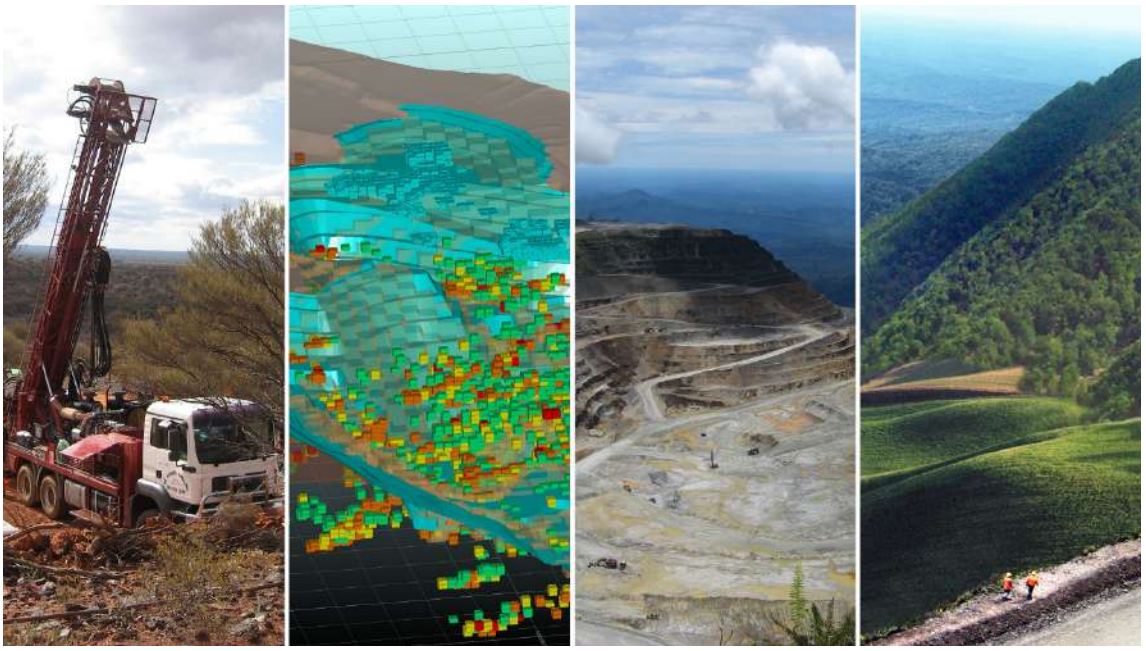
Independent Technical Assessment Report

Toka Tindung Gold Mine, North Sulawesi, Indonesia
PT Archi Indonesia Tbk and
PT Energi dan Mineral Teknologi Internasional



SRK Consulting (Australasia) Pty Ltd ■ EDM004 ■ March 2021

srk consulting

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Toka Tindung Gold Mine, North Sulawesi, Indonesia

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Contents

0BTables

1BFigures

Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

µm	Micron
3D	three dimensional
A$	Australian Dollar/s
AARL	Anglo-American Research Laboratories
ADT	articulated dump trucks
Ag	silver
AIG	Australian Institute of Geoscientists
AISC	All-in Sustaining Costs
AKR	PT AKR Corporindo Tbk
AMDAL	Environmental Impact Assessment (Analisa Mengenai Dampak Lingkungan)
ANCOLD	Australian National Committee on Large Dams
ANDAL	Environmental Impact Statement (Analisis Dampak Lingkungan)
Archi	PT Archi Indonesia Tbk
Archipelago	Archipelago Resources PLC
ARD	Acid Rock Drainage
ARI	average recurrence interval
As	arsenic
ASD	analytical spectral device
Ashton	Ashton Mining Limited
Au	gold
Aurora	Aurora Gold Limited
AusIMM	Australasian Institute of Mining and Metallurgy
AVDIST	average distance of samples to block centroid
BASARNAS	Indonesia Search and Rescue Agency (Badan Nasional Pencarian dan Pertolongan)
BKSDA	Natural Resources Conservation Agency
bl	billion litres
BLEG	bulk leach extractable gold
BOC	Board of Commissioners
BOD	Board of Directors
BWI	Bond Work Index
CB	citizens band
CCO	Chief Corporate Officer
Cd	cadmium
CDE	Community Development & Enhancement/Empowerment
CEO	Chief Executive Officer
CFO	Chief Financial Officer

CIL	carbon-in-leach
CIT	corporate income taxation
CLA	Collective Labour Agreement
cm	centimetre/s
CGO	Chief Geological Officer
CMW	CMW Geosciences Pty Ltd
CNWAD	cyanide weak acid dissociable
Company	PT Archi Indonesia Tbk
COO	Chief Corporate Officer
CoW	Contract/s of Work or Kontrak Karya-KK Operasi Producksi
COX	oxide
Cr	chromium
CRU	CRU Consulting
CSAMT	controlled-source audio-frequency magnetotelluric
CSR	Corporate Social Responsibility
Cu	copper
dB	decibels
DD	diamond drilling
DGPS	differential global positioning system
DTM	digital terrain model
DVH	Douglas Valley Holdings Pte Ltd
EMAS	PT Elang Mulia Abadi Sempurna
EMS	Environmental Management System
Enmintech	PT Energi dan Mineral Teknologi Internasional
ESG	Environmental, Social and Governance
Exploration Result	Data and information generated by mineral exploration programmes that might be of use to investors but which do not form part of a declaration of Mineral Resources or Ore Reserves.
Exploration Target	A statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade (or quality), relates to mineralisation for which there has been insufficient exploration to estimate a Mineral Resource
FAI	First Aid Treatment Injury
FBA	Fractured Bedrock Aquifer
FE	finite element
FEL	front end loader
FIFO	Fly-in – Fly-out
FOS	factor of safety
FS	A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the

	basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.
G&A	General and Administration
GCRC	grade control reverse circulation drilling
GDEs	Groundwater Dependent Ecosystems
GMA	PT Geopersada Mulia Abadi
GoI	Government of Indonesia
H	high capacity
ha	hectare/s
Hg	mercury
HGH	Energy Use & Greenhouse Gas
HR	Human Resource/s
HV	heavy vehicle/s
I&APs	interested and affected parties
ICAM	Incident Casual Analysis Method
ID	Inverse distance
IDR	Indonesian Rupiah
IDX	Indonesian Stock Exchange
IFR	Injury Frequency Rate
Indicated Resource	that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.
Inferred Resource	that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.
IRA	inter-ramp angles
ITAR or Report	Independent Technical Assessment Report
IUP-OP	Operation Production Mining Business Licence (Izin Usaha Pertambangan - Operasi Produksi)
JORC Code	2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves
JPP	PT Jasa Pertambangan Perkasa
JV	joint venture
kg	kilogram/s
KKM	PT Karya Kreasi Mulia
km	kilometre/s
km^2	square kilometre/s
koz	thousand ounces
kWh	kilowatt hour
L	Low capacity

l	litre/s
L&H	load and haul
Lapi	PT Lapi ITB
LME	London Metals Exchange
LOM	life-of-mine
Lorax	PT Lorax Indonesia
LTI	Lost Time Injury
LTIFR	Lost Time Injury Frequency Rate
LTISR	Lost Time Injury Severity Rate
LUC	Localised Uniform Conditioning
LV	light vehicle/s
M	Medium, moderate capacity
M	Million
m	metre/s
m/s	metres per second
Mbcm	Million bulk cubic metres
MCRP	Mine Closure and Rehabilitation Plan
Measured Resource	that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.
MEF	Minister for Environment and Forestry
MEM	Muswellbrook Energy and Minerals Ltd
MEMR	Ministry of Energy and Mineral Resources (Kementerian Energy Dan Sumber Daya Mineral
mg/l	milligrams per litre
Mineral Resource	a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Mining Law	Indonesian Law on Mineral and Coal Mining 4/2009, as amended by Law No. 3 of 2020
MKA	PT Manado Karya Anugrah
Ml	Million litres
MMUs	mechanised mining Units
MOPS	Means of the Platts Singapore
Moz	Million ounces
MSM	PT Meares Soputan Mining
Mt	Million tonnes
MTI	Medical Treatment Injury
Mtpa	Million tonnes per annum

MW	megawatts
NAF	non-acid forming
NIHL	noise induced hearing loss
NM	Near Miss
NPV	Net Present Values
OK	Ordinary Kriging
OMC	Orway Mineral Consultants (WA) Pty Ltd
OMS	PT Orica Mining Services
Ore Reserve	the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.
PABX	private automatic branch exchange
PAF	Potentially acid forming
PASS	Positive Attitude Safety System
Pb	lead
PBX	lower pyroclastics unit
PCR	polymerase chain reaction
PFS	A Preliminary Feasibility Study (Pre-Feasibility Study) is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.
PLN	PT Perusahaan Listrik Negara
POX	partial oxide
Probable Reserve	the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Reserve	the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.
PSA	pressure swing adsorption
PSI	PT Parts Sentra Indomandiri
PTC	upper pyroclastic/s unit
QAQC	quality assurance and control
RDI	Restricted Duty Injury
RICS	Royal Institution of Chartered Surveyors
RKL-RPL	Environmental Monitoring Plan (Rencana Pengelolaan Lingkungan Hidup and Rencana Pemantauan Lingkungan Hidup)
RL	reduced level
ROM	run-of-mine

SAG	semi-autogenous grind
SEC	Securities and Exchange Commission
SMA	PT Samudera Mulia Abadi
SMBS	sodium meta-bisulphite
SMKP	Indonesian Health and Safety Management System for Mining (Sistem Manajemen Keselamatan Kerja Pertambangan)
SPKEP SPSI	Union Company - SPKEP SPSI (Serikat Pekerja Kimia Energi dan Pertambangan – Serikat Pekerja Seluruh Indonesia)
SPT	standard penetration test
SRK	SRK Consulting (Australasia) Pty Ltd
SRM	Standard Reference Material
STP	sewerage treatment plants
t	tonne/s
t/m^3	tonnes per cubic metre
TCE	Total Costed Employees
TDS	total dissolved salts
TEP	techno-economic parameters
TERT	Toka Tindung Gold Mine Emergency Response Team
the Project	Toka Tindung Gold Mine
TMI	total magnetic intensity
tph	tonnes per hour
TSF	Tailings storage facility/ies
TSS	Total Suspended Solids
TTN	PT Tambang Tondano Nusajaya
UNOX	fresh
US$	United States Dollar
VAF	fragmented volcanics
Valmin Code	2015 edition of the Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets
VAT	value added tax
VBA	main volcanic package
WACC	weight adjusted cost of capital
WRD	waste rock dumps

Executive Summary

Preamble

PT Archi Indonesia Tbk (Archi or the Company) has engaged PT Energi dan Mineral Teknologi Internasional (Enmintech) to prepare an Independent Technical Assessment Report (ITAR or Report) relating to two Contracts of Work (CoW) comprising the Company's Toka Tindung Gold Mine (the Project) located in the northeast arm of the Island of Sulawesi, Indonesia.

Enmintech (also known as the Commissioning Entity for the purposes of this Report) subsequently commissioned SRK Consulting (Australasia) Pty Ltd (SRK) to assist in the preparation of the Toka Tindung Gold Mine ITAR. The terms of reference and scope of the work to be completed by SRK were established by Archi.

Purpose

SRK understands that this Report is to be used in support of a potential listing of Archi on the Indonesian Stock Exchange (IDX) and related offering of shares in early 2021 and that it will be included in the prospectus and international offering circular relating to such offering and listing. The ITAR is to be prepared in accordance with IDX rules, which permits reporting in accordance with the Australasian Code for the Public Reporting of Technical Assessment and Valuation of Mineral Assets (VALMIN Code, 2015), which incorporates the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012).

This report presents a review of the geology and mineralisation contained in the approved CoWs comprising the Toka Tindung Gold Mine and comments on Archi's growth plans going forward. Taken in its entirety, the Project is considered by SRK to represent a well-established gold mining and processing project capable of exceeding Archi's near to medium-term expansion objectives, as well as offering significant exploration upside.

This report contains "forward looking statements", which are based on current expectations and projections about future events, and include all statements other than statements of historical facts, including, without limitation, any statements preceded by, followed by or that include the words "targets", "believes", "expects", "aims", "intends", "will", "may", "anticipates", "would", "plans", "could", "should", "predicts", "projects", "estimates", "foresees", "forecasts" or similar expressions or the negative thereof, as well as predictions, projections and forecasts of the economy or economic trends of the markets, which are not necessarily indicative of the future or likely performance of Archi, and projections and forecasts of their performance, which are not guaranteed. Such forward looking statements, as well as those included in any other material discussed in this report, concern future circumstances and results and involve known and unknown risks, uncertainties and other important factors beyond Archi's control that could cause their actual results, performance or achievements to be incorrect or materially different from future results, performance or achievements expressed or implied by such forward looking statements. Such forward looking statements are based on numerous assumptions and estimates regarding the Archi's present and future business strategies, including expansion plans and the environment in which they will operate in the future. Forward looking statements are not guarantees of future performance.

Toka Tindung Gold Mine

Archi's Toka Tindung Gold Mine is located approximately 35 km northeast of the provincial capital city of Manado and 20 km north of the port city of Bitung in the Indonesian Province of North Sulawesi. The Project combines the PT Tambang Tondano Nusajaya (TTN) and PT Meares Soputan Mining (MSM) CoWs, which are collectively operated as a single integrated mining and processing operation within a broader exploration area covering 39,817 ha.

Commercial operations commenced at the Toka Tindung Gold Mine in April 2011, when the first gold was poured. Successful mining and processing operations have been ongoing since that time, with the Project producing over 1.9 Moz of gold. In 2020, Toka Tindung Gold Mine produced 206.8 koz of gold and 363.1 koz of silver.

Archi's Toka Tindung Gold Mine open pit mining complex consists of several open pits, including the active producing open pits: Toka, Araren and Kopra, and the Alaskar, Talawaan and Marawuwung open pits, which are in pre-production.

The predominantly oxide-based ore is processed on site at a centralised processing facility using comminution processes (crushing/grinding) followed by conventional carbon-in-leach (CIL) extraction, elution and smelting to produce gold and silver doré. Since commissioning, the Project's processing capacity has progressively increased from an initial 1.7 Mtpa to the current 3.6 Mtpa. The current ore feed rate is constrained by the hardness of the ore and the mill's electrical supply.

Archi is now proposing to significantly grow its operations at Toka Tindung Gold Mine, with key initiatives including:

- **Exploration**: An aggressive yet systematic exploration strategy, underpinned by a highly experienced team of epithermal specialists, designed to significantly expand the presently defined Ore Reserve base and open the prospective Western Corridor (i.e. Talawaan – Bima, Arjuna and Batu Kresna deposits)
- **Mining**: increased production and cost reduction measures comprising:
  - expanded production from current mining centres and development of new growth opportunities within the near mine environs and the Western Corridor
  - cost reduction and production efficiency initiatives including:
    - the recently implemented transition to a new mining contractor using a smaller fleet of larger 100 t off-road haul trucks (replacing the 45 t ADT fleet) and corresponding excavators
    - electrification of in-pit diesel pumps
    - installation of grout curtains and river diversions to reduce water inflows in the pits, in particular at Araren
    - backfilling of old pits and valleys with waste rock.
- **Production**: increased production and cost optimisation including:
  - a step change in processing capacity to 4.0 Mtpa targeting Q2 2021, 5.6 Mtpa by end of 2022, 6.5 Mtpa by end of 2024 and 8.0 Mtpa by end of 2025, with 2026 being the first full year of production at 8.0 Mtpa at low capital cost

- lowering of operating costs through power optimisation including:
  - adoption of Vega breakthrough technology in 2021 leading to reduced wear of mill components (i.e. liners and mill balls)
  - installation of variable speed drives in semi-autogenous grind (SAG) mill and process control to reduce labour and costs
  - ongoing systematic replacement with PT Perusahaan Listrik Negara (PLN) power focused on near-term replacement of diesel dewatering infrastructure (water pumps that extracted 5.5 ML in 2020).
  - further negotiation of supply contract rates.

Geology and mineralisation

The Toka Tindung Gold Mine area is dominated by an alternating sequence of Pliocene-Pleistocene age subaerial volcanic and volcaniclastic rocks, consisting predominantly of andesitic to basaltic flows and volcaniclastic units, informally known as the Maen volcanics.

The main gold–silver deposits in the Project area occur in windows of Plio-Pleistocene volcanic units within widespread Late Quaternary tephras and other younger volcanic cover. Two mineralisation styles are evident, locally known as “Toka” and “Batupangah”. Toka-style mineralisation is hosted in the upper portion of the volcanic series (stratigraphic sequence “PTC”) while Batupangah style mineralisation is hosted in lower portion of the volcanic series (VBA and PBX).

All economic gold and silver mineralisation discovered to date at the Toka Tindung Gold Mine is of low-sulphidation epithermal style comprising quartz–adularia vein and stockwork-hosted gold and silver deposits. This low tonnage, high-grade gold ± silver mineralisation typically occurs within small shoots that form at dilational sites along the host quartz vein structures. District-scale structural controls on mineralisation include north–south and north-northwest trends.

Based on exploration completed to date, the known mineralisation occurs along two mineralised corridors that extend for several kilometres along northwest trends. The Eastern Corridor has been the focus for the majority of mining to date and includes, from north to south, the Toka, Marawuwung, Araren, Pajajaran, Blambangan, Kopra and Alaskar deposits. The parallel Western Corridor includes the Bima, Arjuna and Batu Kresna deposits, which are collectively referred to as the Talawaan area.

Exploration

From SRK’s assessment of the available exploration data, it is evident that the Toka Tindung Gold Mine is a high merit project offering significant exploration potential for the discovery of further low sulphidation epithermal gold ± silver mineralisation (both Toka and Batupangah styles).

Both near-mine and greenfields opportunities are present in association with dilational structural positions located along strike of known deposits along the Eastern Corridor, and there are a number of potential targets within the poorly explored Western Corridor, a parallel structural zone to the west of the current mining areas.

Archi has defined a number of early to advanced stage Exploration Targets (with the meaning as per the JORC Code 2012) associated with the intersection of interpreted north–south and northwest-oriented structures, supported by various geophysical (magnetic and resistivity) and geochemical data. These Exploration Target estimates have been subject to review by SRK, and SRK warrants the veracity of the estimates. As outlined in Enmintech’s Report (and summarised here within), SRK considers there is a reasonable expectation for some 5.3 to 13.0 Moz to be defined at Toka Tindung Gold Mine through ongoing exploration.

While the Exploration Targets within the Toka Tindung Gold Mine area are conceptual in nature, SRK considers that the Project has technical merit given historical exploration potential/resource/reserve conversion rates at the Project and the highly experienced exploration team assembled by Archi.

Mineral Resources

The Mineral Resources for Toka Tindung Gold Mine at 31 December 2020 are summarised in Table ES-1. Total Mineral Resources comprise 145.8 Mt averaging 1.2 g/t gold (Au) and 2 g/t silver (Ag) for 5,528 koz of contained gold and 10,953 koz of contained silver.

Ore Reserves

The Ore Reserves for Toka Tindung Gold Mine at 31 December 2020 are summarised in Table ES-2. Total Ore Reserves comprise 98.3 Mt averaging 1.23 g/t Au and 2.57 g/t Ag for 3,884 koz of contained gold and 8,118 koz of contained silver.

Geotechnical engineering

Although the geological setting is essentially the same across the Project area, each pit presents localised conditions due to variations in faulting, rock mass fabric, weathering and alteration. Broadly, highly weathered, very weak tephra and soil materials are underlain by weak variably weathered conglomerate units of the upper pyroclastic unit (PTC). These conglomeratic units in turn overlie completely weathered, fragmented volcanics (VAF), which forms part of the VBA package) and less weathered basaltic andesites of the main volcanic package (VBA). In some places, the VBA contains a lower pyroclastics unit (PBX).

In general, planar failures occur on west walls and toppling failures on east walls – at batter or multi-batter scale. These are exacerbated by the presence of weak weathered or altered rock, and rock mass failures can also occur in such materials.

The Araren pit is prone to single and multi-batter instabilities, which have occurred in the weak weathered materials of the VAF and RTC in the upper north, east and south walls. Two significant failures occurred in November 2018 and April 2019. The 2019 failure was the more significant of the two (including four batters), impacting the ramp access and resulting in suspension of mining activity for a period. The failure mechanism appears to be a combination of sliding failure through local steeply dipping structures (fabric) and failure through weak rock mass.

Less significant failures have previously occurred in the west walls of the Stage 1, 2 and 4 Toka pit and in locally altered portions of the north and east walls of the Blambangan pit (currently being backfilled).

Significant effort is being made by Archi's onsite teams and consultants to assess the causes of previous instabilities and mitigate the risk of future events through design adjustments, slope depressurisation, erosion protection and monitoring. Based on its review of the available data, SRK recommends further data collection. Comprehensive and/or targeted studies are required to further inform these geotechnical investigations.

Table ES-1: Mineral Resources (at 0.2 g/t Au cut-off) for Toka Tindung Gold Mine (as at 31 December 2020)

Deposit	Measured					Indicated					Inferred					Total				
	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz
Alaskar						2.4	2.2	8	172	639	1.1	0.8	3	29	110	**3.6**	**1.7**	**6**	**200**	748
Araren	3.6	1.5	3	173	313	27.2	1.7	3	1,467	2,572	13.8	0.7	1	303	423	**44.6**	**1.4**	**2**	**1,943**	3,308
Kopra	1.9	1.5	7	90	453	18.5	1.4	4	807	2,113	1.9	0.9	3	52	198	**22.3**	**1.3**	**4**	**950**	2,763
Marawuwung	2.6	1.2	2	102	134	6.5	1.0	1	199	280	2.3	0.8	1	62	79	**11.3**	**1.0**	**1**	**363**	493
Talawaan						1.1	8.1	12	289	430	1.1	5.9	8	203	289	**2.2**	**7.0**	**10**	**492**	719
Toka	11.6	0.9	2	331	684	34.8	0.8	1	847	1,566	8.6	0.9	1	241	304	**55.0**	**0.8**	**1**	**1,418**	2 553
Stockpile						6.7	0.8	2	162	369						**6.7**	**0.8**	**2**	**162**	369
TOTAL	**19.7**	**1.1**	**2**	**696**	**1,583**	**97.2**	**1.3**	**3**	**3,942**	**7,969**	**28.8**	**1.0**	**2**	**890**	**1,401**	**145.8**	**1.2**	**2**	**5,528**	**10,953**

Source: Toka Tindung Gold Mine Mineral Resource Statements, 2021

Notes:

1. Totals may differ due to rounding
2. Reported within an US$2,340/oz constraining pit shell
3. Talawaan is reported within CoW boundary only and depleted for underground mining

Table ES-2: Ore Reserves for Toka Tindung Gold Mine (as at 31 December 2020)

Deposit	Proved Reserves					Probable Reserves					Total Ore Reserves				
	Mt	Au g/t	Au koz	Ag g/t	Ag koz	Mt	Au g/t	Au koz	Ag g/t	Ag koz	Mt	Au g/t	Au koz	Ag g/t	Ag koz
Marawuwung	2.8	1.15	105	1.51	137	8.2	0.86	226	1.24	328	11.0	0.93	331	1.31	465
Toka	10.9	0.90	316	1.93	678	35.4	0.71	808	1.46	1,658	46.3	0.76	1,124	1.57	2,336
Alaskar	-	-	-	-	-	1.5	3.02	146	11.03	532	1.5	3.02	146	11.03	532
Araren	2.9	1.75	161	3.13	289	19.5	2.05	1,287	3.65	2,294	22.4	2.01	1,448	3.59	2,583
Talawaan	-	-	-	-	-	0.9	7.56	215	11.45	325	0.9	7.56	215	11.45	325
Kopra	1.6	1.68	85	8.26	417	7.9	1.46	374	4.26	1,089	9.5	1.50	459	4.92	1,506
Stockpiles	-	-	-	-	-	6.7	0.75	162	1.72	371	6.7	0.75	162	1.72	371
Total	**18.2**	**1.14**	**667**	**2.60**	**1,521**	**80.1**	**1.25**	**3,218**	**2.56**	**6,597**	**98.3**	**1.23**	**3,884**	**2.57**	**8,118**

Source: Toka Tindung Gold Mine Ore Reserve Statement, 2021

Notes:

1. The Indicated Mineral Resources converts to Probable Ore Reserves, the Measured Mineral Resources converts to Proved Ore Reserves. Appropriate modifying factors were applied.
2. Due to the gold/silver doré product and single refining cost applied, a gold equivalent grade (AuEq) was developed to drive the mine planning study and define the marginal breakeven cut-off grades for the project.
3. The marginal breakeven grade is used as the grade that reflects the breakeven point of the total revenue against the sum of the processing costs, selling costs processing recoveries and selling prices. The calculated AuEq grade (as outlined in Section 8.3.2 of this Report) is used as the 'grade' field to define the marginal breakeven cut-off grades for all deposits and the subsequent Ore Reserve contained within the pit design.
4. The metal prices used are gold price US$1,900/ oz and silver price US$26.00/ oz.
5. Totals may differ due to rounding.
6. 1 ppm is equivalent to 1 g/t.

Hydrology

Groundwater resources identified in the Toka Tindung Gold Mine area are located in a single aquifer system known as the Fractured Bedrock Aquifer (FBA). The FBA is hosted within the unweathered portions of the volcanic rocks, with flow inferred to be dominated by structurally-controlled secondary permeability. Faulting and associated fracture network development provides storage and permeability via preferential pathways.

Recharge to the FBA is primarily via fractures connected with known river systems and by direct rainfall infiltration on exposed outcrop.

Significant hydrogeological investigations have been completed for the Project and preliminary estimates for surface water and groundwater inflows into the current and proposed pits developed as part of the existing studies. Key findings from these studies include:

- dewatering effluent is not suitable for direct disposal within the local river system due to the high salinity, high temperature and high concentrations of arsenic and boron.
- The high temperatures encountered in groundwater presents challenges for dewatering the existing pit infrastructure (i.e. pumps and piping).

As a result, the waters being pumped out of the Araren basin (typically at a volume rate of 4,000 tonnes per hour or tph) require cooling and dilution prior to being discharged into the local river systems under permit and following the attainment of acceptable salts levels.

Archi has installed a water management system comprising various settling ponds to ensure any released waters meet the requisite approval requirements.

Mining

Toka Tindung Gold Mine commenced overburden mining in 2009 and production mining operations in January 2011 (the processing plant and infrastructure commenced construction in 2009 with first gold poured in April 2011).

This production history has provided Archi with a solid understanding of mining/geotechnical conditions and operability of the open pits, as well as the processing facility's response to mixed ore types. Through operating experience, Archi has learnt to operate Toka Tindung Gold Mine in an efficient and profitable manner. This is clearly evident to SRK in light of the data and information supplied for review and Archi has successfully expanded the operation to its current status as the second-largest gold producer in Southeast Asia (behind Martabe).

The open pit mining complex at Toka Tindung Gold Mine consists of several open pits within an area spanning approximately 10 km^2. These include the active Toka, Araren, Kopra, and Blambangan open pits, which are in production, and the Alaskar and Marawuwung open pits, which are in pre-production. The Pajajaran open pit has been mined out and filled in with waste. This area also includes the Toka, Batupangah, Pajajaran and Kopra waste rock dumps (WRDs).

Since mining inception, Archi has successfully transitioned the Project to a multi-pit operation with initial production mining commencing at Toka (2011), Pajajaran (2011), Kopra (2012), Blambangan (2013) and Araren (2015). In addition, Archi has a strong track record in reserve replenishment (through resource conversion and exploration) and has implemented several cost reduction

initiatives including upgrading of the mining fleet, renegotiated contracts with key suppliers, significantly increased plant capacity and throughput, and has sourced cheaper power. Archi is now seeking to progress an active growth phase based on concerted exploration of near-mine, brownfield and greenfield opportunities in the eastern and western corridors, further cost reduction initiatives (including a larger mining fleet, electrification, water management, waste disposal and plant initiatives) and staged plant enhancement and expansion from the current 3.6 Mtpa plant capacity to 4.0 Mtpa (2021), 5.6 Mtpa (2022), 6.5 Mtpa (2024) and then 8.0 Mtpa (2025) at a low capital cost.

The 2020 Toka Tindung Gold Mine Ore Reserve has been designed to underpin Archi's expansion to beyond 4.0 Mtpa, with expansions beyond this throughput to be the subject of a Feasibility Study due to commence in Q1 2021.

Processing

The Toka Tindung Gold Mine processing plant flowsheet is conventional and well suited to the continued processing of the Toka Tindung gold ores. The operation has a history of regular plant capacity increases that have increased annual production rates from the initial 1.7 Mtpa to the current 3.6 Mtpa.

The fresh Toka Tindung Gold Mine ores are relatively free milling, with acceptable gold recoveries, despite the fresh ore's gold mineralisation being partly associated with sulphides. Historical recovery, together with testwork, has demonstrated that it is not excessively occluded and that with sufficient grind size, oxygen and cyanide addition and leach residence time, high recoveries can be maintained.

The forecast throughput of 4.0 Mtpa (by 2021) and the metallurgical gold and silver recoveries of 88.1% and 72% respectively, are reasonable and supported by historical production data, metallurgical testwork, the recovery correlations developed and the recently completed and proposed future expansion projects.

The fresh ores processed at the Toka Tindung Gold Mine are relatively competent and abrasive. They must be blended with marginally softer, but still fresh ores from the Araren and Alaskar deposits to optimise throughput, grinding power and wear.

In SRK's opinion, the historic throughput, softer feed blend and the scheduled 2021 upgrade projects support Archi's near-term forecast of 4.0 Mtpa (Q2 2021) and potential further capacity of greater than 4.0 Mtpa from mid-2021 onwards. Further opportunities for a major plant throughput expansion to 8.0 Mtpa by 2025 with first year's production of 8.0 Mtpa in 2026 is also under consideration, with Archi expecting to commence a Feasibility Study in Q1 2021.

Tailings storage facility

The Toka Tindung Gold Mine TSF is a valley impoundment located in the seismically active area of northern Sulawesi, Indonesia. The mine processing plant is situated immediately downstream of the dam, as is the Toka open pit. The TSF was constructed in 2010/2011 and started receiving tailings in April 2011. Since then, the TSF has been under a constant regime of raised expansion, to keep up with the mine's constant need for additional tailings storage capacity.

The TSF has been assigned a High-A consequence category as per ANCOLD (2019), due to the number of people working downstream at the process plant and Toka open pit, and also due to the major environmental and business impact that would ensue from any failure.

Infrastructure

Toka Tindung Gold Mine is well positioned relative to established electrical, water and transportation infrastructure capable of supporting future growth plans.

The Toka Tindung Gold Mine infrastructure is fully developed and includes administration, geology, mining and processing offices, two separate camps with accommodation (dormitory and single room catering to approximately 600 employees, with approximately 60% of the workforce onsite at any one time) and staff/non-staff messing facilities, convenience store, medical clinic, mosque/church, onsite laboratory, workshops, stores area, fuel and oil storage, communications system, a core storage facility, and several security posts. All sites have reticulated power and water. As is normal for an operating mine, programs for incremental improvements are ongoing.

Environment and community

Archi's Toka Tindung Gold Mine is required to conform to the laws and regulations of the Minahasa Utara Regency, North Sulawesi Province, and the Government of Indonesia (GoI). The principal mining law in Indonesia is the Law on Mineral and Coal Mining 4/2009 (Mining Law) with numerous implementing regulations. The Mining Law replaced an earlier framework whereby mining rights were granted by contractual agreement with the government (CoW), with an area-based Operation Production Mining Business Licence ('*Izin Usaha Pertambangan - Operasi Produksi*' or 'IUP-OP') licensing system. Although a CoW remains valid under the Mining Law, the CoW must be adjusted to align with the relevant mining stage under Ministry of Energy and Mineral Resources (*Kementerian Energy Dan Sumber Daya Mineral* (MEMR) Regulation 11/2018.

Indonesia has recently promulgated a new mining law (Law No. 3 of 2020) that significantly amends Law No. 4 of 2009 on Coal and Mineral Mining. The revised mining law is yet to be fully implemented. The revised mining law is supported by a range of government regulations and ministerial regulations, most recently including MEMR Regulation No. 7 of 2020 regarding Procedures for the Granting of Areas, Licensing and Reporting of Mineral and Coal Mining Business Activities. This regulation permits the automatic extension of a CoW and contains obligations for ongoing exploration.

Environmental permits are required prior to the commencement of any mining or construction activities in Indonesia, unless otherwise stated by the Minister for Environment and Forestry (MEF). SRK has been provided with various project environmental consents and permit documentation, which generally appears to support that the Toka Tindung Gold Mine operation holds valid approvals for its current operations and generally complies with applicable statutory requirements relating to environmental management of its operations. This conclusion is corroborated by a recent third-party audit of Toka Tindung Gold Mine's environmental management system (EMS) (SGS, 2020).

Archi is cognisant that continued mining and processing operations at Toka Tindung Gold Mine has to be undertaken with the support of the local community, as well as other stakeholders. Archi has adopted a progressive approach to its dealings with the local community, government and

regulators. Archi maintains a register of complaints and key issues pertaining to the mine and seeks to interact proactively with the community in regard to any arising issues and manage them. Furthermore, following a comprehensive social study in 2016, Archi has designed and implemented a number of economic development, infrastructure, education, and healthcare initiatives to promote the wellbeing and livelihoods of the local populace.

Workforce and Occupational Health & Safety

Archi maintains its corporate head office in Jakarta, with regional offices at site and in Manado.

The Toka Tindung Gold Mine operates on a two 12-hour shifts per day, 365 days per year basis.

Archi engages mining contractor companies to support its mining operations. Most of these contracts with mining contractors are on a long-term basis (typically 3–5 years).

For overall governance and oversight, Archi maintains both a Board of Commissioners (BOC) and Board of Directors (BOD). This structure has been established to ensure Archi maintains good relationships with the regulators, is able to coordinate and communicate effective with the MEMR, local governments and community.

As at 31 December 2020, the current complement of Total Costed Employees (TCE) at Toka Tindung Gold Mine is estimated at 2,445 (both employees and contractors). Of this total, some 70% (or 1,698 people) comprise contractors engaged in open-pit mining activities and support activities such as employee transport, cafeteria services and security. In total, 98% of the workforce are Indonesian nationals.

For the day-to-day operation of the Toka Tindung Gold Mine, Archi maintains 13 departments, each with its own head, who are ultimately responsible and accountable to the Chief Executive Officer (CEO, current incumbent Shawn David Crispin).

Archi's employees are free to associate with any labour union, with more than 60% of Archi's employees members of the SPKEP SPSI (*Serikat Pekerja Kimia Energi dan Pertambangan – Serikat Pekerja Seluruh Indonesia*). Archi typically negotiates its collective labour agreements (CLA) every two years, the most recent being in February 2020.

To date, the mine has only lost four days to labour disruptions. In 2016, employees commenced a 4-day labour strike demanding annual increases to remuneration benefits which resulting in the closure of all of Archi's operations over that period. Since then, Archi has focussed on a good working relationship with the SPKEP SPSI. Regular monthly meetings are held on site with union representatives and management.

The labour non-availability has averaged 17.2% and unplanned absenteeism has averaged 0.08% from 2016 to 2020. This rate of absenteeism and labour non-availability is well within the range observed in the mining industry. Turnover rates have increased since 2018 but remain low overall. In SRK's view, Archi management appear to have an effective strategy to retain key skills.

To date, the Company does not consider there has been any significant disruptions to ongoing operations at Toka Tindung Gold Mine as a result of the COVID-19 pandemic. Archi estimates the impact on its 2020 gold production was approximately 50 koz. To mitigate the ongoing impact of COVID-19, Archi has adopted a range of anti-pandemic measures and implemented health and

safety guidelines for all its employees, which comply with Indonesian and industry regulations, as well as Health, Safety and Environmental standards.

Archi has a robust occupational health and safety management system called TOKASAFE, which complies with Indonesian Health and Safety Management System for Mining (*Sistem Manajemen Keselamatan Kerja Pertambangan* or SMKP) requirements and international standards. The Company is ISO-45001 certified for the period 2020 to 2023.

The site has a reasonable safety record in terms of incidences, serious injuries and fatalities, with no fatal injuries recorded over the operational period (2011 to 2021). Average incident frequency rate for the full duration of the Toka Tindung Gold Mine operations (2011–2020) is 17.2, with 15.7 in 2020. Average injury frequency rate (IFR) for the period 2011–2020 is 6.7, with 5.9 in 2020.

Capital and operating costs

The Toka Tindung Gold Mine operations are planned to increase the mine production significantly in the near future.

In 2020, approximately US$86 M was expended on capital projects at Toka Tindung Gold Mine, largely focused on mining equipment purchases, increasing processing capacity, land acquisition, and exploration of the Toka Tindung Gold Mine corridor and the emerging Western Corridor.

Higher mine development capital costs are expected in 2021 and 2022 due to land acquisitions and associated relocation costs (principally road relocation near Araren and village relocations in the Talawaan area of the Western Corridor), as well as implementation of the grout curtain at Araren.

In addition, processing capital between 2021 and 2025 is tied to the expansion of the plant to 8.0 Mtpa, which has been defined at US$84 M (including electricity upgrades to support mill expansion). To date, this work has been undertaken at a scoping level of study only and will be updated as part of the Feasibility Study commencing in Q1 2021.

Archi's total general sustaining capital allowance is US$5 M/year, which extends into the final year of operation. In SRK's opinion, the allowance is likely to be moderately low for the process plant and general infrastructure, with SRK increasing this to approximately US$7 M per annum.

Over the 2011 to 2020 period, annual operating expenditure (expressed in terms of All-in Sustaining Costs (AISC)) at the Toka Tindung Gold Mine has ranged between approximately US$572/oz and US$1,242/oz Au. The main mining costs are related to dewatering, grade control, drilling and assay, waste and secondary haulage and load and haul (L&H) operations. The main processing costs are electrical power, grinding media, cyanide, salary including on-costs, consumables, maintenance, stockpile rehandling, sodium metabisulfite (SMBS), lime and other reagent costs. The main general and administration (G&A) costs are associated with site management, security, information technology and finance functions.

The 2020 actual unit operating costs for the Toka Tindung Gold Mine are generally considerably lower than that for similar operations in Indonesia, as outlined elsewhere within this Report. The operating cost projections for the near future are mostly based on the historical and most recent actual operating costs.

According to CRU Consulting (CRU) (2021), the Toka Tindung Gold Mine is positioned in the higher part of the first cost quartile in terms of 2019 global all-in sustaining costs (AISC). It is

currently relatively well placed in the Indonesian gold mining industry and costs would normally be expected to decrease as tonnages increase.

Risk assessment

In reviewing Archi's Toka Tindung Gold Mine, SRK has considered areas where there is perceived technical risk to the operation, particularly where the risk component could materially impact the projected production and resulting cashflows. The assessment is necessarily subjective and qualitative. As outlined elsewhere in this report, SRK considers the majority of technical elements supporting the Toka Tindung Gold Mine to be of low to moderate risk. The key risks requiring near-term attention include geotechnical, water management and TSF management.

