.4. Local Resources

Buleleng is a coastal village located near the Concession area. The village is adjacent to the forest on which day-to-day community life and the village economy is highly dependent on. Most villagers have multiple sources of income. In addition to fishing, most people are also involved with rice farming, market gardening (including cashew, cocoa and coconut), and collecting forest resources. The forest resources utilised by the villagers include commercial timber, rattan, honey and hunting for animals.

3.3.5. Infrastructure and Other Facilities

In addition to the mining infrastructure, significant regional and local infrastructure provides support to the Concession. The main road connecting Buleleng village also provides access to other provinces (Central Sulawesi and Southeast Sulawesi). Local people depend on electric power supplied by the government. A small harbor exists for public transportation to Kendari, Southeast Sulawesi.

At Torete and Buleleng village, minimum public facility, limited village electricity, weak mobile phone coverage, public health facility only Posyandu and Puskesmas Pembantu (limited village clinic). Only logistic traditional stores available at site which provide limited kind of raw food.

4. GEOLOGICAL SETTING AND MINERALISATION

4.1. Regional Geology

The K-shape island of Sulawesi (formerly Celebes) consists of four narrow peninsulas known as 'arms', a 'neck' and a 'trunk' (west-central Sulawesi), which are surrounded by deep gulfs and marginal sea basins. The arms consist of South Arm, North Arm, East Arm and Southeast Arm (**Figure 4.1**).

Figure 4.1   Regional geology map of Sulawesi (Kadarusman et al., 2004)
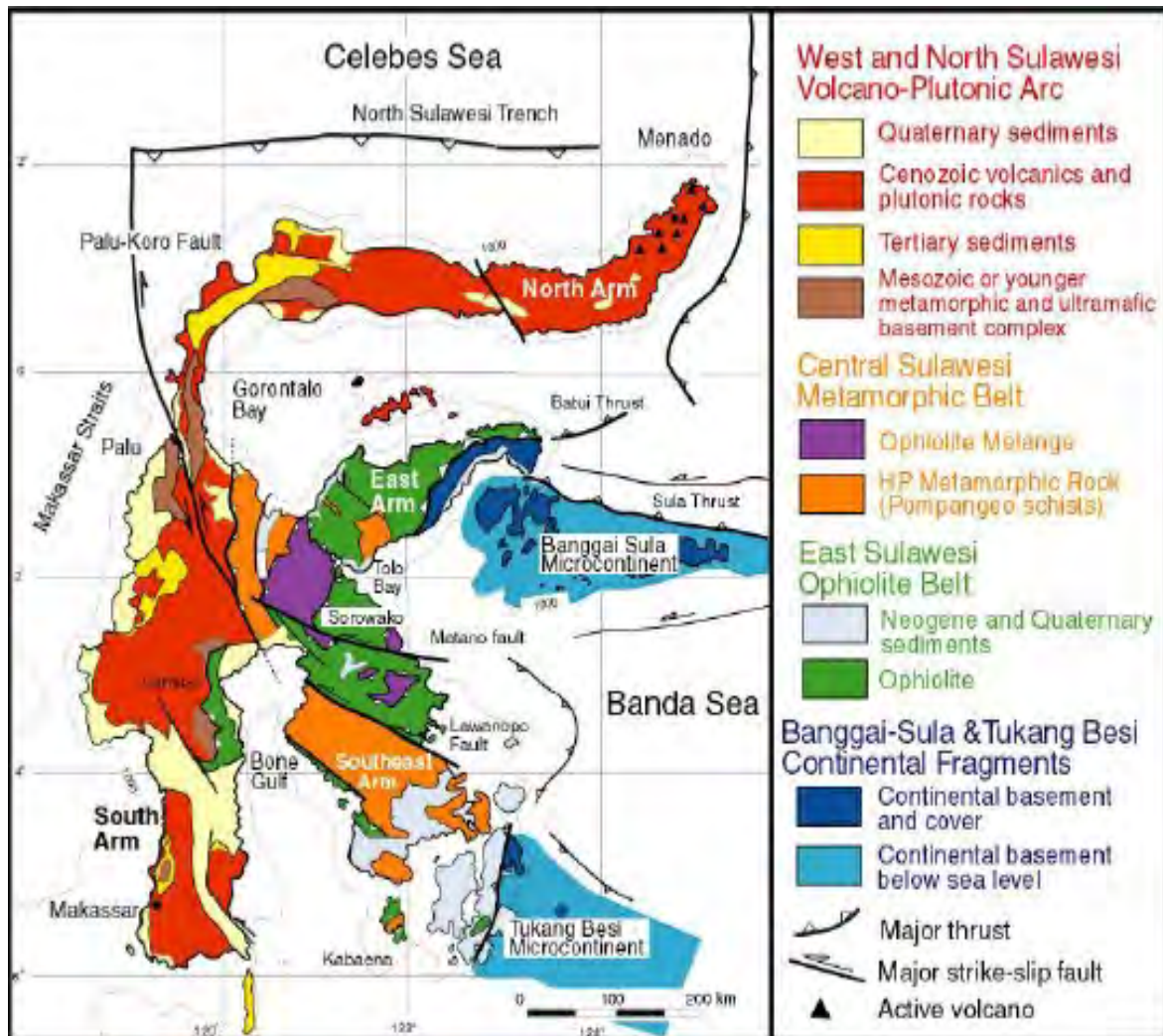
Source: PT TAS Exploration Drilling Report

The region has been subdivided into four litho-tectonic units bounded by large-scale tectonic dislocations and thrust faults. These are from west to east: (i) the west Sulawesi volcano-plutonic Arc, (ii) the central Sulawesi metamorphic belt, (iii) the east Sulawesi ophiolite belt, and (iv) the continental fragments of Banggai-Sula, Tukang Besi and Buton (Kadarusman et al., 2004).

South Konawe and its surrounding is a part of the East Sulawesi Ophiolite ("ESO"). East Sulawesi Ophiolite is one of the largest three ophiolites in the world. The ESO is a dismembered ophiolite that is tectonically intercalated with Mesozoic deep-sea sediments, marginal basin crust, and parts of the Sundaland fore-arc or oceanic plateau of Pacific plate. The origin and age(s) of the ESO is debatable as geochemical and geochronological data is incomplete. It represents a single ophiolite that has undergone a multistage history and consists of slices of ophiolite fragments with different origins (Monnier et al., 2002; Parkinson, 1998). It was in part thrust over the eastern periphery of the metamorphic rocks in the middle Oligocene (Kadarusman et al, 2004).

The ESO total length is 700 km from Gorontalo Bay, through the East Arm and central Sulawesi toward the Southeast Arm and the Islands of Buton and Kabaena; it also extends to the Lamasi Complex of the South Arm passing through the Gulf of Bone (The total outcrop area is more than 15,000 km2, see Fig. 4.1). The ophiolites are intercalated and complexly juxtaposed with Mesozoic and Tertiary sedimentary rocks, as a result of late Oligocene/early Miocene collision, subsequent contraction, and later strike-slip faulting (Parkinson, 1998; Hall, 2002).

A full suite of ophiolite lithology (ultramafic and mafic sequences) is present along the northern coast of the East Arm. In the large parts of the ESO, ultramafic sequences dominate in the Southeast Arm, southern part of the East Arm and Kabaena Island, while basaltic volcanic units are exposed in the Lamasi area (Kadarusman et al., 2004).

The ultramafic rocks of central Sulawesi consist of peridotites that have been serpentinised to varying degrees. Ultramafic outcrops in the east and southeast arm of Sulawesi occur in three forms:

- Large irregular masses of up to several hundred square kilometres. The largest is the Area Massif Lakes that covers several thousand square kilometres of continuous ultramafic terrain.
- Imbricated strips following the general structural grain of the subduction melange.
- Small irregular-shaped and isolated bodies of ultramafic.

According to the regional geology of the Lasusua - Kendari sheet, Sulawesi by E. Rusmana, Sukido, D.Sukarna, E. Haryono and T.O.Simandjuntak, 1993, the concession area has several formations consisting of Alluvial (Qa), Tokala Formation (TRJt), and Ultramafic Complex (**Figure 4.2**).

Based on the regional geology report and review survey results (reconnaissance) that have been conducted by (Simanjuntak et al., 1993), the regional geology of the Concession area can be broadly described as follows:

- Alluvial (Qa): Characterised by alluvial material; pebble, gravel, sand and clay. This formation occupies the Central concession area and covers about 10% of the total area.
- Ultramafic Complex (Ku): Characterised by ultramafic rocks (ophiolite) and includes peridotite, harzburgit, dunite, gabbro and serpentinite. This group occupies the central and western part of the northern exploration area and covers about 65% of the total area.
- Tokala Formation (TRJt): Characterised by carbonate rocks; calcilutite, limestone, sandstone, shale, marl and slate. This Formation occupies the northeast of the exploration area, and covers about 25% of the total area.

Figure 4.2   Regional Geology of PT TAS Concession Area
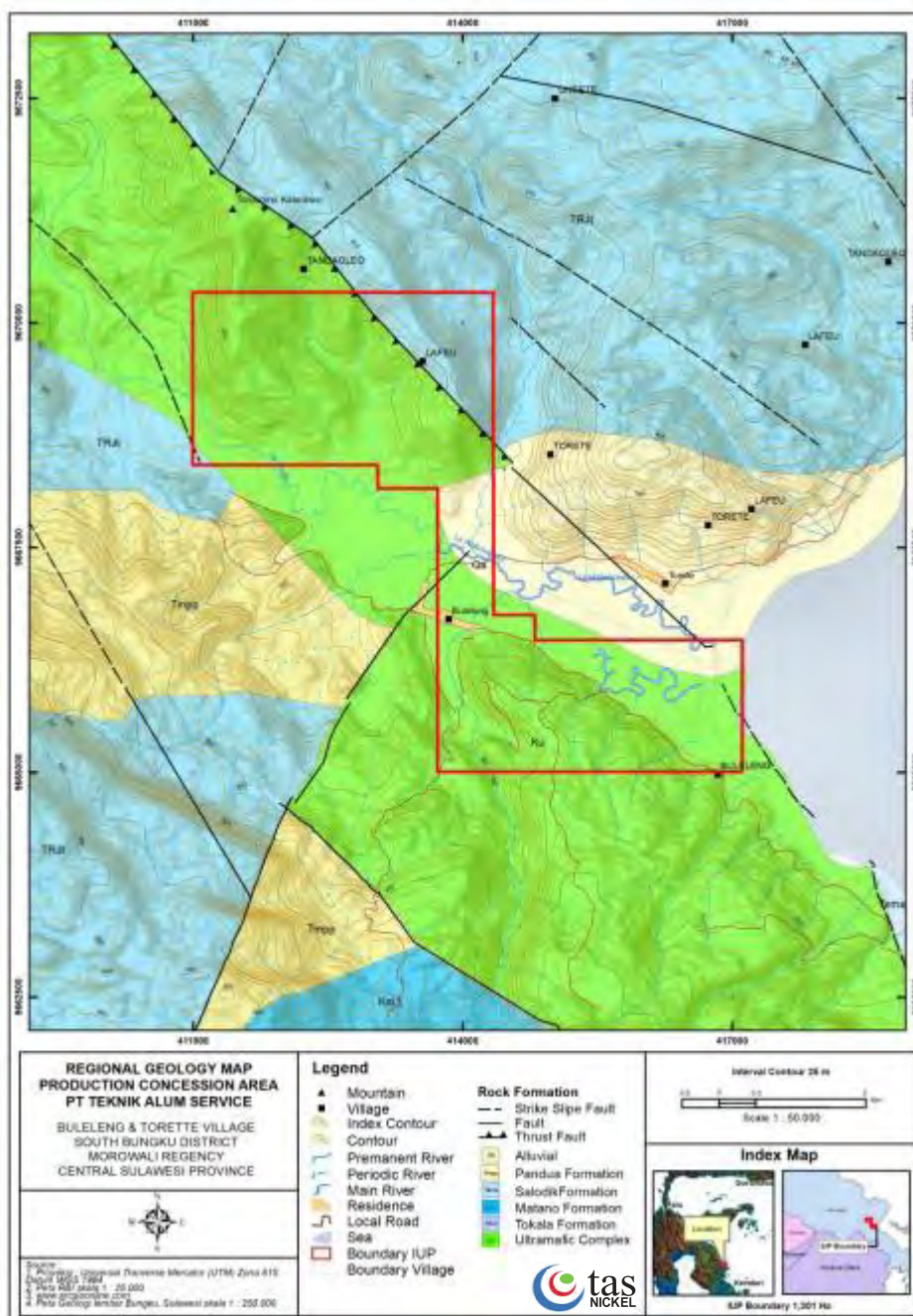
Source: PT TAS Exploration Drilling Report

The most important structure on Sulawesi is the still-active Palu-Koro Fault. It marks the western boundary of the lithosphere plate that is overriding the Sulawesi Sea floor to the North. The Palu Fault is marked by a continuous rift valley, which has a flat floor about 5-km wide in the Gulf of Palu area. At the north, the Palu Fault has been traced all the way up to the North Sulawesi Trench and marks its western extent. At the south, the Palu Fault stops at the northern shore of the Gulf of Bone (Kadarusman et al., 2004).

In addition, the structures that developed in the arms of East and Southeast Sulawesi were the Matano Fault, Kolaka Fault Group, Lawanopo Fault Group, and Lainea Fault Group. Other faults include Lemo Fault, Lameroto Fault, Mateupe Fault, Lindu Fault, Lambatu Fault, and Tanjungbasi Fault (**Figure 4.3**). The geological structure that developed in this area was dominated by the sinistral main fault which is trending northwest-southeast (Surono, 2013).

Figure 4.3   Main Fault at Southeast Arm Sulawesi (Surono, 2013)

Source: PT TAS Exploration Drilling Report

Nickel laterite deposits are formed strictly over ultramafic rocks through chemical leaching and supergene enrichment. Being residual soils, the deposits require appropriate conditions that would protect the material from rapid erosion yet allow good water circulation and flushing of the dissolved components. A fluctuating water table considerably enhances the supergene concentration of nickel in the laterite profile (Ahmad, 2008).

Thus, good exploration targets in Sulawesi are confined to ultramafic terrain where appropriate geomorphic landforms are developed. These landforms consist of plateaus, terraces, rolling hills, gentle hill flanks, and gentle ridge spurs. Steep terrain (generally over 25% gradient) does not retain the necessary laterite soil, while basins and depressions do not allow good water circulation.

4.2.   Local Geology

The results of the geological surface mapping by PT TAS Exploration Division described below.

4.2.1. Morphology

One of the main factors in forming good nickel laterite is geomorphology aspects. The slope of the landform plays an important part in nickel laterite formation intensity. Flatter slope will facilitate the surface water to infiltrate easier, thus making the weathering process work intensively. Weathering is the main process to form a nickel laterite enrichment. In contrast, high slopes will facilitate water run-off, meaning less water infiltrates the soil or the rock. In turn, this does not facilitate the weathering process to form nickel laterite.

In general, morphology drilling area of PT TAS is divided into two morphology types based on morphological classification according to van Zuidam (1983), which is based on height difference and the degree of the slope, then including the Wavy Hills Morphology and Plain Morphology (**Figure 4.4**).

- Wavy Hills Morphology, occupies the north and south PT TAS concession area, extending from the northwest to the southeast towards the coast. This area is a forest area that has a moderate-high level of vegetation. Based on geological maps this morphology of undulating hills is composed of ophiolite rocks, comprising serpentinite and peridotite.

- Plain Morphology occupies the central PT TAS concession area, extending from thenorthwest to the southeast heading towards the coast. This area is a swamp area. Soil is aclay material, brown - black.

Figure 4.4   Plain and Wavy Hills Morphology of PT TAS

Source: PT TAS Exploration Drilling Report

Figure 4.5   Local morphology of PT TAS concession area
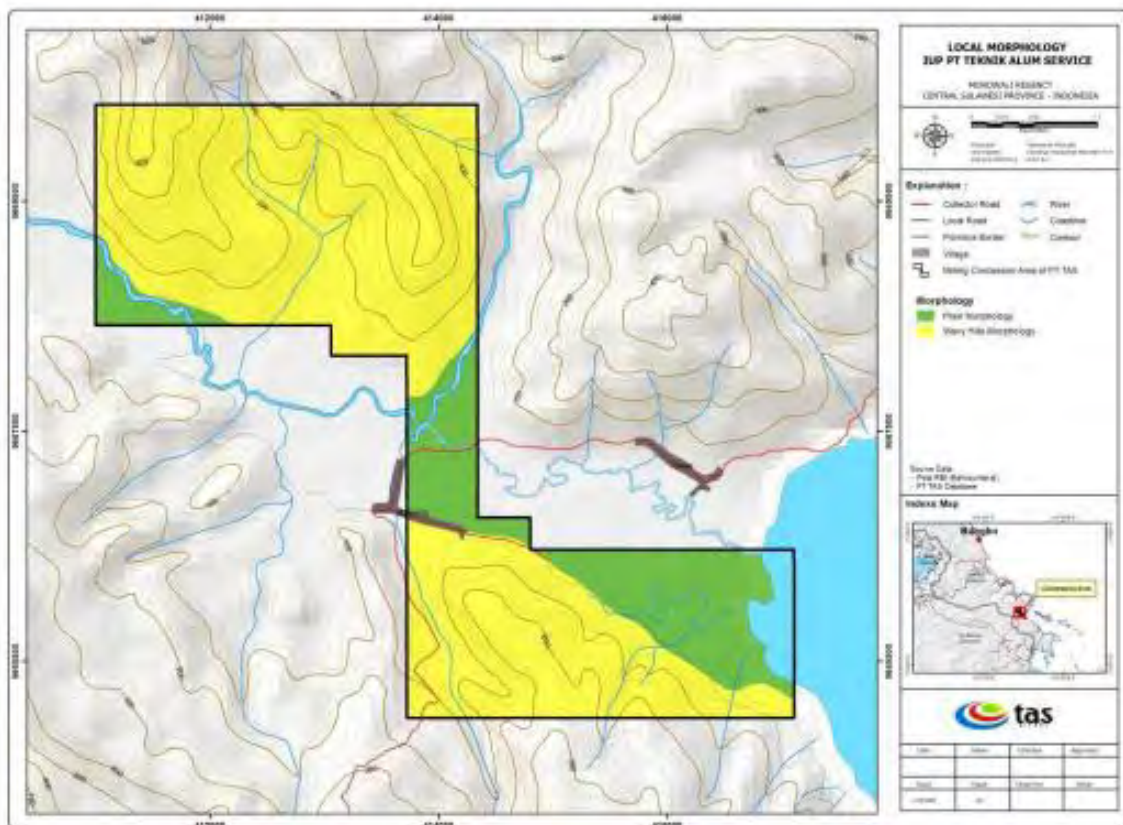
Source: PT TAS Exploration Drilling Report

Figure 4.6   Section view morphology Buleleng and Torete of PT TAS
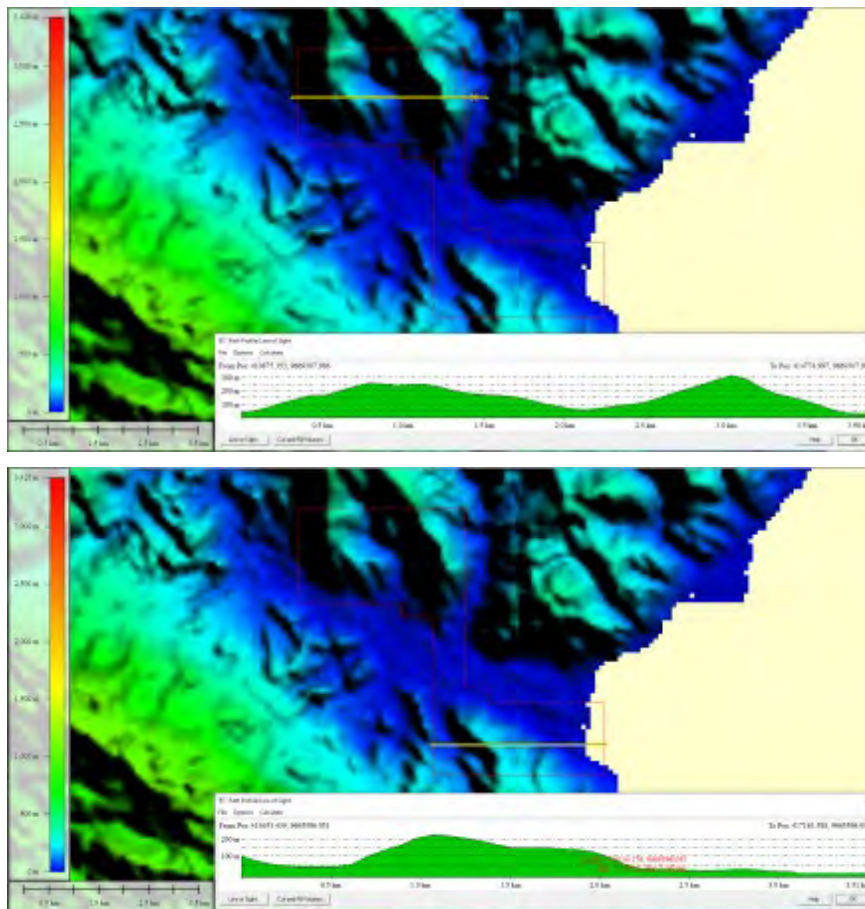
Source: PT TAS Exploration Drilling Report

4.2.2. Lithology

Geological mapping within the PT TAS property was done by traversing along creeks and spurs. Based on this work the rocks were divided into ultramafic unit and alluvial.

- **Ultramafic Unit**

    This is peridotite rocks with medium serpentinised level. Based on regional geology, this sequence is Cretaceous age. When fresh, this rock is dark green and black-green but where it has been intensively weathered it becomes laterite soil in the most part. The rock texture is porphyroaphanitic, pyroxene phenocryst with a groundmass of olivine and serpentine, anhedral crystal shape, holocrystalline. The rock is fractured and veined. The surface features of this unit are laterite soil, peridotite rock, some iron cap and silica boxwork. When highly serpentinised, it is a grayish color; coherent and solid, aphanitic textured with a mineral composition of antigorite, clay and magnetite.

Figure 4.7   Outcrops of weathered peridotite

Source: PT TAS Exploration Drilling Report

Figure 4.8   Outcrops of Serpentinite at PT TAS Area

Source: PT TAS Exploration Drilling Report

▪ **Alluvial**

This unit is sedimentary and comprised of clay, sand, pebble and cobble. Its age is Quaternary and lies unconformably on the peridotite and serpentinite, present in the Plain Morphology Area.

Figure 4.9   Alluvial Deposit at PT TAS Area

4.3.   Mineralisation Style

Nickel laterite is a supergene enriched nickel deposit due to laterisation of ultramafic rocks. Laterites are essentially derived from the chemical weathering of ultramafic rock. However, not all minerals break down at the same times. Olivine is the most unstable mineral and breaks down first. Magnesium is the dominant cation that is leached out in the beginning, followed by silica. Removal of olivine leaves behind cavities that are temporarily filled by ferric hydroxide and ferruginous clays.

In the case of residual soil, chemical weathering takes place at the bottom of the regolith. The regolith-protolith boundary marks the weathering front, which may be very irregular in shape depending upon the local topography and the nature of the water table.

From the top to bottom the laterite profile consists of a red limonite layer rich in hematite and less hydrated Fe oxides (goethite); with rock porosity decreasing with time. Bulk density increases with time. Further changes include formation of duricrust (ferricrete or silcrete). At the bottom of the red limonite is yellow limonite, rich in hydrated Fe oxides. Rock porosity decreases with time. Bulkdensity increases with time. Saprolite is a zone with precipitated silica + garnierite where chemical weathering proceeds actively along joints and fractures. Rock porosity increases with time and bulk density decreases with time. The contact between yellow limonite and saprolite is marked with the presence of soft smectite clays + silica. Rock porosity is at its maximum and bulk density at its lowest. The bottom profile is bedrock with fresh ultramafic rock with joints and fractures opening up as hydrostatic pressure is removed.

The laterites are developed over ultramafic rocks that lie along the East Arm and central Sulawesi toward the Southeast Arm, and the Islands of Buton and Kabaena (Kadarusman et al., 2004). The rock types within the ultramafic are harzburgite, serpentinised harzburgite, peridotite, and serpentinised peridotite. Formation of the laterites is thought to have occurred during the Pliocene or early Pleistocene. The largest of the laterite bodies overlies the central ultramafic body.

The PT TAS deposit is a classic nickel laterite deposit in its composition. It comprises iron oxides on the surface (limonite) and magnesium silicates beneath (saprolite). The nickel deposits formed over ultramafic rocks by the process of lateritisation. The lateritic profile is well developed and protected from erosion by the presence of an iron cap. In some areas the iron cap has been destroyed, exposing the laterite. Generally, the laterite profile of PT TAS concessions is comprised of a mixture of limonite (top soil and limonite) with low to high grade saprolite (soft saprolite and rocky saprolite) lying above ultramafic bedrock (**Figure 4.10**).

Figure 4.10   Schematic nickel laterite profile
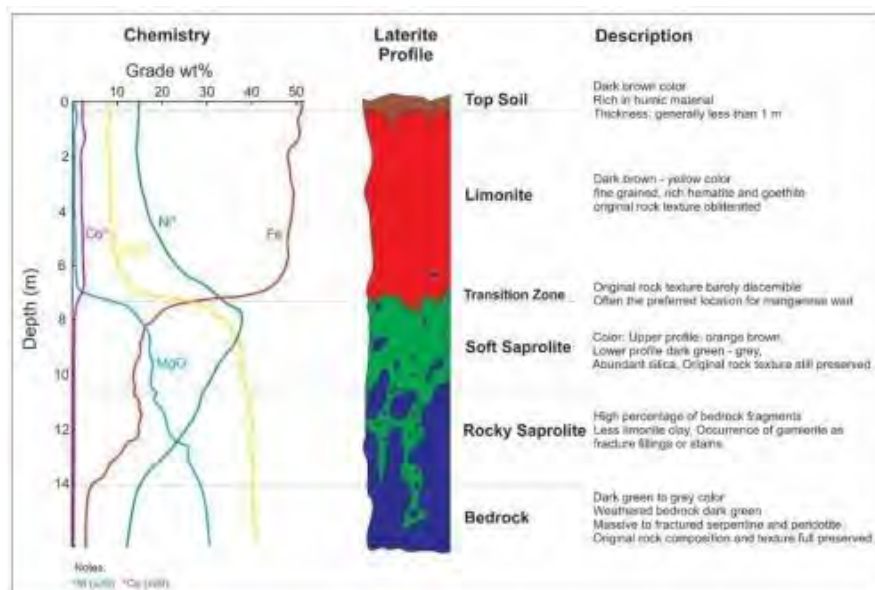
Source: PT TAS Exploration Drilling Report

5. CONCESSION HISTORY

Exploration started in 2010 and was conducted in four phases. The first phase consisted of a desktop study followed by geological mapping and outcrop sampling. In 2013, the second phase of exploration was carried out with consisted of regional drilling to define zones of better potential and mineralisation continuity using a drilling grid of spacing 400 m by 400 m to 200 m by 200 m across all deposits within the license area. In 2017, the third phase of exploration activities were undertaken using diamond drill rigs producing predominantly HQ-size core on 100 m, 50 m and 25 m drill spacings. And in 2018, the most recent phase of drilling activities were undertaken in order to increase Mineral Resource confidence.

A summary of the exploration drilling is shown in **Table 5.1.**

Table 5.1   Summary of Exploration Drilling for PT TAS area

Year	Block	Spacing	Total Holes	Total Metres	Total Samples
2013	Torete	200m x 200m	75	765	826
		25m by 25m	404	4,969	5,374
	Buleleng	200m x 200m	42	1,175	1,220
2017	Torete	Twin holes/Additional	94	1,038	1,183
	Buleleng		22	649	821
2018	Torete	200m x 200m	79	683	789
		100m x 100m	38	352	397
		50m by 50m	106	931	1190
	Buleleng	200m x 200m	37	447	520
Total			**897**	**11,009**	**12,320**

Mining operations have been undertaken from 2015. The total production from 2015 to end July 2021 was approximately 1.9 MWMT of DSO. The average grade of the DSO was 1.81% Ni. The DSO is sent to a domestic smelter in Central Sulawesi, Indonesia.

6. DRILLING DATA

Exploration core drilling started in September and ended in December 2018 and was conducted in three phases. The first phase consisted of a desktop study followed by field geological mapping. The second phase consisted of wide-spaced drilling on a grid of 200 m by 200 m across the license area. The third phase of exploration activities was undertaken using diamond drill rigs producing predominantly HQ-size core on 100 m, and 50 m drill spacings as infill drilling inside Torete. This additional core drilling was done in order to increase the confidence in the Mineral Resource classification.

Total drilling was 269 holes for 2,488.4 m. Average total depth was 10.4 m per hole. This drilling consists of 37 drill holes of Buleleng and 232 drill holes of Torete. All boreholes were vertical. A summary of the exploration drilling details is shown in **Table 7-1** and **7-2.**

Table 6.1   Summary of 2018 Exploration Drilling

Block	Total Holes Drilled	Total Depth (m)	Average Depth (m)	Min Depth (m)	Max Depth (m)
Buleleng	37	447.4	12.1	1.3	34.5
Torete	232	2,041.0	8.8	3	24
Total/Avg.	**269**	**2,488.4**	**10.4**	**2.15**	**29.25**

Table 6.2   2018 Drilling penetration rates

Variable	Amount	%
Total Holes Drilled	269	-
Total metres	2,488.4	-
Average depth (m)/holes	10.4	-
Holes stopped in Limonite zone	0	0%
Holes stopped in Saprolite zone	57	21%
Holes stopped in Bedrock zone	212	79%
Holes with mineralisation	230	86%
Holes without mineralisation	39	14%

Table 6.2 shows that the percentage of drilling with mineralisation is 86% and without mineralisation is 14%. Determination of drilling that intersected mineralisation was determined using ore thickness ≥ 2 m with an average Ni grade ≥ 0.8%.

PT TAS has not undertaken any further drilling since 2018.

6.1.   Drilling Method

The drilling method utilised Jacro 175 rigs with wire line drilling using HQ3-size triple-tube core-barrel and both tungsten carbide and diamond bits (HQ3 size 61.1 mm), plus MD 175 man-portable rigs using NQ-size single tube. Drilling involved approximately one metre core runs. All holes were drilled vertically through the limonite and saprolite zones into underlying bedrock. Each hole was completed when a minimum of 2 m of bedrock or waste was intersected.

Figure 6.1 Drilling Activities using Jacro-175 with Triple Tube Core-barrel

Source: PT TAS Exploration Drilling Report

Figure 6.2 Drilling Activities using MD-175 Man-portable with Single Tube Core-barrel

Source: PT TAS Exploration Drilling Report

6.2. Drill Hole Collar Location

All drill hole collars were surveyed initially with a Differential Global Positioning System ("DGPS") instrument and marked with a labeled wooden stake. At completion of drilling, the collar was surveyed accurately using a Sokia Total Station survey instrument. The exploration team used a unique grid system to identify the area, block number and hole number (**Figure 6.3**). All survey work is tied into the UTM WGS-84 grid 51S coordinate system.

At this exploration program, the drill hole spacing for outer Torete deposit is approximately 200 m by 200 m in the well drilled portions, and around 100 m by 100 m and up to 50 m by 50 m as infill drilling inside the area of Torete block. Drill hole spacing for the Buleleng deposit is variable, ranging from 200 m to 200 m and around 100 m by 100 m.

Figure 6.3   Surveying of Drill Hole Collar Locations

Source: PT TAS Exploration Drilling Report

A drill hole location for the Concession is shown in **Figure 6.4.**

Figure 6.4   Drill Holes Distribution PT TAS
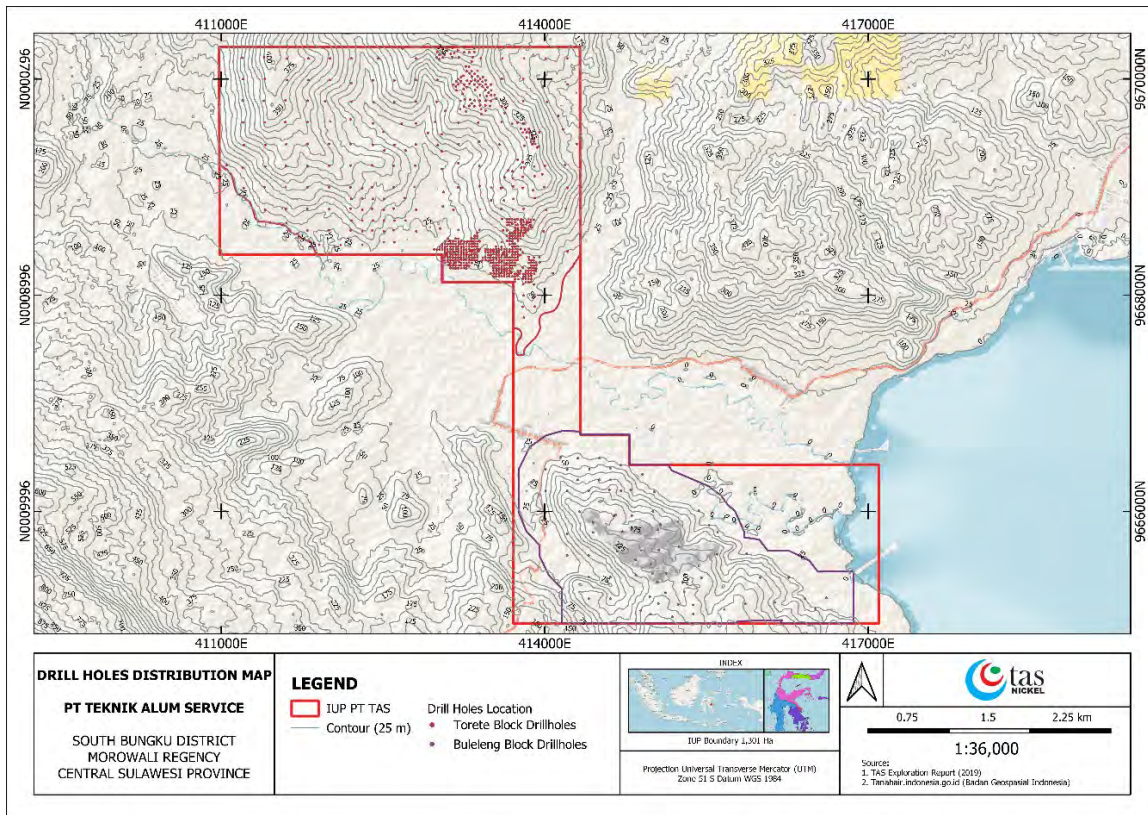
6.3. Down Hole Surveys

No downhole deviation surveys were undertaken as they were not considered necessary due to the shallow nature of the holes and associated minimal deviation.

6.4. Geological Logging

Logging is qualitative in nature; however lithological/weathering zone logging information can be checked with sample assays. All drill hole samples were geologically logged for criteria including weathering, mineralisation, lithology, structure, grain size and sample recovery.

All logging was carried out by a geologist at drilling site. All core samples were placed in wooden core boxes then photographed and logged. Minimum length of logged geological units was 15 cm with the core described over mostly one metre intervals using a standard logging form. Geological breaks were utilised to separate soft and hard material or different lithologies and characteristics.

PT GAS considers the logging method used for the Concession is acceptable.

Figure 6.5 Example logging form completed by geologist

Figure 6.6   Core logging by field geologist on drilling site

Source: PT TAS Exploration Drilling Report

6.5.   Core Recovery

The core recovery was recorded by standard measurement of the core length divided by the run length. Where there was more than one material in the one metre interval, the approximate proportions of materials that show core loss and those that show core gain (swelling) were estimated. This was applied to determine a more accurate estimate of core recovery.

Minimum core recovery applied was 80%. If the recovery fell below 80% for three consecutive intervals, the hole was re-drilled not more than one metre away from the original collar location.

Drilling recovery is most important within mineralised zones, where a low drilling recovery may introduce a systematic bias as a consequence of selective loss of either ore or waste. Core recovery with greater than 90% indicates good recovery and representative samples.

The average core recovery for the Concession is around 95% or greater. Results for recovery below 80% are mostly found in the top of the limonite zone (**Figure 6.8)**.

PT GAS considers that the core recovery is acceptable.

Figure 6.7   Core recovery of each layer
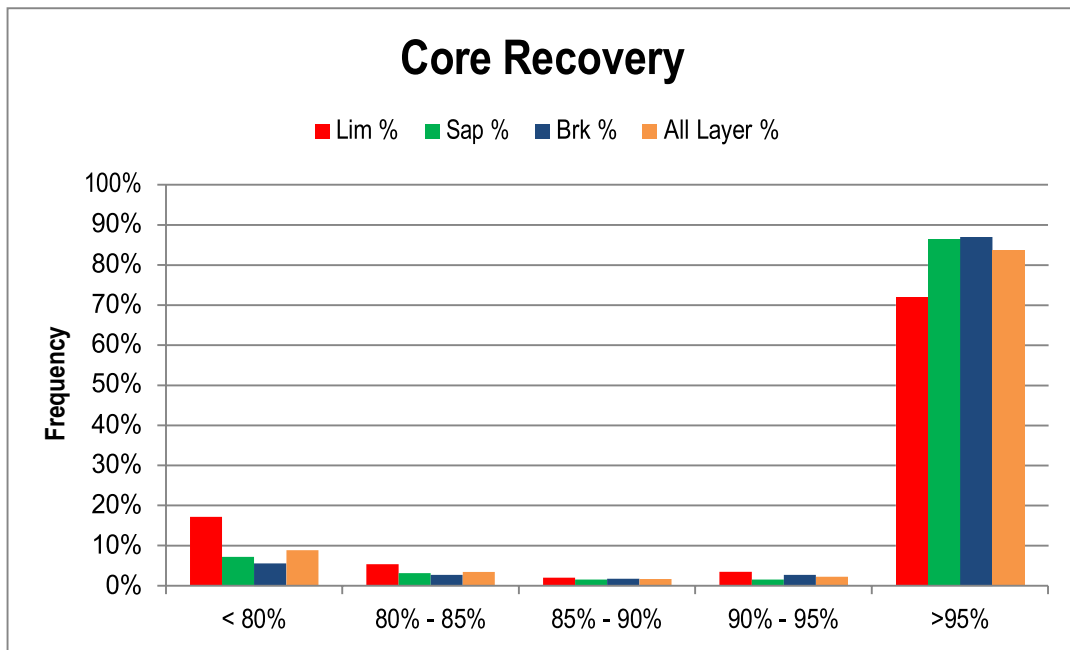
Figure 6.8   Example of Drill Core from the Concession

Source: PT TAS Exploration Drilling Report

6.6. Sampling

Drill cuttings were sampled on predominately one metre intervals. The drill core was extracted from the tube after being drilled and laid inside wooden core trays. The drill cores were logged and photographed by a geologist at the drill site. After geological logging and documentation, all sample per one metre interval is put into a plastic bag and sent to preparation house for further process before analysis by XRF.

PT GAS have sighted the original hard copy of sampling protocol and have spoken to company geologists and are satisfied with the process.

7. DEPOSIT CHARACTERISTICS

7.1. Physical Characteristics

7.1.1. Limonite Zone

The limonite zone has average of 3.24 m, which consists of the various iron oxides. The upper part of the limonite zone is a top soil. This layer comprises occasional iron cap as well as organic material derived from the breakdown of plants and the networks of fine plant roots. The chemical composition of this layer is characterised by low Ni and MgO contents. The humic material forms a thin horizon of generally less than 1 m thickness and is absent in many places.

The limonite layer follows immediately below the topsoil and consists of deeply weathered material. The upper part of the limonite, sometimes called Red Limonite, is a red-brown or more often, chocolate-brown clayey material with no internal structures or fragments. The material consists entirely of fine-grained minerals. This zone is rich in hematite and less hydrated Fe oxides (goethite).

The lower part of this zone, sometimes called Yellow Limonite, is yellow-brown to orange coloured and generally has a more compact appearance than the Red Limonite. The Yellow Limonite rarely contains coarse fragments of weathered material. This zone is rich in hydrated Fe oxides (goethite).

Locally, the upper part of the limonite layer hosts silica boulders and clay material and can influence the chemistry. Some nickel is tied to the limonite/goethite structure along with manganese and chromite.

Figure 7.1 Limonite zone

Source: PT TAS Exploration Drilling Report

7.1.2. Saprolite Zone

The saprolite zone has an average of 4.75 m. Rock texture can be seen where fresh boulders are surrounded by a matrix of highly weathered material (saprolite). The highest grade mineralisation typically forms as a result supergene enrichment of Ni in the saprolite layer. Garnierite is present in this layer.

The Saprolite zone consists of two categories i.e. Soft Saprolite and Rocky Saprolite.

Soft Saprolite has a yellow to greenish-white colour and typically contains abundant silica boxworks. This material generally contains less than 20% fragments of weathered bedrock. The fragments often have a rounded shape and vary from centimetre-metre size. The soft saprolite easily breaks up on handling and disintegrates into gritty material. The potential for upgrading of the soft saprolite by screening may be significant, as most nickel is confined to the fine fractions.

Rocky saprolite is competent dark green to greyish rock of weathered peridotite and with moderate saprolite alteration, occurring mostly along fractures. Primary olivine and orthopyroxene exhibit patchy replacement by fine-grained hydrated iron oxides and amorphous silica. Granular textures are well preserved, and the material consists of cores of angular fresh rock (20–50%) with successive rims of more and more strongly altered material. Silica boxwork is rarely seen in the hard saprolite but a bright green garnierite staining can often be seen on fracture planes.

Figure 7.2   Saprolite zone (Soft and Rocky Saprolite)

Source: PT TAS Exploration Drilling Report

7.1.3. Bedrock Zone

Bedrock is at the bottom of the profile and shows traces of incipient laterite weathering. Most drilling has reached the fresh bedrock, but there are some holes that did not because of thick saprolite and limonite accumulation. The average interval of bedrock drilled before the holes were terminated was 3.3 m.

Bedrock has a dark green to dark brown colour and consists of massive to fractured, varyingly serpentinised peridotite, whose interface with the weathered profile can be highly irregular with numerous peaks and troughs. Bedrock is commonly exposed along rivers and creeks and in major landslides.

Figure 7.3   Bedrock zone

Source: PT TAS Exploration Drilling Report

7.2. Geochemical Characteristics

7.2.1. Material Type Classification

The classification of weathered material is based on nickel, iron, and magnesium contents and is also largely based on nickel and iron and position in the profile, with the exception of bedrock, which is based upon nickel and iron content. Interpretations of analytical data from the core drilling provide a consistent set of lithological records across all deposit areas. Experience has shown that classification of the constituent materials, particularly identifying the contacts, within the laterite profile from visual inspection of drill core cuttings is relatively unreliable unless supplemented by the chemical analyses.

7.2.2. Layer Verification

Layer verification is an important step during validation process. Geologist will justify and generalised the layer chemistry into geological layer based on geological characteristics as per visual observation. The criteria for defining layers can be seen in **Figure 7.4.**

Figure 7.4   General layer laterite classification of the Concession

GENERALIZED LAYER

LIMONITE LAYER
1. MgO Total Less than 5% (<5%)
2. Fe Total more than 30% (>30%)

SAPROLITE LAYER
1. MgO Total more than 5% (>5%)
2. Fe Total less than 30% (<30%) and Fe Total more than 10% (>10%)

BEDROCK LAYER
1. Fe Total less than 10% (<10%)
2. MgO more than 20% (>20%)
3. Ni Total in fraction less than 1% (<1%)
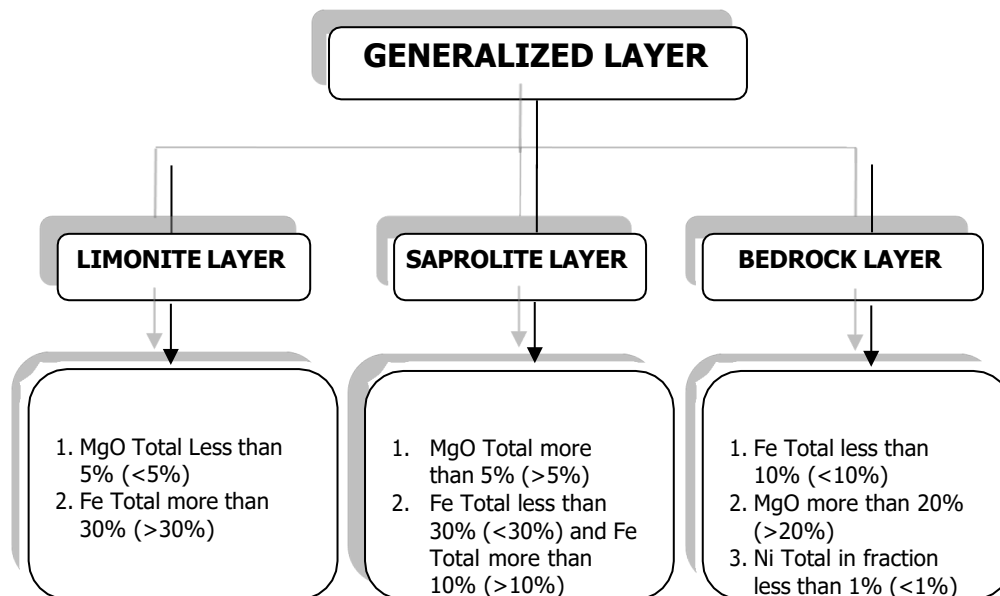
In addition to the criteria described in **Figure 7.4**, the geologists must have a good understanding and good geological interpretation to assign material types. **Figure 7.5** shows the distribution between Fe vs MgO in the Limonite layer. Outliers (red circle) in this zone are associated with silica boulders or floating peridotite boulders that have mixed with Limonite material.

Figure 7.5   Fe vs MgO in Limonite layer
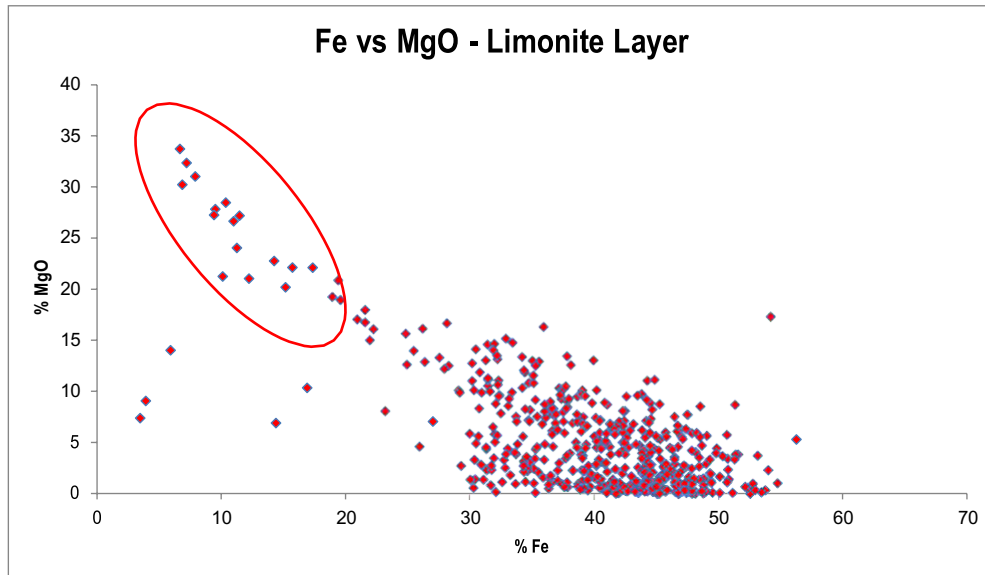
Figure 7.6 shows the distribution between Fe vs MgO in Saprolite layer. Some samples that have low MgO and Fe content (yellow circle) were confirmed as boxwork and silica vein material in the saprolite layer. Samples inside the red circle are in the transition zone and have high Fe and low MgO but are part of the saprolite layer. The figure also shows some differentiation within the saprolite due to some samples that have high Ni content but low Fe and logged as Rocky Saprolite.

Figure 7.6   Fe vs MgO in Saprolite layer
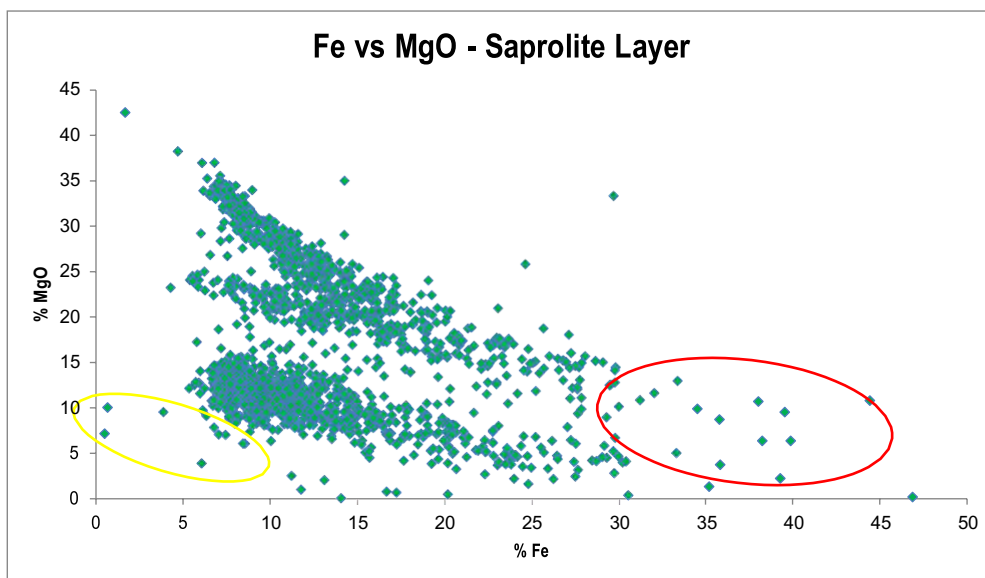
Figure 7.7 shows the distribution of Fe vs MgO in bedrock. There are some outlier values which are still acceptable as a transition from saprolite into bedrock. Typically, bedrock has Ni values lessthan approximately 0.8% and Fe values less than 10%. Any samples that have Ni and Fe less thanthese values were flagged and visually checked to verify that the lithology coding is correct.

Figure 7.7   Fe Vs MgO in Bedrock
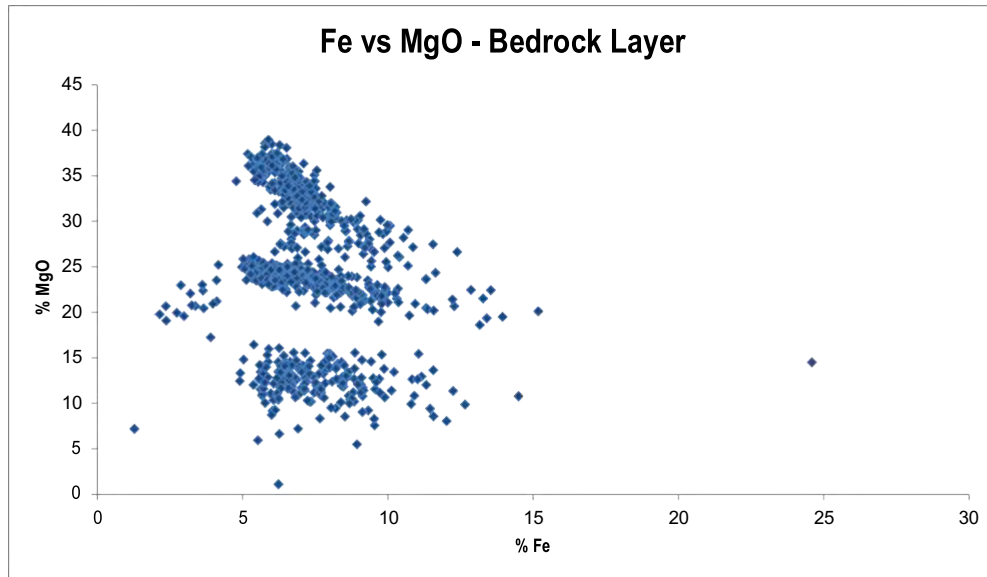
Figure 7.8 shows the distribution of Ni vs Fe in the limonite and saprolite layer. High Ni content in limonite is still acceptable because in the transition zone garnierite could be present with high Fe. The low Fe content in the limonite zone is caused by floating boulders or silica boxwork.

Figure 7.8   Ni Vs Fe in Limonite and Saprolite layer
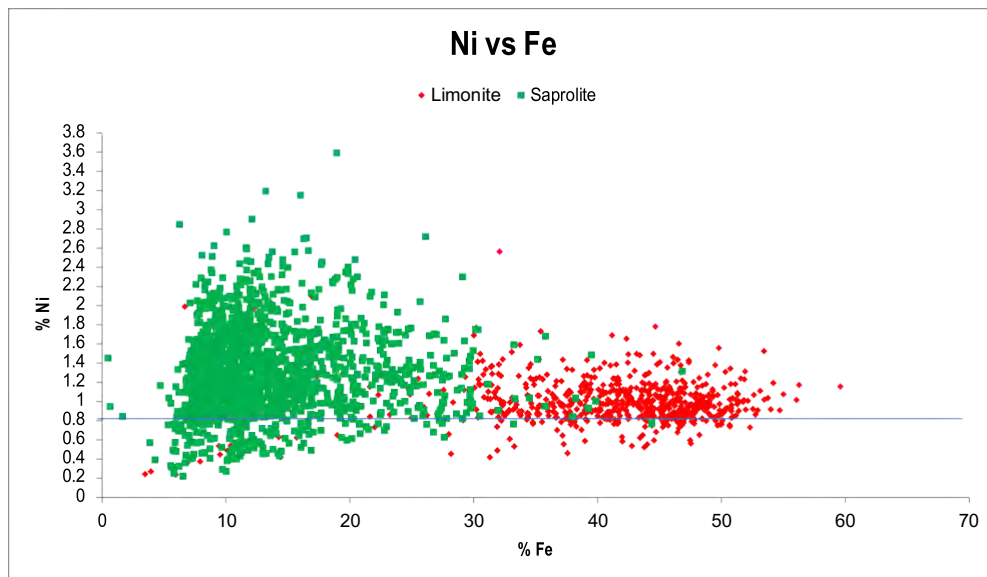
7.2.3. Chemistry through the laterite profile

Figure 7.9 shows the typical chemistry profile (Ni, Co, Fe, MgO and SiO$_2$) through the laterite profile. Ni enrichment is at the top of saprolite and decreases into bedrock, Co enrichment is at thebottom of limonite. Fe is higher in the top of the limonite profile and decreases into saprolite. SiO$_2$ and MgO are lower at the top and increase into the bottom of saprolite.

Figure 7.9 Geochemical laterite profile on PT TAS, showing elements of Ni, Co, Fe, SiO2, and MgO vs Depth
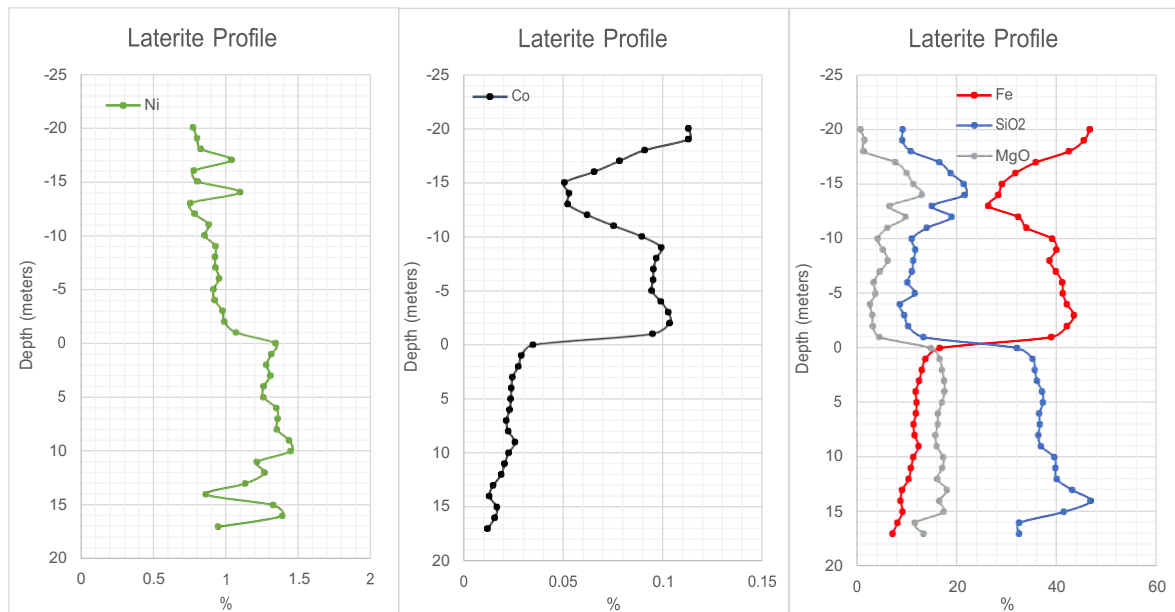
7.2.4. Ternary Diagram

From triangular plot diagrams, lateritisation based on MgO, and SiO$_2$ contents compared to FeO can be distinguished. **Figure 7.10** show the ternary diagram for FeO-MgO-SiO$_2$ system in limonite, saprolite and bedrock, showing that MgO and SiO$_2$ are progressively leached with Fe remaining in the system. Fe-oxide consists of goethite and hematite.