Conclusions

Toka Tindung Gold Mine is a high-grade gold mine with substantial Ore Reserves and Mineral Resources presently defined (as at 31 December 2020), in addition to excellent prospectivity for the discovery of additional resources. Economic modelling and sensitivity analysis by SRK has demonstrated the robustness of the stated Ore Reserves, which is further underpinned by a sizeable Mineral Resource base and additional Exploration Targets able to support the LOM schedule to 2041. The mine is currently well placed in the Indonesian gold mining industry, being in the higher part of the first cost quartile and costs would normally be expected to decrease as tonnages increase.

Archi's growth plans to expand beyond 4.0 Mtpa near term are well supported by the asset's previous operating history, the approvals, permits, contracts and agreements which are either in-place or under renewal, as well as the existing infrastructure and the assembled workforce.

Longer term plans to increase annual production capacity to 8.0 Mtpa remain conceptual in nature and will need to be fully assessed as part of the proposed Feasibility Study commencing in Q1 2021. A key success factor in the proposed expansion will be Archi's ongoing interactions with community, government and other stakeholders to gain the necessary approvals to support this growth opportunity. In light of recent successful applications for such and Archi's proposed capital expenditure profile, SRK does not expect there to be any major constraints for the expansion beyond 4.0 Mtpa.

1 Introduction and scope of Report

PT Energi dan Mineral Teknologi Internasional (Enmintech) has been engaged by PT Archi Indonesia Tbk (Archi or the Company) to prepare an Independent Technical Assessment Report (ITAR or Report) relating to two Contracts of Work (CoW) comprising the Company's Toka Tindung Gold Mine (the Project) located in the northeast arm of the Island of Sulawesi, Indonesia.

Enmintech (also known as the Commissioning Entity for the purposes of this Report) has subsequently engaged SRK Consulting (Australasia) Pty Ltd (SRK) to assist in the preparation of an ITAR. The terms of reference and scope of the work to be completed by SRK were established by Archi.

1.1 Terms of reference and purpose of the Report

SRK understands that this Report is to be used in support of a potential listing of Archi on the Indonesian Stock Exchange (IDX) and related offering of shares in early 2021 and that it will be included in the prospectus and international offering circular relating to such offering and listing. The ITAR is to be prepared in accordance with the IDX rules, which permits reporting in accordance with the JORC Code (2012) and VALMIN Code (2015) mineral reporting codes (as defined below).

Importantly, and for the avoidance of doubt, this Report was not prepared in accordance with the United States Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305).

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation and ii) the assumptions, conditions, and qualifications set forth in this Report. This Report is intended for use by Archi subject to the terms and conditions of its contract with SRK and relevant securities legislation in Indonesia.

Archi is not permitted to file this Report as a Technical Report Summary with American securities regulatory authorities pursuant to the SEC S-K regulations, more specifically Title 17, Subpart 229.600, item 601(b)(96) - Technical Report Summary and Title 17, Subpart 229.1300 - Disclosure by Registrants Engaged in Mining Operations.

SRK's standard terms are not applicable to technical reports prepared under SEC SK-1300. These require specific language in the contractual terms and conditions with regards to indemnifications and the limit of liability arising from the SK-1300 reporting requirement. SRK reserves the right to not consent to filing of technical reports on any US exchange at the discretion of the qualified person/competent person.

Except for the purposes legislated under provincial securities law, any other uses of this Report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Archi.

The purpose of this Report is to provide an independent overview and assessment of the technical merits that might reasonably be expected to be applied by the market when considering an investment into the Indonesian mineral assets currently held by Archi. This Report provides an outline of the current status of the Project and its defined Mineral Resources, Ore Reserves, Exploration Targets and Exploration Results.

The effective date of this Report is 26 February 2021.

1.2 Scope of work

In order to comply with the JORC Code (2012) and VALMIN Code (2015) requirements, SRK's ITAR includes discussion of the following (where relevant):

- project location, access and supporting infrastructure
- geological setting
- an outline of the defined Mineral Resources and Ore Reserves
- production history
- Project constraints
- exploration/development strategy
- economic standing
- summary of Project risks and opportunities
- proposed forward works program and budgets.

For the avoidance of doubt, SRK's report is prepared in accordance with the "Australasian Code for the Public Reporting of Technical Assessment and Valuation of Mineral Assets" – VALMIN Code (2015) which incorporates the "Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves" – JORC Code (2012), in addition to other regulatory guidance as appropriate to a listing on the IDX.

As part of our investigations, SRK has made enquires, but not carried out any independent due diligence, on the status of the associated mineral titles and issues relating to land access and environmental regulations. SRK is not qualified to make legal representations in this regard and therefore specifically disclaims responsibility for these aspects for the purpose of this review.

1.3 Reporting standard

The authors of this Report are Members or Fellows of either the Australasian Institute of Mining and Metallurgy (AusIMM) and/or the Australian Institute of Geoscientists (AIG) and therefore are bound by both the VALMIN and JORC Codes. For the avoidance of doubt, this report has been prepared according to:

- the 2015 edition of the Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code)
- the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

The coordinating author of this Report, Mr Jeames McKibben, is a Registered Valuer and Chartered Valuation Surveyor with the Royal Institution of Chartered Surveyors (RICS). As a result, this Report may be subject to monitoring by RICS under the Institution's Conduct and Disciplinary Regulations. This Report is not a valuation report and hence is not intended to comply with the RICS 2017 Valuation Standards, otherwise known as the 'Red Book'.

In accordance to the stated reporting guidelines, all geological and other relevant factors defining the Company's Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves have been considered in sufficient detail to serve as a guide for future exploration. Table 1 of the JORC Code has been used as a checklist during the preparation of this Report and any comments are provided on an "if not why not" basis to ensure clarity to an investor on whether aspects of the future development program have been considered as they apply to the JORC Code (2012) Table 1.

The criteria of the JORC Code Table 1 reflects the normal systematic approach to exploration and target evaluation. Relevance and Materiality are overriding principles which determine the information that needs to be publicly reported. This Report has attempted to provide sufficient comment on all matters that might materially affect a reader's understanding or interpretation of the results being reported. The criteria under which each project is being evaluated is consistent with the current understanding of the geological controls on the known mineralisation, but, as more knowledge is gained these criteria could change and be improved upon over time.

As per the VALMIN Code (2015), a draft of the Report was supplied to Archi to check for material error, factual accuracy and omissions before the final version of the Report was issued.

1.4 Work program

This assignment commenced in January 2021, following receipt of Enmintech's Independent Exploration Targeting Review, Archi and SRK's Mineral Resource Estimates and SRK's Gap Analysis – Information Status and Suitability Report, in support of the declaration of Ore Reserves at the Toka Tindung Gold Mine. This assignment was run concurrently with SRK's Ore Reserve estimation process. It relies on data and information supplied by Archi, as well as other publicly available data and other information as sourced by SRK from literature, as well as subscription databases such as S&P Global Market Intelligence database services. Archi also provided SRK with access to an online data room.

In order to meet the requirements, set out in Section 11.1 of the VALMIN Code (2015), a site inspection to the Toka Tindung Gold Mine is required. Given the current global travel restrictions in place due to the COVID-19 pandemic, an in-person site inspection was not possible by SRK prior to or at the Effective Date of this Report, being 26 February 2021. As such, Mr Jeames McKibben discussed the material technical risk aspects of the Project with Mr Joe MacPherson, who visited the site on 28 August 2020 while undertaking an Exploration Potential Review, and Mr Myke Jones who has completed site inspections on 01 September 2020, 08 October 2020, 06 December 2020 and 15 January 2021, which collectively inform this Report.

In SRK's opinion, this is a reasonable and acceptable approach given the circumstances; however, this approach is not as comprehensive as an actual site inspection and therefore some residual risks may remain. This Report may therefore not be fully compliant with Section 11.1 of the VALMIN Code (2015).

SRK has satisfied itself and Archi has warranted that all material information in its possession has been fully disclosed to SRK and Enmintech.

1.5 Legal matters

SRK has not been engaged to comment on any legal matters. SRK notes that it is not qualified to make legal representations as to the ownership and legal standing of the mineral tenements that are the subject of this Report. SRK has not attempted to confirm the legal status of the tenements with respect to joint venture (JV) agreements, local heritage or potential environmental or land access restrictions.

1.6 Effective Date

The Effective Date of this Report is 26 February 2021.

1.7 Project team

This Report has been prepared by a team of SRK's consultants and associates in Australasia and Indonesia. Details of the qualifications and experience of the consultants who have carried out the work in this Report, who have extensive experience in the mining industry and are members in good standing of appropriate professional institutions, are set out below and in Table 1-1.

Table 1-1: Details of the qualifications and experience of the project team

Specialist	Position/ Company	Responsibility	Length and type of experience	Site inspection	Professional designation
Joseph MacPherson	Associate Principal Consultant/ Enmintech	Site visit and exploration target review	40 years – 6 years in consulting and advisory; 12 years in strategic exploration planning and management; 22 years in general mining and exploration operations	28/08/2020	BSc(Hons), FAusIMM, PDAC
Myke Jones	President Director/ Enmintech	Site visit and project co-ordinator	40 years – 10 years in consulting, 30 years project management and surveying. Specialist in Aerial Survey/GPS applications.	1/9/2020 8/10/2020 6/12/2020 15/01/2021	Mining Engineering surveyor. MM-ANU (Project management, business), FAusIMM
Danny Kentwell	Principal Consultant/ SRK	Mineral Resource	30 years – 23 years in consulting as a geostatistician with a background in geological modelling, mine planning and surveying; 7 years in operations.	None	MSc(Math.and Planning, Geostat), BAppSc(Surveying), FAusIMM
Ian De Bruyn	Principal Consultant/ SRK	Geotechnical Engineering	25 years – 18 years consulting in the fields of engineering geology and geotechnical engineering, specialising in geotechnical design and performance evaluation for mining operations and infrastructure; 7 years in operations.	None	BSc(Hons), PrSciNat, MAusIMM

Specialist	Position/ Company	Responsibility	Length and type of experience	Site inspection	Professional designation
Brian Luinstra	Principal Consultant/ SRK	Hydrogeology	25 years – 7 years in consulting in the fields of geology and hydrogeology, primarily in Canada, specialising in hydrogeological investigations and assessments, mine dewatering, water supply development, groundwater modelling, monitoring and quality, pit lake development, regulatory compliance, mine closure and baseline environmental characterisation; 18 years in operations.	None	PhD, BSc, PGeo
Simon Walsh	Associate Principal Consultant/ SRK	Mineral testwork and Processing	24 years – 14 years in consulting specialising in engineering design, metallurgical laboratory management and independent technical reviews; 10 years in operations.	None	BSc, MBA, MAusIMM, GAICD
Tim Fitton	Associate Principal Consultant/ SRK	Tailings Storage Facilities	23 years – 17 years in consulting specialising in tailings storage and management; 6 years in civil construction in the mining industry	None	PhD, BEng (Hons), MIEAust, CPEng, RPEQ, NER
Carl Murray	Principal Consultant/ SRK	Ore Reserves	30 years – 16 years in consulting specialising in Due diligence, feasibility studies, drill and blast optimisation, mine planning, scheduling, optimisation and designs for open pit mining, financial analysis, contract management, operational implementation of short and long term plans and pit dewatering; 14 years in operations.	None	BEng, FAusIMM
Alexander Thin	Principal Consultant/ SRK	Mining Engineering	33 years – 9 years in consulting specialising in Mineral asset audits and evaluations, independent technical reports, techno-economic studies, mining related mergers and acquisitions, due diligence and advisory services; 24 years in operations.	None	BEng (Hons) Mining, GDE, FAusIMM, FIMMM, FSAIMM
Lisa Chandler	Associate Principal Consultant	Permitting and Approvals	28 years – 20 years as environmental consultant to the resources sector; 5 years as government regulator; 3 years in operations.	None	MEng, BSc, MNELA, MAusIMM, AMANCOLD, MSER
Shaun Barry	Principal Consultant/ SRK	Economic analysis	28 years – 10 years in consulting specialising in valuation, financial modelling, sensitivity analyses, due diligence studies, independent expert reports, optimisation studies, risk analysis, business and marketing strategy development; 9 years marketing; 7 years analyst; 2 years in operations.	None	BSc(Hons), MSc Eng, MRICS
Jeames McKibben	Principal Consultant/ SRK	Report compilation (including all sections not previously listed)	25 years – 15 years in consulting specialising in valuation and corporate advisory; 2 years as an analyst; 8 years in exploration and project management roles.	None	MBA, BSc (Hons) FAusIMM (CP), MAIG, MRICS

Specialist	Position/ Company	Responsibility	Length and type of experience	Site inspection	Professional designation
Mark Noppe	Managing Director and Corporate Consultant/ SRK	Peer review	35 years – 23 years in consulting specialising in technical and governance audits and compliance, due diligence, sampling, grade control, mining geology, geological modelling, resource estimation and reporting, and training and facilitation; 9 years in exploration and operations.	None	MSc, BSc(Hons), FAusIMM(CP), MAICD

1.8 Limitations, reliance on information, declaration and consent

1.8.1 Limitations

SRK's opinion contained herein is based on information provided to SRK by Archi and Enmintech throughout the course of SRK's investigations as described in this Report, which in turn reflects various technical and economic conditions at the time of writing. Such technical information as provided by Archi and Enmintech was taken in good faith by SRK. While SRK is acting as the Competent Person for the stated Mineral Resources and Ore Reserves, SRK has not independently verified the stated Exploration Targets by means of recalculation but instead has relied upon the calculations of Mr MacPherson of Enmintech, who is SRK's associate for the purposes of the preparation of this Report.

Mr Joseph MacPherson is a Competent Person in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Mr MacPherson holds a BSc(Hons) degree from Laurentian University, Sudbury, Canada, and has extensive experience in metals exploration and mining including roles in Canada, South Africa, Laos, Philippines, Mongolia and Indonesia, with a particular focus on the exploration for base metal and precious metal exploration in Southeast Asia. SRK notes that Mr MacPherson is acting as an advisor to Enmintech and has declared his independence from Archi.

This Report includes technical information, which requires subsequent calculations to derive subtotals, totals, averages and weighted averages. Such calculations may involve a degree of rounding. Where such rounding occurs, SRK does not consider them to be material.

As far as SRK has been able to ascertain, the information provided by Archi and Enmintech was complete and not incorrect, misleading or irrelevant in any material aspect. Archi has confirmed in writing to SRK that full disclosure has been made of all material information and that to the best of its knowledge and understanding, the information provided by Archi was complete, accurate and true and not incorrect, misleading or irrelevant in any material aspect. SRK has no reason to believe that any material facts have been withheld.

1.8.2 Statement of SRK independence

Neither SRK, nor any of the authors of this Report, has any material present or contingent interest in the outcome of this Report, nor any pecuniary or other interest that could be reasonably regarded as capable of affecting their independence or that of SRK. SRK has no beneficial interest in the outcome of this Report capable of affecting its independence.

1.8.3 Indemnities

As recommended by the VALMIN Code (2015), Archi has provided SRK with an indemnity under which SRK is to be compensated for any liability and/or any additional work or expenditure resulting from any additional work required:

- which results from SRK's reliance on information provided by Archi or Archi not providing material information; or
- which relates to any consequential extension workload through queries, questions or public hearings arising from this Report.

1.8.4 Consent

SRK consents to this Report being included, in full, in Archi's IDX listing documents in the form and context in which it is provided, and not for any other purpose. SRK provides this consent on the basis that the Technical Assessment expressed in the Executive Summary and in the individual sections of this Report is considered with, and not independently of, the information set out in the complete Report.

1.8.5 Practitioner consent

The information in this report that relates to the compilation and estimation of the Exploration Targets and Exploration Results is based on and fairly reflects information compiled and conclusions derived by Mr Joseph MacPherson, who is a Competent Person and Fellow of the AusIMM. Mr MacPherson is an independent consultant employed by Enmintech, an independent mining consultancy. Mr MacPherson has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Mr MacPherson consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based upon information compiled by Archi. The geological modelling, grade estimation, classification and reporting of the Toka Tindung Gold Mine Mineral Resource have been independently reviewed by SRK Consulting (Australasia) Pty Ltd (SRK).

The information in this report that relates to the sampling, data preparation, lithology modelling, oxidisation modelling and density assignment in support of the Toka Tindung Gold Mine Mineral Resources is based on and fairly reflects information compiled and conclusions derived by Ms Sonia Konopa, who is a Competent Person, a Fellow of the AusIMM and a Member of the Australasian Institute of Geoscientists. Ms Konopa is a full-time employee of Archi based in their Jakarta office. Ms Konopa has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Ms Konopa consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to the compilation, grade estimation, classification and reporting of the Toka Tindung Gold Mine Mineral Resources is based on and fairly reflects

information compiled and conclusions derived by Mr Danny Kentwell, who is a Competent Person and Fellow of the AusIMM. Mr Kentwell is a full-time employee of SRK based in our Melbourne office. Mr Kentwell has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Mr Kentwell consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to the depletion of the Talawaan deposit and stockpile Mineral Resource grade and tonnage is based on and fairly reflects information compiled and conclusions derived by Mr Shawn Crispin, who is a Competent Person and Fellow of the AusIMM. Mr Crispin is a full-time employee of Archi based in their Jakarta office. Mr Crispin has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Mr Crispin consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to the Modifying Factors supporting the Toka Tindung Gold Mine Ore Reserves is based on and fairly reflects information compiled and conclusions derived by Mr Arthur Pacunana, who is a Competent Person and Member of the AusIMM. Mr Pacunana is a full-time employee of Archi based at the Toka Tindung Gold Mine site. Mr Pacunana has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Mr Pacunana consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

The information in this report that relates to the process of optimisation, pit design and production scheduling for the Toka Tindung Gold Mine Ore Reserves is based on and fairly reflects the Modifying Factors as provided by Archi and applied by Mr Carl Murray, who is a Competent Person and Fellow of the AusIMM. Mr Murray is a full-time employee of SRK, based in our Perth office. Mr Murray has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 edition of the JORC Code. Mr Murray consents to the inclusion in the Report of the matters based on the information in the form and context in which it appears.

The information in this report that relates to the technical assessment and evaluation of the Toka Tindung Gold Mine is based on and fairly reflects information compiled and conclusions derived by Mr Jeames McKibben, who is a Competent Person and Fellow of the AusIMM and a Member of the AIG. Mr McKibben is a full time employee of SRK, based in our Brisbane office. Mr McKibben has sufficient experience that is relevant to the mineral asset under consideration, the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Practitioner as defined in the 2015 edition of the VALMIN Code, and as a Competent Person as defined in the 2012 edition of the JORC Code. Mr McKibben consents to the inclusion in the Report of the matters based on their information in the form and context in which it appears.

1.8.6 Consulting fees

SRK's estimated fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. The fees are agreed based on the complexity of the assignment, SRK's knowledge of the assets and availability of data. The fee payable to SRK for this engagement is estimated at approximately A$45,000. The payment of this professional fee is not contingent upon the outcome of this Report.

1.8.7 Units of measure and currency

Throughout this report, measurements are in metric units and currency in United States dollars (US$) or Australian dollars (A$) unless otherwise stated.

1.8.8 Nomenclature

Throughout this report, the following terms are used as defined, unless otherwise stated:

- **Toka Tindung Gold Mine LOM Model** – Archi's financial model as provided to SRK supporting its growth plans and increased processing capacity to 8.0 Mtpa as discussed elsewhere in this Report
- **Near Mine Targets** – defined by Archi to mean those "targets which are located proximal (within 0.5 to 1 km) of existing deposits, but outside the current resource envelope, may be located along strike of the known resources. These exhibit geological, alteration, structural and geochemical characteristics similar to the known deposits".
- **Greenfields Targets** – defined by Archi to mean those "generally located greater than ~1 km from known deposits, but still exhibiting one or more of the well-known characteristics of the known mineralised zones in the Project Area. These targets are more theoretical/conceptual in nature and their parameters are based on the extensive knowledge base available as well as their resemblance to known ore zones. Typically, greater reliance is placed on geophysical signatures and lower tenor geochemical anomalies that may provide subtle indicators towards the presence of potentially significant mineralization under Recent cover".
- **Eastern Corridor** – consists of the northwest-trending deposits on the eastern side of the Project area. It includes the deposits trending north to south of Toka, Marawuwung, Araren, Pajajaran, Blambangan, Kopra and Alaskar.
- **Southern Pits** – the open pits within the Batupangah area of the Eastern Corridor spanning both CoWs, namely Araren, Pajajaran, Blambangan, Kopra, and Alaskar.
- **The Toka Tindung Gold Mine** – Archi's mining project area encompassing an area of 39,817 ha, covered by two approved CoWs, including the area occupied by the processing plant and TSF. This area encompasses the Eastern Corridor and the Western Corridor.
- **Western Corridor** – consists of the northwest-trending deposits on the western side of the Project area. It includes the deposits trending north to south of Bima, Arjuna and Batu Kresna (collectively known as the Talawaan area).

2 Project overview

2.1 Background

Commercial operations at the Toka Tindung Gold Mine commenced in April 2011, when the first gold was poured. Successful mining and processing operations have been ongoing since that time, with the Project producing over 1.9 Moz of gold. In 2020, the Toka Tindung Gold Mine produced 206.8 koz of gold and 363.1 koz of silver.

Archi's Toka Tindung Gold Mine open pit mining complex consists of several open pits. These include the active producing open pits; Toka, Araren and Kopra, and the Alaskar, Marawuwung and Talawaan open pits, which are in pre-production. Ore from each production centre is mined by conventional truck and shovel methods using hydraulic excavators and articulated dump trucks (ADT), hauling to the run-of-mine (ROM) stockpile and crusher. The predominantly oxide-based ore is processed on site at a centralised processing facility using comminution processes (crushing/ grinding) followed by conventional carbon-in-leach (CIL) extraction, elution and smelting to produce gold and silver doré. Doré ingots comprising approximately 60–70% gold and 30–40% silver are produced in the gold room on site and shipped to the London Metals Exchange (LME)-certified Logam Mulia refinery operated by Antam in Jakarta or other private refineries, where it is further refined into standardised 99.99% purity gold granules and 99.9% purity silver is produced.

Since commissioning, the Project's processing capacity has progressively increased from an initial 1.7 Mtpa to the current 3.6 Mtpa. The current ore feed rate is constrained by the hardness of the ore and the mill's electrical supply. The current open pit feed blending strategy is to ensure an optimal feed of hard ore and soft clayey ores, related to the mill power availability. Three open pits typically feed ore to maintain the hard rock relative to clays as required to maintain gold production. Archi is now proposing transitioning plant capacity to 8.0 Mtpa by 2025/2026.

Key initiatives associated with the progression to 8.0 Mtpa capacity as proposed by the Company include:

- **Exploration**: An aggressive yet systematic exploration strategy, underpinned by a highly experienced team of epithermal specialists, designed to significantly expand the presently defined Ore Reserve base and open the prospective Western Corridor (i.e. Talawaan – Bima, Arjuna and Batu Kresna deposits)
- **Mining**: increased production and cost reduction measures comprising:
  - expanded production from current mining centres and development of new growth opportunities within the near mine environs and the Western Corridor
  - cost reduction and production efficiency initiatives including:
    - a switch to a new mining contractor using a smaller fleet of larger 100 t off-road haul trucks (replacing the current 45 t ADT fleet) and corresponding excavators from early 2021
    - electrification of in-pit diesel pumps
    - installation of grout curtains and river diversions to reduce water inflows in the pits
    - using old pits and valleys for waste rock disposal.

- **Production**: increased production and cost optimisation including:
  - a step change in processing capacity to 4.0 Mtpa by Q2 2021, 5.6 Mtpa by 2022, 6.5 Mtpa by 2024 and 8.0 Mtpa by 2025 with first full year of production of 8.0 Mtpa in 2026 at low capital cost
  - lowering of operating costs through power optimisation including:
    - adoption of Vega breakthrough technology in 2021 leading to reduced wear of mill components (i.e. liners and mill balls)
    - installation of variable speed drives in SAG mill and process control to reduce labour and costs
    - ongoing systematic replacement with PLN power focused on near-term replacement of diesel dewatering infrastructure (water pumps that extracted 5.5 ML in 2020)
    - further negotiation of supply contract rates.

In support of its growth objectives, Archi has developed a financial model based on these key initiatives (Toka Tindung Gold Mine LOM Model). Whilst aspirational in nature, the Toka Tindung Gold Mine LOM Model represents Archi's current forward case guiding future development of the operation over the period 2021 to 2041 (coinciding with the approved term of its CoWs).

Archi is now seeking to list and to raise capital on the IDX to fund the Company's growth plans and objectives in the future.

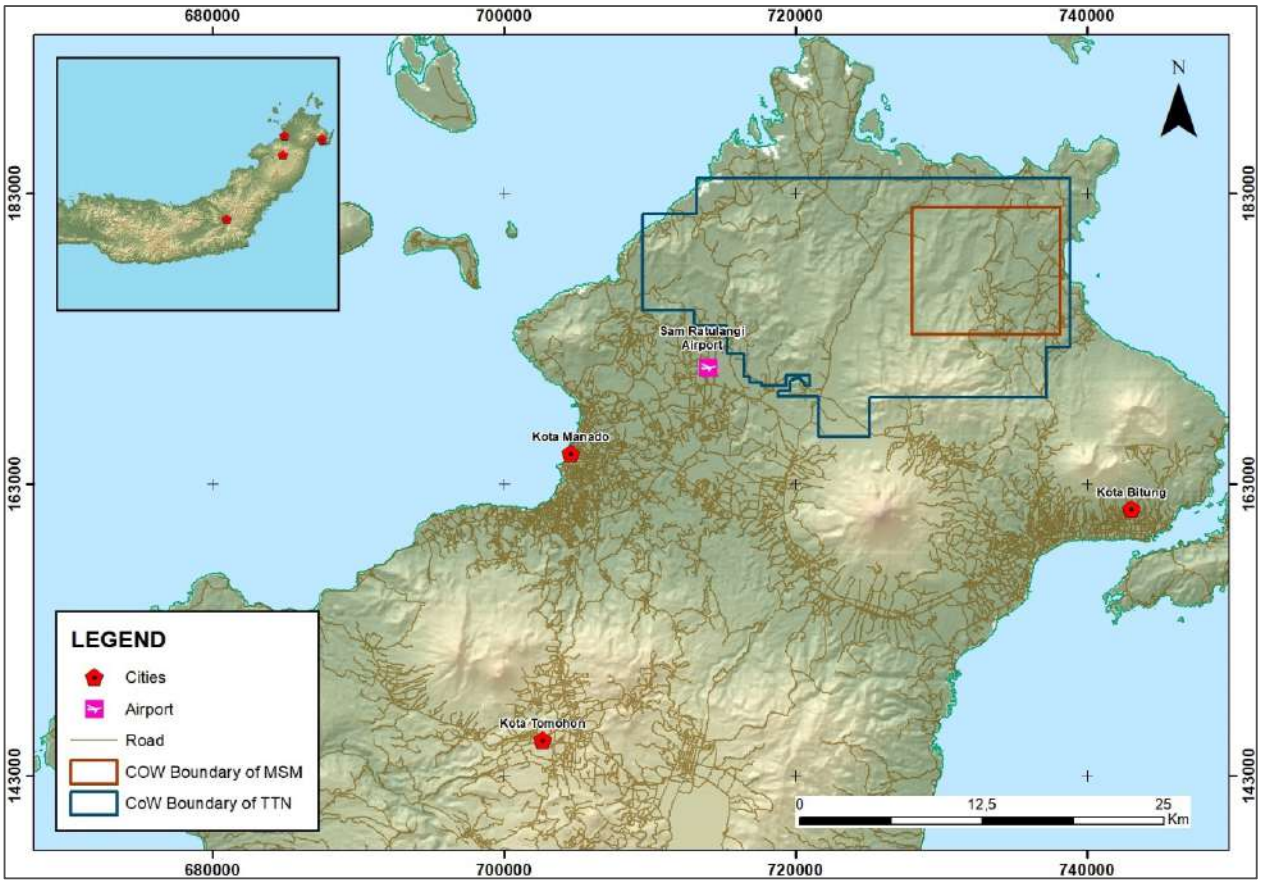
2.2 Location

Archi's Toka Tindung Gold Mine is located in the Ranowulu District of the Minahasa Utara Regency in the Indonesian Province of North Sulawesi (Figure 2-1). The Project combines two CoW (CoW or *Kontrak Karya-KK Operasi Producksi*): TTN and MSM which are operated as a single integrated mining project (MSM/TTN), covering an area of 39,817 ha. The Project is confined by the geographic boundaries of 124˚52'59"-125˚ 8'44" East Longitude and 1˚ 30'12"-1˚ 39'50" North Latitude.

The Toka Tindung Gold Mine concessions are located approximately 35 km northeast of the provincial capital city of Manado and 20 km north of the port city of Bitung.

Toka Tindung Gold Mine shares boundaries with neighbouring concessions held by PT Duta Kayana in the west and PT Camindo in the north. Both PT Duta Kayana and Pt Camindo remain in the early to advanced stages of mineral exploration principally targeting gold and manganese respectively. Neither of these concessions have an impact on Archi's Toka Tindung Gold Mine operations.

Figure 2-1: Toka Tindung Gold Mine – Project location and concessions



Source: Archi, 2021

2.3 Permits and approvals

2.3.1 Ownership

The Toka Tindung Gold Mine was previously held by Muswellbrook Energy and Minerals Ltd (MEM), Ashton Mining Limited (Ashton), Aurora Gold Limited (Aurora) and Archipelago Resources PLC (Archipelago).

MSM, an Indonesian domiciled entity known as a *Penanaman Modal Asing* (foreign Investment or PMA company) was granted a 4th generation CoW in December 1986. Shareholders in MSM at the time were Teweti Propensi Sulawesi Utara Limited and Base (Propensi Sulawesi Utara) Limited, both being subsidies of MEM (85%) and PT Sankiviga, an Indonesian company (15%).

In March 1989, MEM entered into a JV on its holding with Ashton who, as managers earned an interest and ultimately purchased all of MEM's equity in MSM. In July 1993, Aurora acquired Ashton's gold interests in Indonesia, including its 85% interest in MSM.

TTN holds a 6th generation CoW granted in March 1997. This CoW was originally held by Aurora (85%) and PT Austindo Nasuantara Jaya (15%).

In February 2002, Archipelago acquired an 85% interest in the two Toka Tindung Gold Mine concessions from Aurora. The consideration for the acquisition was a 0.375% uncapped gross production royalty on 85% of all gold and silver produced within the concessions with the remaining 15% interest-free carried until commencement of production.

Up to the date of purchase, some US$80 to US$100 M had reportedly been spent on the Project, by which time Aurora had established a small Ore Reserve and Mineral Resource base. Archipelago's focus was on technoeconomic studies to Feasibility Study level and progression of the AMDAL (environmental assessment) in order to develop a mine.

PT Rajawali Corpora (Rajawali or Rajawali Group, which refers to PT Rajawali Corpora and its subsidiaries collectively) initially acquired a minority interest in Archipelago in 2007 before moving to a controlling interest in July 2009 and progressively increased its equity from 2009. In October 2013, Archipelago accepted a takeover offer from Rajawali, with Archipelago subsequently delisted from the AIM Market and privatised. At this time, Rajawali increased its ownership from 52% to 88% of Archipelago.

In 2014 and pursuant to a restructuring, Archi acquired Archipelago Resources Pte Ltd from Archipelago, providing it with a 95% interest in MSM and TTN.

In 2018, Archi increased its interest in the Toka Tindung Gold Mine concessions directly to 99.5% with Archipelago Resources Pte Ltd holding the remaining 0.5% interest.

The current corporate holding structure pertaining to the Toka Tindung Gold Mine is summarised in Figure 2-2.

Archi is a portfolio company of Rajawali, a leading Indonesian business conglomerate first established in 1984. Rajawali holds interests in a diversified portfolio operating in the property, agriculture and the media and services industries. In addition, Rajawali maintains significant interests in the Indonesian mining and resource sector including gold, iron sand and coal mining concessions.

Archi was formed in 2010 and maintains its corporate headquarters in Jakarta. Since inception Archi has emerged as one of the largest gold producers in Indonesia and Southeast Asia, with a successful history of exploration, development and operation. Its stated vision is "to be the leading, cost-efficient, world class, fully integrated mining company in Southeast Asia delivering superior returns to all stakeholders". Key to achieving this, the Company's mission statement sets out its core objective is to "constantly strive for excellence, sustainable growth and leadership position in the mining business by:

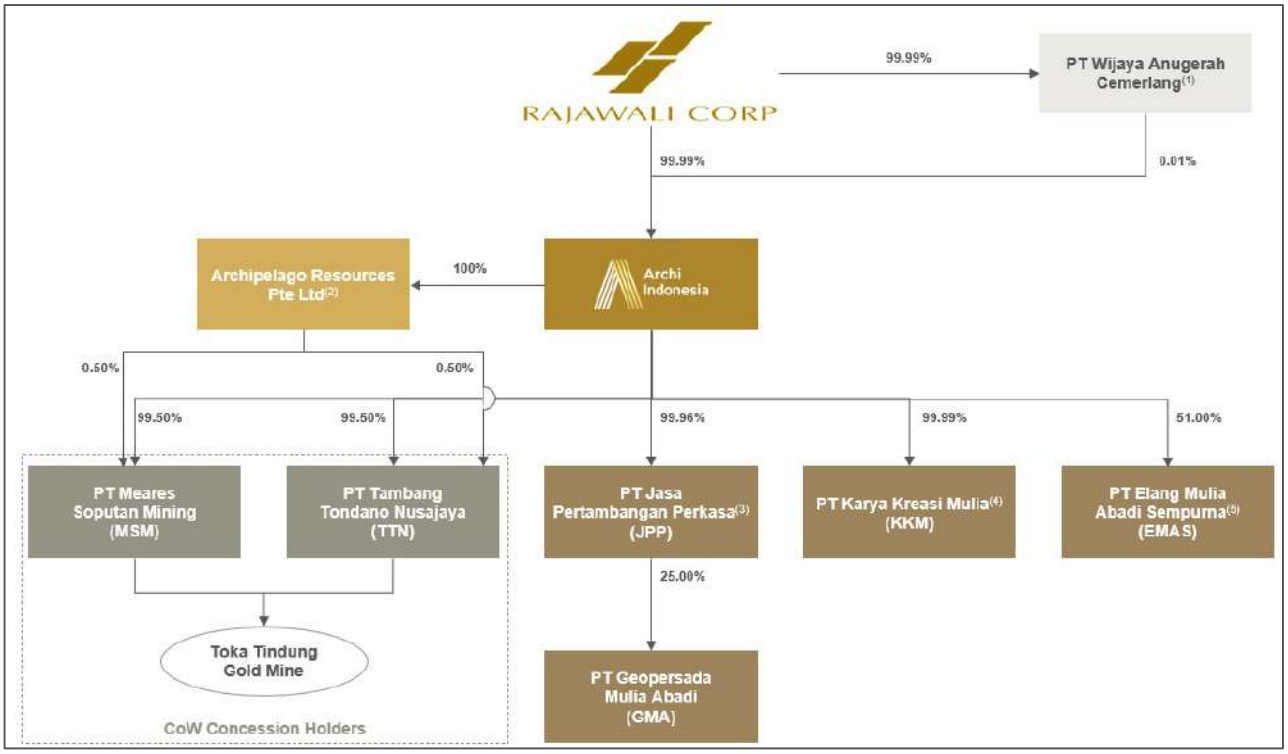
- Implementing industry best practices and optimizing current operations
- Pursuing value-creating opportunities in other metals and relevant mining related lines of service
- Leveraging our assets, expertise, skills and experience to maximise shareholder value.
- Fostering employee development, the livelihood of surrounding community and environmental care.
- Guaranteeing good corporate governance in everything we do.

Through its holdings in PT Jasa Pertambangan Perkasa (JPP), Archi holds a 25% interest in PT Geopersada Mulia Abadi (GMA), the appointed mining contractor to the Toka Tindung Gold Mine.

PT Karya Kreasi Mulia (KKM) was formed in 2018 and provides general management and support services in the areas of tax, legal and accounting exclusively for Archi, MSM and TTN.

In April 2019, Archi established a JV company, PT Elang Mulia Abadi Sempurna (EMAS) in which Archi holds a 51% interest and a third party holds the remaining 49%. EMAS is Archi's downstream business operating under the name of Lotus Archi and is focused on bullion production and minting of gold bars in Indonesia.

Figure 2-2: Current corporate structure for the Toka Tindung Gold Mine



Source: Archi Management, 2021

Notes:

1. PT Wijaya Anugerah Cemerlang's ultimate beneficial owner is an entity controlled by Rajawali Group
2. Archipelago Resources Pte Ltd is an investment holding company
3. JPP is a holding company for mining services, which holds a 25% interest in GMA, Archi's mining contractor at Toka Tindung Gold Mine
4. KKM provides mining support services to Archi's subsidiary companies
5. EMAS is a JV company producing gold bullion and minted gold bars.

2.3.2 Tenure

The Toka Tindung Gold Mine is held under two operational production CoWs covering a combined area of 39,817 ha (398.17 km^2) (refer Figure 2-1) namely:

- MSM CoW held by MSM
- TTN CoW held by TTN.

The original CoW agreement between MSM and the Republic of Indonesia was signed on 02 December 1986 for 741,000 ha, with the majority relinquished in the exploration phase. The TTN CoW was initially granted on 28 April 1997. Table 2-1 provides a summary of the current status of the Project concessions.

The MSM CoW contains the Toka deposit, the majority of the existing infrastructure and part of the Araren deposit. The TTN CoW contains the Pajajaran, Blambangan, Kopra and part of the Araren deposits, as well as covering the Talawaan area. All of the presently defined Exploration Targets as outlined elsewhere within this Report are contained within these two concession areas.

There was no formally reported gold production from these concession areas prior to 1986.

Table 2-1: Toka Tindung Gold Mine – Current status of Project tenure

CoW	TTN	MSM
Type	CoW or KK Operation Production	COW or KK Operation Production
Granted No.	946.K/30/DJB/2011	540/2540/COW-OP-MB-PBAT/IX/2010
Company Name	TTN	MSM
District	Ranowulu, Likupang Selatan, Likupang Barat, Likupang Timur, Talawaan, Dimembe, Wori	Ranowulu, Likupang Timur, Likupang Selatan
Region	Bitung, Minahasa Utara	Bitung, Minahasa Utara
Province	North Sulawesi	North Sulawesi
Commodity	Gold, Silver	Gold, Silver
Area	30,848 ha	8,969 ha
Signing Date	28 April 1997, and amended on 23 December 2015	02 December 1986, and amended 23 December 2015
Date Granted	05 August 2011	06 March 2011
Expiry Date	10 March 2041	05 March 2041
Term	30 years (extendable for two more extensions of CoWs in the form of an IUPK extension, each for a maximum period of 10 years)	30 years (extendable for two more extensions of CoWs in the form of an IUPK extension, each for a maximum period of 10 years)

Source: Archi Information Memorandum, August 2020

Under Indonesian law, the terms of the original CoW provide for a specific timetable and a series of phases as the timeline advances. These phases are summarised here:

General Survey Period: 12-month term during which initial surveys are done to locate potentially economic mineral deposit(s). Any discoveries require notification to the Government. A 12-month extension is available if required. Any areas not identified as prospective are returned to the government.

Exploration Period: Follow up detailed exploration is required in the areas identified as prospective from the General Survey Period. During this 3-year period detailed exploration is carried out. Two 1-year extensions are available if justified.

Feasibility Study Period:	The CoW holder is required to carry out a "Feasibility Study" leading to the submission of a mining plan to the Government. In reality, this is rarely sufficient time for this work to be completed to the level expected of a Feasibility Study as defined in the JORC Code (2012). One extension is available and additional extensions could be granted.
Construction Period:	After full permitting and approvals, the construction of the mine commences; mining infrastructure and supporting facilities are built. There is a requirement for this phase to be completed within 3 years (again this is often extended).
Operating and Production Period:	Mineral production commences and the operating period is established with the government (usually 10 to 30 years). Ongoing site improvements are made to support the mine and brownfields and Greenfields exploration continues on the areas outside of the established mining areas.

Toka Tindung Gold Mine is currently in the Operating and Production Phase with the previous phases completed. Construction activity is ongoing associated with new projects such as the mill expansion and new open pit development. Key activities include re-routing of power lines, diverting of water flows (channels, rivers, creeks, etc.), establishment of haul roads and other project work.

All of the reporting requirements under the CoWs are up to date and the concessions are reportedly in good standing.

The CoWs are due to expire in 2041 and are subject to two more extensions under the Law No. 3 of 2020 as amended by the 2009 Mining Law, with each extension for a period of up to 10 years on conversion to an IUPK (*Izin Usaha Pertambangan Khusus*). Terms of conversion have not yet been determined.

2.3.3 Land acquisition

In line with CoW requirements, Archi conducts land acquisition in order to secure property required to support the ongoing mining and processing operations at Toka Tindung Gold Mine. Land acquisition activities are carried out gradually on an as-needed basis with both the landowner and Archi entering into a formal and transparent negotiation process.

The company has a proven track record of land acquisition, and permit approval, as well as working with the regulatory bodies to enable re-zoning of land in areas such as forestry.

In 2020, Archi purchased approximately 891 ha of land for both exploration and mining purposes, predominantly in the Marawuwung, Kopra and Alaskar areas of the Eastern Corridor and the Talawaan area in the Western Corridor. Importantly, Archi buys the surface rights to the land intended for exploration and therefore is well positioned to develop its mining areas once any discoveries are made. The remaining constraint then is infrastructure access.

Archi is well resourced with suitably experienced staff to manage permitting, licensing and land acquisition. Land purchasing is generally ahead of plan and Archi enjoys good relations with the regulators thereby enabling timely rezoning of lands. To date, Archi has successfully secured exploration permits for production forest areas, as well as the purchase of production forest areas.

Further details are outlined in the environmental permitting sections of this report.

2.3.4 Royalties, taxes and rents

Entities or individuals carrying out mining activities are required to pay Indonesian Federal taxes (including income tax and other centrally administered taxes, as well as import/customs duties, non-tax state revenue principally royalties, dead rent and exploration contributions) as well as regional taxes and retributions.

Current statutory rates pertaining to the Toka Tindung Gold Mine are outlined in Table 2-2.

Table 2-2: Current statutory royalties, taxes and rents payable in relation to the Project

	MSM CoW	TTN CoW
Royalty Rates	▪ Gold (depending on sale price/ounce): ≤US$1,300: 3.75% – US$1,301 – 1,400: 4% – US$1,401 – 1,500: 4.25% – US$1,501 – 1,600: 4.5% – US$1,601 – 1,700: 4.75% ≥US$1,700: 5% ▪ Silver: 3.25%	▪ Gold (depending on sale price/ounce): ≤US$1,300: 3.75% – US$1,301 – 1,400: 4% – US$1,401 – 1,500: 4.25% – US$1,501 – 1,600: 4.5% – US$1,601 – 1,700: 4.75% – ≥US$1,700: 5% ▪ Silver: 3.25%
Tax	Corporate income tax: ▪ 15% of taxable income up to IDR 10 M ▪ 25% of taxable income from IDR 10 M to IDR 50 M ▪ 35% of taxable income more than IDR 50 M	Corporate income tax: ▪ 10% of taxable income up to IDR 25 M ▪ 15% of taxable income from IDR 25 M to IDR 50 M ▪ 30% of taxable income more than IDR 50 M
Land rent	Annual land rent, calculated based on the numbers of hectares that includes each of CoW areas or the mining areas, must be paid in January of each year	

Source: Archi Information Memorandum, August 2020

Over the period, 2012 to 2019, Archi paid US$6.7 M to Harmony Gold Mining Company Limited in order to meet the obligations of the Aurora royalty agreement. The Aurora royalty was a revenue-based royalty, based on 0.31875% of gold and silver revenue for the life of the mine (LOM). In 2020, Archi terminated the Aurora royalty through a single final payment of US$4.773 M, comprising a US$4.6 M termination payment and US$0.173 M in royalties due.

Other than the mandated government royalties under the Mining Law, SRK understands that there are no existing third-party royalties, back in rights, payments or other agreements or encumbrances on title to the CoWs.

2.3.5 Agreements

As an active mining and processing operation in Indonesia, Archi and its subsidiary companies have entered into a number of key agreements for the ongoing supply of goods and services required to viably extract and process the gold–silver bearing ores at the Toka Tindung Gold Mine. Key contracts supporting current operations are outlined in Table 2-3.

Table 2-3: Key contract supporting mining and processing operations at Toka Tindung Gold Mine

Type of Service	Counterparty	Description	Service provided	Years with Archi	Contract period
Mining service	GMA[2]	Mining service provider based in Indonesia engaged in general mining services	L&H, including general mining services	<1 year	19 August 2020 –18 August 2025
	PT Samudera Mulia Abadi (SMA)[2]	Mining service provider based in Indonesia engaged in general mining services	L&H, including general mining services	c.4 years	01 March 2016 –31 May 2021
	PT Manado Karya Anugrah (MKA)	Mining service provider based in Indonesia engaged in general mining service	Toka Tindung Gold Mine overhaul, stockpile management and road maintenance	c.3 years	01 May 2017 –31 August 2021
Fuel supply	PT AKR Corporindo Tbk	Leading logistics and supply chain company, is engaged in the trading and distribution of Petroleum and Basic Chemicals with extensive network of liquid bulk and dry bulk storage, transportation facilities, and port operations	HSD fuel supply (70% solar, 30% biodiesel)	c.10 years	01 March –01 March 2022
Exploration drilling	PT Maxidrill Indonesia	Registered Penanaman Modal Asing (PMA) company in Indonesia which has been providing Professional Contract Drilling Service since its inception in 1994	Provision of reverse circulation, diamond drilling (wireline) and other drilling and sampling services	c.3 years	05 December 2016 –31 December 2021
Electricity	PT PLN (Persero)	Indonesian government-owned corporation which has a monopoly on electricity distribution in Indonesia and generates the majority of the country's electrical power	Electricity power distribution for gold processing industry at Winuri Likupang with available capacity of 60 MW Availability of c.99%	c.4 years	02 June 2016 –31 December 2027
Laboratory services	PT Intertek Utama Services	Leading Total Quality Assurance provider to industries worldwide that delivers innovative and bespoke Assurance, Testing, Inspection and Certification solutions	Provision of assay laboratory services compliant with mining and tailings requirements	c.10 years	01 October 2015 –31 March 2021
Refining	PT Aneka Tambang (Persero) Tbk	Vertically integrated, export-orientated, diversified mining and metals company Undertakes all activities from exploration, excavation, processing through to marketing of nickel ore, ferronickel, gold, silver, bauxite and coal	Refining agreement Toka Tindung Gold Mine owner (MSM and TTN)	c.10 years	01 January 2010 –31 December 2022
Blast and grade	PT Orica Mining	Provides mining services to mine owners and mining	Supplier of blasting consumables and total	c.10 years	01 February 2016

Type of Service	Counterparty	Description	Service provided	Years with Archi	Contract period
control	Services	contractors in Indonesia	loading services to Toka Tindung Gold Mine's open pits		–31 July 2021
Supply blasting material	PT Parts Sentra Indomandiri	Provides supplies, drilling services and support to mining and mineral exploration companies in Indonesia	Blasthole drilling services and grade control services	c.10 years	01 June 2015 –30 June 2021

Sources: Archi Information Memorandum, August 2020

Notes:

[1] HSD refers to High Speed Diesel

[2] Management will renegotiate the mining contract

[3] With the SMA contract finishing in May 2021, Archi's management will decide at that time whether (or not) to continue with SMA in a reduced scope based on the LOM requirements, contractor performance, etc.

Mining – GMA mining contract

Archi has traditionally outsourced its mining operations to a local contractor as an efficient way of managing and reducing mining costs.

Currently, the Toka Tindung Gold Mine operation is transitioning to a larger fleet in terms of physical size (254 t and 117 t excavators and 100 t haul trucks) in order to further reduce its mining costs. This work commenced in late 2019 with the assistance of a third-party mining estimator that assisted Archi with a first principles cost analysis. This work formed the basis of Archi's negotiations with GMA, the new contractor (in which Archi is a 25% shareholder through JPP and controls the President Commissioner position and the Chief Financial Officer (CFO) role).

In October 2020, Archi signed a contract with GMA based on the earlier work for an alliance-styled contract using a matrix cost structure reflecting trucking costs for both vertical and horizontal distance (which impact fuel usage). The principle of the contract is that GMA is responsible for load waste and ore; haul waste and ore to the designated locations (Crusher, ROM or waste dump); construct haul roads, maintain existing haul roads and waste dumps; and provide supervision, operators, maintenance personnel, fuel and lubricants and support facilities. New rates have been agreed and reflect the move to a larger, more cost-efficient mining fleet, as well as the horizontal distance hauled and the vertical lift to determine the rate to meet a specific haul. These new rates have been benchmarked against other Indonesian mining rates with a high degree of conformity, overall.

Importantly, GMA recognise that this class of equipment was new to them (having previously run a medium size contract in East Kalimantan) and therefore mitigation strategies have been implemented to manage the transition, including:

- Thiess was subcontracted to GMA on an initial 6-month contract (and is extendable) starting 09 November 2020 to underwrite the production performance. With the current state of the coal industry, Thiess has surplus suitable capacity and has committed to mobilise equipment within 14 days if production shortfalls occur with the GMA fleet.
- Thiess will employ locally where possible and has provided a training simulator to assist in developing local employees to become competent truck operators.
- The Alliance Contract has been developed so that Archi has full visibility on all aspects of contract execution on a day-to-day basis.
- An expatriate maintenance manager has been employed to oversee the transition and ensure that workshop facilities are suitable.
- Archi has employed an Operational Readiness Manager from a large mining contractor in Indonesia and embedded him within GMA's organisational structure.
- With the SMA contract finishing in May 2021, Archi's management will decide at that time whether (or not) to continue with SMA in a reduced scope based on the LOM requirements, contractor performance, etc.

Other contracts

Archi has a number of other agreements in place to support ongoing mining and processing operations at the Toka Tindung Gold Mine. These include:

- Refining Agreement with PT Aneka Tambang Tbk (Antam) dated 01 January 2017 (renewed 01 April 2020) and valid to 31 December 2022
- Refining Agreement with PT Bhumi Satu Inti dated 16 April 2020 and valid to 15 April 2023
- Sale and Purchase of Electricity Agreement with PT PLN (Persero) dated 02 June 2016 (amended 3 August 2020) and valid as long as the MSM CoW is in force
- Supply Agreement for High Speed Diesel Fuel with PT AKR Corporindo Tbk dated 01 March 2018 to 1 March 2022.
- Exploration Drilling Services Agreement with PT Maxidrill Indonesia dated 05 December 2016 (amended 17 July 2020) and valid to 31 December 2021
- Blast Hole Drilling Services Agreement with PT Parts Sentra Indomandiri dated 01 June 2015 (amended 01 November 2020) and valid to 30 June 2021
- Supply of Blasting Consumables and Total Loading Services Agreement with PT Orica Mining Services and PT Trifita Perkasa dated 01 February 2016 (amended 28 March 2016) and valid to 31 July 2021
- Load and Haul Mining Services Agreement with SMA dated 01 June 2016 and valid to 31 May 2021
- Load and Haul Mining Services Agreement with PT GMA dated 19 August 2020 and valid to 30 September 2025.
- Mining Services Agreement with PT Manado Karya Anugrah dated 01 May 2017 and valid to 31 August 2021
- Assay Laboratory Services Agreement with PT Intertek Utama Services dated 01 April 2019 (amended 31 March 2020) and valid to 31 March 2021. SRK is advised that Archi intends to extend this agreement without further tender.
- Hydrated Lime Supply Agreement dated 01 November 2019 with PT Pentawira Agraha Sakti and valid to 31 October 2021
- Sodium Cyanide Supply Agreement with Mebei Chengxin Co. Ltd dated 29 January 2019 (amended 17 January 2020 and valid to 28 January 2021 (subsequently extended to May 2021). New contract recently negotiated extending to April 2022
- Provision of Hazardous Waste Services Agreement with PT Sagraha Satya Sawahita dated 06 September 2018 (amended 31 August 2020) and valid to 1 March 2023.

SRK has reviewed these agreements and considers they are in line with prevailing industry practice and support the Company's ongoing gold production objectives.

2.3.6 Insurances

In addition, Archi also has relevant insurance policies in place with reputable Indonesian and international insurers such as Asuransi FPG Indonesia, Asuransi Bintang, Asuransi Multi Artha

Guna and Chubb General Insurance covering Property Damage and Business Interruption; Machinery Breakdown; Mobile, Plant & Equipment; Motor Vehicle; Money; Terrorism and Sabotage; Marine Cargo; Earthquake; Comprehensive General Liability, Public Liability and Fidelity Guarantee.

2.4 Project history

Indonesia has been favourably regarded as a mineral investment destination since the 1960s. This is attributed to the inherent mineral prospectivity of Indonesia, supportive government policies and the CoW system. Over this period, significant mineral resources have been discovered and brought into production over several defined phases:

- Initial exploration in the late 1960s was largely directed towards evaluating areas previously identified during Dutch occupation. The notable discoveries at this time included the Ertsberg–Grasberg copper and gold district in West Papua, as well as significant nickel resources in eastern Indonesia, tin resources in the Sumatran tin belt and large, low grade bauxite deposits in West Kalimantan.
- In the early to mid-1970s, extensive copper porphyry research was conducted resulting in the identification of northern Sulawesi.
- Coal was discovered in east and south Kalimantan in the early 1980s and was followed by a gold boom focussed on the Cenozoic magmatic belts of Kalimantan, Sulawesi, Moluccas and the Sunda Arc in the late 1980s and extending into the 1990s. The gold deposits at Toka Tindung Gold Mine were discovered during this period.

Records suggest there was very little activity in the Toka Tindung Gold Mine area until the mid-1980s when a 7,411 km^2 application for a CoW was lodged over the current Project area by MSM.

As outlined in Moyle et al, (1997), during the General Survey and Exploration periods of the CoW, a broadly spaced reconnaissance drainage mapping and sampling program was completed over the entire MSM CoW. While sparse gold-bearing quartz vein float was recorded in creeks draining the Toka Tindung Gold Mine area, the region was not ranked highly following the discovery of gold mineralisation on the nearby Sangihe Island. It was not until a review of previous exploration data led to further detailed investigation of the area, with additional drainage geochemical sediment and quartz vein float sampling completed. This ultimately led geologists to an outcrop of quartz adularia vein in the Koba River at what is now known as the Toka Tindung Gold Mine deposit in June 1994.

The following is a brief ownership history and key milestones at Toka Tindung Gold Mine:

- **1986:** CoW was granted to MSM. At the time, shareholders in MSM were Teweti Propensi Sulawesi Utara Limited and Base (Propensi Sulawesi Utara) Limited, both being subsidiaries of MEM (85%) and PT Sankiviga, an Indonesian company (15%).
- **1989:** MEM entered into a JV agreement with Ashton, which earned in and ultimately purchased all of MEM's equity in MSM. PT Austindo Nasantara Jaya (ANJ) purchased PT Sankiviga's 15% interest.
- **1993:** Aurora acquired Ashton's gold interests in Indonesia, including the 85% equity in MSM. The residual 15% was held by ANJ.

- **1994:** Follow up drilling of a quartz vein rockchip geochemical anomaly resulted in the discovery of the Toka Tindung Gold Mine deposit. Further investigation of quartz vein float in surrounding drainages resulted in the discovery of several other vein systems at Araren, Pajajaran, Blambangan, Semut, Kopra, Makassar, Bukit Sini, Marawuwung and Bukit Sinter. An application was lodged for the TTN CoW, which was ultimately granted in April 1997. TTN was held by Aurora (85%) and ANJ (15%).
- **1998:** the Indonesian Department of Energy and Mineral Resources approved a definitive feasibility study for a 1.2 Mtpa mining and processing operation (subsequently revised to 1.5 Mtpa).
- **1999:** The Toka Tindung Gold Mine was acquired from Aurora by Archipelago. In September, the Project was placed on care and maintenance due to falling gold prices and illegal mining activities at Talawaan.
- **2005:** Archipelago completed a revised Feasibility Study on the Toka Tindung Gold Mine.
- **2007:** PT Rajawali Corpora (Rajawali) acquired an initial minority interest in MSM and TTN, with 4.99% novated into Rajawali's wholly owned subsidiary company, Archi.
- **2009:** Commenced construction of the Toka processing plant and infrastructure
- **2010:** Mining operations commence at the Toka Tindung Gold Mine with overburden removal
- **2011:** First ore mined at Toka Tindung Gold Mine in January. Construction of Toka processing plant was completed and first gold poured.
- **2014**: Archi acquired Archipelago Resources Pte Ltd from Archipelago (which owned a 95% interest in MSM and TTN at the time), taking Rajawali's combined ownership to 100%
- **2016:** Archi increased the direct ownership of MSM and TTN from 5% to 95%.
- **2017**: Archi increased the direct ownership of MSM and TTN from 95% to 99.5%.
- **2018**: The capacity of the processing plant was expanded to 3.0 Mtpa by installation of a third mill and an additional leaching tank. The capabilities of the exploration team were further enhanced with the number of drilling rigs increased to 17.
- **2019**: Archi extended its service offering downstream through a JV to enter the gold bar minting sector.
- **2020**: Commenced transitioning of the mining fleet to larger machines to be operated under contract by Archi's associated company, GMA.

The Araren deposit is the largest discovered in the district to date, followed by the Toka, Kopra and Talawaan deposits. In excess of 390 km of diamond drilling and 1,250 km of reverse circulation drilling has been completed at all the deposits up until the end of 2020. These drill holes support the current resource/reserve estimates (as outlined elsewhere in this report) and ongoing mine production.

The Toka Tindung Gold Mine is now a well-established mining operation, with a successful operating and reserve expansion history. Since mine opening in 2011, over 2.1 Moz of gold have been mined, representing an addition of nearly 1 Moz over the initial Mineral Resource estimate in 2003 (Snowden, 2003). An additional 5.5 Moz are currently defined in the various Mineral Resource categories. Combining mined gold ounces with the defined Mineral Resource ounces

totals some 8.1 Moz, representing a 6.5 Moz increase in the total resource since the first resource estimate in 2003. This equates to 406% increase in total gold inventory since the 2003 resource estimate.

Thus, project-to-date (to 2020), the total exploration program has so far defined a Mineral Resource base of over 7.5 Moz (i.e. current Mineral Resource + gold produced) along the Eastern Corridor and approximately 0.5 Moz within the Western Corridor[1].

With a progressive conversion rate of over 78% from Mineral Resources to Ore Reserves, the Mineral Resources defined to date have converted to an Ore Reserve of over 6.0 Moz, of which 2.1 Moz has been mined and processed, and 3.9 Moz is estimated to remain as an Ore Reserve as at 31 December 2020.

Key production statistics since the commencement of mining in 2011 are presented in Table 2-4.

[1] Note the defined Western Corridor Mineral Resources are reported for the first time within this report and as such this represents a 'first time' Mineral Resource under the JORC Code (2012).

Table 2-4: Key production statistics for the Toka Tindung Gold Mine, 2011 to 2020

Description	Units	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Ore mined	Kt	1,219	2,744	2,858	3,441	2,346	1,774	2,552	3,212	3,482	5,025
Waste mined	Kt	13,766	15,488	14,808	15,256	15,082	23,879	27,417	21,828	15,484	18,569
Strip ratio	x	11.29	5.64	5.18	4.43	6.43	13.46	10.74	6.80	4.45	3.70
Ore processed	Kt	877	1,738	1,924	2,102	1,997	1,880	2,160	2,350	3,304	3,437
Gold head grade	g/t	2.5	2.6	2.6	2.4	2.8	4.1	4.1	4.1	2.7	2.1
Silver head grade	g/t	3.7	9.1	7.3	9.1	7.6	7.4	7.4	7.4	5.5	4.8
Gold recovery		91.99%	90.31%	90.75%	90.90%	92.69%	92.03%	88.51%	87.99%	89.32%	87.68%
Gold produced	oz	60,519	134,121	147,394	149,373	168,399	225,150	250,586	269,879	261,296	206,808
Silver produced	oz	42,770	269,467	264,133	366,758	358,451	350,455	379,244	405,600	435,482	363,100
AuEq oz produced	oz	61,392	138,995	151,650	154,835	173,225	229,937	255,650	274,841	267,727	211,744
Gold sold	oz	51,741	124,334	151,514	146,595	170,192	222,014	232,301	273,146	273,065	213,848
Silver sold	oz	21,701	261,417	232,192	353,658	388,188	352,950	368,511	391,486	438,503	365,618
Av gold price	$/oz	1,681	1,675	1,410	1,254	1,145	1,250	1,264	1,271	1,403	1,807
Av silver price	$/oz	33.5	30.3	23.5	17.8	14.6	17.0	17.0	15.2	16.4	20.6

Source: Archi Management, 2021

3 Project setting

3.1 Accessibility

The Project is readily accessible from Jakarta using commercial flights to Sam Ratulangi International Airport at Manado, the capital of North Sulawesi Province. Flight time is approximately 3 hours. Manado international airport services six carriers with daily flights to Jakarta and other Indonesia regional centres as well as regular flights to Singapore and China.

From the airport, access to the concession area is by a 2-hour drive over mostly sealed provincial and village roads. The distance between the project site and Manado is about 35 km, albeit that due to the location of dwellings immediately adjacent to provincial and village roads, vehicle speeds are generally low. Alternate routes include:

- Manado – Bitung Toll Road – Jl Bitung – Likupang – Jl Likupang – Girian
- Jl Teterusan Mapanget – Jl Manado – Dimembe – Jl Dimembe-Likupang – Jl Likupang – Girian.

The mine is accessed by an unsealed gravel road connecting to Jl Likupang – Girian. Before entering the mine site, security clearances must be obtained. There are two security gates, the north gate and the east gate.

Within the concession area, a network of gravel roads provides access to the key mining and processing infrastructure. The main road within the mine site crosses from north to south, with branches connecting pit sites, WRD, mining facilities (TSF, warehouse, offices, mess) and other facilities in the mine area.

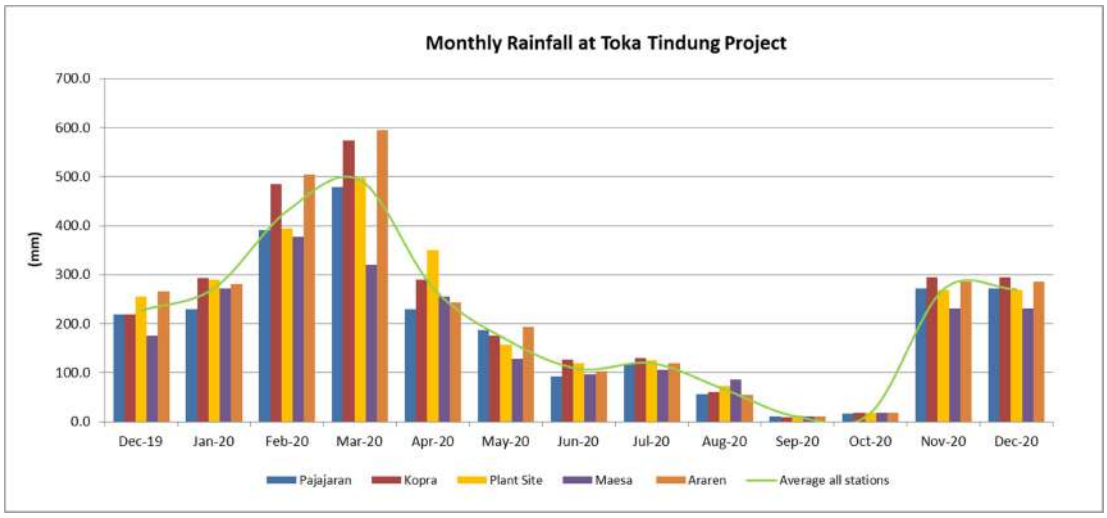
3.2 Climate

Toka Tindung Gold Mine lies within an equatorial region and experiences a tropical climate characterised by high rainfall with frequent heavy falls, high humidity (73% to 89%) and a temperature range of 25° to 28°C (with some altitudinal variations). Annual rainfall is approximately 2,000 to 3,000 mm with rain events peaking over the summer rainy season (November to April). Winds at this time of year are predominantly from the west (generally with a maximum speed of 39 km/h) bringing rain onto the north coast. The period from July to October covers a drier period with winters generally milder and drier, as well as a change to predominantly dry southeasterly winds (with maximum speed of 60 km/h).

Monthly rainfall data for the various deposits at Toka Tindung Gold Mine over the period 2019 to 2020 is presented in Figure 3-1.

Exploration activities are able to be conducted year-round, albeit somewhat curtailed during the wet season.

Figure 3-1: Monthly rainfall data at Toka Tindung Gold Mine – December 2019 to December 2020



Source: Archi Management, 2021

3.3 Physiography and land use

The Toka Tindung Gold Mine lies at the northern tip of Sulawesi Island. The local topography is characterised by steep hilly forested terrain ranging in elevation from 150 to 350 m above sea level, which pass southwards into mountainous terrain associated with Mount Klabat (1,995 m), Dua Sudara (1351 m) and Tangkoko (1,149 m). Two parallel ridges are evident in the MSM concession area and are known locally as Toka Tindung Kecil and Toka Tindung Besar. These lands support various agricultural endeavours (including crop farming, plantation estates, livestock, and forestry), with soil typically ranging in depth from 0 to 30 m, as a result of the various tephra layers, and soil texture varying from clay (alluvial), sandy clay (latosol), clay (mediterranean) and sandy clay (regosol).

Major rivers of the region include the Talawaan (31.7 km in length), Likupang (21.2 km) and Sawangan (23 km) rivers. These are used by the community for the supply of clean water, irrigation, land fishery cultivation and electricity supply.

The Toka Tindung Gold Mine mining areas, processing plant and key infrastructure are located in undulating to steeply undulating hills to moderately incised topography reaching elevations of between 150 and 300 m above sea level. The area is punctuated by vast valleys that lead out to the coastal plain. The engineered TSF is a valley impoundment located upstream of the processing plant and open pit workings.

The main drainages of the mine area are the Pangisan, Maen, Marawuwung, Araren, Batupangah and Kali Koba rivers, while the Likupang and Talawaan rivers are important watercourses within the broader concession area. The entire mining area falls within catchment areas of the Maen, Pangisan, and Araren rivers. The Kali Koba River, which flows through the main Toka Tindung Gold Mine mining area, is a seasonal tributary of the Maen River. In the project area, the river flows westwards and northeast through to Maen River, The Pangisan River enters the Maen River further downstream near its estuary. The southeastern and southwestern parts of the project area is

drained by the Araren River, which connects to the Maluku Strait. The Batupangah River, originating upstream of the Kopra pit, joins the Araren River at the northern point of the Araren pit Stage 3.

The upstream part of these rivers typically comprises steep topography with an altitude above 200 m. The slope of the riverbed in the main river valleys generally ranges between 1:100 and 1:50. Further downstream, these rivers meander through alluvial plains with a lower slope of the riverbed of less than 1:200.

Mining-related operations dominate about 5% of the land use within the existing concession areas. Pockets of the surrounding areas are designated as either protected or production forests while previously cleared grasslands, coconut plantations and other agricultural lands lie in proximity to the Project.

Soils in mining areas are generally classified into cambisol (immature yet highly fertile soils at beginning of soil formation) and alluvium. The colour of the alluvium ranges from dark brown at the top to black to brown at lower depths, while soil texture varies from sand clay on the top layer passing into clay to sandy clay. Iron and/or silica indurated pavements may be found on or above the bottom layer. The consistency of the soil is very rubbery in the upper layer and firm on the lower layer; well-flowed soil with high permeability (19 to 25 cm/hour).

3.4 Seismicity

The region is regarded as seismically active. Geophysical stations at Manado have recorded earthquake events since 1913. During the 82-year earthquake recording period it was recorded that earthquakes of magnitude 5.5 to 6 occurred 46 times; 6.1 to 7 occurred 16 times; 7.1 to 8 occurred 7 times. One recorded event is greater than 8. The frequency of iteration of events with a magnitude of more than or equal to 7 is approximately 1 to 10 years.

The Project area is located in Earthquake Zone One according to the Text of Practical Guidelines for Earthquake Building Design in Indonesia. Acceleration on the ground equal to or greater than 0.33 g (g is acceleration by heavy force) can be estimated in Zone One. Therefore, all civil work considers this in the design of plant, buildings, dams, or other structures.

This area includes the potential for volcanic activity. Mount Batuangus, located between Toka Tindung and Bitung, is reportedly still active and its last recorded surface activity took place in 1980.

An earthquake risk analysis carried out by the Australian Geological Survey Organisation in the Toka Tindung area showed that a peak land acceleration value of 0.12 g (100 years period) to 0.29 g (1,000 years period).

3.5 Local resources

North Sulawesi has developed into a significant mining district over the past 20 years and the region’s mining sector is based on both metallic minerals (gold, silver, iron ore, iron sand and manganese) and non-metallic minerals including andesite, gravel and sand. There is readily available skilled labour and a professional workforce for both exploration and mining in the province and in the nearby urban centres.

The Project is well located with respect to the regional centres of Manado and Bitung. The broader region of northern Minahasa is well located with respect to the major airports and seaports of north Sulawesi. Small to medium enterprises and cooperatives in the area are dominated by chemical and building material industries, with food, craft, tourism and general industries also important contributors to the local economy.

No villages or other formal settlements are located within the mining area. In total, there are 24[2] villages within the broader concession area, of which Rhondor, Pinenek and Winuri villages are the closest settlements to the present mining site. The main population centre close to the mine is the village of Winuri, situated 6 km north of the Toka open pit and associated area. These villages support the local forestry and coconut plantations.

An extensive power grid, with both 70 kV (industrial) and 20 kV (domestic) overhead power lines, exists in the area, as well as a mobile telephone network. Basic supplies can be sourced locally while government, community and medical facilities as well as engineered products and light machinery are available from Bitung and Manado.

The surrounding district to the Project is rich and abundant in natural resources, in particular regarding a number of larger waterways and designated forest areas with native plants and animals which occupy significant portions of the TTN concession area. The forests and lands support hardwoods, tropical fruits and crop production including rice paddy and corn, spices and vegetables, as well as bamboo for house construction and fabrication of tools, and coconuts.

[2] The original 2009 AMDAL permit highlighted the nearest 13 villages to be the 'interested and affected parties' (I&APs) requiring formal social responsibility programs. Since the exploration program has now delineated a second corridor, the Western Corridor, with the new Mineral Resource, the Company has recently (second half of 2020) extended this number of I&APs to include a total of 24 villages (in anticipation of a new AMDAL currently in preparation for the Western Corridor).

4 Geology and Mineral Resources

4.1 Regional geology

The Indonesian archipelago results from a complex interaction between tectonic plates that commenced in the Cretaceous period with the northward movement of the Australian continent and the westward movement of the Pacific Plate. Both converged towards the southeast Asian extension of the Eurasian Plate known as Sundaland (Darman and Sidi, 2000). During this period, there was arc to arc collision and arc to continent collision with subduction of plates, formation of new magmatic arcs, migration and deflection of arcs, back-arc spreading and emplacement of ophiolite complexes. Volcanic activity and earthquakes are frequent occurrences in present-day Indonesia as adjustment between the tectonic plates continues.

There are seven main magmatic arcs interpreted to extend over 15,000 km in Indonesia, but nearly all gold production is derived from six mid-Tertiary and younger arcs. The Tertiary magmatic arcs of Sumatra, Java, Kalimantan, Sulawesi, West Papua and the lesser islands of the Nusa Tenggara chain offer the best mineral exploration potential.

The seven largest gold deposits in Indonesia comprise copper–gold porphyry systems. Of these, Grasberg in West Papua is the largest, outstanding for its gold content alone, compared to all other deposits in the country. The second largest porphyry, Batu Hijau on Sumbawa, contains approximately half the tonnage of Grasberg with less than half of the copper and gold grade. The Tombulilato area of North Sulawesi includes the Cabang Kiri East, Sungai Mak and Kayabulan Ridge deposits, which contain a combined tonnage and grade broadly equivalent to that at Batu Hijau.

Copper–gold skarns are also large repositories of gold, with the best examples occurring at the DOZ, IOZ, DOM, Bunung Bijih and Big Gossan deposits in West Papua.

Epithermal deposits of Indonesia are dominated by the Kelian mine in East Kalimantan and the ‘Carlin-style’ Mesel mine in North Sulawesi. There are a host of smaller epithermal deposits (i.e. Mount Muro and Mirah in central Kalimantan, Martabe in Sumatra and Toka Tindung Gold Mine in North Sulawesi) that indicate the widespread occurrence of gold in the region.

The Toka Tindung Gold Mine is located on the eastern margin of the Southeast Asia tectonic plate along the Tertiary Sulawesi - East Mindanao magmatic arc. This magmatic arc is a well mineralised belt of volcanics and high level intrusives of lower Miocene to Quaternary age, which extends from southwestern Sulawesi, through the north arm of the island and into eastern Mindanao in the Philippines.

The geological setting of Sulawesi represents an amalgam of different provinces as set out below (Figure 4-1):

- The southwest and northwest arms represent a Cenozoic volcanic arc complex that was built on a Lower Cretaceous accretionary-collisional basement terrane. This basement formed part of the southeast Sunda/East Kalimantan active margin prior to the Middle-Late Eocene rifting of the Makassar Strait. It outcrops at several metamorphic basement complexes (Palu, Bantimala, Barru, etc.)

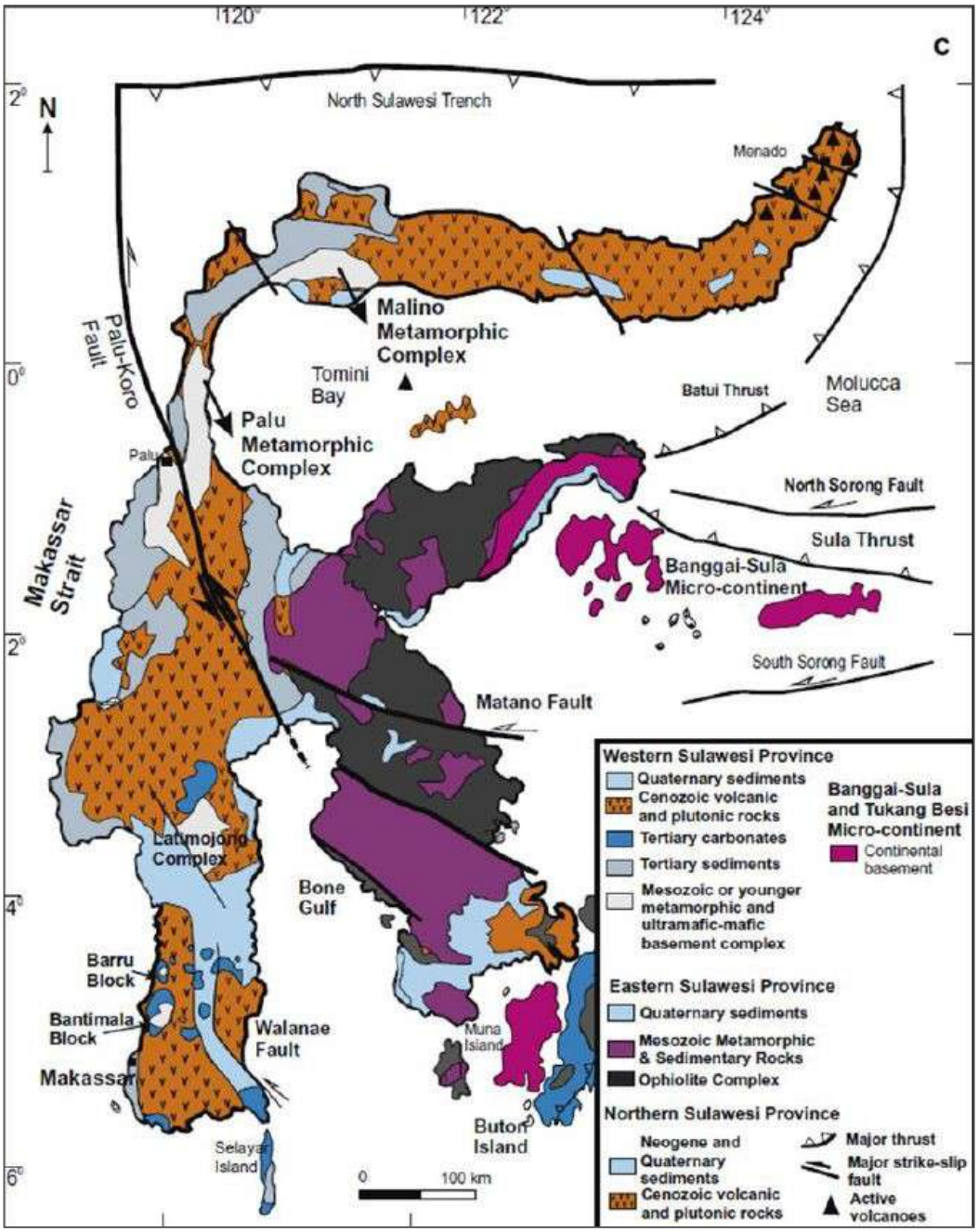
- The north arm is predominantly intra-oceanic volcanic arc terrane, built on Eocene oceanic crust. At its western end, it contains the Palaeozoic Malino metamorphic complex. Its eastern end merges with the active, north–south trending Sangihe volcanic arc.
- Central Sulawesi (including the western parts of the southeast arm) contains widespread metamorphic rocks, signifying both mid-Cretaceous 'normal' regional metamorphism, locally overprinted by Late Oligocene high pressure - low temperature 'blueschist-facies' metamorphism (Parkinson, 1991).
- East and southeast arms of Sulawesi are dominated by outcrops of the Late Mesozoic East Sulawesi Ophiolite, one of the world's largest ophiolite complexes (representing ancient seafloor rocks), which was 'obducted' onto the Central Sulawesi metamorphic belt (possibly around Oligocene time).
- Along the eastern side of Sulawesi is the Banggai-Sula block (derived from New Guinea), which collided with East Sulawesi in Late Miocene–Early Pliocene time (i.e. less than about 8 million years ago). The Buton-Tukang Besi block, located in the southeast of Sulawesi, is often proposed as a microcontinental block similar to Banggai-Sula, but its history and origin are less obvious.