Figure 7.10   Ternary plot of drill-core samples using the four main discriminators of the zones classification, FeO, MgO, and SiO2 (n = 3005). A: All zones. The arrow indicates a general chemical trend in a laterite profile from bedrock, saprolite to limonite. B: Limonite zone samples (n = 627). C: Saprolite zone samples (n = 1552). D: Bedrock zones samples (n = 826).
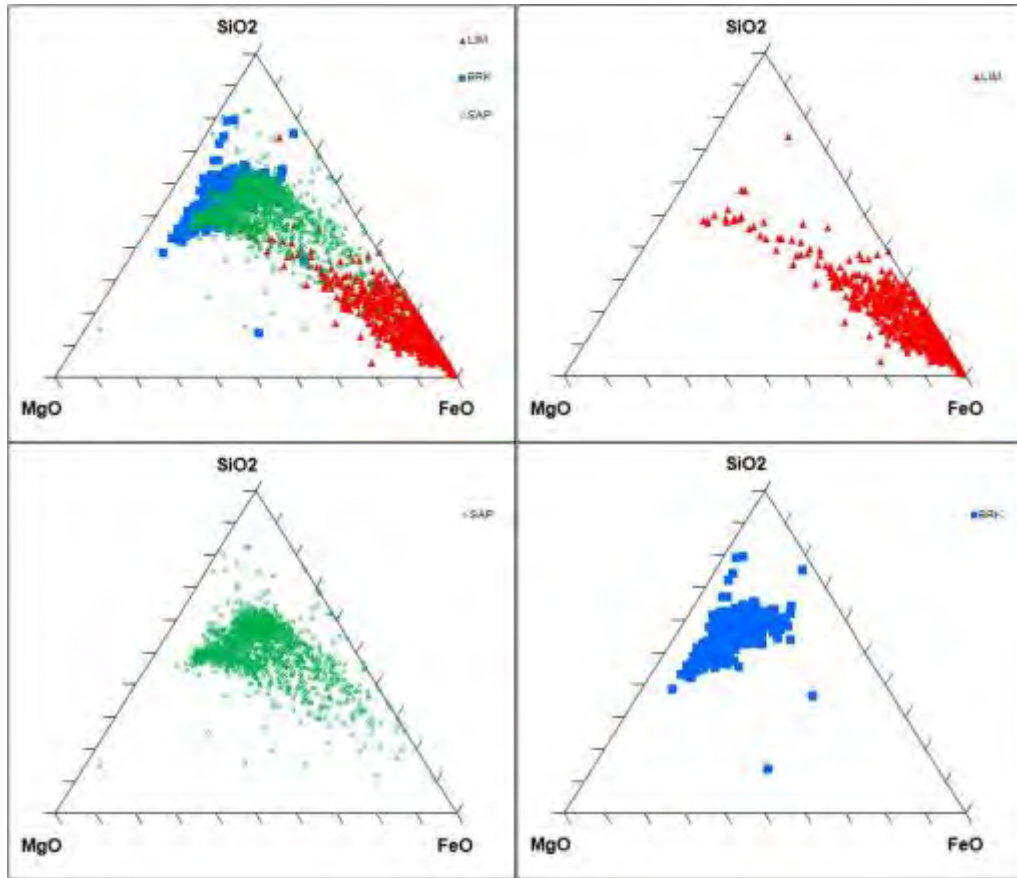
8.   ASSAY DATA

8.1.   Methodology

In 2018, as part of PT TAS's exploration and drilling programme, extensive assay samples were collected and tested as detailed in Section 8.

All sample preparation were completed according to the standard JIS M 8109:1996 Garnierite Nickel Ores - Methods for Sampling, Sample Preparation, and Determination of Moisture Content. This standard is widely used in the Indonesian nickel industry as best practice.

All samples were prepared and analysed at the on-site laboratory for each deposit. This laboratory is operated by PT TAS and is therefore not independent. No formal accreditation of the laboratory has been received. The laboratory routinely performs checks on its sample preparation and analytical methods.

8.2.   Sub-Sampling and Sample Preparation

The same sub-sampling techniques and sample preparation methods were used for the Buleleng and Torete deposits. The standard JIS M 8109:1996 involved weighing a wet sample of around 5 kg in size then drying for twelve hours at 105°C. After drying, the sample was re-weighed to obtain the dry weight from which the moisture content was calculated later. The sample was then screenedand split to obtain -6 inch, and +6-inch size fractions. Each size fraction was then weighed. All samples of -6 inch and +6 inch were crushed to -10 mm and then to -3 mm size fractions. The sample was split to obtain an approximate 500 g sample.

One in every twenty samples was taken as a duplicate sample. The sample was then pulverised to a -200-mesh size fraction, manually mixed and reduced using a 2 x 3 matrix. One in every twenty sample pulps was taken as a duplicate sample. Approximately 100 g of the sample was sent to the on-site laboratory for analysis with the remaining 400 g sample retained as backup and for future analysis.

Samples were then converted to a pressed powder using a manual hand pressing process.

A flow chart of the sample preparation procedure is shown in **Figure 8.1** with sample preparation activities shown in **Figure 8.2**.

Figure 8.1 Flow Chart of Sample Preparation
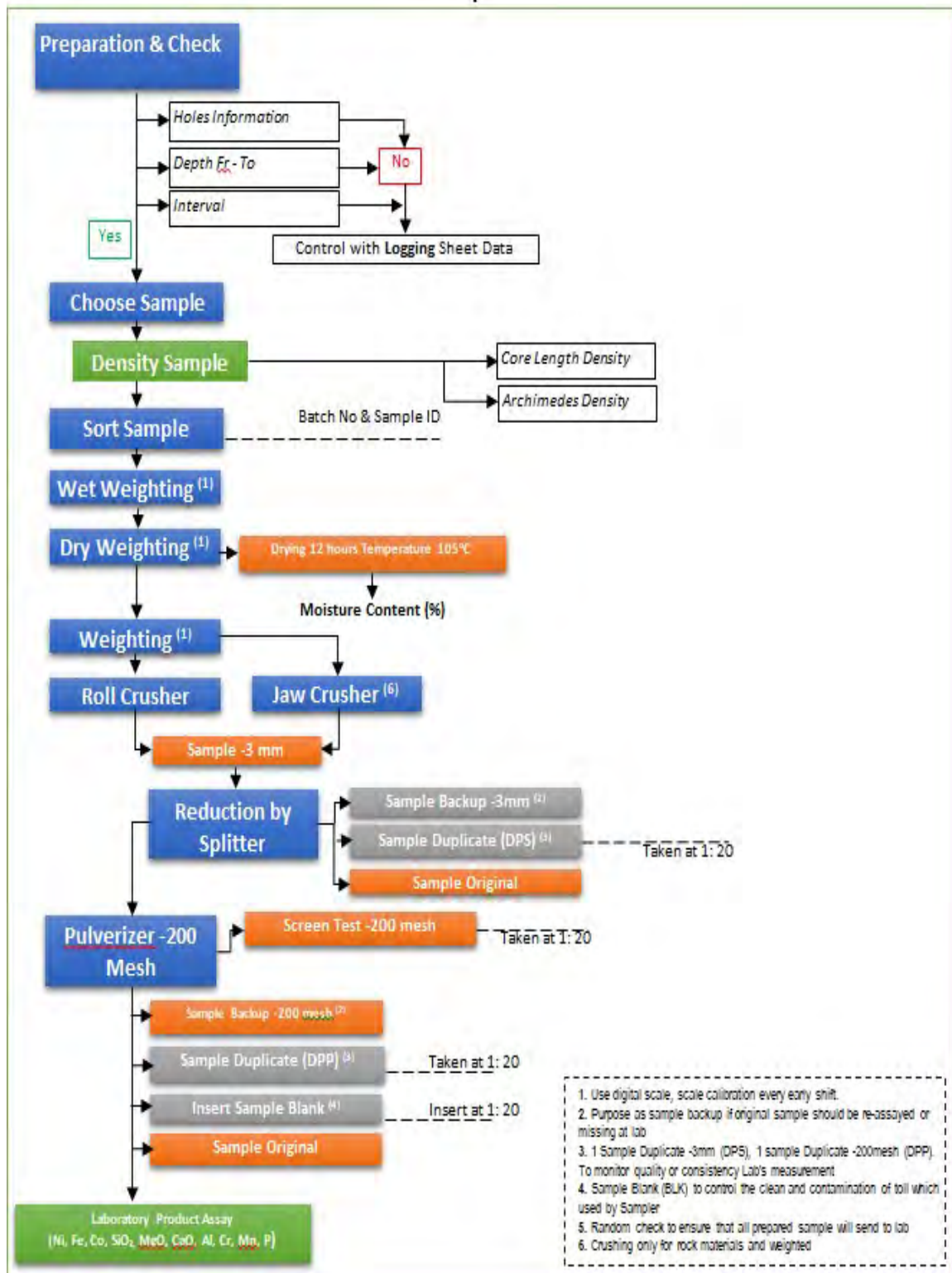
Source: PT TAS Exploration Drilling Report

Figure 8.2   On-site Sample Preparation Activities

Source: PT TAS Exploration Drilling Report

PT GAS considers that the sampling techniques and sample preparation methods used for the Concession are acceptable; however, recommend adding regular QA/QC samples such as wet duplicates, blank samples and screening tests to ensure the pulp samples are of -200 mesh size fractions.

8.3.   Sample Analysis

The pressed powder was assayed using the Energy Dispersive X-Ray Fluorescence ("EDXRF") method of analysis. Assaying was conducted using the Rigaku EDXRF instrument. Calibrations for the instruments were carried out on a regular basis.

PT GAS considers the sample analytical method is commonly used in the industry and acceptable, however care must be taken to ensure the pressed pellet in homogenous. PT GAS recommend fused beads be used in place of pressed pellets, as there have been many issues associated with the homogeneity of pressed pellets with other nickel laterite operations in the region.

Figure 8.3   Internal Laboratory using Rigaku EDXRF Instrument Activities

Source: PT TAS Exploration Drilling Report

8.4.   Quality Assurance and Quality Control Sample

Sample QA/QC procedures applied consisted of internal standards, internal duplicates, internal blanks, certified reference materials ("CRMs") and a program of external checks at two umpire laboratories **(Table 8.1).**

Table 8.1   Summary of QA/QC Data

Sample Type	Total Samples
Internal Samples Standard	
- CAL01	35
- CAL05	37
- CAL31	38
- CAL34	38
Certified Reference Materials	
- OREAS 181	25
- OREAS 186	25
- OREAS 190	25
- OREAS 193	25
- OREAS 194	25
Internal Duplicates samples	140
Internal Blank samples	137
External Check	100
Total	**650**

8.4.1.   Internal Standard Samples

A total of 148 internal standard samples were analysed from both deposits. Internal standard samples were inserted by the on-site laboratory at a frequency of one in every twenty samples. A total of four different standard samples were used for the Concession. All standard samples used were sourced from the deposits in the Concession area then sent to the Intertek Jakarta laboratory

("Intertek") for rigorous assaying and certification as a local standard for the Concession. Intertek is an independent, certified commercial laboratory.

A statistical summary of each standard used is shown in **Table 8.2 to Table 8.5**, while Shewhart plots for standard CAL01 is shown in **Figure 8.4.**

The standard results for Ni and Fe for the both deposits combined indicates that most results for all standards are inside the control limits and therefore acceptable. There are only a small number of samples that fall outside the control limits.

Table 8.2   Statistical Summary of Standard Samples – CAL01

Standard CAL01	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	2.13	0.028	15.1	0.55	20.74	41.67
Mean	1.960	0.026	13.774	0.376	21.379	39.241
STDEV	0.080	0.002	0.231	0.035	2.139	1.180
CV	4.057	6.074	1.676	9.258	10.005	3.006
+3d	2.198	0.031	14.466	0.481	27.797	42.781
+2d	2.119	0.029	14.235	0.446	25.658	41.601
-2d	1.801	0.023	13.312	0.307	17.101	36.882
-3d	1.721	0.021	13.081	0.272	14.962	35.702
Max	2.105	0.030	14.267	0.446	25.090	41.211
Min	1.700	0.020	13.311	0.322	18.457	36.909
Range	0.405	0.010	0.956	0.124	6.633	4.302
Bias	7.99%	6.73%	8.78%	31.56%	-3.08%	5.83%
Total sample	**35**	**35**	**35**	**35**	**35**	**35**
Count sample error	1	1	0	0	0	0
% samples error	**3%**	**3%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**97%**	**100%**	**100%**	**100%**	**100%**

Table 8.3   Statistical Summary of Standard Samples – CAL05

Standard CAL05	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	1.75	0.031	15.06	0.61	19.99	41.36
Mean	1.627	0.027	13.839	0.430	21.817	40.023
STDEV	0.044	0.001	0.190	0.036	1.746	1.263
CV	2.713	5.057	1.373	8.368	8.003	3.154
+3d	1.760	0.031	14.409	0.538	27.055	43.810
+2d	1.716	0.030	14.219	0.502	25.309	42.548
-2d	1.539	0.024	13.459	0.358	18.325	37.498
-3d	1.495	0.023	13.269	0.322	16.579	36.235
Max	1.699	0.030	14.149	0.493	24.630	41.998
Min	1.461	0.025	13.502	0.328	19.049	37.254
Range	0.238	0.005	0.647	0.165	5.581	4.744
Bias	7.01%	12.99%	8.11%	29.52%	-9.14%	3.23%
Total sample	**37**	**37**	**37**	**37**	**37**	**37**
Count sample error	1	0	0	0	0	0
% Samples error	**3%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 8.4   Statistical Summary of Standard Samples – CAL31

Standard CAL31	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	1.32	0.037	20.48	0.9	10.64	42.47
Mean	1.165	0.032	18.041	0.719	18.062	38.005
STDEV	0.044	0.001	0.247	0.032	0.922	1.686
CV	3.751	4.341	1.368	4.409	5.103	4.437
+3d	1.296	0.037	18.782	0.814	20.827	43.064
+2d	1.253	0.035	18.535	0.782	19.906	41.378
-2d	1.078	0.030	17.548	0.655	16.219	34.632
-3d	1.034	0.028	17.301	0.624	15.297	32.946
Max	1.243	0.035	18.582	0.778	19.499	41.742
Min	1.007	0.030	17.583	0.649	15.800	35.302
Range	0.236	0.005	0.999	0.129	3.699	6.440
Bias	11.73%	12.30%	11.91%	20.13%	-69.76%	10.51%
Total sample	**38**	**38**	**38**	**38**	**38**	**38**
Count sample error	1	0	0	0	0	0
% Samples error	**3%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**97%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 8.5   Statistical Summary of Standard Samples – CAL34

Standard CAL34	Ni (%)	Co (%)	Fe (%)	CaO (%)	MgO (%)	SiO2 (%)
Recommended Value	0.812	0.062	38.24	0.04	1.19	10.38
Mean	0.725	0.059	35.661	-0.005	6.114	11.431
STDEV	0.047	0.004	0.649	0.040	1.403	1.234
CV	6.440	6.237	1.821	-736.871	22.952	10.794
+3d	0.865	0.070	37.609	0.115	10.324	15.132
+2d	0.818	0.066	36.960	0.075	8.920	13.898
-2d	0.631	0.051	34.362	-0.086	3.307	8.963
-3d	0.585	0.048	33.712	-0.126	1.904	7.729
Max	0.791	0.065	36.799	0.068	8.919	13.891
Min	0.635	0.051	33.870	-0.069	3.223	9.361
Range	0.156	0.014	2.929	0.137	5.696	4.530
Bias	10.76%	5.56%	6.74%	113.62%	-413.77%	-10.12%
Total sample	**38**	**38**	**38**	**38**	**38**	**38**
Count sample error	0	0	0	0	0	0
% Samples error	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Acceptable samples	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Figure 8.4   Standard Samples – CAL01 reading performance
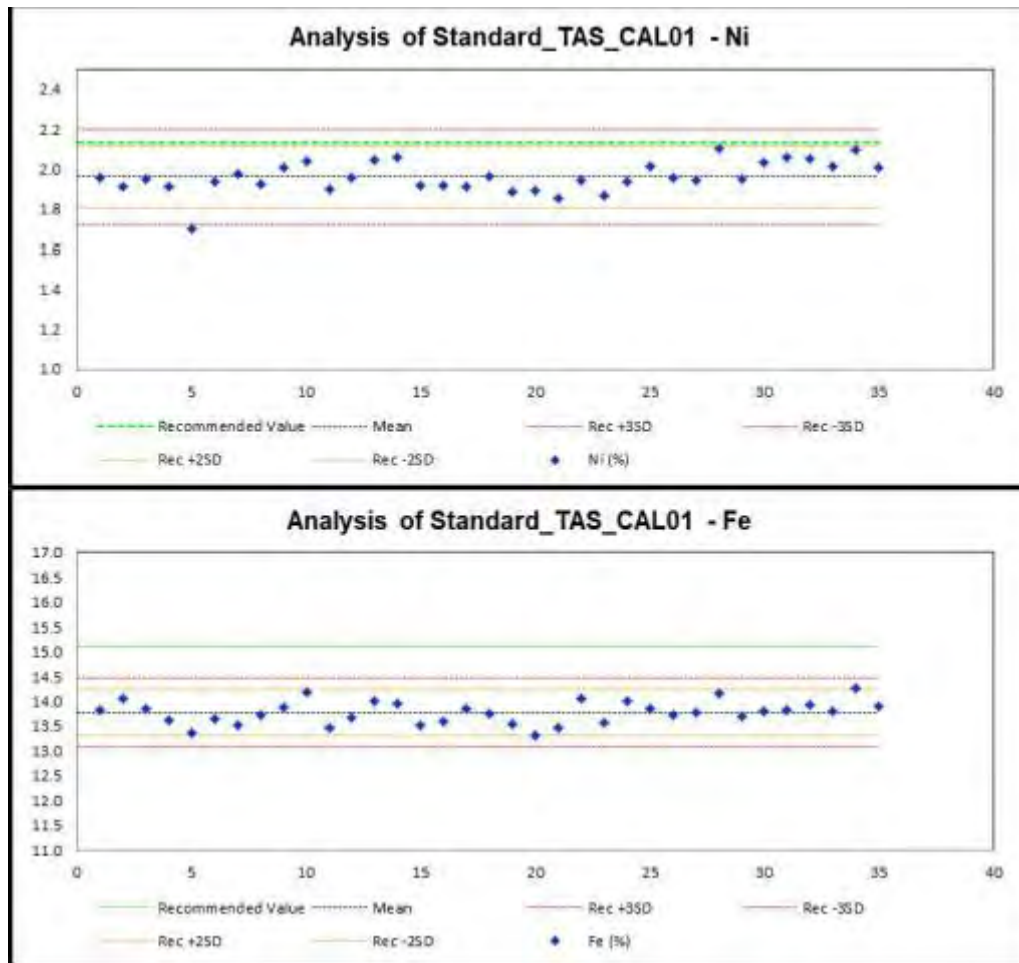
PT GAS considers the results acceptable given that most samples are within the +/-20 % error limits. In addition, PT GAS considers the scatter outside the ±20 % error limits is likely associated with sample preparation not being completely homogenous. PT GAS also recommends implementing screen size testing to ensure the pulverised sample is of a − 200 mesh size fractions.

8.4.2.   Internal Duplicate Samples

A total of 140 internal pulp duplicate samples were analysed at the on-site laboratory. The results of the duplicate samples for Ni, Co, Fe, SiO2 and MgO are shown in **Figure 8.5.**

The results of the internal duplicates indicate that most Ni falls mostly along the x = y trend line as expected with a small proportion outside the ± 5% error limits. The results for Fe are also similar. For Co, SiO_2, MgO and CaO, analytical bias can be observed in addition to moderate scatter for SiO_2 and MgO. The trend for Co is below the x=y line while the trend for SiO_2 and MgO is above the x=y line. The CaO assays appear to be on a separate trend.

The scatter outside the ±5% error limits is likely associated with sample preparation and the sample pulp not being completely homogenous. Some pulverization screen size testing should be applied to ensure the pulverised sample is of a − 200 mesh size fractions.

Figure 8.5   Scatterplots of Internal Duplicate Samples
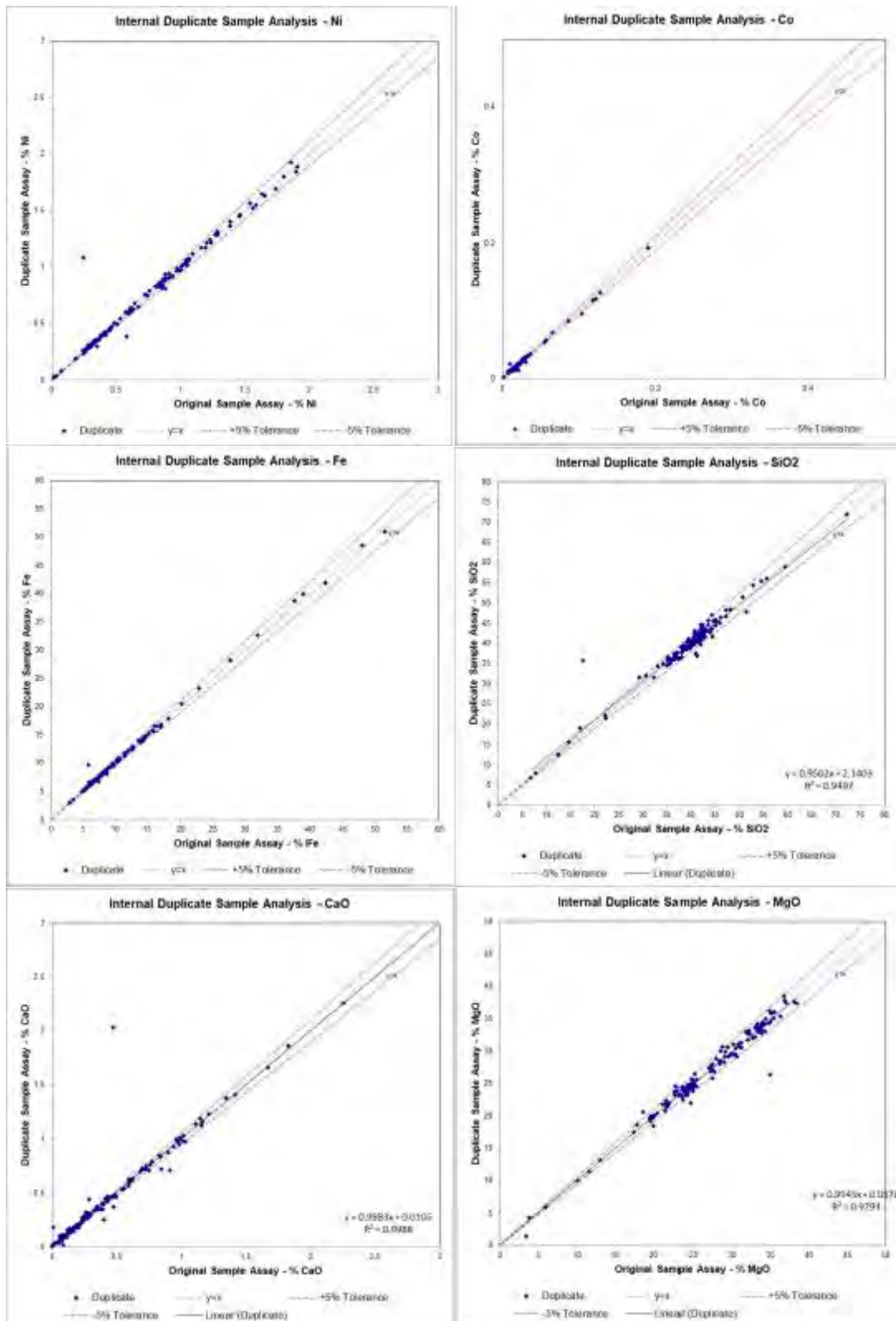
8.4.3. Internal Blank Samples

A total of 137 Internal blank samples were analysed to determine if any contamination between samples occurred during the sub-sampling/analytical procedure. Blank samples were inserted by the on-site laboratory at a frequency of one in every twenty samples. The blank samples used for the Concession consisted of limestone. A summary of the Blank samples used are shown in **Table 8.6.** The result of internal blank samples generally indicated no significant contamination, but one sample was almost certainly mis-labelled.

Table 8.6   Statistical Summary of Internal Blank Samples

Elements	Ni	Co	Al	CaO	Fe	MgO	SiO2
Recommended Value	0.063	0.004	-1.056	30.684	1.752	7.843	39.117
Mean	0.063	0.004	-1.056	30.684	1.752	7.843	39.117
STDEV	0.033	0.001	1.420	15.588	0.498	10.549	31.671
CV	52.300	19.480	-134.48	50.800	28.422	134.493	80.965
+3d	0.161	0.006	3.204	77.447	3.246	39.490	134.132
+2d	0.128	0.006	1.784	61.859	2.748	28.941	102.460
-2d	-0.003	0.002	-3.896	-0.491	0.756	-13.254	-24.226
-3d	-0.036	0.002	-5.316	-16.079	0.258	-23.803	-55.897
Max	0.341	0.012	1.864	49.661	6.848	32.995	74.470
Min	0.011	0.002	-8.005	-0.793	1.279	-5.707	-1.065
Range	0.330	0.010	9.869	50.454	5.569	38.702	75.535
Bias	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total sample	137	137	137	137	137	137	137
Count sample error	1	1	1	0	1	0	0
% samples error	**0.73%**	**0.73%**	**0.73%**	**0.00%**	**0.73%**	**0.00%**	**0.00%**
Acceptable samples	**99.27%**	**99.27%**	**99.27%**	**100%**	**99.27%**	**100%**	**100%**

8.4.4. External Check Analyses

A total of 100 external repeats (external duplicate samples) were analysed for the Concession. The external repeat samples were sent to two different external laboratories; Minertech Laboratories ("Minertech") at Kendari and the Intertek Laboratory in Jakarta ("Intertek"), both of which are independent, certified laboratories. The results of all external repeats are shown in **Figure 8.6** and **Figure 8.7.**

For the 50 samples sent to Minertech, most Ni falls along the x = y trend line as expected with a small proportion outside the ± 5% error limits. For Fe, analytical bias can be observed in addition to moderate and high scatter for Co, SiO_2, MgO and CaO. The trend for Co and SiO_2 is below the x=y line while the trend for CaO is above the x=y line. The MgO assays appear to be on a separate trend.

The scatter outside the ±5% error limits is likely associated with sample preparation and the sample pulp not being completely homogenous. Implementing screen size testing should be applied to ensure the pulverised sample is of a – 200 mesh size fractions.

For the 50 samples sent to Intertek, most Ni falls along the x = y trend line as expected with a small proportion outside the ± 5% error limits. The results for Fe are also similar. For Co and SiO2 analytical bias can be observed in addition to moderate and high scatter for MgO and CaO. The trend for MgO and CaO are above the x=y line while the trend for Co assays appears to be on a separate trend.

Figure 8.6   Scatter plots of External Repeat Results from Minertech
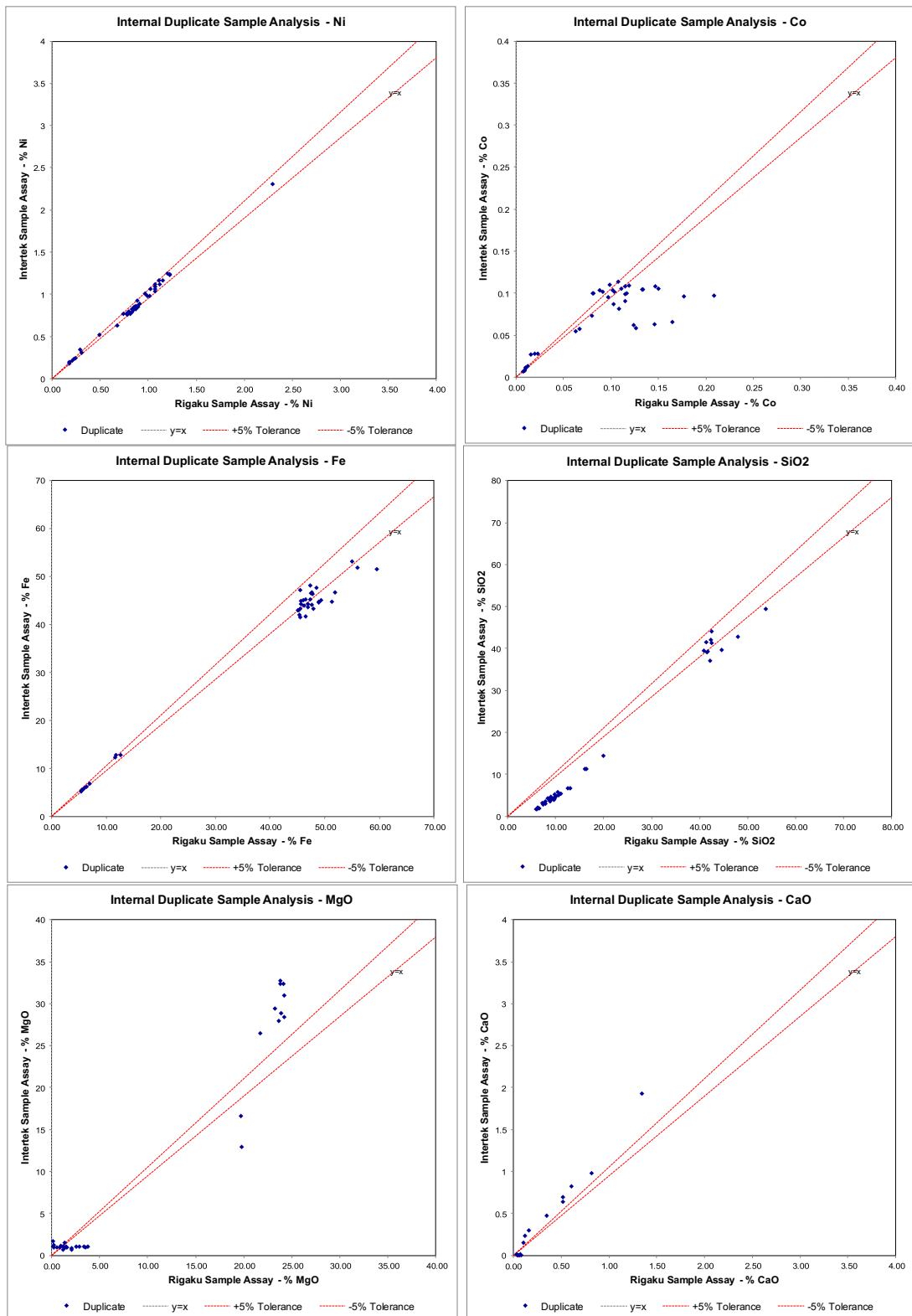
Figure 8.7   Scatter plots of External Repeat Results from Intertek
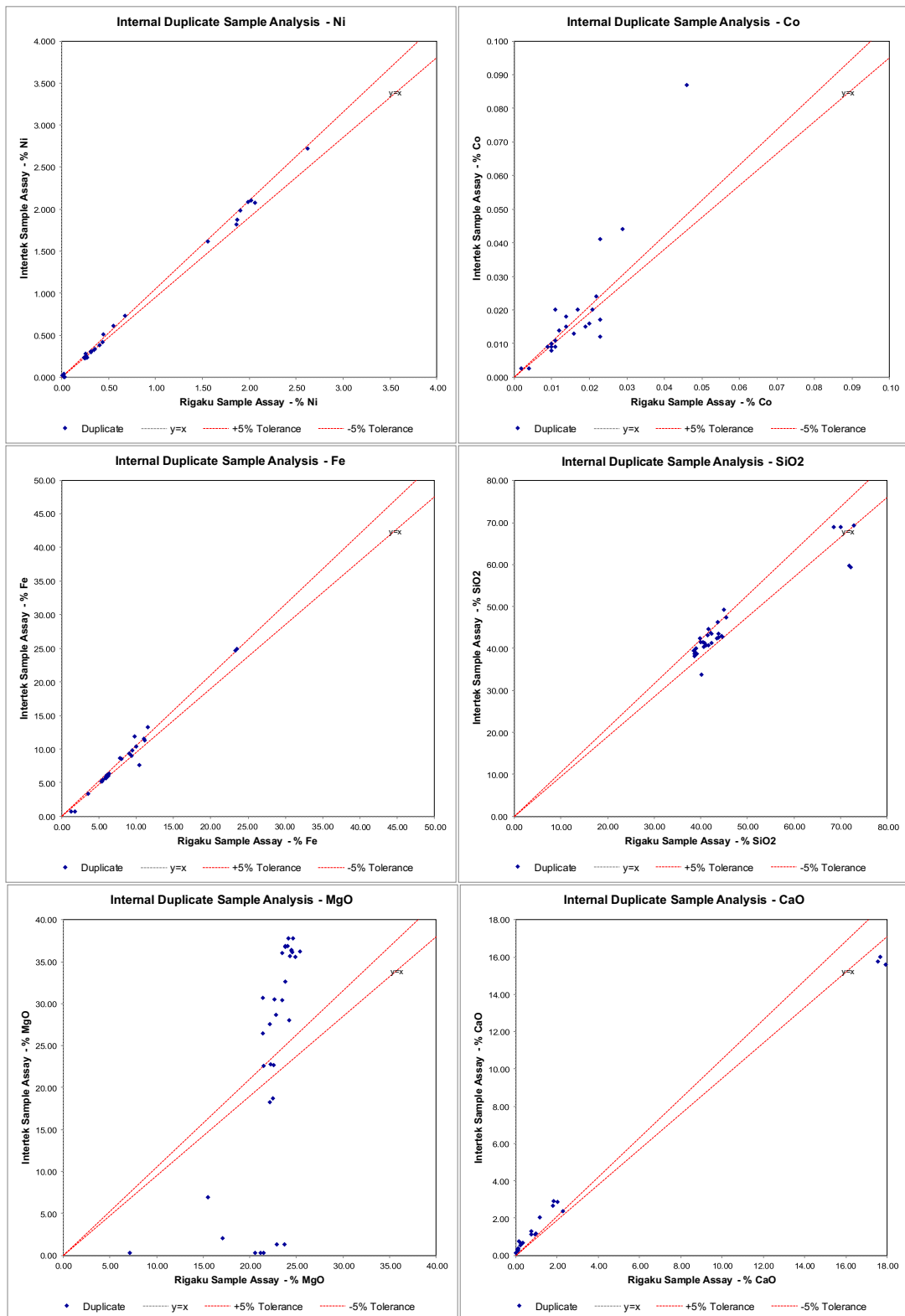
8.4.5. CRM Samples

A total of 125 CRM samples were inserted and analysed. CRM samples were inserted by the on-site laboratory at a frequency of one in every drillhole. A total of five different CRM samples were used for the Concession. All CRM samples used were sourced from the OREAS Australian Laboratory. A summary of each CRM used is shown in **Table 8.7 to Table 8.11**, while Shewchart plots for each CRM sample repeat are shown in **Figure 8.8 to Figure 8.12** for Ni results.

The CRM results for Ni show that the on-site laboratory displays a consistent low bias with most results falling below the control limits. The systematic bias is believed to be due to the different method of analysis between a fuse bead (for CRM) and manual pressed powder samples used at site.

Table 8.7   Statistic Summary of performance OREAS-181

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	451	11	429	472	418	483	2.41%	4.81%	7.22%	428	473
Fe2O3, wt%	35.94	0.205	35.53	36.35	35.33	36.56	0.57%	1.14%	1.71%	34.15	37.74
Ni, ppm	5123	59	5004	5242	4945	5301	1.16%	2.32%	3.48%	4867	5379

Table 8.8   Statistical Summary of performance OREAS-186

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	692	17	657	726	640	743	2.47%	4.94%	7.41%	657	726
Fe2O3, wt%	32.04	0.182	31.68	32.41	31.5	32.59	0.57%	1.13%	1.70%	30.44	33.64
Ni, ppm	1.23	0.013	1.21	1.26	1.19	1.278	1.06%	2.12%	3.18%	1.17	1.29

Table 8.9   Statistical Summary of performance OREAS-190

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	890	15	861	919	846	933	1.63%	3.27%	4.90%	845	934
Fe2O3, wt%	35.48	0.149	35.18	35.77	35.03	35.92	0.42%	0.84%	1.26%	33.7	37.25
Ni, ppm	1.64	0.012	1.61	1.66	1.6	1.67	0.72%	1.44%	2.16%	1.55	1.72

Table 8.10   Statistical Summary of performance OREAS-193

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	495	14	468	523	454	537	2.78%	5.56%	8.34%	471	520
Fe2O3, wt%	19.51	0.104	19.31	19.72	19.2	19.82	0.54%	1.07%	1.61%	18.53	20.49
Ni, ppm	1.93	0.019	1.89	1.96	1.87	1.98	1.00%	2.01%	3.01%	1.83	2.02

Table 8.11   Statistical Summary of performance OREAS-194

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Borate Fusion XRF											
Co, ppm	428	12	405	452	393	463	2.72%	5.43%	8.15%	407	450
Fe2O3, wt%	16.47	0.086	16.3	16.64	16.21	16.73	0.52%	1.05%	1.57%	15.65	17.29
Ni, ppm	2.13	0.02	2.09	2.17	2.07	2.19	0.92%	1.84%	2.75%	2.02	2.24

Figure 8.8   OREAS 181 - Ni
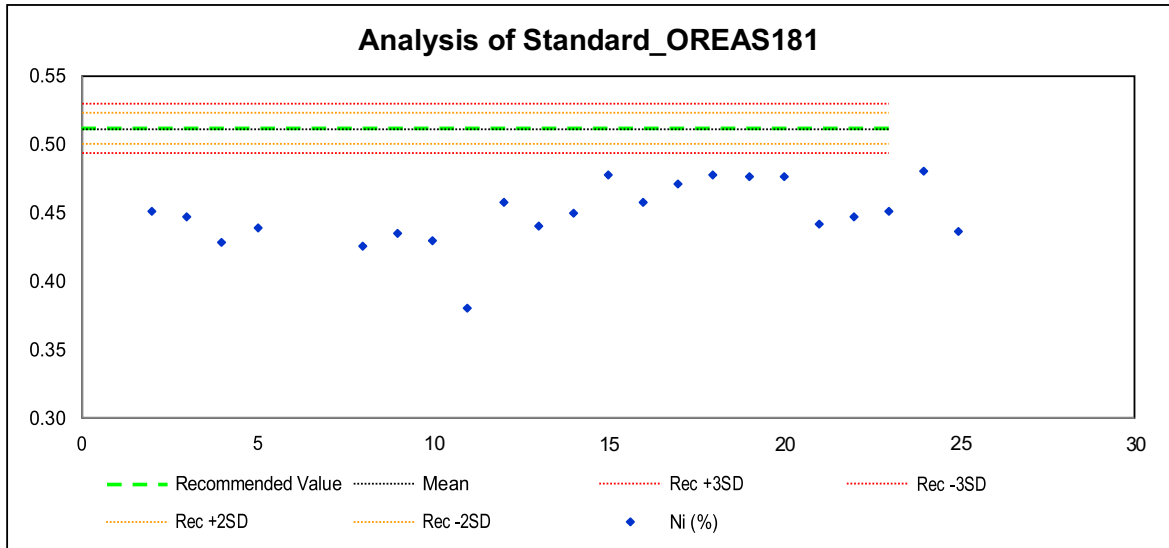
Figure 8.9   OREAS 186 - Ni

Figure 8.10   OREAS 190 - Ni

Analysis of Standard_OREAS190

Figure 8.11   OREAS 193 - Ni
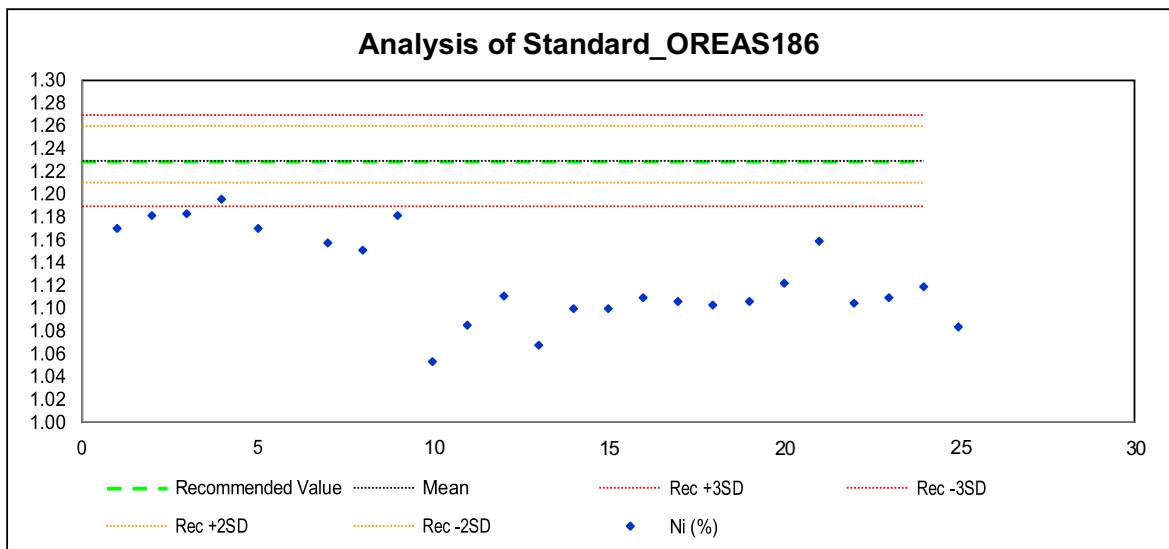
Analysis of Standard_OREAS193
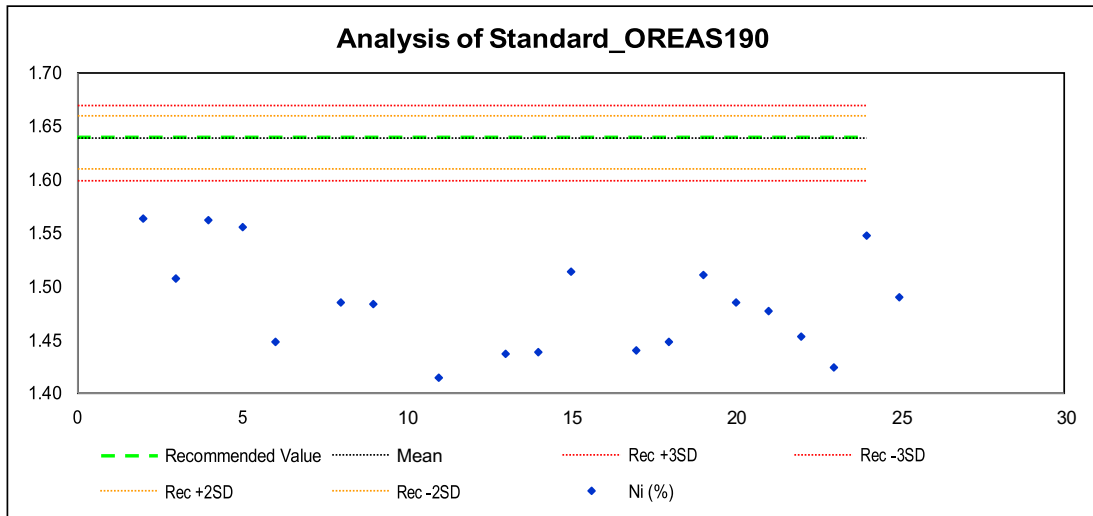
Figure 8.12   OREAS 194 - Ni
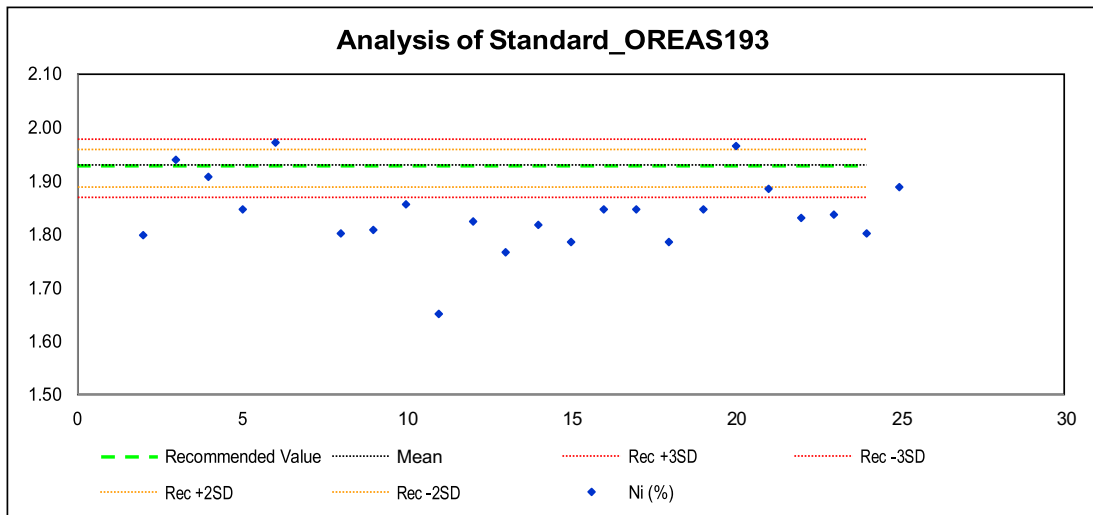
Analysis of Standard_OREAS194
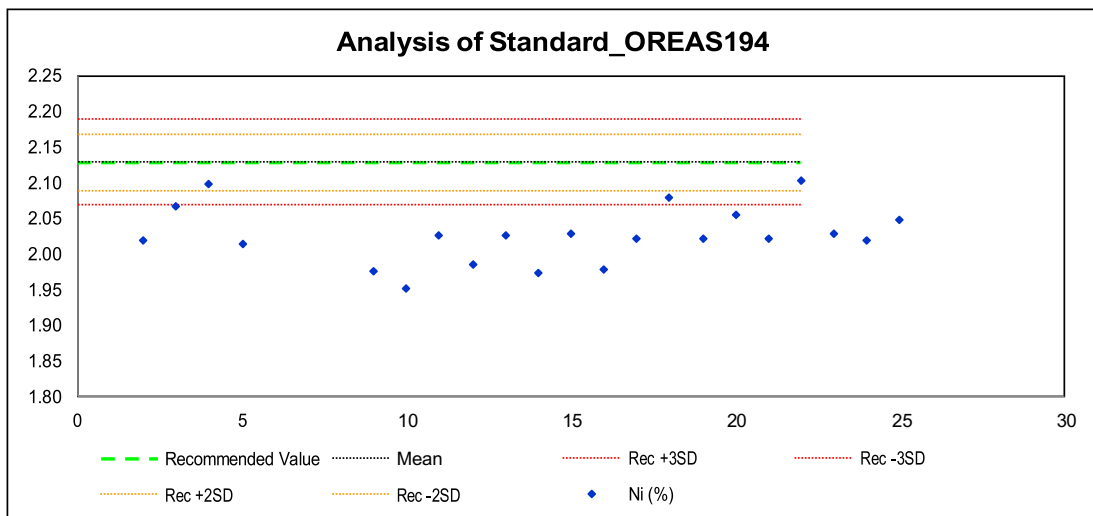
8.4.6. Summary of Analytical QA/QC Review

Analysis of the internal standards results indicates that most results for all standards are inside the upper and lower warning limits and therefore acceptable. There are only a small number of samples that fall outside the warning limits.

The results of the internal repeats from the on-site laboratories indicate that most Ni and Fe results fall along the x = y trend line and are within the ±10% error limits.

The results of the internal blank samples indicates that a small number of samples may have been mixed up or mis-labelled as blanks or some minor contamination occurred at the laboratory, however these samples comprise only 9% of the blanks analyses.

The external repeat results from the Minertech laboratory show most results are along the x = y trend and within the ±5% error limits for Ni and For Fe analytical bias can be observed in addition to moderate and high scatter for Co, SiO_2, MgO and CaO. The trend for Co and SiO_2 is below the x=y line while the trend for CaO is above the x=y line. The MgO assays appear to be on a separate trend.

Analyses of external repeats from Intertek show that most Ni fall mostly along the x = y trend line as expected with a small proportion is outside the ± 5% error limits. The results for Fe are also similar. For Co and SiO_2 analytical bias can be observed in addition to moderate and high scatter for MgO and CaO. The trend for MgO and CaO are above the x=y line while the trend for Co assays appears to be on a separate trend.

The CRM results for Ni show that the on-site laboratory displays a consistent low bias with most results falling below the control limits.

It is recommended that screen size checks on the sample pulp be implemented consistently and to increase the frequency of internal and external repeat analysis. Further investigation is required to assess the systematic bias between the pressed pellet XRF determinations vs the CRM data to improve assay confidence for future Mineral Resources.

9. BULK DENSITY AND MOISTURE DATA

9.1. Methodology

Bulk density data for the Concession was collected from drill core samples. A total of 231 drill core samples were measured for density and moisture content. Measurements were made using the Caliper and Water Displacement (Archimedes) method;

- Caliper method:
  - individual pieces of intact core (generally greater than 10 cm long) are selected;
  - the ends are cut perpendicular to the axis of the core;
  - the diameter (d) of the core is determined with a pair of calipers – it should be measured at several points and averaged;
  - the length (l) of the core is determined with a tape measure – it should be measured at several points and averaged;
  - the sample is weighed.
- Water Displacement (Archimedes) method involves measuring the volume of water displaced as the sample is lowered into it. Samples measured by caliper were used:
  - Sample was wrapped with plastic;
  - weighing the sample in air;
  - and immersed in water, the difference in weight equating to the volume of water displaced (Archimedes' Principle);
  - The change in water volume was then recorded and the wet density was calculated by dividing the weight of the core by the volume of the displaced water in the measuring tube;
  - The moisture content was determined later in the on-site laboratory before the sample was prepared for analysis.
- Determination of moisture content (MC) involved weighing before and after drying in an oven with temperature 105° C. This releases the free water from the interstitial pore spaces and the moisture content is calculated from the difference in mass of the sample before and after drying.
  - Weighing the pan;
  - Weighing the pan with sample (wet weight);
  - Drying on temperature 105 degrees C for 8 hours;
  - Weighing the pan with sample (dry weight);
  - reporting MC with respect to wet mass; $MC = 100 \times \dfrac{(\text{wet mass} - \text{dry mass})}{\text{wet mass}}$

A summary of core density samples measured is shown in **Table 9.1** and examples of the process are shown in **Figure 9.1.**

Table 9.1   Summary of Core Density Samples

Type	Number of Samples	Buleleng			Torete		
		Limonite	Saprolite	Bedrock	Limonite	Saprolite	Bedrock
Core Samples	231	23	48	4	59	73	24

Figure 9.1   On-site core density measurement activities

Source: PT TAS Exploration Drilling Report

9.2.   Results

PT GAS analysed the statistics of the provided bulk density and moisture data provided.

9.2.1. Caliper Wet Density Results

A statistical review of caliper data is shown in **Table 9.2** and histograms of the data for limonite, saprolite and bedrock are shown in **Figure 9.2**.

Table 9.2   Statistical summary of Caliper Wet Density

Caliper - Wet Density	LIM	SAP	BRK
Mean	1.6224999	1.5564565	2.3186172
Standard Error	0.028048	0.0198255	0.0563928
Median	1.6466053	1.5394229	2.3163695
Standard Deviation	0.2022568	0.1838543	0.2584244
Sample Variance	0.0409078	0.0338024	0.0667832
Kurtosis	0.2595496	-0.4864629	0.5803012
Skewness	-0.4167216	0.2397508	0.6293276
Range	0.9728722	0.8267005	1.037735
Minimum	1.0588246	1.1828065	1.9358563
Maximum	2.0316969	2.009507	2.9735913
Sum	84.369996	133.85526	48.690961
Count	52	86	21

Figure 9.2   **Histogram of available data Caliper Wet Density each zone**
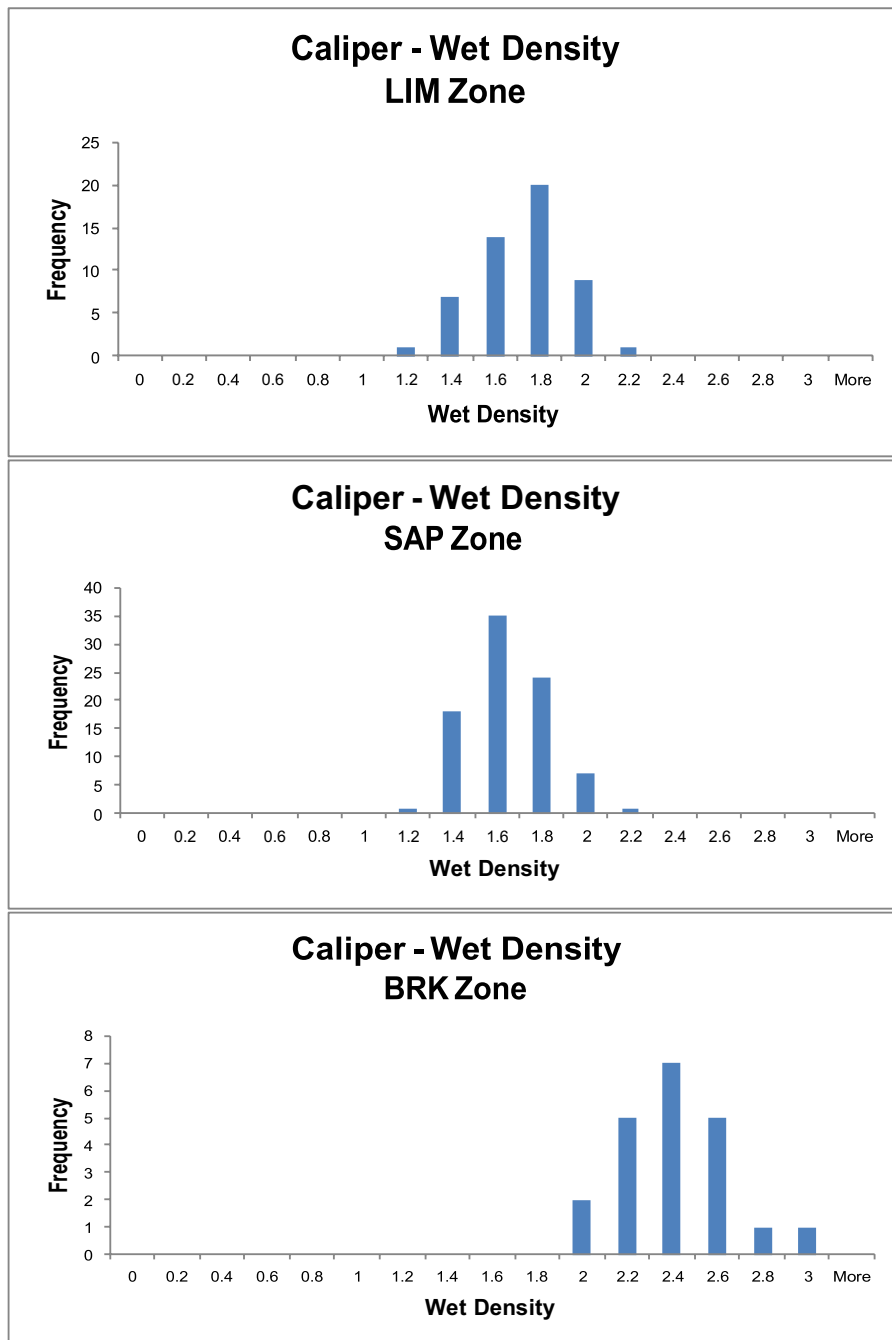
9.2.2. Archimedes Wet Density Results

A statistical review of Archimedes data is shown in **Table 9.3** and histograms of the data for limonite, saprolite and bedrock are shown in **Figure 9.3**.

Table 9.3   Statistic summary of available data Archimedes Wet Density

Archimedes – Wet Density	LIM	SAP	BRK
Mean	**1.668190539**	**1.568907465**	**2.413208868**
Standard Error	0.034006914	0.022271843	0.081760785
Median	1.635662304	1.545977011	2.428571429
Standard Deviation	0.220389994	0.207737925	0.337108353
Sample Variance	0.048571749	0.043155046	0.113642042
Kurtosis	2.871052717	-0.083864989	0.15248883
Skewness	1.203887167	0.424572848	-0.046724315
Range	1.160422871	0.957665031	1.338107737
Minimum	1.304794521	1.153094463	1.734908136
Maximum	2.465217391	2.110759494	3.073015873
Sum	70.06400262	136.4949495	41.02455075
Count	**42**	**87**	**17**

Figure 9.3   Histogram of Archimedes Wet Density

Archimedes - Wet Density
BRK Zone
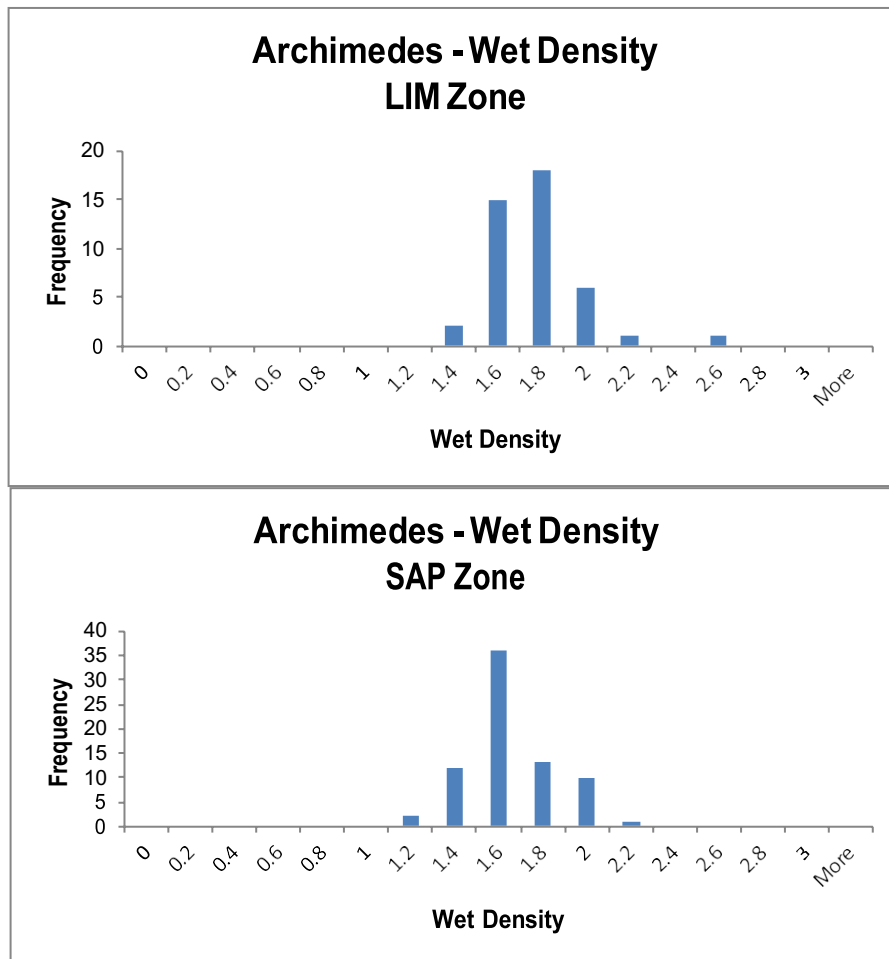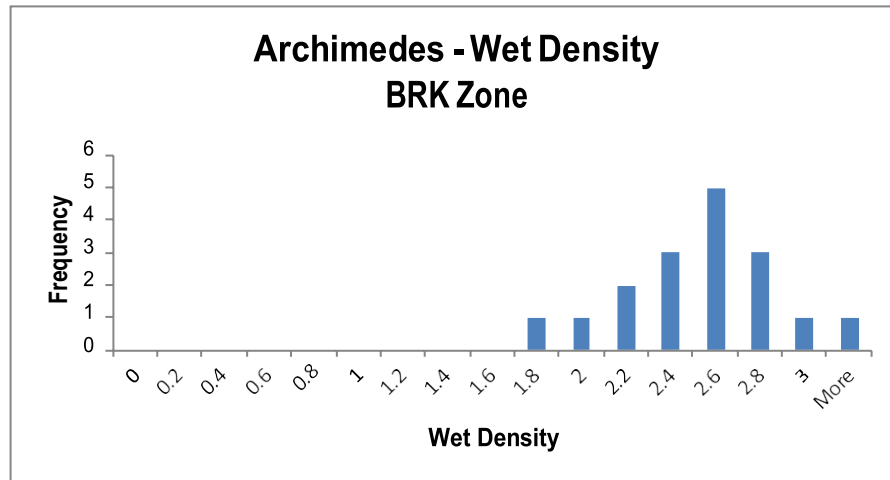
9.2.3. Moisture Results

Moisture determinations for limonite and saprolite generally varied from 10-50% (**Figure 9.4**), whereas moisture contents for bedrock were generally less than 10%, as expected.

Figure 9.4   Moisture vs Wet Density relationship

Limonite

$$y = -0.0015x + 1.715$$
$$R^2 = 0.0032$$

Saprolite

$$y = -0.0042x + 1.6595$$
$$R^2 = 0.0462$$
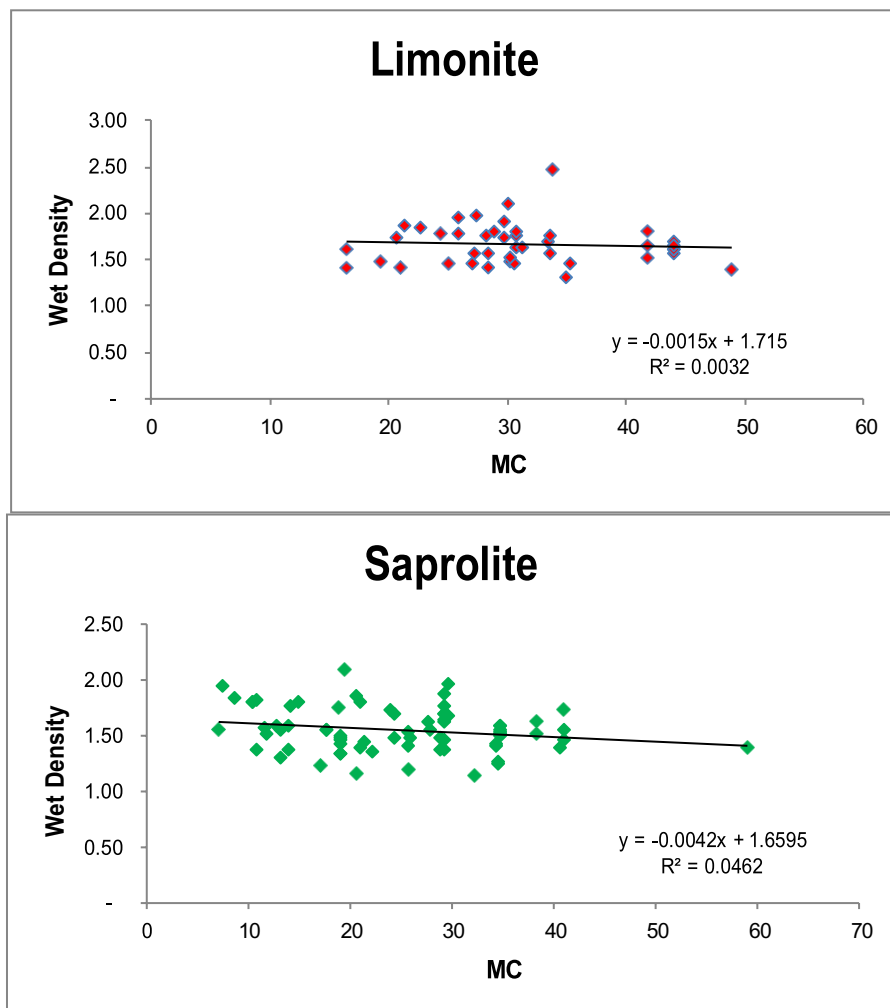
9.2.4. Density and Moisture Assessment

The databases were validated to determine if there were any invalid or unusual data entries. This was conducted for all numeric fields by determining the minimum, maximum, average values, Ni, Fe and MgO results, moisture content and dry density value.

In the Limonite zone; samples with MgO >10%) and Fe <30% were excluded. All data without MC results were also excluded.

In the Saprolite zone; samples with MgO <10% and Fe >30% were excluded. All data without MC results were also excluded.

Validated results are shown in **Table 9.4** for caliper and **Table 9.5** for Archimedes data. **Figure 9.5** presents the comparison between the dry bulk density estimates for limonite and saprolite completed using both methods and illustrates there is a good agreement between the two methods.

Table 9.4   Density and moisture statistics using the Caliper method

Method	Deposit	Domain	Data Type	No. of Samples Used	Mean	Minimum	Maximum	Standard Deviation	Sample Variance
CALIPER	Buleleng	LIM	Wet Density t/m3	9	**1.70**	1.627	1.861	0.070	0.005
			Dry Density t/m3	9	**1.01**	0.923	1.232	0.104	0.011
			Moisture %	9	**40.91**	31.179	43.953	4.908	24.087
		SAP	Wet Density t/m3	4	**1.68**	1.565	1.818	0.105	0.011
			Dry Density t/m3	4	**1.04**	0.988	1.079	0.044	0.002
			Moisture %	4	**37.83**	34.718	40.939	3.592	12.900
		BRK	Wet Density t/m3	3	**1.94**	2.564	2.192	0.329	0.108
			Dry Density t/m3	3	**1.78**	2.522	2.084	0.388	0.150
			Moisture %	3	**1.65**	8.218	5.233	3.323	11.040
	Torete	LIM	Wet Density t/m3	5	**1.70**	1.597	1.809	0.095	0.009
			Dry Density t/m3	5	**1.21**	1.145	1.287	0.060	0.004
			Moisture %	5	**29.16**	27.212	30.712	1.535	2.357
		SAP	Wet Density t/m3	6	**1.69**	1.523	1.915	0.144	0.021
			Dry Density t/m3	6	**1.33**	1.102	1.516	0.177	0.031
			Moisture %	6	**22.56**	13.051	28.772	5.679	32.248
		BRK	Wet Density t/m3	14	**2.28**	1.936	2.974	0.277	0.077
			Dry Density t/m3	14	**2.15**	1.655	2.893	0.306	0.094
			Moisture %	14	**5.63**	0.642	14.495	4.081	16.653

Table 9.5   Density and moisture statistics using the Archimedes method

Method	Deposit	Domain	Data Type	No. of Samples Used	Mean	Minimum	Maximum	Standard Deviation	Sample Variance
ARCHIMEDES	Buleleng	LIM	Wet Density t/m^3	12	**1.71**	1.519	2.465	0.251	0.063
			Dry Density t/m^3	12	**1.03**	0.873	1.632	0.211	0.044
			Moisture %	12	**39.75**	31.179	43.953	5.104	26.052
		SAP	Wet Density t/m^3	28	**1.52**	1.202	1.965	0.153	0.023
			Dry Density t/m^3	28	**1.10**	0.862	1.419	0.152	0.023
			Moisture %	28	**27.41**	13.863	40.939	8.750	76.568
		BRK	Wet Density t/m^3	2	**2.61**	2.138	3.073	0.661	0.437
			Dry Density t/m^3	2	**2.52**	2.014	3.022	0.713	0.509
			Moisture %	2	**3.74**	1.653	5.829	2.953	8.719
	Torete	LIM	Wet Density t/m^3	3	**1.73**	0.087	0.008	1.628	1.795
			Dry Density t/m^3	3	**1.20**	0.060	0.004	1.128	1.244
			Moisture %	3	**30.71**	0.000	0.000	30.712	30.712
		SAP	Wet Density t/m^3	16	**1.44**	1.153	1.807	0.192	0.037
			Dry Density t/m^3	16	**1.09**	0.577	1.427	0.251	0.063
			Moisture %	16	**24.14**	10.675	58.914	12.293	151.129
		BRK	Wet Density t/m^3	14	**2.37**	1.735	2.895	0.303	0.092
			Dry Density t/m^3	14	**2.24**	1.592	2.809	0.338	0.114
			Moisture %	14	**5.63**	0.642	14.495	4.081	16.653

Figure 9.5   Comparison of Caliper and Archimedes methods

Scatter Plot
Dry Density in LIM Zone

$y = 0.9474x + 0.0998$
$R^2 = 0.749$

Scatter Plot
Dry Density in SAP Zone

$y = 0.8846x + 0.1078$
$R^2 = 0.692$
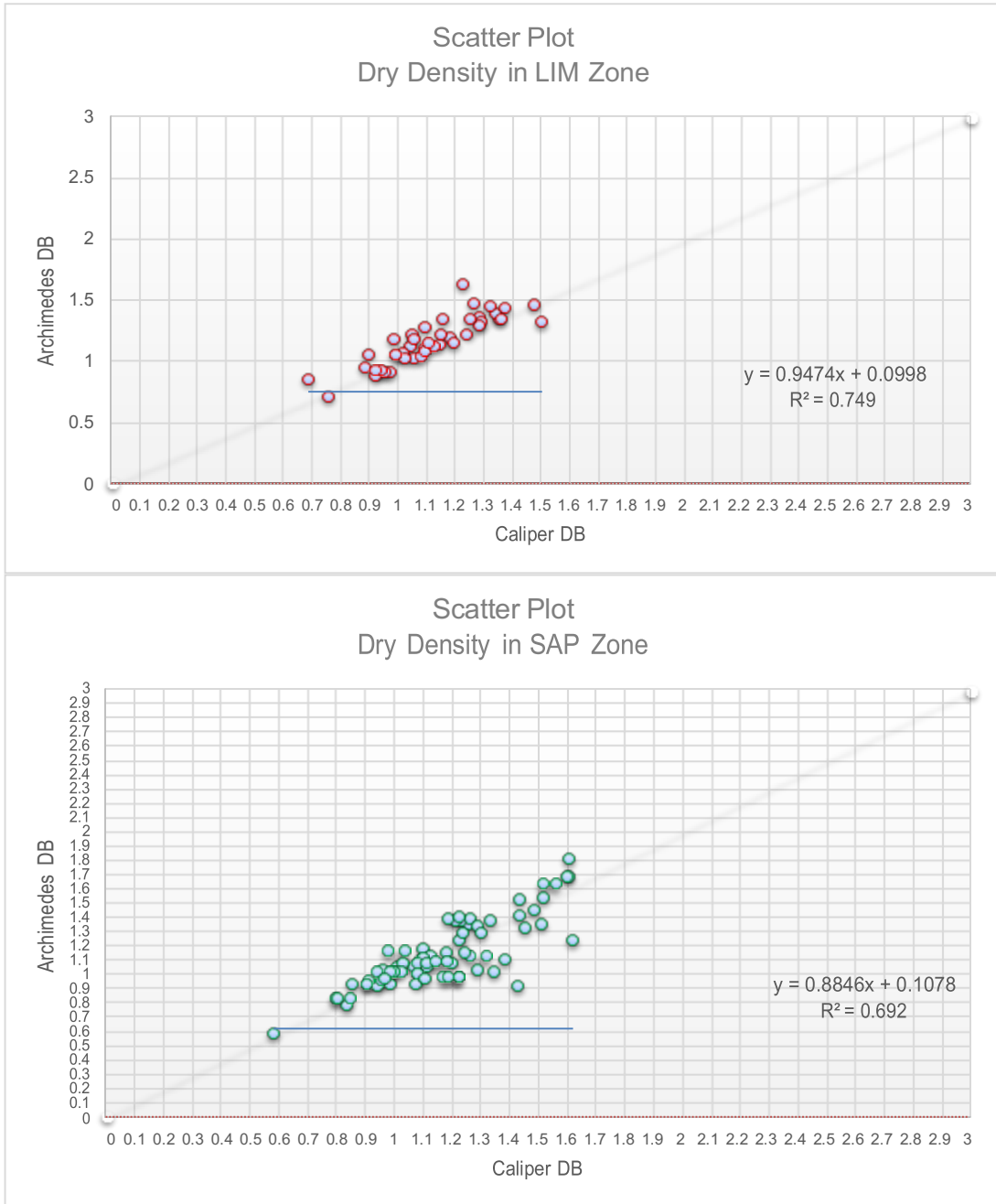
10. DATA VERIFICATION

PT GAS conducted a review of the geological digital data provided by Client to ensure that no material issues could be identified and that there was no cause to consider that the data was inaccurate and not representative of the underlying samples.

PT GAS's review determined there were only minor data entry errors that were corrected after discussions with the Client. The resultant corrected drill hole database formed the underlying data for the independent JORC Statement of Mineral Resources and Ore Reserves reported by PT GAS.

PT GAS conducted a high-level review of all geological digital data supplied by PT TAS for the Concession as per the Stage 1 SOW to determine if the Concession was suitable to proceed to Stage 2 and 3, consisting of the following tasks for each asset:

- A review of the provided Access databases and Excel spreadsheets;

- A check of the provided lithology surfaces and database logging information for each hole together with assays to determine if the provided surfaces were accurate and matched the logging data;

- A check of estimated grades and assigned values for bulk density and moisture; and

- A comparison of topographic surfaces with the block model to ensure correct material type and mined status coding.

10.1. Drill Hole Collar Check

Comparison between collar data and elevation of topography show some collars specially holes before 2018 have the same elevation with topography while for holes that were drilled during 2018 have some different elevation topography. Generally, collar elevation and topography has a strong correlation. Due to these differences in elevation between collar and topography, all collar had been adjusted to topography.

10.2. Drill Core Inspection

Validation and inspection of drill core was completed by comparing logging data for the drill hole with the core photographs for the original drill hole. No significant issues were found.

10.3. Review of Topographic Surfaces

During the desktop review of the reports and digital databases supplied, PT GAS reviewed the provided topographic surfaces and noted only minor differences in elevation with the topography surface. No other material issues were identified.

10.4. Review of Analytical QA/QC

During the desktop review of the digital databases provided, indicate the procedures used for sample preparation and analysis were reasonable although little issues were identified.

10.5. Data Verification Statement

The review undertaken by PT GAS of the drilling, sampling and analytical procedures indicates that international standard practices were generally utilised. To increase confidence in the dataset, PT GAS recommends implementing fused beads rather than pressed powders or pellets, increased frequency of internal and external repeat analysis and increased screening tests to ensure the pulp samples are of size fractions of approximately -200 mesh.

The selective original data review carried out by PT GAS did not identify any material issues with the data entry or digital data. PT GAS's review also indicates there were no systematic or fundamental data entry or data transfer errors and therefore PT GAS considers the integrity of the digital database to be sound.

PT GAS considers there is sufficient supporting documentation to enable the use of this data in a Mineral Resource estimate and resultant classification following the guidelines set forth by the JORC Code.

11. RESOURCES ANALYSIS

11.1. Database Input

Databases were checked to determine if there were any invalid entries. This was conducted for all numeric fields by determining the minimum, maximum and average values. The review of the Buleleng and Torete databases identified the following:

- Buleleng database review:
    - 568 samples with no Ni and Fe assay results,
    - 622 samples with no Co assay results,
    - 616 samples with no SiO_2 assay results,
    - 632 samples with no MgO assay results,
    - 811 samples with no CaO assay results,
    - No assay results less than zero.
- Torete database review:
    - 15 samples with no Ni, and Fe assay results,
    - 19 samples with no Co assay results,
    - 17 samples with no SiO_2 assay results,
    - 139 samples with no MgO assay results,
    - 5,609 samples with no CaO assay results
    - No assay results less than zero,

Data validation steps were also completed including:

- Checking down-hole survey depths did not exceed the depth in the collar table;
- Ensuring dips were within the range of 0° and -90°;
- Ensuring assay and survey information was checked for duplicate records.

The validated drill hole database used contains 779 holes (9,275.6 m), with an average hole depth of 15.9 m, and 10,277 Ni assay samples (**Table 11.1**). The drill holes are distributed in quite a regular spacing with various drill holes spacing from 25 m x 25m up to 200 m x 200 m grid at Torete, but ridge and spur at Buleleng.

Table 11.1   Drill holes Database Used for Resources Calculation

Deposit	Total Holes	Total Metres (m)	Average Depth (m)	Total Samples						Coverage Area (Ha)
				Ni	Co	Fe	SiO2	MgO	CaO	
Buleleng	77	1,607	20.9	1,704	1,668	1,704	1,674	1,658	1,619	352.1
Torete	702	7,669	10.9	8,573	8,570	8,573	7,271	7,149	8,277	663.8
Total / Average	**779**	**9275.6**	**15.9**	**10,277**	**10,238**	**10,277**	**8,945**	**8,807**	**9,896**	**1,015.9**

11.2. Geology and Interpretation

Surfaces were constructed for the top of the limonite zone based on topography surfaces, base of the limonite zone, based on the saprolite, and the top of the bedrock domain for each deposit using qualitative geological logging information and quantitative assays for Ni, Fe and MgO. Limonite generally has > 30% Fe and < 10% MgO and Saprolite generally has < 30% Fe and > 10% MgO with nickel content more than 0.8%. This quantitative assay data was confirmed with the qualitative geological logging information.

The surfaces were checked to ensure there were no intersections between each surface then extrapolated beyond the block model extents to ensure all parts of the block model representing mineralised material could be coded. Plan views of the created surfaces for each domain are shown in **Figure 11.1 and Figure 11.2**. No other domains were used to constrain the mineralisation apart from boundary strings around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or more.

Figure 11.3 shows two cross sections through Buleleng illustrating the domain interpretation and **Figure 11.4** No shows two cross sections through Torete.

Figure 11.1 Plan View of Surface for the base of Limonite domain
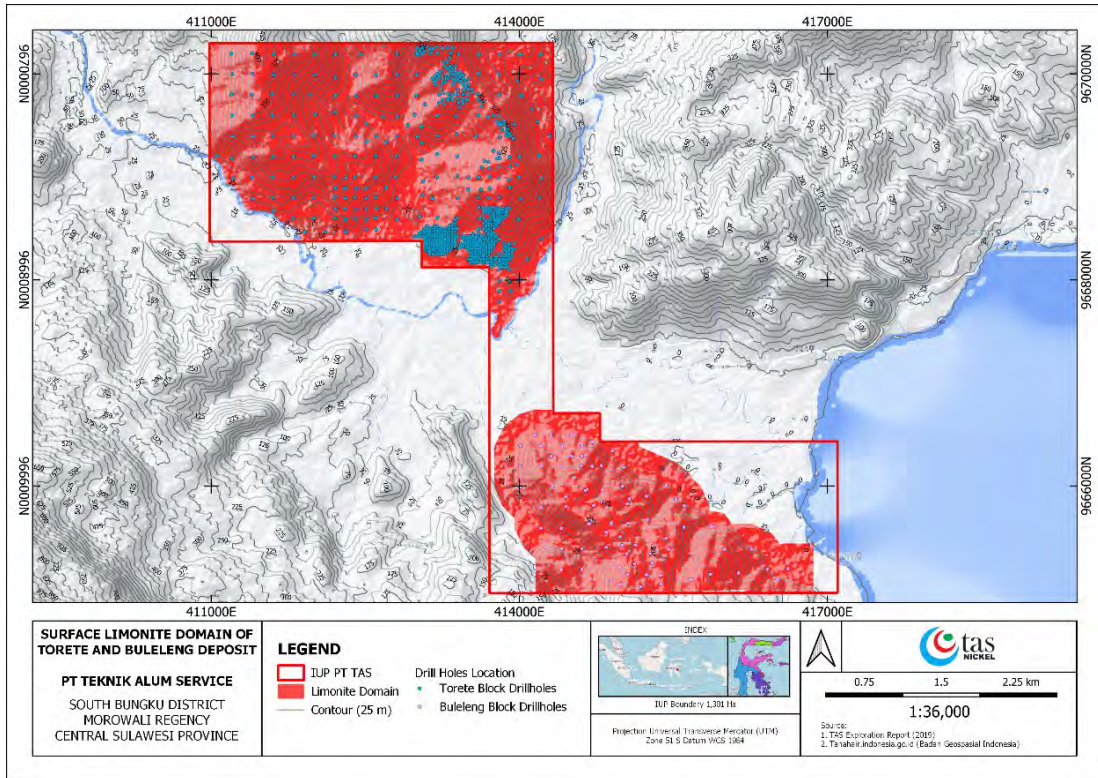
Figure 11.2 Plan View of Surfaces for Saprolite bottom domain
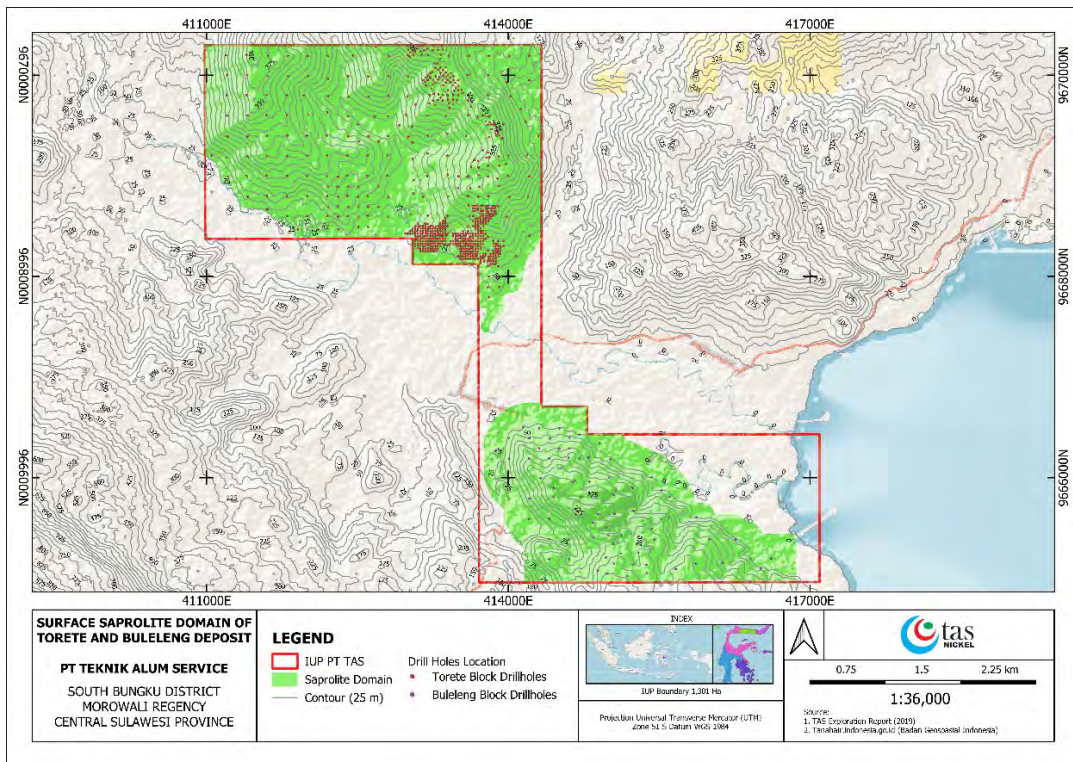
Figure 11.3 Section showing stratigraphic correlation within layer – Buleleng Block 414,850 mE and 9,666,200 mN
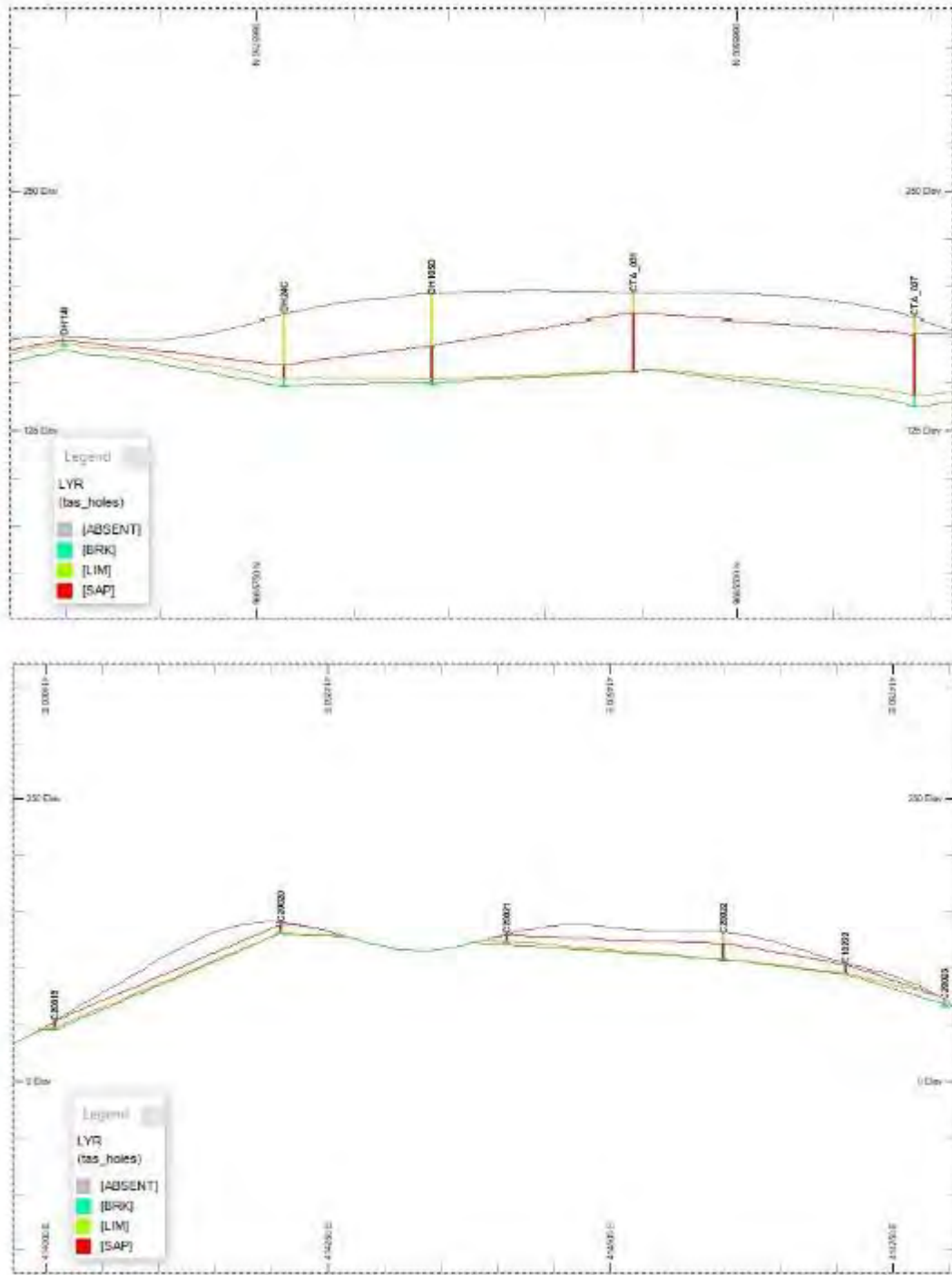
Figure 11.4 Section showing stratigraphic correlation within layer – Torete Block 413,250 mE and 9,668,300 mN
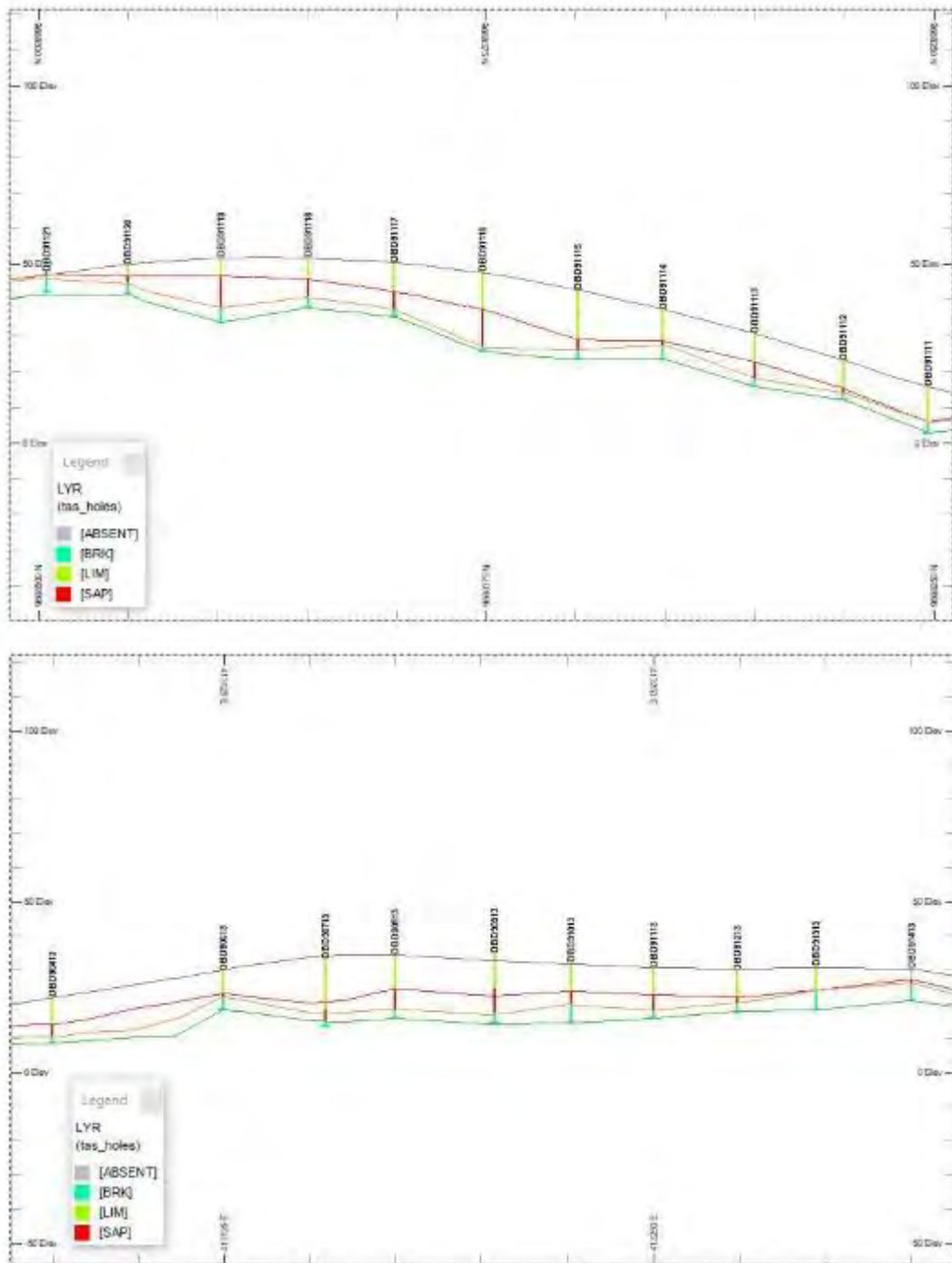
11.3. Topographic Surface

PT GAS reviewed the available topographic surfaces as natural surfaces and noted that the terrain within the Concession area defined by LIDAR data. Topographic surfaces were generated from 1 m spaced contour data. A natural surface and a combined mined surface were available for the Concession. This natural surface was then used to check the elevations of the drill hole collars were reasonable and there was no significant deviation from the elevation of the surface at the same location. Where the drill hole collar elevation was 0.5 m or more higher or lower than the topographic surface elevation, the drill hole collar elevation was changed to that of the topographic surface

elevation. Areas of drill hole collars that showed a large elevation difference to the natural topographic surface were taken into account when the Mineral Resource estimate was classified.

Comparison between collar data and elevation of topography show some collars specially holes before 2018 have the same elevation with topography while for holes that were drilled during 2018 have some different elevation topography. Generally, collar elevation and topography have a strong correlation (R2=0.9936) (**Figure 11.5**). Due to these differences' elevation between collar and topography, all collar had been adjusted to topography. PT TAS used topographic surface update as mined surface based on data on 27th May 2019.

Figure 11.5 Comparison elevation between collar and ground original topography
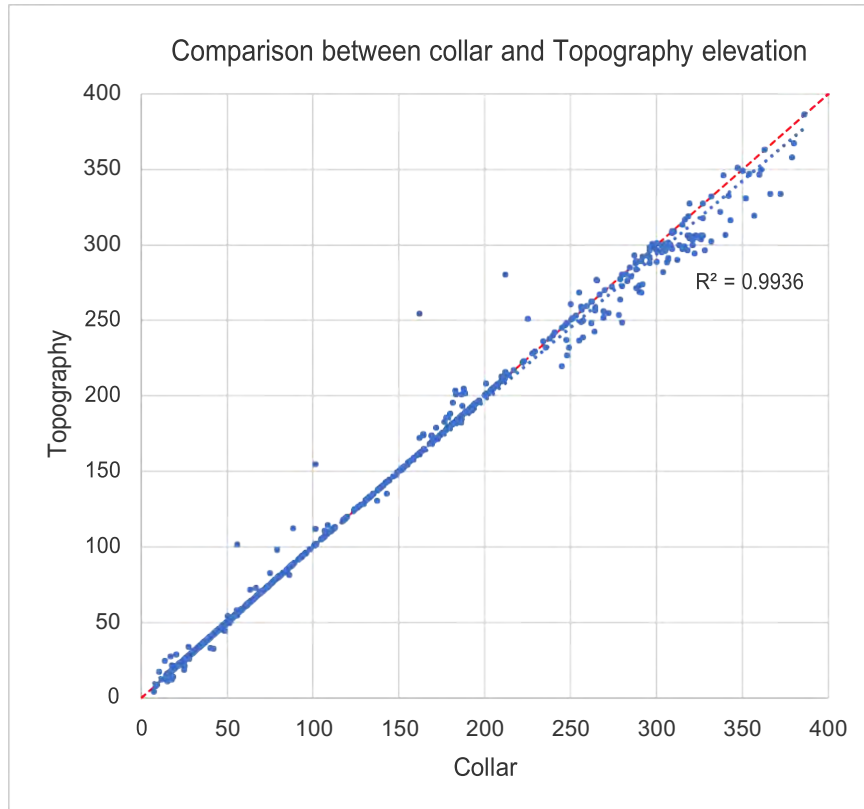
11.4.   Statistical Analysis

A review of the drill hole database was done using histograms for all primary elements and X/Y scatter plots of element pairs. Features assessed included outliers and irregularities in the element statistics.

11.4.1. Buleleng

Table 11.2 presents univariate statistics for the Buleleng limonite and saprolite zones of Ni, Co, Fe, SiO_2, MgO and CaO, whilst **Figure 11-6** presents histograms for the limonite zone and **Figure 11.2** shows histograms for the saprolite zone.

Nickel in Limonite shows a normal distribution with average nickel grade of 0.97%, Fe shows a negative skew due to a lot of high iron content in limonite layers whereas, SiO_2, MgO and Co show a positive skewed distribution.

Ni, Fe, and SiO_2 in saprolite show a single distribution with average nickel grade of 1.14%. Co and CaO exhibit a positive skew while MgO in saprolite shows more than one population.

Table 11.2 Raw assay statistics Buleleng

Statistic	sample_raw_lim						sample_raw_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	449	437	449	438	419	238	987	942	987	951	952	941
Minimum	0.17	0.01	3.49	1.07	0.01	0.01	0.038	0.01	0.75	8.52	0.05	0.01
Maximum	1.99	0.27	59.61	87.55	33.71	32.45	3.67	0.29	48.61	92.13	40.99	4.97
Mean	0.97	0.08	41.57	11.87	3.14	0.54	1.135	0.034	14.937	44.278	18.298	0.725
Standard deviation	0.32	0.03	10.32	12.82	5.56	3.26	0.517	0.022	7.827	12.491	8.323	0.578
CV	0.33	0.42	0.25	1.08	1.77	6	0.456	0.655	0.524	0.282	0.455	0.797
Variance	0.1	0	106.51	164.29	30.91	10.66	0.267	0	61.258	156.03	69.264	0.334
Percentiles												
10%	0.59	0.05	28.17	2.28	0.05	0.02	0.45	0.02	7.66	29.203	5.586	0.101
20%	0.68	0.06	37.46	3.56	0.05	0.03	0.67	0.02	8.994	36.072	10.384	0.21
30%	0.78	0.07	40.5	4.61	0.1	0.04	0.88	0.02	10.259	39.446	14.42	0.313
40%	0.85	0.07	43.49	6.03	0.43	0.04	0.986	0.03	11.516	41.454	16.918	0.46
50%	0.91	0.08	45.13	7.1	0.94	0.05	1.113	0.03	12.561	43.445	19.43	0.6
60%	1.01	0.08	46.48	8.71	1.48	0.06	1.234	0.03	14.09	46.472	21.066	0.75
70%	1.13	0.09	47.42	12.75	2.34	0.08	1.363	0.04	16.581	49.868	23.23	0.967
80%	1.25	0.1	48.45	17.66	4.88	0.14	1.531	0.04	20.057	53.39	25.78	1.178
90%	1.43	0.12	49.81	26.96	9.09	0.47	1.78	0.06	24.94	57.955	28.666	1.449
95%	1.54	0.13	50.7	38.22	14.03	1.05	1.999	0.07	32.112	63.242	30.574	1.769
97.50%	1.59	0.17	51.82	43.6	21.56	1.97	2.27	0.08	36.127	74.042	32.824	2.02
99%	1.7	0.21	54.02	64.74	28.36	16.62	2.531	0.11	40.777	80.167	33.794	2.478

Table 11.3 presents a correlation matrix for the Buleleng limonite and saprolite zones of Ni, Co, Fe, SiO₂, MgO and CaO. In general, nickel does not have correlation with other elements in either the limonite or saprolite zone. In limonite, Fe has a strong negative correlation with SiO₂, while in the saprolite zone cobalt and iron have a strong positive correlation.

Figure 11.6 Histogram for major elements in Limonite layer – Buleleng Deposit
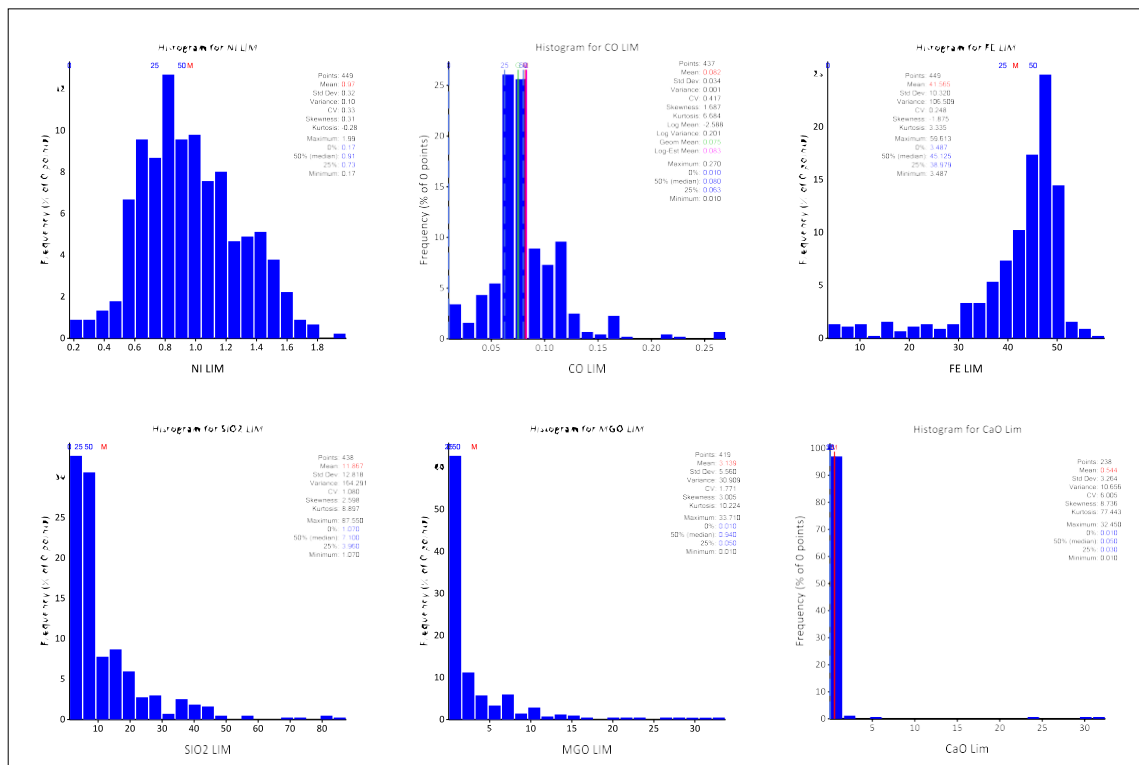
Figure 11.7 Histogram for major elements in Saprolite layer – Buleleng Deposit
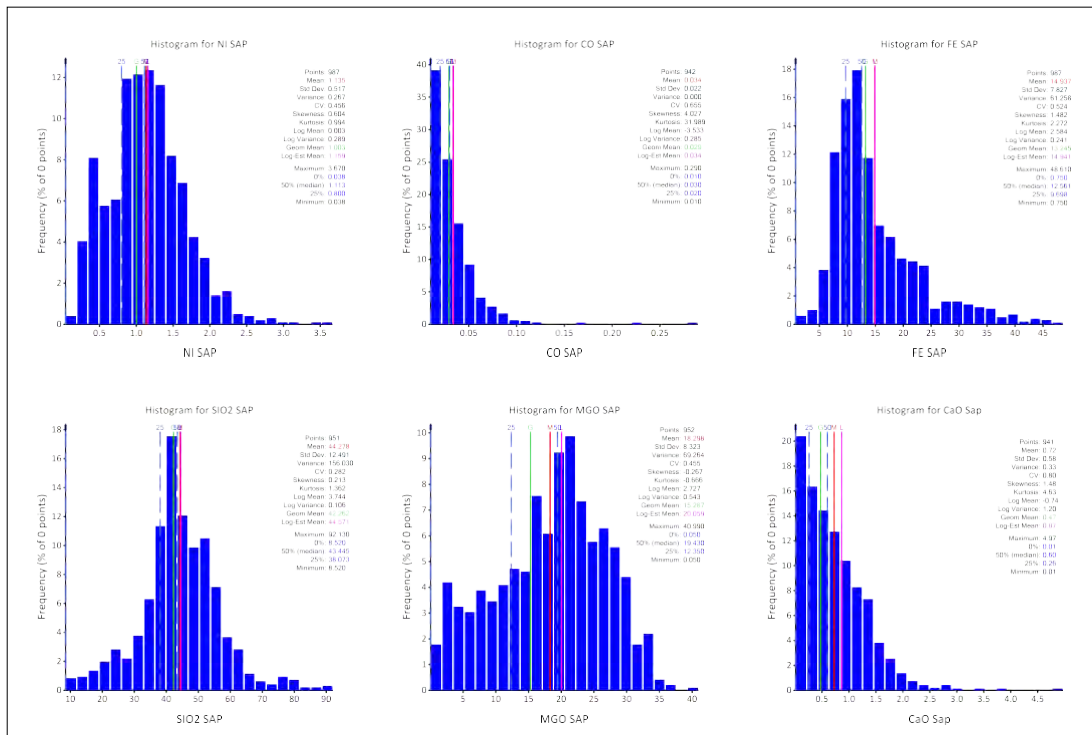
Table 11.3 Coefficient of Correlation matrix for Limonite and Saprolite layer – Buleleng Deposit

Deposit	Layer	Indep/Dep	Ni	Co	Fe	SiO2	MgO	CaO
Buleleng	LIM	Ni	1					
		Co	0.494006	1				
		Fe	0.363323	0.457549	1			
		SiO2	-0.39064	-0.37948	-0.8848	1		
		MgO	-0.22242	-0.25093	-0.66396	0.504126	1	
		CaO	-0.26618	-0.28845	-0.38736	0.075944	0.200045	1
	SAP	Ni	1					
		Co	0.161394	1				
		Fe	0.240721	0.759926	1			
		SiO2	-0.39424	-0.57305	-0.73455	1		
		MgO	-0.04826	-0.53182	-0.64229	0.229427	1	
		CaO	0.005307	-0.14909	-0.22955	0.098476	0.274299	1

11.4.2. Torete

Table 11.4 presents univariate statistics for the Torete limonite and saprolite zones of Ni, Co, Fe, SiO$_2$, MgO and CaO, whilst **Figure 11.8** presents histograms for the limonite zone and **Figure 11.9** shows histograms for the saprolite zone.

In the Limonite zone there are single populations for Ni, and Co, with nickel showing a normal distribution with an average grade of 0.92%. Fe shows a negative skew due to a lot of high iron content in limonite layers whereas, SiO$_2$, MgO and Co show a positive skewed distribution**.**

Ni, and SiO$_2$ in saprolite show single distributions, with the average nickel grade of 1.33%. Co and CaO have a positive skew while MgO shows more than one population.

Table 11.5 presents a correlation matrix for the Torete limonite and saprolite zones of Ni, Co, Fe, SiO2, MgO and CaO. In general, correlations are similar to Buleleng with nickel having no correlation

with other elements in either the limonite or saprolite zone. In limonite, Fe has a strong negative correlation with SiO$_2$.

Table 11.4   Raw assay statistics Torete

Statistic	sample_raw_lim						sample_raw_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	2275	2275	2275	2031	1924	2118	3710	3710	3710	3046	3030	3636
Minimum	0.17	0	4.66	0.65	0	0	0.01	0.003	0.506	2.5	0.087	0.001
Maximum	2.56	0.7	56.28	42.67	36.47	1.28	3.64	0.886	48.68	62.15	42.534	8.35
Mean	0.92	0.09	44.02	6.31	1.5	0.06	1.326	0.026	14.34	34.887	16.579	0.343
Standard deviation	0.29	0.05	5.54	6.03	3.05	0.1	0.603	0.025	6.589	6.917	7.468	0.494
CV	0.32	0.56	0.13	0.96	2.03	1.78	0.455	0.932	0.459	0.198	0.45	1.442
Variance	0.08	0	30.68	36.39	9.28	0.01	0.363	0.001	43.415	47.848	55.776	0.245
Percentiles												
10%	0.58	0.04	36.47	1	0.01	0.01	0.56	0.01	8.03	26.13	7.25	0.04
20%	0.67	0.06	40.85	2.14	0.05	0.02	0.811	0.01	9.172	29.959	9.662	0.07
30%	0.75	0.07	42.98	2.14	0.12	0.02	0.96	0.018	10.28	32.131	11.662	0.11
40%	0.82	0.08	44.31	2.36	0.22	0.02	1.11	0.02	11.23	34.22	13.53	0.153
50%	0.89	0.09	45.38	4.28	0.35	0.02	1.271	0.02	12.4	36.269	16.15	0.211
60%	0.95	0.1	46.32	6.42	0.59	0.03	1.436	0.022	13.78	36.768	18.8	0.29
70%	1.03	0.11	47.13	8.18	0.99	0.04	1.603	0.03	15.811	38.5	21.14	0.38
80%	1.14	0.12	48.01	10.7	2.02	0.06	1.815	0.035	18.68	40.64	23.13	0.493
90%	1.28	0.15	49.07	14.97	4.3	0.13	2.16	0.05	24.056	42.78	25.954	0.722
95%	1.43	0.18	50.13	18.49	7.05	0.25	2.43	0.06	28.515	43.944	30.035	1.024
97.50%	1.54	0.22	51.03	21.39	10.1	0.38	2.621	0.076	31.405	45.053	32.41	1.392
99%	1.76	0.28	51.93	26.72	14.46	0.55	2.808	0.1	35.278	47.06	34.336	2.058

Table 11.5 Coefficient of Correlation matrix for Limonite and Saprolite layer – Torete Deposit

Deposit	Layer	Indep/Dep	Ni	Co	Fe	SiO2	MgO	CaO
Torete	LIM	Ni	1					
		Co	0.469342	1				
		Fe	-0.17622	0.210748	1			
		SiO2	0.268229	-0.15002	-0.88163	1		
		MgO	0.242672	-0.03614	-0.68225	0.736151	1	
		CaO	0.166699	-0.11458	-0.56571	0.581802	0.43841	1
	SAP	Ni	1					
		Co	0.13283	1				
		Fe	0.181991	0.663264	1			
		SiO2	-0.22262	-0.50898	-0.66063	1		
		MgO	-0.18639	-0.37035	-0.57301	0.580885	1	
		CaO	-0.14129	-0.02992	-0.09401	0.101511	-0.08822	1

Figure 11.8 Histogram for major elements in Limonite layer – Torete Deposit
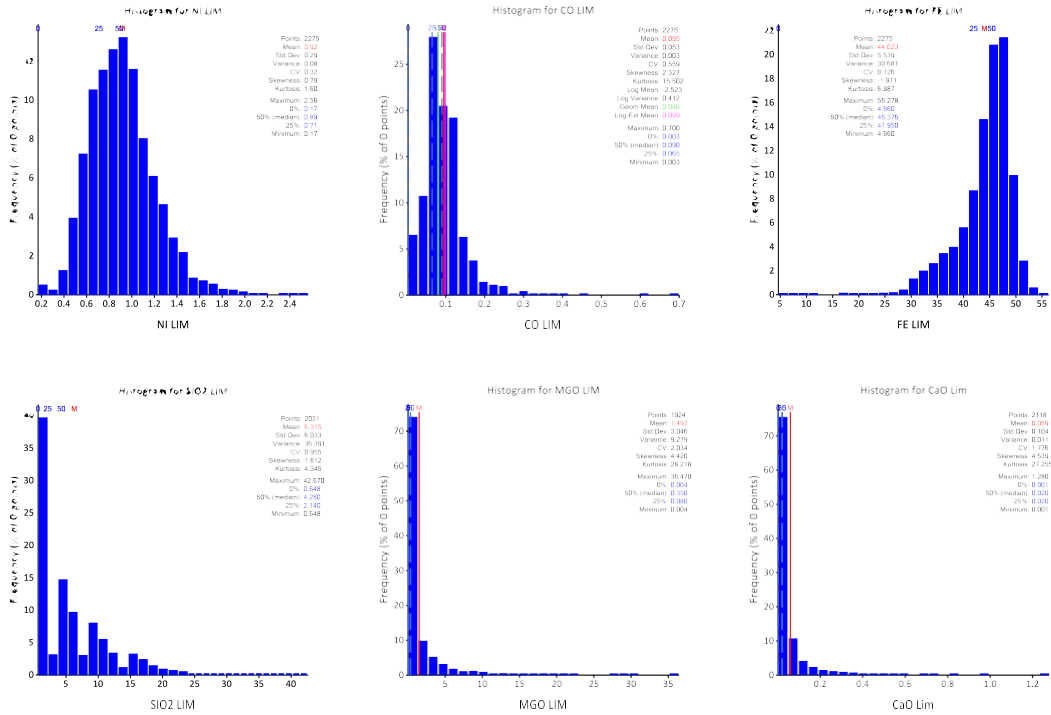
Figure 11.9 Histogram for major elements in Saprolite layer – Torete Deposit
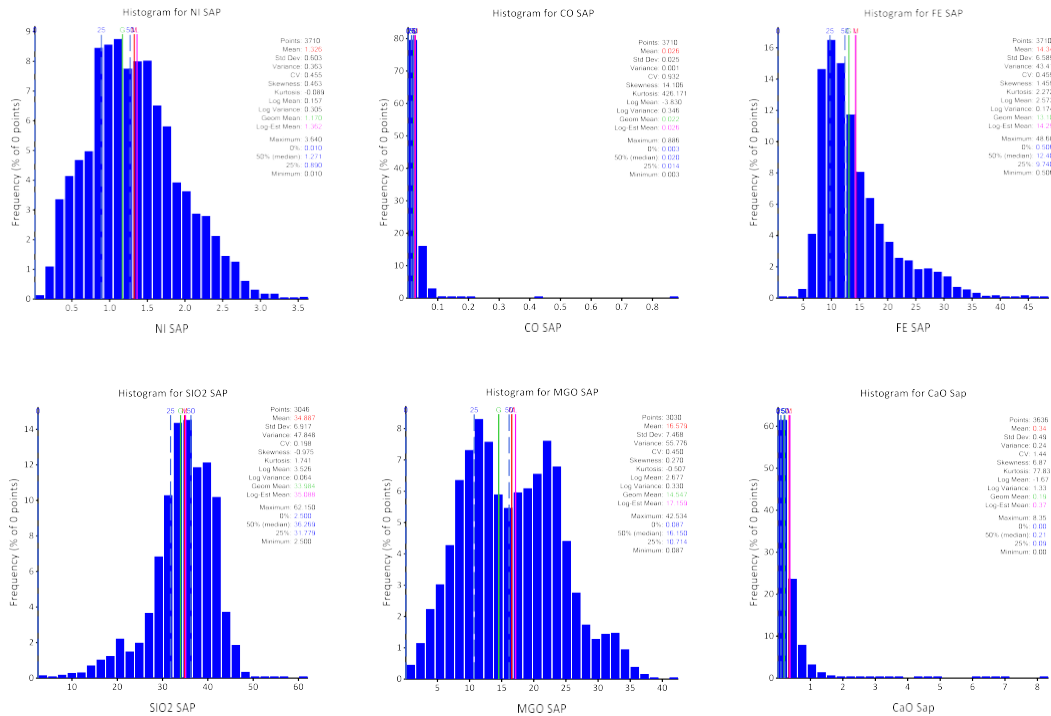
11.5. Compositing and Statistic

Compositing is essentially to ensure samples have comparable influence on the statistic. Samples from within the geological domains were used to conduct a sample length analysis.

11.5.1. Buleleng

Samples were composited to a standard 1 m interval, which is close to the original sampling interval (**Figure 11.10**).

The composites were checked for spatial correlation within the geological domains, the location of the rejected composites and zero composite values. Individual composite files were created for each of the geological domains. The composite data was analysis for basic statistics and compared with the drill hole samples. Statistics for the limonite and saprolite domains are summarised in **Table 10-6**, while probability plots are shown in **Figure 11.11 and Figure 11.12**.