The geology of the north arm of Sulawesi is dominated by Lower to Mid Miocene calc-alkaline volcanic and volcaniclastic rocks with intercalated marine sediments and limestones. Intrusions of co-magmatic granitoids are exposed as batholiths or clusters of stocks and dykes along the western portion of the arm due to deep erosion of the Miocene volcanic units. Pliocene to Quaternary volcanic activity has concealed much of the earlier geology along the eastern portion of the arm. These volcanic formations are dominantly pyroclastics and comprise breccias, lapilli tuffs, and ash-fall tuffs with minor andesite flows. The volcanism is related to several major calderas that are currently dormant.

The North Sulawesi arm is well mineralised with respect to gold, mainly in association with copper–gold porphyries, low-sulphidation epithermal deposits and sediment hosted disseminated gold deposits. It is interpreted that as mineralised fluids sourced from intrusive magmas migrated upwards, they were focussed along a series of north to northwest striking faults. This resulted in a combination of shallowly dipping mineralised zones and steeply dipping cross-cutting mineralisation. The mineralisation occurs within a variety of host rocks.

Low-sulphidation, epithermal vein deposits are dominant in the vicinity of the Toka Tindung Gold Mine. The predominance of epithermal gold mineralisation over porphyry deposits in this region suggests the mineralisation may be associated with the long-lived andesitic volcanism related to several nearby calderas. There also appears to be a noticeable concentration of these deposits about a pronounced northeast inflexion of the magmatic arc. Both northwest and northeast trending faults and associated graben structures are well developed about this inflection, indicating that these extensional structures may have also influenced the distribution of the gold mineralisation.

Figure 4-1: Regional geological setting – Sulawesi



Source: Enmintech 2020

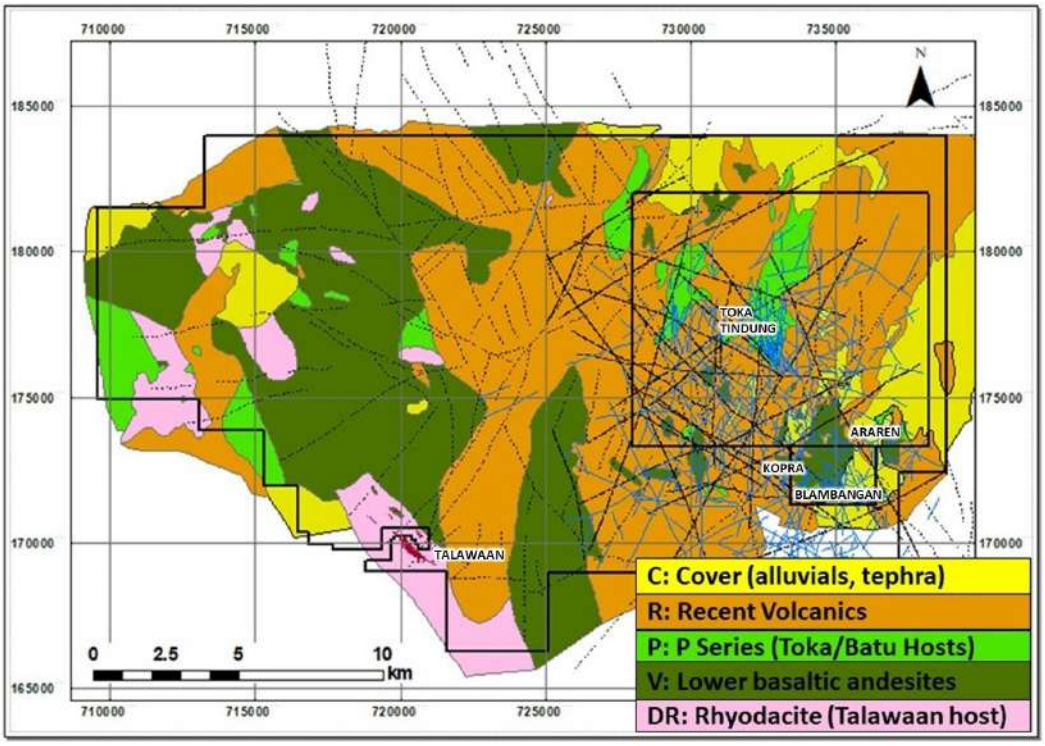
4.2 Local geology

Broadly, the geology of the Toka Tindung Gold Mine area is dominated by an alternating sequence of Pliocene-Pleistocene age subaerial volcanic and volcaniclastic rocks, consisting predominantly of andesitic to basaltic flows and volcaniclastic units.

Felsic volcanic and volcaniclastic rocks and breccias consisting of rhyolite, rhyodacite and dacite with minor andesite are exposed in the northeast of the project area and in the Talawaan area in the western portion of the Project.

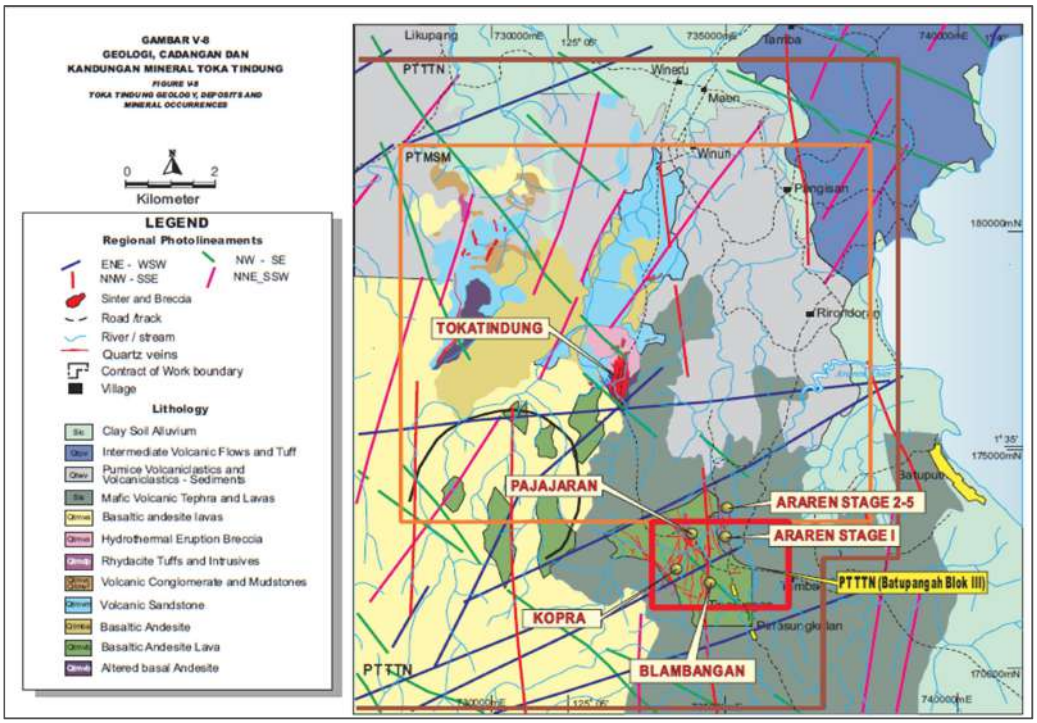
A veneer of Quaternary to Recent tephra is widely distributed throughout the region derived from the recent volcanic centres to the immediate south of the project area (Figure 4-2 and Figure 4-3).

Figure 4-2: Toka Tindung Gold Mine area – generalised surface geological map



Source: Enmintech, 2020

Figure 4-3: Geological setting of the Toka Tindung Gold Mine area



Source: MSM AMDAL Addendum, 2020

East-northeast, north-northeast, northwest and north-northwest trends dominate the structural fabric of the region.

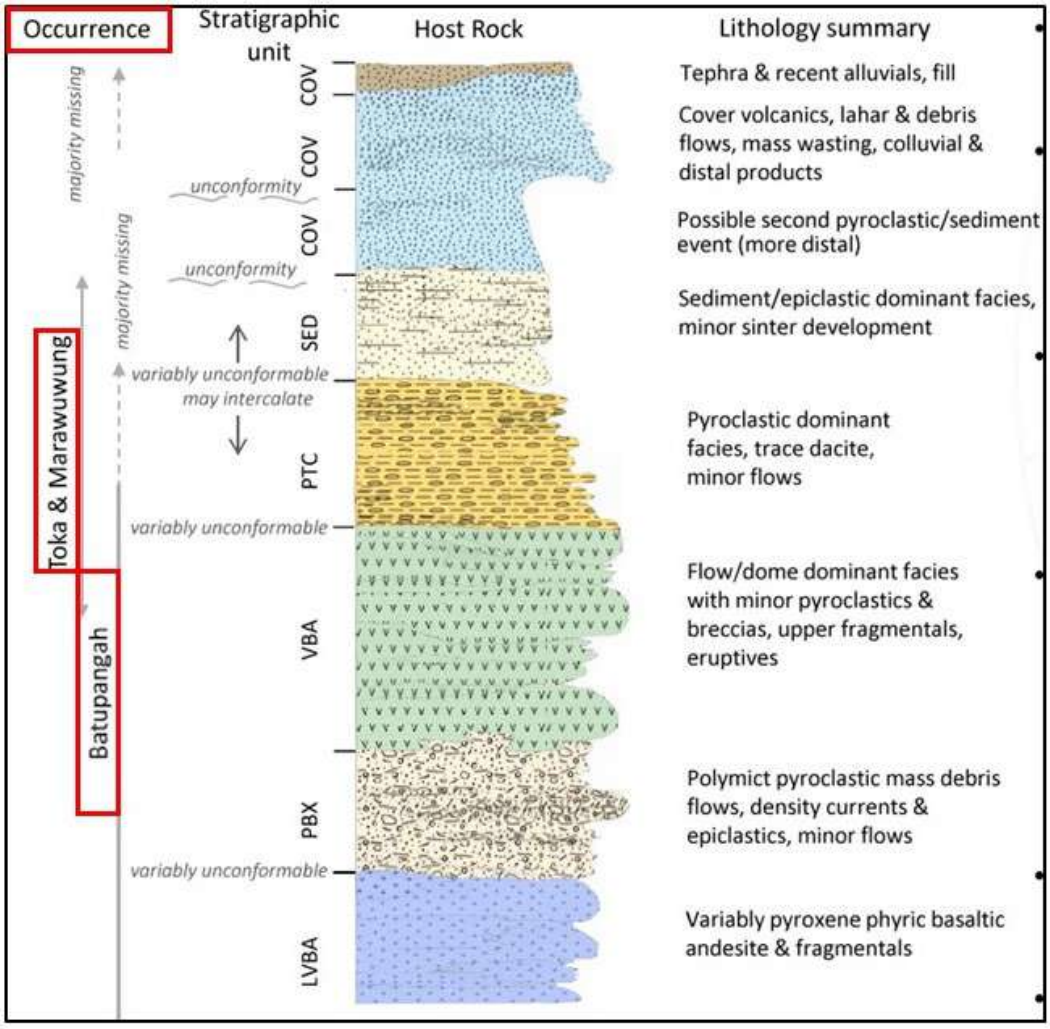
The main gold–silver deposits in the Project area occur in windows of Plio-Pleistocene volcanic units within widespread Late Quaternary tephras and other younger volcanic cover. The principal style of gold mineralisation is fault-hosted, quartz–adularia epithermal veins and breccias of the low-sulphidation epithermal type. The presence of siliceous sinter deposits and hydrothermal eruption breccias in places suggest that the epithermal system has been preserved at its shallowest levels.

Two mineralisation styles are evident within the bedrock volcanic units, locally known as “Toka” and “Batupangah”. Toka-style mineralisation is hosted in the upper portion of the volcanic series (stratigraphic sequence known as PTC), while Batupangah style mineralisation is hosted in lower portion of the volcanic series (VBA and PBX units).

4.2.1 Stratigraphy

The stratigraphy of the Toka Tindung Gold Mine area comprises basaltic andesite flows and volcanoclastic units, informally known as the Maen volcanics (Moyle et al, 1997). The main stratigraphic units present within the concession area are shown in Figure 4-4.

Figure 4-4: Stratigraphic column showing the stratigraphic range of Toka and Batupangah mineralisation styles



Source: Enmintech, 2020

At the Toka deposit, the volcaniclastic rocks are the primary host of the known gold mineralisation and comprise massive to thickly bedded, crystal lithic conglomerate of basaltic andesite composition, grading up into thinner bedded and locally carbonaceous, volcaniclastic sandstones, siltstones, mudstones and sinters. This sequence is approximately 100 m thick.

In contrast, the gold deposits at Batupangah (comprising Pajajaran, Blambangan, Araren, Alaskar and Kopra deposits located some 4 km to the south-southeast of Toka) are hosted by basaltic andesite lavas within a broader stratigraphic package known as the Batupangah Volcanics. These volcanics comprise plagioclase and pyroxene phyric basaltic andesite flows and minor volcaniclastic rocks.

4.2.2 Structure

Low-sulphidation epithermal gold mineralisation within the Project area occurs in shoots that form at dilational sites along quartz vein-hosted structures. Faulting and fracturing within the Toka Tindung district is complex and extensive, with multiple structural orientations and fault generations. Major mineralised structural trends in the area are north–south and north-northwest. The north-northwest trending faults are regionally significant structures extending from the northern part of the Minahasa Peninsula southwards to the dormant Dua Saudara caldera located to the south of Archi's Toka Tindung Gold Mine area.

The Toka Tindung deposit lies at the northern end of a series of north-northwest trending faults. These faults define a structural corridor at least 2 km wide and extending for about 15 km south of Toka Tindung Gold Mine. The mineralised system is up to 200 m wide and has been delineated over a 1.2 km strike extent. The gross trend of the stockwork zone and larger veins at Toka show a north strike, with the veins generally near vertical or dipping steeply to either the east or west. Local variations in dip, strike and width occur along individual veins within the stockwork system.

The main structural elements in the Batupangah area are brittle faults and fractures with north, north-northeast and northwest mineralised trends. These structures are interpreted to be block faults and have dips generally steeper than 60˚. In summary:

- At Pajajaran, two subvertical, parallel sheeted veins around 2 to 5 m wide and a minor stock occur with a northwestern trend.
- The Blambangan deposit consists of a single vein around 2 to 5 m wide with minor stockwork and a northerly trend.
- The Araren deposit consists of two veins each varying between 1 and 7 m in width with north to northeast trends.

From an exploration perspective, gold mineralisation appears to be intimately associated with the following structural setting parameters (Global Ore Discovery, 2019):

North-northwest trending fault characteristics

- dextral strike-slip shear
- drivers for dilation and veining on north to northwest step-overs, forming the largest structural traps hosting gold mineralisation in the area
- mineralised veining on northwest vein sets is generally subordinate to more northerly trending sets, though occurs significantly around flexures and intersections
- related to crustal transform faults that coincide with gold provinces across the north arm of Sulawesi.

North trending fault characteristics

- North–south trending structures are represented by normal faults, vein-filled fissures or sheeted veins; they formed perpendicular to extension at the time of ore deposition and dominate the mineralised veining pattern

- It is possible that gold mineralisation is controlled by north -rending rift structures and to a lesser degree by the northwest transform fault system
- The largest deposits are interpreted to occur at the intersections between northwest transforms and north trending rifts.

Global Ore Discovery (2019) also noted the importance of major faults on controlling the epithermal mineralisation at Toka Tindung Gold Mine:

- Structural traps are north-trending fissure (dilatant) veins related to northwest-trending dextral transform faults; mineralised zones are likely to be located at right-hand stepovers on large northwest trending faults, or where these faults intersect large north to north-northeast trending structures.
- Ore-controlling north and northwest structures are likely offset by younger major faults (north-northeast, north-northwest, east-northeast sets); these define graben-related uplifts and depressions across which cover concealed mineralisation).
- Subsidiary faults subparallel to each of the major cross-cutting sets are observed locally in known deposits, though their offsets are generally small (between a few centimetres to few metres).

4.2.3 Alteration

Mineralisation within the concession area is characterised by pervasive silicification and adularia alteration within and around the mineralised vein systems zoning vertically and horizontally. Traces of disseminated pyrite, chlorite, carbonate and hematite accompany this alteration. These rocks are associated with anomalous arsenic, antimony and mercury geochemical signature, with lesser molybdenum and tellurium.

Minor argillic alteration overprints the adularia altered volcanics and comprises variable proportions of smectitite, illite, minor chlorite, carbonate, hematite and pyrite. This overprint is strongest at the contact of the upper andesite.

Haloes around the two mineralisation styles at Toka Tindung Gold Mine provide the basis for a pathfinder alteration model supporting both the Near Mine and Greenfields exploration activities. The two mineralisation styles exhibit similar alteration composition but differ in morphology and spatial distribution of certain trace elements in their haloes. The basic difference between the two mineralisation styles is reflected in the host rocks and how they react to the altering fluids.

In the Toka-style alteration system the volcaniclastic host rocks are permeable, leading to a more extensive alteration halo (with the silica halo at Toka measuring some 3.5 km by 1.3 km).

From an exploration perspective, increasing quartz vein percentages, hydrothermal alteration and elevated gold/silver values, are all interpreted to be indicative of proximal mineralisation.

Weathering and oxidation of the altered volcaniclastics and vein systems is generally weak to moderate and produces mixed assemblages of iron oxides, kaolinite and smectite.

4.2.4 Mineralisation

All economic gold and silver mineralisation discovered to date at the Toka Tindung Gold Mine is of low-sulphidation epithermal style comprising quartz–adularia vein and stockwork-hosted gold and silver deposits. This low tonnage, high grade gold mineralisation typically occurs within small shoots that form at dilational sites along the host quartz vein structures. District scale structural controls on mineralisation and include north–south and north-northwest trends.

Within the broader concession area, two broadly northwest-trending structural corridors are interpreted to focus the epithermal mineralisation. Within these interpreted corridors, the shoots are developed at sites of structural complexity where there are strike and/or dip changes, intersecting structures, links and/or jogs developed. Other controls on mineralisation include the stratigraphy, host lithology (volcanics versus volcaniclastics) and proximity to intrusive bodies.

Gold and silver mineralisation occurs within quartz vein structures, which are sulphide and base metal-poor with abundant chalcedonic silica, microcrystalline and fine-grained quartz, adularia and minor calcite. These veins vary from solid vein/lode to breccia, containing both wallrock and quartz vein clasts to stockwork or sheeted veins, to fracture fill, cavity fill or as clasts within a fault. Vein mineralogy includes assemblages of quartz, adularia, gold, clay, carbonate, chalcedony, chlorite, hematite and sulphide. While crystalline quartz is the most common vein phase, other quartz vein textures include bladed, cockade, colloform, comb, drusy, vuggy, crustiform, cryptocrystalline, massive, moss and saccharoidal.

At the Toka deposit, the banded and brecciated quartz-adularia veins range in thickness from <1 up to 10 m and are associated with a zone of pervasive quartz–adularia alteration. In excess of 60 veins have been defined within the deposit, typically grading between 3 and 5 g/t Au, and locally up to 30 g/t Au. Silver grades are generally low, with an Ag:Au ratio in mined ores of 2.3:1. Quartz vein stockwork zones are found between the main veins and have a bulk grade ranging between 0.2 and 3 g/t Au. Weathering and oxidation to depths of up to 80 m is localised along the main veins and structures.

The southern pits (i.e. Pajajaran, Blambangan, Kopra, Araren and Alaskar deposits) are much simpler ore systems than at Toka and range from single veins to dual and multiple splayed veins and vein stockworks, with vein widths typically between 1 and 10 m.

The majority of the gold delineated to date (from all deposits including those of the Western Corridor) exists as fine, 5–20 micron (µm), grains of ‘free’ gold or associated with the silver–gold alloy electrum.

4.3 Exploration

In September 2020, Archi engaged Mr Joseph MacPherson of Enmintech to complete a review of the exploration potential associated with the broader concession area and outside of the defined Toka–Batupangah mining area. The following section paraphrases the key points from Enmintech’s review.

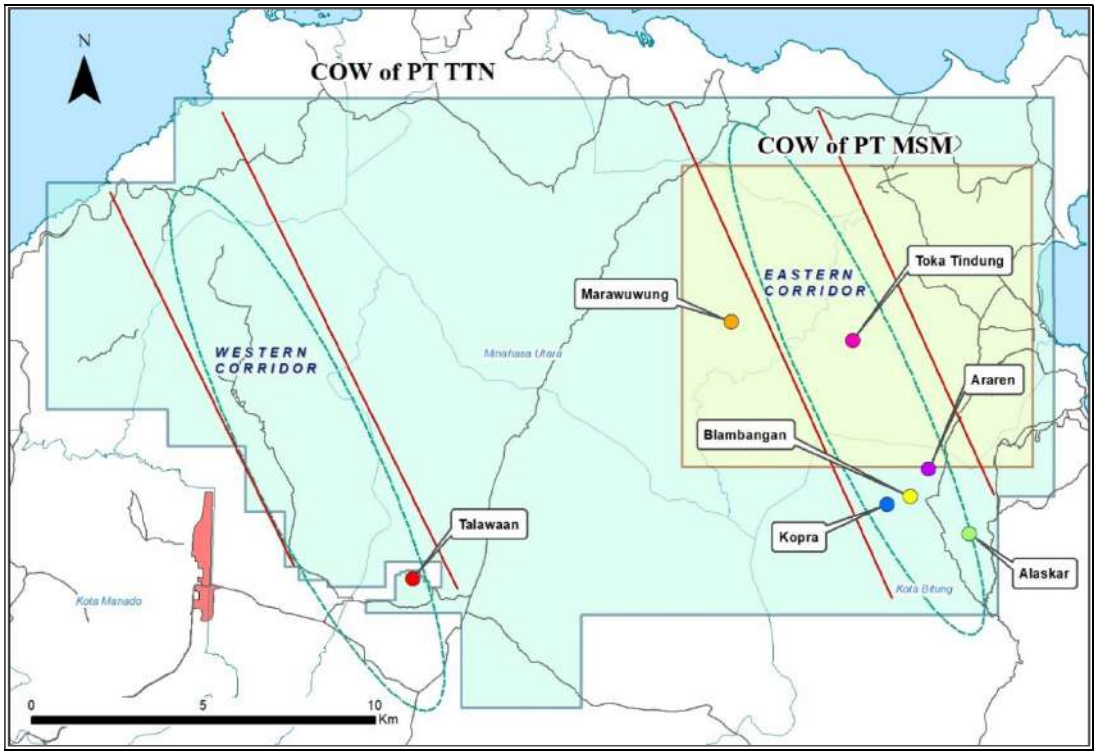
4.3.1 Exploration history

Exploration data has been accumulated over the life of the operations in the Toka Tindung Gold Mine area, extending back to as early as 1986. Despite this, the available data represents a relatively small statistical dataset pertaining to the exploration potential of the concessions outside of the current mining areas. From 2016 onwards, Archi staff re-examined the regional exploration dataset and identified a number of targets with significant similarities to the defined mineralised zones supporting the current Toka Tindung Gold Mine operations. Based on an in-depth understanding of the controls and depositional environment of the known deposits, Archi's exploration team has identified a number of additional targets warranting near-term assessment.

Particular attention is being directed towards expansion of the current reserve base, through the addition of potential ounces from "Near Mine" and "Greenfields" sources to drive further value in the current mining operations. In this regard, the Project area has been considered in its entirety to represent a prospective gold district.

Two mineralised corridors have been recognised based on exploration activities conducted to date (Figure 4-5). These two mineralised corridors are represented by the main mine trend (Araren-Toka-Marawuwung), and the Talawaan trend in the western part of the Project area. These northwest-trending structural corridors are interpreted to intersect various north–south oriented faults, resulting in dilatant zones that provided the main focus for gold-bearing fluids and hence the deposition site for known gold mineralisation, such as those of Batupangah style.

Figure 4-5: Location of the Project's two mineralised corridors, which form the basis for ongoing exploration



Source: Archi, 2021

A summary of the key gold and silver deposits presently defined and main prospect areas within the concession area is presented below:

Toka Tindung Gold Mine area (MSM CoW):

- Toka deposit
- Deposits: Sinter Barat, Alpha, Marawuwung

Batupangah area (TTN CoW except for Araren which straddles both CoWs):

- Pajajaran, Blambangan, Araren, Alaskar and Kopra deposits
- Deposits: Makassar, Semut Barat, Bukit Seni

Talawaan area/Western Corridor (TTN CoW):

- Bima deposit
- Deposits: Warisa, Arjuna, Batu Kresna and Batu Api, Tumbohon and Erpak.

Geophysical data

Several phases of geophysical data collection and interpretation have been undertaken over the Toka Tindung gold deposit and Warisa sub-project within the broader concession area from 1996 to the present. These include three magnetic surveys (two airborne surveys and a single ground-based survey) and two controlled-source audio-frequency magnetotelluric (CSAMT) surveys, with a third planned for the near future.

The first airborne aeromagnetic survey, which was oriented north–south, was completed in 1996 over the majority of the current Project area, followed by a second north–south oriented aeromagnetic survey in 2011 over the Warisa area in the northwest portion of the current Project area. A ground-based magnetic survey was conducted over five areas in the Warisa area in 2012/2013. Table 4-1 summarises the key magnetic survey details.

In 2016, a third helicopter-borne aeromagnetic survey was conducted on an east–west orientation over the majority of the concession areas (excluding the flightpaths for the international airport). This survey was conducted to increase the clarity of the previous north–south airborne surveys, which are closely aligned to the majority of the known faults within the concession area. At this point, the geophysical data provided the basis for the generation of concession-wide targets which was completed by independent geophysical consultants over 2017 and 2018.

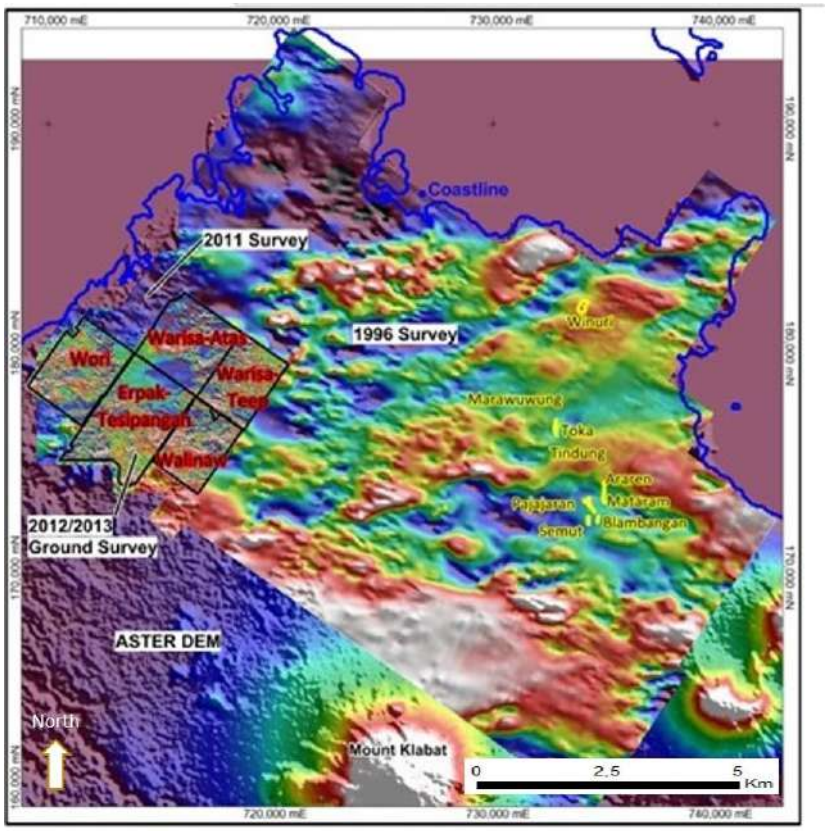
Figure 4-6 shows the extent of the magnetic survey coverage over North Sulawesi and the Project area. In Figure 4-6, total magnetic intensity (TMI) images are displayed using a non-linear colour stretch and overlie the Aster digital terrain model (DTM). Mine locations are recorded in yellow text.

Table 4-1: Summary of magnetic surveys and interpretation conducted over the Toka Tindung Gold Mine Area from 1996 to present

Area	Toka Tindung Deposit	Warisa Project	Warisa Project	Warisa Project
Survey Blocks			Teep	▪ Wori ▪ Warisa Atas ▪ Erpak-Tesipngah ▪ Teep ▪ Walinaw
Survey	Airborne magnetic and radiometric survey	Helicopter-borne magnetic and radiometric survey	Ground magnetic survey	Ground magnetic survey
Date	July – October 1996	May 2011	January to March 2013	October 2012 – November 2013
Contractor	Aerodat Inc.	Elliott Geophysics International Pty Ltd	PT Tambang Tandano Supervised	PT Tambang Tandano Supervised
Line Spacing	100 m	100 m	50 m	50 m
Total survey distance	6,000 line km	600 line km	190 line km	1,270 line km
Interpretation Scale	1:50,000	1:50,000	1:15,000	1:20,000

Source: Enmintech, 2020

Figure 4-6: Location of magnetic geophysical surveys conducted over the Toka Tindung Gold Mine Area



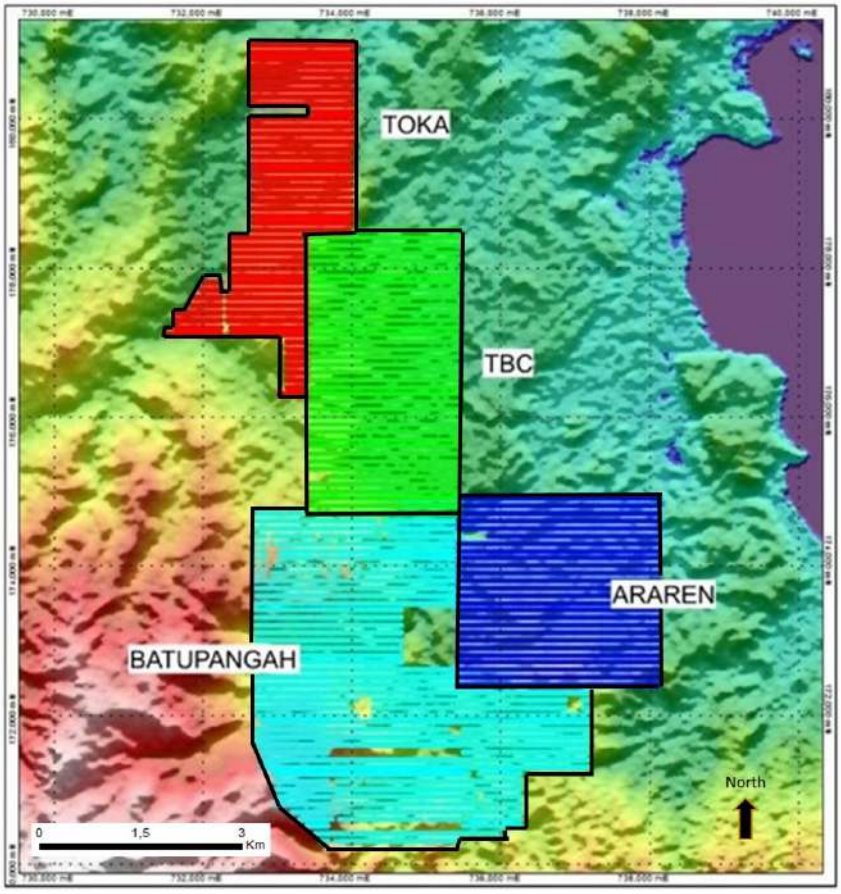
Source: Enmintech, 2020

In addition, two separate CSAMT surveys have been completed at the Toka Tindung Gold Mine; the first in 2012/2013 focussed on the Toka and Batupangah areas. The second CSAMT resistivity survey was conducted between November 2018 and March 2019 and targeted the Araren and TBC areas. These surveys identified the main structures that control gold mineralisation in the Batupanga pits, and the silica alteration that is associated with the Toka and Marawuwung style deposits.

Three new lines of CSAMT surveying were recently surveyed targeting the area between the Marawuwung and Toka prospects (Figure 4-8 and Figure 4-9). This program was designed to provide continuity between the previous CSAMT surveys and test a large, broad north–south trending resistivity high evident at the edges of the existing surveys in the Marawuwung and Toka areas. (Figure 4-7).

The traditional interpretation has been that relative resistivity highs (i.e. > 50 ohm-metre) represent areas of silica alteration. To date, this interpretation has held true thus providing a very important guide in assessing the quality of the Near Mine and Greenfields targets across the Project Area, provided CSAMT coverage is available.

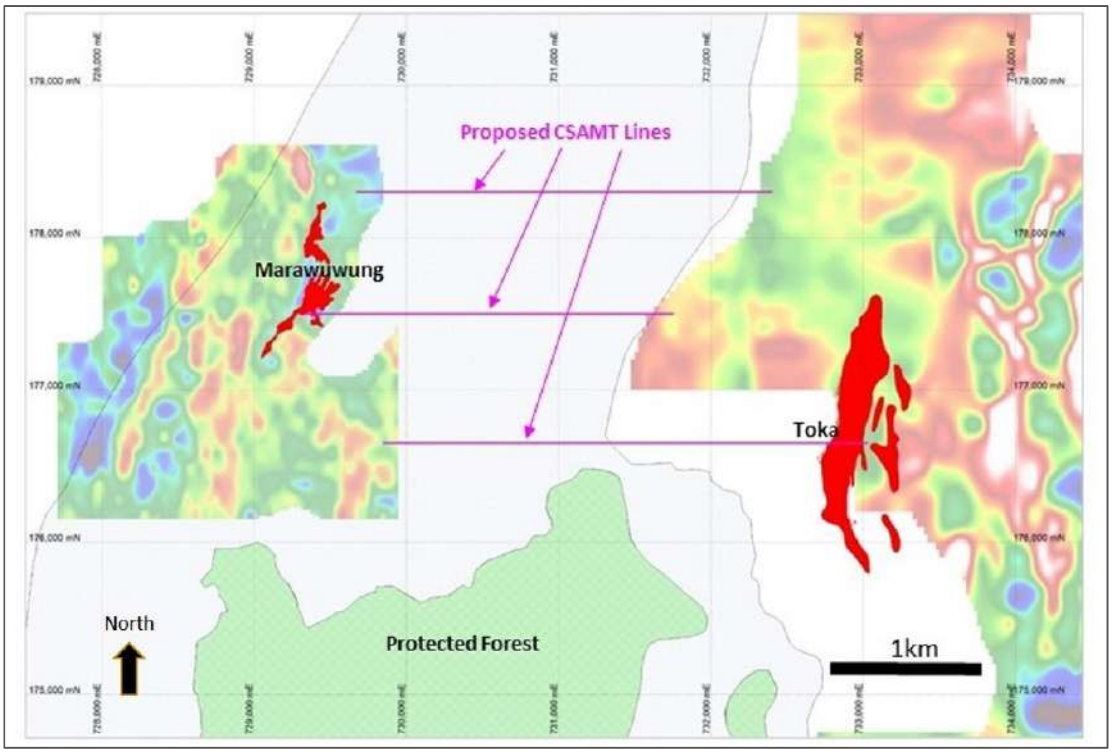
Figure 4-7: Extents of the 2018/19 CSAMT program



Source: Enmintech, 2020

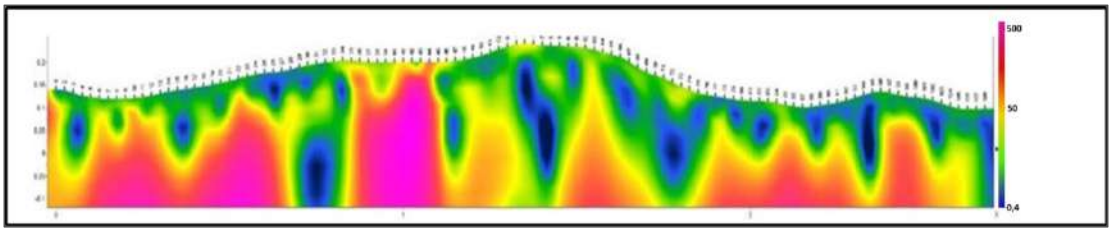
Note: TBC-green and Araren-dark blue in relation to previously acquired 2012/13 data at Toka (Red) and Batupangah (Aqua).

Figure 4-8: Three regional CSAMT lines currently in progress (8.3-line km)



Source: Enmintech, 2020

Figure 4-9: Theoretical CSAMT Pseudosection, showing resistivity highs in red



Source: Enmintech, 2020

Geochemical Data

Over 25 years of geochemical survey results have been accumulated over the Toka Tindung Gold Mine area. Sample media collected varying from Soils (generally B-C horizon), Stream Sediments, bulk leach extractable gold (BLEG), Rock, Drill Core (including reverse circulation chip and diamond core). Various analytical techniques have also been applied including multi-element and, more recently, analytical spectral device (ASD) analyses.

Table 4-2 and Figure 4-10 presents the geochemical datasets available over the entire Project area.

Table 4-2: Geochemical data available for the Toka Tindung Gold Mine

Type	# Samples	Elements Analysed
Rock	11,607	Au, Ag, Cu, Zn, Ba, Bi, Sb, As, Hg, S, Al, Ca, ANC, Fe_2O_3, Fe, K_2O, Mg, Na_2O, P, Ti, Be, Cd, Co, Cr, Cs, In, Ga, Ge, Hf, La, Li, Nb, Ni, Rb, Re, Sc, Se, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zr, Sn, Mn*
Soil	27,627	Au, Ag, Cu, Zn, Ba, Bi, Sb, As, Hg, S, Al, Ca, ANC, Fe_2O_3, Fe, K_2O, Mg, Na_2O, P, Ti, Be, Cd, Co, Cr, Cs, In, Ga, Ge, Hf, La, Li, Nb, Ni, Rb, Re, Sc, Se, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zr, Sn, Mn*
Stream Sediment	1,184	Au, Ag, Cu, Zn, Ba, Bi, Sb, As, Hg, S, Al, Ca, ANC, Fe_2O_3, Fe, K_2O, Mg, Na_2O, P, Ti, Be, Cd, Co, Cr, Cs, In, Ga, Ge, Hf, La, Li, Nb, Ni, Rb, Re, Sc, Se, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zr, Sn, Mn*
Drilling	597,827	Au, Ag, Cu, Zn, Ba, Bi, Sb, As, Hg, S, Al, Ca, ANC, Fe_2O_3, Fe, K_2O, Mg, Na_2O, P, Ti, Be, Cd, Co, Cr, Cs, In, Ga, Ge, Hf, La, Li, Nb, Ni, Rb, Re, Sc, Se, Sr, Ta, Te, Th, Tl, U, V, W, Y, Zr, Sn, Mn**
ASD	221,857	Clay mineralogy

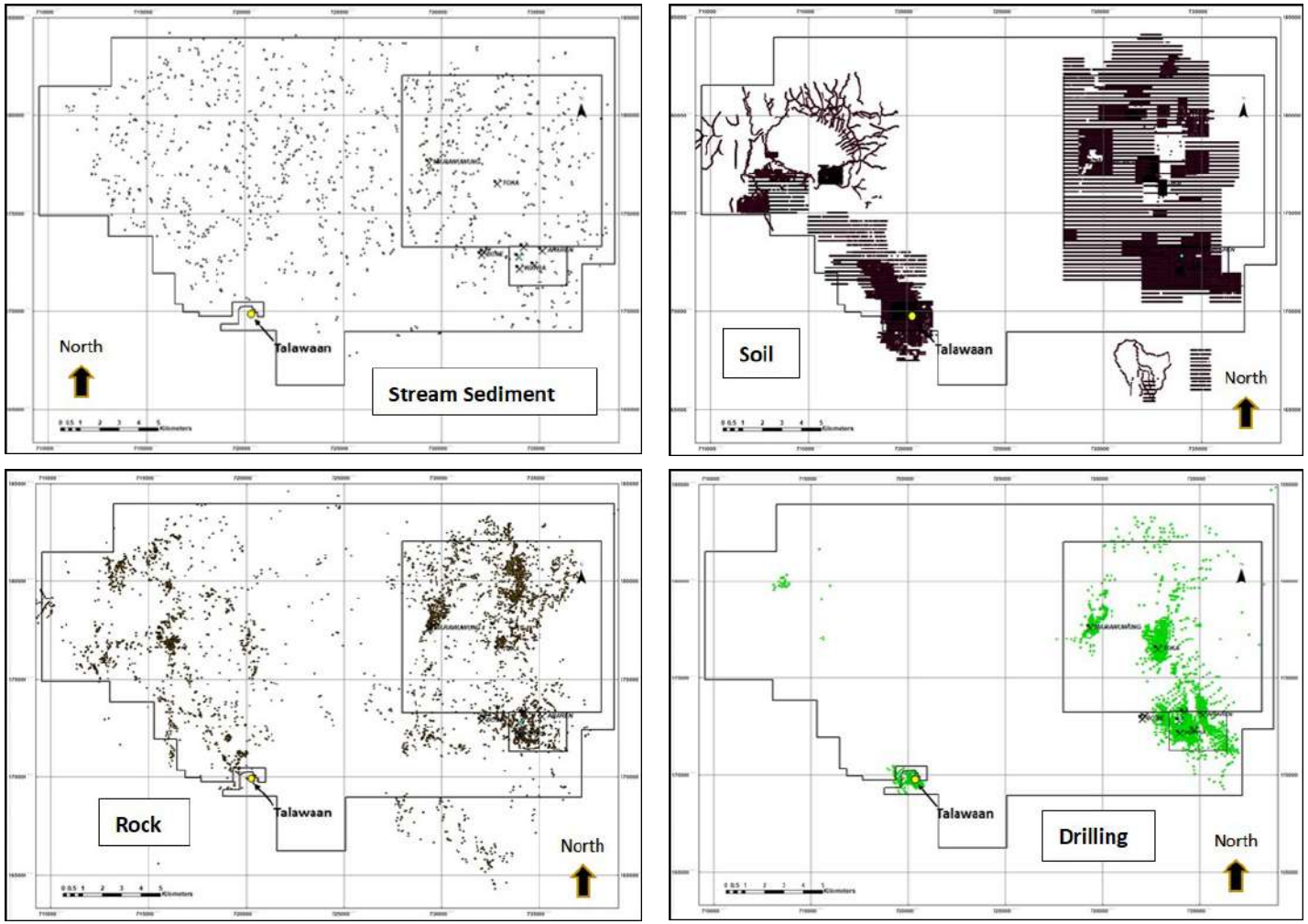
Source: Enmintech, 2020

* major elements and some selected oxides; some samples not analysed for the entire suite.

** mostly Au to Hg; there are some holes analysed for the complete multi-element suite.

This geochemical database, in conjunction with the other datasets available (geophysics, geology/alteration/structure), provides Archi with an excellent information source on which to assess and develop targets for potential additions to the defined gold ounces within the Project area. To date, many geochemical anomalies have been defined, both proximal to known deposits, and distal – these can be enhanced and with additional field follow-up developed to drill target status.

Figure 4-10: Toka Tindung Gold Mine Geochemical Sampling Coverage – Stream Sediment, Soil, Rock and Drilling



Source: Enmintech, 2020

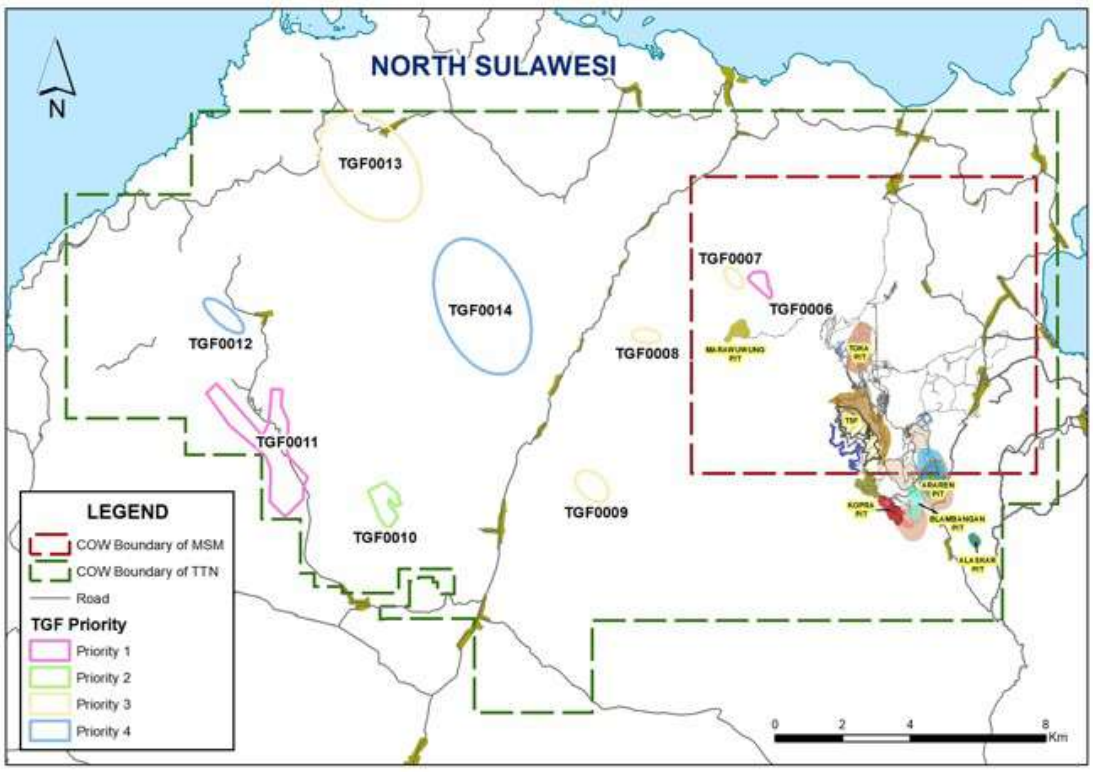
4.3.2 Exploration potential

In October 2020, Archi engaged Enmintech to prepare an Independent Exploration Target Review of the exploration potential of areas outside of the defined Mineral Resources and Ore Reserves but within the Toka Tindung Gold Mine concessions.

As noted previously, two mineralised corridors have been recognised to date (Figure 4-5); the Eastern Corridor (as defined by the Araren-Toka-Marawuwung trend), and a parallel zone to the west known as the Western Corridor. Previous drilling at the Talawaan prospect in the southern part of the Western Corridor returned encouraging results, while limited artisanal mining activity is also recorded along this corridor. The Western Corridor is now a key focus for Archi's future exploration efforts.

Near Mine and Greenfields opportunities are present (Figure 4-11), both in association with prospective dilational structural positions located along strike of known deposits within the Eastern Corridor, as well as within the poorly explored Western Corridor, a parallel structural zone to the west and outside of the current mining areas. Archi has defined a number of early to advanced stage Exploration Targets associated with the intersection of interpreted north–south and northwest-oriented structures, supported by various geophysical (magnetic and resistivity) and geochemical (rock chip, soil and stream sediment) data, as well as geological mapping.

Figure 4-11: Key targets within the concession area



Source: Enmintech, 2020

Based on its review, Enmintech outlined several Exploration Target estimates, which were prepared and reported by Mr Joseph MacPherson in accordance with the JORC Code (2012). Enmintech has consented to the inclusion of these Exploration Target estimates in Archi's Prospectus. These Exploration Target estimates have been subject to review by SRK, and SRK warrants the veracity of these estimates. As outlined in Enmintech's report (and summarised below), SRK considers there is a reasonable expectation for some 5.3 Moz to 13.0 Moz Au to be upgraded to Mineral Resource status at Toka Tindung Gold Mine through ongoing exploration. The details of these Exploration Targets are presented in Table 4-3 below.

Table 4-3: Toka Tindung Gold Mine Exploration Targets outside of the current mining centres, expressed as a range of estimated tonnage, grade and contained gold ounces

Target	Name	Low			High		
		Tonnage (Mt)	Grade (g/t Au)	Ounces (koz)	Tonnage (Mt)	Grade (g/t Au)	Ounces (koz)
Near-mine Targets							
TNM0002	Jipang East	4	2.0	250	7	3.0	700
TNM0003	Blambangan South	2	2.0	200	4	3.0	400
TNM0004	Jipang North	-	-	-	-	-	-
TNM0005	Toka-Araren Link	3	2.0	200	6	3.0	600
TNM0006	Blambangan East	5	2.0	300	9	3.0	900
TNM0007	Araren South	1	1.0	50	2	3.5	200
TNM0008	Marawuwung Mapping and CSAMT	12	1.0	400	14	1.5	700
TNM0009	Tinerungan	13	1.5	600	12	3.5	1,300
Subtotal				**2,000**			**4,800**
Greenfields Targets							
TGF0001	Toka	2	1.0	50	11	1.5	500
TGF0002	Toka West	4	1.0	100	11	1.5	500
TGF0003	Toka West	4	1.0	100	7	1.5	300
TGF0004	Toka West	4	1.0	100	11	1.5	500
TGF0005	Marawuwung South	9	1.0	300	17	1.5	800
TGF0006	Marawuwung North	9	1.0	300	17	1.5	800
TGF0007	Marawuwung North	2	1.0	50	5	1.5	200
TGF0008	Kaweruan East	1	3.0	100	2	3.5	200
TGF0009	Lupias Southeast	1	3.0	100	2	3.5	200
Subtotal				**1,200**			**4,000**
Talawaan Trend							
TGF0010	Talawaan North	6	2.0	400	7	4.0	900
TGF0011	Tumbohon-Epak	13	3.5	1,400	14	4.0	1,800
TGF0012	Warisa West	2	2.0	100	5	3.0	500
TGF0013	Paleas East	1	2.5	100	5	3.0	500
TFG0014	Kokoleh West	1	2.5	100	5	3.0	500
Subtotal				**2,100**			**4,200**
Total		**100**	**1.7**	**5,300**	**173**	**2.4**	**13,000**

Source: After Enmintech, 2020

Note: Table subject to rounding

As required when reporting Exploration Targets in accordance to the JORC Code (2012), SRK cautions that the potential quantity and grade of the Exploration Targets outlined above are conceptual in nature, as there has been insufficient exploration completed to date and it is uncertain if further exploration will result in the estimation of associated Mineral Resources.

Based on its review of the available technical data, SRK considers that Enmintech's Report on Archi's Exploration Targets accurately reflects the results of previous exploration and the exploration potential of Archi's Toka Tindung Gold Mine area. While the Exploration Targets within the Toka Tindung Gold Mine area are conceptual in nature, SRK considers that the Project has technical merit given historical exploration potential/resource/reserve conversion rates at the Project and the highly experienced exploration team assembled by Archi.

Details of the defined Exploration Targets are briefly outlined below.

Near Mine targets

Archi defines Near Mine targets to be those targets which are "located proximal (within 0.5 to 1 km) to existing deposits, but outside the current resource envelope, and which may be located along strike of the known resources. These exhibit geological, alteration, structural and geochemical characteristics similar to the known deposits".

Details of each of the Near Mine targets and the assigned priority (as provided by Archi and rated by Mr MacPherson, an independent consultant and the Competent Person for Exploration Results and Exploration Targets) is presented in Table 4-4.

Table 4-4: Details and Priority of Archi's Near Mine Exploration Targets

Target	Name	Priority		Comments
		Archi	JM	
TNM0002	Jipang East	1	1	Combination of permissive geology, structure; 'look-alike' system to Jipang
TNM0003	Blambangan South	1	1	Possible southern extension of Blambangan Pit
TNM0004	Jipang North	1	2	Pull-apart structural intersections creating dilational zone; one hole drilled but a second still required to fully test the target
TNM0005	Toka-Araren Link	1	2	Already tested with two diamond holes on southeast portion of zone; northwest portion still untested; located between two mineralised systems but remains good target along strike to the northwest
TNM0006	Blambangan East	1	1	Complex structural area east of Kopra and extending south of Blambangan Pit; numerous drill intersections and mineralised quartz vein on surface (#6,7,9 one large target)
TNM0007	Araren South	1	1	Complex structural area east of Kopra and extending south of Blambangan Pit; numerous drill intersections and mineralised quartz vein on surface (#6,7,9 one large target)
TNM0008	Marawuwung Mapping and CSAMT	1	1	A large area of under-explored prospective geology between the Toka and Marawuwung known mineralisation. CSAMT is a must, and detailed mapping, expanded soil coverage and drilling to follow up targets is highly recommended. Can be done in conjunction with High Priority Greenfields targets GF2,3,4,6,7.
TNM0009	Tinerungan	1	1	Complex structural area east of Kopra and extending south of Blambangan Pit; numerous drill intersections and mineralised QV on surface (#6,7,9 one large target)

Source: Enmintech, 2020

Greenfields targets

Archi defines Greenfields targets to be those "generally located greater than ~1 km from known deposits, but still exhibiting one or more of the well-known characteristics of the known mineralised zones in the Project Area. These targets are more theoretical/conceptual in nature and their parameters are based on the extensive knowledge base available as well as their resemblance to known ore zones. Typically, greater reliance is placed on geophysical signatures and lower tenor geochemical anomalies that may provide subtle indicators towards the presence of potentially significant mineralisation under recent cover".

Details of each of the Greenfields targets and the assigned priority (as provided by Archi and rated by Mr MacPherson, an independent consultant and the Competent Person for Exploration Results and Exploration Targets) is presented in Table 4-5.

Table 4-5: Details and Priority of Archi's Greenfields Exploration Targets

Target	Name	Priority		Comments
		Archi	JM	
TGF0001	Toka	2	2	Not drill ready; requires preliminary mapping and sampling to better define targets.
TGF0002 TGF0003 TGF0004	Toka West Toka West Toka West	1 1 1	1 1 2	These conceptual targets cover a large area of under-explored prospective geology between the Toka and Marawuwung deposits. Postulated Horst targets have been identified from interpretations of aeromagnetic data. Target is uplifted favourable stratigraphy (P Series) in these horsts. CSAMT coverage should be completed before final drill sites are selected. Can be done in conjunction with exploration of High Priority Greenfields Target TNM008.
TGF0005	Marawuwung South	1	2	N-S zone of CSAMT resistivity; strength of anomaly increases with depth. Potentially complex favourable geology needs confirmation with additional mapping.
TGF0006	Marawuwung North	1	1	Soil anomalism (Au up to 1,610 ppb + As + Sb) around major NW structure (to north of current drilling); Rock chips up to 2.14 g/t Au. Within same strong N-S trending CSAMT low hosting Marawuwung mineralisation, similar to CSAMT response over Toka.
TGF0007	Marawuwung North	3	2	In same CSAMT trend as TGF0005/6; weaker soil and rock geochemistry, overall tenor of target is lower.
TGF0008	Kaweruan East	3	3	One isolated anomalous Au value in SS, adjacent to interpreted NW fault
TGF0009	Lupias Southeast	3	2	Stream sediments up to 353 ppb Au & 21 ppm As; near NNW structure. May be at N boundary of fault block interpreted from magnetics. JM higher rank due to possible block faulting of P series to near-surface.
TALAWAAN TREND – two targets located NW along strike from Talawaan deposit				
TGF0010	Talawaan North	2	2	NW trending As + Sb soil anomaly; stream sediment sample with 132ppb Au. Possible strike extension of east vein system at Talawaan. Detailed mapping, sampling needed before drill target selection.
TGF0011	Tumbohon-Epak	2	2	4 km long NW-SE trending zone of high-grade rock float samples (12 samples >5g/t Au). Although identified as float samples, significance is increased with interpreted intersections of N and NW faults (based on stream/topo interp.) and the position of the target along strike NW from Talawaan. Ranked as 2 because of possibility that quartz float is from late conglomerate; its clasts may originate from Talawaan. Possible proximal bedrock source.

Target	Name	Priority		Comments
		Archi	JM	
TGF0012	Warisa West	4	2	Three high stream sediment hosted-Au anomalies along S flank of caldera feature, NW fault interpreted from magnetics (JM) to S; Au in rockchips along strike to SE; anomalous Cu in stream sediments also along strike. JMP recommends follow up. Possible source is between caldera ridge line and stream sediments sample anomalies; a small geographical area for the target location.
TGF0013	Paleas East	3	2	Stream sediment anomalism (Au to 85 ppb) near N-S & NW structures interpreted from aeromagnetic imagery
TFG0014	Kokoleh West	4	3	Stream sediments to 627 ppb Au; large area with several anomalous stream samples; possible NW structure in S part of area

Source: Enmintech, 2020

4.3.3 Exploration conducted since September 2020

Since the completion of Enmintech's 2020 review, Archi has undertaken additional exploration focussed on the following:

- prospect-scale mapping in the Talawaan area of the Western Corridor (principally the TGF010, Teapu Atas and North Kresna areas) to investigate potential extensions to the known mineralised system and additional targets located to the north
- diamond drilling (comprising 56 holes for 14,805 m) targeting lateral and depth extensions to the Bima and Arjuna veins in the Bima structure (being the host structure to known mineralisation in the area)
- regional and prospect-scale mapping of the Marawuwung and Marawuwung SE areas, respectively
- regional scale of CSAMT geophysical surveying between Toka and Marawuwung (3 lines on 800 m spacing totalling 7,500 linear m), as well as the Talawaan area (5 reconnaissance lines across several prospects for 7,000 line km)
- interpretation to identify potential lateral and depth extensions in the Alaskar -Araren areas.

The following preliminary results have been returned:

- Extensional drilling of the Bima structure in early 2021 has returned multiple zones of narrow (typically 1 to <10 m downhole intercepts), moderate to high grade (>2.5 g/t Au) gold mineralisation within along strike or at depth positions to the known mineralisation. Further work is required to assess the significance of these drilling results, but they provide additional support of the previously outlined Exploration Targets as proposed by Enmintech and the impetus for exploration drilling in these areas in the near term.
- CSAMT surveying at both Marawuwung – Toka and Talawaan indicate several northwest trending zones of resistivity (interpreted to correspond to coincident structural and alteration positions considered to be highly prospective), which remain to be further assessed in the near term.

4.3.4 Forward work program and budget

Archi's historical exploration expenditures have been: 2018 – US$25.5 M, 2019 – US$12.9 M and 2020 – US$10.3 M. More than 80% of this expenditure was directed toward assessment of concepts and targets in the form of drilling/assaying, geophysical surveying and surface sampling/geochemistry sampling programs. The remaining 20% includes direct labour and logistics support costs for the exploration programs.

Archi has committed approximately US$94 M to the exploration effort over the next five years and a further US$50 M to 2029. The majority of this amount is expected to be funded from mine cashflow and is to be spent within the next three-year period in anticipation of exploration success. In SRK's view, this sum should be sufficient to adequately test the currently defined Exploration Targets and advance them through Mineral Resource/Ore Reserve definition and into production, should exploration results warrant it.

SRK is satisfied that Archi's project area has technical merit, offers significant upside to the currently defined Mineral Resource/Ore Reserve base and that the proposed exploration programs and associated exploration budgets are appropriate and warranted. In SRK's opinion, the proposed work programs are technically sound and, assuming the Company's transaction is successful, will be adequately funded for at least the first two years. SRK does caution however that the budgets from Year 2 onwards will be contingent on the results of the Year 1 exploration program and hence may differ from those currently forecast.

4.4 Mineral Resource Estimates

4.4.1 Introduction

The current Mineral Resource Statement for the Toka Tindung Gold Mine as at 31 December 2020 is presented in Table 4-6. Where Ore Reserves have been reported, the Mineral Resources are reported inclusive of Ore Reserves.

SRK notes the named Competent Persons for these Mineral Resource Estimates are outlined in Section 1.8.5 of this Report.

SRK has received representations from Archi confirming that:

- it is not aware of any new information or data that materially affects the information included in this section
- all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed
- the form and context in which the Competent Person's findings as presented here within have not been materially modified.

In SRK's opinion, the Mineral Resource Estimates reported for the Toka Tindung Gold Mine are acceptable as a reasonable representation of global grades and tonnages and have been prepared for reporting to a sufficient quality standard under the guidelines set out in the JORC Code (2012).

The Mineral Resources are reported with reasonable prospects for eventual economic extraction using an US$2,340/oz gold price within an optimised pit shell outline for the open pit Mineral

Resources at a 0.2 g/t Au cut-off and mining parameters from the current open pit operations within the Toka Tindung Gold Mine. Indicated Mineral Resources within the stockpile categories comprise 162 koz Au or 2.9% of the total Mineral Resources at the Toka Tindung Gold Mine. The entire stockpile Mineral Resources are reported as Ore Reserves.

Table 4-6: Total Mineral Resource estimate (at 0.2 g/t Au cut off) for Toka Tindung Gold Mine as at 31 December 2020

Deposit	Measured					Indicated					Inferred					Total				
	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz	Mt	Au g/t	Ag g/t	Au koz	Ag koz
Alaskar						2.4	2.2	8	172	639	1.1	0.8	3	29	110	**3.6**	**1.7**	**6**	**200**	748
Araren	3.6	1.5	3	173	313	27.2	1.7	3	1,467	2,572	13.8	0.7	1	303	423	**44.6**	**1.4**	**2**	**1,943**	3,308
Kopra	1.9	1.5	7	90	453	18.5	1.4	4	807	2,113	1.9	0.9	3	52	198	**22.3**	**1.3**	**4**	**950**	2,763
Marawuwung	2.6	1.2	2	102	134	6.5	1.0	1	199	280	2.3	0.8	1	62	79	**11.3**	**1.0**	**1**	**363**	493
Talawaan						1.1	8.1	12	289	430	1.1	5.9	8	203	289	**2.2**	**7.0**	**10**	**492**	719
Toka	11.6	0.9	2	331	684	34.8	0.8	1	847	1,566	8.6	0.9	1	241	304	**55.0**	**0.8**	**1**	**1,418**	2 553
Stockpile						6.7	0.8	2	162	369						**6.7**	**0.8**	**2**	**162**	369
TOTAL	**19.7**	**1.1**	**2**	**696**	**1,583**	**97.2**	**1.3**	**3**	**3,942**	**7,969**	**28.8**	**1.0**	**2**	**890**	**1,401**	**145.8**	**1.2**	**2**	**5,528**	**10,953**

Notes:

1. Totals may differ due to rounding
2. Depleted to 31 December 2020
3. Reported within an US$2,340/oz constraining pit shell
4. Talawaan is reported within CoW boundary only and depleted for underground mining

The following is a summary of the estimation philosophy and key inputs adopted by Archi and SRK in the preparation of the 2020 Mineral Resources.

For full details of the stated Mineral Resources (included the associated Table 1 disclosures as required by the 2012 Edition of the JORC Code), readers of Archi's Offering Circular are referred to Archi's 2020 Mineral Resource Statements for each deposit, which may be found at the following location on Archi's website http://archiindonesia.com/independent-technical-report/ (English web page), http://archiindonesia.com/id/laporan-konsultan-independen/ (Indonesian web page).

4.4.2 Drill data inputs

Drill data used to support the 2020 resource models for the entire Toka Tindung Gold Mine consist of a combination of exploration diamond drilling (DD), exploration reverse circulation drilling to support resource definition (RC), and grade control reverse circulation drilling (GCRC) (Table 4-7). A total of 94,935 drill holes and approximately 1,286,500 m contributes to the data inputs used to complete the 2020 Mineral Resource Estimates as presented in Table 4-6.

Table 4-7: Summary of drill statistics

Deposit	DD		RC		GCRC	
	Count	Metres	Count	Metres	Count	Metres
Alaskar	149	38,366	91	13,244	-	-
Araren	476	101,249	531	76,747	70,093	145,093
Kopra	274	51,380	900	120,860	2,403	54,233
Marawuwung	228	32,453	203	26,439	-	-
Toka	323	44,136	1,403	188,211	17,357	340,738
Talawaan	168	19,638	138	13,945	-	-
Total	**1,618**	**287,222**	**3,266**	**439,446**	**89,853**	**540,064**
% of Total m		**23%**		**35%**		**43%**

Source: 2020 Mineral Resource Statements

The majority of diamond core comprises triple tube PQ (83 mm) diameter core that was drilled from surface until reaching consolidated rock, then HQ (61.1 mm), with a reduction to NQ (45 mm) at depth, as required by drill conditions. The majority of drill core is HQ in size.

RC drilling was completed using a face sampling bit and is generally 130 mm diameter and either drilled to inform the resource definition (RC/RD) or as part of grade control practice (GCRD).

Exploration and resource delineation drill spacing on the majority of deposits ranges between 15 m and 30 m spacing, increasing to 75 m or greater at the periphery and when testing the along strike extents of the deposits. Grade control drilling was completed at 10 m by 5 m spacing. For those deposits oriented north–south (Araren, Toka and Marawuwung), the drilling was predominantly on east–west sections, whereas for the northwest–southeast oriented deposits (Alaskar, Kopra and Talawaan), the drilling is predominantly on southwest–northeast sections.

All drill collar positions were surveyed with a differential global positioning system (DGPS), with accuracies typically less than 1 m. Downhole surveys were completed approximately every 30 m using a single shot Devico PeeWee electronic camera to assist with orientation of the drill core and determination of drill hole deviation in longer holes.

All holes were logged in detail for lithology, mineralisation, alteration, oxidation and structure. For DD, geotechnical parameters were recorded, including recovery, RQD and detailed vein and fracture logging. For RC drilling, sample weights were recorded to monitor recovery, and sample condition was also recorded (dry, damp, wet). All drilling (DD core and RC chips) were photographed and stored in the Archi database.

Dry bulk density (density) was measured on regular sample intervals using the Archimedes (dry weight versus weight in water) weighing method (DD holes only). Samples were dried at 80˚C for 8 hours, prior to density determination.

DD sampling was generally based on 1 m intervals adjusted for geological or mineralisation contacts. The majority of samples submitted for assay comprised half core, with half core retained for reference purposes.

RC sampling was collected at 1 m intervals, with the samples split at the rig using a riffle splitter, to obtain a sample of around 2–3 kg. A sample of RC chips was retained in chip trays for reference purposes.

Sample preparation was undertaken at PT Intertek's laboratory in Manado. DD and RC samples were dried, crushed to 6 mm, riffle split to 1 kg, and pulverised in a ring pulveriser to 95% passing 75 µm and 250 g extracted to be sent for analysis.

All analyses of the final pulped samples were carried out at internationally certified, independent assay laboratories in Indonesia or Australia. Samples from Archi were analysed at PT Intertek laboratory in Jakarta, with Au analysis by 50 g Fire Assay (Intertek method FA51) and Ag determined by Aqua Regia digestion with atomic absorption spectrometry (AAS) finish.

Standard quality assurance and control (QA/QC) protocols were used with regular certified (CRM) and non-certified (SRM) reference materials, duplicates and blank samples included in the sampling process. CRMs and SRMs covering a range of grades for both gold and silver were sourced from Gannet Holdings and Ore Research and Exploration (OREAS) Pty Ltd, and were submitted during the various drilling campaigns.

Data was validated at various stages of the data collection process including data input into the acQuire SQL database, data export for use in various software, and additional detailed checking was completed prior to using the relevant deposit dataset for interpretation, modelling and grade estimation.

All data collection procedures are aligned with industry best practice and have been reviewed by external experts for compliance with best practice.

Detailed description for all aspects of data collection, sampling, assaying and QA/QC are included in the relevant 2020 Mineral Resource Statement for each deposit.

In SRK's opinion, the resource database is suitable for Mineral Resource estimation purposes for the deposits underpinning the Toka Tindung Gold Mine.

4.4.3 Geological modelling and domain modelling

As noted previously, the Toka Tindung Gold Mine area is located on the eastern margin of the Southeast Asia Plate within the Sulawesi-East Mindanao magmatic arc, a highly mineralised belt of

volcanics and high-level intrusive bodies of early Miocene to Quaternary age. A series of north-northwest–south-southeast trending faults define at least two structural corridors, which host the known deposits. The known deposits are classified as low-sulfidation epithermal systems.

Mineralisation at the southern deposits of Alaskar, Araren, Kopra and Talawaan occurs in quartz–adularia veins hosted by basaltic andesite. Wall rock alteration is characterised by narrow zones of strong silicification and argillic or propylitic alteration.

At the northern deposits of Toka and Marawuwung, mineralisation is generally of a lower grade tenor than the southern deposits. Mineralisation at Toka and Marawuwung occurs within a package of silicified pyroclastic rocks. Low-grade mineralisation occurs throughout this lithological package, with higher-grade zones associated with quartz–adularia veins. Wall rock alteration is characterised by silicification and argillic or propylitic alteration.

The known deposits within the Toka Tindung Gold Mine have been interpreted and modelled in three-dimensions (3D) for gold mineralisation, lithology and oxidation using both Leapfrog and Micromine computer software. The domains were constructed by interval selection methodology, snapping to the drill hole intercept in 3D. Mineralisation was modelled on 12.5 m to 25 m spaced sections (in the more densely drilled areas) out to 50 m (at the northern and southern extents), lithology on 25 m sections and oxidation on 50 m sections.

Table 4-8 summarises the spatial extents of each deposit.

Table 4-8: Summary of the spatial extents of each deposit at the Toka Tindung Gold Mine

Deposit	Mineralisation Orientation	Strike Length (metres)	Width (metres)	Vertical Extent (metres)
Alaskar	330	1,000	500	500
Araren	360	2,200	600	500
Kopra	325	2,350	650	300
Marawuwung	360	1,500	300	350
Toka	360	2,500	750	300
Talawaan-Bima	325	1,000	200	350
Talawaan-Arjuna	325	500	100	150
Talawaan-Kresna	325	250	50	150

Source: 2020 Mineral Resource Statements

The mineralisation domains were used to control estimation of Au and Ag. Bulk density was assigned from the sample density data based on statistical analysis using a combination of lithology and oxidation parameters to group the data.

Oxidation domains were defined using the logged visual oxidation parameter. The criteria used was: Oxide (COX) ≥ 70%; Partial Oxide (POX) ≥ 30% and <70%; and Fresh (UNOX) <30%. Interval selection was assessed visually in 3D and smoothed as required to produce a simplified appropriate representation of the oxidation material types that would be appropriate to use for modelling purposes. Statistical analysis supports this approach.

The domain strategy in 2020 was similar to what had previously been used for the southern deposits defining the mineralised quartz veins. High grade zones were defined using a nominal gold grade >1 g/t Au, minimum 1 m width, and maximum 5 m internal dilution. A noted change to the previous domain strategy was to also define a low-grade halo around the high-grade zones that effectively delineates the entire mineralised corridor to include any stockwork veining or breccia that occurs peripheral to the main quartz veins. A nominal 0.2 g/t Au lower constraint was used to define the low-grade halo.

For the Toka and Marawuwung deposits, a nominal 0.3 g/t Au grade constraint was used to develop grade shells using 14 trend surfaces to control and guide the construction of the shells. Modelling was completed using Leapfrog software.

For the Talawaan deposit, a nominal >1 g/t Au grade constraint was used, with a minimum 1 m width and also using quartz vein logging for guidance and adjustment if required. Modelling was completed using Leapfrog software. A detailed description for all geological and domain modelling was included in each of the relevant 2020 Mineral Resource Statement reports for each deposit.

4.4.4 Resource estimation inputs and parameters

Drill holes were composited by 1 m, 5 m or vein width downhole intervals within the mineralised domains. Univariate statistical assessment was completed for both raw and composite data. Top capping was assessed based on considering a combination of descriptive and graphical statistical parameters and spatial distribution of outliers. Top caps, as deemed appropriate based on this assessment, were assigned for Au and Ag.

Spatial continuity analysis (variography) was completed using the non-transformed composite data. Variogram modelling was completed for the major veins and haloes, and in most cases these models were then applied to the minor veins and halo. The search ellipse was aligned with the interpreted geometry of the domains. Dynamic anisotropy was applied to specific domains to better control the change in anisotropy of the mineralised zones during the estimation process.

Sub-cell block models were constructed to best honour the geometry and narrow vein volumes in 3D, with a concession made to ensure the sub-cell strategy was compatible with Surpac software (which is used for grade control and mine planning). The block model was flagged for lithology, oxidation, mineral domain (mindom), pre-mine topography and the as-mined pit surface as at 31 December 2020.

Grades were estimated into parent cells using Ordinary Kriging (OK) methodology for Au and Ag, the exception being Toka, which was done using Localised Uniform Conditioning (LUC). LUC is designed to maximise the confidence in global grade and tonnage estimates at cut-offs above zero, while simultaneously imparting more realistic block variability and reducing the smoothing impact of methodologies such as OK and inverse distance.

A high-grade restriction approach was applied to specific domains as part of the estimation process to restrict the influence of very high grade composites during estimation.

Table 4-9 summarises the block model parameters and key estimation parameters adopted for the resource models supporting the Toka Tindung Gold Mine Mineral Resources. A detailed description for all aspects of the resource estimation process and parameters used are included in each of the relevant 2020 Mineral Resource Statement for each deposit.

Table 4-9: Summary of model parameters for the Toka Tindung Gold Mine deposits

Model		Toka	Marawuwung	Talawaan	Alaskar	Araren	Kopra
Model Corner (Min)	X	732250	728750	719000	736000	734650	732600
	Y	175500	177000	169000	170925	171750	171400
	Z	-50	-100	-100	-500	-400	-200
Model Corner (Max)	X	733750	730410	721000	736800	736005	734855
	Y	178250	178925	170400	172000	174262.5	173762.5
	Z	300	350	400	300	220	540
Parent Block Size	X	5	5	5	5	5	5
	Y	12.5	12.5	6.25	12.5	12.5	12.5
	Z	5	5	10	10	10	10
Sub cell size	X	1.25	1.25	0.625	1.25	1.25	1.25
	Y	3.125	3.125	0.78125	3.125	3.125	3.125
	Z	1.25	1.25	1.25	2.5	2.5	2.5
Mineralisation style		Diffuse	Diffuse	Narrow vein	Wide vein	Wide vein	Wide vein
Previously mined		Open Pit	No	Underground	No	Open Pit	Open Pit
Composite Interval		5 m	5 m	Vein width	1 m	1 m	1 m
Estimation Method		LUC	OK	OK	OK	OK	OK
High grade restriction		Estimation domain	None	Vein	Cover, halo, waste	Cover, halo, waste	Cover, halo, waste
Dynamic Anisotropy		Block by block based on trend surfaces	Block by block based on trend surfaces	Domain	Zonal	Zonal	Block by block based on trend surfaces
Estimation Software		Isatis	Isatis	MicroMine	MicroMine	Micromine	Micromine

Source: 2020 Mineral Resource Statements

4.4.5 Mineral Resource classification

The Toka Tindung Gold Mine Mineral Resource has been classified as Measured, Indicated and Inferred and is reported in compliance with the JORC Code (2012). The parameters that have been considered are the distribution and density of drill data, confidence in interpreted geological continuity of the mineralised zones, and confidence in the resource block estimates. Based on these criteria, the 2020 classification has increased confidence in all the Toka deposits with material upgraded from Indicated to Measured, Inferred to Indicated and an increased volume of Inferred classified resources in all deposits.

Detailed classification criteria for each deposit can be found in the relevant 2020 Mineral Resource Statement for each deposit. The criteria for classification applied for most of the deposits is as follows:

- **Measured**: average drill spacing of <15 m; very high confidence in continuity of mineralisation; block estimated in first or second interpolation pass; average distance of samples to block centroid (AVDIST) <10 m
- **Indicated**: average drill spacing of <30 m; high confidence in continuity of mineralisation; block estimated in first or second interpolation pass; AVDIST <25 m
- **Inferred**: average drill spacing <50 m maximum up to 100 m; moderate confidence in continuity of mineralisation based on lesser drill support along strike or at depth; block estimated in second or third interpolation pass; AVDIST <40 m maximum 100 m.

Mineral Resources were reported constrained by an optimised Whittle pit shell generated using US$2,340/oz Au prices at a 0.2 g/t Au cut-off, based on a processing flowsheet incorporating the current Toka CIL process. It is considered that in doing so that the “reasonable prospects for eventual economic extraction” (Clause 20) of the JORC Code (2012) have been met.

4.4.6 Validation

The validation of the global resource estimates was performed by way of visual checks of block estimates against the drill composites, comparison of statistical de-clustered mean data and swath plots comparing composite and model block estimate grades in northing, easting and elevation.

Visual checks confirmed that, in general, the models reflect grade trends in the input data, and model grades correlate reasonably with the composite grades. There is no obvious smearing of high grade, with areas of higher grade being well constrained locally around the drill intercepts, supporting the application of top capping and high-grade restriction.

In the swath plots, the overall trends between the block estimates and composites show a good correlation for Au and Ag, with no significant bias between the two sets of data. The plots indicate that, in general, the block estimates are well-conditioned with respect to the supporting data.

All models were reviewed by both SRK consultants and Archi staff. The models are considered by SRK to be fair and representative estimations for use in Ore Reserve estimation.