Figure 11.10   Sample length distribution for Buleleng
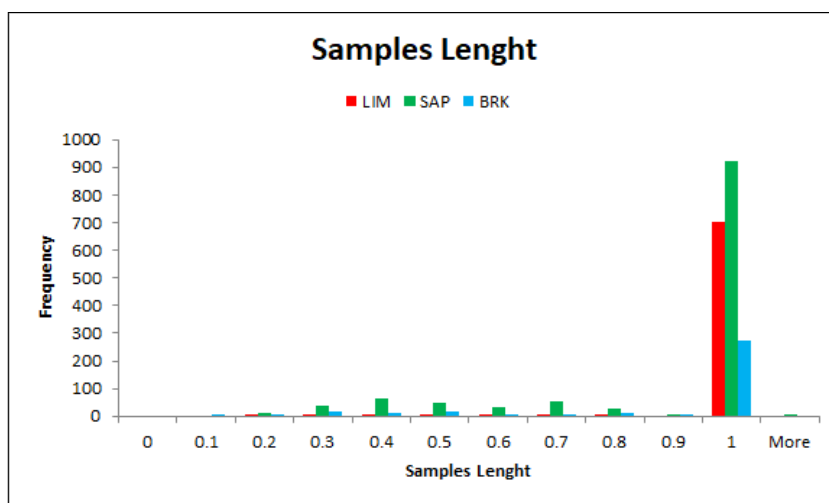
Table 11.6   Composite statistics for all elements and domains - Buleleng

Statistic	comps_lim						comps_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	442	430	442	431	412	231	888	852	888	855	856	846
Minimum	0.17	0.01	3.49	1.07	0.01	0.01	0.038	0.005	0.75	8.52	0.05	0.01
Maximum	1.99	0.27	59.61	87.55	33.71	32.45	3.67	0.29	48.61	90.76	40.99	4.97
Mean	0.97	0.08	41.75	11.69	2.97	0.53	1.143	0.035	15.217	44.032	18.068	0.723
Standard deviation	0.32	0.03	10.06	12.73	5.2	3.3	0.507	0.023	7.784	12.213	8.043	0.557
CV	0.33	0.41	0.24	1.09	1.75	6.24	0.444	0.651	0.512	0.277	0.445	0.771
Variance	0.1	0	101.12	162.11	27.08	10.89	0.257	0.001	60.588	149.159	64.695	0.311
Percentiles												
10%	0.59	0.05	28.61	2.25	0.05	0.02	0.467	0.02	8.123	28.995	5.793	0.114
20%	0.69	0.06	37.57	3.55	0.05	0.03	0.7	0.02	9.37	35.98	10.712	0.23
30%	0.78	0.07	40.94	4.55	0.08	0.04	0.883	0.02	10.478	39.303	14.43	0.34
40%	0.85	0.07	43.55	6.01	0.37	0.04	1.008	0.03	11.75	41.41	16.762	0.47
50%	0.92	0.08	45.12	7.05	0.89	0.05	1.123	0.03	12.73	43.74	19.33	0.6
60%	1.02	0.08	46.48	8.58	1.43	0.06	1.249	0.03	14.319	46.7	20.816	0.77
70%	1.13	0.09	47.42	12.22	2.24	0.08	1.362	0.04	16.819	49.885	22.838	0.97
80%	1.26	0.1	48.46	17.14	4.59	0.13	1.532	0.044	20.082	53.16	25.292	1.18
90%	1.43	0.12	49.81	26.85	8.04	0.4	1.77	0.06	25.367	57.61	28.204	1.476
95%	1.54	0.14	50.76	38.19	13.65	0.82	1.988	0.07	32.157	62.592	29.696	1.72
97.50%	1.59	0.17	51.89	43.67	19.12	1.41	2.25	0.08	36.474	70.599	31.096	1.924
99%	1.71	0.21	53.52	65.53	27.19	17.36	2.519	0.11	42.02	77.147	33.448	2.155

Figure 11.11Probability Plots for major elements in Limonite layer Buleleng Deposit
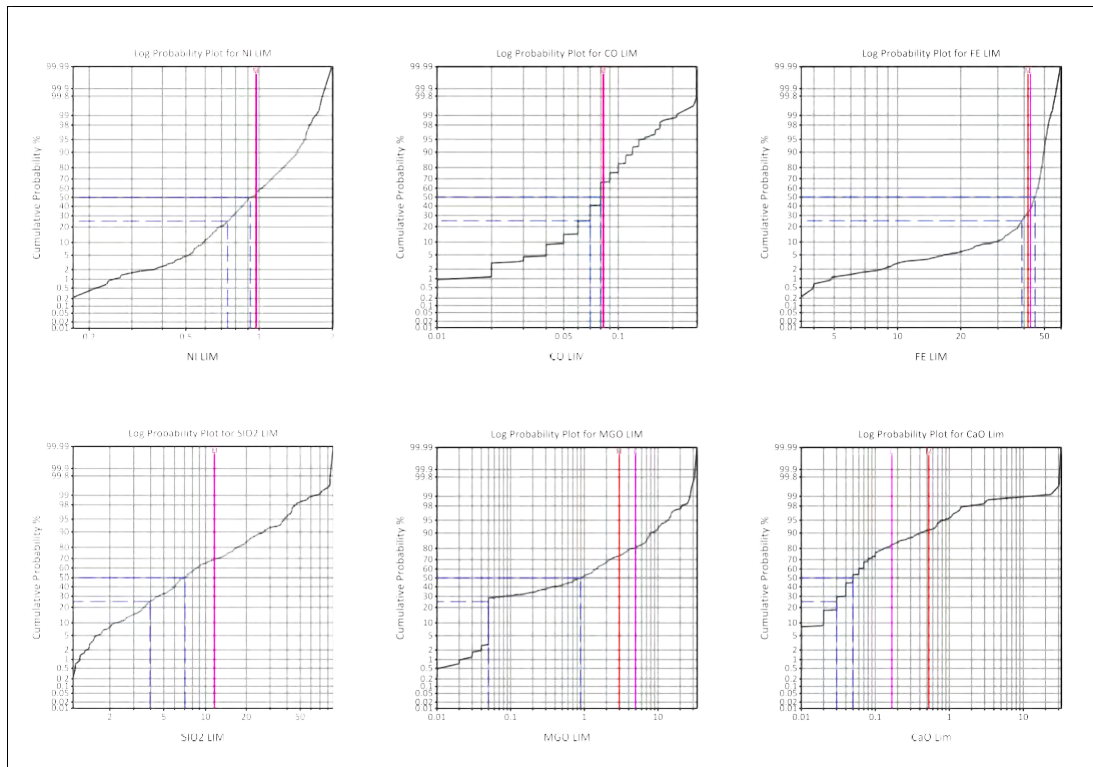
Figure 11.12Probability Plots for major elements in Saprolite layer Buleleng Deposit
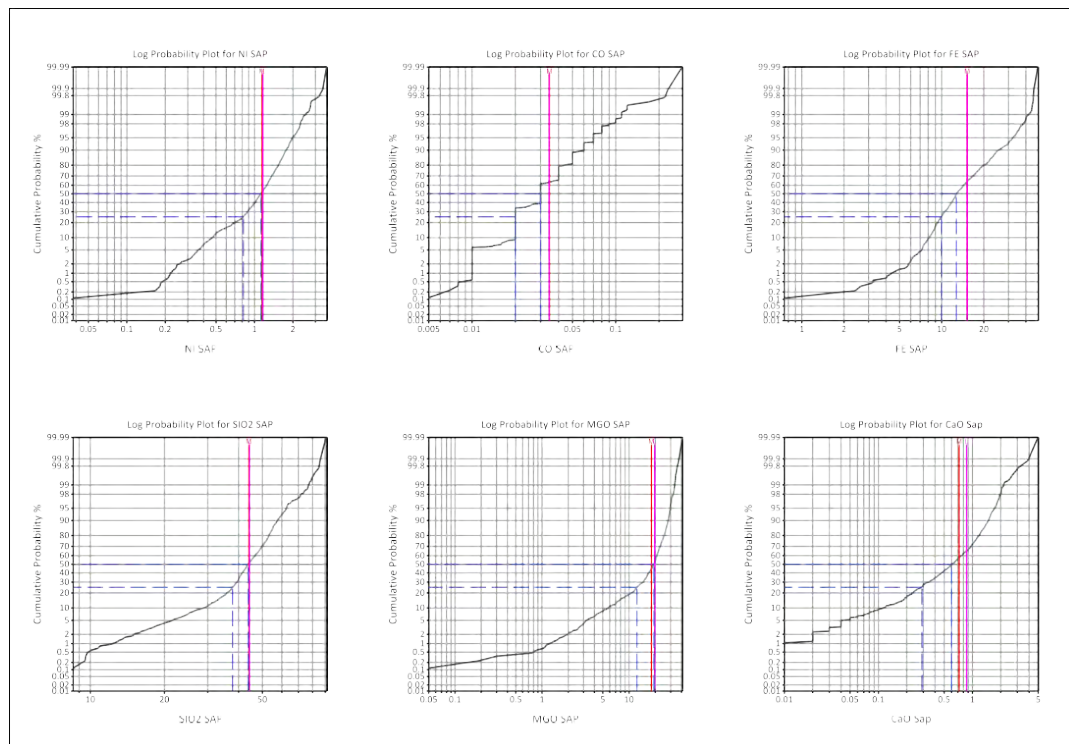
11.5.2. Torete

Samples from within each geological domain were used to conduct a sample length analysis. Samples were composited to a standard 1 m interval, which is close to the original sampling interval (**Figure 11.13**).

The composites were checked for spatial correlation within the geological domains, the location of the rejected composites and zero composite values. Individual composite files were created for each of the geological domains. The composite data was analysis for basic statistics and compared with the drill hole samples. Statistics for the limonite and saprolite domains are summarised in **Table 11-7**, while probability plots are shown in **Figure 11.14 and Figure 11.15**.

Figure 11.13   Sample length distribution for Buleleng
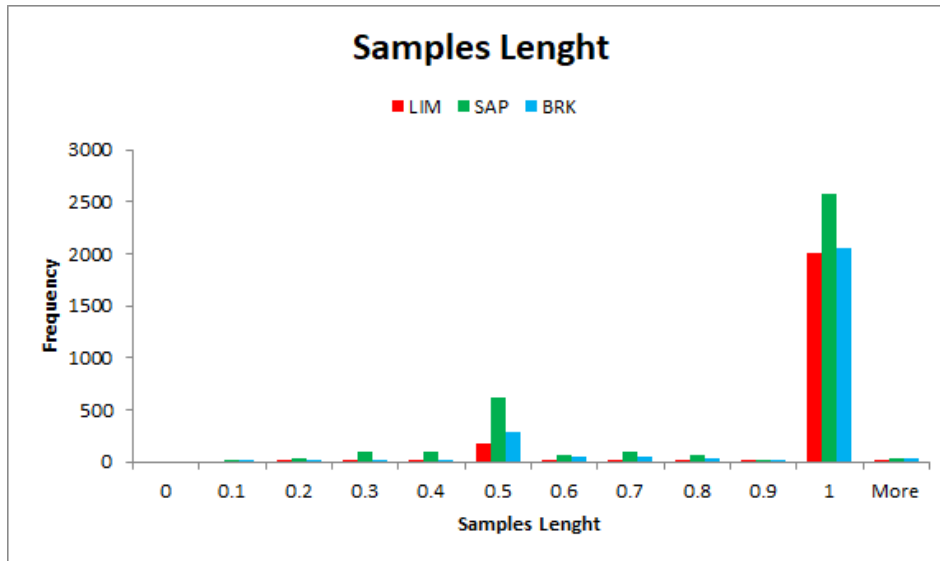
Table 11.7   Composite statistics for all elements and domains - Torete

Statistic	comps_lim						comps_sap					
	Ni	Co	Fe	SiO2	MgO	CaO	Ni	Co	Fe	SiO2	MgO	CaO
Samples	2242	2242	2242	2001	1893	2086	3287	3287	3287	2666	2657	3245
Minimum	0.17	0	4.66	0.65	0	0	0.01	0.008	0.67	2.5	0.087	0.002
Maximum	2.56	0.7	56.28	42.67	36.47	1.28	3.64	0.339	48.68	62.15	37.12	6.46
Mean	0.91	0.09	44.07	6.24	1.48	0.06	1.322	0.026	14.316	35.168	16.757	0.326
Standard deviation	0.29	0.05	5.46	5.9	3	0.1	0.598	0.02	6.25	6.7	7.165	0.435
CV	0.32	0.56	0.12	0.95	2.03	1.77	0.453	0.753	0.437	0.191	0.428	1.334
Variance	0.08	0	29.78	34.83	9.02	0.01	0.358	0	39.061	44.891	51.334	0.189
Percentiles												
10%	0.58	0.04	36.65	1	0.01	0.01	0.57	0.01	8.41	26.735	7.865	0.04
20%	0.67	0.06	40.9	2.14	0.05	0.02	0.82	0.012	9.59	31.015	10.115	0.07
30%	0.75	0.07	42.98	2.14	0.12	0.02	0.96	0.018	10.501	32.757	12.005	0.11
40%	0.82	0.08	44.31	2.41	0.22	0.02	1.1	0.02	11.4	34.22	14.209	0.15
50%	0.89	0.09	45.39	4.28	0.35	0.02	1.26	0.02	12.54	36.36	16.521	0.205
60%	0.95	0.1	46.33	6.42	0.6	0.03	1.42	0.022	13.811	37.43	19.03	0.272
70%	1.03	0.11	47.11	8.13	0.98	0.04	1.593	0.03	15.559	38.713	21.145	0.36
80%	1.13	0.12	48.02	10.7	2.01	0.06	1.816	0.034	18.34	40.64	23.022	0.479
90%	1.28	0.15	49.06	14.97	4.22	0.13	2.143	0.048	22.831	42.78	25.736	0.695
95%	1.42	0.18	50.14	17.84	7.04	0.25	2.42	0.06	28.002	43.85	29.079	1
97.50%	1.54	0.22	51.08	21.18	10.07	0.37	2.63	0.072	30.898	45.103	31.529	1.279
99%	1.76	0.29	51.96	25.67	13.55	0.52	2.791	0.1	35.154	47.06	33.562	2.031

Figure 11.14   Probability Plots for major elements in Limonite layer – Torete Deposit
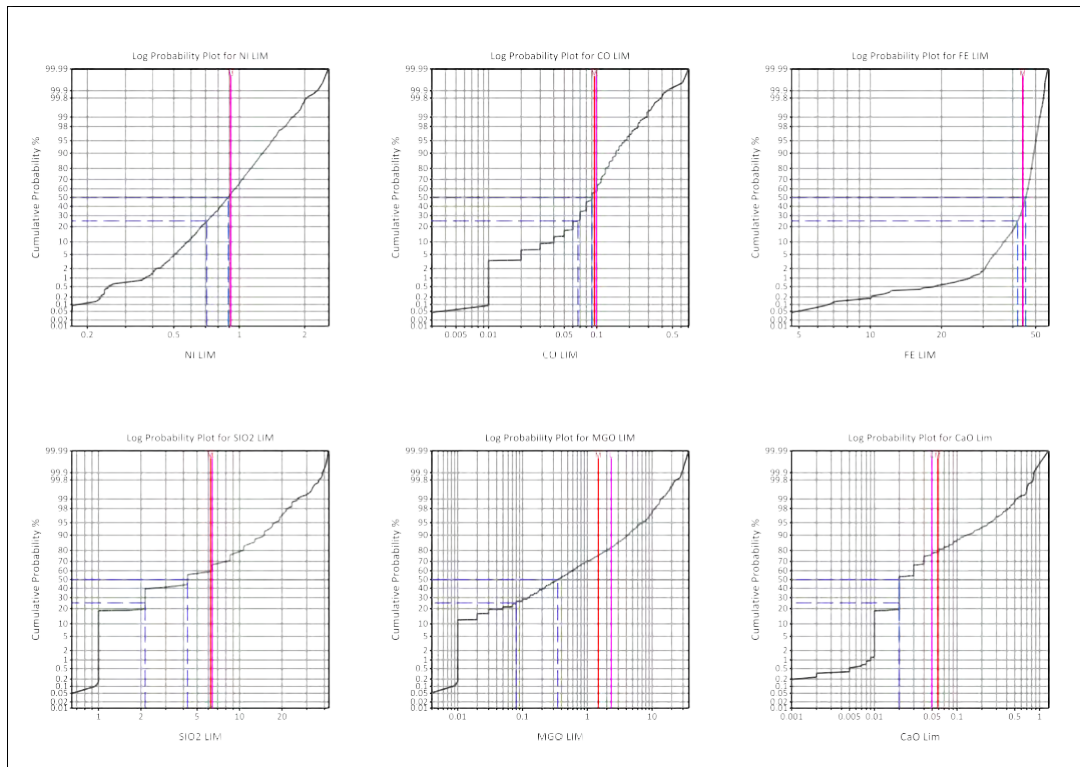
Figure 11.15   Probability Plots for major elements in Saprolite layer – Torete Deposit
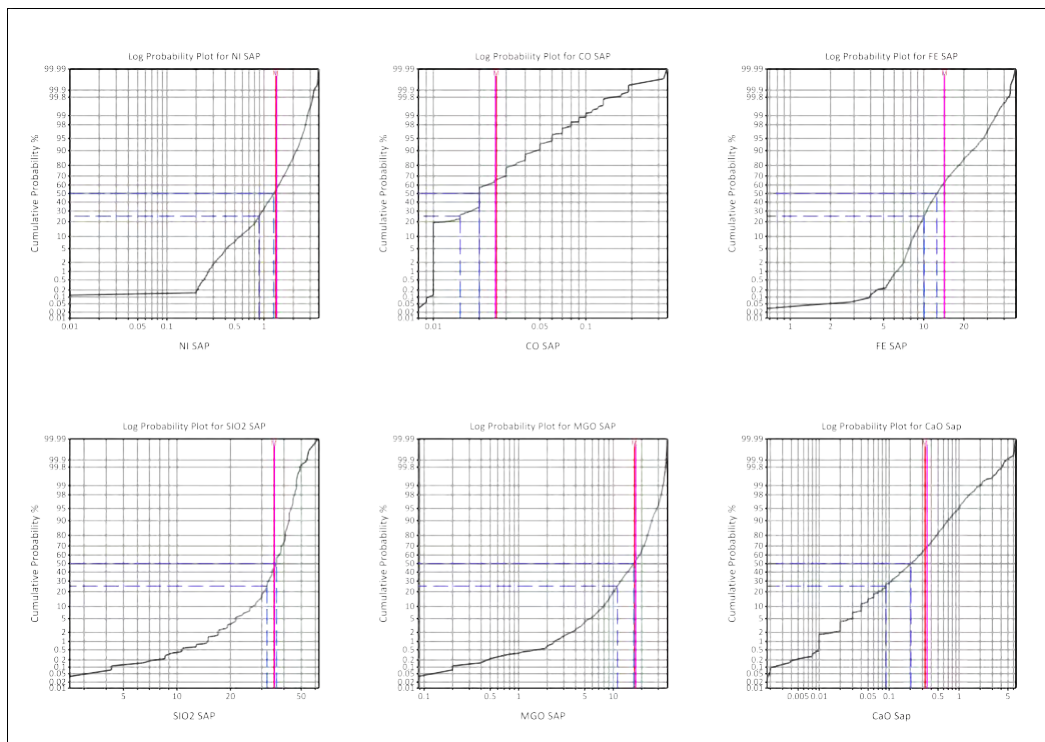
11.6. Bulk Density and Moisture Data

Previous bulk density data came from limited test pit and drill core samples. A significant program of new measurements was completed as part of the 2018 drilling program. Moisture and bulk density estimates used for this resource estimate are presented in **Table 11.8.**

Table 11.8   Summary results of bulk density and moisture

Method	Deposit	Material Type	Wet Bulk Density (t/cu.m)	Moisture Content %	Dry Bulk Density (t/cu.m)	Data Used
CALIPER	BUL	LIM	1.70	40.91	1.01	9.00
CALIPER	BUL	SAP	1.68	37.83	1.04	4.00
CALIPER	BUL	BRK	2.19	5.23	2.08	3.00
CALIPER	TOR	LIM	1.70	29.16	1.21	5.00
CALIPER	TOR	SAP	1.69	22.56	1.33	6.00
CALIPER	TOR	BRK	2.28	5.63	2.15	14.00
ARCHIMEDES	BUL	LIM	1.71	39.75	1.03	12.00
ARCHIMEDES	BUL	SAP	1.52	27.41	1.10	28.00
ARCHIMEDES	BUL	BRK	2.61	3.74	2.52	2.00
ARCHIMEDES	TOR	LIM	1.73	30.71	1.20	3.00
ARCHIMEDES	TOR	SAP	1.44	24.14	1.09	16.00
ARCHIMEDES	TOR	BRK	2.37	5.63	2.24	14.00
AVERAGE	**BUL**	**LIM**	**1.71**	**40.33**	**1.02**	**21.00**
		SAP	**1.60**	**32.62**	**1.07**	**32.00**
		BRK	**2.40**	**4.49**	**2.30**	**5.00**
AVERAGE	**TOR**	**LIM**	**1.71**	**29.94**	**1.20**	**8.00**
		SAP	**1.56**	**23.35**	**1.21**	**22.00**
		BRK	**2.32**	**5.63**	**2.19**	**28.00**

11.7. High Grade Cuts

The statistics for each geological domain were analysed to determine if there were any significant outliers for any of the elements that would result in conditional bias within the estimate. These outliers would have to be cut to a lower value to remove their impact on the estimation. After analysis of the histograms and probability plots, no significant outliers were observed so no high-grade cuts were applied to the datasets.

11.8. Geostatistical Analysis

11.8.1. Variography

Mineralisation continuity within each geological domain was examined by Variography. Variography examines the spatial relationship between composites and seeks to identify the directions of mineralisation continuity and to quantify the ranges of grade continuity. Variography was also used to determine the random variability or 'nugget effect' of each deposit. The results provide the basis for determining appropriate kriging parameters for resource estimation.

Experimental semivariograms were calculated of six elements within each geological domain for each deposit. The general orientation of the plane of mineralisation was found to be flat-lying, with no significant dip or plunge component. The experimental semivariograms were calculated with the first aligned along the main direction of mineralisation continuity ("major direction") while the second was aligned in the plane of mineralisation at 90° to the first orientation ("semi-major direction"). The third was orientated perpendicular to the mineralisation plane and across the width of the mineralisation ("minor direction"), which in these deposits was vertical. Then fitted semivariogram models to each of the experimental semivariograms.

The geostatistical analysis found that each domain displayed no anisotropy in the horizontal plane with similar or identical models being fitted for both the major and semi-major directions. For all domains, two-structured, nested spherical models were found to model the experimental

semivariograms reasonably well. The natural variability or nugget value was determined using the down hole semivariogram for all domains and elements.

11.8.2. Kriging Parameters

The element grades were interpolated into block models using ordinary kriging ("OK") with the nugget, sill values and ranges determined from the semivariogram models. The ranges obtained from the variogram models were used as a guide for the search ellipse parameters used in the Mineral Resource estimate. The kriging parameters from the semivariograms for each element and domain of both deposits are shown in **Table 11.9.**

Table 11.9   Kriging parameters from the semivariograms for element and domain

Deposit	Domain	Element	Major Direction	Nugget Co	Structure 1				Structure 2			
					Sill C1	Range A1	Maj/Semi1	Maj/Minor1	Sill C2	Range A2	Maj/Semi2	Maj/Minor2
BUL	LIM	Ni	00-->120	0.00	0.84	385	1.01	55.00	0.16	450	1.02	56.25
		Co	00-->120	0.12	0.43	549	1.01	109.80	0.45	681	1.01	61.91
		Fe	00-->120	0.04	0.37	328	1.01	20.50	0.59	389	1.01	22.88
		SiO2	00-->120	0.07	0.87	347	1.01	28.92	0.06	395	1.01	30.38
		MgO	00-->120	0.02	0.03	180	1.03	90.00	0.95	508	1.01	29.88
		CaO	00-->120	0.00	0.92	168	1.02	84.00	0.08	219	1.02	73.00
	SAP	Ni	00-->120	0.01	0.27	225	1.02	75.00	0.72	290	1.02	22.31
		Co	00-->120	0.11	0.34	147	1.01	49.00	0.55	306	1.02	27.82
		Fe	00-->120	0.11	0.41	93	1.03	18.60	0.48	123	1.03	7.69
		SiO2	00-->120	0.16	0.31	140	1.04	23.33	0.53	170	1.03	8.50
		MgO	00-->120	0.08	0.07	113	1.03	56.50	0.85	240	1.02	24.00
		CaO	00-->120	0.16	0.19	135	1.04	67.50	0.65	231	1.03	11.55
TOR	LIM	Ni	00-->125	0.00	0.82	25	1.09	6.25	0.18	50	1.04	10.00
		Co	00-->125	0.00	0.64	42	1.05	14.00	0.36	63	1.05	15.75
		Fe	00-->125	0.31	0.44	165	1.03	18.33	0.25	210	1.02	21.00
		SiO2	00-->125	0.12	0.49	245	1.02	18.85	0.39	280	1.02	20.00
		MgO	00-->125	0.03	0.31	125	1.02	62.50	0.66	335	1.01	20.94
		CaO	00-->125	0.01	0.22	95	1.06	8.64	0.66	335	1.01	20.94
	SAP	Ni	00-->105	0.00	0.84	68	1.05	9.71	0.16	106	1.03	13.25
		Co	00-->105	0.38	0.24	42	1.05	10.50	0.38	83	1.04	16.60
		Fe	00-->105	0.14	0.18	35	1.03	17.50	0.68	53	1.02	10.60
		SiO2	00-->105	0.13	0.13	61	1.02	30.50	0.74	83	1.04	10.38
		MgO	00-->105	0.03	0.24	79	1.03	39.50	0.73	147	1.01	11.31
		CaO	00-->105	0.27	0.31	64	1.05	32.00	0.42	143	1.02	14.30

12. MINERAL RESOURCES

12.1. Block Model

The block dimensions were selected to provide sufficient resolution to the block model in the across-strike and down-dip direction and were approximately half the dominant drill spacing.

Two block models were created to model each of Buleleng and Torete. At Buleleng, the block dimensions used were 25 m NS by 25 m EW by 1 m vertical for parent blocks, with sub-cells of 12.5 m by 12.5 m by 0.5 m. At Torete the block dimensions used were 12.5 m NS by 12.5 m EW by 1 m vertical for parent blocks with no sub-cells. Block model parameters are listed in **Table 12.1** and **Table 12.2.**

Table 12.1   Resource Model Definition (UTM WGS 84 Zone 51S) atributes and parameters for Buleleng

Model Name	280619_model_bul_ok.mdl		
	Y (Northing)	X (Easting)	Z (RL)
Block Model Origin	9,664,800	413,500	-20
Block Extents	9,666,800	417,000	300
Block Size (Sub-blocks)	25 (12.5)	25 (12.5)	1 (0.5)
Rotation	0°		
Attributes:			
ni_ok	Ni estimated grade		
co_ok	Co estimated grade		
fe_ok	Fe estimated grade		
sio2_ok	SiO2 estimated grade		
mgo_ok	MgO estimated grade		
cao_ok	CaO estimated grade		
bd_dry	Dry density		
bd_wet	Wet density		
mc	Moisture content		
min_dis	Distance to nearest sample		
ave_dis	Average distance to samples		
num_sam	Number of samples used for block grade interpolation		
ke	Kriging efficiency		
kv	Kriging variance		
neg_wt	Numbers of negative weights		
type	air (above topo), min (mineralisation), waste (below sapbot)		
lith	lim, sap, brk		
pass_ok	OK Estimation pass number		
class	mea, ind, inf, unknown		
boundary	in or out		
licence	in or out		

Table 12.2 Resource Model Definition (UTM WGS 84 Zone 51S) atributes and parameters for Torete

Model Name	280619_model_bul_ok.mdl		
	Y (Northing)	X (Easting)	Z (RL)
Block Model Origin	9,667,000	410,500	-20
Block Extents	9,670,500	414,500	410
Block Size (Sub-blocks)	12.5 (12.5)	12.5 (12.5)	1 (1)
Rotation	0°		
Attributes:			
ni_ok	Ni estimated grade		
co_ok	Co estimated grade		
fe_ok	Fe estimated grade		
sio2_ok	SiO2 estimated grade		
mgo_ok	MgO estimated grade		
cao_ok	CaO estimated grade		
bd_dry	Dry density		
bd_wet	Wet density		
mc	Moisture content		
min_dis	Distance to nearest sample		
ave_dis	Average distance to samples		
num_sam	Number of samples used for block grade interpolation		
ke	Kriging efficiency		
kv	Kriging variance		
neg_wt	Numbers of negative weights		
type	air (above topo), min (mineralisation), waste (below sapbot)		
lith	lim, sap, brk		
pass_ok	OK Estimation pass number		
mined	no or yes		
class	mea, ind, inf, unknown		
boundary	in or out		
licence	in or out		

12.2. Block Model Coding

The block model was coded by lithology/weathering and type in the "lith" attribute. Details of the procedure used to code the lithology/weathering attribute in the block model are shown in **Table 12.3.**

Table 12.3 Blocks Model Coding Methodology

Attributes	Value	Assignment Methodology
Lith	lim	Limonite ("lim") - blocks below natural surface DTM and above limonite floor DTM
	sap	Saprolite ("sap") – blocks above saprolite floor DTM and below limonite floor DTM
Type	air	Air - blocks above natural surface DTM
	min	Mineralisation ("min") - blocks below natural surface DTM and above saprolite floor DTM
	waste	Waste - blocks below saprolite floor DTM

12.3. Grade Interpolation

12.3.1. General

The ordinary kriging ("OK") algorithm was used for the grade interpolation and the lithology/weathering surfaces were used as hard boundaries for the grade estimation of each element in each domain. Element grades were estimated for the LIM and SAP domains only. No grades were estimated for blocks in the BRK domain as the material is not extracted due to low grades and is waste material (not economical).

12.3.2. Search Ellipsoid Parameters

A flat-lying search ellipsoid with no dip or plunge component was used to select data forinterpolation. Each ellipsoid was oriented based on kriging parameters and were consistent with theinterpreted geology. PT GAS considered using an oriented search ellipsoid to match the parts of thedeposits with minor differences of topographic and domain slope however found this was not necessary due to optimal selection of search distances and number of samples criteria used to estimate each block. This was confirmed after local grade validation following the estimation.

Three interpolation passes were used for the interpolation with a fixed maximum number of samples used for all passes and varying minimum number of samples for each pass. The final pass used a large search ellipsoid and a minimum sample of one to ensure all blocks were estimated. The estimation parameters are listed in **Table 12.4** and **Table 12.5.**

Table 12.4   Search ellipsoid parameters for Buleleng

Domain	Limonite				Saprolite			
Parameter	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4
Search Type	Ellipsoid				Ellipsoid			
Bearing	120				120			
Dip	0				0			
Plunge	0				0			
Major-Semi Major Ratio	1.01				1.03			
Major-Minor Ratio	55.21				32.65			
Search Radius	75	150	300	1000	75	150	300	1000
Minimum Samples	8	8	4	1	8	8	4	1
Maximum Samples	40	40	40	40	40	40	40	40
Max. Sam. per Hole	4	4	4	4	4	4	4	4
Block Discretisation	4X by 4Y by 2Z				4X by 4Y by 2Z			
Percentage Blocks Filled	18.94%	32.79%	37.38%	10.89%	40.36%	38.34%	20.33%	0.97%

Table 12.5 Search ellipsoid parameters for Torete

Domain	Limonite				Saprolite			
Parameter	Pass 1	Pass 2	Pass 3	Pass 4	Pass 1	Pass 2	Pass 3	Pass 4
Search Type	Ellipsoid				Ellipsoid			
Bearing	125				105			
Dip	0				0			
Plunge	0				0			
Major-Semi Major Ratio	1.04				1.03			
Major-Minor Ratio	19.77				18.01			
Search Radius	37.5	75	150	500	37.5	75	150	500
Minimum Samples	8	8	4	1	8	8	4	1
Maximum Samples	40	40	40	40	40	40	40	40
Max. Sam. per Hole	4	4	4	4	4	4	4	4
Block Discretisation	4X by 4Y by 2Z				4X by 4Y by 2Z			
Percentage Blocks Filled	5.67%	5.98%	35.74%	52.59%	11.85%	10.97%	58.53%	18.64%

12.4. Density and Material Type

Bulk density determinations have been recorded by PT TAS as discussed in **Section 9**. All bulk density and moisture determinations were taken from test pits samples. The average wet bulk density, dry bulk density and moisture content (MC) were then determined for every lithological/weathering domain in each deposit.

Bulk density values and moisture values were assigned to each domain in the block models based on the average determined from measurements made during 2018, and are considered reasonable.

PT GAS recommends that PT TAS add and continue obtain more samples for bulk density and moisture content using small test pits method within each required material type across the Concession areas. By doing this method PT TAS possibly enabling estimation of the bulk density and moisture for a future Mineral Resource. Estimation of the bulk density and moisture in each domain would improve accuracy and confidence in the resource compared to assigning the same values to all blocks in each domain of each deposit.

12.5. Model Validation

A three-step process was used to validate the estimate at each deposit. Firstly, a qualitative and visual assessment was completed by slicing sections through the block model in positions coincident with drilling to assess the local validation. Overall, the assessment indicated that the block grades were very similar to the drill hole grades and consistent with the interpreted orientation of the geological domains (**Figure 12.1 to Figure 12.4**).

A quantitative assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model average grades output for all domains. The comparative results for Ni and Fe are tabulated in **Table 12.6.** Very little difference can be observed between the average sample grades and the block model grades, confirming the high quality of the estimation process.

Validation was also carried out by comparing the average composite grades along northings, eastings and by elevation versus the average block grades along northings, eastings and by elevation. Swath plots were compiled to conduct the comparison for Ni and Fe and are shown in **Figure 12.5 to Figure 12.12.** The swath plots show a very close correlation between the average drill hole grades and the average block grades confirming the high quality of the estimation. In addition, the trends shown in the drill hole data are honoured in the block model. The comparisons show the effect of the interpolation, which results in smoothing of the block grades, compared to the composite grades as expected using the OK algorithm.

Figure 12.1 Cross-sections of Buleleng Block Model and Drill Hole, Section 9,666,000 m Northing
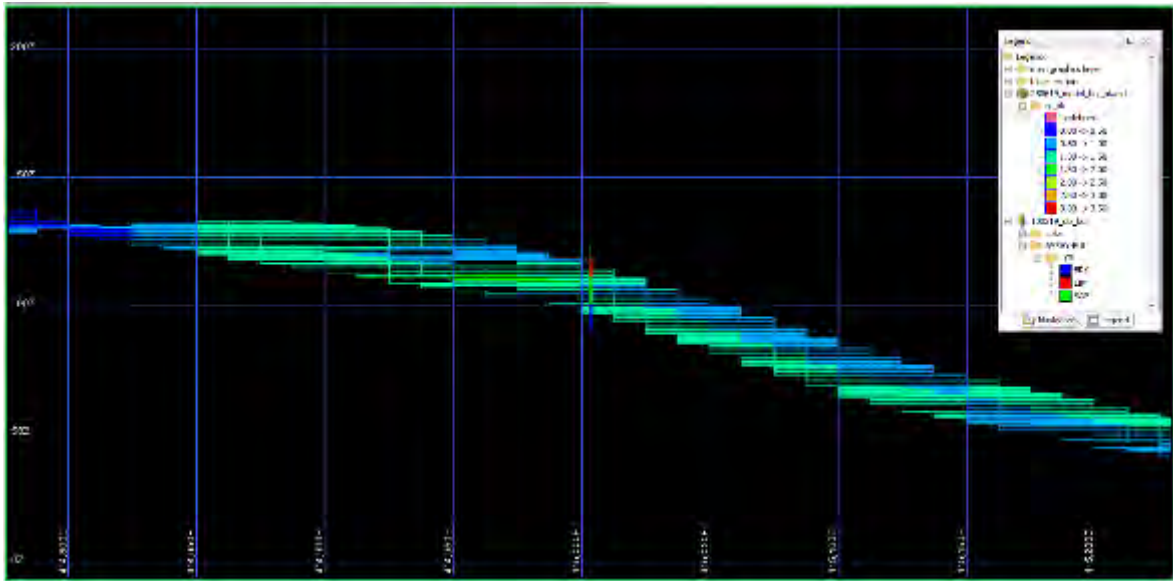
Figure 12.2 Cross-sections of Buleleng Block Model and Drill Hole, Section 415,000 m Easting
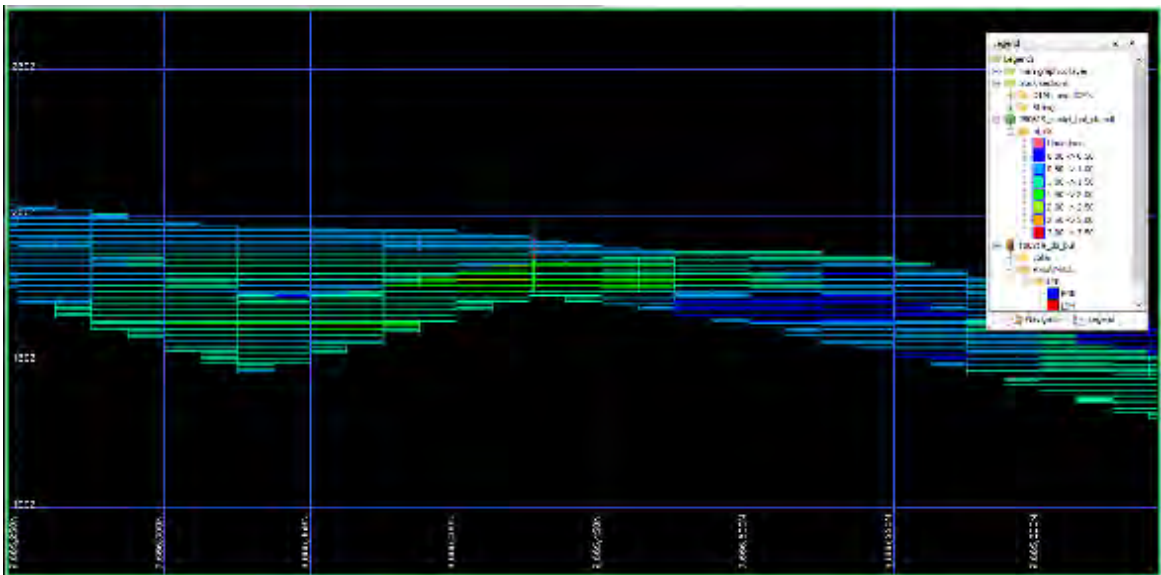
Figure 12.3 Cross-sections of Torete Block Model and Drill Hole, Section 9,668,350 m Northing
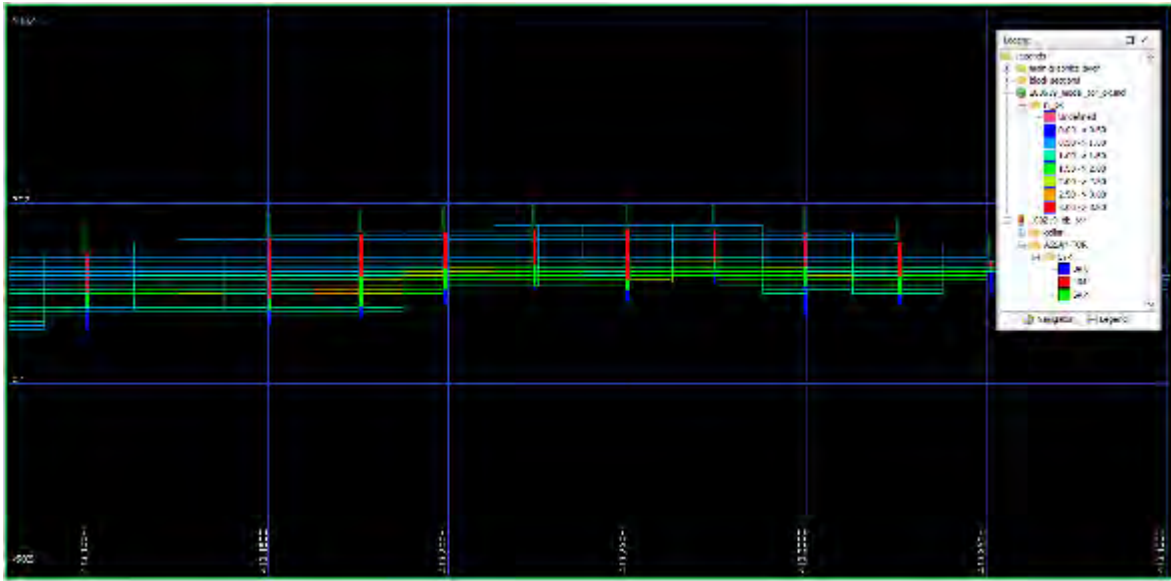
Figure 12.4 Cross-sections of Torete Block Model and Drill Hole, Section 413,600 m Easting
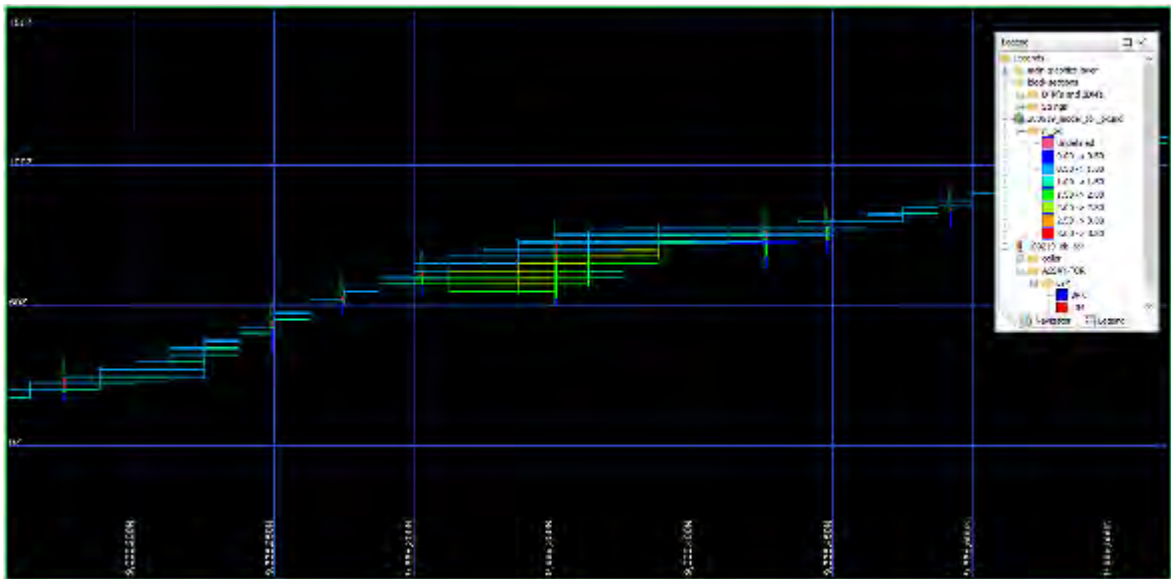
Table 12.6 Global average grades by lithology domains of block models versus sample composites for Buleleng and Torete

Deposit	Lith	Raw		Composites		Block Model		Differences Comps - Model	Rel. Differences Comps - Model
		Number of Raws	Ni %	Number of Comps	Ni %	Resource Volume (m3)	Ni %	Ni %	Ni %
BUL	lim	449	0.970	442	0.970	28,604,453	0.889	0.081	0.0009
	sap	987	1.135	888	1.143	23,745,234	1.076	0.067	0.0006
TOR	lim	2,275	0.920	2,242	0.910	29,339,375	0.978	-0.068	-0.0007
	sap	3,710	1.326	3,287	1.322	21,483,281	1.121	0.201	0.0016

Figure 12.5 Validation Swath Plots for Composite Ni Grades by Easting for Limonite Model Buleleng Deposit
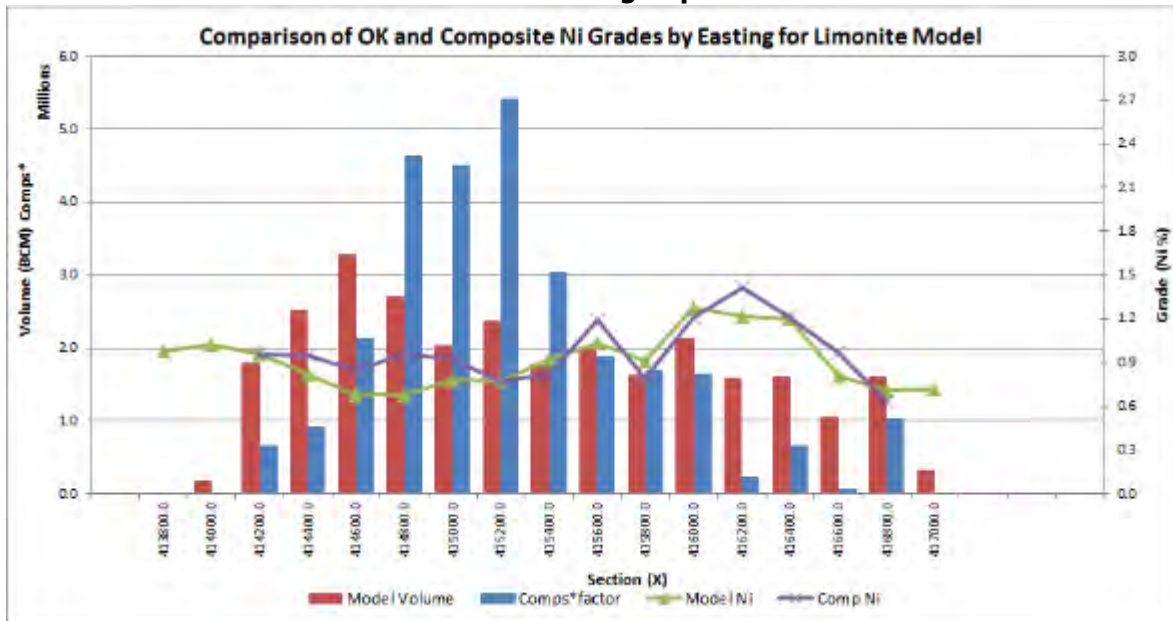
Figure 12.6 Validation Swath Plots for Composite Ni Grades by Northing for Limonite Model Buleleng Deposit
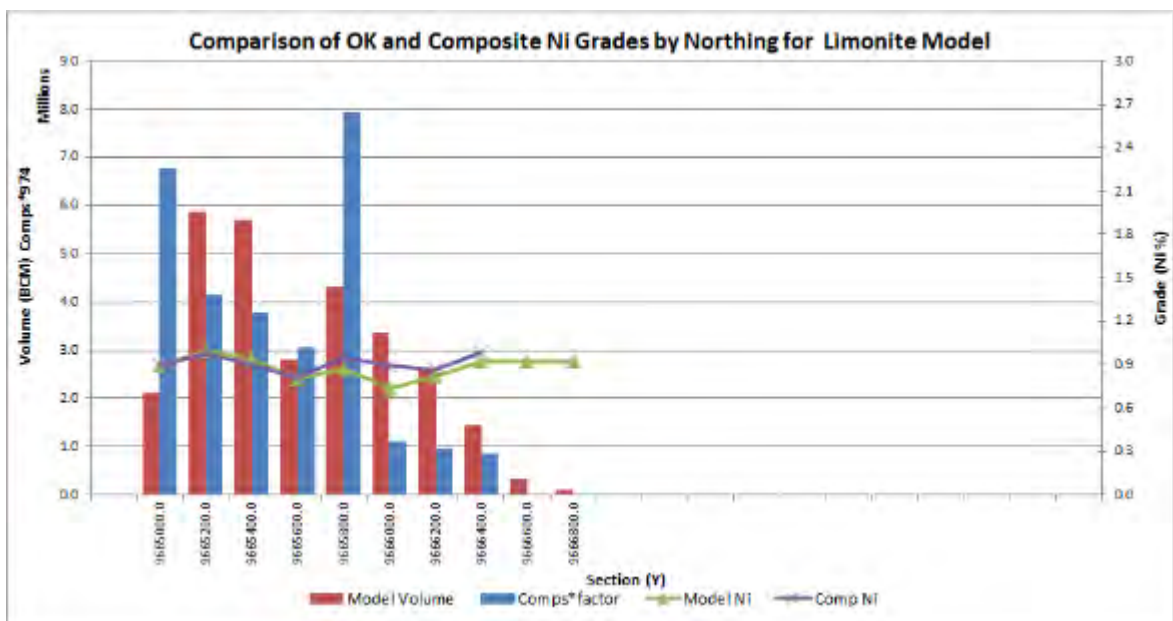
Figure 12.7 Validation Swath Plots for Composite Ni Grades by Easting for Saprolite Model Buleleng Deposit
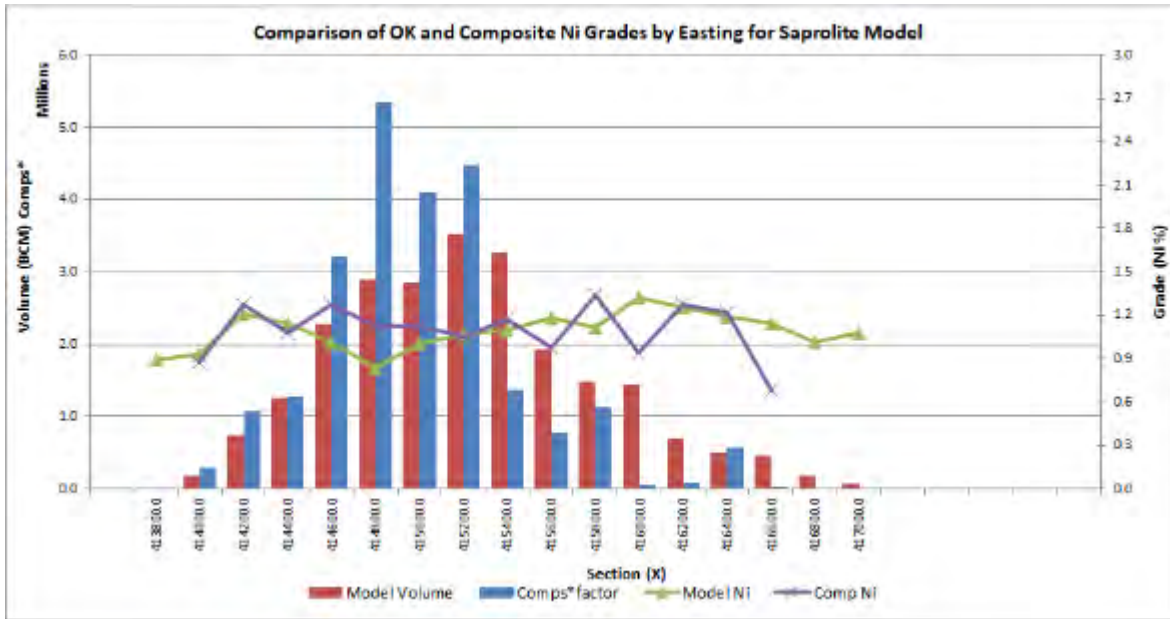
Figure 12.8 Validation Swath Plots for Composite Ni Grades by Northing for Saprolite Model Buleleng Deposit
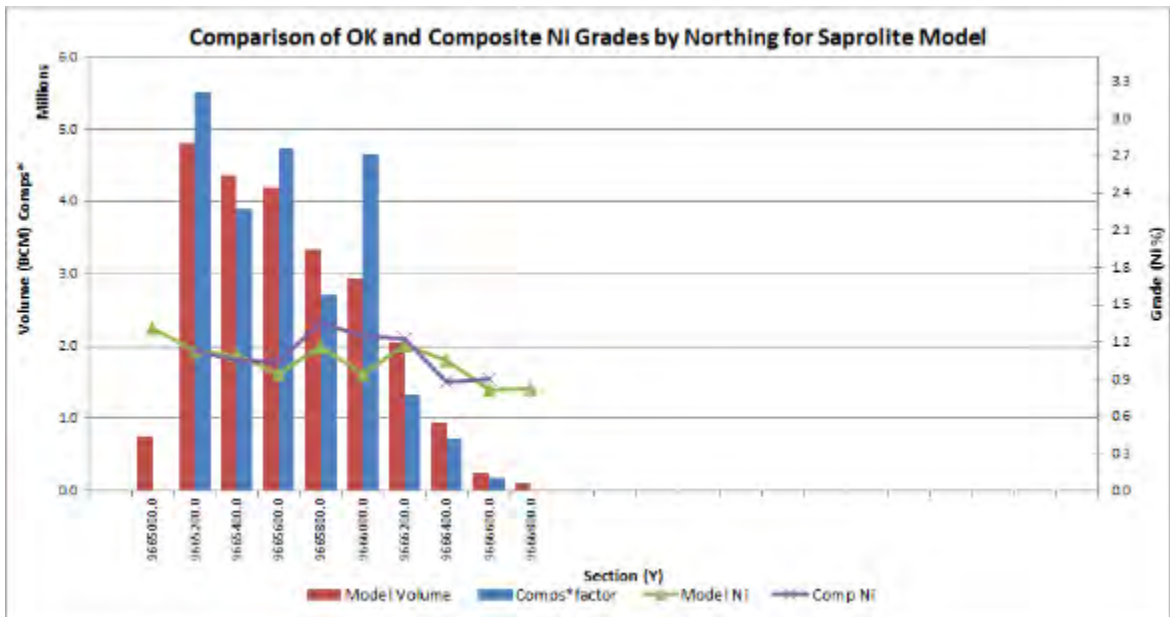
Figure 12.9 Validation Swath Plots for Composite Ni Grades by Easting for Limonite Model Torete Deposit
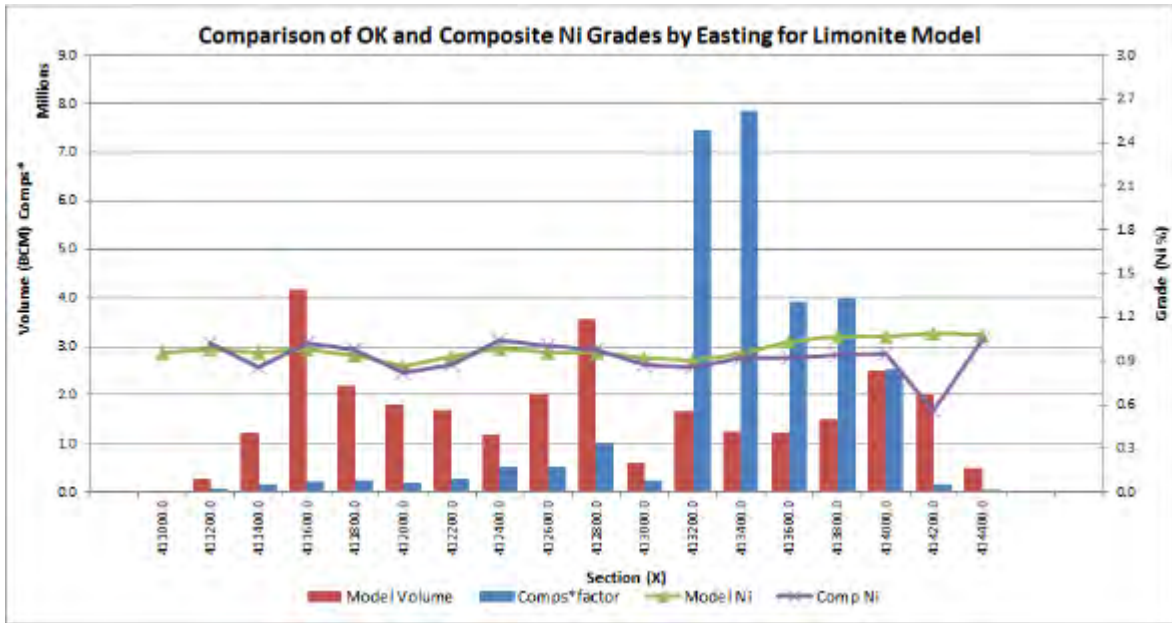
Figure 12.10 Validation Swath Plots for Composite Ni Grades by Northing for Limonite Model Torete Deposit
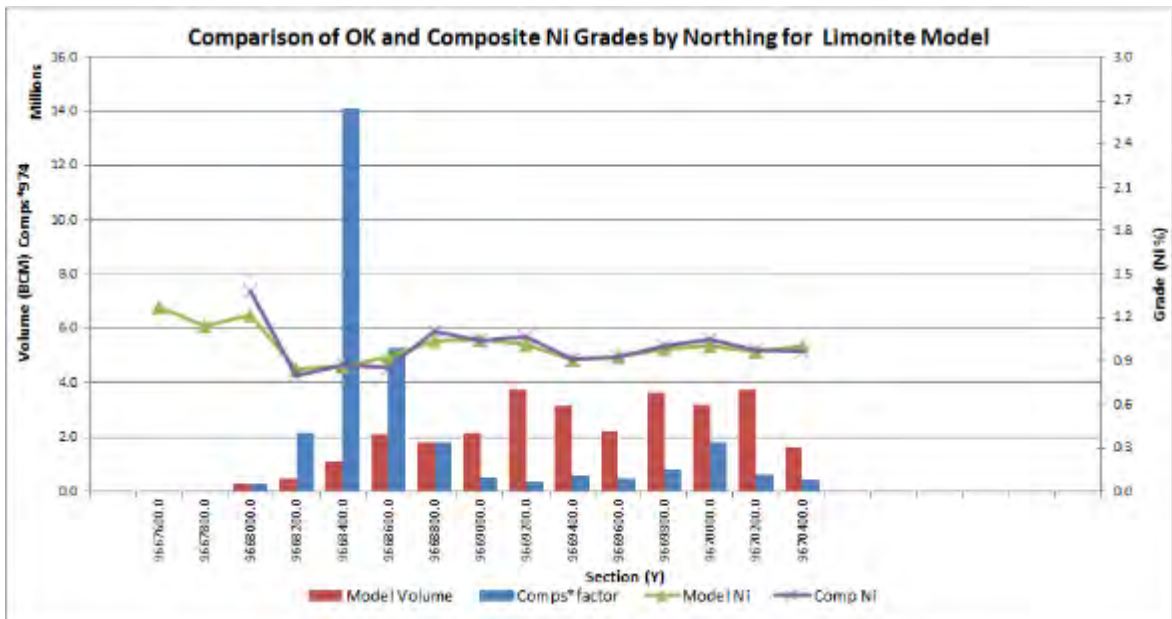
Figure 12.11 Validation Swath Plots for Composite Ni Grades by Easting for Saprolite Model Torete Deposit
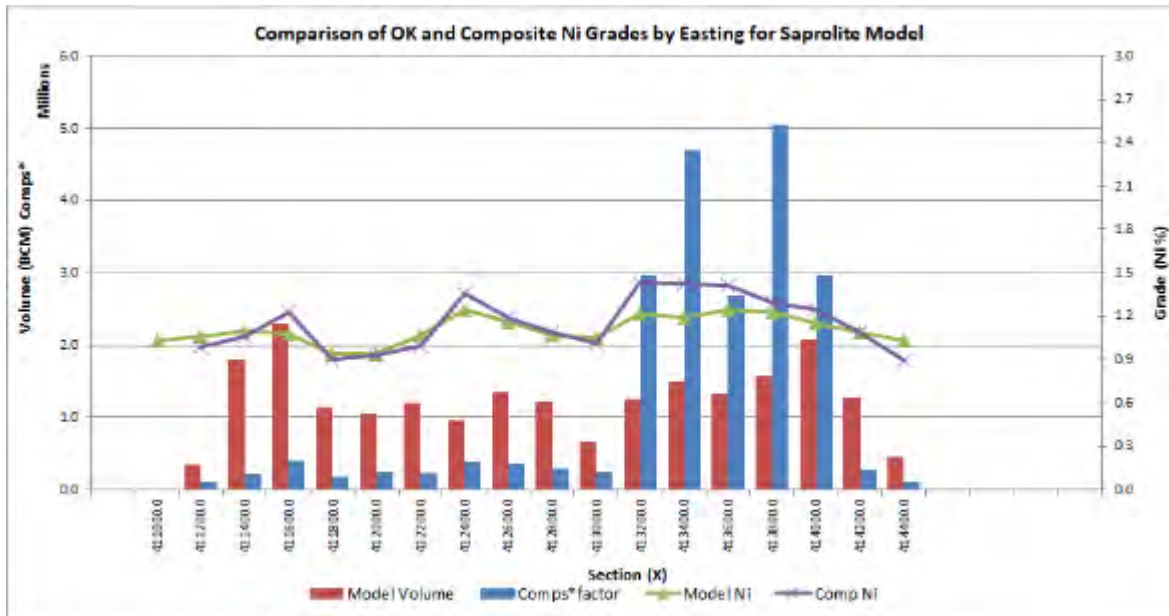
Figure 12.12 Validation Swath Plots for Composite Ni Grades by Northing for Saprolite Model Torete Deposit
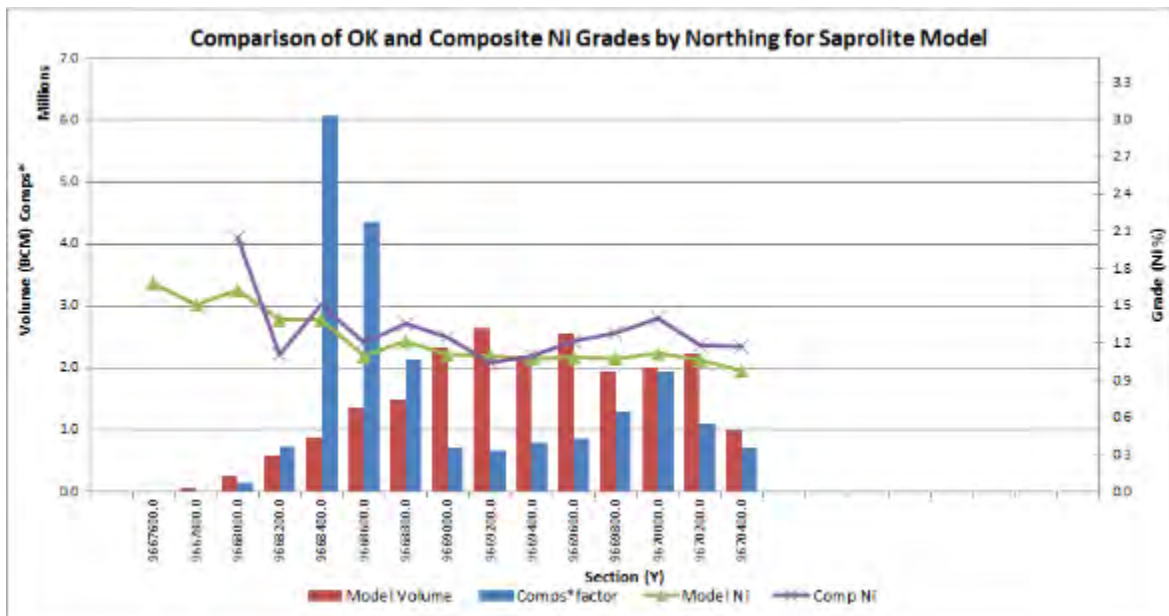
12.6. Reporting Cut-off Criteria

Mineral Resources are reported using three different cut-off criteria that are appropriate for different sales arrangements that PT TAS has, or is, negotiating with its potential customers:

- A low-grade nickel product with enriched cobalt (≥ 0.06% Co).
- A medium-grade nickel product that is cobalt depleted (Ni ≥ 1.0% and < 1.4%)
- A high-grade nickel product, that is cobalt depleted (≥ 1.40%)

12.7. Resources Classification

Mineralisation at the Concession appears to be very consistent in terms of grade within most domains as demonstrated by the results of the statistical and geostatistical analyses.

The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 50 m by 50 m and 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources.

There are large areas of the Concession defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited bulk density and moisture determinations. Part of the Measured area is part of the Indicated Area with higher level of confidence based on the actual mining conditions that have been carried out.

The Mineral Resource has been constrained by an outer boundary around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or less. The Mineral Resource has also been constrained by the license boundaries. Plan views of the classified block models for each deposit are shown in **Figure 13.1.**

Figure 12.13 Plan View of Classified Block Models for Each Block Deposits
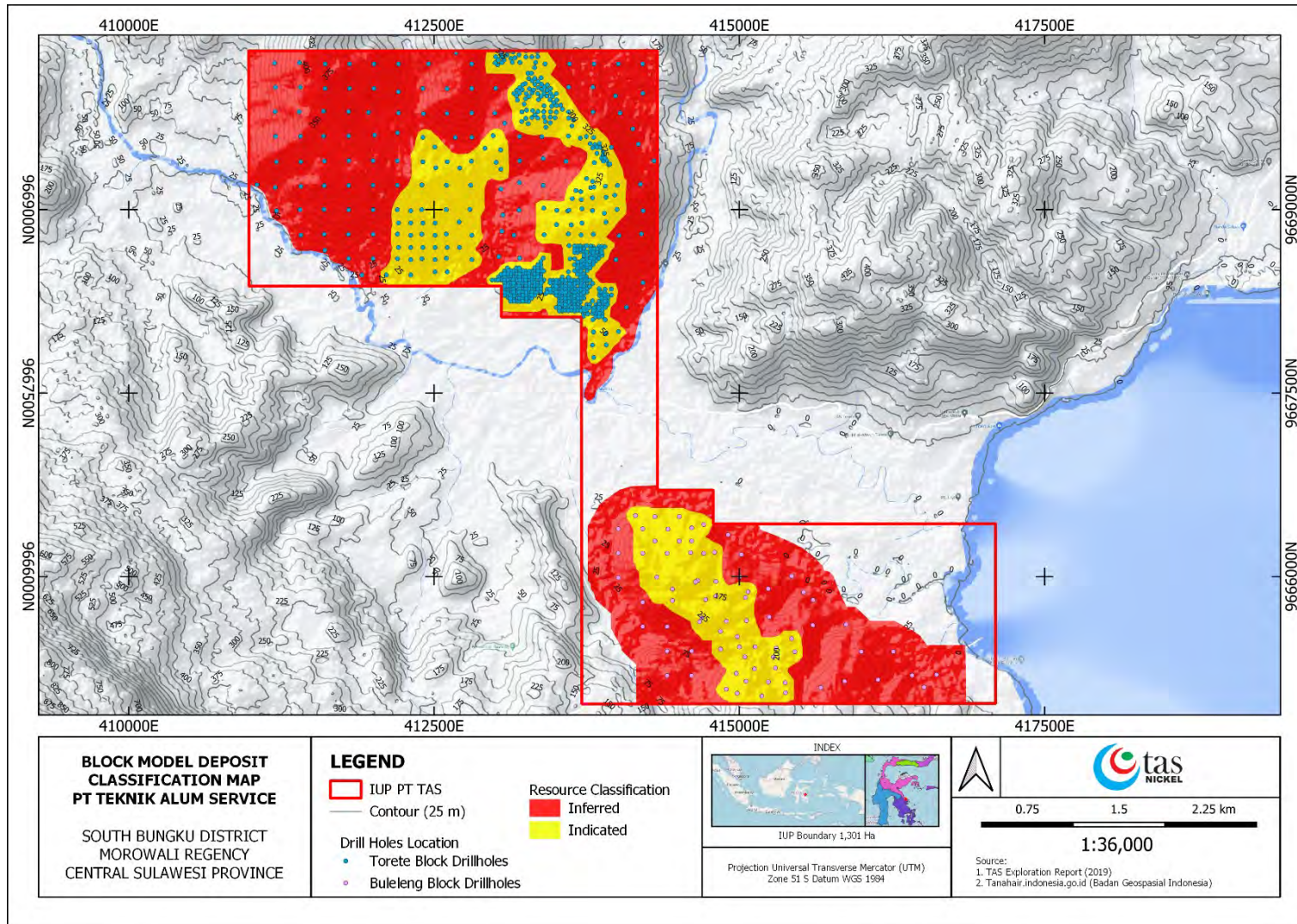
12.8. Results

The updated Mineral Resource estimates for the Concession as at 30th August 2021, reported using various Ni cut-off grades is 139.0 MWMT of which 60.7 MWMT are in the BULELENG area and the balance of 78.4 MWMT are in TORETE area. The estimate is summarised in **Table 12.7**, Detailed estimates using various cut-off grade of Ni and Co are reported in **Table 12.8, Table 12.9, Table 12.10 and Table 12.11 below**.

The grade tonnage curves for the Mineral Resources are shown in Figure 12.1-14 to Figure 11-17.

Table 12.7 Total Mineral Resources

Area and Category	Wet Tonnes (Mt)	Dry Tonnes (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BULELENG: Measured	-	-	-	-	-	-	-	-	-	-	-
BULELENG: Indicated	27.9	17.9	0.93	0.04	21.68	28.12	10.64	0.46	1.64	1.05	35.57
BULELENG: Inferred	32.7	20.5	1.00	0.05	25.67	26.14	12.06	0.77	1.66	1.04	36.94
BULELENG: Subtotal	**60.7**	**38.4**	**0.97**	**0.05**	**23.81**	**27.06**	**11.40**	**0.63**	**1.65**	**1.05**	**36.30**
TORETE: Measured	-	-	-	-	-	-	-	-	-	-	-
TORETE: Indicated	23.3	17.1	1.10	0.07	28.47	21.70	9.75	0.27	1.64	1.20	26.93
TORETE: Inferred	55.0	40.2	1.00	0.07	29.91	21.62	10.27	0.24	1.65	1.20	27.27
TORETE: Subtotal	**78.4**	**57.3**	**1.03**	**0.07**	**29.48**	**21.65**	**10.12**	**0.25**	**1.65**	**1.20**	**27.17**
CONCESSION: Measured	-	-	-	-	-	-	-	-	-	-	-
CONCESSION: Indicated	51.3	35.0	1.01	0.06	25.00	24.98	10.21	0.37	1.64	1.13	31.34
CONCESSION: Inferred	87.8	60.7	1.00	0.07	28.48	23.15	10.88	0.42	1.65	1.15	30.54
CONCESSION: Total	**139.0**	**95.6**	**1.00**	**0.06**	**27.21**	**23.82**	**10.63**	**0.40**	**1.65**	**1.14**	**30.83**

- All Mineral Resources figures reported in this table represent estimates using topographic survey and mine out area data as at 31st July 2021.
- Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the mineralisation and on the available sampling results.
- The totals contained in this table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.
- All grades are reported on a dry basis
- Mineral Resources are inclusive of Ore Reserves

Table 12.8   Cobalt-Rich Nickel Mineral Resources

Deposit	Class	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content %
BUL	IND	Ni < 1.0	Co ≥ 0.03	Lim	7.8	4.6	0.78	0.08	37.47	11.95	2.51	0.07	1.71	1.02	40.33
				Sap	2.0	1.3	0.84	0.04	14.86	43.64	16.92	0.90	1.60	1.07	32.62
				Sub-total	9.8	6.0	0.79	0.07	32.40	19.06	5.74	0.26	1.69	1.03	38.60
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	1.7	1.0	1.17	0.08	41.42	10.10	2.14	0.07	1.71	1.02	40.33
				Sap	3.7	2.5	1.20	0.04	16.58	41.54	15.33	0.79	1.60	1.07	32.62
				Sub-total	5.4	3.5	1.19	0.05	23.78	32.43	11.51	0.58	1.63	1.06	34.85
		Ni ≥ 1.40	Co ≥ 0.03	Lim	0.2	0.1	1.45	0.10	43.81	6.36	0.69	0.02	1.71	1.02	40.33
				Sap	1.7	1.1	1.68	0.04	18.48	37.56	14.98	0.70	1.60	1.07	32.62
				Sub-total	1.9	1.2	1.65	0.05	20.93	34.54	13.60	0.63	1.61	1.07	33.37
		Total - Indicated			17.0	10.7	1.02	0.06	28.27	25.19	8.52	0.41	1.66	1.04	36.78
	INF	Ni < 1.0	Co ≥ 0.03	Lim	11.8	7.0	0.80	0.07	33.30	15.07	6.23	0.80	1.71	1.02	40.33
				Sap	1.5	1.0	0.85	0.05	19.10	40.80	16.75	0.47	1.60	1.07	32.62
				Sub-total	13.4	8.1	0.81	0.07	31.48	18.36	7.57	0.76	1.70	1.03	39.34
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	5.3	3.1	1.14	0.09	39.96	11.52	3.84	0.10	1.71	1.02	40.33
				Sap	4.2	2.8	1.20	0.04	16.32	40.62	18.45	0.61	1.60	1.07	32.62
				Sub-total	9.5	6.0	1.17	0.07	28.77	25.29	10.76	0.34	1.66	1.04	36.68
		Ni ≥ 1.40	Co ≥ 0.03	Lim	0.7	0.4	1.50	0.11	44.43	5.16	0.51	0.00	1.71	1.02	40.33
				Sap	0.6	0.4	1.60	0.04	18.54	36.70	16.57	0.69	1.60	1.07	32.62
				Sub-total	1.3	0.8	1.55	0.08	31.58	20.82	8.48	0.34	1.66	1.04	36.50
		Total - Inferred			24.1	14.9	0.99	0.07	30.40	21.28	8.90	0.57	1.68	1.03	38.12
TOR	IND	Ni < 1.0	Co ≥ 0.001	Lim	7.0	4.9	0.90	0.10	40.81	11.00	4.06	0.10	1.71	1.20	29.94
				Sap	2.2	1.7	0.86	0.03	14.48	34.05	16.75	0.55	1.56	1.21	23.35
				Sub-total	9.2	6.6	0.89	0.08	34.03	16.93	7.32	0.22	1.67	1.20	28.24
		1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	6.0	4.2	1.09	0.10	40.30	11.69	3.43	0.17	1.71	1.20	29.94
				Sap	5.7	4.4	1.19	0.03	14.04	34.52	17.16	0.43	1.56	1.21	23.35
				Sub-total	11.7	8.6	1.14	0.06	26.96	23.29	10.40	0.30	1.63	1.21	26.59
		Ni ≥ 1.40	Co ≥ 0.001	Lim	0.2	0.2	1.46	0.15	42.32	9.80	4.46	0.10	1.71	1.20	29.94
				Sap	2.2	1.7	1.69	0.03	13.63	32.97	16.17	0.31	1.56	1.21	23.35
				Sub-total	2.5	1.9	1.67	0.04	16.05	31.02	15.18	0.29	1.57	1.21	23.91
		Total - Indicated			23.3	17.1	1.10	0.07	28.47	21.70	9.75	0.27	1.64	1.20	26.93
	INF	Ni < 1.0	Co ≥ 0.001	Lim	24.6	17.3	0.92	0.10	40.54	12.15	3.98	0.13	1.71	1.20	29.94
				Sap	7.8	6.0	0.83	0.03	14.86	35.57	17.91	0.42	1.56	1.21	23.35
				Sub-total	32.4	23.3	0.90	0.08	33.89	18.22	7.59	0.20	1.67	1.20	28.23
		1.0 ≤ Ni < 1.4	Co ≥ 0.001	Lim	9.3	6.5	1.08	0.11	39.83	11.45	4.00	0.20	1.71	1.20	29.94
				Sap	12.2	9.5	1.13	0.03	14.42	36.13	20.32	0.35	1.56	1.21	23.35
				Sub-total	21.5	16.0	1.11	0.06	24.78	26.08	13.67	0.29	1.62	1.21	26.04
		Ni ≥ 1.40	Co ≥ 0.001	Lim	0.1	0.1	1.41	0.28	44.75	5.54	2.18	0.04	1.71	1.20	29.94
				Sap	1.0	0.8	1.56	0.03	14.01	34.52	22.30	0.37	1.56	1.21	23.35
				Sub-total	1.1	0.9	1.54	0.06	17.60	31.13	19.95	0.33	1.58	1.21	24.12
		Total - Inferred			55.0	40.2	1.00	0.07	29.91	21.62	10.27	0.24	1.65	1.20	27.27
Buleleng		Total - Indicated			17.0	10.7	1.02	0.06	28.27	25.19	8.52	0.41	1.66	1.04	36.78
		Total - Inferred			24.1	14.9	0.99	0.07	30.40	21.28	8.90	0.57	1.68	1.03	38.12
Torete		Total - Inferred			23.3	17.1	1.10	0.07	28.47	21.70	9.75	0.27	1.64	1.20	26.93
		Total - Indicated			55.0	40.2	1.00	0.07	29.91	21.62	10.27	0.24	1.65	1.20	27.27
		GRAND TOTAL			119.5	82.8	1.02	0.07	29.49	22.04	9.69	0.33	1.65	1.15	30.37

Table 12.9   Cobalt-Depleted Nickel Mineral Resources

Deposit	Class	Cut-off Grade %		Material Type	Wet Quantity Mt	Dry Quantity Mt	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	CaO (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content %
BUL	IND	Ni < 1.0	Co ≥ 0.03	Lim	1.8	1.1	0.23	0.01	16.17	3.39	0.64	0.03	1.71	1.02	40.33
				Sap	5.2	3.5	0.61	0.02	9.90	33.89	13.20	0.59	1.60	1.07	32.62
				Sub-total	**7.0**	**4.6**	**0.52**	**0.02**	**11.37**	**26.74**	**10.25**	**0.46**	**1.63**	**1.06**	**34.43**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.0	0.0	1.14	0.02	45.21	1.30	0.04	0.00	1.71	1.02	40.33
				Sap	2.8	1.9	1.17	0.02	12.47	44.50	19.36	0.72	1.60	1.07	32.62
				Sub-total	**2.8**	**1.9**	**1.17**	**0.02**	**12.58**	**44.36**	**19.30**	**0.71**	**1.60**	**1.07**	**32.65**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	1.1	0.7	1.63	0.02	13.59	37.23	21.44	0.66	1.60	1.07	32.62
				Sub-total	**1.1**	**0.7**	**1.63**	**0.02**	**13.59**	**37.23**	**21.44**	**0.66**	**1.60**	**1.07**	**32.62**
		Total - Indicated			**11.0**	**7.2**	**0.80**	**0.02**	**11.92**	**32.47**	**13.78**	**0.55**	**1.62**	**1.06**	**33.77**
	INF	Ni < 1.0	Co ≥ 0.03	Lim	1.5	0.9	0.55	0.02	17.47	24.29	15.45	5.59	1.71	1.02	40.33
				Sap	1.7	1.2	0.73	0.02	10.78	36.71	18.52	0.62	1.60	1.07	32.62
				Sub-total	**3.2**	**2.1**	**0.65**	**0.02**	**13.69**	**31.32**	**17.19**	**2.78**	**1.65**	**1.05**	**35.97**
		1.0 ≤ Ni < 1.4	Co ≥ 0.03	Lim	0.0	0.0	1.15	0.01	10.60	28.75	22.19	1.21	1.71	1.02	40.33
				Sap	4.9	3.3	1.18	0.03	12.98	42.65	22.42	0.46	1.60	1.07	32.62
				Sub-total	**4.9**	**3.3**	**1.18**	**0.02**	**12.97**	**42.63**	**22.42**	**0.46**	**1.60**	**1.07**	**32.63**
		Ni ≥ 1.40	Co ≥ 0.03	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	0.5	0.3	1.54	0.02	13.02	49.19	19.80	0.33	1.60	1.07	32.62
				Sub-total	**0.5**	**0.3**	**1.54**	**0.02**	**13.02**	**49.19**	**19.80**	**0.33**	**1.60**	**1.07**	**32.62**
		Total - Inferred			**8.6**	**5.7**	**1.01**	**0.02**	**13.23**	**38.91**	**20.37**	**1.29**	**1.62**	**1.06**	**33.84**
TOR	IND	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	INF	Ni < 1.0	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		1.0 ≤ Ni < 1.4	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Ni ≥ 1.40	Co < 0.001	Lim	-	-	-	-	-	-	-	-	-	-	-
				Sap	-	-	-	-	-	-	-	-	-	-	-
				Sub-total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Inferred			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Buleleng		**Total - Indicated**			**11.0**	**7.2**	**0.80**	**0.02**	**11.92**	**32.47**	**13.78**	**0.55**	**1.62**	**1.06**	**33.77**
		Total - Inferred			**8.6**	**5.7**	**1.01**	**0.02**	**13.23**	**38.91**	**20.37**	**1.29**	**1.62**	**1.06**	**33.84**
Torete		**Total - Inferred**			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		Total - Indicated			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		GRAND TOTAL			**19.6**	**12.8**	**0.89**	**0.02**	**12.50**	**35.30**	**16.68**	**0.87**	**1.62**	**1.06**	**33.80**

The grade tonnage curves for the Mineral Resources for PT TAS deposits are shown in **Figure 13.2** and **Figure 13.7**.

Figure 12.14 Grade-Tonnage Curve for Buleleng Inferred Resources
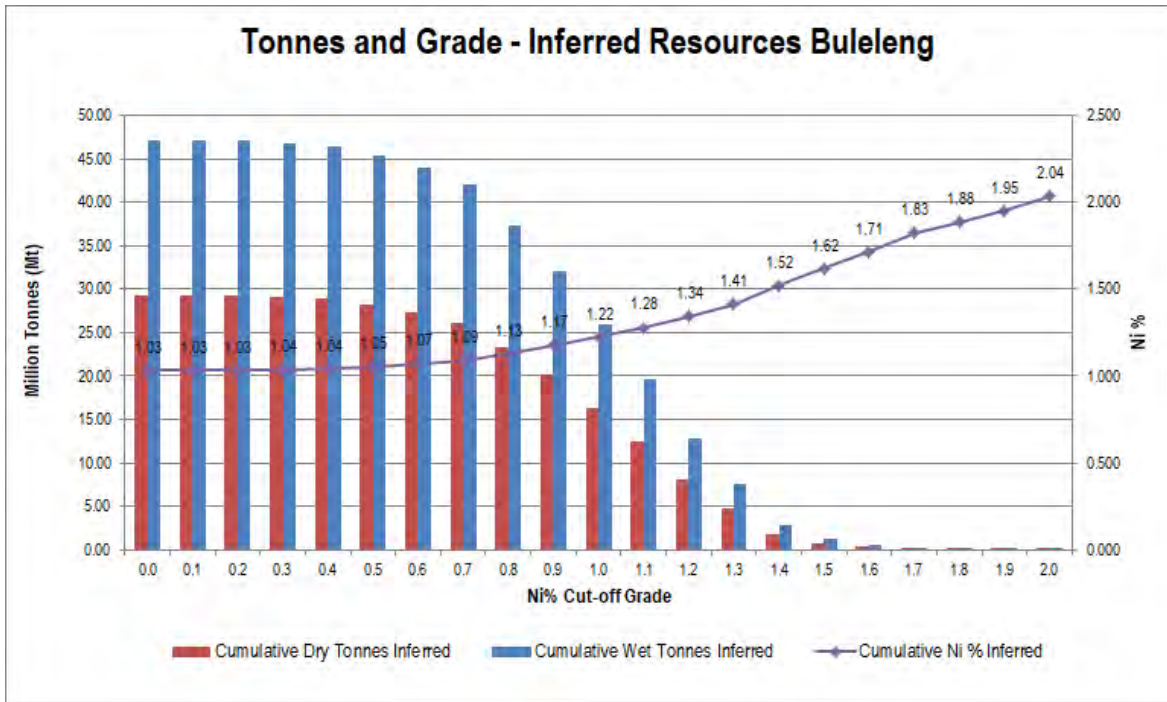
Figure 12.15 Grade-Tonnage Curve for Buleleng Indicated Resources
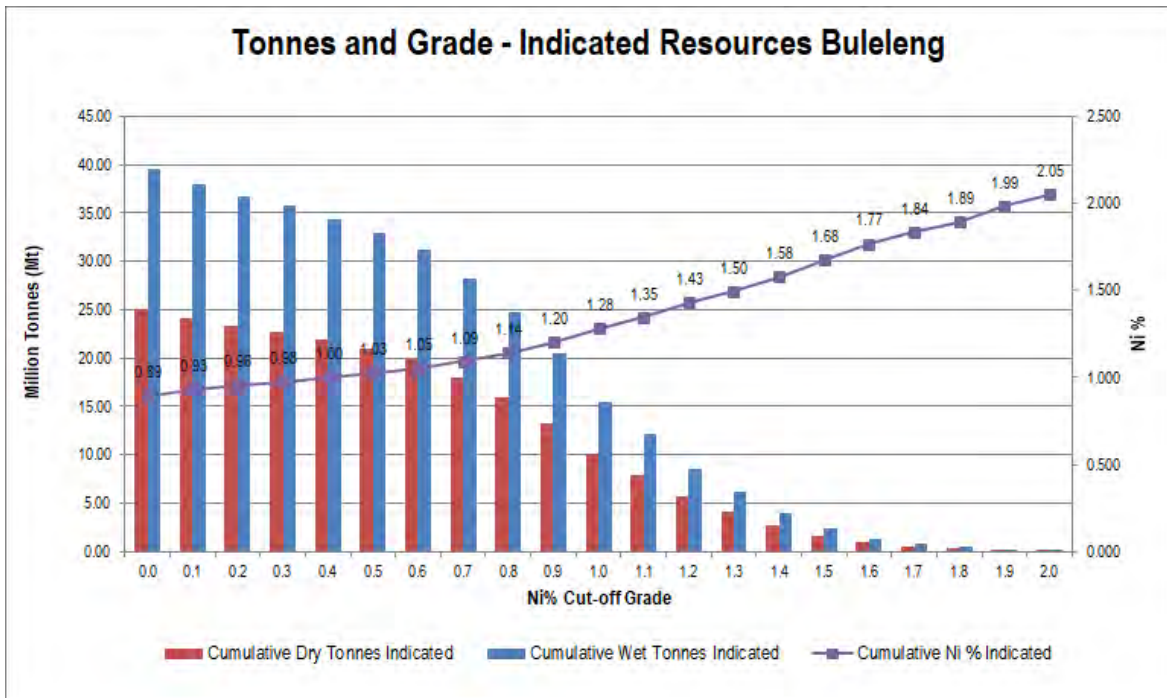
Figure 12.16 Grade-Tonnage Curve for Torete Inferred Resources
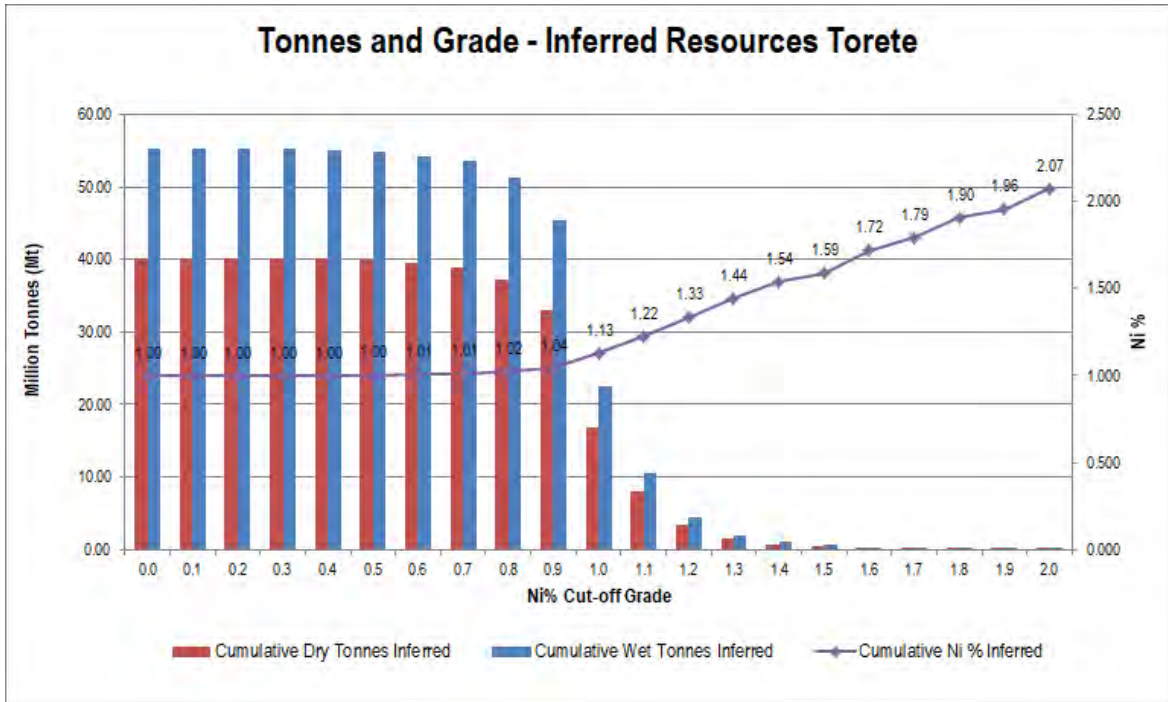
Figure 12.17 Grade-Tonnage Curve for Torete Indicated Resources
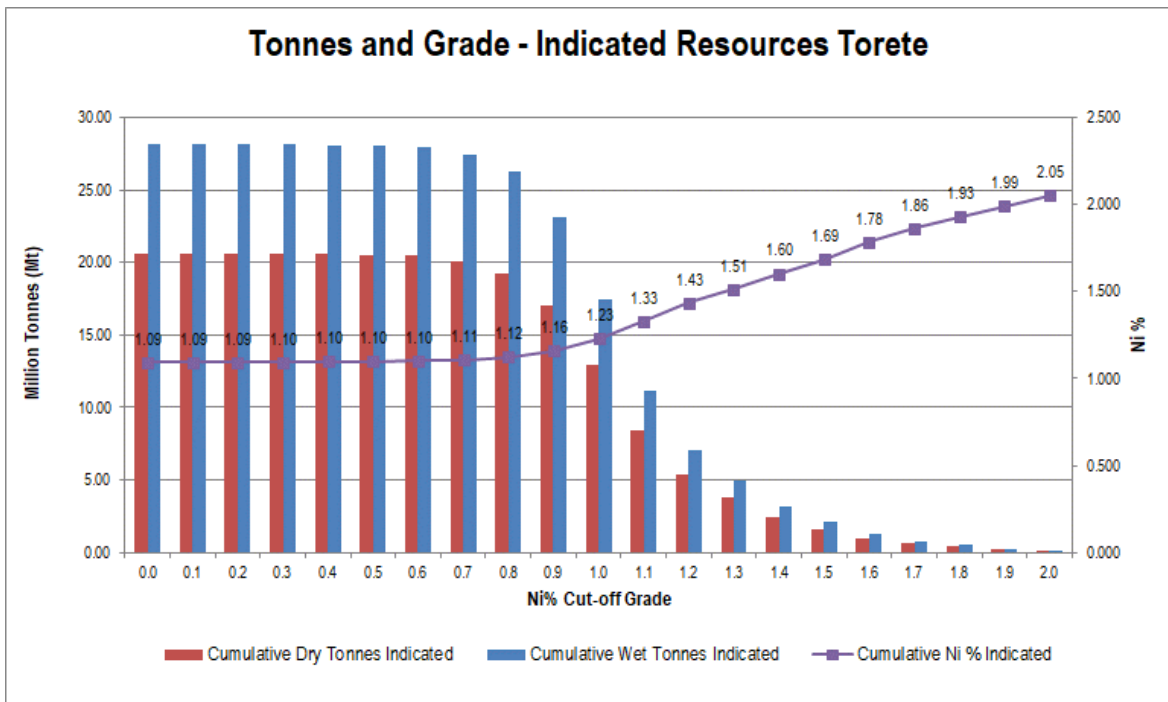
12.9. Changes from Previous Estimate

The Mineral Resources reported in the IQPR dated 30th September 2019 were 146.6 MWMT. The reduction of 7.6 MWMT to 139.0 MWMT in the current Mineral Resources report is after considering changes in topography, new pit designs, mined out areas, and actual mining activity and production to date.

13. MINERAL RESOURCE RISKS AND OPPORTUNITES

13.1. Risks

PT GAS has identified some risks associated with the Concession. Most of these risks are associated with the quality of the underlying data for the Mineral Resources estimate. These include:

- PT GAS considers there is a low risk of material variation of bulk density and moisture content within each domain. The number and geospatial locations of bulk density and moisture determinations is insufficient for higher classification of Mineral Resource. The bulkdensity and moisture contents are critical to determining the in-situ Mineral Resource quantity and in providing data for accurate reconciliation after mining. The low variation observed with the provided data however indicates this has minimal impact on global tonnages, but potentially may impact local tonnages.

- Limited Quality Assurance and Quality Control (QA/QC) exploration samples for the lab. PT GAS recommends the Client to add and continue the QA/QC program for all samples exploration which is being analyzed external or internal. By having QA/QC the Client will knowing and have confident on exploration data result, also knowing which external lab have the best quality of precision and accuracy.

- Block model had been created for various drill spacing and the block size used for modeling is half of the close spacing drilling. It can be made smoother in areas where drill holes spacing is greater than 100 meters.

13.2. Opportunities

PT GAS notes there are some opportunities to increase the quality and quantity of the current Mineral Resources. These include:

- Laterite profile in PT TAS show enrichment of Ni in saprolite zone from upper until lower saprolite while some drill holes in PT TAS not penetrated into whole profile. Deeper drilling into bedrock can be increase resources.

- Potential to classify additional Indicated and Measured Mineral Resources within all deposits. Additional data would have to be included in the Mineral Resources such as QAQC sample program, detailed topography, twin holes data, bulk density, and reconciliation data. PT GAS is happy to assist the Client with these requirements.

- Infill drilling program to add new data. With this program can increase the resources. PT GAS is happy to assist with any drill design or procedures that may be required by the Client.

- Any further exploration detail should be accompanied by appropriate analytical QA/QC, bulk density and topography programs to allow the highest classification possible for any future Mineral Resources.

14.   ORE RESERVE ESTIMATE

The following sections describe the process used in converting the Mineral Resources into Ore Reserves. This process includes defining viable pit limits, cost, revenue, mining recovery and applying modified factors to the Mineral Resources to estimate the Ore Reserves.

14.1.   Approach

The engineering properties relevant to this level of study were developed through reference to previous studies, geology reports, benchmarking, as well as discussions with PT TAS. Several engineering properties are well defined while others are assumed. Each of the properties reported in this report was referenced to those criteria.

Pit shells parameters from the current operation were used as the basis for detailed practical pit designs discussed in this Report; and then the pit shells were updated to reflect the mining position.

14.2.   Mining Constraints

Mining constraints include the concession boundary and the extent of current geotechnical studies. PT TAS advised that the pit optimizations should not be limited by the existing rivers as there is opportunity for future diversions. The practical pits that have been created used a smaller pit shell and included the constraints of the roads and infrastructure that currently exist and are not relocatable.

The depth of the current pit design is between 0-370 m and 2-249 above the sea level for Torete and Buleleng, respectively. It is the lowest elevation to the highest of the pit design. Furthermore, a 100 m buffer zone was applied to the Torete pit from the nearest River.

The existing pit design geometry at Torete and Buleleng uses about 45-degree overall slope for both high walls and low walls. The pit geometry combinations have been used for the last couple of years which has led to stable conditions and no slope failure experiences. **(Figure 14.1 and Figure 14.2).**

Figure 14.1 Pit Geometry at Torete Block

Source: IQPR report of PT TAS 2019

Figure 14.2 Pit Geometry at Buleleng Block

Source: IQPR report of PT TAS 2019

14.2.1. Torete Pit Design

The pit design parameters used in the pit optimisation for Torete block described in **Table 14.1** below.

Table 14.1 Pit Parameters – Torete

Parameter	Units	
- Overall slope	Degree	45
- Single slope	Degree	56
- Bench height	m	5
- Safety Berm Width	m	3
- Pit Depth Limit	m	370
- Ramp width	m	12
- Ramp gradient	%	8

These pit parameters were applied and various pit shells produced. A practical pit design was created for three target products i.e. Co ≥ 0.06%, 1.0% ≥ Ni < 1.4% and Ni ≥ 1.4%. The 3- Dimensional pit design for Torete block can be seen in **Figure 14.3** while plan view and section view of Torete pit design can be seen in **Figure 14.4, and Figure 14.5**, respectively.

Figure 14.3 3-Dimensional pit design of Torete Block
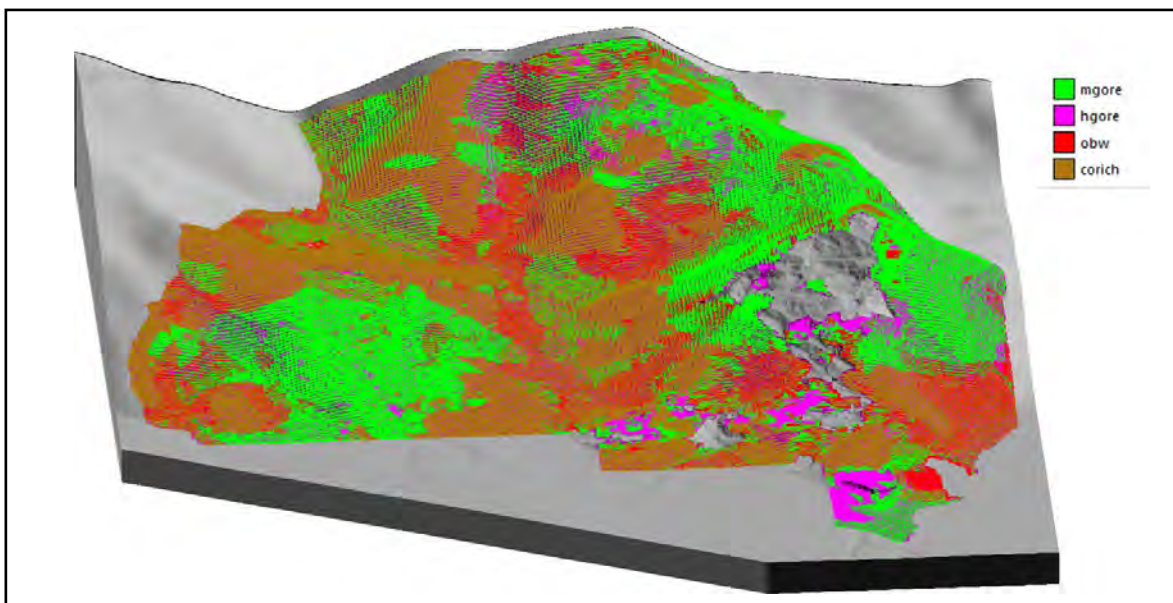
Figure 14.4 Plan View of Torete Pit Design

Section Point	X	Y
A	412948	9670368
A'	412948	9668243
B	411750	9669375
B'	414125	9669375

Legend: mgore, hgore, obw, corich — IUP
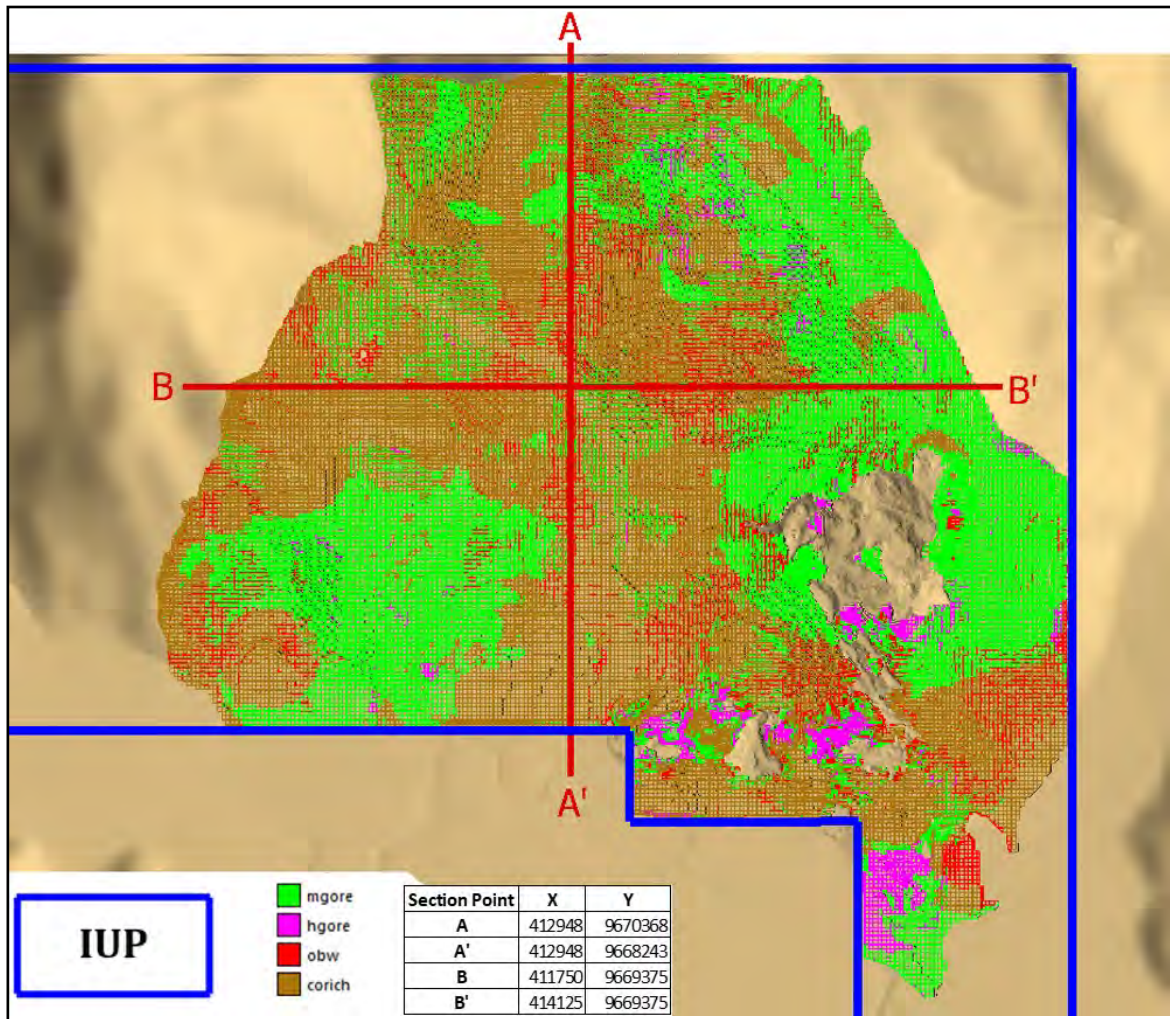
Figure 14.5 Section View of Torete Pit Design
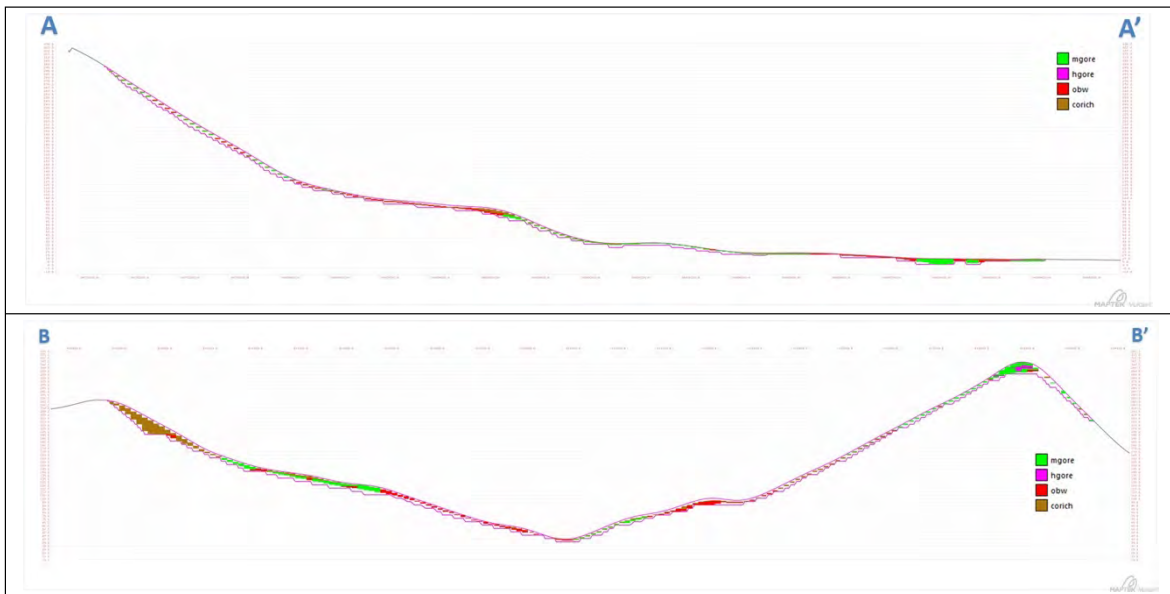
14.2.2. Buleleng Pit Design

The pit parameters used in the optimisation for Buleleng pit are shown in **Table 14.2.**

Table 14.2 Pit Parameters – Buleleng

Parameter	Units	
- Overall slope	Degree	45
- Single slope	Degree	56
- Bench height	m	5
- Safety Berm Width	m	3
- Pit Depth Limit	m	249
- Ramp width	m	10
- Ramp gradient	%	8

These pit parameters were applied and various pit shells produced during the optimization. A practical pit design **(Figure 14-6)** has been created. It is generated from one of the optimized pit to produce three intended products i.e. Co ≥ 0.06%, 1.0% ≥ Ni < 1.4% and Ni ≥ 1.4.

Figure 14.6 3-Dimensional Pit Design of Buleleng Block
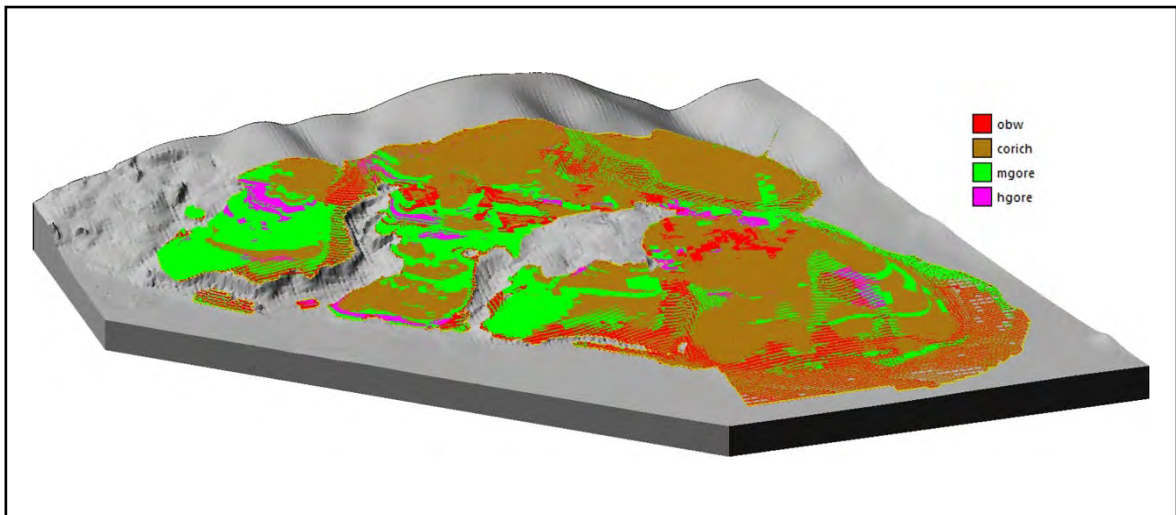
Figure 14.7 Plan View of Buleleng Pit Design

Section Point	X	Y
C	414500	9666750
C'	414500	9664875
D	413750	9666000
D'	415500	9666000
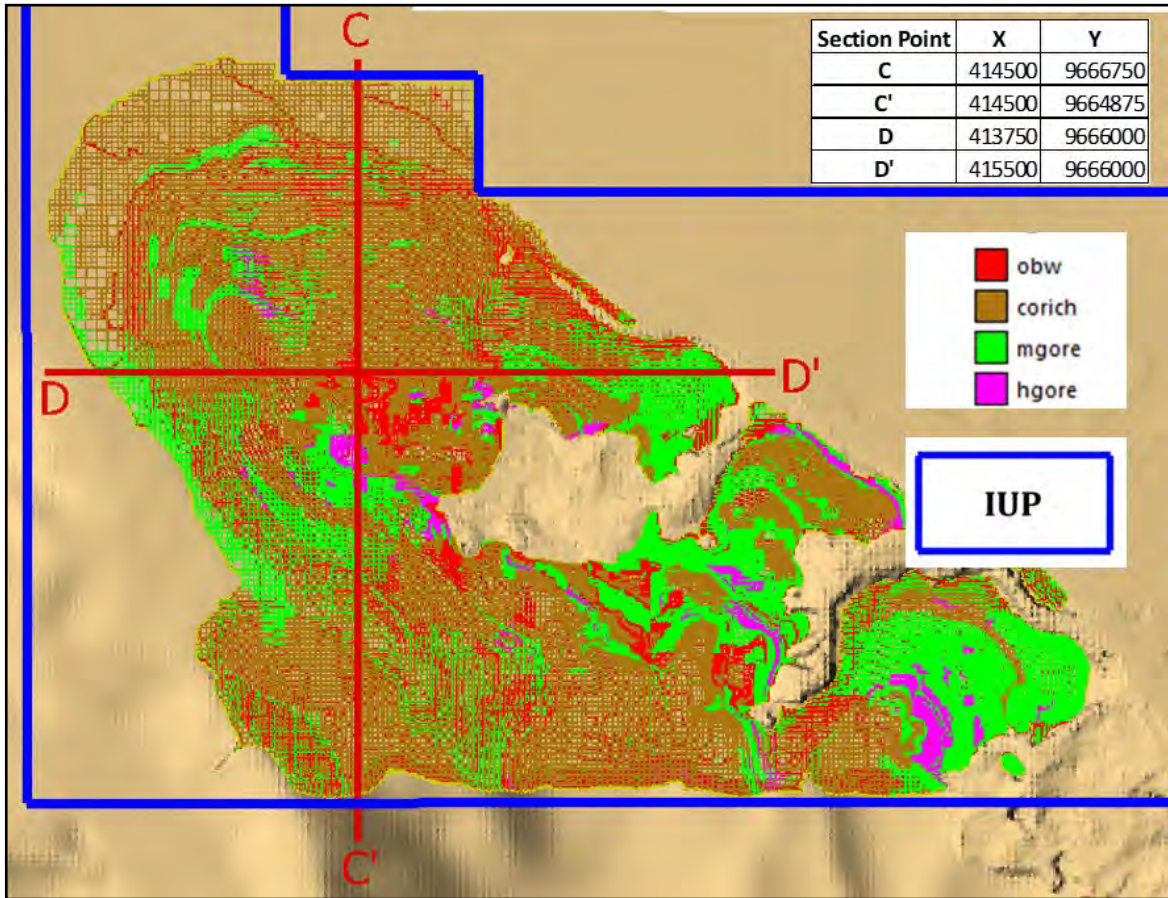
Figure 14.8 Section View of Buleleng Pit Design
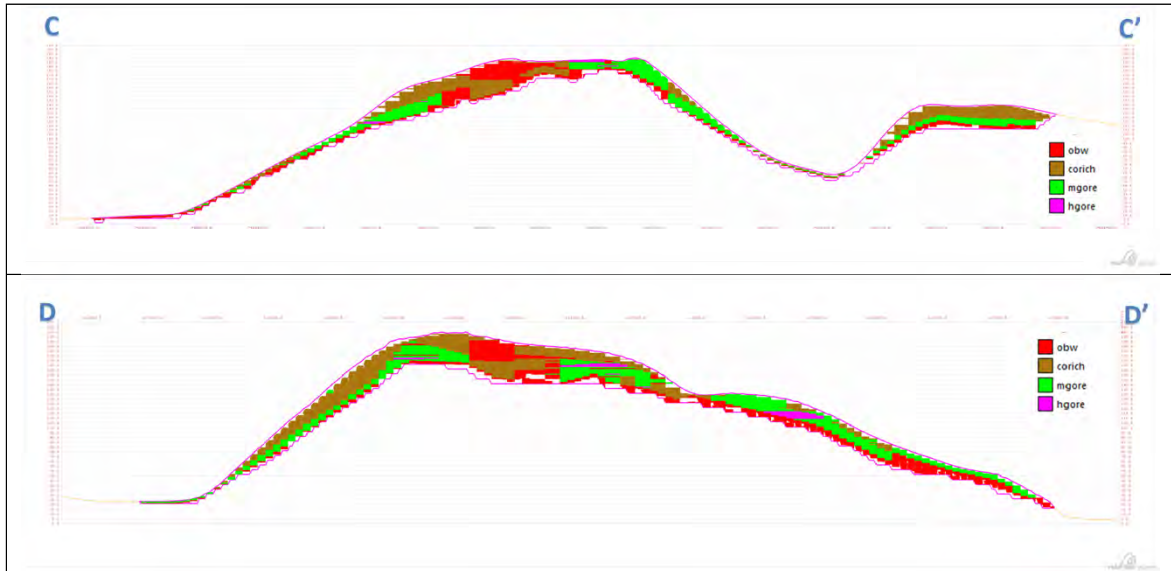
14.3. Mining Factors

There are two steps to calculate and to convert in situ material to the final product, Run of Mine (ROM). These include:

- **In situ ore:** Exploration reveals details of the mineralization in original formation. Typically, the ore consists of limonit as well as saprolite and has internal waste between ores. In situ ore comprises all the ore within the pit design.

- **Run of Mine (ROM):** There are at least six modifying factors used to modify the in-situ materials including: design parameters, selective mining best practices, mining losses, density, moisture content and mining dilution.

The main modifying factors that used to modify in situ materials to run of min (ROM) described as follow:

- Ore recovery: The factors used for each pit are shown in **Table 14.3.**

- Dilution, ore loss and another mine modifying factors described in **Table 14-4**. These factors are based on internal reconciliation report, estimation during mine plan and scheduling and benchmarking analysis of PT TAS.

Table 14.3 Ore Recovery Factors

Item	Average Ore Recovery factors	Data Source
Buleleng	97%	Mine Operation PT TAS
Torete	97%	Mine Operation PT TAS

Source: IQPR report of PT TAS 2019

Table 14.4 Mining Modifying Factors

Description	Buleleng		Torete	
	Limonite	Saprolite	Limonite	Saprolite
Wet Density (ton/m³)	1.71	1.6	1.71	1.56
Moisture Content (%)	40.33	32.62	29.94	23.35
Dry Density (ton/m3)	1.02	1.08	1.2	1.2
Dilution	2%	2%	2%	2%

After the theoretical economic pit-shell (optimized pit) was selected for each mining area, the practical pit design was created. This step incorporates practical considerations such as consistency of the pit floor level, access restrictions and the removal of areas that are impractical to mine.