5 Geotechnical engineering

5.1 Introduction

The open pit mining complex at the Toka Tindung Gold Mine consists of several open pits within an area spanning approximately 10 km. These includes the Toka, Araren and Kopra pits, which are all in production; and the Alaskar, Talawaan and Marawuwung pits, which are in pre-production phase. The Pajajaran pit has previously been filled-in with waste rock and in 2020, the in-filling of the Blambangan open pit commenced from the northern end of the pit.

The mining complex also includes the Toka, Batupangah, Pajajaran and Kopra WRDs.

Although the geological setting is essentially the same across the area, each pit presents localised conditions due to variations in faulting, rock mass fabric, weathering and alteration. Numerous consultants have previously, over the course of several years, produced numerous reports and reviews of the mining conditions, issues and risks, each with their own methods and focus. Therefore, forming a simple summary concerning open pit slope stability across the project is challenging.

5.1.1 Site conditions - geology

The known gold–silver mineralisation within the Project is hosted along and within two north and north-northwest-trending fault corridors and comprises associated steeply dipping vein arrays and rockmass fabrics, which predominantly dip to the east and northeast respectively.

Highly weathered, very weak tephra and soil materials at surface are, in places, underlain by weak variably weathered conglomerates of the PTC. These units in turn overlie completely weathered, VAF, which forms part of the VBA package) and less weathered basaltic andesites of the main volcanic package (VBA). In some places, the VBA contains a PBX.

5.1.2 Pit slope performance

Key observations concerning past and future pit slope performance in some of the pits are listed below:

- **Araren Pit** - the West wall within the Araren open pit is designed as a final wall and lies in generally competent footwall rock, such that a permanent water piping infrastructure has been constructed and bolted into this wall from approximately 25 m RL to surface at approximately 107 m RL for dewatering. The remaining three walls are all temporary walls and have several geotechnically weak spots, which are prone to minor (material comfortably retained on the adjacent berms) slippages, especially during the wet season.

  As a result of these slippages, multiple prisms and extensometers have been installed and remain in continual use to monitor and graph any movement within these weak areas. The intent being to accurately predict major slips, such as that which occurred in the main ramp in April 2019. Ongoing monitoring and prediction is supported by the internal and external geotechnical engineers.

In addition to these slippage zones, several aquifers have been intersected below the 25 m RL and these are associated with a brecciated layer within the hanging wall to the mineralised zone. This hanging wall position is identified and lies contiguous to the main high-grade mineralised zone. In terms of water ingress to the Araren open pit, active aquifers are located at between 25 m RL and 0 m RL, and typically deliver 4,000 tph of water at a temperature of 70°C to the pit area. The porosity is high, being in the order of 0.2–0.3 m/s. Some of this backflow (30–40%) as the main aquifer has previously been intersected in November 2017 during excavation of the open pit, with the Stage 3 pit presently at -80 m RL.

Water management activities have been ongoing since 2018, with the water now pumped out via a series of six boreholes (total volume 800–1,000 tph at a temperature of 95°C) located upstream of the Araren open pit. This reduces water volume ingress and heat content into the pit, such that the in-pit pumps generally extract about 3,000 tph of water at a temperature of 60°C.

Work is presently focussed on the construction of grout curtains both upstream and downstream of the two main aquifers and pumping/reinjecting the waters. Work is ongoing upstream of the present boreholes (in the southeast) for the development of the first grout curtain in second quarter 2021 at the main source (estimated to supply 50–60% of the water) with the highest recorded temperature of 95°C.

The main cutback on the east wall (weak areas associated with the ramp that failed in 2019) is expected to commence in Q1 21. This cutback was expected to have been completed in 2020 however, due to approval delays associated with the onset of the COVID-19 pandemic, this was significantly delayed.

The batters and inter-ramp slopes perform well in the VBA; though there is limited rockfall protection due to crest loss of the narrow berms and rilling, which fills these berms.

Single and multi-batter instabilities occurred in the weak weathered materials of the VAF (VAF units forming part of the VBA) and RTC (conglomerates) in the upper north, east and south walls of the Araren open pit, which are all interim walls. These failures are largely contained on the berms. The batter angles in these materials, currently at 65°, are too steep and SRK recommends these angels are flattened, if similar rocks types are encountered in either the permanent or further temporary walls. Previous geotechnical consultants have suggested these angles be reduced to 45° in the Araren Stage 5 open pit and any further cutbacks (Mining One, September 2020). SRK concurs, as a reduction in these batter angles will also reduce the inter-ramp angles (IRAs), but will increase the strip ratio, and hence produce more waste rock.

There has been a significant degree of erosion in the upper benches, with rain/surface water inflow and erosion likely contributors to the previous areas of instability. Significant water inflows are associated with the north–south striking fault systems, with seepage concentrated along the weak/weathered rock above the contact with the fresh VBA rock. Cocomesh (a net made from coconut fibre used in mine reclamation) has been applied to the batters to prevent further erosion.

Following two significant failures in November 2018 and April 2019, back analyses were conducted to provide more reliable parameters regarding the rock mass on the basis of the in-situ measurements. The 2018 failure occurred in the VAF after heavy rainfall and impacted the access ramp and was back analysed by independent geotechnical consultants in 2019 (Coffey,

2019). The 2019 failure was larger (including four batters), impacted the ramp access and resulted in suspension of mining activity for a total of 89 days. This failure was back analysed by Archi internally. Importantly, the 2019 failure took 14 days to repair, but a further 75 days to obtain the relevant approvals from the regulators to resume operations. The failure mechanism for both failures was interpreted to have been a combination of sliding failure through local steeply dipping structures (fabric) and failure through weak rock mass.

The Araren River (about 4 m wide) originally traversed the Araren open pit and was diverted eastwards in 2016 for Stages 1–3. The Company has previously sought approvals for a further river diversion in 2020, which was delayed due to travel restrictions associated with the COVID-19 outbreak. The Company has now received the relevant approvals and envisages that the diversion will be completed in Q1 21 in readiness for Stage 5. The river is expected to be diverted again in time for Stages 6–8 to a final location east of the pit.

The river diversion is presently the regulated >50 m from the crest of the east wall of the Araren pit. In the Stage 5 cutback, SRK considers it is imperative that this is not affected by instability in the slopes below, or in the limited slopes above (which have been cut into the natural hillside at 40° batters).

- **Toka Pit** – Along the west walls of the Stage 1, 2 and 4 Toka pit, the performance of the pit slopes has been controlled by strong argillic alteration in the andesite host rocks, which resulted in several failures. These slumping failures were predicted and managed by Archi at the time.

  The existing slope design of 15 m high batters at 65° angle with 5 m berms (in line with the independent consultants' original design) presents a medium to high risk of medium to large scale slope instabilities within the western and northern walls of the Toka open pit, particularly in areas of strong argillic alteration. Berms of 5 m width, with likely crest loss, are unlikely to be sufficient for arresting any rockfall; and therefore, the rockfall risk with this slope design is likely to be high.

- **Kopra and Blambangan Pits** – The Kopra and Blambangan pit walls have been formed largely of blocky rock of high strength. To date, wall performance has typically been very good. Areas of strong argillic alteration are present locally but are limited to batter-scale. However, in the Blambangan open pit, three failures occurred in the northern and eastern walls, with these exhibiting various failure mechanisms (a combination of slumping, sliding or toppling and failure through weak, argillic-altered rock mass). The large failure in the central portion of the eastern wall was interpreted as a toppling failure, where the slope section was around 40 m in height and steep in overall angle (~60°) and was originally identified by cracks on the pit surface, which were closely monitored and the failure, predicted by Archi, managed accordingly.

- **General** – In general, planar failures may occur on western walls and toppling failures on eastern walls - at batter or multi-batter scale. These are exacerbated by the presence of weak weathered or altered rock, and rock mass failures may also occur in such materials.

5.1.3 Waste rock dumps

The Batupangah WRD comprises mainly weathered, altered and fresh rock from the Araren open pit, as well as fairly weak, weathered and altered rocks from the Blambangan pit.

The overall WRD design slopes are relatively low angle (between 12° and 22°). Stability analyses indicate relatively high factors of safety (FOS ≥ 2.0) even under seismic and partially saturated conditions. However, the WRD will be composed partially of weak rock (for which the friction angle of 38° assumed for initial analyses may not always be appropriate); and there does not appear to have been a foundation investigation.

Potential failure through weak materials in the foundations presents a risk for the WRD, particularly if portions of the foundations are located on sloping ground. Therefore, the risk profile of the WRD is potentially high, mainly because the consequence of failure and run out onto infrastructure below is significant.

Therefore, SRK recommends a comprehensive study to evaluate the stability of this and other WRDs at the Toka Tindung Gold Mine and better assess the risks associated with instability. This should be completed as soon as possible, so that any requirement for adjustments to the design and construction can be assessed and incorporated to minimise risk of instability

5.2 Geotechnical analysis

From a geotechnical perspective, there have been several instances of instabilities in the open pits, with the two failures in a temporary wall to the Araren pit, being most serious. One of these failures hindered ramp accessibility, with the resultant loss of open pit production for a prolonged period (approximately 3 months). The problem occurred mainly in the upper, weathered, weaker materials, which are vulnerable to over-steep design and to transient and long-term groundwater issues.

Reviews of the failures led to recommendations for redesign of slopes and for other mitigating actions. The main recommendations were a reduction in slope angles (reduced batter angles and IRAs) in some materials, particularly within the upper east wall, slope depressurisation and slope monitoring. Additional data collection (from drilling and mapping) was recommended for the Stage 5 cutback development. SRK considers these recommendations to be reasonable.

Significant effort is being made by Archi's onsite teams and consultants to constantly assess the causes of instabilities and mitigate the risk of future instabilities by design adjustments, slope depressurisation, erosion protection and monitoring. However, further data collection and comprehensive and/or targeted studies are required as the pits, in particular the Araren pit, become larger and deeper.

Based on the available technical information, SRK notes several key points, as summarised below. Additional analyses and assessments suggested in these points should be undertaken as soon as possible to review existing designs where these may be critical in terms of mine planning or exposure of personnel to instability; and for all new pits and cutbacks to be assessed as part of the proposed Feasibility Study commencing Q1 2021. These will help to identify necessary design modifications and/or would help to increase design confidence and provide a clearer understanding of risk.

- Overall, rock mass shear strength properties appear suitable for the material types described. However, rock mass properties would benefit from a review, as some of the input values (for example, material constant of the intact rock (m_i) values) adopted for the weathered/altered materials appear too high. It is also not clear if any disturbance factor has been considered for materials in the pit walls that require blasting.

- The slope design acceptance criteria used seem suitable for different scales (bench or inter-ramp/overall slopes) and for low or high-risk areas.
- Reasonable (and sometimes somewhat conservative) assumptions have been adopted including for groundwater in the stability analyses and it has been recommended by Mining One (2020) and Hydro Consulting Services (2020) that pit slope depressurisation holes be installed in regular patterns to help with depressurisation.
- The installation of groundwater monitoring holes has been recommended by Mining One (2020) for assessing whether depressurisation has been achieved, though it needs to be demonstrated by modelling that this measure is likely to be effective prior to pit slope development, after which it could be too late to re-adjust the design and/or unexpected failures could occur. The conceptual hydrogeological modelling for assessment of the effectiveness of drain holes performed by Hydro Consulting Services (2020) indicates that drain holes will be effective in achieving depressurisation. However, in SRK's opinion this most likely represents an optimistic scenario, as it is performed under steady state, saturated conditions, using hydraulic conductivities of some 6 x 10^{-6} m/s and hence the recommendation for enhanced monitoring.
- For a more accurate understanding, key data concerning the hydraulic properties of various material types will need to be gathered and comprehensive depressurisation modelling conducted. The previous failures in the Araren open pit demonstrated the effect of pore pressures negatively impacting slope performance in weak material, particularly after these pressures are transiently elevated following periods of heavy rainfall – therefore slope design should not rely exclusively on having depressurised walls at all times. It is therefore very important that depressurisation studies be carried out where necessary and designs for drain holes and monitoring programs be compiled as soon as possible to increase confidence in slope designs and provide a clearer understanding of risk with regards to the impacts of groundwater.
- Slope stability analyses indicate that slope designs are suitably stable (to an acceptable factor of safety and/or probability of failure) and have in places indicated where design amendments are required (i.e. the upper east wall of the Araren pit cutback). However, the modelling performed to date has had its limitations and has not thoroughly examined all failure mechanisms and inputs, resulting in an increased risk profile.
- Sensitivity analyses should be conducted to assess slope stability more thoroughly in key zones, with:
  - varying groundwater levels/pore pressure grids
  - inclusion of explicit structural fabrics, where expected to be present
  - increased ground acceleration (seismic input) to better understand the effects of severe seismic events on pits and key natural hillslopes should they occur.
- Finite element (FE) analyses should be conducted on critical pit slopes in order to check the results gained from limit equilibrium analyses. FE analyses allows for structures of fabrics of various orientations to be explicitly modelled, and so better assess the potential for toppling failures and the influence of rock mass blockiness.
- In the lower VBA, batter/berm configurations of 70° (for a 15 m high batter) and 5 m width have been recommended for some pit walls, which result in IRAs of 58°. These are relatively steep

and do not provide good ‘catch capacity’ to mitigate rockfall risk. These configurations in places don’t seem to correlate well with those in the summary design tables for the various pits. A review to reconcile all batter/berm configurations with the various slope stability analyses, recommended design amendments and mitigation of rockfall risk is recommended.

Batters may be increased from 15 m to 20 m in height; however, the berm widths will also have to increased so that IRAs are not increased and thus over-steepened, which could increase the risk of medium- to large-scale slope stability.

The 2020 independent geotechnical review report for the Araren open pit recommended trials of several alternative batter/berm configurations. The trials need to record crest loss, achieved batter angle compared with design, batter undercutting, and any instabilities. Batter/berm performance can impact safety and may impact the inter-ramp slope angles and overall slope angles achievable under an acceptable risk profile. The recommended trials should be completed as part of the proposed Feasibility Study commencing Q1 2021 to assess the risk and allow for design adjustments to be made if necessary.

SRK notes that the recommended trial configurations do not correlate well with the configurations and resulting IRAs presented in the slope design tables for the Stage 5 cutback (i.e. IRA of 33° in weak materials above 100 m RL and IRA of 48° in stronger materials below 100 m RL). It does not appear that the large-scale slope stability of all the IRAs resulting from the recommended trial configurations have been analysed.

The main hazards with regards to pit slopes can be summarised into two categories, as described below.

5.2.1 Large scale slope failure

The presence of deep weathering or alteration may result in unexpectedly great depth or thickness of poor quality, weak rock mass; with a high risk of multi-batter, inter-ramp scale or overall slope failures.

Structural control may enhance the risk of slope failure, either as a result of the presence of structures of low strength and high persistence (faults) or as a result of toppling and rock mass dilation.

Poor depressurisation of slopes and/or transient recharge/re-pressurisation may increase the risk of slope instability, particularly in weathered altered, weak and highly fractured materials after heavy rainfall.

The risk could potentially be high (catastrophic in extreme cases), but the residual risk can be reduced to medium to high by slope re-design, additional data collection and modelling, and slope depressurisation and monitoring. Further work should be completed as part of Archi’s proposed Feasibility Study commencing Q1 2021.

5.2.2 Bench scale instability and rockfall

Increased risk of rockfall is due to insufficient catch capacity resulting from poor performance of batters (crest loss and rilling) or overly steep slope designs (batter failures and collection of failed material obscuring berms).

This risk could be considered medium to high in places but mitigation measures including suitable batter/berm design configurations, surface drainage, erosion protection and monitoring will likely reduce the risk to medium to low, which is acceptable under the conditions and circumstances.

The assessed residual risk in some areas of the pit remains high, even with the mitigation actions. This is mainly due to the potential consequences to safety of personnel should a further intermediate scale failure occur, rather than because of the likelihood of severe economic consequences once recommended mitigating actions are taken.

Where multiple pits are in operation, more aggressive slope angles can be considered, as the consequences of failure and production delays in any one pit are less severe. However, if the main focus of mining should be concentrated for a period of time in fewer pits or even a single pit, failure in the pit wall would have a more significant impact on the project economics. So, there would be a transition in risk profile, necessitating a less aggressive approach to pit design in those pits within that period.

6 Hydrogeology

6.1 Characterisation of the groundwater system

In general, the hydrogeological classification of the Toka Tindung Gold Mine area is divided into two groundwater basins. The boundary of the groundwater basin is the Toka basin. Groundwater basins are divided into western and eastern groundwater basins. The main aquifers of both groundwater basins are clastic volcanic rocks. The eastern groundwater basin has a connection with surface water in the Araren watershed, while the western groundwater basin is associated with the Maen watershed.

Groundwater resources identified in the Toka Tindung Gold Mine area are located in a single aquifer system known as the Fractured Bedrock Aquifer (FBA).

The FBA is hosted within the unweathered portions of the volcanic rocks, with flow inferred to be dominated by structurally-controlled secondary permeability. Faulting and associated fracture network development provides storage and permeability via preferential pathways. Comparatively, diffuse flow through competent rock mass is considered to be extremely low.

The FBA is conceptualised as a highly anisotropic system, with higher hydraulic conductivities inferred along major structural features, and lower hydraulic conductivities at high angles to those structures. Hydraulic conductivities are expected to be greatly enhanced by fracture network development, and dissolution and weathering intensity. The FBA is likely to be highly compartmentalised, with variable hydraulic properties within the compartments/host units, varying degrees of hydraulic connectivity between compartments, and variable responses to seasonal patterns.

In the Araren area, this interpretation is supported by the recognition of two distinct groundwater chemistry signatures. The first, interpreted to be associated with the nearby Araren River, is meteoric, being typically low salinity and temperatures, and the second is geothermal, being characterised by higher salinity and temperatures (occasionally extreme temperatures). Thus, the combined aquifer is interpreted to be impacted by both meteorological and geothermal/ hydrothermal interactions. The aquifer has been postulated as originating from the Dua-Sudara volcanic system and flowing through to the northern coast where it discharges into the sea below sea level. This is being confirmed by Douglas Valley Holdings Pte Ltd (DVH) as part of ongoing work.

Recharge to the FBA is primarily via fractures connected with known river systems and by direct rainfall infiltration on exposed outcrop. The effective recharge is enhanced where the exposed bedrock is characterised by shallow fracture zones or lithological contacts.

Groundwater gradients within the FBA are typically a subdued reflection of surface topography.

6.1.1 Dewatering

Dewatering is the highest hydrogeological risk to the Project. Significant hydrogeological investigations have been completed for the Project and preliminary estimates for surface water and groundwater inflows into the current and proposed pits have been developed as part of the existing studies. Early inflow estimates (i.e. Coffey, 1998) were based on conceptual understanding of the

deposits and assumed that precipitation would be the largest contribution to dewatering volumes and consequently, largely ignored contributions from groundwater. Due to the Araren open pit intercepting a major water aquifer in 2017 at 25 m RL, more recent investigations have identified high yielding groundwater zones and, in particular, high yielding zones of the high salinity, high temperature groundwater type.

Key findings from these studies include:

- Dewatering effluent is not suitable for direct disposal within the river due to the high salinity, high temperature and high concentrations of arsenic and boron.
- The high temperatures encountered in groundwater present challenges for dewatering the existing pit infrastructure (i.e. pumps and piping).

As a result of the above, the waters being pumped out of the Araren basin (4,000 tph) require cooling and dilution prior to being discharged into the local river under permit being of acceptable salts levels.

In addition to the challenges of dealing with high temperatures, there is also significant uncertainty around the projected volumes of dewatering effluent that will be generated in the future although drilling predicted the aquifers within Araren are contained at the 25–0 m RL depths and voids in the brecciated zones close off below that. Preliminary estimates of dewatering requirements for the pits are based on an assumption of low groundwater inflow developed from conceptual understanding of the hydrogeology of the area (Coffey, 1998). Higher yielding zones have been identified at Araren, from the 25 m RL due to the pit impact of mining at this level, which suggest that the potential inflows may be much higher, though these higher volumes have not yet been realised with depth. Once the Araren pit is mined out, the aquifer will reconnect and the redundant pit will not overflow.

Understanding the impact of the potentially high yielding, high temperature and salinity groundwater on any dewatering strategies and infrastructure requirements is considered a key data gap for the Project and is under investigation by the Company using geohydrologists DVH, who will be producing models in Q1 21. Dewatering of high temperature groundwater upstream of the open pit requires oilfield/geothermal technology (being the expertise of DVH). SRK notes that higher costs have been considered in the Toka Tindung Gold Mine LOM model.

This main Araren aquifer does not directly impact any of the other pits identified in the Mineral Resource inventory.

Additionally, SRK recommends that, once flow estimates have been updated, a detailed dewatering plan should be developed to outline an overall dewatering strategy, locations of all draw points and bores, expected pumping rates over time and a final plan for reticulation. This plan would also identify areas where further specialised pumping and piping equipment would be required in order to manage high temperature and salinity groundwater. Once a detailed dewatering plan is developed, it can be assessed using the numerical groundwater model, and support development of accurate costing for dewatering during the remainder of the Araren pit mining program. SRK notes that assumed higher costs have been considered in the Toka Tindung Gold Mine LOM model.

6.1.2 Depressurisation

Due to the size of the Araren pit, the low hydraulic conductivity of the host rocks and the prevalence of groundwater system in the area, it is the opinion of SRK that more systematic depressurisation of the pit walls may be required. Although depressurisation of the temporary east walls is practiced within the pit, no full assessment of depressurisation has been completed to date, and SRK recommends that the need for depressurisation be fully assessed and, if necessary, development of a depressurisation plan for the Project be undertaken prior to commencement of mining below the water table.

6.1.3 Dewatering and depressurisation effluent management

Investigations identified high-yielding zones of high salinity and high temperature groundwater. PT Lapi ITB (Lapi) identified the management of this effluent as a risk to the Project given dewatering effluent is not suitable for direct disposal within the river due to the high salinity, high temperature and high concentrations of arsenic and boron. Lapi has identified the potential for piping of the effluent to the ocean for disposal as an option though at this stage the Company has regulatory approval to cool and dilute the waters and then discharge into the river system, which is not 'used' by the community. This was supported by the environmental study which states that the ecosystem in the river will change and then revert back to the original system within three years of curtailment of mining activities (Golder, 2019).

SRK notes the lack of a plan for disposal of the dewatering and/or depressurisation effluent as a key data gap, and recommends completion of an options assessment for effluent disposal, followed by detailed design studies. Archi identified, and SRK concurs, the opportunity to use managed aquifer recharge (i.e. reinjection of effluent) as an option for disposal using a geohydrological company familiar with such systems. Additional studies are ongoing to assess identified options, and these assessments should be completed prior to the commencement of dewatering activities.

6.1.4 Water balance

No detailed water balance has been developed for the Project at this time. SRK recommends that estimates for dewatering flows, stormwater volumes, process water requirements and mining requirements be incorporated into a detailed water balance assessment for the Project. These assessments should be completed prior to the commencement of dewatering activities.

6.1.5 Groundwater impact assessment

No detailed assessment of potential impacts on surrounding groundwater users and groundwater dependent ecosystems (GDEs) has been provided by Archi. It is not known if groundwater users exist, apart from those extraction borehole systems installed by the company in 2019/2020 for the surrounding villages to access clean water as part of the Company's Corporate Social Responsibility (CSR) program. The Company is continually monitoring the quality of the water from these borehole systems in the vicinity of the Project, therefore SRK recommends that potential for interference with groundwater supplies due to dewatering bore pumping should be assessed. These assessments should be completed prior to the commencement of dewatering activities.

7 Metallurgical testing and processing

7.1 Introduction

Construction of the Toka Tindung Gold Mine processing plant and associated infrastructure commenced in 2009. The original comminution plant and leach tank agitation systems were initially acquired from Atlas Mine Services Chile, where they were sourced from the El Tambo mining operation in Chile. The plant was relocated, refurbished and reconstructed on site at Toka Tindung Gold Mine between 2010 and 2011. The plant was constructed by PT McConnell-Dowell Indonesia, with the total plant capital cost estimated at approximately US$110 M. The initial processing plant had a nameplate capacity of 1.7 Mtpa, based upon the SAG/ball mill configuration. This production rate was achieved in the first year of operation. First gold was poured in April 2011.

Since that time, the plant's nameplate capacity was progressively increased, first to 2.1 Mtpa in 2016 through the addition of a pebble crusher on the SAG mill circuit, and subsequently expanded further to 3.0 Mtpa in November 2018, following the addition of a third ball mill and three additional leach tanks. These upgrades were supported by the connection of the plant to grid power in 2016.

In 2020, through more efficient operation of the installed equipment, production had increased to 3.6 Mtpa with further capacity increases to beyond 4.0 Mtpa planned over 2021 as a result of upgrades to the pebble crushing circuit, addition of a tailings booster pump system and new CIL tanks.

By 2025, Archi has targeted the completion of plant capacity upgrade to approximately 8.0 Mtpa in order to exploit the significant, step change tonnage increase in the Mineral Resources, and high conversion rates of Mineral Resources to Ore Reserves. A Feasibility Study incorporating the expansion of the plant to 8.0 Mtpa is planned to commence in Q1 2021 based upon the latest Ore Reserve estimate as at 31 December 2020, with expected project development commencing in 2023.

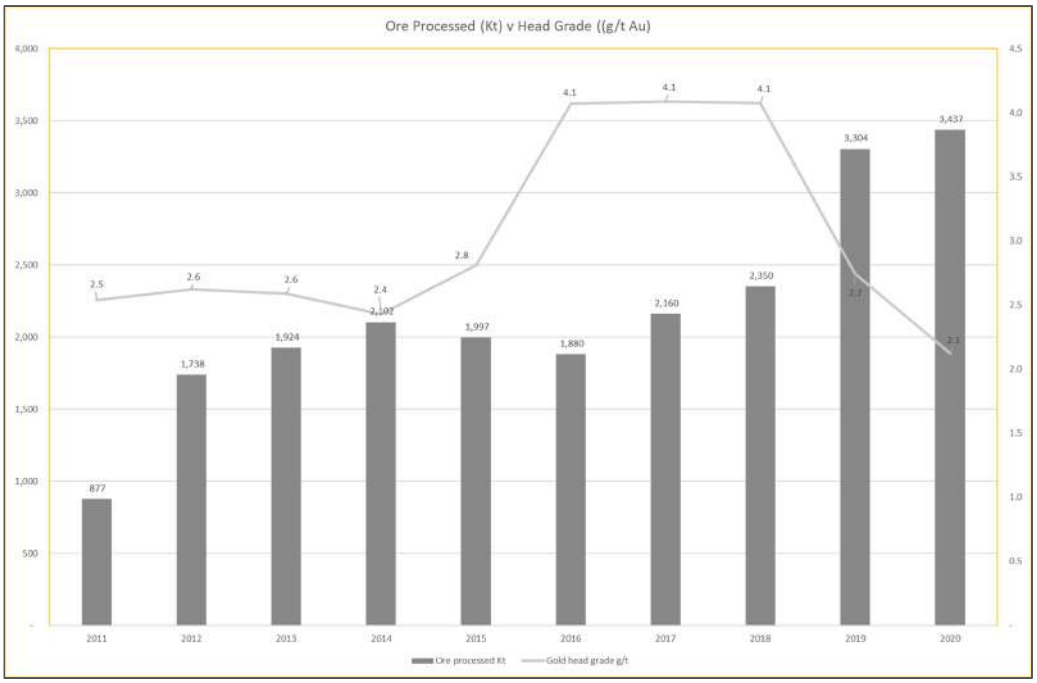
7.2 Plant operating status

7.2.1 Historical production

Historical annual plant throughput and head grade is presented in Figure 7-1. Between 2012 and 2016, the plant processed between 1.7 and 2.2 Mtpa of ore, before a major expansion completed in November 2018 allowed production to exceed 3.3 Mtpa of ore. Milled production reached 3.4 Mt in 2020, the highest year on record.

Head grades have consistently ranged between 2 and 2.7 g/t Au, except during the period 2016 to 2018, when head grades rose to 4.1 g/t Au during the early processing of the Araren open pit deposit.

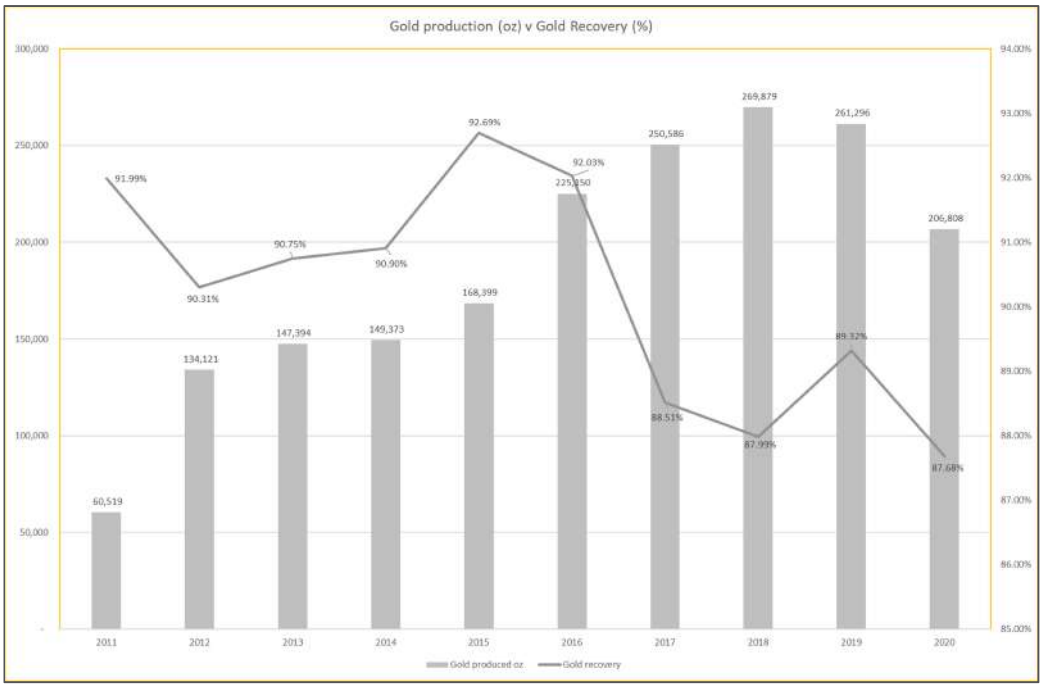
Figure 7-1: Toka Tindung Gold Mine – historical throughput and feed grade



Source: Archi Management, 2021

Historical gold metallurgical recovery and gold production is presented in Figure 7-2. Gold production rose steadily from 2011 before peaking in 2018 at 269.9 koz, due mainly to the higher gold feed grade. Gold production in 2020 was slightly hampered due to the onset of the COVID-19 pandemic and the processing of lower grade ores. Overall recovery has been declining since its peak in 2015, as discussed further in Section 7.6.

Figure 7-2: Toka Tindung Gold Mine – historical gold production and recovery



Source: Archi Management, 2021

7.2.2 Forecast production

Archi's gold production and recovery forecast is presented in Table 7-1. This is based on historical performance and the planned plant expansion to 8.0 Mtpa. Further justification for the forecast values is provided in the following sections.

Table 7-1: Toka Tindung Gold Mine – forecast throughput, recovery and gold production

Item	unit	2021	2022	2023	2024	2025	2026	2027	2028	2029
Ore Processed	kt	4,150	5,200	5,500	6,200	7,200	8,000	8,000	8,000	8,000
Gold Produced	koz	257	296	315	383	470	451	467	451	458
Silver Produced	koz	540	542	558	574	667	569	561	458	741
Gold Head Grade	g/t	2.16	1.99	2.00	2.16	2.28	1.97	2.04	1.97	2.00
Gold Recovery	%	89%	89%	89%	89%	89%	89%	89%	89%	89%

Source: Archi Management, 2021

7.3 Metallurgical testwork

Operating data for the Toka Tindung Gold Mine processing facility since commissioning in 2011 demonstrates there has been relatively consistent physical and metallurgical recovery characteristics from the open pit, processing a predominantly fresh ore blend, although there are differences in the hardness of the deposits and recovery behaviours. This provides SRK with a degree of confidence in Archi's understanding of the metallurgical behaviours of the ores being processed. The Toka and Araren deposits comprise approximately 76 Mt, or 75%, of the approximately 100 Mt of unmined Ore Reserves and the 6.7 Mt of stockpiles. As a result, the metallurgical focus is on these ores.

In addition to historical operating data, Archi undertakes metallurgical testwork on future ores sources such as the Marawuwung, Alaskar and Talawaan deposits. Additional testwork is also undertaken on extensions to the existing deposits such as Toka and Araren, which have been historically processed, as well as on routine mill samples and on samples taken during 'excursions' in metallurgical behaviours. This testwork is used to verify the expected metallurgical behaviours and the amenability of the plant to the processing of the ores and to identify processing opportunities. Additional variability testing is undertaken if necessary, to resolve any outlier results.

New testwork is undertaken on freshly drilled material, with a number of variability samples tested each time to determine the range of behaviours and identify any outlier (poor) behaviours. The testwork programs undertaken incorporate the typical suite of tests including (but not limited to): comprehensive head assays, mineralogy, physical (comminution) testwork, gravity concentration (on average every two years with an onsite Knelson concentrator), cyanide leaching across a range of parameters to optimise the flowsheet (e.g. grind size, residence time, oxygen versus air addition, lead nitrate addition, pH optimisation and reagent optimisation), diagnostic leach testing, rheology, thickening, oxygen uptake and sighter level flotation testing. The mineralogy demonstrates that the gold in historical and near-term ores contains very fine, 5–20 µm particles of 'free' gold and electrum. As a result, only small fractions are recoverable by gravity and only 45% is recoverable using typical heap leaching techniques. Testing typically demonstrates that gold can be recovered by direct cyanide leaching at the target plant grind size. This is periodically monitored to initiate plant equipment, should it become material.

In the laboratory bench-scale stirred reactor leach tests, gold recoveries are typically 88–90% at a grind size of 75% passing 75 µm (P_{75} of 75 µm). Opportunities exist to increase this recovery to 90–92% should the grind be decreased to a P_{75} of 53 µm. This indicates that grind size is the most important processing parameter, and presently the key bottleneck, in the Toka Tindung Gold Mine plant, and therefore operation. The ability to fine grind is offset by the rheology of the ore, in that high viscosities are periodically encountered (reducing the leaching effectiveness), which reduces tonnage throughputs. Plant trials completed to date have indicated that the finer grinds would compound the viscosity deviation issues. This is being further investigated by Archi.

The gold leach kinetics are relatively fast although some samples have exhibited a slower leaching, more grind-sensitive component that is semi-refractory, including in the Araren deposit. Overall average recoveries are close to free-milling levels, i.e. close to or above 90%, but there are outliers and overall averages can be marginally below 90% recovery generally as a function of the throughput/grind trade-off and head grade. A 24-hour leach residence time has been selected for the bench-scale testwork, as this is the current residence time of the circuit at the current processing rates. Archi's intent is to increase this residence time as part of the expansions to

4.0 Mtpa and beyond, as well as to install sufficient grinding power to increase the recovery to 89–90% consistently.

SRK has reviewed metallurgical testwork undertaken historically at the Toka Tindung Gold Mine by independent third parties and considers that some of the recoveries achieved are not reflective of the likely full plant recoveries, as the cyanide concentration was not adequately maintained during the tests. This would have resulted in lower gold and silver recoveries recorded in the laboratory.

Some future feed sources such as the Marawuwung and Alaskar deposits are not processed until later in the mine life, so testwork is at a preliminary level. The sighter level work that has been completed to date has demonstrated free-milling ore behaviours with recoveries in the low to mid-nineties (%). Additional work is scheduled to further develop the understanding of these ores. In SRK's opinion, there is ample time available to undertake appropriate additional testing of these future ore sources. There is sufficient current understanding for the purposes of defining the Ore Reserve, as reported elsewhere in this Report.

SRK has reviewed the historical operating data in conjunction with the testwork, in respect to metallurgical recovery, plant throughput and reagent consumption, and considers the application of these values to both the Toka Tindung Gold Mine LOM metallurgical inputs and Ore Reserve update metallurgical modifying factors to be reasonable.

7.4 Process flowsheet

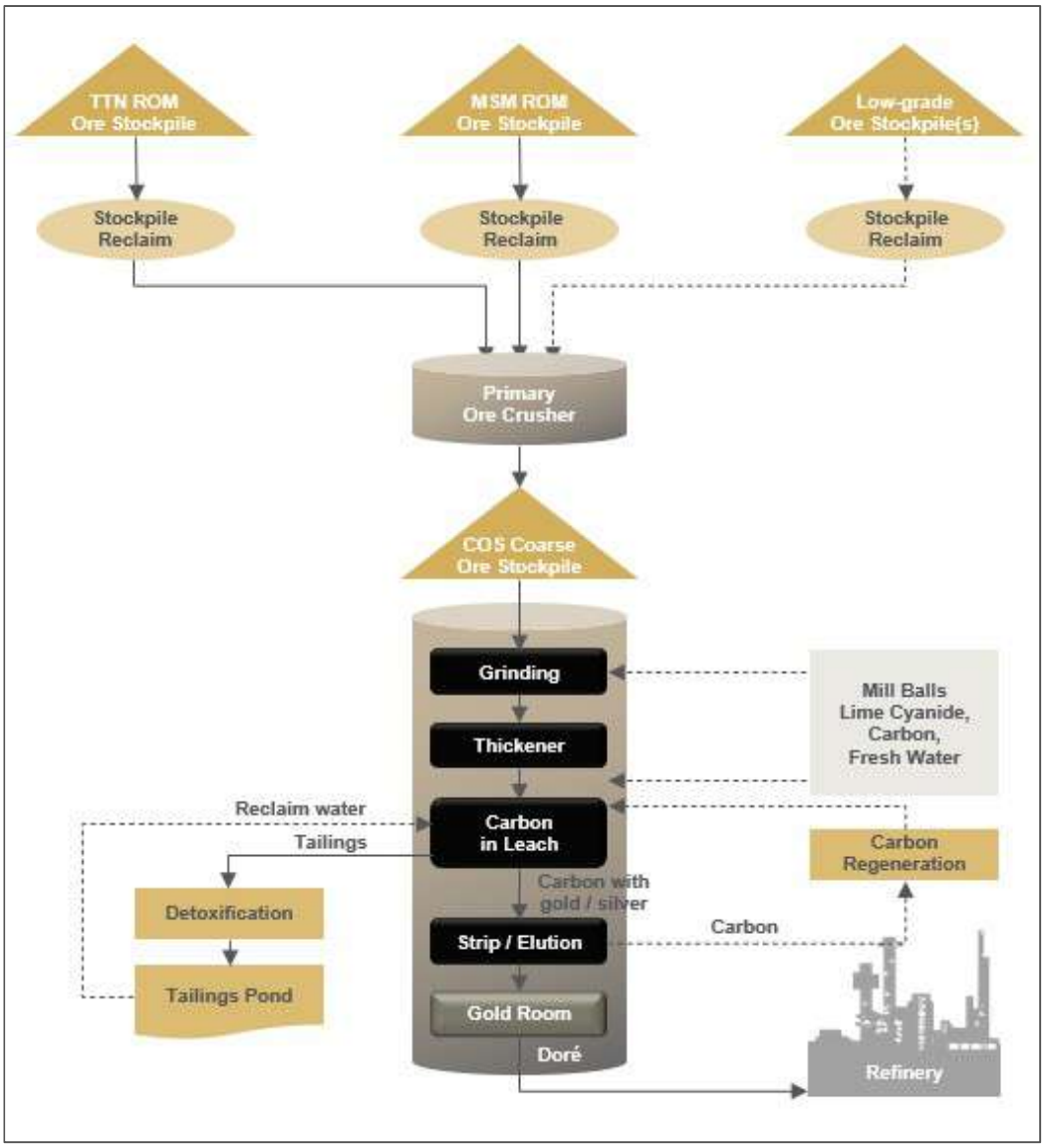
The Toka Tindung Gold Mine plant has been operating continuously since April 2011. It has undergone a number of debottlenecking projects, upgrades and expansions in the ensuing years to arrive at its current flowsheet configuration and plant capacity, most notably the installation of a scats/pebble crusher, a third ball mill and three additional CIL tanks.