14.4. Mining Factors Waste Dump Design

Waste dump designs were formulated with parameters summarized in **Table 14.5 and Table 14.6.** Disposal designs for Torete and Buleleng are shown in **Figure 14.9 and Figure 14.10**. Moreover, the practical pit design in combination with disposal design described in **Figure 14.11 and Figure 14.12.**

Table 14.5   Waste Dump Design Parameters Torete

Parameters	Unit	Torete
Waste Haulage Distance	km	≤ 1
Overall Slope Angle	degree	30°
Bench Height	m	5
Berm Width	m	5
Ramp Width	m	12
Max Ramp Gradient	%	12

Table 14.6   Waste Dump Design Parameters Buleleng

Parameters	Unit	Buleleng
Waste Haulage Distance	km	≤ 1
Overall Slope Angle	degree	30°
Bench Height	m	5
Berm Width	m	5
Ramp Width	m	12
Max Grade Ramp Gradient	%	12

Figure 14.9   Waste Dump Design – Torete
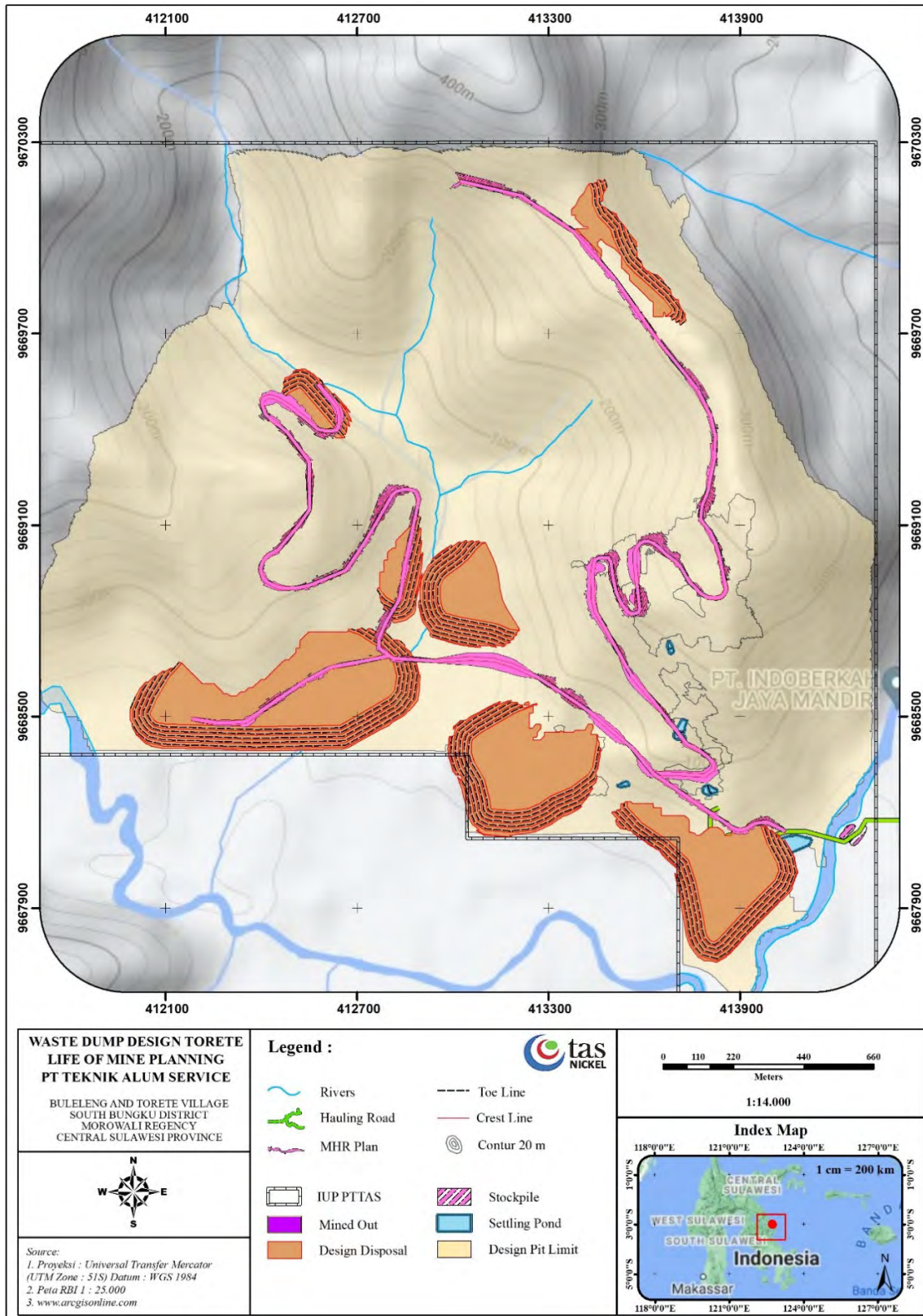
Figure 14.10   Waste Dump Design – Buleleng
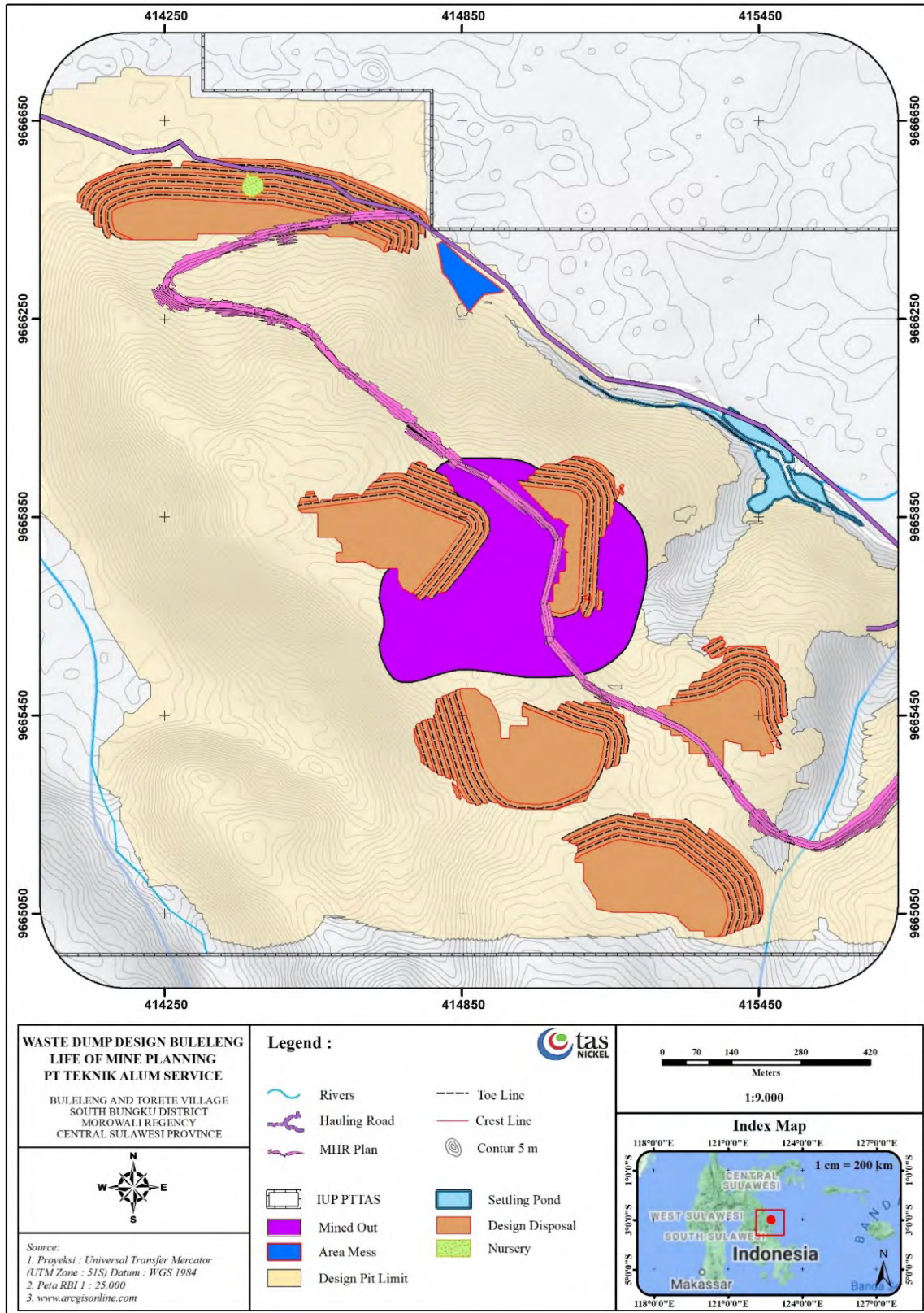
Figure 14.11   Practical Pit Design – Torete
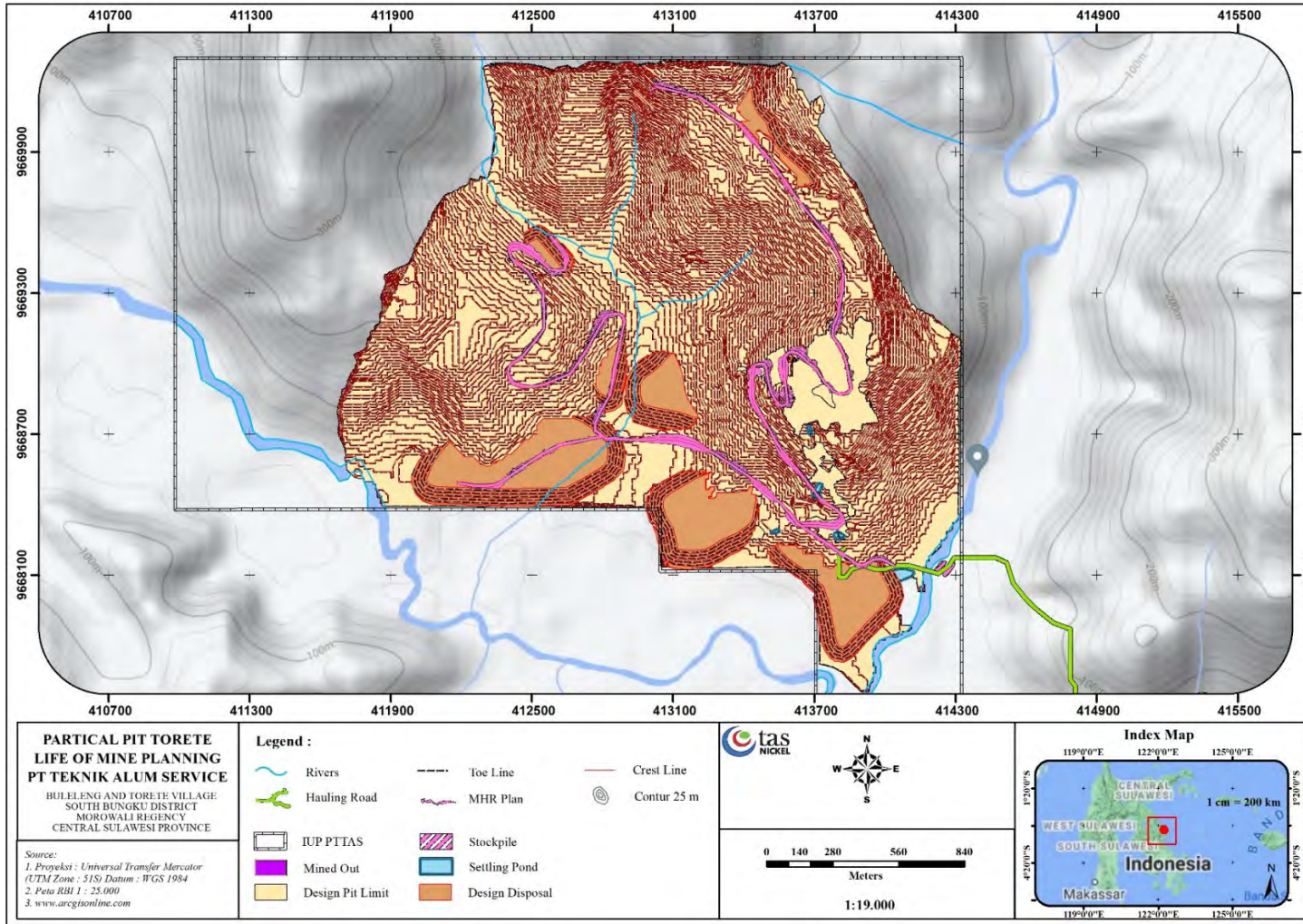
Figure 14.12 Practical Pit Design – Buleleng
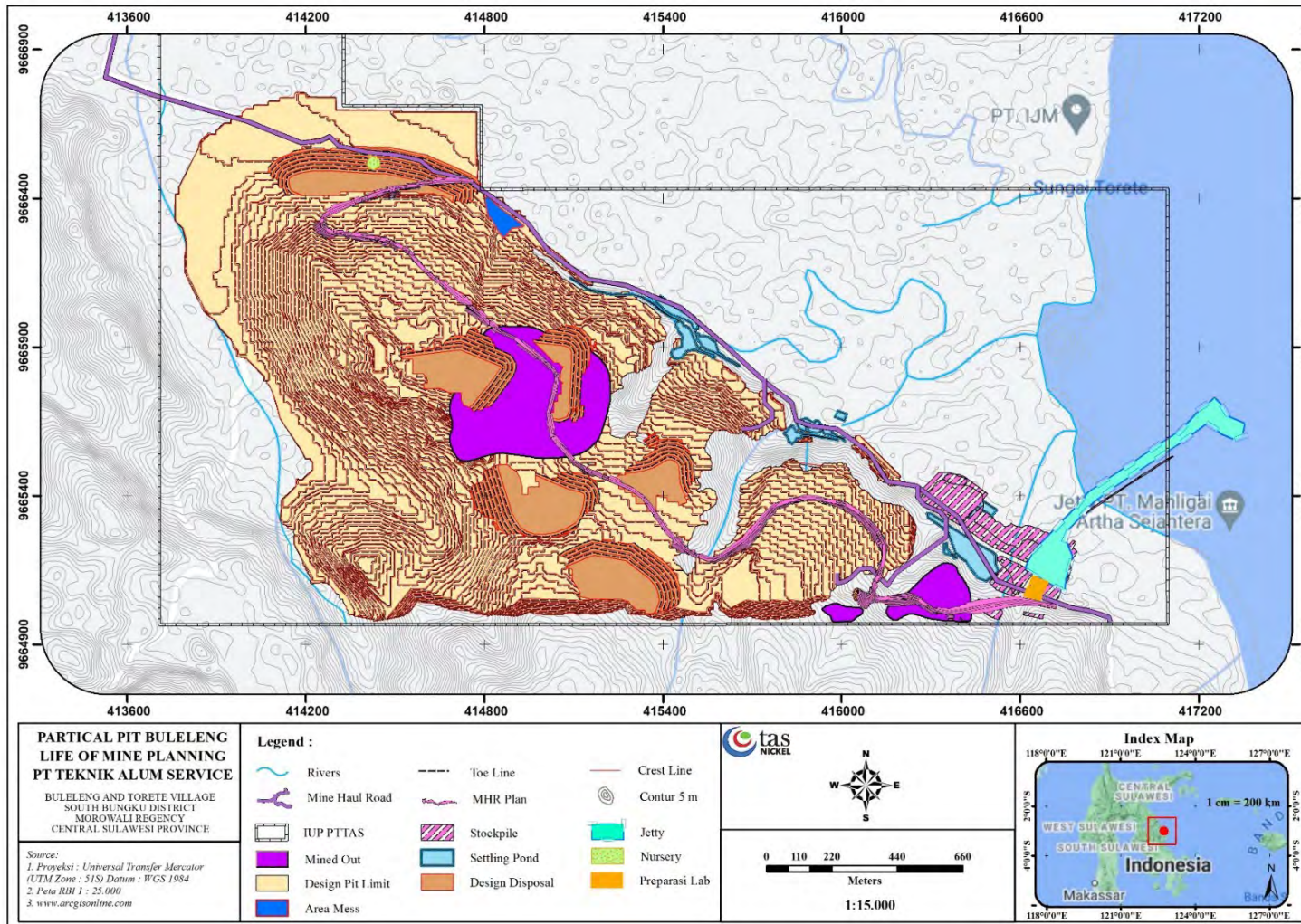
14.6. Stockpile

Stockpiles will be constructed between the pits and the port. The location needs to be as close as possible to the port or jetty in order to optimize truck productivity and ore blending activities to achieve the designated ore specification. The advantages of stockpiles are:

- Blending activity can be undertaken between materials from different mining faces to meet specification requirements from PT TAS.

- Managing the stockpile in accordance with product categories.

- To reduce the moisture content through sun drying activity to meet shipment requirements from PT TAS.

The stockpile construction parameters are listed below **(Table 14.7)** and shown in **Figure 14.13 and Figure 14.14.**

Table 14.7   Stockpile Design Parameters

Parameters	Unit	Torete & Buleleng
Haulage Distance	km	≤ 5
Area	Hectare	34.60
Capacity	m³	2,076,269
Target Ni & Co Grades	%	(1) Co ≥ 0.06% (2) Ni ≥ 1.0% and Ni < 1.40%, and (3) Ni ≥ 1.40%
Overall Slope	degree	30°
Bench Height	m	5
Berm Width	m	5
Ramp Width	m	12
Max Ramp Gradient	%	12

Source: IQPR report of PT TAS 2019

Figure 14.13 Stockpile and Jetty PT TAS – Torete

Legend :

- IUP PTTAS
- Rivers
- Hauling Road
- Mine Haul Road
- Jetty
- Stockpile
- Workshop Area

STOCKPILE AND JETTY TORETE
LIFE OF MINE PLANNING
PT TEKNIK ALUM SERVICE

BULELENG AND TORETE VILLAGE
SOUTH BUNGKU DISTRICT
MOROWALI REGENCY
CENTRAL SULAWESI PROVINCE

Source:
1. Proyeksi : Universal Transfer Mercator
(UTM Zone : 51S) Datum : WGS 1984
2. Peta RBI 1 : 25.000
3. www.arcgisonline.com

1:6.000

Index Map

1 cm = 200 km

Figure 14.14 Stockpile and Jetty PT TAS – Buleleng
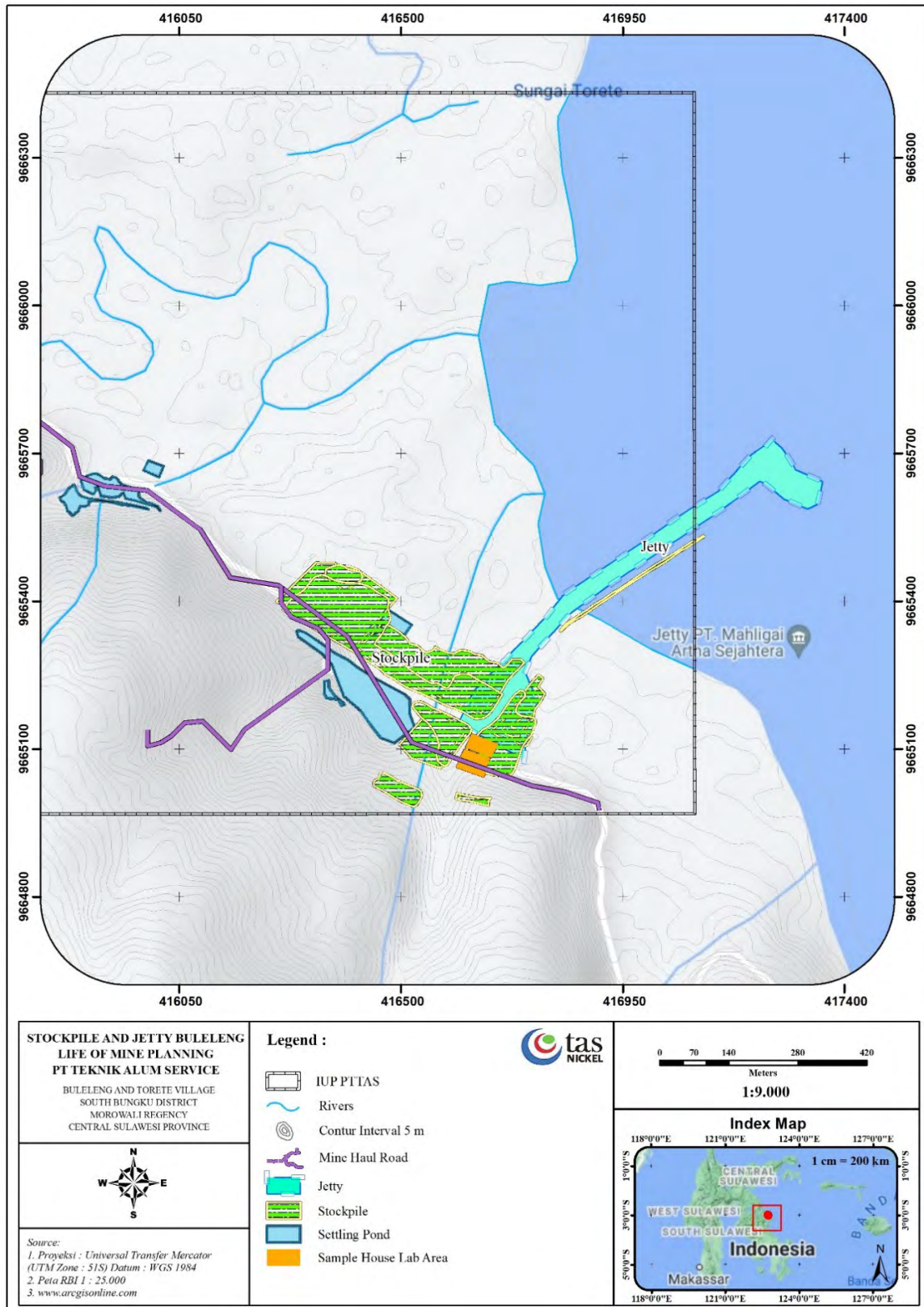
14.7. Ore Reserves Classification

An Ore Reserve as defined by the JORC Code as the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes dilution materials and allowances for losses which may occur when the material is mined. Ore Reserves are subdivided into Probable Reserves and Proved Reserves:

- **Probable** – the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. A Probable Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit; and

- **Proved** – the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

The choice of the appropriate category of Ore Reserve is determined primarily by the relevant level of confidence in the Mineral Resource and after considering any uncertainties in the Modifying Factors.

The Ore Reserves of PT TAS have been classified based on the level of detail completed in the mine planning, practical pit design and the level of confidence in the Mineral Resources. On this basis, all the Ore Reserves are considered as **Probable Reserves**. The Mineral Resources are reported inclusive of Ore Reserves, (that is, Ore Reserves are not additional to Mineral Resources).

14.8. Ore Reserves Statement

PT TAS internally prepared Ore Reserves for each deposit with three distinct cut-off grades. A cut-off grades of Ni ≥ 0.50 % and Ni ≥ 0.10 % for Buleleng and Padabaho, respectively have been applied to achieve the blended target grade for Ni ~ 0.7% and Co ≥ 0.06 within the pit design. This material is also known as cobalt rich materials that are expected to be fed into the hydrometallurgical processing plant. In addition to this, a cut-off grade of Ni ≥ 1.0% and Ni < 1.40% to obtain around 1.1% composite nickel grade had been applied. This material is expected to be supplied to the pyro metallurgical smelters specially applying blast furnace technology. This technology is now emerging around the Concession area. Moreover, a cut-off grade Ni ≥ 1.40% for a high-grade target product has been implemented. The latter product is expected to be fed into rotary kiln electric furnace technologies. This is also an emerging smelter technology in Indonesia, currently. The estimated reserves for each material type are summarized in **Table 14.8, Table 14.9 and Table 14.10** below. Furthermore, the reserve statement of PT TAS as per August 2021 can be seen in **Table 14.11.**

Table 14.8 Total Concession Cobalt-Rich Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.01 0.1 ≤ Ni < 1.0	LIM SAP	11.01	6.57	0.62	0.05	26.57	16.8	4.95	0.2	1.71	1.02	40.33
TOR	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.03 0.5 ≤ Ni < 1.0	LIM SAP	6.35	4.45	0.87	0.1	40.03	11.96	4.59	0.12	1.71	1.2	29.94
Total					**17.36**	**11.02**	**0.72**	**0.07**	**32.00**	**14.85**	**4.81**	**0.17**	**1.71**	**1.09**	**36.14**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

All the estimates are reported on a WMT basis.

Table 14.9 Total Concession Medium Grade Nickel Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	8.62	5.81	1.19	0.03	14.86	42.61	17.12	0.74	1.6	1.08	32.62
TOR	Probable	Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	10.32	7.91	1.2	0.03	14.08	34.46	16.97	0.42	1.56	1.2	23.35
Total					**18.94**	**13.72**	**1.2**	**0.03**	**14.47**	**38.47**	**17.04**	**0.58**	**1.58**	**1.14**	**27.92**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

All the estimates are reported on a WMT basis.

Table 14.10   Total Concession High Grade Nickel Ore Reserves

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	High Grade Ore (HGO)	Ni ≥ 1.4	LIM SAP	2.50	1.69	1.58	0.03	16.12	37.85	17.27	0.59	1.6	1.08	32.62
TOR	Probable	High Grade Ore (HGO)	Ni ≥ 1.4	LIM SAP	2.59	1.99	1.64	0.03	13.23	32.07	15.76	0.31	1.56	1.2	23.35
Total					**5.10**	**3.67**	**1.61**	**0.03**	**14.59**	**34.78**	**16.47**	**0.44**	**1.58**	**1.14**	**27.7**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

All the estimates are reported on a WMT basis.

Table 14.11   Total Concession Ore Reserves of PT TAS

Deposit	Class	Material	Cut-off Grade	Material Type	Wet Quantity (Mt)	Dry Quantity (Mt)	Ni (%)	Co (%)	Fe (%)	SiO2 (%)	MgO (%)	Cao (%)	Wet Density (t/cu.m)	Dry Density (t/cu.m)	Moisture Content (%)
BUL	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.01 0.1 ≤ Ni < 1.0	LIM SAP	11.01	6.57	0.62	0.05	26.57	16.80	4.95	0.20	1.71	1.02	40.33
		Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	8.62	5.81	1.14	0.04	19.42	37.05	14.47	0.63	1.60	1.08	32.62
		High Grade ORE (HGO)	Ni ≥ 1.4	LIM SAP	2.50	1.69	1.59	0.04	18.22	35.56	16.05	0.57	1.60	1.08	32.62
TOR	Probable	Cobalt Rich Ore (CORICH)	Co ≥ 0.03 0.5 ≤ Ni < 1.0	LIM SAP	6.35	4.45	0.87	0.10	40.03	11.96	4.59	0.12	1.71	1.20	29.94
		Medium Grade Ore (MGO)	1.0 ≤ Ni ≤ 1.4	LIM SAP	10.32	7.91	1.12	0.06	26.49	23.67	10.68	0.30	1.56	1.20	23.35
		High Grade ORE (HGO)	Ni ≥ 1.4	LIM SAP	2.59	1.99	1.66	0.03	15.33	30.52	14.92	0.29	1.56	1.20	23.35
Total					**41.39**	**28.41**	**1.03**	**0.06**	**25.91**	**24.17**	**9.79**	**0.33**	**1.63**	**1.12**	**30.75**

Note:

All Ore Reserve figures reported in the table above represent estimates at 30th August 2021. Ore Reserve estimates are not precise calculations, being dependent on the underlying Mineral Resource and based on limited information in respect to modifying factors.

The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.

Nickel grade qualities reported for Ore Reserves vary from the qualities reported for Mineral Resources due to some principal factors. Firstly, the Mineral Resource qualities are based all Inferred and Indicated mineral while Ore Reserves qualities are only for ore within the Mineable Pit Shell, which does not follow the Indicated and inferred Resource boundary. Secondly, Ore Reserve qualities have also been modified by ore losses and dilution factors.

All the estimates are reported on a WMT basis.

The Ore chemistries specifications of Ore Reserves is slightly different with the qualities reported for Mineral Resources. These due to several reasons including: The Mineral Resource qualities are based on Inferred and Indicated Resources while Ore Reserves qualities are only for Indicated Mineral Resources within the mineable pit shell. Moreover, Ore Reserve qualities have also been modified by modifying factors especially ore losses and dilution factors.

Furthermore, the Ore Reserves are scheduled to be sold as separate commodities from each pit based on the individual Ni products and impurity levels i.e. being blended for an optimized product.

14.9. LOM Inventory

Aligned with the previous JORC-2019 and IQPR-2019, some portion of inferred inventory is included in the mine plan and scheduling. These inventories are located around the probable reserve area where a big possibility of continuity of the ore body occurs. Due to the low level of confidence concerning the inferred resources, similar modifying factors have been applied to those resources prior to the mine scheduling in that particular area. The applied modifying factors, especially: pit design, mine recovery, and dilution. Furthermore, the similar cut-off grades used for the Ore Reserves have been applied for the LOM Inventory, as described below:

- Cut-off grade 0.5% and 0.1% Ni for cobalt rich materials (CORICH)

- Cut-off grade of Ni ≥ 1.0% and Ni < 1.40% for Medium Grade Ore (MGO)

- Cut-off grade Ni ≥ 1.40% for High Grade Ore (HGO)

The ultimate pit limit is divided into a strip and blocks prior to mine plan and scheduling. Then, the reserve inventories within the strip block are calculated using a mining software. A total of 12 strip-blocks has been formulated for Buleleng while 27 strip-blocks are formulated for Torete.

The total of reserve inventories within the strip block is around **41.39 million wet metric ton (WMT) while the total of the opted inferred inventories that included in to life of mine plan is around 17.71 WMT**. The nearest area to the probable reserve is prioritized when selecting the inferred mineral resources into the pit design. Despite the enormous amount of inferred resources in the Torete and Buleleng block, less than 50% of inferred resources are included into pit design. Moreover, around 80% of them are incorporated into mine scheduling.

The strip-block location for the Torete and Buleleng block can be seen in **Figure 14.15, Figure 14.16.** Moreover, the Reserve inventories (probable) within the pit strip-blocks can be seen in **Table 14.12** while the resources inventories (inferred) inventories can be seen in **Table 14.13.**

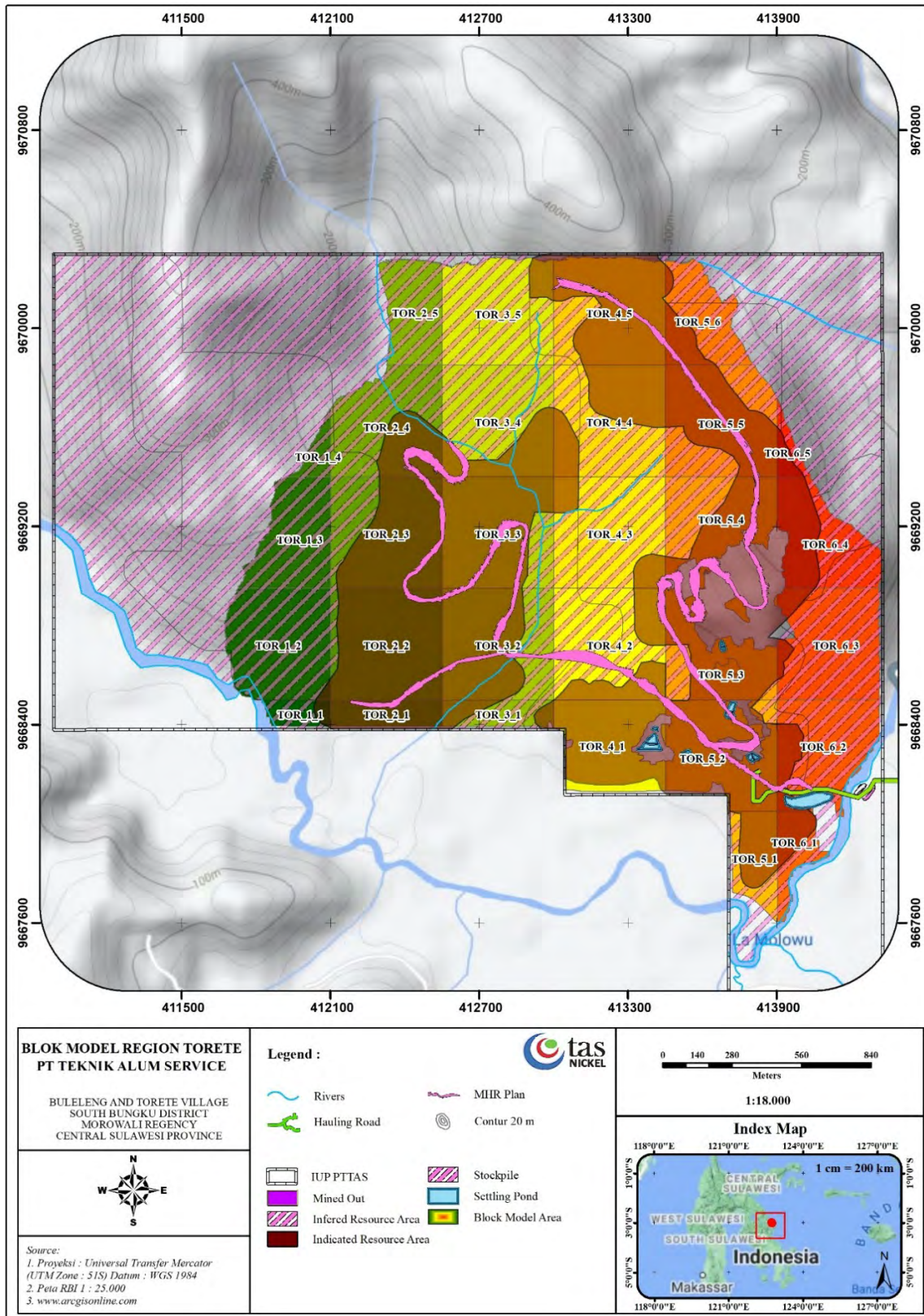**Figure 14.15 Mineral Inventories PT TAS – Torete**

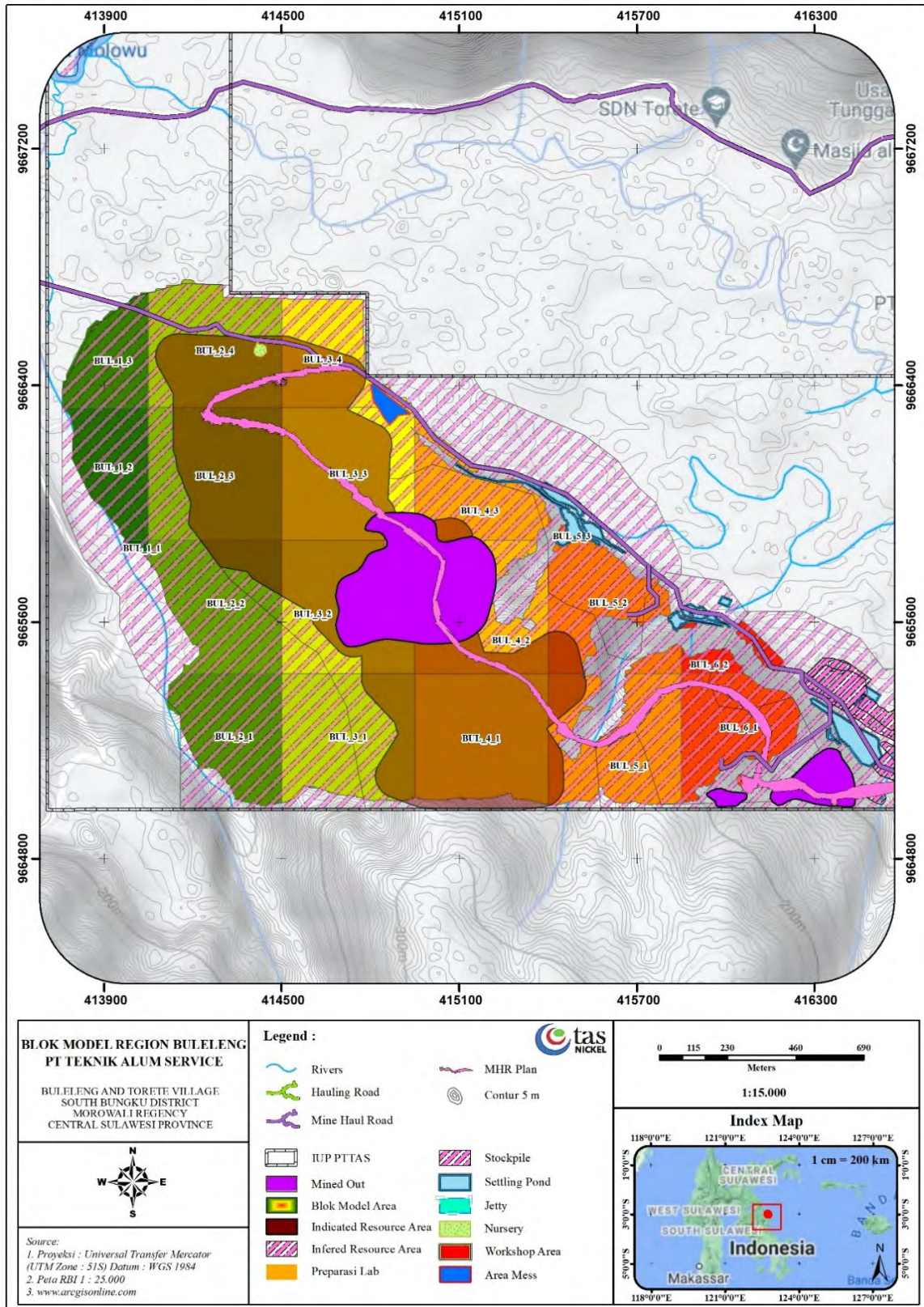## Figure 14.16 Mineral Inventories PT TAS – Buleleng

Figure 14.16 Mineral Inventories PT TAS – Buleleng

Table 14.12   Mine Scheduling Inventories Probable Reserve

No	Block	Region	OB-WASTE (MBCM)	CORICH ORE (MWMT)	CORICH ORE (MDMT)	MG-ORE (MWMT)	MG-ORE (MDMT)	HG-ORE (MWMT)	HG-ORE (MDMT)	TOTAL (MWMT)	TOTAL (MDMT)	SR	Chemistry Corich (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry MGO (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry HGO (%) Ni	Co	Fe	SiO2	MgO	CaO
1	BUL	Bul22	0.16	0.29	0.17	0.39	0.27	0.05	0.04	0.74	0.47	0.22	0.76	0.05	30.33	5.92	1.99	0.10	1.16	0.07	38.94	14.77	5.68	0.29	1.41	0.07	43.04	9.50	3.01	0.13
2	BUL	Bul23	0.50	2.52	1.50	1.47	0.99	0.31	0.21	4.30	2.70	0.12	0.69	0.06	29.78	11.79	4.09	0.14	1.12	0.04	17.82	40.79	17.04	0.83	1.69	0.02	10.66	40.07	28.53	0.29
3	BUL	Bul24	0.26	0.27	0.16	0.12	0.08	0.00	0.00	0.39	0.24	0.65	0.88	0.08	37.58	16.65	5.06	0.18	1.00	0.05	22.56	31.78	17.46	0.60	-	-	-	-	-	-
4	BUL	Bul31	0.25	0.29	0.17	0.38	0.26	0.17	0.11	0.84	0.54	0.30	0.68	0.06	32.99	17.18	2.93	0.14	1.15	0.04	15.89	41.50	15.96	0.71	1.53	0.04	15.93	40.09	14.79	0.67
5	BUL	Bul32	0.69	2.08	1.24	0.86	0.58	0.37	0.25	3.31	2.07	0.21	0.43	0.03	15.75	14.96	4.77	0.12	1.16	0.05	26.67	23.43	8.49	0.37	1.55	0.04	18.56	35.47	14.31	0.54
6	BUL	Bul33	0.83	2.16	1.29	1.32	0.89	0.39	0.26	3.88	2.44	0.22	0.62	0.06	28.13	13.38	4.08	0.17	1.17	0.03	14.40	38.33	20.95	0.68	1.48	0.04	17.56	35.32	18.27	0.45
7	BUL	Bul34	0.16	0.28	0.17	0.08	0.05	0.00	0.00	0.36	0.22	0.45	0.87	0.10	41.73	14.69	3.70	0.10	0.98	0.03	14.51	42.78	21.59	0.82	-	-	-	-	-	-
8	BUL	Bul41	1.08	2.67	1.59	2.75	1.86	0.79	0.53	6.21	3.98	0.17	0.63	0.05	27.41	25.65	6.65	0.35	1.12	0.04	19.17	38.99	12.44	0.60	1.65	0.04	20.30	33.15	13.05	0.70
9	BUL	Bul42	0.17	0.23	0.14	0.50	0.34	0.14	0.09	0.87	0.57	0.20	0.57	0.03	17.24	32.84	14.38	0.47	1.18	0.04	15.65	43.30	17.07	0.76	1.60	0.04	17.71	34.69	13.86	0.71
10	BUL	Bul43	0.04	0.14	0.08	0.17	0.11	0.06	0.04	0.37	0.24	0.12	0.82	0.07	33.55	8.63	0.88	0.04	1.19	0.04	18.34	41.54	13.54	0.68	1.58	0.04	16.30	45.44	14.03	0.85
11	BUL	Bul51	0.08	0.07	0.04	0.30	0.20	0.19	0.13	0.57	0.38	0.15	0.66	0.04	23.12	35.75	6.32	0.31	1.17	0.04	19.67	37.98	11.93	0.53	1.65	0.04	17.73	38.88	15.48	0.68
12	BUL	Bul52	0.08	0.01	0.00	0.26	0.17	0.03	0.02	0.30	0.20	0.27	0.87	0.07	27.32	21.10	5.39	0.19	1.14	0.04	15.97	45.93	14.28	0.65	1.44	0.06	22.14	39.53	9.63	0.40
13	TOR	Tor11	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.38	0.91	0.10	43.87	8.01	2.70	0.08	1.02	0.08	29.66	22.98	14.79	0.33	-	-	-	-	-	-
14	TOR	Tor12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.90	0.09	43.15	7.90	1.63	0.06	-	-	-	-	-	-	-	-	-	-	-	-
15	TOR	Tor21	0.00	0.06	0.04	0.34	0.26	0.02	0.02	0.42	0.32	0.00	0.92	0.09	41.97	12.84	3.28	0.05	1.09	0.08	37.43	17.16	7.25	0.11	1.44	0.02	11.78	37.22	25.70	0.23
16	TOR	Tor22	0.01	0.05	0.03	1.61	1.23	0.42	0.32	2.08	1.59	0.00	0.93	0.09	42.71	11.06	2.96	0.06	1.13	0.07	30.58	22.01	11.48	0.21	1.50	0.03	13.62	36.51	22.86	0.31
17	TOR	Tor23	0.06	1.34	0.94	1.18	0.90	0.02	0.01	2.54	1.86	0.02	0.89	0.11	41.22	11.32	5.74	0.12	1.14	0.04	21.81	30.08	15.19	0.37	1.41	0.03	14.46	38.44	17.85	0.35
18	TOR	Tor24	0.01	0.12	0.08	0.15	0.11	0.00	0.00	0.27	0.20	0.03	0.80	0.13	44.08	11.29	5.30	0.10	1.08	0.03	15.93	35.70	21.62	0.53	1.49	0.04	15.66	34.93	22.68	0.31
19	TOR	Tor31	0.01	0.38	0.27	0.03	0.02	0.01	0.01	0.41	0.29	0.01	0.84	0.08	40.24	12.84	3.25	0.02	1.20	0.03	15.80	37.74	21.33	0.22	1.42	0.03	15.33	35.87	23.84	0.23
20	TOR	Tor32	0.06	0.93	0.65	1.05	0.80	0.01	0.01	1.98	1.46	0.03	0.89	0.08	37.93	15.10	5.57	0.09	1.10	0.06	28.74	25.02	11.82	0.21	1.41	0.03	15.50	35.65	23.62	0.25
21	TOR	Tor33	0.21	0.87	0.61	0.41	0.31	0.00	0.00	1.27	0.92	0.16	0.90	0.12	43.93	10.31	5.19	0.08	1.02	0.04	27.30	24.52	13.05	0.32	-	-	-	-	-	-
22	TOR	Tor34	0.05	0.12	0.09	0.04	0.03	0.00	0.00	0.16	0.11	0.29	0.89	0.11	39.34	14.16	8.84	0.13	1.13	0.03	15.76	37.78	22.60	0.81	-	-	-	-	-	-
23	TOR	Tor35	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.03	0.02	0.11	0.92	0.10	43.08	10.58	1.59	0.12	1.07	0.02	12.51	35.67	16.40	0.31	1.41	0.02	12.12	30.65	10.00	0.15
24	TOR	Tor41	0.05	0.45	0.31	0.27	0.20	0.49	0.37	1.20	0.89	0.04	0.78	0.07	44.12	6.09	1.16	0.04	1.15	0.07	26.83	22.62	11.30	0.11	1.76	0.03	15.43	32.48	16.98	0.15
25	TOR	Tor42	0.07	0.15	0.11	0.13	0.10	0.01	0.01	0.29	0.21	0.24	0.81	0.07	31.10	21.98	6.72	0.31	1.06	0.05	22.68	28.84	12.91	0.22	1.61	0.03	14.19	38.93	16.43	0.23
26	TOR	Tor43	0.04	0.05	0.03	0.07	0.06	0.00	0.00	0.12	0.09	0.31	0.76	0.05	22.51	30.57	14.24	0.63	1.08	0.07	28.72	24.18	12.24	0.17	1.40	0.03	14.11	38.02	24.59	0.23
27	TOR	Tor44	0.04	0.53	0.37	0.37	0.28	0.14	0.11	1.04	0.76	0.04	0.91	0.09	37.56	15.31	6.75	0.15	1.17	0.05	21.70	25.69	9.51	0.48	1.58	0.03	13.12	31.72	12.10	0.41
28	TOR	Tor45	0.05	0.22	0.15	0.82	0.63	0.40	0.31	1.44	1.09	0.03	0.94	0.09	41.59	9.70	0.81	0.17	1.17	0.04	19.11	26.86	8.81	0.35	1.55	0.03	12.53	31.12	11.02	0.25
29	TOR	Tor51	0.00	0.00	0.00	0.12	0.10	0.41	0.31	0.54	0.41	-	0.94	0.11	41.37	9.73	3.25	0.13	1.27	0.10	40.53	11.62	6.59	0.12	1.85	0.06	23.70	25.32	13.61	0.33
30	TOR	Tor52	0.10	0.51	0.35	0.27	0.21	0.18	0.14	0.95	0.70	0.11	0.78	0.10	41.07	5.80	1.66	0.07	1.14	0.04	19.11	19.91	9.43	0.24	1.76	0.04	14.77	25.68	12.39	0.27
31	TOR	Tor53	0.07	0.05	0.04	0.25	0.19	0.07	0.05	0.36	0.27	0.19	0.69	0.04	22.27	14.01	5.74	0.24	1.13	0.06	25.78	16.07	8.52	0.16	1.70	0.03	14.79	9.64	4.98	0.26
32	TOR	Tor54	0.03	0.02	0.01	0.37	0.29	0.03	0.02	0.42	0.32	0.06	0.83	0.08	30.10	19.54	8.78	0.35	1.11	0.06	25.21	23.89	9.40	0.34	1.51	0.02	11.13	35.21	14.35	0.29
33	TOR	Tor55	0.13	0.23	0.16	1.23	0.94	0.23	0.17	1.69	1.28	0.07	0.95	0.07	33.28	15.97	2.43	0.48	1.09	0.06	26.87	21.58	5.49	0.48	1.67	0.03	11.89	30.89	11.61	0.39
34	TOR	Tor56	0.00	0.11	0.07	0.37	0.28	0.09	0.07	0.56	0.42	0.00	0.93	0.10	41.65	10.46	1.09	0.13	1.14	0.08	34.69	15.52	4.12	0.37	1.70	0.03	14.99	28.30	10.54	0.33
35	TOR	Tor61	0.05	0.02	0.01	0.09	0.07	0.05	0.04	0.16	0.12	0.32	0.87	0.08	33.04	11.23	4.69	0.14	1.21	0.04	20.50	28.80	15.60	0.58	1.52	0.03	13.68	35.24	17.94	0.68
36	TOR	Tor62	0.02	0.08	0.06	0.06	0.04	0.00	0.00	0.14	0.10	0.12	0.75	0.09	36.24	11.76	2.03	0.16	1.17	0.03	17.15	17.50	7.81	0.34	1.58	0.03	15.33	5.68	4.01	0.04
37	TOR	Tor63	0.00	0.00	0.00	0.12	0.09	0.01	0.01	0.13	0.10	0.02	0.96	0.09	39.68	13.19	7.08	0.05	1.14	0.09	21.93	26.75	16.37	0.17	1.56	0.03	15.40	9.51	4.90	0.17
38	TOR	Tor64	0.04	0.04	0.03	0.90	0.69	0.01	0.00	0.94	0.72	0.05	0.89	0.11	37.87	11.54	5.49	0.15	1.12	0.11	29.43	21.54	12.04	0.23	1.44	0.02	11.04	36.47	18.45	0.45
39	TOR	Tor65	0.00	0.00	0.00	0.09	0.07	0.01	0.01	0.10	0.08	0.01	0.91	0.07	32.34	16.55	2.36	0.49	1.16	0.04	20.10	26.58	7.75	0.47	1.46	0.02	11.07	31.46	10.31	0.36
	TOTAL		5.42	17.36	11.02	18.94	13.72	5.10	3.67	41.39	28.41	0.13	0.72	0.07	32.00	14.85	4.81	0.17	1.13	0.05	23.50	29.34	12.28	0.44	1.63	0.04	16.65	32.84	15.44	0.42

Table 14.13   Resources Inventories (Inferred) for Mine Scheduling

No	Block	Region	OB-WASTE (MBCM)	CORICH ORE (MWMT)	(MDMT)	MG-ORE (MWMT)	(MDMT)	HG-ORE (MWMT)	(MDMT)	TOTAL (MWMT)	(MDMT)	SR	Chemistry Corich (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry MG-Ore (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry HG-Ore (%) Ni	Co	Fe	SiO2	MgO	CaO
1	BUL	Bul23	0.10	0.94	0.56	0.71	0.48	0.04	0.02	1.69	1.06	0.06	0.90	0.08	37.55	13.92	4.63	0.13	1.10	0.05	24.50	29.41	16.12	0.32	1.77	0.02	10.43	39.62	29.24	0.23
2	BUL	Bul24	0.14	0.32	0.19	0.04	0.03	0.00	0.00	0.36	0.22	0.38	0.91	0.08	36.75	18.99	5.79	0.25	1.00	0.06	25.82	28.03	15.38	0.40	-	-	-	-	-	-
3	BUL	Bul32	0.21	0.63	0.38	0.18	0.12	0.07	0.05	0.88	0.54	0.24	0.45	0.02	11.97	13.44	4.86	0.17	1.17	0.03	15.33	35.86	19.06	0.45	1.41	0.03	11.40	47.26	20.84	0.67
4	BUL	Bul33	0.13	0.18	0.11	0.23	0.15	0.02	0.02	0.44	0.28	0.29	0.84	0.07	34.85	12.49	4.74	0.12	1.12	0.05	23.61	28.73	13.91	0.87	1.43	0.04	14.00	39.49	19.62	1.35
5	BUL	Bul34	0.11	0.13	0.08	0.01	0.01	0.00	0.00	0.15	0.09	0.78	0.84	0.08	37.31	18.36	6.70	0.28	1.00	0.03	14.43	40.51	22.33	0.76	-	-	-	-	-	-
6	BUL	Bul42	0.13	0.04	0.02	0.50	0.34	0.00	0.00	0.54	0.36	0.24	0.85	0.07	33.52	8.81	1.60	0.03	1.10	0.04	18.96	39.02	15.65	0.65	1.40	0.10	30.59	14.56	4.83	0.23
7	BUL	Bul43	0.41	0.30	0.18	0.95	0.64	0.04	0.03	1.29	0.85	0.32	0.88	0.07	35.88	11.99	3.67	0.09	1.11	0.06	26.56	27.65	10.58	0.59	1.49	0.04	16.17	37.88	17.80	1.20
8	BUL	Bul51	0.21	0.42	0.25	0.86	0.58	0.28	0.19	1.56	1.02	0.14	0.69	0.08	40.24	14.08	6.83	0.06	1.18	0.07	29.08	25.64	10.75	0.23	1.50	0.09	34.98	16.52	6.39	0.23
9	BUL	Bul52	0.32	1.31	0.78	1.43	0.96	0.16	0.11	2.89	1.85	0.11	0.88	0.09	33.25	14.33	6.27	0.03	1.14	0.05	20.98	34.40	14.26	0.33	1.50	0.04	15.88	43.97	17.80	0.40
10	BUL	Bul53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.97	0.97	0.10	35.08	19.00	8.12	0.04	1.00	0.05	20.76	32.79	15.60	0.27	-	-	-	-	-	-
11	TOR	Tor31	0.00	0.31	0.22	0.08	0.06	0.00	0.00	0.40	0.28	0.01	0.84	0.07	38.32	14.47	5.05	0.08	1.15	0.03	16.46	34.81	19.31	0.24	1.40	0.03	15.52	34.80	23.67	0.25
12	TOR	Tor32	0.04	0.14	0.10	0.15	0.11	0.00	0.00	0.28	0.21	0.15	0.86	0.08	37.75	15.81	7.21	0.12	1.16	0.03	16.80	34.55	22.00	0.35	-	-	-	-	-	-
13	TOR	Tor33	0.01	0.04	0.03	0.04	0.03	0.00	0.00	0.08	0.06	0.07	0.90	0.10	40.25	14.19	5.89	0.11	1.16	0.03	13.99	40.18	23.55	0.18	-	-	-	-	-	-
14	TOR	Tor41	0.01	0.04	0.03	0.01	0.01	0.06	0.05	0.11	0.08	0.05	0.78	0.07	43.21	7.63	1.60	0.04	1.28	0.03	15.38	32.54	18.30	0.10	1.61	0.02	14.07	33.29	18.63	0.08
15	TOR	Tor42	0.09	0.42	0.30	0.24	0.19	0.01	0.00	0.67	0.49	0.14	0.84	0.09	38.05	15.82	6.58	0.09	1.11	0.03	17.03	39.88	18.59	0.20	1.43	0.04	18.76	41.10	18.35	0.13
16	TOR	Tor43	0.16	0.79	0.56	0.38	0.29	0.01	0.01	1.18	0.86	0.14	0.86	0.08	35.01	18.20	9.84	0.17	1.06	0.06	25.04	28.77	15.43	0.20	1.45	0.04	19.03	41.14	18.32	0.12
17	TOR	Tor51	0.00	0.00	0.00	0.02	0.02	0.07	0.06	0.10	0.08	-	0.95	0.11	42.08	9.34	3.29	0.13	1.08	0.10	38.30	10.02	4.30	0.10	1.66	0.05	19.30	26.54	14.41	0.36
18	TOR	Tor52	0.01	0.10	0.07	0.01	0.01	0.00	0.00	0.11	0.08	0.12	0.75	0.06	28.33	12.07	3.84	0.21	1.01	0.07	37.27	8.72	1.00	0.12	-	-	-	-	-	-
19	TOR	Tor53	0.02	0.05	0.03	0.08	0.06	0.00	0.00	0.12	0.09	0.16	0.82	0.06	30.89	11.73	2.96	0.16	1.06	0.06	32.72	10.71	4.15	0.15	-	-	-	-	-	-
20	TOR	Tor54	0.01	0.02	0.02	0.19	0.15	0.00	0.00	0.22	0.17	0.06	0.71	0.04	17.76	35.44	17.97	0.62	1.08	0.06	25.40	25.70	12.14	0.27	1.39	0.03	13.11	37.33	19.78	0.14
21	TOR	Tor55	0.05	0.13	0.09	0.73	0.56	0.00	0.00	0.86	0.65	0.06	0.62	0.04	18.24	37.13	17.73	0.56	1.09	0.07	34.82	15.51	4.56	0.34	1.46	0.02	11.88	39.16	24.12	0.44
22	TOR	Tor56	0.02	0.16	0.11	0.31	0.24	0.02	0.01	0.49	0.36	0.05	0.85	0.08	34.07	18.71	5.58	0.35	1.13	0.06	27.35	21.43	7.89	0.41	1.45	0.03	12.74	30.87	13.64	0.43
23	TOR	Tor61	0.01	0.02	0.01	0.05	0.04	0.02	0.02	0.09	0.06	0.08	0.77	0.06	22.67	5.61	2.32	0.10	1.15	0.06	24.71	24.13	14.63	0.41	1.46	0.03	14.26	29.15	15.42	0.47
24	TOR	Tor62	0.13	0.48	0.33	0.04	0.03	0.00	0.00	0.52	0.37	0.24	0.77	0.08	36.69	9.37	1.94	0.14	1.09	0.03	16.49	17.29	8.73	0.46	1.38	0.03	14.44	11.44	4.62	0.03
25	TOR	Tor63	0.06	0.09	0.06	1.02	0.78	0.02	0.01	1.13	0.86	0.05	0.83	0.07	32.13	10.05	3.11	0.23	1.18	0.10	30.46	14.40	7.74	0.21	1.46	0.08	23.33	10.70	6.47	0.20
26	TOR	Tor64	0.01	0.00	0.00	1.32	1.01	0.13	0.10	1.45	1.11	0.01	0.65	0.02	12.15	41.00	26.83	0.13	1.12	0.13	34.56	16.86	8.18	0.19	1.49	0.04	18.00	31.17	20.16	0.24
27	TOR	Tor65	0.00	0.00	0.00	0.10	0.08	0.01	0.00	0.11	0.08	0.01	-	-	-	-	-	-	1.11	0.06	25.99	23.34	7.37	0.40	1.41	0.02	11.24	32.89	11.64	0.37
	TOTAL		2.39	7.07	4.51	9.69	6.97	0.95	0.67	17.71	12.15	0.13	0.81	0.07	33.53	15.00	6.01	0.14	1.12	0.07	26.87	25.28	11.42	0.33	1.52	0.05	21.18	30.51	15.06	0.36

15. MINING, PROCESSING AND OTHER FACTORS

15.1. Forecast Production Tonnes

Currently either Buleleng or Torete produce high grade saprolite material with an average grade around 1.80 % Ni that is shipped to an external smelter.

The approach to formulate the 2021 LOM plan involved defining pit limits for each pit and evaluating development strategies for both individual pits and the mine. This was followed by detailed LOM production and dump scheduling stage plans to illustrate pit development.

The mining activities will be conducted parallel both in Torete and Buleleng during the life of mine plan. The total life of mine in all areas is approximately **19 years starting from 2021 to 2039, with total production of 59.10 MWMT.**

The life of mine plan is based on three production activities:

1. Mining the cobalt-rich materials. It is a material with multiple cut-off grades which will produce around 24.42 million tons at 0.75% Ni and 0.07% Co.