The Toka Tindung Gold Mine processing facility is a conventional CIL circuit ubiquitous to gold operations around the world. Mined ore from each pit is currently hauled and stockpiled at three stockpile pads, locally termed the TTN ROM, MSM ROM and Low-grade ore stockpiles. From here, ore is reclaimed by front end loader (FEL) and fed to a single stage gyratory crusher and crushed ore stockpile with one apron feeder and two vibrating reclaim feeders. Material is fed into the primary crusher at a certain ore blend designed to achieve optimum metal content. Ores are crushed to a size of <120 mm and then conveyed to the crushed ore stockpile.

Crushed ores are then fed by conveyor to the grinding circuit comprising a 4.1 MW SAG mill in closed circuit with a pebble crusher, and two stages of ball milling, a 6.75 MW secondary ball milling and 2.6 MW tertiary ball milling circuit, both of which are in closed circuit with hydrocyclones classifying to an ultimate target grind size of approximately P_{75} of 75 µm.

The milled product is thickened in two leach thickeners operating in parallel, before the slurry is cyanide leached through a CIL circuit comprising nine tanks. The leached gold undergoes adsorption onto activated carbon. Loaded carbon from the CIL circuit is treated by the split Anglo-American Research Laboratories (AARL) process. In this process, the carbon is acid washed, the gold is then eluted from the activated carbon in one of two elution columns and electrowon. The gold sludge is calcined in an oven and smelted into a gold and silver doré. Stripped carbon is reactivated in a diesel-fired rotating kiln and returned to the CIL circuit. A summary flowsheet is provided in Figure 7-3.

Figure 7-3: Toka Tindung Gold Mine – summary processing flowsheet



Source: Archi Management, 2021.

Tailings undergo cyanide detoxification using the SO_2/Air (INCO) process prior to discharge to the onsite impoundment-style TSF and the water is recycled back to the plant. This is important given the positive water balance requires excess process water to be discharged, with stringent (i.e. very low) environmental discharge cyanide weak acid dissociable (CNWAD) limits. The INCO process is a well-established, technically effective process for the destruction of WAD (weakly acid dissociable) and free cyanide (CNWAD and CNFree) and is suited to the Project's tailings, as demonstrated by operational data.

The plant is supported by standard utilities and other infrastructure typical of gold plants, including, but not limited to, raw water supply, various water systems, reagent storage and dosing systems and oxygen provided by a pressure swing adsorption (PSA) plant. Approximately 17–21 MW of

electrical power is supplied through the public grid by PLN, the Indonesian Government-owned electricity company. Supplementary/backup electrical power is available through a dedicated power station located at site, with approximately 15 MW of biodiesel-fired generating capacity available. This enables the plant to operate at a moderated production rate. It is able to power the entire plant prior to the latest upgrade incorporating the installation of the third 6.75 MW ball mill. However, this is now largely redundant due to the reliability of the grid power which has over 99% uptime.

The processing circuit is designed for a hard (Toka) rock application but throughput benefits from the inclusion of a softer (Batupangah) ore component. The plant is suited to processing the typical ore types historically processed in the area and is flexible to a range of throughputs and ore types.

In SRK's opinion, the Toka Tindung Gold Mine processing facility is, and will remain, amenable to processing the forecast LOM Project ores.

7.5 Throughput

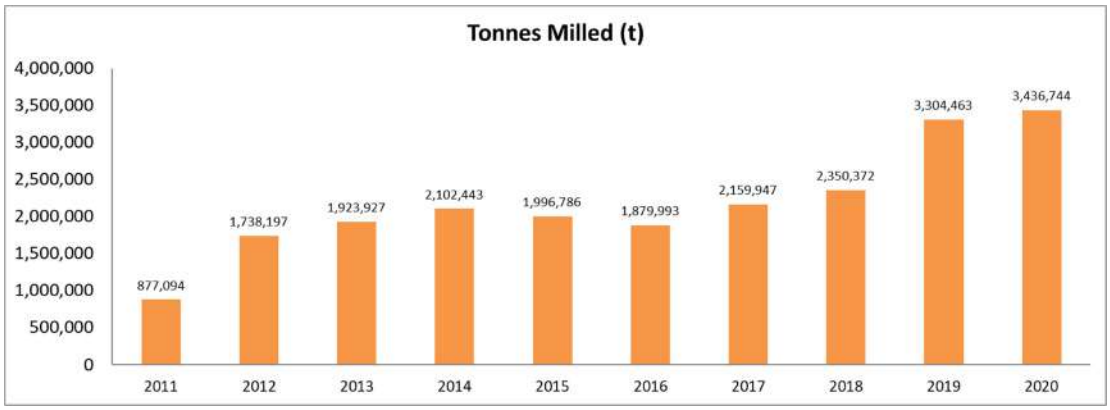
The annual Toka Tindung Gold Mine plant throughput forecast has been reviewed and compared against historical throughput, the best indicator when processing similar ores. SRK's review has also considered the metallurgical testwork on future ores, and the impact of the recently completed, imminent and proposed future upgrades and expansion projects on grind size, throughput and CIL circuit residence time.

The operation has a history of regular plant capacity increases. The original Toka Tindung Gold Mine processing plant nameplate throughput was 1.7 Mtpa when the plant commenced operations in 2011. General production creep and a series of upgrades have been undertaken to expand the throughput to the current capacity. The latest, incorporating an additional ball mill and CIL tank, was completed in November 2018. This was designed to increase the capacity to 3.0 Mtpa.

This was bettered in 2019 to 3.3 Mtpa and throughput increased again in 2020 to 3.4 Mtpa as the upgraded circuit continues to be optimised and augmented further. The latest improvements, include removing the power constraint in the secondary ball mill (through an 11 kV to 33 kV power line upgrade and installation of new capacitors in the milling circuit) which have allowed more of the installed mill power to be utilised, improved mill lifter and liner design and material types, installation of an 'expert' process control system, an upgrade to the oxygen dosing capabilities (installation of a second PSA plant and increased pressure boosters into an improved oxygen sparging (SlamJet®) arrangement), along with other miscellaneous improvements, have benefited both throughput and gold recoveries. Annual historic throughput, hourly capacity and uptime as forecast by Archi are presented in Figures 7-4 to 7-6.

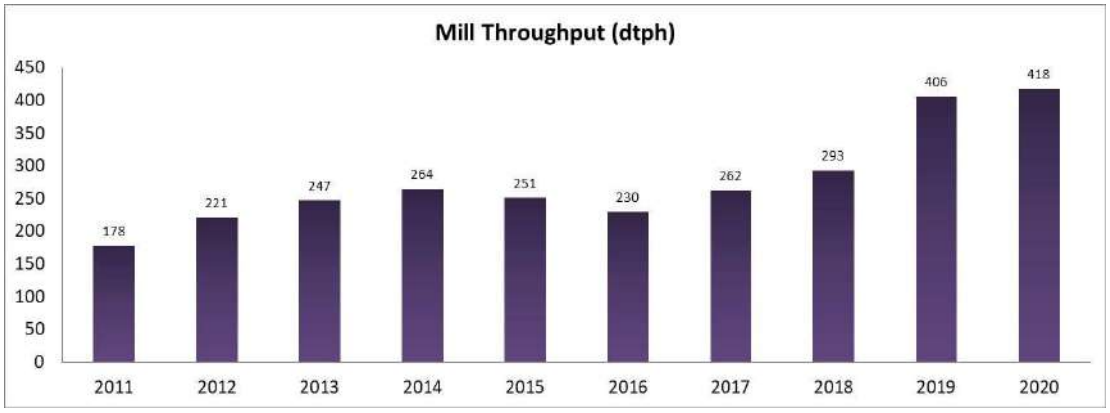
The current 2020 nameplate capacity is claimed as 3.6 Mtpa. The basis of this claim is based on the 2020 production which was 150 ktpa below this value, however SRK considers it is supported by the increased monthly throughput achieved at the end of the year. Furthermore, the 2020 throughput was realised on a particularly hard feed blend made up of a high proportion of Toka ore (~20 kWh/t) and less Araren ore (~16 kWh/t). The nameplate capacity is based on a more even contribution of comparatively softer ores in the feed blend. The benefits of the recently completed and planned upgrades have not yet been fully realised. This provides additional confidence in the current nameplate capacity. Further optimisation is ongoing and the throughput will soon be exceeded on the forecast feed blends.

Figure 7-4: Toka Tindung Gold Mine – historical mill throughput



Source: Archi Management 2021

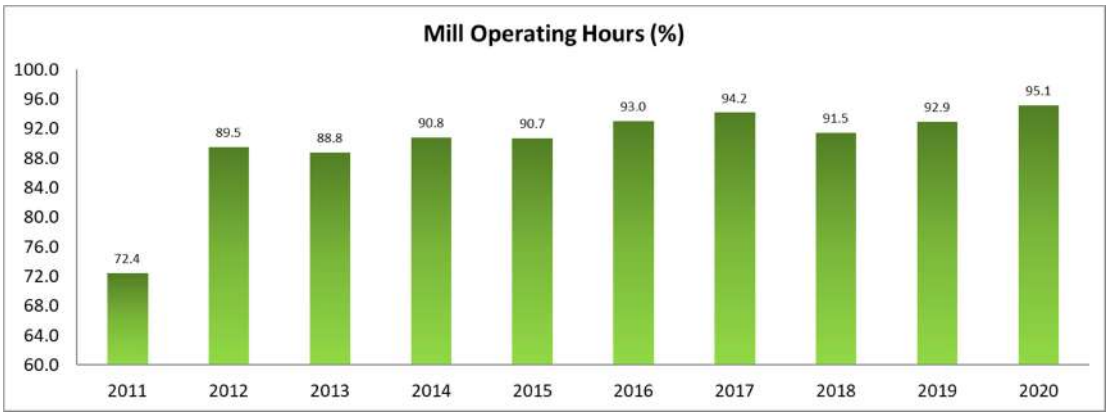
Figure 7-5: Toka Tindung Gold Mine – historical hourly mill throughput



Source: Archi Management, 2021.

SRK considers the overall uptime, the product of plant availability and utilisation of the Toka Tindung Gold Mine plant in 2018 and 2019, in the order of 91.5–93% to be below peer operations. These were largely a result of wet weather-related materials handling issues, mill relines and other maintenance, both planned and unplanned. Availability and utilisation are a current focus of Archi's operations team and SRK expects this to improve, particularly as a function of increased periods between mill relines. This is already evident in the 2020 availability, which was at 95.1%. SRK considers overall uptime to be a further opportunity for further throughput improvements.

Figure 7-6: Toka Tindung Gold Mine – historical mill operating hours



Source: Archi Management, 2021.

Further upgrades are underway to further expand the plant capacity. These upgrades are scheduled for completion in 2021. They include:

- Increase SAG mill grate discharge by approximately 50% by widening the grate aperture from 25 mm to 38 mm which was completed in February 2021. The excess scats produced will be stockpiled until an additional new pebble crusher is installed.
- A new, larger 250 kW Sandvik CH830i pebble crusher (replacing the existing undersized 90 kW Yifan SMH120F hydraulic cone crusher) and pebble crusher magnet, scheduled in April 2021.
- New capacitors installed in the electrical substation to improve the mains power quality and, with new mill motor brushes, allow the last 0.8 MW of the installed tertiary mill power to be utilised, increasing power draw from 5.8 MW to a maximum of 6.6 MW. Scheduled for the second quarter of 2021.
- Installation of the 'Vega Breakthrough Technology', the mill lifter, liner, mill discharge (pulp lifter) system. Scheduled in September 2021.
- Three additional CIL tanks and an additional trash screen, as well as the installation of tailings booster pumps.

The fresh ores processed at Toka Tindung Gold Mine are relatively competent and abrasive. They have been blended with marginally softer, but still fresh, ores from the Araren and Blambangan deposits to optimise the throughput, grinding power and wear as a function of this competency and the blend. The LOM feed increases to a more even Toka (50%) and Araren (50%) blend (compared to the more recent, harder 70:19 ratio), which has been used for comminution modelling, at both the current grid size target P80 of 75 µm and at a finer grind size of 53 µm. SRK notes that the Toka ores have a Bond Work Index (BWI) hardness of 20–21 kW/t, whereas the Araren ores have a BWI of 16–17 kW/t or 80% of this with other ores, such as Kopra, at 18 kW/t. Therefore, with the higher percentage of Araren ore in the feed blend, more power can be utilised for overall finer grind and/or extra throughput rates. Having additional Araren ore in the feed will be a further enabler in exceeding a throughput of 4.0 Mtpa in the short term and targeting 4.5 Mtpa and above prior to the larger expansion project.

In SRK's opinion, the historic throughput, softer feed blend and the scheduled 2021 upgrade projects support the immediate forecast of 3.6–4.0 Mtpa and potential further capacity of greater than 4.0 Mtpa from mid-2021 onwards.

Archi plans to implement 'Vega Breakthrough Technology' in mid-2021 to improve the capacity of the comminution circuit. This includes upgrades to the mill lifter, liner, mill discharge (pulp lifter) system and grate discharge configuration. This will be augmented with changes to the grinding media supplier (high chrome balls) and grinding media size. Archi's expectation is for this to potentially improve the power utilisation in the mills by up to 19% and facilitate a step change in production to 5.0 Mtpa.

SRK considers that production opportunities from the mill lifter and liner configuration, resulting in increased throughput, and/or finer grind and/or reduced power consumption and/or reduced grinding media wear will be achieved as a result of this work but quantification of the throughput benefits have not been accurately calculated. Instead, they will be established in the coming months as the work is executed. SRK considers a step change of this magnitude, from liners alone, would be optimistic and other bottlenecks through the rest of the plant are likely to be encountered. The improvement may not be of this scale and thus could require installation of further milling capacity earlier than presently planned. Other mitigating action is taken to achieve the throughput where required, such as the use of mobile crushing to supplement the main gyratory crusher throughput when needed.

In SRK's opinion, Archi's forecast plant throughput assumptions are reasonable at this time. A capacity of 3.6 Mtpa in 2020 has been demonstrated on a harder blend, while the modest increase to 4.0 Mtpa and marginally above this from 2021 onwards is supported by historical production data, metallurgical testwork and the proposed expansion projects. SRK considers it unlikely to achieve a throughput of 5.0 Mtpa and/or a finer grind size without further capital investment, as reported in the Orway Mineral Consultants (WA) Pty Ltd (OMC) reports 8057 and 8057-1. This capacity investigation considered the existing plant to be close to the theoretical maximum of the installed power at 4.0 Mtpa.

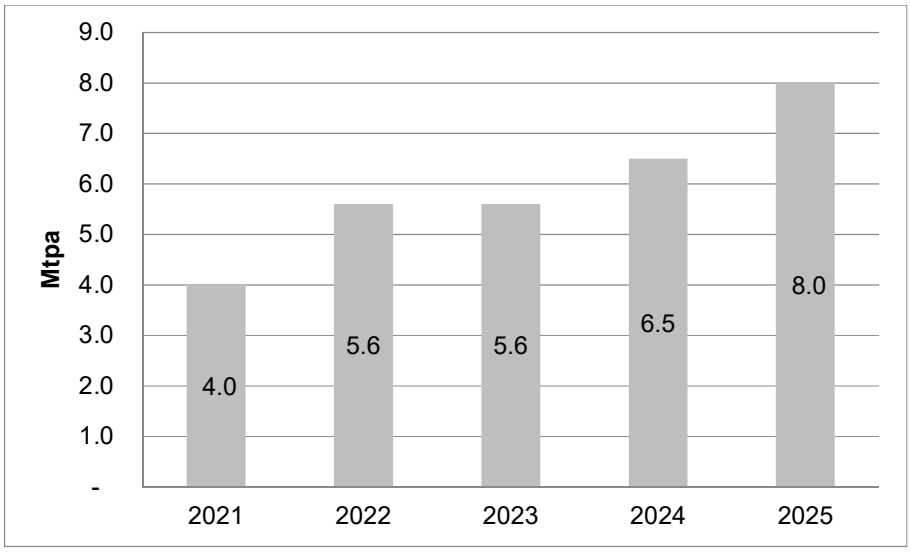
These further debottlenecking studies to expand production to between 4.0 Mtpa and 5.0 Mtpa have been undertaken by a number of consulting and engineering firms including OMC and Como Engineers Pty Ltd. These studies have demonstrated that the plant can be debottlenecked to nominally 4.0 Mtpa in the current configuration but requires a new milling train to be expanded to 5.0 Mtpa or above.

Further opportunities for a major plant throughput expansion to 8.0 Mtpa by end of 2025 is also under consideration. The expansion philosophy takes a phased approach over five years at a total cost of US$84 M. Ultimately, this requires a second processing train. Prior to this, interim staged upgrades are proposed including additional upgrades to the primary crushing and screening circuit and additional leach tanks, in addition to the comminution circuit work scheduled in 2021.

The indicative pathway to the expanded production case is presented below in Figure 7-7. The expanded plant capacity case (i.e. nominally to 8.0 Mtpa) has not been considered by SRK in full as details of the basis of design and costing is at a scoping level of study. The Feasibility Study phase of this development will be initiated in Q1 2021. Requests for proposals have been issued to reputable engineering companies by Archi and responses are in the process of being received.

SRK considers this case to be potential project upside and, as such, presents a project opportunity. With the significant increase in the Ore Reserve estimate, SRK considers there may be potential to further optimise the expanded production case to a level above the currently planned 8.0 Mtpa.

Figure 7-7: Toka Tindung Gold Mine – processing plant enhancement concept plan (nameplate capacity at end of year)



Source: Archi presentation to SRK, 2020.

7.6 Metallurgical recovery

Archi's annual and average metallurgical recoveries forecasts have been reviewed and compared against historical recoveries, the best indicator of likely future costs when processing similar ores. SRK's review has also considered the feed grade, metallurgical testwork on current and future ores, and the impact of the recently completed and proposed future expansion projects on grind size, throughput and CIL circuit residence time.

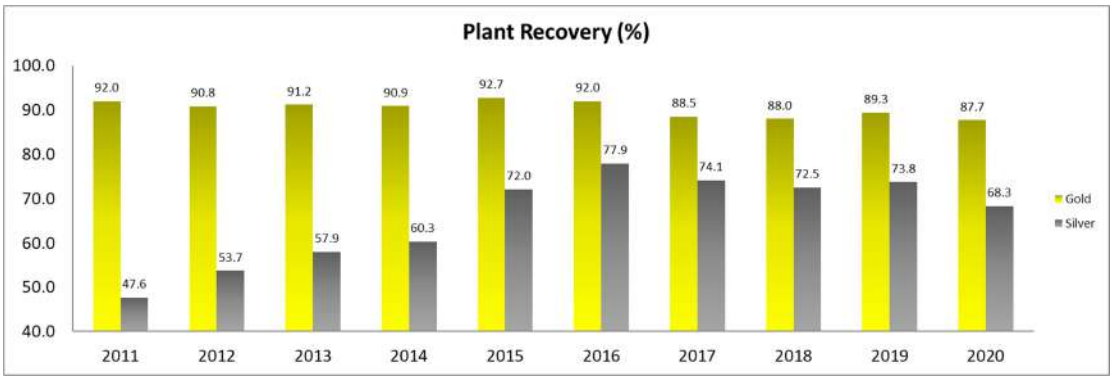
The fresh Toka Tindung Gold Mine ores are relatively free milling, with acceptable gold recoveries, despite the fresh ore's gold mineralisation being partly associated with sulphides. Historical recovery, together with testwork, has demonstrated that it is not excessively occluded and that with sufficient grind size, oxygen and cyanide addition and leach residence time, high recoveries can be maintained. It is evident that gold and silver recoveries are sensitive to these variables.

A gold feed grade versus gold recovery grade relationship for each ore source is used to forecast recoveries. A relationship is developed for each deposit. It is based on operating data and testwork data and is updated to reflect the latest production data, including grind size. Metallurgical testwork recovery results for future ores are also compared against these relationships. The correlation between the feed gold grade and gold recovery is reasonable, but there is variability. SRK has compared these relationships against the recoveries used in the Toka Tindung Gold Mine LOM Model and they are not materially different.

There has been a moderate fall in the gold recovery in recent years for various reasons including a coarsening of the grind to increase throughput, which also reduces the CIL residence time, and in 2020, a further fall in feed grade. There have been periods of lower gold grade and more refractory

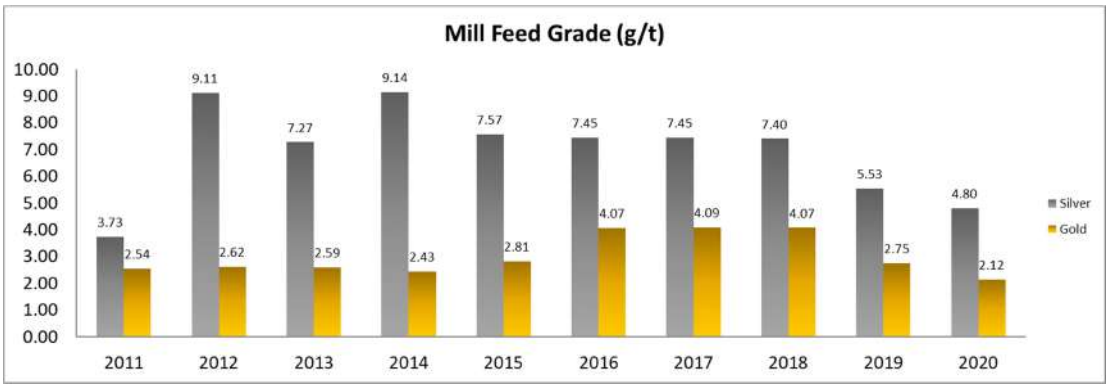
feeds. A number of recovery improvement initiatives recently completed or planned should offset this. These include the installation of three additional CIL tanks, additional oxygen production capacity, installation of improved oxygen sparging and potential for a finer grind with the new pebble crusher, mill liner design and process control improvements. Confidence is provided in the historical recoveries achieved. These are presented in Figure 7-8 and the corresponding gold and silver grades in Figure 7-9.

Figure 7-8: Toka Tindung Gold Mine – historical metallurgical recovery



Source: Archi Management, 2021

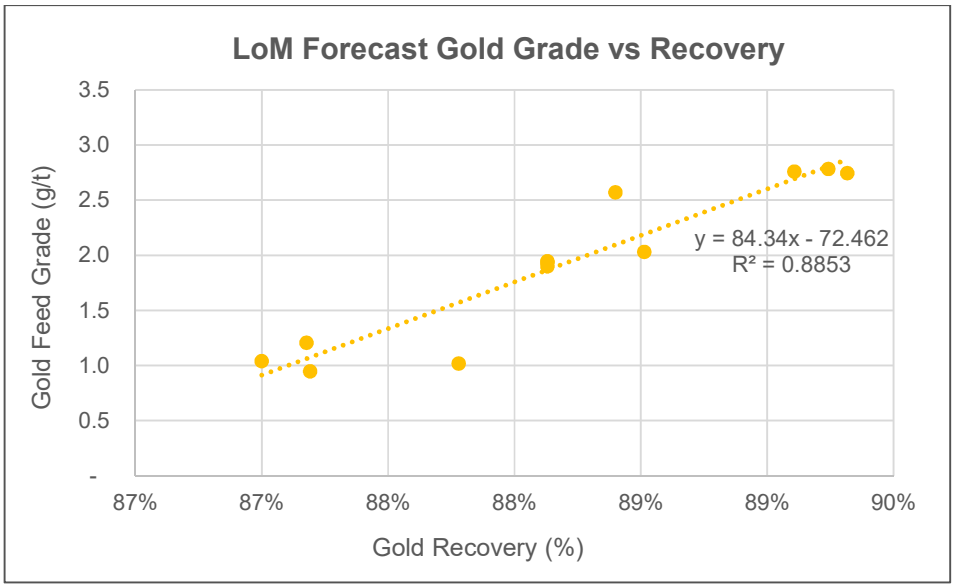
Figure 7-9: Toka Tindung Gold Mine – historical Au–Ag feed grades



Source: Archi Management, 2021

The LOM recoveries in the model are varied for each ore source and for gold grade. While there is some minor year-to-year variability in the LOM forecast, it averages approximately 88.1% at an average feed grade of 1.84 g/t. The recovery tapers off towards the end of the mine life. This reflects a dropping gold grade. The forecast reflects current performance. The forecast LOM grade versus recovery relationship is presented below in Figure 7-10.

Figure 7-10: Toka Tindung Gold Mine – forecast LOM grade vs recovery relationship



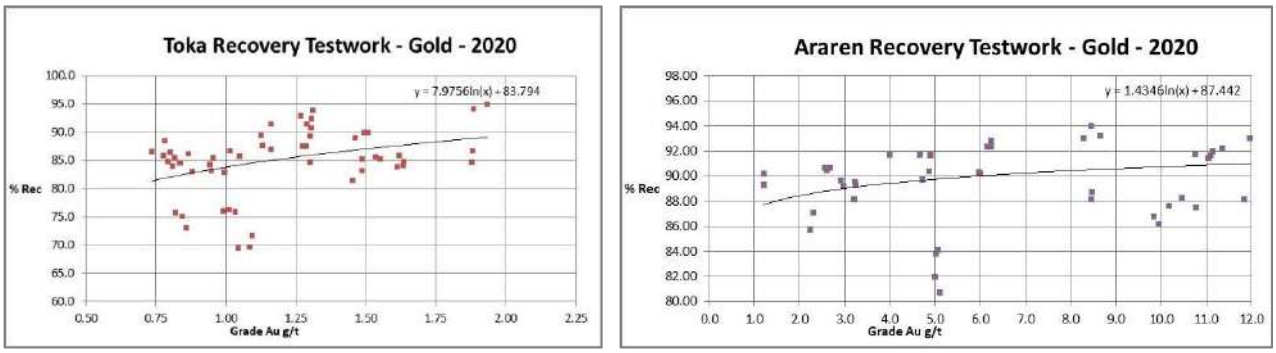
Source: 'Archi Fin Model Loan Refi - For SRK.xlxs', PT Archi Indonesia, 2020.

The expanded 8.0 Mtpa production case assumes a marginally higher LOM gold recovery of 89% and an average grade of 2.02 g/t Au. The enabler is a modest reduction in the grind size as a function of the current milling circuit project and through the additional grinding circuit power installed in this scenario. The ores are grind-sensitive and an improvement would be expected in this case.

In SRK's opinion, there is a moderate risk of a modest decrease in recovery for some of the deeper Toka and Araren ores as identified in some variability testwork, though there are some outliers in this testwork associated with the test conditions, particularly low cyanide concentrations. Metallurgical testwork and operating data demonstrate a weaker (testwork) recovery correlation with feed grade. Refer to the gold recovery correlations of the two main feed sources Toka and Araren presented in Figure 7-11. A relationship between the sulphur grade and the gold and silver recoveries for the same data is not evident.

In SRK's opinion, the forecast gold metallurgical recovery assumptions used in the Toka Tindung Gold Mine LOM Model are reasonable and are supported by historical production data, metallurgical testwork, the recovery correlations developed and the recently completed upgrades and proposed expansion projects.

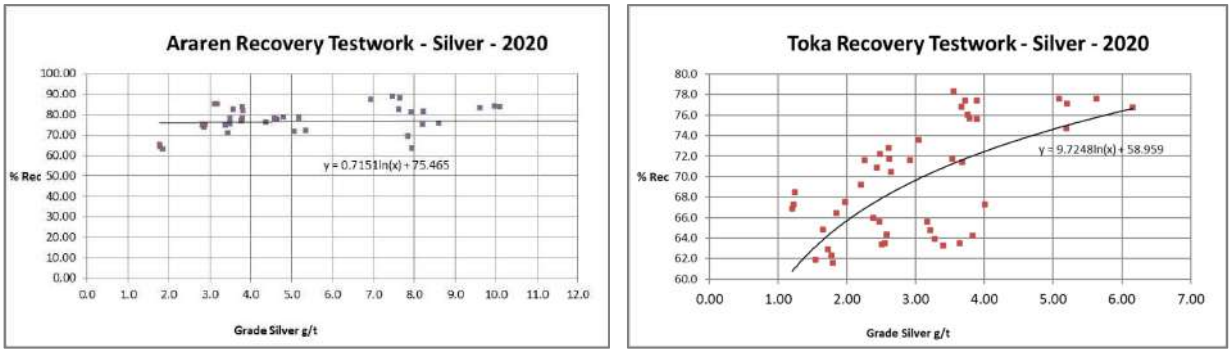
Figure 7-11: Toka Tindung Gold Mine – gold grade vs recovery relationship



Source: 'Grade versus recovery.xlxs', PT Archi Indonesia, 2020

The silver recovery assumption is fixed at 72% at an average feed grade of 3.71 g/t Ag in the Toka Tindung Gold Mine LOM Model. Metallurgical testwork and operating data demonstrates a weaker silver feed grade versus recovery relationship. Refer to correlations for the two main feed sources Toka and Araren presented in Figure 7-12. Testwork has shown the silver recoveries to be similarly dependent on grind size, cyanide concentration, oxygen addition and lead nitrate dosing. The impact of a small difference in silver recovery to the Ore Reserve is not material relative to changes in the gold recovery. SRK accepts the use of the fixed 72% silver recovery for the purposes of the Ore Reserve based on historical production data, metallurgical testwork, the recovery correlations developed and the recently completed and proposed future expansion projects.

Figure 7-12: Toka Tindung Gold Mine – silver grade vs recovery relationship



Source: 'Grade versus recovery.xlxs', PT Archi Indonesia, 2020.

It is evident that there is a further recovery opportunity with a finer grind. Studies for the next plant expansion have undertaken the design work at a finer grind size of 53 µm rather than at the current P80 target of 75 µm in order to improve the robustness of the recovery assumptions.

The Toka Tindung Gold Mine plant does not incorporate a gravity gold recovery circuit. Some of the testwork has shown that there is a gravity component to the ores. In SRK's opinion, there could be a benefit in recovering this gold and/or some of the higher density gold bearing sulphide minerals in a dedicated gravity circuit. This gravity concentrate undergoes intensive leaching, which is better positioned to recover the gold and silver.

7.6.1 By-products

Silver is the main by-product from processing of the gold-bearing ores at Toka Tindung Gold Mine. In the processing of gold, most of the existing silver is carried along with gold from the commencement of the leaching process to become the final product in the form of doré bullion.

Although mercury is not a desired final product, mercury can be produced by processing of mined ores, although in very low percentages. While mercury is not present in Toka ores, to avoid mercury pollution, and to satisfy the Indonesian regulators, a mercury scrubber has been installed in the gold processing room, but to date no mercury has been recovered.

8 Mining and Ore Reserves

8.1 Introduction

Toka Tindung Gold Mine commenced overburden mining in 2009 and production mining operations in January 2011. This production history has provided Archi with a solid understanding of mining/ geotechnical/hydrogeological conditions and operability of the open pits, as well as the processing facility's response to mixed ore types. Through experience, Archi has learnt how to operate the open pits comprising the Toka Tindung Gold Mine in an efficient and profitable manner. This is clearly evident to SRK in light of the data and information supplied for review and Archi has successfully expanded the operation to its current status as the second-largest gold producer in Southeast Asia (behind Martabe, located in North Sumatra).

The Toka Tindung Gold Mine open pit mining complex consists of several open pits within an area spanning approximately 10 km^2. These include the active producing open pits; Toka, Araren, and Kopra, as well as the Alaskar and Marawuwung open pits, which are in pre-production and due to commence production in 2021 and 2024, respectively. The Pajajaran and Blambangan open pits have been mined out (completed) and are being backfilled with waste rock from other operating open pits. This area also includes the Toka, Batupangah, Pajajaran and Kopra WRDs.

Since mining inception, Archi has successfully transitioned the Project to a multi-open pit operation with initial mining commencing at Toka (2011), Pajajaran (2011), Kopra (2012), Blambangan (2013) and Araren (2015). In addition, Archi has a strong track record in Ore Reserve replenishment (through exploration and Mineral Resource conversion) and has implemented several cost reduction initiatives including recently upgrading of the mining fleet, renegotiated contracts with key suppliers, significantly increased plant capacity and throughput, and sourced cheaper power.

In late 2020, SRK was commissioned to update and provide assistance to Archi regarding the Toka Tindung Gold Mine Mineral Resource Estimates. Using these Mineral Resource Estimates, in February 2021, SRK completed the '2021 Ore Reserve Report' for the Toka Tindung Gold Mine . SRK has signed off as the Competent Person for the Toka Tindung Gold Mine Ore Reserve and included a 'Table 1 - Checklist of Assessment and Reporting Criteria', with Sections 1, 2, 3 and 4 completed, in accordance with the JORC Code (2012) guidelines.

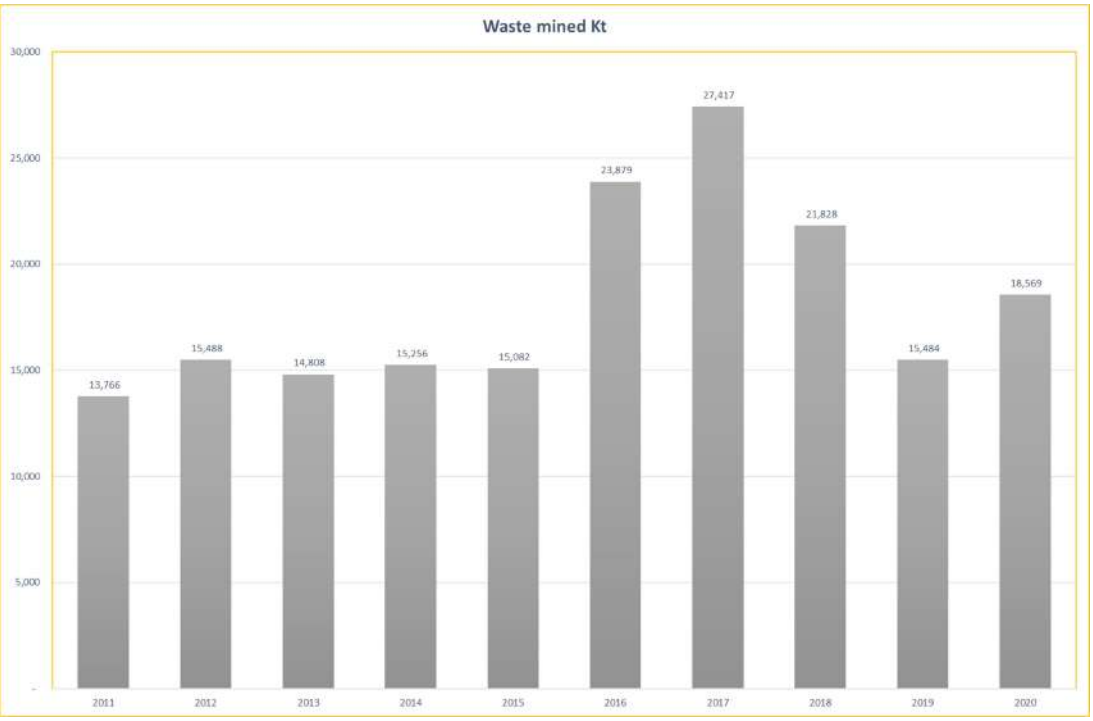
Archi is now seeking to progress an active growth phase based on concerted exploration of Near Mine and Greenfield opportunities in the eastern and western corridors, further cost reduction initiatives (including a larger mining fleet, electrification of bio-diesel water pumps, improved groundwater management, waste rock disposal and plant initiatives) and staged processing plant enhancement and expansion from the current 3.6 Mtpa plant capacity to 4.0 Mtpa (Q2 2021), 5.6 Mtpa (2022), 6.5 Mtpa (2024) and then 8.0 Mtpa (end of 2025) at a relatively low capital cost.

8.2 Mine operating status

8.2.1 Historical production

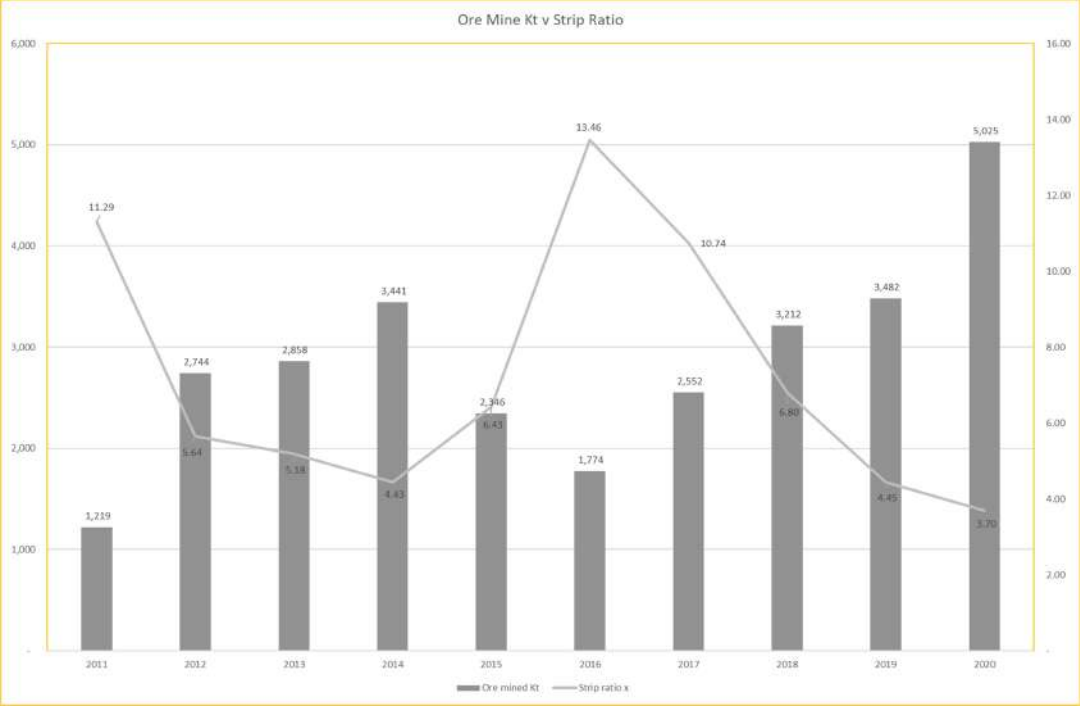
Historical production at the Toka Tindung Gold Mine reflects continued and uninterrupted open pit mining production since commencement of operations through to Q4 2020 (Figure 8-1 and Figure 8-2). For open pit mining operations, total material mined attained a maximum of 29.97 Mtpa (2.55 Mt of ore and 27.42 Mt waste) in 2017 and mined grades between 2011 and 2020, ranged from a low of 1.78 g/t Au to a high of 4.29 g/t Au, with an average grade of 2.58 g/t Au. During the same period, the strip ratios have ranged between 4.4 and 13.5, with the peak in 2016 attributable to the opening up of the Araren open pit before returning to longer term average strip ratios of 7.2 (Figure 8-2). The bulk of this production has been sourced from the Toka open pit (18.6 Mt/62%) with the Araren open pit also being a significant contributor in recent years (5.8 Mt/19%).