2. Mining the medium grade ore. It is material with Ni ≥ 1.0% and Ni < 1.40%   which will produce around 28.63 million tons at 1.13% Ni,

3. Mining high grade ore. It is materials with Ni ≥ 1.40% which will produce around 6.05 Million tons at 1.61% Ni

The preferred development strategy involves a strip mining and back hauling mining method. There is no need for any blasting as overburden and ore are all soft material with little fragments of rock. The selected mining method is an open cast, truck and excavator mining method where dumping is initially ex-pit and then in-pit dumping where possible using a haul-back method. The mining factors applied to the resource models for derive mining quantities were selected based on the use of excavators and trucks.

The key results of this study are as follows:

- The deposit characteristics are suited to flexible, selective mining methods.
- The operation of the pits is to be undertaken by Power China (the mining contractor), using a mix of hydraulic excavators, dozers, loaders and haul trucks.

A series of strategic schedules were developed to obtain the optimum production schedule. The scheduling iterations used can be divided into three distinct iterations based on the production schedule target of Co and Ni; the first production schedule is for Co ≥ 0.06% product, the second production schedule is for Ni ≥ 1.0% and Ni < 1.40% product, and the third production schedule is for Ni ≥ 1.4% product, as summarized in **Table 15.1.** The mine plan progress plot can be seen in **Figure 15.1 and Figure 15.2.**

Table 15.1   Detailed Annual Production Schedule

	Year	OBW (bcm)	Cobalt Rich Ore (wmt)	Cobalt Rich Ore (dmt)	Medium Grade Ore (wmt)	Medium Grade Ore (dmt)	HGO (wmt)	HGO (dmt)	Total (wmt)	Total (dmt)	SR
1	2021	172,207	357,424	218,620	372,275	273,618	120,301	87,144	850,000	579,381	0.20
2	2022	232,021	756,592	467,404	331,689	231,116	161,720	113,971	1,250,000	812,490	0.19
3	2023	366,554	1,205,990	747,678	531,821	371,759	262,189	185,470	2,000,000	1,304,908	0.18
4	2024	287,147	755,039	471,368	1,517,328	1,135,925	227,633	165,268	2,500,000	1,772,561	0.11
5	2025	487,723	1,205,075	759,267	1,785,366	1,322,150	509,559	376,951	3,500,000	2,458,368	0.14
6	2026	494,139	1,814,658	1,164,669	1,167,950	837,088	517,392	379,482	3,500,000	2,381,240	0.14
7	2027	593,025	1,114,098	697,318	1,800,315	1,289,507	585,587	431,117	3,500,000	2,417,941	0.17
8	2028	393,769	1,436,832	926,332	1,519,931	1,091,068	543,237	395,300	3,500,000	2,412,700	0.11
9	2029	278,046	1,492,090	914,526	1,635,792	1,185,525	372,118	271,077	3,500,000	2,371,128	0.08
10	2030	256,704	1,288,583	771,949	1,704,235	1,237,987	507,181	374,603	3,500,000	2,384,539	0.07
11	2031	530,138	1,610,040	1,049,170	1,581,146	1,133,046	308,814	214,160	3,500,000	2,396,376	0.15
12	2032	530,138	1,610,040	1,049,170	1,581,146	1,133,046	308,814	214,160	3,500,000	2,396,376	0.15
13	2033	530,138	1,610,040	1,049,170	1,581,146	1,133,046	308,814	214,160	3,500,000	2,396,376	0.15
14	2034	314,834	1,114,945	738,381	2,021,922	1,473,023	363,133	251,597	3,500,000	2,463,001	0.09
15	2035	467,762	1,410,144	899,407	1,899,435	1,368,367	190,420	134,740	3,500,000	2,402,514	0.13
16	2036	467,762	1,410,144	899,407	1,899,435	1,368,367	190,420	134,740	3,500,000	2,402,514	0.13
17	2037	467,762	1,410,144	899,407	1,899,435	1,368,367	190,420	134,740	3,500,000	2,402,514	0.13
18	2038	467,762	1,410,144	899,407	1,899,435	1,368,367	190,420	134,740	3,500,000	2,402,514	0.13
19	2039	467,762	1,410,144	899,407	1,899,435	1,368,367	190,420	134,740	3,500,000	2,402,514	0.13
	TOTAL	7,805,393	24,422,166	15,522,060	28,629,240	20,689,736	6,048,594	4,348,160	59,100,000	40,559,956	0.13

	Year	Chemistry CORICH (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry MGO (%) Ni	Co	Fe	SiO2	MgO	CaO	Chemistry HGO (%) Ni	Co	Fe	SiO2	MgO	CaO
1	2021	0.47	0.03	16.82	14.80	4.93	0.14	1.14	0.06	26.06	18.36	8.51	0.23	1.63	0.03	16.38	20.56	8.92	0.38
2	2022	0.51	0.05	21.57	12.85	4.05	0.11	1.15	0.05	24.61	22.47	8.75	0.33	1.63	0.04	17.18	31.91	13.61	0.44
3	2023	0.52	0.05	22.16	12.64	3.98	0.11	1.15	0.05	24.41	22.38	8.77	0.33	1.63	0.04	17.07	31.62	13.56	0.44
4	2024	0.62	0.06	28.26	12.17	3.85	0.13	1.12	0.09	26.45	23.96	12.33	0.31	1.63	0.03	15.85	33.11	16.00	0.32
5	2025	0.70	0.07	31.39	12.80	3.36	0.20	1.13	0.05	22.35	26.75	11.15	0.49	1.62	0.03	14.57	32.41	15.25	0.36
6	2026	0.74	0.07	32.92	13.71	4.77	0.16	1.16	0.04	18.55	32.00	15.68	0.53	1.62	0.03	15.45	33.27	16.00	0.32
7	2027	0.79	0.07	33.01	15.41	4.99	0.21	1.14	0.05	24.38	27.96	10.32	0.48	1.63	0.04	17.88	29.69	12.38	0.35
8	2028	0.75	0.07	33.23	19.66	5.23	0.23	1.13	0.04	20.53	32.62	11.26	0.45	1.63	0.04	17.09	31.19	12.34	0.43
9	2029	0.72	0.06	31.33	12.27	4.29	0.13	1.12	0.06	25.05	30.23	13.83	0.47	1.62	0.03	13.91	36.30	23.73	0.31
10	2030	0.69	0.06	30.11	11.77	4.06	0.14	1.13	0.06	25.67	29.33	13.61	0.46	1.63	0.03	15.08	34.97	22.34	0.31
11	2031	0.80	0.09	36.80	15.98	5.55	0.18	1.12	0.05	21.59	33.44	13.43	0.50	1.63	0.04	18.91	34.29	13.31	0.61
12	2032	0.80	0.09	36.80	15.98	5.55	0.18	1.12	0.05	21.59	33.44	13.43	0.50	1.63	0.04	18.91	34.29	13.31	0.61
13	2033	0.80	0.09	36.80	15.98	5.55	0.18	1.12	0.05	21.59	33.44	13.43	0.50	1.63	0.04	18.91	34.29	13.31	0.61
14	2034	0.81	0.07	34.46	18.87	5.72	0.17	1.11	0.06	26.54	28.61	11.25	0.34	1.65	0.04	18.47	35.50	15.31	0.60
15	2035	0.81	0.07	33.53	15.02	6.02	0.14	1.12	0.07	27.02	25.02	11.33	0.33	1.52	0.05	21.18	30.52	15.07	0.36
16	2036	0.81	0.07	33.53	15.02	6.02	0.14	1.12	0.07	27.02	25.02	11.33	0.33	1.52	0.05	21.18	30.52	15.07	0.36
17	2037	0.81	0.07	33.53	15.02	6.02	0.14	1.12	0.07	27.02	25.02	11.33	0.33	1.52	0.05	21.18	30.52	15.07	0.36
18	2038	0.81	0.07	33.53	15.02	6.02	0.14	1.12	0.07	27.02	25.02	11.33	0.33	1.52	0.05	21.18	30.52	15.07	0.36
19	2039	0.81	0.07	33.53	15.02	6.02	0.14	1.12	0.07	27.02	25.02	11.33	0.33	1.52	0.05	21.18	30.52	15.07	0.36
	TOTAL	0.75	0.07	32.44	14.89	5.16	0.16	1.13	0.06	24.64	27.97	11.99	0.41	1.61	0.04	17.36	32.47	15.38	0.41

Figure 15.1   Summary Mine Plan and Scheduling by Material Types
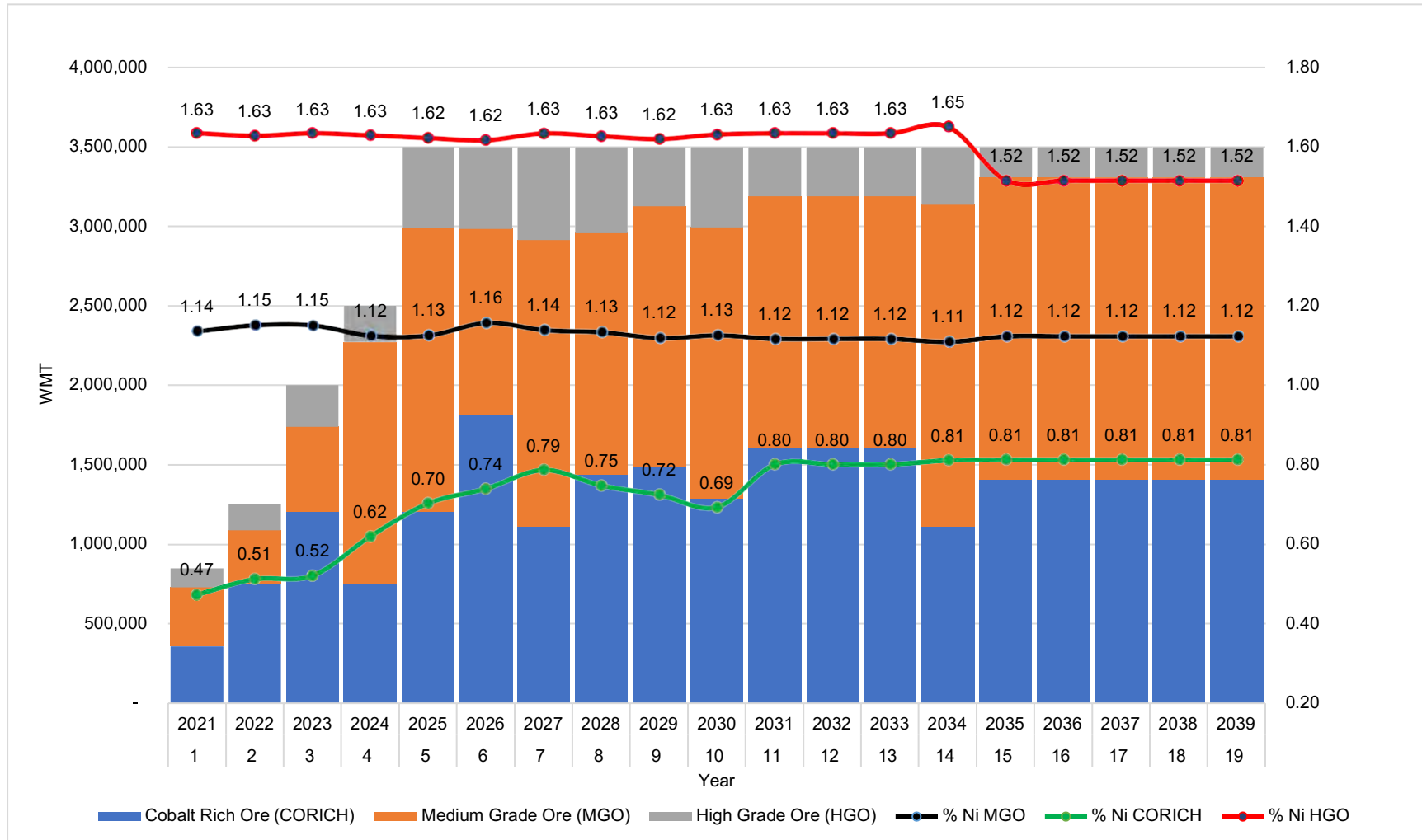
Figure 15.2   Summary Mine Plan and Scheduling by Block
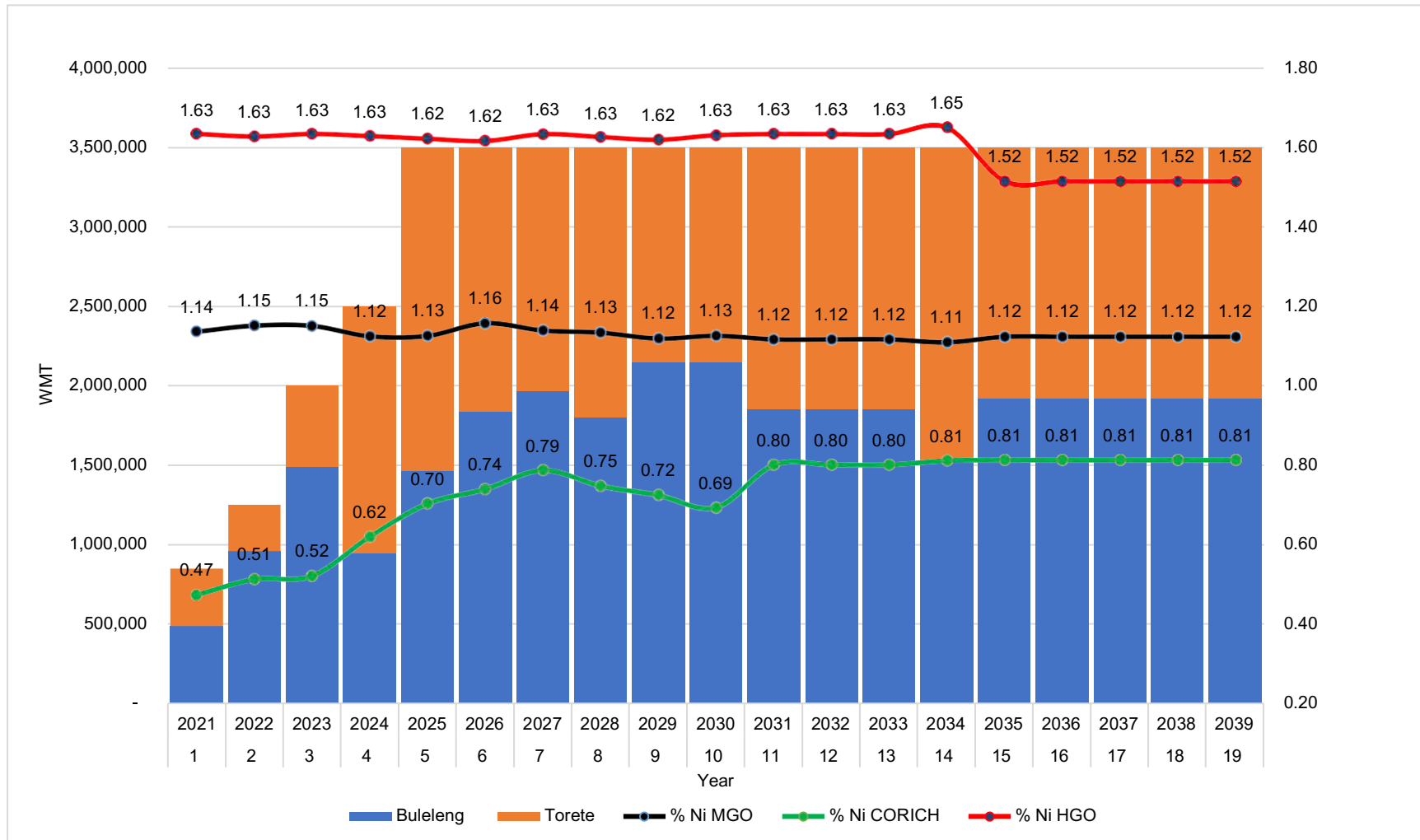
Figure 15.3   Summary Mine Plan and Scheduling by Categories
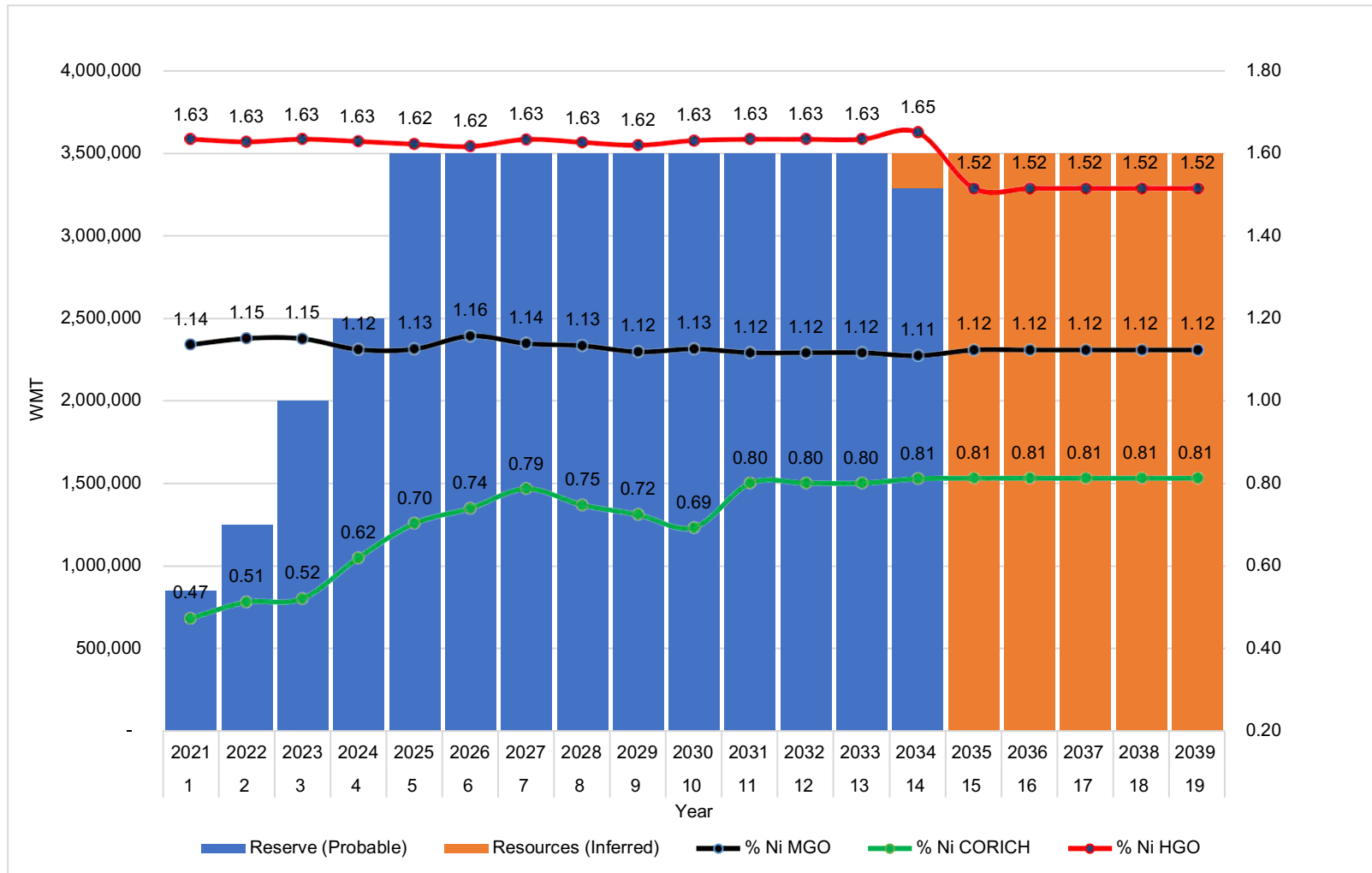
Figure 15.4 Mining Plan Progress Plot (Torete)
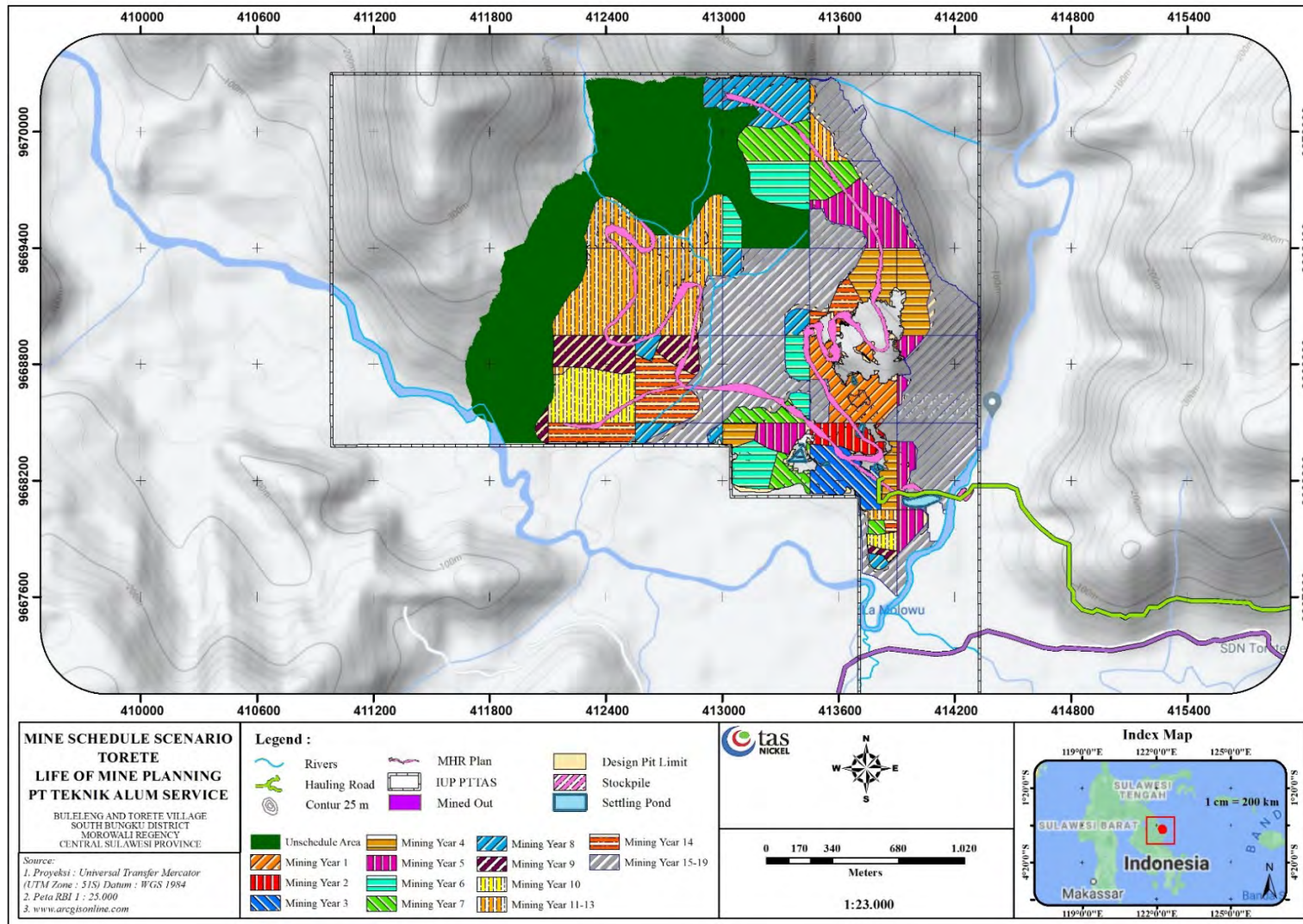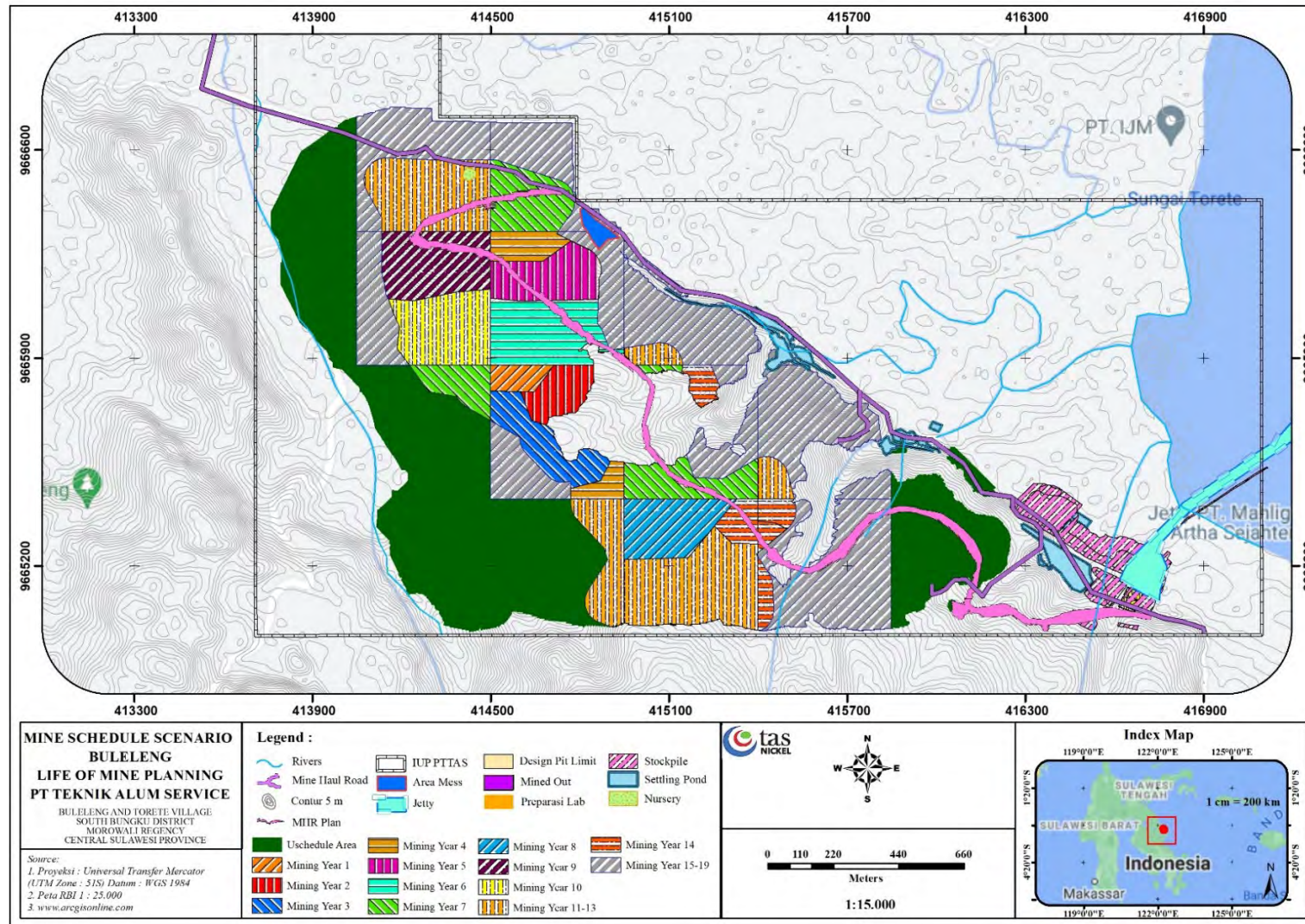
Figure 15.5   Mining Plan Progress Plot (Buleleng)

The steps in developing all iterations of mine scheduling were broadly as follows:

- All schedules utilize the current conventional truck and excavator mining equipment fleet.
- Pit and dump scheduling was conducted based on block model ore locations using a "straight line distance" method. This method calculates the distance from the source block directly to the dump block with an adjustment to compensate for a maximum grade.
- The dump design objectives are to fill the entire waste dump and minimize dumping distance by initially utilizing an out-of-pit dump then in-pit dumping whenever possible. A maximum gradient of 10% was applied to each road segment for the entire haulage route.

15.2. Mine Operation

The mine currently produces high grade saprolite containing up to 1.80% Ni. After an initial box cut to final pit depth, waste is hauled back into the mined-out areas when operational dump space is available and the in pit dump areas. This will further be used as an area for rehabilitation. The open cut operation uses appropriate hydraulic excavators and trucks to mine the ore and waste.

Ores from the Torete and Buleleng pits are transported to ROM ore stockpiles with haul distances between 1 km and 3 km depending on pit source. The ROM is covered with tarpaulins to maintain the moisture, and the blending activities performed prior to re-handling onto the barge for shipment. The mine currently plans to produce up to 100 KT per month in 2021 and increase supply capacity to meet the LOM plan requirements.

Currently, the mining activities are progressing in multiple pits as part of a PT TAS strategy to maintain a consistent product grade. Pits are mined using conventional strip mining methods with push-backs scenario. Strip mining involves mining the ore deposit initially focusing on easily accessible ore near the surface, and then gaining additional ore through successive push-backs on the high wall and footwall. Waste rock is directed to adjacent surface dumps. This mining method derives a lower strip ratio and lower mining costs at the early stage of mining activities.

15.2.1. Torete

The Torete pit is approximately 2.0 km in length by 2.1 km wide. PT TAS has used a pit design with the maximum height about 370 m above sea level. For mine planning purposes, Torete has one main pit shell, with a life of nineteen years based on designated quality and quantity. Mining progresses from the south part of the pit to the north.

15.2.2. Buleleng

The Buleleng pit is approximately 1.7 km in length by 0.9 km wide and PT TAS has used a pit design with maximum elevation about 250 m. The strategy of mining is to prioritize the lowest stripping ratio in the earlier sequence and conduct a selective mining scheme.

15.3. Ore Handling Facilities

The infrastructure currently exist includes:

- Mine haulage roads,
- Waste dumps,
- ROM stockpiles,
- Jetty and barge facilities

The infrastructure and site facilities have been existing in the mine site for the last couple of years. Moreover, these have been utilized since production commenced in 2013. Buleleng and Torete have distinct jetty facilities. At the temporary stockpiles, ore is stockpiled and blended before being loaded

onto 5,000 to 8,000 DWT capacity barges. The ore is then barged and shipped to a domestic smelter. The simplified mining flowchart of PT TAS can be seen in **Figure 15.6.**

Figure 15.6   Simplified Mining Flow Chart of PT TAS
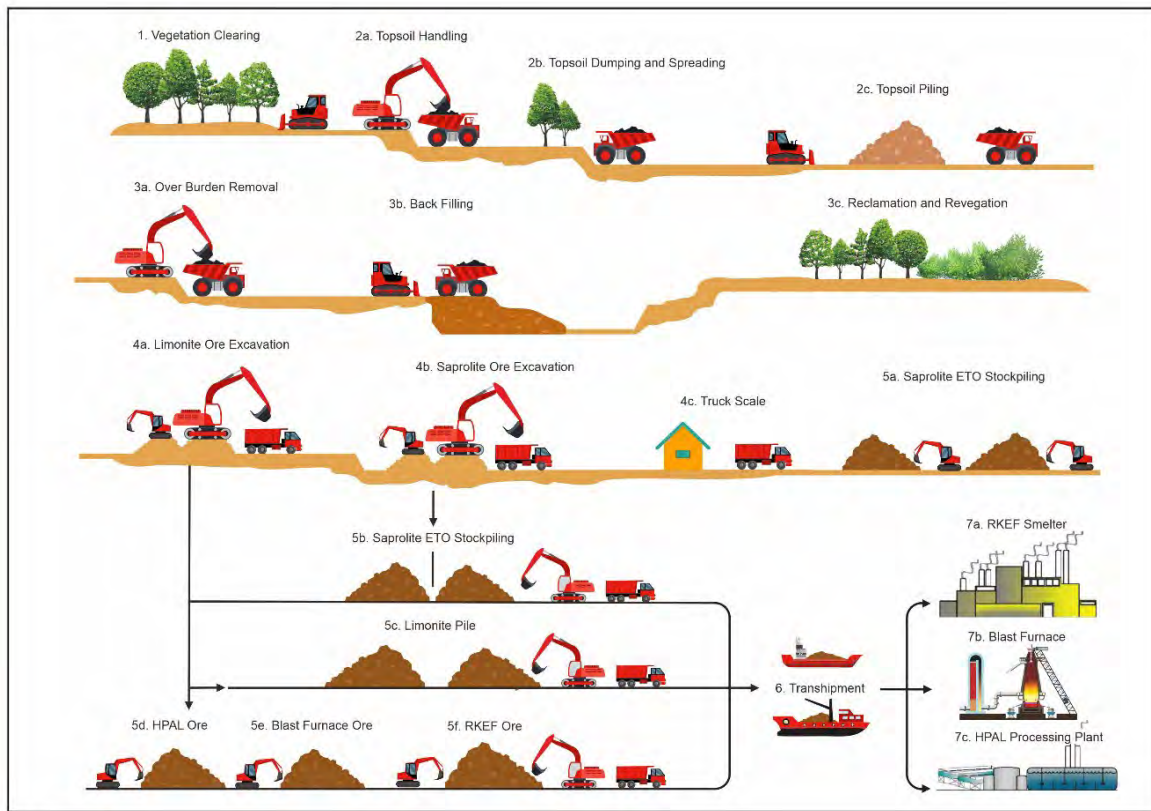
15.4.   Markets

The mine currently produces and sells nickel ore with nickel grade between 1.7 and 1.8%, 15-25% Fe, <2% SiO2/MgO and <35% moisture content.

The ore grade from the mining operations varies, hence blending of ore is necessary to achieve the expected target. To optimize these resources, in accordance with the current market conditions and government regulation, since 2019, PT TAS has been actively looking for opportunities in the domestic market to sell the low-grade saprolite ore and the limonite material for both its nickel content as well as the cobalt.

Nowadays, there are emerging nickel smelter developments in Indonesia especially Rotary Kiln Electric Furnace ("RKEF"), Blast Furnace ("BF"), High Pressure Acid Leach ("HPAL") and Step Temperature Acid Leaching ("STAL"). Those pyro metallurgical and hydrometallurgical smelters widen the opportunity to sell the low grade and medium grade ore from PT TAS.

15.5.   Processing and metallurgical

There are several technologies that are commonly used to process nickel laterite ore. Generally, the technologies are divided into two types: pyro metallurgy that mainly process saprolite ore and hydrometallurgy that mainly process the limonite ore. The most utilized pyro metallurgy includes RKEF, Matte and Blast furnaces. Moreover, the most common hydrometallurgical smelter includes High Pressure Acid leaching, Atmospheric leaching, Pressure Acid Leaching and Heap leach technologies. Some Technologies are available to process both saprolite and limonite ore such as a blast furnace. The recent and emerging technologies can process nickel ore with lower nickel content as part of mineral conservation, such as Step Temperature Acid Leaching. The diagram of the technologies that used to process nickel ore can be seen **in Figure 15.7 and Figure 15.8.**

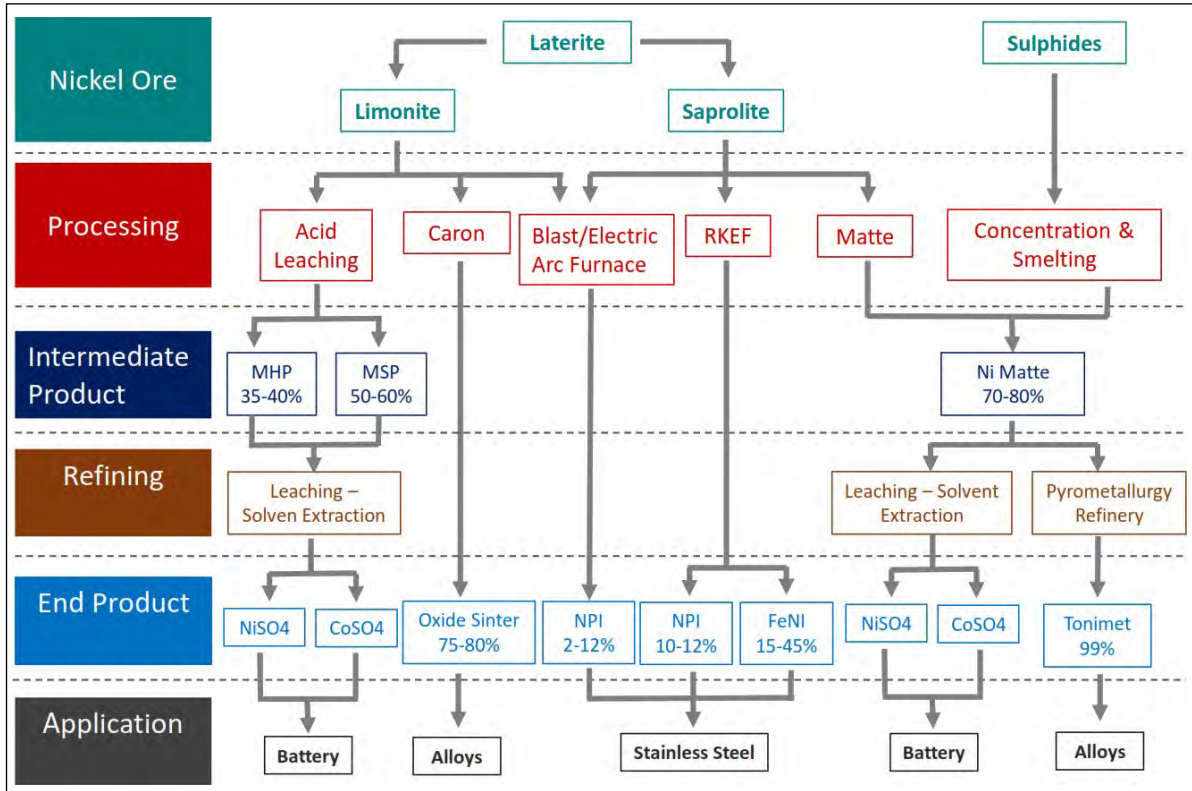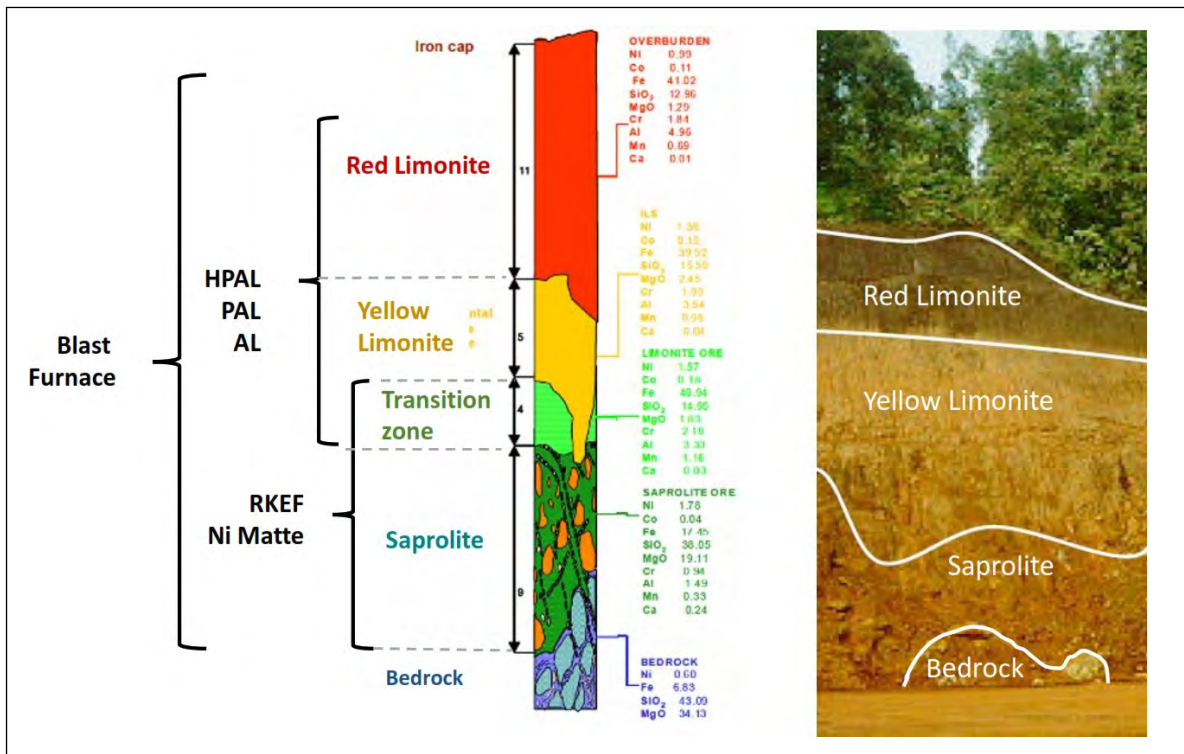**Figure 15.7   Nickel Smelter Technologies to Process Nickel Ore**

Figure 15.8   Nickel Smelter Technologies to Nickel Ore Profile

15.6. Equipment

15.6.1. Diesel Hydraulic Excavator

Diesel hydraulic excavators are very versatile machines due to both their mobility and lack of electric cabling required for operation. Some key advantages of these machines are:

- Ability to dig a variety of materials in a range of conditions,
- Ability to quickly change locations with relative ease,
- Possess good breakout force,
- Can be configured either as a backhoe or as a face shovel,
- Diesel powered, which is a necessity where electricity supply is unavailable or unreliable,

For these reasons, diesel powered hydraulic excavators are the preferred excavators for the mine. They conduct direct loading of ore and waste directly into rigid dump haul trucks for transport to either ROM stockpiles or to waste dumps.

15.6.2. Supporting Equipment

Supporting equipment for the mine includes:

- Small excavators/trucks for topsoil removal,
- Dozers, front end loaders, and graders for clean up in the mine and for road construction and maintenance,
- Water trucks for dust control in the operations,
- Lighting plants for night-time operations,
- Buses and light vehicles for personnel transport,
- Diesel and electric pumps to remove groundwater and rainwater,
- Service vehicles to service the mining equipment in the pit.

15.7. Overburden and Waste Mining

A combination of strip mining and back-hauling is used in both sites. In general, strip mining allows the greater amount of ore to be recovered at a lower stripping ratio. Mining of the ore and overburden will progress using benching of the pit. Waste will be hauled and placed into an out-of-pit dumps, initially. An in pit dump waste management will be progressed when the in pit dumps which are the mined out areas are available.

Back hauling mining progresses from one pit to the other. The terminology refers to overburden being 'hauled back' from the mining face to in-pit dumps. Initially, a box cut is established in an area where the strip mining has been completed. This method will reduce the overburden haulage cost due to shorter hauling distances.

15.8. Blasting

The waste rock types include topsoil, clay, peridotite or ultramafic as a basement. Topsoil, clay material can be classified as soft material and can be removed using a free digging methodologies without blasting. The ore does not require blasting as it is also soft material with small fragmented rock.

15.9. Infrastructures

Several on site infrastructures have been in place such as an office, mess and facilities, dormitories, workshops, laboratory and storage rooms. **Figure 15.9 to Figure 15.12** depict some of these on site infrastructures.

Figure 15.9   Dormitories & Mess Area
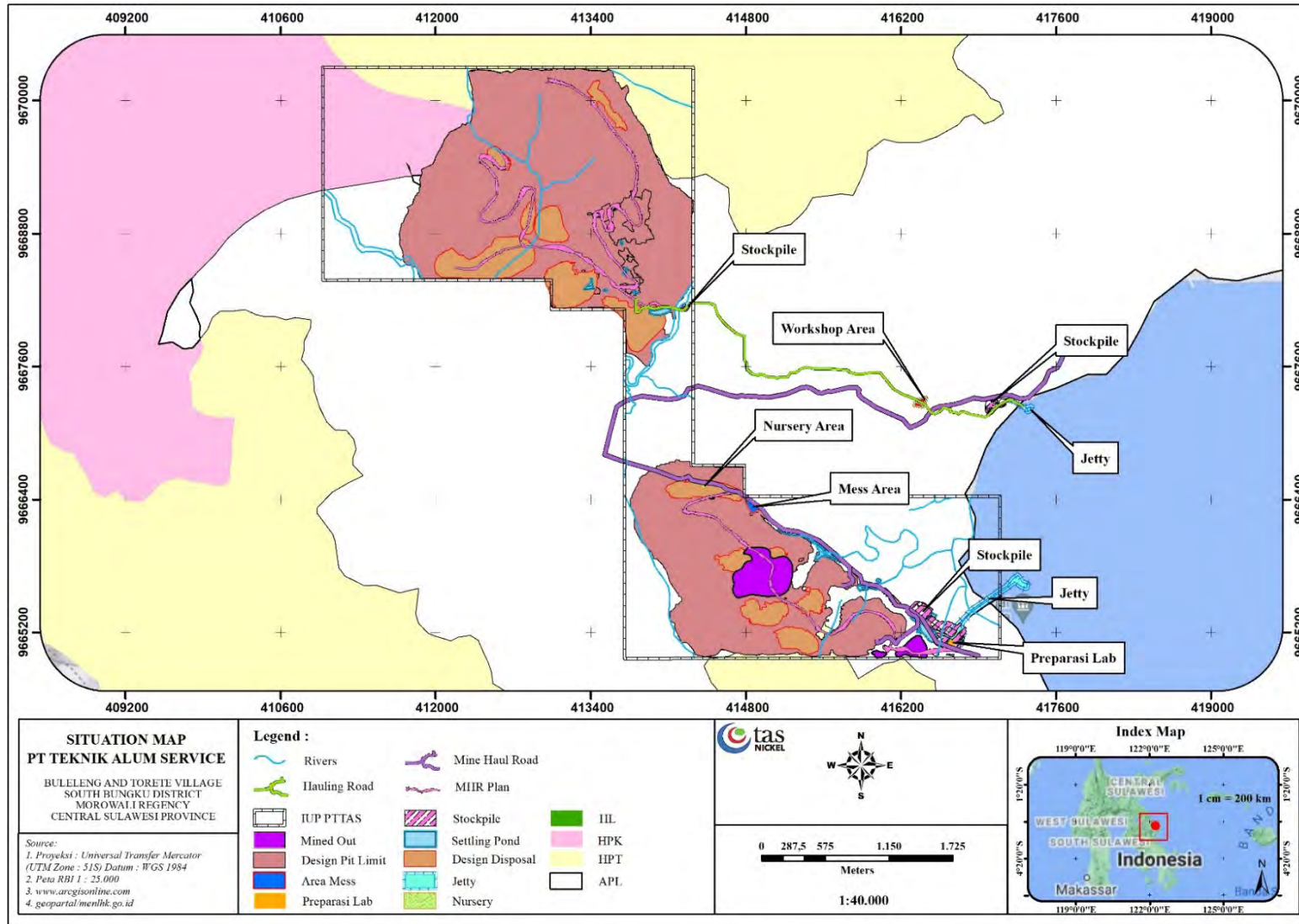

Figure 15.10 On Site Sample Preparation Facilities

Samples sorted and checked

Wet weighing

Drying 12hrs 105°C – Dry weighing

Jaw crusher for material +6 inch

Roll crusher to get material -3 mm

Pulverizing to get material -200 mesh

Figure 15.11 On Site Laboratory & Offices

Figure 15.12 Dormitories, Mess and Infrastructures Location

15.10. Services

The mine site utilized the electric power supplied by the national grid. There is also storage of domestic water supply as well as the diesel fuel in order to supply reliability. The mine site has various communication devices such as walkie-talkies and radios for its personnel.

15.11. Use of Contractors

PT TAS has employed local contractors and PowerChina during the past couple of years to perform mining activities. The main consideration to employ contractors include:

- Reduce the operating risk,
- Minimize direct capital expenditure
- Larger supply capacity capabilities

15.12. Health and safety

PT TAS is committed to operating a safe work place and eliminating accidents and has developed safety and health initiatives aimed at developing occupational safety and health programs such as better protection against waste treatment, medically transmitted and non-infectious diseases. The directors of PT TAS have advised PT GAS that the company is fully compliant with all relevant legislation.

15.13. Social and Community

PT TAS engages the community around the mine to work at the mine site. Mining activities have changed the traditional use of land in the communities surrounding the Buleleng and Torete villages, from agricultural, plantation and other business activities to nickel mining. PT TAS has developed social economic, and community-based jobs and new business opportunities related to mining activities both directly and indirectly.

15.14. Compliance with Environmental Requirements

PT TAS conducts an overall evaluation of the disturbed environment due to activities such as mining, road construction, stockpile making, jetty construction. Indicator items that are routinely monitored are dust and noise, changes in landscape, water and spring quality, aquatic biota, flora and fauna, and community perceptions around the mine. The directors of PT TAS have advised PT GAS that the company is fully compliant with all relevant legislation.

16. REVENUE AND COST FACTORS

16.1. General

PT TAS has provided revenue, capital and operating cost estimates associated with the production schedule supported by the resources and reserves. The mine currently operates through a combination of PT TAS mining operations as well as a mining contractor.

Mine Scheduling:

The pit areas and associated waste dumps were scheduled to achieve the targeted ROM production tonnages for each year of the mine plan.

Capital Costs:

The capital costs forecasted are based on production targets and for mine developments including future exploration/drilling programmes, infrastructure maintenance, and machinery equipments. The capital costs will be depreciated using a straight-line depreciation method.

Revenues:

The revenues are estimated based on the nickel content in the product sold. The current contract and forecasted selling prices are estimated based on Indonesia's Ministry of Energy and Mineral Resources ("ESDM") Harga Patokan Mineral ("HPM") benchmark pricing. Prices are estimated and quoted on FOB Mother Vessel and in US$/t.

Operating Costs:

The operating costs reflect the sum of each major cost component for every year of the production schedule. The total operating costs are expressed in US$/t.

16.2. Capital Costs

The Concession is currently an operating open-pit mine and only requires sustaining capital to maintain the equipment and supporting infrastructure necessary to continue operations until the end of the projected production schedule. The estimate of capital is divided into the following main areas:

1. Drilling Capex,
2. Maintenance Capex,
3. Infrastructure, Office & Lab Capex,
4. Pit Closure Cost,
5. Vehicles Capex,
6. Working Capital.

The capital cost estimates developed for this study includes the costs associated with the overall maintenance and development of the mine site. PT TAS has projected US$ 400,000 in capital costs bi-annually.

Table 16.1 Summarizes the bi-annual capital costs estimate.

Table 16.1   Bi-Annual capital costs budget

No	Description	US$
1	Drilling Capex	75,000
2	Maintenance Capex	75,000
3	Infrastructure, Office & Lab Capex	100,000
4	Pit Closure Cost	100,000
5	Vehicles Capex	50,000
	Total	**400,000**

Source: PT TAS Company Forecast

16.3. Operating Cost

The operating cost estimated for the Concession includes all expenses incurred to operate the mine. The major operating cost includes direct cost, overhead, transportation other cost, and administrative expenses. **Table 16.2** provides the operating cost breakdown.

Table 16.2   Operating Cost Breakdown

Cost Item / Area	Average (US$/t mined)	OPEX (%)
Direct Material Cost	$3.6	20.77%
Fixed Overhead Cost	$2.7	15.52%
Variable Overhead Cost	$0.2	1.11%
Transportation Cost	$6.7	38.76%
Royalty Cost (10%)	$3.2	18.43%
Administrative Expenses	$0.9	5.42%
Total	**$17.3**	**100%**

Source: PT TAS Company Forecast

Other operating costs include a current effective corporate income tax rate of 22% and the payment of a 10% governmental royalty on all nickel ore sales.

16.4. Revenue

PT TAS currently has a supply agreement for the sale of its products to PT Ekasa Yad Resources, a company within the Tsingshan Group. Prices of nickel ore have been based on current market rates and estimations done by PT TAS. All pricing estimates are based on FOB rates.

The nickel prices are based on an average annual nickel production target provided by PT TAS. The LOM revenue components are summarized in **Table 16.3.**

Table 16.3   Average Schedule Nickel Price

Description	Units	Value
Product Tones		
- Local Sales - Ni > 1.40%	Mt	6.05
- Smelter Sales - 1.0% ≤ Ni < 1.4%	Mt	28.63
- Other Sales - Ni ≥ 0.70%	Mt	24.42
Grade Average		
- Local Sales Saprolite - Ni > 1.40%	%Ni	1.61
- Smelter Sales - 1.0% ≤ Ni < 1.4%	%Ni	1.13
- Other Sales - Co ≥ 0.06%	%Ni	0.75
Nickel Ore Price		
- Local Sales - Ni > 1.40%	US$/WMT	38
- Smelter Sales - 1.0% ≤ Ni < 1.4%	US$/WMT	20
- Other Sales - Ni ≥ 0.70%	US$/WMT	15

Source: PT TAS Company Forecast

16.5. Marketing Factors

PT TAS is located close to the Indonesia Morowali Industrial Park ("IMIP") and is a key supplier of ore to Tsingshan. PT TAS is also exploring contracts with other smelters within the IMIP such as Huayou Cobalt for limonite ore offtake to be used in their HPAL plant commissioning end 2021.

These assumptions provided by PT TAS are reasonable and PT GAS does not see any difficulties marketing the ore to domestic customers in the coming years as the nickel and cobalt industry in Indonesia develops rapidly in both the NPI/Ferronickel and Electric Vehicles industries.

16.6. Economic Feasibility of Concession

PT GAS has assessed the reasonableness of the revenue and cost factors, the economic feasibility of selling the ore is more compelling given the rapid nickel developments in Indonesia which will generate a long-term positive NPV based on PT TAS's forecast.

16.6.1. Forward-looking Information

The results of the economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented within this report. Forward- looking statements in this report include, but are not limited to, statements with respect to future ore prices, the estimation of the Ore Reserves and Mineral Resources, the realization of Ore Reserve estimates, unexpected variations in quantity of mineralized material, grade or recovery rates, geotechnical and hydrogeological factors, unexpected variations in geotechnical and hydrogeological assumptions used in mine designs including seismic events and water management during the construction, operations, closure, and post-closure periods, the timing and amount of estimated future production, costs of future production, capital expenditures, future operating costs, costs and timing of the development of new ore zones, success of exploration activities, permitting timelines and potential delays in the issuance of permits, currency exchange rate fluctuations, requirements for additional capital, failure of plant, equipment or processes to operate as anticipated, government regulation of

mining operations, environmental, permitting and social risks, unrecognized environmental, permitting and social risks, closure costs and closure requirements, unanticipated reclamation expenses, title disputes or claims and limitations on insurance coverage.

16.6.2. Methodology Used

The Concession has been evaluated using a discounted cash flow ("DCF") analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of capital expenditures, operating costs, taxes and royalties. These are subtracted from the inflows to arrive at the annual cash flow projections.

To reflect the time value of money, annual free cash flow ("FCF") projections are discounted back to the Project valuation date using a selected discount rate. The discount rate appropriate to a specific project depends on many factors, including the type of commodity and the level of project risks (e.g. market risk, technical risk and political risk). The discounted present values of the cash flows are summed to arrive at the Concession's net present value ("NPV"). The major inputs and assumptions used for the development of the financial model are listed in **Table 16.5.**

Table 16.4   Execution Plan

Execution Plan	
Mine Life	19 years
LOM Ore Tones High Grade Saprolite (MWMT)	6.05
LOM Ore Tones Medium Grade Saprolite (MWMT)	28.63
LOM Ore Tones Limonite (MWMT)	24.42
Total Average LOM Nickel High Grade Saprolite (%)	1.63
Total Average LOM Nickel Medium Grade Saprolite (%)	1.13
Total Average LOM Nickel Grade Limonite (%)	0.75
	3.11
Nickel Orel Pricing	
Local Sales – High Grade Saprolite	US$ 38.00/t
Local Sales – Medium Grade Saprolite	US$ 20.00/t
Other Sales – Limonite	US$ 15.00/t
Cost and Tax Criteria	
Estimate Basis	Q3 2021
Inflation	3.5 %
	Indonesia, Corporate
Royalties	
Royalty on Local Sales	10 %
Payable Terms	
Nickel ore	100 %

16.6.3. Key Assumptions and Basis

The economic analysis was performed using the following assumptions and basis:

- The conceptual mine plan developed in Section 13 provided the following inputs to the financial model: mine life, annual ore and waste tons mined;

- The financial model applies ore pricing set out in Table 14-6, which was estimated on the basis of discussions with PT TAS. It is understood that nickel ore prices can be volatile and that there is the potential for deviation from the LOM forecasts;

- All cost and sales estimates are in constant Q3 2021 US$ with a 3.5% yearly inflation taken into account;

- All Concession related payments and disbursements incurred prior to the effective date of this report are considered as sunk costs.

- The model applies 10.0% royalties on all ore sales revenue across the life of the mine.

- Concession revenue is derived from the sale of nickel ore into the local Indonesian marketplace. Although PT TAS has a Letter of Interest, there is no contractual arrangement for "Other sales" at this time. Provisions for nickel ore transportation and payable charges have been included in the financial model.

Key Assumptions – Nickel Ore Price

PT TAS currently has a supply agreement for the sale of its products to PT Ekasa Yad Resources, a company within the Tsingshan Group. Prices of nickel ore have been based on current market rates and estimations done by PT TAS. All pricing estimates are based on FOB rates. **Table 16.6** presents the prices used in the cash flow model.

Table 16.5   Nickel Ore Pricing

Nickel Ore	Unit	Price
High Grade Saprolite Ore	US$/t	38.00
Medium Grade Saprolite Ore	US$/t	20.00
Limonite Ore	US$/t	15.00

Key Assumptions – Nickel Ore Price

PT TAS currently has a supply agreement for the sale of its products to PT Ekasa Yad Resources, a company within the Tsingshan Group. Prices of nickel ore have been based on current market rates and estimations done by PT TAS. All pricing estimates are based on FOB rates. **Table 16.6** presents the prices used in the cash flow model.

Key Assumptions – Cost of Goods Sold

These assumptions are detailed below. Prices for consumables, labor, fuel, rent, transportation, etc. were derived from historical PT TAS costs to forecast capital and operating costs. Mining contractor costs were based on Power China contracts. These costs are summarized in **Tables 16.7, Table 16.8 and Table 16.9.**

Table 16.6   Variable Costs Estimates

Variable Costs		Price
Incentive	US$/t	0.13

Table 16.7   Fixed Costs Estimates

Fixed Costs Estimate - FY2021		Price
Consumptions (Meals)	US$	70,000
CSR	US$	250,000
Repair and Maintainence - Local	US$	150,000
Rental of Equipment	US$	2,500,000
Laboratory & Analysis	US$	200,000
Land Compensation	US$	150,000
Rehabilitation	US$	150,000
Depreciation	US$	700,000
Amort Mining Properties	US$	100,000

Table 16.8   Other Variable Costs Estimates

Other Variable Costs		Price
Fuel	US$/t	0.89
Salary Site	US$/t	0.25
Contractor Fee	US$/t	1.54

Key Assumptions – Taxes, Royalties and Other Interests

The analysis of the Concession includes an effective corporate income tax rate total of 22% from FY2021 to FY2039.

The Concession includes the payment of a 10% governmental royalty on all nickel ore sales. Inflation is kept constant at 3.50% throughout the entire DCF model.

16.7.   Financial Analysis

The DCF analysis of the Concession indicates that the Free Cash Flow to Firm NPV is approximately US$ 197.41 million. The NPV has been derived using a weighted average cost of capital ("WACC") of 13.5% based on PT TAS management estimate.

The operation is projected to have no negative cash flow periods. The annual free cash flow profile of the Project is presented in **Table 16.11 and Table 16.12**.

Summary of financial evaluation for PT TAS can be seen in Table 16.10 below.

Table 16.9 Financial Evaluation summary

Economic Parameter	Units	DCF Result	Remark
Net Present Value (NPV) @ 13.5% WACC	US$ million	197.41	Accepted
Internal Rate of Return (IRR)	%	-	No negative cash flow
Pay Back Period (PBP)	Year	-	No negative cash flow

Based on this analysis, the Concession is economically feasible as NPV > 0.

The competent person (Ore Reserves) has reviewed the financial model and considers that it is realistic, achievable and fit-for-purpose.

Table 16.10 Annual Free Cash Flow Profile

CASHFLOW STATEMENT (USD)	1 FY2021 Forecast	2 FY2022 Forecast	3 FY2023 Forecast	4 FY2024 Forecast	5 FY2025 Forecast	6 FY2026 Forecast	7 FY2027 Forecast	8 FY2028 Forecast	9 FY2029 Forecast	10 FY2030 Forecast
Cashflow from Operations										
EBITDA	10,199,801	12,828,091	24,156,169	47,483,574	67,326,172	27,894,270	27,783,953	26,991,671	27,666,845	29,915,188
Add: Depreciation	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
Less: Tax cost	(2,243,956)	(2,822,180)	(5,314,357)	(10,446,386)	(14,811,758)	(6,136,739)	(6,112,470)	(5,938,168)	(6,086,706)	(6,581,341)
Less: Indonesia tax	-	-	(75,000)	(75,000)	(75,000)	(75,000)	(75,000)	(75,000)	(75,000)	(75,000)
Accounts receivable	(1,979,116)	(2,560,425)	(4,249,291)	(7,074,602)	(9,929,998)	(6,391,751)	(6,509,615)	(6,568,709)	(6,768,710)	(7,119,598)
Accounts payable	1,936,347	2,654,835	4,157,912	5,960,949	8,396,549	7,788,146	8,027,660	8,261,233	8,534,876	8,851,152
Total Cashflow from Operations	**8,613,076**	**10,800,321**	**19,375,433**	**36,548,535**	**51,605,965**	**23,778,926**	**23,814,528**	**23,371,027**	**23,971,305**	**25,690,400**
Cashflow from Investing										
Drilling Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-
Maintainence Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-
Infrastructure, Office & Lab Capex	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-
Pit Open/Closure Cost	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-
Vehicles Capex	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-
Total Cashflow from Investing	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**-**
Cashflow from Financing										
Repayment of Loans	-	-	-	-	-	-	-	-	-	-
Repayment of Loan Interest	-	-	-	-	-	-	-	-	-	-
Total Cashflow from Financing	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Beginning cash for each month	-	8,213,076	19,013,397	37,988,830	74,537,365	125,743,330	149,522,256	172,936,784	196,307,811	219,879,116
Net cashflow for each month	8,213,076	10,800,321	18,975,433	36,548,535	51,205,965	23,778,926	23,414,528	23,371,027	23,571,305	25,690,400
End Cash flow at end of month	**8,213,076**	**19,013,397**	**37,988,830**	**74,537,365**	**125,743,330**	**149,522,256**	**172,936,784**	**196,307,811**	**219,879,116**	**245,569,516**

FREE CASHFLOW STATEMENT (USD)	1 FY2021 Forecast	2 FY2022 Forecast	3 FY2023 Forecast	4 FY2024 Forecast	5 FY2025 Forecast	6 FY2026 Forecast	7 FY2027 Forecast	8 FY2028 Forecast	9 FY2029 Forecast	10 FY2030 Forecast
FCFF										
EBIT	10,199,801	12,828,091	24,156,169	47,483,574	67,326,172	27,894,270	27,783,953	26,991,671	27,666,845	29,915,188
Less: Tax Cost	(2,243,956)	(2,822,180)	(5,314,357)	(10,446,386)	(14,811,758)	(6,136,739)	(6,112,470)	(5,938,168)	(6,086,706)	(6,581,341)
Depreciation & Amortization	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000
Drilling Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-
Maintainence Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-
Infrastructure, Office & Lab Capex	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-
Pit Closure Cost	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-
Vehicles Capex	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-
Decrease / (Increase) in working capital	(42,769)	94,410	(91,379)	(1,113,653)	(1,533,449)	1,396,395	1,518,045	1,692,524	1,766,166	1,731,554
FCFF	**8,313,076**	**10,900,321**	**19,150,433**	**36,723,535**	**51,380,965**	**23,953,926**	**23,589,528**	**23,546,027**	**23,746,305**	**25,865,400**
Discount Factor	**1.00**	**0.94**	**0.83**	**0.73**	**0.64**	**0.57**	**0.50**	**0.44**	**0.39**	**0.34**
PV of Discounted Cashflows	8,313,076	10,231,548	15,837,433	26,758,072	32,985,019	13,548,628	11,755,525	10,338,191	9,186,014	8,815,651

WACC	%	13.5%
NPV (Middle-Period) @ 13.5%	**US$**	**197,411,917**

**Table 16.11 Annual Free Cash Flow Profile (Continue)**

CASHFLOW STATEMENT (USD)	11 FY2031 Forecast	12 FY2032 Forecast	13 FY2033 Forecast	14 FY2034 Forecast	15 FY2035 Forecast	16 FY2036 Forecast	17 FY2037 Forecast	18 FY2038 Forecast	19 FY2039 Forecast	Total Forecast
Cashflow from Operations										
EBITDA	29,007,913	30,075,690	31,180,840	35,751,504	34,940,547	36,215,966	37,536,024	38,902,285	40,316,365	616,172,868
Add: Depreciation	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	13,300,000
Less: Tax cost	(6,381,741)	(6,616,652)	(6,859,785)	(7,865,331)	(7,686,920)	(7,967,512)	(8,257,925)	(8,558,503)	(8,869,600)	(135,558,031)
Less: Indonesia tax	(75,000)	(74,999)	(74,998)	(74,997)	(74,996)	(74,995)	(74,994)	(74,993)	(74,992)	(1,274,964)
Accounts receivable	(7,182,437)	(7,433,822)	(7,694,006)	(8,281,504)	(8,374,985)	(8,668,110)	(8,971,493)	(9,285,496)	(9,610,488)	(134,654,156)
Accounts payable	9,109,503	9,419,705	9,740,765	10,146,163	10,447,536	10,804,570	11,174,100	11,556,563	11,952,413	158,920,978
Total Cashflow from Operations	**25,178,239**	**26,069,923**	**26,992,816**	**30,375,835**	**29,951,182**	**31,009,919**	**32,105,712**	**33,239,857**	**34,413,698**	**516,906,695**
Cashflow from Investing										
Drilling Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	(750,000)
Maintainence Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	(750,000)
Infrastructure, Office & Lab Capex	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	(1,000,000)
Pit Open/Closure Cost	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	(1,000,000)
Vehicles Capex	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	(500,000)
Total Cashflow from Investing	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**-**	**(400,000)**	**(4,000,000)**
Cashflow from Financing										
Repayment of Loans	-	-								-
Repayment of Loan Interest	-	-								-
Total Cashflow from Financing	**-**	**-**								**-**
Beginning cash for each month	245,569,516	270,347,755	296,417,678	323,010,494	353,386,328	382,937,510	413,947,429	445,653,140	478,892,997	-
Net cashflow for each month	24,778,239	26,069,923	26,592,816	30,375,835	29,551,182	31,009,919	31,705,712	33,239,857	34,013,698	512,906,695
End Cash flow at end of month	**270,347,755**	**296,417,678**	**323,010,494**	**353,386,328**	**382,937,510**	**413,947,429**	**445,653,140**	**478,892,997**	**512,906,695**	**512,906,695**

FREE CASHFLOW STATEMENT (USD)	11 FY2031 Forecast	12 FY2032 Forecast	13 FY2033 Forecast	14 FY2034 Forecast	15 FY2035 Forecast	16 FY2036 Forecast	17 FY2037 Forecast	18 FY2038 Forecast	19 FY2039 Forecast	Total Forecast
FCFF										
EBIT	29,007,913	30,075,690	31,180,840	35,751,504	34,940,547	36,215,966	37,536,024	38,902,285	40,316,365	616,172,868
Less: Tax Cost	(6,381,741)	(6,616,652)	(6,859,785)	(7,865,331)	(7,686,920)	(7,967,512)	(8,257,925)	(8,558,503)	(8,869,600)	(135,558,031)
Depreciation & Amortization	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	15,200,000
Drilling Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	(750,000)
Maintainence Capex	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	-	(75,000)	(750,000)
Infrastructure, Office & Lab Capex	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	(1,000,000)
Pit Closure Cost	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	-	(100,000)	(1,000,000)
Vehicles Capex	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	-	(50,000)	(500,000)
Decrease / (Increase) in working capital	1,927,066	1,985,883	2,046,759	1,864,659	2,072,551	2,136,460	2,202,606	2,271,068	2,341,925	24,266,822
FCFF	**24,953,239**	**26,244,922**	**26,767,814**	**30,550,832**	**29,726,178**	**31,184,914**	**31,880,706**	**33,414,850**	**34,188,690**	**516,081,659**
Discount Factor	0.30	0.26	0.23	0.21	0.18	0.16	0.14	0.12	0.11	
PV of Discounted Cashflows	7,493,181	6,943,665	6,239,654	6,274,437	5,378,918	4,971,696	4,478,082	4,135,307	3,727,820	**197,411,917**

16.8. Sensitivity Study

Sensitivity analysis is conducted to investigate how sensitive the cash flow model is to the key input parameters. During the sensitivity analysis, the parameters are considered independent from each other as only one parameter is changed at a time, with all other values kept constant.

The NPV sensitivity compares against capital expenditures, discount rate, SG&A expenses, ore prices, and cost of goods sold ("COGS"). Results show that the nickel ore price is the most sensitive factor, followed by COGS and discount rate **(Figure 16.3).**

Figure 16.1.   Sensitivity Graph
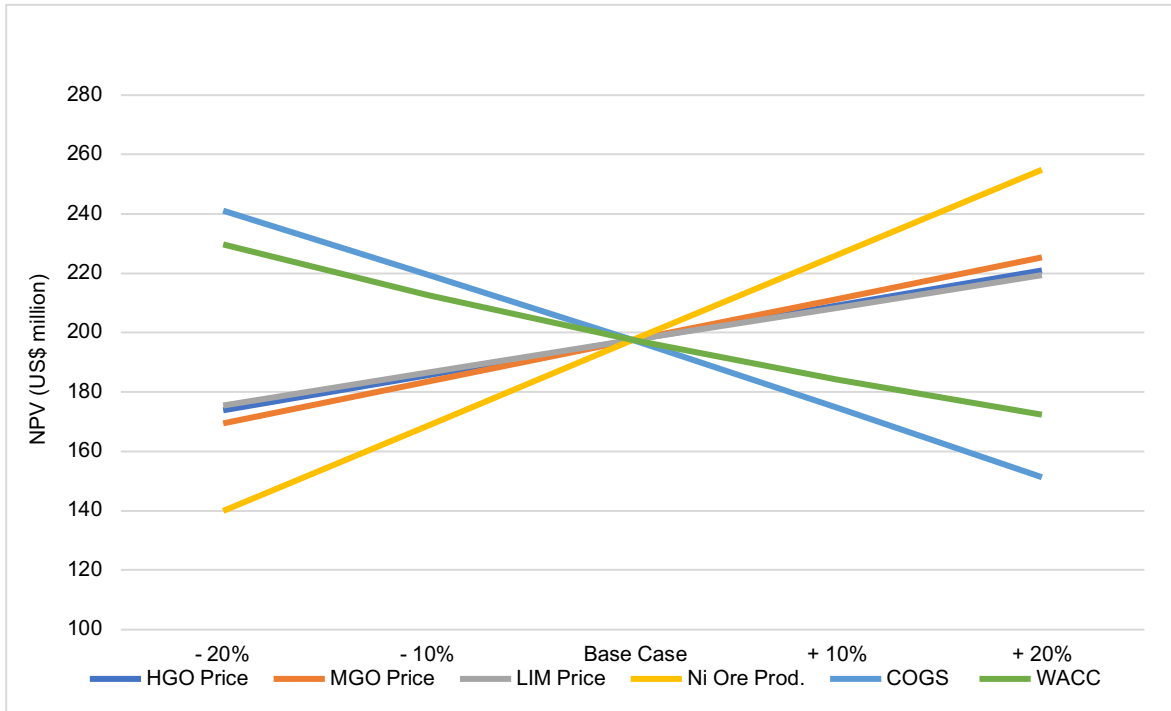
17.   MINE RISKS AND OPPORTUNITY ASSESSMENT

A list of key risks and opportunities for this Concession has been compiled, based on discussions with PT TAS personnel, observations made during the site visits, documentation provided, knowledge of the operations and the various issues associated with similar operations in Indonesia. These can be classified into the following categories.

17.1.   Significant depletion rates

At the moment, PT TAS currently sells high grade saprolite ore (around 1.80% Ni). The reserve statement has a relatively low cut-off grade and PT TAS will need to secure contracts for the cobalt-rich limonite ore to maintain the level of mineral reserves as per the mineral resources and reserves statement.

17.2.   Processing and Metallurgical Risk

PT TAS has to sign formal documents such as memorandum of understanding (MOU), contract documents with domestic buyers, traders, or smelter operators (RKEF and/or HPAL) in order to strengthen the revenue and cost assumptions in this report.

17.3.   Government Regulatory Changes

Starting from January 2020, the Government of Indonesian has changed the regulatory for export of nickel laterite raw materials. The raw material export relaxation has been banned. The mitigation strategy of PT TAS is to build a smelter or to look for a partnership in order to process the ore and to be comply to the recent regulations.

17.4.   Water Management

A detailed Water Management Plan should be developed to address all water issues known to be encountered, including rainfall events and groundwater issues. Detailed engineering design and assessment will also be needed for any diversion or drainage system, sediments ponds etc.

The Water Management Plan must also consider the management of sediment and treatment of water from dumps located around the current concession.

17.5.   Production Ramp-Up

The planned mining production profile shows an increase in the planned waste removal and ore extraction requirements. PT GAS considers that this will require close monitoring and management of production performance to ensure targets are met.

17.6.   Mining Equipment Selection

The productivity of the selected contractor equipment fleet has some room for improvement. With the ramp up in waste material required to be relocated the opportunity to manage the contractor fleets should be sufficient to manage the waste and distance. Mitigation measures include bringing in separate contracting ability.

17.7.   Technical Skills and Personnel

As with most mining operations in Indonesia, one of PT TAS's key risks will be the recruiting and retaining of key technical and site management/supervisory personnel. There is a general shortage of experienced technical people in Indonesia, who are necessary to ensure that the operations are controlled and planned correctly. This issue would also extend to any contractor PT TAS engages if that option is taken.

17.8. Environment

The key environmental risk that the Concession faces is a failure to comply with regulations due to inadequate planning, procedures and control measures. The primary concern is that the water management system will be incapable of adequately containing and removing any water inflows or run-offs, which may also have a detrimental effect on the geotechnical stability of the pits.

17.9. Potential Impact of Natural Disasters (Earthquakes and Tsunamis)

Central Sulawesi is in an area at risk from the effects of natural disasters such as earthquakes and tsunamis. There can be no assurance that natural disasters will not occur and result in major damage to the Concession or the supporting infrastructure facilities in the vicinity, which could adversely affect the business. Prolonged disruption of nickel production operations as a result of a natural disaster may also result in customers terminating their contracts. PT TAS should explore the possibility of insuring equipment to salvage some value in the event of a natural disaster, and prepare and install evacuation plans and processes to keep employees safe.

17.10. Operating Costs

Generally, there are several risks and opportunities with regards to the operating costs expected for the Concession. However, with the fixed cost mining contract scenario with Power China, PT TAS has mitigated the potential risk of a substantial increase in cost.

Other items that could affect future operating costs include:

- Fuel prices;
- Waste and ore haul distances;
- Labour costs (will be driven by market forces); and
- Equipment productivities.

17.11. Sustaining Capital Costs

Sustaining capital costs that are planned for the Concession area are limited to routine activities. The capital costs assumed in this report are not based on detailed designs. It is expected that PT TAS will conduct its own detailed investigation into the engineering design and full costing of any planned capital investment.

17.12. Nickel Price

The nickel price has been quite volatile in the last three years and is expected to continue to be volatile in the near future and in the long-term. This volatility leads to both a risk (if there is a significant price decline), and an opportunity if the prices rise significantly.

18. CONCLUSION AND RECOMMENDATIONS

18.1. Mineral Resources

The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 50 m by 50 m and 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources.

There are large areas of the Concession defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited bulk density and moisture determinations. Part of the Measured area is part of the Indicated Area with higher level of confidence based on the actual mining conditions that have been carried out.

The Mineral Resource has been constrained by a boundary around the periphery of the drill holes at a distance approximately half the adjacent drill spacing or less. The Mineral Resource has also been constrained by the license boundary. The Mineral Resource has been reported on a wet in-situ basis.

PT GAS recommends the Client increase the number and spread of bulk density and moisture determinations from drill core and test pit samples. A large number of determinations spread geospatially across the Concession area and from all material types would enable higher confidence in the estimation of the bulk density and moisture content. This would allow for improved reconciliation with production data and improve confidence in the Mineral Resources.

PT GAS recommends infill drilling to 50 m by 50 m of areas with higher grade Ni mineralisation (as defined in PT GAS's block models) that currently have a drill spacing of greater than 50 m by 50 m. The Client should conduct infill drilling in these areas as a priority. PT GAS is happy to assist with any drill design or procedures that may be required by the Client.

PT GAS recommends the Client increases the frequency of internal and external repeat analyses. For external repeat analysis, the Intertek laboratory or another internationally accredited laboratory should be utilised. The assay methodology should employ a fused bead XRF analytical method for all external repeats to determine any potential issues with the on-site laboratory.

18.2. Ore Reserves

The Ore Reserves of PT TAS have been classified based on the level of detail completed in the mine planning, practical pit design and the level of confidence in the Mineral Resources. On this basis the majority of Ore Reserves are considered as Probable Reserves and Proven Reserves. The Mineral Resources are reported inclusive of Ore Reserves, (that is, Ore Reserves are not additional to Mineral Resources).

PT GAS recommends the Client conduct studies to support the estimation results of nickel ore reserves that include mine recovery, dilution, mining factor, size of the SMU (Selective Mining Unit) and classification that can be mined. Other important studies are needed to measure the capability of heavy equipment that supports production targets such as cycle time, fill factors, truck factors, swell factors and machine productivity. The assumption of the factor used as the conversion of resources to reserves must be adjusted to the study findings.

Consider making hydrogeological and geotechnical data to be used as parameters to support the design of mine pit designs.

LIST OF ABBREVIATIONS

Abbreviation	Meaning
%	percent, percentage
ºC	Degrees Celsius
3D	Three dimensions
asl	Above sea level
AusIMM	Australasian Institute of Mining and Metallurgy
BRK	Bedrock
BPS	Badan Pusat Statistik/ Central Bureau of Statistics
CoG	Cut-off grade
Competent Person (JORC)	A geologist or engineer with at least five years of experience in mineral exploration, mine development or operation or mineral project assessment, or any combination thereof, has experience relevant to the subject matter of the mineral project and the technical report and is a member in good standing of a professional association
CNC	Clear and Clean
CPs	Competent persons
CPI	Indonesia Competent Person
dmt	Dry metric ton
DSO	Direct Shipping Ore
DTM	Digital Terrain Model
ESDM	Energi Sumber Daya Mineral (Energy of Mineral Resource)
EHO	East Halmahera Ophiolite
Fe	Iron
Fe_2O_3	Iron oxide (Iron)
PT GAS	Geo Artha Selaras
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectare
IUP	Izin Usaha Pertambangan (Mining Business Permit)
JORC	Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
km	kilometre(s)
LOI	Loss on Ignition (Water of Crystallization)
LOM	Life of Mine
m	metre(s)
m^2	Square metre
MGEI	Masyarakat Geologi Ekonomi Indonesia (Indonesian Society Economic Geologist)
MgO	Magnesium Oxide
Mt	Millions of tons (referring to resources and reserves)
N	North
TAS	Teknik Alum Service

Abbreviation	Meaning
OB	Overburden
OK	Ordinary Krigging
QAQC	Quality Assurance and Quality Control
pH	Potential Hydrogen
PT	Perseroan Terbatas (Limited Liability Company)
S	South
SiO_2	Silicon dioxide (Silica)
t	tonne(s)
UTM	Universal Transverse Mercator
WGS	World Geodetic System
wmt	Wet metric ton
XRF	X-Ray Fluorescence technique used for analysis

Appendix A - JORC Code, 2012 Edition – Table 1, Sections 1, 2, 3 & 4

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Sampling is conducted by core drilling and all holes are drilled vertically through the limonite and saprolite zones into underlying bedrock. • The drill core is extracted from the tube after being drilled and laid inside wooden core trays to preserve the core and marked up with depth information, lithology break and core loss if any. • Geological supervision by trained persons (geologist) was a key feature of the sampling and core lithology descriptions. • Samples are properly logged by a geologist at drilling site using a standard Core Logging Procedures. Sample breaks are determined by the logging geologist and can vary from 0.3 m to 1.0m. • Every sample fraction is mixed in the wet state by hand. After coning, quartering and mixing of opposite quadrants of the materials, a representative sample of about 2 kg is taken.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• Used 2 drill types i.e., MD single-tube with core-barrel HQ-size by tungsten carbide bit and Jacro wirelines triple tube, HQ drill bit size (diamond and or tungsten). • All holes are drilled vertically through the limonite and saprolite zones into underlying bedrock.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• The core recovery is recorded by standard measurement of the core length divided by the run length. Where there is more than one material in the 1m, the approximate proportions of materials that show core loss and those that show core gain (swelling) are estimated. This is applied to determine a more accurate estimate of core recovery. • The core recovery minimum applied is 85% (0.85). If 3 metres are consecutively below 80% recovery, it should be re-drilled with the maximum distance moved from

Criteria	JORC Code explanation	Commentary
		• previous drill collar being 1 metre. • Maximum interval sampling is 1 metre. If drill 1 metre and the core is also 1 metre, it means the recovery is 1. • Swelling occurs if the drill collar is 1 metre but the core is more than 1 metre. It will be recorded as 1 recovery. • A Loss occurs if the drill collar is 1 metre, but the core is less than 1 metre,say only 50cm, this will be recorded as a 0.5 recovery. • No relationship exists between sample recovery and grade
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• All drill hole samples are geologically logged including weathering, mineralisation, lithology, structure and grain size and sample recovery. This level of detail is sufficient to support appropriate Mineral Resource estimation. • Logging is qualitative in nature, but weathering zone information can be checked with sample assays. • Drill core samples are properly logged by a geologist at the drilling site using Standard Core Logging Procedures • Core samples are photographed in core trays in every box in digital format for documentation • All sample intervals returned from drilling activities are logged.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• All Core samples composite, homogenies and reduced by quarter method at Sample House on the Site. Half part is original sample and half part is backup sample. Samples product from wet preparation are -1" size. All original samples are sent to external laboratory • All core samples were taken for preparation and analysed in Internal Lab of PT TAS. • Sample preparation comprises a 1m core sample (± 5kg) being dried for 8hrs at 105°C, crushed to -10mm size, manually mixed and quartered (to get ± 3kg), crushed again until -3mm size, mixed manually, then reduced using a matrix 4x5 (to get 500g). Samples then dried again for 15-30 minutes, crushed into -1mm and pulverised to -200mesh. Sample then split into 2 samples using sieve shaker. One sample (± 50gram) sent

Criteria	JORC Code explanation	Commentary
		to Internal Laboratory for analysis and one sample (350g) retained for backup. • Sample sizes are appropriate for the grain size of the material being sampled.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Core samples are analysed by Internal Lab of PT TAS. • The assaying method is energy dispersive x-ray fluorescence (ED-XRF) analysis using a pressed pellet.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• PT TAS has done documentation of logging the drillholes in each block drilling area and mark with GPS. • PT TAS also doing external lab check for the representative samples drilling.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill hole collar co-ordinates are initially located using handheld GPS and electronic total station. When drilling has been completed, thecollar location is re-surveyed using aTotal Station. • The projection used is UTM WGS-84 grid 51S
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The drilling exploration work are in phases (200m x 200m and 100m x 100m grid intervals) to subsequently detail infill at 50m x 50m intervals • The deposit is a surficial deposit formed on flat-lying to gently undulating topography giving reasonable confidence to interpolate geology and grade across these distances. • The data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and classifications applied. • Samples have been composited to 1m

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The nickel laterite is a weathered geomorphic surface drape over underlying ultramafic source units. • All drill holes are vertical and will be 100% true intersection. • Regular grid drill spacing is used within field or topographic practicalities. • Regional and local structures are described as horizontal to sub-horizontal and related to thrusting. There is no evidence of cross cutting structures or units that would bias the assay results.
Sample security	• *The measures taken to ensure sample security.*	• All samples were taken, processed and assayed by PT TAS. • Sample backup and duplicate are stored.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• PT GAS conducted a review. The drillhole database are found to be satisfactory.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• PT TAS nickel concessions located in Morowali Regency, Indonesia (**Figure 1-1**). The Concession consists of two known Ni laterite occurrences; the Buleleng and Torete deposits. Both deposits are contained within a concession covering an area of approximately 1,301 Ha • Mining License: 540.3 / SK.002 / DESDM / VI / 2012 • Clear and Clean: 517 / Min / 12 / 2013 • Special Terminal; B.X- 507 / PP 008
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Previous exploration data completed by other parties.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• PT TAS nickel laterite mineralisation is developed from the weathering and near surface enrichment of ultramafic units (wet tropical laterite). The mineralisation is usually within 31 metres of surface and can be further sub divided on mineralogical and geochemical characteristics into upper iron-rich material and lower magnesium-rich material based on the ratios of iron to magnesium.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  o *easting and northing of the drill hole collar*
	  o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  o *dip and azimuth of the hole*
	  o *down hole length and interception depth*
	  o *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Using standard form for logging all information was described and at drilling site including core photography.
		• Collars were accessible and mark with GPS.
		• The projection used is WGS84 UTM zone 51S.
		• Holes were drilled vertically through the limonite and saprolite zones into underlying basement with dip -90 and 0 azimuth.
		• All collars were surveyed by GPS and total station after drilling.
		• Down hole sample length was 1m and related with sample composite length.
		• Most exploration work spaced at 200m by 200m, 100m by 100m, and 50m by 50m which is appropriate for this type of mineralisation to correlate between sections.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	• Drill hole samples were composited to an equal length of 1m prior to grade estimation • The grade distributions for the economic elements are not considered to be highly skewed and

Criteria	JORC Code explanation	Commentary
	• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	demonstrate a low variance within each Mineral Resource domain. Hence no grade cutting is considered necessary. • No metal equivalents were reported.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The laterite is thin but laterally extensive. The intercepts are almost perpendicular to the mineralisation. • Drilling so far has been confined to the major ridgelines due to access and deposit geometry. • All vertical drill holes intersect the mineralisation at approximately 90 degrees to its orientation. All down hole widths approximate true widths for vertical holes.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Intercepts are not being reported. An appropriate plan view of the drill holes has been included in this report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Exploration results are not being reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• To increase the resource classification, all factors such as bulk density measurement, ground survey, topographic data, mineralogy analyses, size distribution study and rigorous QAQC program have to consider implementing in the next exploration program.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further work recommended to improve confidence levels of the Mineral Resources

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary

Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*
	• *Data validation procedures used.*
		• Databases were checked to determine if there were any invalid entries for all fields in the database. This was conducted for all numeric fields by determining the minimum, maximum and average values.
		• Data validation procedures used as follows:
		  • Comparison of digital drill hole data against original drill hole geological logs.
		  • Visual verification of the collar azimuth of drill holes;
		  • Review of geological andassay data in provided databases;
		  • Review of original density and moisture data

Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• No site visit was undertaken dure to the Covid-19 Pandemic situation in Indonesia whereby lockdowns and restrictions did not allow for it. • Although a site visit was not undertaken, the PT TAS geology has been well documented during the 2019 site visit by PT GAS.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• There is high confidence in the geological interpretation of the mineral deposit due to the close spacing of the drill holes, the consistency of grade and lithology/weathering profile in this style of deposit and the checking of the logging information using the sample assays. • Nickel mineralisation is mainly controlled by lithology, fracture and tropical climate. Fractures that result from faults or geological structures in the area allow the rock to be easily weathered by exposure to surface and ground water or increasing the voids within the rock to allow exposure with the air or water. • There are no likely alternative interpretations. Any effect of an alternative interpretation would not be material. • The volume and tonnage is controlled to a large degree by the surface topography. The lithological / weathering zones determined from logging have been used to constrain and control the Mineral Resource estimation.

Criteria	JORC Code explanation	Commentary
		• The continuity of both grade and geology is affected by the topographic profile, the depth of weathering, and the permeability of the rocks during laterisation involving fracturing of the host ultramaficrocks.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The geometry, depth and extensions of the nickel laterite ore are well constrained by close spaced drilling and topography. • Drilling at the deposit extends to the top of the bedrock zone at a maximum vertical depth of approximately 25 m below surface.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economicsignificance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• The Ordinary Kriging ("OK") was used for the grade interpolation and the lithology surfaces were used as hard boundaries for the grade estimation of each element in each domain. Element grades were estimated for the LIM and SAP domains only. No grades were estimated for blocks in the BRK domain as the material is not extracted due to low grades. • After analysis of the histograms and probability plots, no significant outliers were observed so no high-grade cuts were applied to the datasets. • No previous estimate and mine production data was compared to the current Mineral Resource estimate. • All elements were estimated, including non-grade elements such as MgO and SiO2 • The block dimensions used for the models were 12.5 m by 12.5 m by 1 m vertical for applied for all block deposit. • Grade cutting is not applied as the elements do not significant outliers were observed so no high-grade cuts were applied to the datasets. • Model estimates were validated against drilling by (i) a qualitative and visual assessment was completedby slicing sections through the block model in positions coincident with drilling to assess the local validation. (ii) a quantitative assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model

Criteria	JORC Code explanation	Commentary
		average grades output for all domains. (iii) Validation was also carried out by comparing theaverage composite grades along northings, eastings and by elevationversus the average block grades along northings, eastings and by elevation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis and wet dry. • Material was weighed to obtain the wet weight and reduced by quartering. The material was then weighed and dried in an oven for 8 to 10 hours at 105°C. After drying it was weighed to obtain the dry weight from which the moisture content was then determined by calculation.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The Mineral Resource is reported at variable grade ranges of Ni that define potentially economic mineralisation in each lithological zone. There is no cut-off grade parameter selected.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• There is no mining factor used for this resource estimation
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• There is no metallurgical assumptions used for this resource estimation

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• There is no environmental assumptions used for this resource estimation
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Density data provided consisted of core drill sample data. The Core was choosing within the limonite domain and saprolite domain. Using the Caliper and Water Displacement (Archimedes) method the Core density were determined. • Caliper method ; individual pieces of intact core (preferably greater than 10 cm long) are selected, wrapped with plastic and weighed; the ends are cut perpendicular to the axis of the core; the diameter (d) of the core is determined with a pair of calipers – it should be measured at several points and averaged; the length (l) of the core is determined with a tape measure – it should be measured at several points and averaged; • Water Displacement (Archimedes) method involve either measuring the volume of water displaced as the sample is lowered into it, or weighing the sample in air and immersed in water, the difference in weight equating to the volume of water displaced (Archimedes' Principle); The change in water volume was then recorded and the wet density was calculated by dividing the weight of the core by the volume of the displaced water in the measuring tube. The moisture content was determined later in the on-site laboratory before the sample was prepared for analysis.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been*	• The Mineral Resources were classified as Indicated and Inferred Mineral Resources based on data quality, sample spacing, and grade

Criteria	JORC Code explanation	Commentary
	taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	continuity. The Indicated Mineral Resources were defined within areas of close spaced diamond drilling of less than 100 m by 100 m, and nearby areas where the continuity of the mineralisation was good. Inferred Mineral Resources were assigned to areas of the deposit where the drill hole spacing was greater than 100 m by 100 m, often on the periphery of the Indicated Resources. There are large areas of the concession defined by drilling on 25 m by 25 m spacing or even closer. These areas could have been classified in the Measured category but were classified as Indicated category due to limited data quality as was determined after analysis of the assay QA/QC data, inaccuracy of topographic and/or drill hole collar location surveys in some parts and limited of bulk density and moisture determinations evenly spread over the areas. • The result appropriately reflects the Competent Persons view of the deposit.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Internal reviews, conducted by PT TAS to check between the current geological model and previous studies show high agreements
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of therelative accuracy and confidence level in theMineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• A quantitative assessment of the estimate was completed by comparing the global average grades of the sample composites input against the global block model average grades output for all domains. Very little difference can be observed between the average sample grades and the block model grades, confirming the high quality of the estimation process. Validation was also carried out by comparing the average composite grades along northings, eastings and by elevation versus the average block grades along northings, eastings and by elevation. Swath plots were compiled to conduct the comparison for Ni and Fe. The swath plots show a very close correlation between the average composite grades and the average block grades confirming the high quality of the estimation. In addition, the trends shown in the drill hole data are honored in the block

Criteria	JORC Code explanation	Commentary
		model.
		• The statement relates to global estimates.

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• This JORC Reserve is derived from JORC Code Compliant Mineral Resources Statement signed by the Competent Persons in this report. This Statement and the model associated with it formed the basis of the subsequent Ore Reserve estimate. • Indicated resources were considered during the optimization, scheduling, estimation of Ore Reserves. • Due to the nature of mining it was not possible to selectively exclude Inferred material from the schedule however this is not reported in the reserves. • The Mineral Resources within this Statement are Inclusive of the Ore Reserves and not additional.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• No site visit was undertaken dure to the Covid-19 Pandemic situation in Indonesia whereby lockdowns and restrictions did not allow for it. Although a site visit was not undertaken, the PT TAS geology has been well documented during the 2019 site visit by PT GAS.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	• Feasibility study which was conducted in 2008 and has been approved by representatives of the Ministry of Energy and Mineral resources Indonesia. • The feasibility studies confirmed the economic viability of the concession. • Several parameters are updated in JORC documents including mine plan and scheduling and revenue and cost factors.
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• The cut-off grade is determined based on recognized market requirement and nickel feed grade target for pyro metallurgy such as: Blast Furnace, RKEF smelter as well as hydrometallurgical smelters such as HPAL, Heap Leach and Step Temperature Acid Leach (STAL)
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and	• Due to the non-selective nature of the mining method proposed and relative flexibility of the mining fleet no detailed designs were undertaken beyond what was required to define the final mining limits and account for the removal of the overburden prior to mining of the ore bearing layers. PT GAS

Criteria	JORC Code explanation	Commentary
	appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	conducted a pit optimization study to assist in confirming the economic boundary of the Mineral Resource. • The use of truck and loader surface mining is a well-established mining method that is both well suited to the deposit and commonly used at many similar operations. • A 56o single slope and ≤ 45o overall wall slope angle degrees were used in this study. 5 m bench height and 3 m safety berm applied. As the deposit is shallow the wall slope parameters have a very low impact of the Concession.. • Mining Recovery factors of 97% used for saprolite ore and limonite ore. 2% dilution have been applied to the Ore Reserve. • Some portion of Inferred resources were included during the optimization and scheduling. The similar modifying factors are implemented to the inferred resources during the assessment. • As the deposit has been previously mined, much of the required infrastructure is currently established. • Limonite pile required in order to pile the limonite material prior to being sold.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• Saprolite material will feed into Blast Furnace and RKEF smelter while limonite material will feed into HPAL plant, Heap Leach, and Step Temperature Acid Leach. • RKEF and blast furnace is widely accepted proven technology in metallurgical processing of saprolite. There are some projects in Indonesia which have an established operation as well as production rate. • HPAL Plant is a widely accepted proven technology in metallurgical processing of limonite. There are some projects in Indonesia which are in the construction phase. • The ore from PT TAS will be supplied to external hydro and pyro metallurgical smelters. • The ore from PT TAS can also be blended with external ores to meet the smelter chemistry specifications. • The expected saprolite specification from PT TAS area; Ni ≥ 1.0% Ni for Saprolite and ≥ 0.6% Ni and ≥ 0.06 Co for limonite.

Criteria	JORC Code explanation	Commentary
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• The operation is occurring within the framework of an EIA – Environmental Impact Assessment. This document includes the monitoring and environmental reporting standards. The planned and active waste dumps, pits and infrastructures are in accordance with the EIA document.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• Most of the primary infrastructure has already settled e.g. mess, office, port, workshop, power generator, site laboratory, etc. • Haul roads are in good condition, but need regular maintainence. • Some new infrastructure required such as Jetty and its facilities.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Cost assumptions were provided by the client and checked by PT GAS for reasonableness. • Capex and Opex estimation • PT GAS incorporated Mineral Royalties and company taxation rates. The rates were verified with information obtained from the Indonesian government. • All costs are based on a USD pricing basis so there is no exchange variation.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• PT GAS utilized the information provided by the client which is based on a current contract that follows the HPM benchmark pricing formula as set by the Indonesian Government.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts andthe basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• Relative balance of supply and demand in today's market. Potential significant increase of the demand due to emerging smelter construction in Indonesia include hydrometallurgy and pyro metallurgy. • Sales and production forecast base on the latest mine plan and scheduling

Criteria	JORC Code explanation	Commentary
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• PT GAS has assessed the reasonableness of the revenue and cost factors, the economic feasibility of selling the ore is more compelling given the rapid nickel developments in Indonesia which will generate a long-term positive NPV based on PT TAS's forecast. • Revenue factor is the most sensitive (which reflect commodity prices and production volume), followed by Operating cost and Capital Expenditures (CAPEX).
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• PT TAS has a compelling relationship and strong cooperation with local governments.
Other	• *To the extent relevant, the impact of the following on the Concession and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• No naturally occurring material risks have been identified in the Concession.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Ore reserve classification is basically derived from the mineral resource classification. • Indicated Resources that fall within the designed mining shape are classified as Probable Ore Reserves. • The Competent Person believes the classification of the Mineral Resource and the subsequent conversion to Ore Reserve is appropriate.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• The reserve statement will not be reviewed by any external parties.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent*	• All modifying factors have been applied to the designed mining shapes on a global scale as current local data reflects the global assumptions.

Criteria	JORC Code explanation	Commentary
	Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

END OF REPORT

SILKROAD NICKEL LTD.
(Incorporated in the Republic of Singapore)
(Company Registration No. 200512048E)

NOTICE OF EXTRAORDINARY GENERAL MEETING

All capitalised terms used in this Notice which are not defined herein shall, unless the context otherwise requires, have the same meaning ascribed to them in the circular to shareholders of the Company dated 15 September 2021.

NOTICE IS HEREBY GIVEN that an Extraordinary General Meeting (the "**EGM**") of **SILKROAD NICKEL LTD.** (the "**Company**") will be held by way of electronic means on 30 September 2021 at 2.00 p.m. for the purpose of considering and, if thought fit, passing, with or without amendments, the resolutions set out below.

This Notice has been made available on SGXNET and the Company's website and may be accessed at the URL https://silkroadnickel.com/sgx-announcements/. A printed copy of this Notice will NOT be despatched to members.

Shareholders should note that Ordinary Resolution 1 and Ordinary Resolution 2 are inter-conditional upon each other. Accordingly, in the event that any of these resolutions is not approved, the other resolution will not be duly passed.

ORDINARY RESOLUTION 1 - THE POTENTIAL DILUTION OF THE COMPANY'S SHAREHOLDING INTEREST IN FE RESOURCES PTE. LTD. PURSUANT TO THE ISSUANCE OF AN OPTION BY FE RESOURCE PTE. LTD. TO GFL INTERNATIONAL CO., LIMITED (AND EXERCISE THEREOF BY (AND AT THE SOLE DISCRETION OF) GFL INTERNATIONAL CO., LIMITED) ("POTENTIAL DILUTION")

THAT, subject to and contingent upon the passing of Ordinary Resolution 2 for the purposes of Rule 805(2) of the Catalist Rules:-

(a) in connection with the Proposed Subscription and for the purposes of Rule 805(2) of the Catalist Rules, approval be and is hereby given to the Company for the potential dilution of the Company's shareholding interests in FE Resources Pte. Ltd ("**FER**") by a percentage reduction of more than 20% resulting from the issuance of an option ("**Option**") by FER to GFL International Co., Limited ("**Subscriber**") (and exercise thereof by (and at the sole discretion of) the Subscriber, pursuant to the subscription agreement entered between the Company, FER and the Subscriber dated 28 May 2021 ("**Subscription Agreement**") (as amended and supplemented pursuant to a supplemental agreement dated 22 June 2021); and

(b) the Directors of the Company and each of them be and are hereby authorised to take such steps, enter into all such transactions, arrangements and agreements and execute all such documents as may be advisable, necessary or expedient for the purposes of giving effect to the Potential Dilution, with full power to assent to any condition, amendment, alteration, modification or variation as may be required by the relevant authorities or as such Directors or any of them may deem fit or expedient or to give effect to this resolution or the transactions contemplated pursuant to or in connection with the Potential Dilution.

ORDINARY RESOLUTION 2 - THE PROPOSED TRANSFER OF SHARES AMOUNTING TO 25% OF THE ISSUED SHARE CAPITAL IN FE RESOURCES PTE. LTD. HELD BY THE COMPANY TO GFL INTERNATIONAL CO., LIMITED PURSUANT TO THE GRANT OF AN EXCHANGE RIGHT TO GFL INTERNATIONAL CO., LIMITED ("PROPOSED TRANSFER" AND TOGETHER WITH THE POTENTIAL DILUTION, "PROPOSED CORPORATE TRANSACTIONS") AND THE POTENTIAL DILUTION AS A MAJOR TRANSACTION UNDER CHAPTER 10 OF THE CATALIST RULES

THAT, subject to and contingent upon the passing of Ordinary Resolution 1, for the purposes of Chapter 10 of the Catalist Rules:-

(a)   approval be and is hereby given, for the purposes of Rule 1014(2) of the Catalist Rules, for the Proposed Corporate Transactions and the implementation of the Proposed Corporate Transactions resulting from the grant and exercise of the Exchange Right and Option by the Subscriber, in accordance with the terms and conditions of the Subscription Agreement; and

(b)   the Directors of the Company and each of them be and are hereby authorised to take such steps, enter into all such transactions, arrangements and agreements and execute all such documents as may be advisable, necessary or expedient for the purposes of giving effect to this resolution, with full power to assent to any condition, amendment, alteration, modification or variation as may be required by the relevant authorities or as such Directors or any of them may deem fit or expedient or to give effect to this resolution.

By Order of the Board of Directors

Mr. Eddy Pratomo
Independent Chairman

15 September 2021

NOTICE OF EXTRAORDINARY GENERAL MEETING

Important Notice from the Company on COVID-19

As the COVID-19 situation continues to evolve, the Company is closely monitoring the situation, including any precautionary measures which may be required or recommended by government agencies to minimise the risk of community spread of COVID-19. **Members should note that the Company may be required (including at short notice) to make further changes to its EGM arrangements as the situation evolves, and members are advised to keep abreast of any such changes as may be announced by the Company as may be made from time to time on SGXNET**.

1. **No attendance at EGM**

    Alternative arrangements have been put in place to allow members to participate at the EGM by watching the EGM proceedings through a "live" webcast via his/her/its mobile phones, tablets or computers or listening to the EGM proceedings via "live" audio feed via telephone. Members who pre-register to watch the "live" webcast or listen to the "live" audio feed may also submit questions related to the resolutions to be tabled for approval at the EGM, and members who wish to exercise their voting rights may do so by voting by proxy at the EGM. Please see the paragraphs below for these alternative arrangements.

    Persons who hold the Shares of the Company through relevant intermediaries (as defined in Section 181 of the Companies Act), including SRS investors, and who wish to participate at the EGM by (i) watching the EGM proceedings via "live" webcast or listening to the EGM proceedings via "live" audio feed, (ii) submitting questions in advance of the EGM, and/or (iii) voting by proxy at the EGM, should contact the relevant intermediary (which would include, in the case of SRS investors, their respective SRS Operators) through which they hold such Shares of the Company as soon as possible in order for the necessary arrangements to be made for their participation at the EGM.

2. **Registration to attend the EGM Remotely**

    A member who wishes to watch the "live" webcast or listen to the "live" audio feed must pre-register by **2.00 p.m. on 27 September 2021** ("**Registration Cut-Off Date**") (being 72 hours before the time fixed for the EGM), at the URL http://srn.availeasemgdwebinar.com/. A member will be required to provide their full name, NRIC/Passport No./Company Registration No. and address for verification purposes.

    Upon successful registration, authenticated members will receive an email confirmation by **2.00 p.m. on 29 September 2021** with their user log-in details, access password and the link to access the "live" webcast and/or telephone number for "live" audio feed of the EGM proceedings.

    A member who does not receive any email by **2.00 p.m. on 29 September 2021**, but who have registered by the Registration Cut-Off Date, should contact the Company at enquiries@silkroadnickel.com.

3. **Prior submission of questions**

    A member who pre-registers to watch the "live" webcast or listen to the "live" audio feed may also submit questions related to the resolutions to be tabled for approval for the EGM. To do so, all questions must be submitted by **2.00 p.m. on 27 September 2021** (being 72 hours before the time fixed for the EGM):

    (i) via the pre-registration website at the URL http://srn.availeasemgdwebinar.com/;

(ii)   in hard copy by sending personally or by post and lodging the same at the Company's Share Registrar, Tricor Barbinder Share Registration Services (a division of Tricor Singapore Pte Ltd), 80 Robinson Road, #11-02, Singapore 068898; or

(iii)   by email to the Company at enquiries@silkroadnickel.com.

The Company will address substantial and relevant questions relating to the resolutions to be tabled for approval for the EGM either before the EGM on SGXNET and the Company's website at the URL https://silkroadnickel.com/sgx-announcements/ or during the EGM, in accordance with COVID-19 Order Guidance.

4.   **Voting by proxy only**

A member will not be able to vote online on the resolutions to be tabled for approval at the EGM. If a member (whether individual or corporate) wishes to exercise his/her/its voting rights at the EGM, he/she/it must submit an instrument of proxy to appoint the Chairman of the EGM as his/her/its proxy to attend, speak and vote on his/her/its behalf at the EGM. A member (whether individual or corporate) appointing the Chairman of the EGM as proxy must give specific instructions as to his/her/its manner of voting, or abstentions from voting, in the instrument of proxy, failing which the appointment will be treated as invalid.

The instrument of proxy, together with the letter or power of attorney or other authority under which it is signed (if applicable) or a duly certified copy thereof, must:

(i)   if sent personally or by post, be lodged at the Company's Share Registrar, Tricor Barbinder Share Registration Services (a division of Tricor Singapore Pte Ltd), 80 Robinson Road, #11-02, Singapore 068898; or

(ii)   if by email, be received by the Company's Share Registrar at sg.is.proxy@sg.tricorglobal.com,

in either case, by **2.00 p.m. on 27 September 2021** (being 72 hours before the time fixed for the EGM), and in default the instrument of proxy shall not be treated as valid.

SRS investors who wish to appoint the Chairman of the EGM as proxy should approach their respective SRS Operators to submit their votes by **2.00 p.m. on 21 September 2021**, being 7 working days before the date of the EGM.

The Chairman of the EGM, as proxy, need not be a member of the Company.

The instrument appointing the Chairman of the EGM as proxy must be under the hand of the appointor or of his attorney duly authorised in writing. Where the instrument appointing the Chairman of the EGM as proxy is executed by a corporation, it must be executed either under its seal, executed as a deed in accordance with the Companies Act (Chapter 50) of Singapore or under the hand of an attorney or an officer duly authorised, or in some other manner approved by the Directors. Where the instrument appointing the Chairman of the EGM as proxy is executed by an attorney on behalf of the appointor, the letter or power of attorney or a duly certified copy thereof must be lodged with the instrument of proxy.

The Company shall be entitled to reject the instrument appointing the Chairman of the EGM as proxy if it is incomplete, improperly completed or illegible, or where the true intentions of the appointor are not ascertainable from the instructions of the appointor specified in the instrument appointing the Chairman of the EGM as proxy. In addition, in the case of Shares entered in the Depository Register, the Company may reject any instrument appointing the Chairman of the

EGM as proxy lodged if the member, being the appointor, is not shown to have Shares entered against his name in the Depository Register as at seventy-two (72) hours before the time appointed for holding the EGM, as certified by The Central Depository (Pte) Limited to the Company.

Please refer to Section 7 of the Circular for more details on how members may attend and participate in the EGM.

The Company apologises for any inconvenience caused and seeks the understanding and cooperation of all members to minimise the risk of community spread of the COVID-19. The Company, Group, officers and employees shall have no liability whatsoever to members, their proxies, corporate representatives or any other attendees arising out of or in connection with any of them being infected or suspected of being infected with COVID-19 or suffering any losses arising out of or in connection with attendance at the EGM of the Company and/or the Company taking precautionary measures at the Company's discretion in response to the COVID-19 situation.

PERSONAL DATA PRIVACY

By submitting a proxy form appointing the Chairman of the EGM as proxy to attend and vote at the EGM and/or any adjournment thereof, and/or by registering to attend the EGM as detailed in Section 7 of the Circular, a member of the Company (i) consents to the collection, use and disclosure of the member's personal data by the Company (or its agents) for the purpose of the processing and administration by the Company (or its agents) of proxies and representatives appointed for the EGM (including any adjournment thereof) and the preparation and compilation of the attendance lists, proxy lists, minutes and other documents relating to the EGM (including any adjournment thereof), and in order for the Company (or its agents) to comply with any applicable laws, listing rules, regulations and/or guidelines (collectively, the "**Purposes**"), (ii) warrants that where the member discloses the personal data of the member's proxy(ies) and/or representative(s) to the Company (or its agents), the member has obtained the prior consent of such proxy(ies) and/or representative(s) for the collection, use and disclosure by the Company (or its agents) of the personal data of such proxy(ies) and/or representative(s) for the Purposes, and (iii) agrees that the member will indemnify the Company in respect of any penalties, liabilities, claims, demands, losses and damages as a result of the member's breach of warranty.

SILKROAD NICKEL LTD.
(Incorporated in the Republic of Singapore)
(Company Registration No. 200512048E)

PROXY FORM
EXTRAORDINARY GENERAL MEETING

*I/We _____ (Name) _____ (NRIC/Passport Number)

of _____ (Address)

being a *member/ members of **SILKROAD NICKEL LTD.** ("the **Company**"), hereby appoint the Chairman of the Extraordinary General Meeting ("**EGM**"), as my/our proxy to vote for me/us on my/our behalf at the EGM to be convened and held by way of electronic means on 30 September 2021 at 2.00 p.m. and at any adjournment thereof.

I/We direct my/our proxy to vote for or against the Ordinary Resolutions to be proposed at the EGM as indicated hereunder. If no specific direction as to voting is given in respect of a resolution, the proxy shall abstain from voting on any matter arising at the EGM and at any adjournment thereof in respect of that resolution.

	For *	Against *	Abstain
ORDINARY RESOLUTION 1 The potential dilution of the Company's shareholding interest in FE Resources Pte. Ltd. pursuant to the issuance of an option by FE Resource Pte. Ltd. to GFL International Co., Limited (and exercise thereof by (and at the sole discretion of) GFL International Co., Limited) ("**Potential Dilution**")			
ORDINARY RESOLUTION 2 The proposed transfer of shares amounting to 25% of the issued share capital in FE Resources Pte. Ltd. held by the Company to GFL International Co., Limited pursuant to the grant of an exchange right to GFL International Co., Limited ("**Proposed Transfer**" and together with the Potential Dilution, "**Proposed Corporate Transactions**") and the Potential Dilution as a "Major Transaction" under Chapter 10 of the Catalist Rules			

* Voting will be conducted by poll. If you wish the Chairman of the EGM to cast all your votes "For" or, "Against" an Ordinary Resolution, or to "Abstain" an Ordinary Resolution, please indicate with a "✓" within the box provided. Otherwise, please indicate the number of votes "For" or "Against" an Ordinary Resolution, or to "Abstain" from an Ordinary Resolution. In the absence of specific directions in respect of a resolution, the appointment of the Chairman of the EGM as your proxy for that resolution will be treated as invalid.

Dated this _____ day of _____ 2021

Total Number of Shares in:	Number of Shares
(a) CDP Register	
(b) Register of Members	

_____
Signature of member(s)
or Common Seal of Corporate Member

IMPORTANT: PLEASE READ NOTES OVERLEAF

NOTES:-

1. If the member has Shares entered against his/her/its name in the Depository Register (as defined in Section 81SF of the Securities and Futures Act, Chapter 289 of Singapore), he/she/it should insert that number of Shares. If the member has Shares registered in his/her/its name in the Register of Members, he/she/it should insert that number of Shares. If the member has Shares entered against his/her/its name in the Depository Register and Shares registered in his/her/its name in the Register of Members, he/she/it should insert the number of Shares entered against his/her/its name in the Depository Register and registered in his/her/its name in the Register of Members. If no number is inserted, this form of proxy will be deemed to relate to all the Shares held by the member.

2. Due to the current COVID-19 situation and the related safe distancing measures in Singapore, a member will not be able to attend the EGM in person. If a member (whether individual or corporate) wishes to exercise his/her/its voting rights at the EGM, he/she/it must submit an instrument of proxy to appoint the Chairman of the EGM as his/her/its proxy to attend, speak and vote on his/her/its behalf at the EGM. A member (whether individual or corporate) appointing the Chairman of the EGM as proxy must give specific instructions as to his/her/its manner of voting, or abstentions from voting, in the instrument of proxy, failing which the appointment will be treated as invalid.

3. The Chairman of the EGM, as proxy, need not be a member of the Company.

4. The instrument appointing the Chairman of the EGM as proxy, together with the letter or power of attorney or other authority under which it is signed (if applicable) or a duly certified copy thereof must:

    (a) if sent personally or by post, be lodged at the Company's Share Registrar, Tricor Barbinder Share Registration Services (a division of Tricor Singapore Pte Ltd), 80 Robinson Road, #11-02, Singapore 068898; or

    (b) if by email, be received by the Company's Share Registrar at sg.is.proxy@sg.tricorglobal.com,

    in either case, by **2.00 p.m. on 27 September 2021** (being 72 hours before the time fixed for the EGM), in default the instrument of proxy shall not be treated as valid.

5. The instrument appointing the Chairman of the EGM as proxy must be under the hand of the appointor or of his attorney duly authorised in writing. Where the instrument appointing the Chairman of the EGM as proxy is executed by a corporation, it must be executed either under its common seal, executed as a deed in accordance with the Companies Act or under the hand of its attorney or officer duly authorised, or in some other manner approved by the Directors.

6. Where an instrument appointing the Chairman of the EGM as proxy is signed on behalf of the appointor by an attorney, the letter or power of attorney or a copy thereof (failing previous registration with the Company) must be lodged with the instrument of proxy, failing which the instrument may be treated as invalid.

7. Relevant Intermediaries shall also appoint the Chairman of the EGM to act as proxy and direct the vote at the EGM. Together with the instrument appointing a proxy, the Relevant Intermediaries shall provide to the Company a list of attendees who would like to attend the EGM by way of a "live" webcast and/or "live" audio feed with each attendee's full name, NRIC/Passport No./Company Registration No., address and email address for verification purposes. Upon successful registration, authenticated attendees will receive an email confirmation **by 2.00 p.m. on 29 September 2021** with their user log-in details, access password and the link to access the "live" webcast and/or telephone number for "live" audio feed of the EGM proceedings.

8. "Relevant intermediary" has the meaning ascribed to it in Section 181 of the Companies Act (Chapter 50 of Singapore).

9. The Company shall be entitled to reject an instrument of proxy which is incomplete, improperly completed, illegible or where the true intentions of the appointor are not ascertainable from the instructions of the appointor specified on and/or attached to the instrument of proxy. In addition, in the case of a member whose shares are entered in the Depository Register, the Company may reject an instrument of proxy if the member, being the appointor, is not shown to have shares entered against his name in the Depository Register as at 72 hours before the time appointed for holding the EGM, as certified by The Central Depository (Pte) Limited to the Company.