Figure 8-1: Waste mined ('000 tonnes) at Toka Tindung Gold Mine over the period 2011 to 2020



Source: SRK Analysis, Archi Information Memorandum, 2020

Figure 8-2: Ore mined and strip ratio at Toka Tindung Gold Mine over the period 2011 to 2020



Source: SRK analysis, Archi Information Memorandum, 2020

Note: Strip ratio increased in 2016 due to early stages at Araren open pit

8.3 Ore Reserves Estimates

8.3.1 Introduction

The current Ore Reserve Estimate for Toka Tindung Gold Mine was prepared by SRK and Archi with an effective date of 31 December 2020.

The Ore Reserve Estimates consider material to be extracted by open pit mining methods across the Toka Tidung Project for a total Ore Reserve Estimate of 98.3 Mt at 1.23 g/t Au for 3,884 koz Au (contained) and 2.57 g/t Ag for 8,118 koz Ag (Table 8-1).

The following is a summary of the estimation philosophy and key inputs adopted by Archi and SRK in the preparation of the 2020 Ore Reserves.

For full details of the stated Ore Reserves (included the associated Table 1 disclosures as required by the 2012 Edition of the JORC Code), readers of Archi's Offering Circular are referred to Archi's 2020 Ore Reserve Statements for each deposit, which may be found at the following location on Archi's website http://archiindonesia.com/independent-technical-report/ (English web page), http://archiindonesia.com/id/laporan-konsultan-independen/ (Indonesian web page).

The open pit Ore Reserves have been derived from the Indicated and Measured Mineral Resource classification in the Mining Models utilised for the open pit optimisation, open pit design and production scheduling. The Mineral Resource Models (MRMs) were converted to Mining Models to

reflect the modifying factors required to support the reporting of an Ore Reserve estimate. As shown in Table 8-1, the open pit Ore Reserves for the Toka Tindung Gold Mine present 98.3 Mt of Proved and Probable Ore Reserve at an average diluted grade of 1.23 g/t gold and 2.57 g/t of silver. This presents approximately 3.8 Moz of gold and 8.1 Moz of silver presented to the process plant over the LOM.

Included in the above Ore Reserve is 6.7 Mt of Probable Ore Reserve contained in existing stockpiles at an estimated average gold grade of 0.75 g/t.

For each deposit, all Indicated and Measured Mineral Resource classifications above the marginal breakeven grade (as outlined in Table 8-8) and within the open pit designs converts to Probable and Proved Ore Reserves respectively. Ore loss and dilution has been included in this Ore Reserve estimate.

Due to the gold/silver doré product and single refining cost applied (US$4.75/oz doré), a gold equivalent grade (AuEq) was developed to drive the mine planning study and define the marginal breakeven cut-off grades for the project.

The marginal breakeven grade is used as the grade that reflects the breakeven point of the total revenue against the sum of the processing costs, selling costs processing recoveries and selling prices. The calculated AuEq grade is used as the ‘grade’ field to define the marginal breakeven cut-off grades for all deposits and the subsequent Ore Reserve contained within the open pit designs.

Table 8-1: Toka Tindung Gold Mine Ore Reserve estimates as at 31 December 2020

Deposit	Ore Type	Proved Reserves					Probable Reserves					Total Ore Reserves					Waste	Total
		Mt	Au g/t	Au koz	Ag g/t	Ag koz	Mt	Au g/t	Au koz	Ag g/t	Ag koz	Mt	Au g/t	Au koz	Ag g/t	Ag koz	Mt	Mt
Marawuwung	HG	2.1	1.34	93	1.71	118	4.1	1.19	156	1.50	196	6.2	1.24	249	1.57	314		
	LG	0.7	0.54	12	0.88	19	4.1	0.53	71	0.99	131	4.8	0.53	83	0.97	151	28.1	39.2
	Total	**2.8**	**1.15**	**105**	**1.51**	**137**	**8.2**	**0.86**	**226**	**1.24**	**328**	**11.0**	**0.93**	**331**	**1.31**	**465**		
Toka	HG	6.1	1.22	238	2.53	494	16.9	0.99	537	1.69	918	23.0	1.05	775	1.91	1,411		
	LG	4.9	0.50	78	1.18	184	18.5	0.46	271	1.24	740	23.4	0.47	350	1.23	925	115.7	162.0
	Total	**10.9**	**0.90**	**316**	**1.93**	**678**	**35.4**	**0.71**	**808**	**1.46**	**1,658**	**46.3**	**0.76**	**1,124**	**1.57**	**2,336**		
Alaskar	HG	-	-	-	-	-	1.2	3.76	141	13.72	514	1.2	3.76	141	13.72	514		
	LG	-	-	-	-	-	0.3	0.42	4	1.62	17	0.3	0.42	4	1.62	17	33.2	34.7
	Total	**-**	**-**	**-**	**-**	**-**	**1.5**	**3.02**	**146**	**11.03**	**532**	**1.5**	**3.02**	**146**	**11.03**	**532**		
Araren	HG	1.7	2.71	147	4.76	259	12.5	3.00	1,204	5.34	2,142	14.2	2.96	1,351	5.27	2,401		
	LG	1.2	0.37	14	0.80	30	7.0	0.37	83	0.67	152	8.2	0.37	97	0.69	182	212.9	235.3
	Total	**2.9**	**1.75**	**161**	**3.13**	**289**	**19.5**	**2.05**	**1,287**	**3.65**	**2,294**	**22.4**	**2.01**	**1,448**	**3.59**	**2,583**		
Talawaan	HG	-	-	-	-	-	0.9	7.60	215	11.50	325	0.9	7.60	215	11.50	325		
	LG	-	-	-	-	-	0.0	0.50	0	2.14	0	0.0	0.50	0	2.14	0	38.1	39.0
	Total	**-**	**-**	**-**	**-**	**-**	**0.9**	**7.56**	**215**	**11.45**	**325**	**0.9**	**7.56**	**215**	**11.45**	**325**		
Kopra	HG	1.1	2.18	79	10.66	388	5.2	2.04	340	5.70	953	6.3	2.06	420	6.59	1,341		
	LG	0.4	0.38	5	2.08	30	2.7	0.38	34	1.54	136	3.2	0.38	39	1.62	165	124.6	134.1
	Total	**1.6**	**1.68**	**85**	**8.26**	**417**	**7.9**	**1.46**	**374**	**4.26**	**1,089**	**9.5**	**1.50**	**459**	**4.92**	**1,506**		
Stockpiles	**Total**	**-**	**-**	**-**	**-**	**-**	**6.7**	**0.75**	**162**	**1.72**	**371**	**6.7**	**0.75**	**162**	**1.72**	**371**	-	6.7
Total	**HG**	**11.0**	**1.57**	**557**	**3.54**	**1,258**	**40.7**	**1.98**	**2,593**	**3.86**	**5,049**	**51.7**	**1.89**	**3,150**	**3.79**	**6,306**		
	LG	**7.2**	**0.48**	**110**	**1.14**	**264**	**32.8**	**0.44**	**463**	**1.12**	**1,178**	**39.9**	**0.45**	**573**	**1.12**	**1,441**	**552.6**	**650.9**
	Stockpile	**-**	**-**	**-**	**-**	**-**	**6.7**	**0.75**	**162**	**1.72**	**371**	**6.7**	**0.75**	**162**	**1.72**	**371**		
	Total	**18.2**	**1.14**	**667**	**2.60**	**1,521**	**80.1**	**1.25**	**3,218**	**2.56**	**6,597**	**98.3**	**1.23**	**3,884**	**2.57**	**8,118**		

Source: SRK analysis, 2020 Ore Reserve Statement

Notes:

1. The Indicated Mineral Resources converts to Probable Ore Reserves, the Measured Mineral Resources converts to Proved Ore Reserves. Appropriate modifying factors were applied.
2. Due to the gold/ silver doré product and single refining cost applied, a gold equivalent grade (AuEq) was developed to drive the mine planning study and define the marginal breakeven cut-off grades for the project.
3. The marginal breakeven grade is used as the grade which reflects the breakeven point of the total revenue against the sum of the processing costs, selling costs processing recoveries and selling prices. The calculated AuEq grade is used as the 'grade' field to define the marginal breakeven cut-off grades for all deposits and the subsequent Ore Reserve contained within the pit design.
4. The metal prices used are gold price US$1,900/oz and silver price US$26.00/oz.
5. Totals may differ due to rounding.
6. 1 ppm is equivalent to 1 g/t.

8.3.2 Mining methodology and models

Conventional open pit mining methods are applied at the Toka Tindung gold mine to extract gold–silver ore from multiple open pits. Currently selective mining methods are employed utilising conventional hydraulic excavators and 45 t articulated haulage trucks. Archi has increased the truck capacity to 100 t (nominal) rigid off-haul trucks, the Komatsu 785 being an example of this truck size. This configuration is common in the Indonesian mining industry and is considered a low-risk solution. The 45 t articulated trucks are planned to remain on site to address specific narrow mining areas, such as on the side of hills.

Both selective and bulk mining methods are to be implemented depending on the geology of the vein systems within each of the deposits. Mining activities typically consist of drilling, blasting, excavation, loading and haulage of ore and waste, grade control and dewatering of the open pits.

For the two, more bulk, deposits of Marawuwung and Toka, a regularisation approach was determined appropriate to reflect ore loss and dilution. The regularisation process creates a selective mining unit (SMU) block size (Table 8-2). These SMU sizes were selected to reflect the likely ore loss and dilution, while presenting the smallest realistic mining block to support the mining methodology, equipment size and the complexity of the orebody. The Mining models for the four remaining deposits (Araren, Alaskar, Kopra and Talawaan), were left as sub-celled block models as the proposed selective mining method, mining from the hanging wall to the footwall, was not appropriately represented by regularisation to a SMU block size. Instead a ‘skinning’ logic was assessed to determine the magnitude of likely ore loss and dilution, then applied manually within the Lerchs-Grossman algorithm optimisation software (Whittle) and the production schedule.

Table 8-2: Selected mining model block size

Deposit	SMU size
Araren	Sub-celled MRM used
Alaskar	Sub-celled MRM used
Kopra	Sub-celled MRM used
Marawuwung	5.0mE x 6.25mN x 2.5mRL
Talawaan	Sub-celled MRM used
Toka	5.0mE x 6.25mN x 2.5mRL

Source: SRK analysis, 2021

The ore loss and dilution results from regularising the Marawuwung and Toka MRMs to SMU block models and the direct application of ore loss and dilution in Whittle for the remaining deposits are summarised in Table 8-3. The cut-off grades for reporting were calculated based on input parameters as provided. The ore loss and dilution results were further constrained by only reporting Measured and Indicated Mineral Resources.

All tonnages reported throughout this report reflect dry metric tonnes, unless specifically stated otherwise. Only the Indicated and Measured Mineral Resource defined in the mining models are available to support the definition and reporting of the Ore Reserve. All other materials are classed as waste.

Table 8-3: Ore loss and dilution outputs

Deposit	AuEq cut-off grade (g/t)	Geometry limit	Ore loss (%)	Dilution (%)
Araren	0.233	N/A	4.85	8.40
Alaskar	0.279	N/A	4.85	8.40
Kopra	0.246	N/A	4.85	8.40
Marawuwung	0.293	PIT2340 = 1 (field in MRM)	2.99	4.64
Talawaan	0.359	N/A	4.85	8.40
Toka	0.249	PIT2340 = 1 (field in MRM)	4.64	11.98

Source: SRK analysis, 2021

The mining models were re-blocked after importing into the Whittle software to reflect the desired minimum mining width at the base of the open pits (Table 8-4).

Table 8-4: Selected Whittle re-block size

Deposit	SMU size
Araren	20mE x 12.5mN x 2.5mRL
Alaskar	20mE x 12.5mN x 2.5mRL
Kopra	20mE x 12.5mN x 2.5mRL
Marawuwung	20mE x 18.75mN x 2.5mRL
Talawaan	20mE x 12.5mN x 2.5mRL
Toka	20mE x 18.75mN x 2.5mRL

Source: SRK analysis, 2021

Input parameters used for the Whittle open pit optimisation process, open pit design and production scheduling have been coded into the mining models as required. These include:

- geotechnical zones
- rock type classifications for optimisation, scheduling and reporting
- open pit mining costs
- selling prices for both gold and silver
- selling costs including royalties and refining cost.

8.3.3 Open pit optimisation

Open pit optimisation presents a range of nested open pit shells representing increasing metal price or Revenue Factor (RF) to guide the selection of the optimal open pit shell that best suits the owner's business objectives. While a RF = 1.0 is the theoretical 'optimum' pit shell on which to base open pit designs, the owner (Archi) has selected pit shells with RF = 1.2 to meet project physical objectives and risk considerations.

SRK used the 'Geovia Whittle' software package for the optimisation process. In addition to the open pit geotechnical parameters provided for each deposit, the other key inputs into the open pit optimisations are provided in Table 8-5.

Table 8-5: Summary of open pit optimisation parameters

Item	Sub item	Araren	Alaskar	Kopra	Marawuwung	Talawaan	Toka
Surface mining cost (US$/t mined)	Oxide	5.02	3.48	4.24	3.14	4.24	3.95
	Transitional	5.60	4.07	4.83	3.77	4.82	4.59
	Fresh	5.82	4.28	5.01	4.00	5.03	4.81
Vertical mining cost adjustment (US$/t mined/10 m increment)		0.06	0.10	0.07	0.08	0.06	0.04
Whittle processing cost (US$/t ore mined)[2]		14.26	17.05	15.00	17.88	21.92	15.24
Additional mining cost (US$/t ore mined)		-0.08	2.13	0.08	2.38	0.000	-0.26
Process recovery	gold	90%	90%	90%	90%	90%	90%
	silver	72%	72%	72%	72%	72%	72%
Gold price (US$/oz)		1,900	1,900	1,900	1,900	1,900	1,900
Silver price (US$/oz)		26	26	26	26	26	26
Selling cost (% royalty)	gold	5%	5%	5%	5%	5%	5%
	silver	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
Resultant marginal breakeven cut-off grade (g/t AuEq)		0.233	0.279	0.246	0.293	0.359	0.249

Source: SRK analysis, 2021

Notes: The Whittle processing cost includes allowances for G&A, ore processing, grade control, ore rehandle and surface haulage costs.

The results of the open pit optimisations for each deposit at the selected RF pit shells are summarised in Table 8-6.

Table 8-6: Summary of open pit optimisation results

Item	Araren	Alaskar	Kopra	Marawuwung	Talawaan	Toka
Marginal breakeven cut-off grade (g/t AuEq)	0.233	0.279	0.246	0.293	0.359	0.249
Potential ore feed (Mt)	24.1	1.61	9.96	11.4	0.88	49.39
Waste (Mt)	193.9	29.0	119.2	26.7	37.1	120.7
Total material mined (Mt)	218.0	30.6	129.1	38.1	38.0	170.1
Stripping ratio (t waste/t ore)	8.0	18.0	12.0	2.3	42.2	2.4
Diluted MM gold grade (g/t Au)	1.85	2.84	1.40	0.91	7.48	0.72
Contained gold (koz)	1,436	147	448	336	212	1,150
Diluted MM silver grade (g/t Ag)	3.28	10.42	4.65	1.29	11.29	1.54
Contained silver (koz)	2,549	540	1,490	472	320	2,450

Source: SRK analysis, 2021

Note: **RF=1.2 pit shell selected at gold price of US$1,900/oz (or RF=1.0)**

Sensitivity analysis was undertaken for the project by varying the optimisation input parameters individually and assessing the resultant change in ore quantity and cashflow outputs from Whittle. Table 8-7 below highlights the comparison parameters used in the sensitivity analysis.

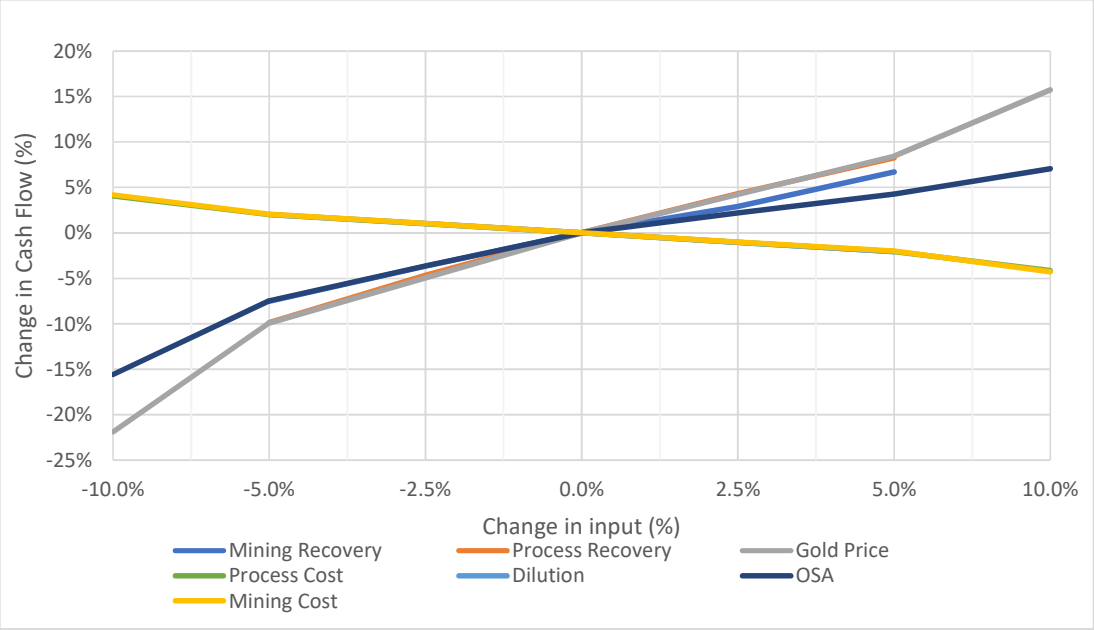
Table 8-7: Sensitivity comparison parameters

Sensitivity	Description
Mining cost (MCAF)	Mining cost adjusted by factors of +5%, -5%, +10% and -10%
Processing cost (PCAF)	Processing cost adjusted by factors of +5%, -5%, +10% and -10%
Overall slope angle (OSA)	OSA adjusted by factors of +2.5°, -2.5°, +5°, and -5°
Ore loss	Ore loss increased by factors of +2.5%, -2.5%, +5% and -5%
Dilution	Dilution increased by +2.5%, -2.5%, +5% and -5%
Gold selling price	Gold selling price adjusted by factors of +5%, -5%, +10% and -10%
Metal process recovery	Gold process recovery adjusted by factors of +2.5%, -2.5%, +5% and -5%

Source: SRK analysis, 2021

For the project in general the cashflow sensitivity analysis concludes that the project cashflow is most sensitive to the OSA of the pit walls, gold price and process plant recovery, and least sensitive to the processing cost and dilution (Figure 8-3).

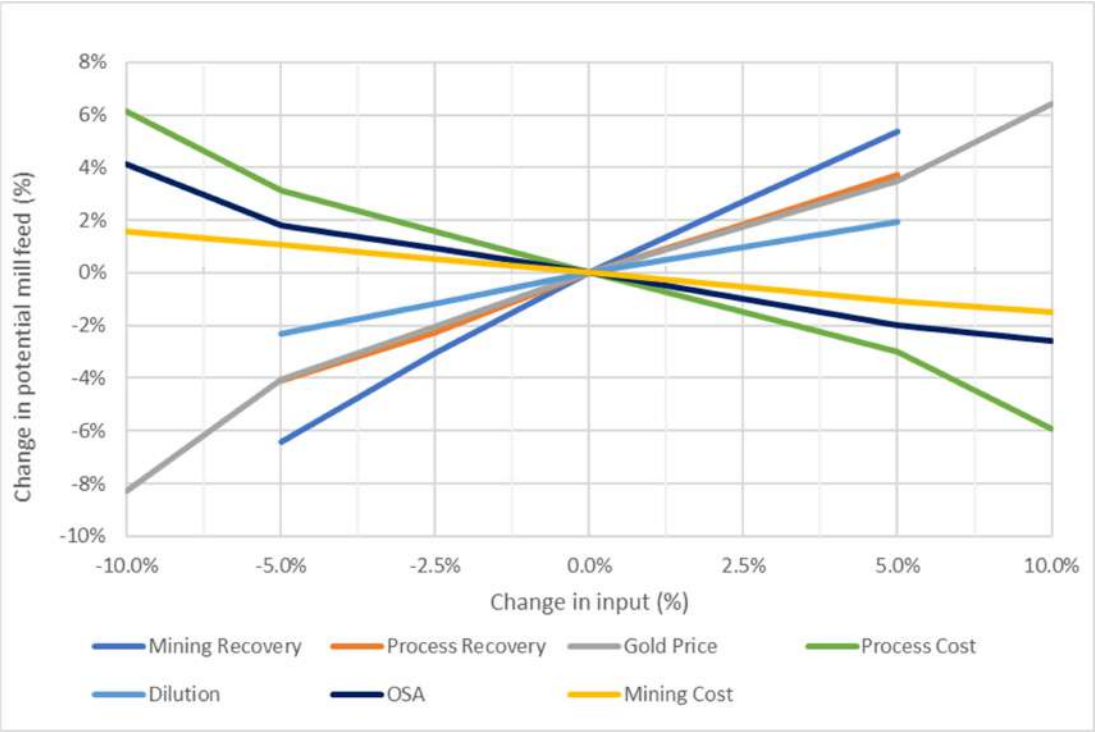
Figure 8-3: Project cashflow sensitivity



Source: SRK analysis, 2021

For the project in general the ore tonnes sensitivity analysis concludes that the project ore tonnes are most sensitive to the mining recovery (ore loss) and the processing cost, and least sensitive to the mining cost and dilution (Figure 8-4).

Figure 8-4: Project ore tonnes sensitivity



Source: SRK analysis, 2021

8.3.4 Open pit designs

The open pit shells produced by the open pit optimisation process were converted into operable designs by adding arrangements of mining benches, berms, roads and ramp systems. Open pit designs were constrained to conform with the geotechnical parameters. All designs were checked by Archi to ensure not only technical compliance but also compliance with the intent of the parameters supplied.

The ore tonnes conformance of the open pit designs compared to the selected RF = 1.2 optimisation shells is considered very good for all deposits, with ore tonnes ranging from 1.4% less to 3.2% more compared to the pit shells. The waste tonnes conformance is considered good, when taking into consideration the very good ore tonnes conformance, ranging from 8% more to 7.1% less waste tonnes compared to the open pit shells.

Existing and planned waste dump capacity is both on external and in-open pit storage facilities. WRD designs were developed by Archi and reported to contain sufficient capacity to facilitate storage of waste materials anticipated to be mined from each of the deposits.

8.3.5 Gold Equivalent (AuEq) grade

Due to the gold/silver doré product and single refining cost applied (US$4.75/troy ounce doré), a gold equivalent grade (AuEq) was developed to drive the mine planning study. The formula below was used in calculating the AuEq grade:

AuEq (g/t)=

$$\frac{\left[\left[\left(Au \times Au\ recovery\ \times (Au\ sell\ price - Au\ royalty)\right) + \left(Ag \times Ag\ recovery\ \times (Ag\ sell\ price - Ag\ royalty)\right)\right] - Dore\ sell\ cost\right]}{Au\ sell\ price}$$

where:

Au = Gold grade (as defined by MRM)

Au recovery = process recovery of gold – 90% (value supported by historic and forecast values, see elsewhere in this report)

Au sell price = selling price of gold – US$1,900/troy oz Au or US$61.086/g Au

Au royalty = royalty cost of gold – 5% of gold selling price

Ag = silver grade (as defined by MRM)

Ag recovery = process recovery of silver – 72% (value supported by historic and forecast values, see elsewhere in this report)

Ag sell price = selling price of silver – US$26/troy oz Ag or US$0.836/g Ag

Ag royalty = royalty cost of silver – 3.25% of silver selling price

Doré sell cost = selling cost of doré – US$4.75/troy oz of final doré product

By combining gold and silver together into a calculated gold equivalent grade, this grade can be used to define the marginal breakeven cut-off grades for all six project deposits.

8.3.6 Marginal breakeven grade

The marginal breakeven grade is used as the grade that reflects the breakeven point of the total revenue against the sum of the processing costs, selling costs, processing recoveries and selling prices (effectively all costs other than the direct mining cost). The calculated AuEq grade is used as the grade field to define the marginal breakeven cut-off grades for all the deposits.

As the calculation for AuEq grade developed for the mining study is inclusive of processing costs, selling costs, processing recoveries and selling prices, the marginal breakeven cut-off grade (COG) equation is:

$$Marginal\ breakeven\ cutoff\ grade\ (AuEq\ g/t) = \frac{PCAF}{(Gold\ price\ \times Recovery)}$$

Where:

PCAF (US$/t) = total of all operating costs applied to mill feed

Gold price = US$1,900/troy oz (selling costs for gold and silver are applied in the calculation of AuEq grade)

Recovery = 100% (processing recoveries for gold and silver are applied in the calculation of AuEq).

The marginal breakeven cut-off grades for each deposit are outlined in Table 8-8.

Table 8-8: Marginal breakeven cut-off grades

Item	Unit	Araren	Alaskar	Kopra	Marawuwung	Talawaan	Toka
Gold selling price	US$/troy oz	1,900	1,900	1,900	1,900	1,900	1,900
Ore processing cost	US$/t ore	8.90	9.48	9.48	10.06	9.48	10.06
G&A cost	US$/t ore	5.19	5.19	5.19	5.19	5.19	5.19
Additional processing cost	US$/t ore	0.17	2.38	0.33	2.63	7.25	-0.01
Grade control	US$/t ore	0.25	0.25	0.25	0.25	0.25	0.25
Surface transport cost	US$/t ore	0.00	0.00	0.00	0.00	7.00	0.00
Additional ore mining cost	US$/t ore	-0.082	2.133	0.082	2.379	0.000	-0.261
PCAF	US$/t ore	14.260	17.054	15.004	17.880	21.922	15.240
Processing recovery	% of AuEq	100%	100%	100%	100%	100%	100%
Au Marginal Breakeven COG	g/t AuEq	0.233	0.279	0.246	0.293	0.359	0.249

Source: Archi PFS Report, 2021

A 0.15 g/t AuEq minimum grade was applied for the definition of potential ore in the Whittle optimisation process for all deposits. This was only to facilitate quicker optimisation processing by the software and has no impact on the optimisation of the potential economic mineralisation.

8.3.7 Ore loss and dilution

Typically, the dominant influences on ore loss and dilution are the following:

- ore/waste contact angle
- rill angle
- mining direction
- bench height
- blasting
- digging accuracy
- grade control
- minimum mining width.

There is normally an additional ore loss and dilution impact due to minor issues such as misdirected truck loads, mark-up errors and operator error. The impact of this additional ore loss and dilution is negligible on the grade and tonnes of the LOM production schedule.

SRK has reported the mining inventory of the MRMs using various cut-off grades and geometry limits to determine the impacts of ore loss and dilution for each deposit. Only Indicated and Measured Mineral Resource was presented to the open pit optimisation process as a potential source of ore feed to the processing plant; Inferred Mineral Resource was treated as waste.

8.4 Mine Design and Planning

8.4.1 Overview

The prevailing mine plan has been developed to extract ore based on the current geological model for each deposit and used for the estimate of Mineral Resources and Ore Reserves based on operating costs associated with the incumbent smaller sized mining fleet (refer Section 8.4.4.). This report updates the mine plan to account for the larger size mining equipment and new cost structure associated with the change in mining contractor (now GMA/Thiess).

The mine plan objective is based on mill power limits with variable ore hardness determining the ore tonnage feed rates to the processing plant. Blending between open pits is via allocation of a percentage of mill power to each relevant open pit. The target for blending is to maintain approximately three operating open pits, keep sufficient proportion of hard rock relative to clays and to maintain gold production sufficient to ensure a positive cash flow.

The open pit design is the process where the selected open pit shells produced by the optimisation software are converted into practical designs by adding an arrangement of; benches, berms, roads and ramp systems. The geotechnical design parameters are bench heights either 15 m or 20 m, berm widths varied between 5 m and 10.5 m, and batter angles between 34˚ and 70˚, dependent on the open pit depth and rock type (oxidised, transitional and fresh). The general open pit design parameters are ramp widths of 15 m (single lane) and 25 m (dual lane) and ramp gradients of 10%. Final designed open pit depths are presented in Table 8-9.

Table 8-9: Toka Tindung Gold Mine – designed open pit final depths

No	Open Pit Name	Design Depth (m)
1	Toka	170
2	Marawuwung	105
3	Alaskar	165
4	Kopra	195
5	Araren	280
6	Talawaan	100

Source: SRK analysis, 2021, Archi PFS Report, 2021

Waste rock from the southern open pits is currently transported to the Batupangah, Pajajaran and Kopra WRDs, as well as backfilling of the Pajajaran and Blambangan open pits, while waste rock material from the Toka open pit is used for tailings dam construction or dumped at the Toka WRD (Toka Stage 3).

8.4.2 Mining methods

Conventional open pit mining methods are applied at the Toka Tindung Gold Mine to extract gold–silver ores from multiple open pits. Both selective and bulk mining methods are implemented utilising conventional hydraulic excavators and articulated haulage trucks depending on the geology of the vein systems within each of the open pits. Mining activities typically consist of drilling, blasting, excavation, loading/haulage of rocks and dewatering of the open pits.

From 2011 to 2020, the majority of ore has been historically sourced from the Toka open pit in the northern portion of the Eastern Corridor and the Araren, Blambangan (completed 2020), Kopra and Pajajaran (completed in 2015) open pits in the south.

The Alaskar open pit (southwest of Araren) and Marawuwung open pit (northwest of Toka) are in pre-production and will commence operations in 2021 and 2024, respectively.

In addition, Archi has some 6.7 Mt of ore in stockpile with an average grade of 0.75 g/t Au which can be processed upon cessation of mining operations.

The Toka Tindung Gold Mine design and mining process comprises the following steps:

- Delivery of the Mineral Resource block model.
- Mine Planning: detailed analysis of the drilling data is conducted prior to mine planning (short, medium and long term) and bench-scale leach testing of the ores.
- Grade Control Drilling: grade control drilling is conducted on the mineralised areas outlined by the resource drilling to more accurately determine the location, volume, gold and silver grades of the ore.
- Drill and Blast: blast holes are drilled in the ore and waste zones, after which explosives are loaded into those holes in a manner designed to produce controlled fragmentation of the ore body with minimal blast movement so that the ore may be excavated efficiently.
- L&H: excavators remove the waste rock and ore, and load into trucks (historically with a majority of 40–45 t and a maximum capacity of 60 t but currently being transitioned to 100 t) for delivery to the WRDs, low grade stockpiles or ROM ore pad at the processing plant.

Mining methods are altered according to lithology, as shown in Table 8-10.

Table 8-10: Toka Tindung Gold Mine – Recommended mining practice

Open Pit	Lithology	Mining method
Toka	Basaltic volcanoclastic and volcanics	Drill and blasting
Marawuwung	Basaltic volcanoclastic and volcanics	Drill and blasting
Araren	Altered Basaltic Andesite	Free Dig
	Fresh Basaltic Andesite	Drill and blasting
Kopra	Basaltic Andesite	Rip and blast
	Basaltic volcanoclastic	Rip and blast
Alaskar	Basaltic Andesite	Rip and blast
	Andesite Fragmental	Rip and blast
	Volcanic Basalt Andesite	Rip and blast
Talawaan	Basaltic volcanoclastic and volcanics	Combination of free dig and drill and blasting (below 250 m RL)

Source: Archi's AMDAL Addendum, 2020

Upon transport to the ROM pad, located in proximity to the processing plant, the ores are separated on the basis of estimated gold content into the main stockpiles (500,000 t capacity with stockpiles distinguished on the basis of ore source) and a low-grade (>1 g/t Au) stockpile. It is not intended to process low grade material until the end of the mine life.

8.4.3 Mining service

Historically, Archi has engaged reputable third-party mining contractors (such as PT Samudera Mulia Abadi, PT Manado Karya Anugrah, PT Parts Sentra Indomandiri and PT Orica Mining Services) to support substantial parts of the mining works (Table 8-11). Contractors were selected based on their skills and experience. Archi expects this style of contracting to continue for the foreseeable future, albeit that the selected contractors may change.

Table 8-11: Toka Tindung Gold Mine key mining-related contractors

Service	Contractor	Service provided
Mining service	GMA	L&H including general mining services (currently being phased in)
	SMA	L&H including general mining services (currently being phased out)
	MKA	Toka Tindung Gold Mine overhaul, stockpile management and road maintenance
Blast and grade control	PT Orica Mining Services (OMS)	Supplier of blasting consumables and total loading services to Toka Tindung Gold Mine's open pits
Supply blasting material	PT Parts Sentra Indomandiri (PSI)	Blasthole drilling services and grade control services

Source: Archi Information Memorandum, 2020

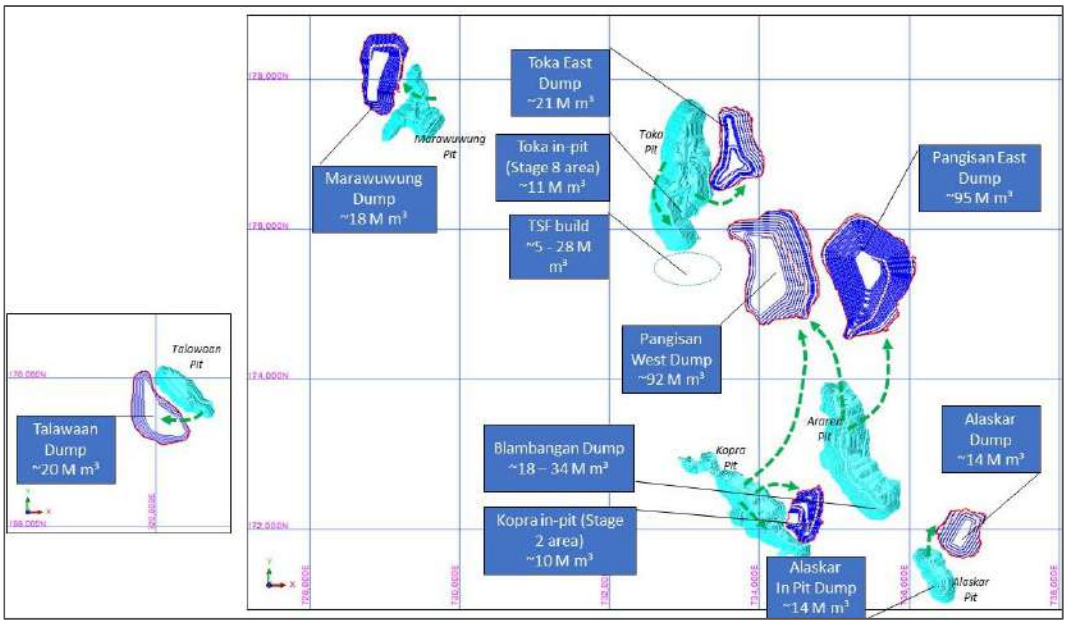
As noted previously, mining operations at the Toka Tindung Gold Mine are transitioning to a new mining contractor service, in order to implement a new, larger sized equipment mining fleet. This mobilisation commenced in November 2020 and is based around an alliance-style contract between Archi and GMA, with further support provided by Theiss. SRK understands that GMA/Theiss will, over time, assume the roles previously held by SMA and MKA, with OMS and PSI continuing in their specified roles.

Third party contractors are required to carry out their work according to the design and plan of the relevant assignment and in accordance with Archi's quality standards and production safety requirements. Pursuant to the agreements entered into with third-party contractors, contractors must maintain insurance of the safety and injury of their own employees that perform work on the Toka Tindung Gold Mine mine site.

8.4.4 Waste rock dumps

Archi currently has WRDs at Pangisan, Toka, Toka East, Araren, Pajajaran, Batupangah and Kopra, with the Toka (Stage 8), Pajajaran and Batupangah open pits used for backfilling. Into the future, Archi has also proposed further WRDs at Pangisan East, Blambangan, Alaskar, Marawuwung, and Talawaan, with additional backfill capacity provided by the Alaskar and Kopra (Stage 2) open pits. In combination, these sources are estimated to provide capacity for 353 Mbcm, relative to the estimated LOM planned mined volume (including a swell factor of 25%) of 294 Mbcm. The final dump locations and associated volumes are shown in Figure 8-5.

Figure 8-5: Final dump locations and volumes at Toka Tindung Gold Mine



Source: Archi's PFS, 2021

Archi's dumping strategy is to minimise haulage distances, in order to keep costs as low as practical. It is currently Archi's intention to use both the Pangisan East and West WRDs, but as the Araren and Kopra pits are mined, opportunities may emerge to use existing mined out or partially mined out pits to reduce haul distances and backfill these pits.

The Pangisan WRDs currently have capacity for 187 Mbcm. For the expansion of the Pangisan WRDs, a total area of ± 85.4 ha has been set aside for a landfill area of 81.2 ha, a 2.4 ha access road, and a 1.8 ha deposition pond. The capacity of the Pangisan WRD is to be expanded within a fixed land area. The relevant land required for these activities has been acquired.

Archi has been mining at Toka since 2011 and has successfully operated its waste dumps and the dumping strategies have resulted in stable dumps with good rehabilitation outcomes at the Palajaran and Batupangah open pits that have been mined and backfilled. Environmental monitoring has not detected any acid drainage as the vast majority of the waste rock is non-acid forming (NAF) material.

SRK considers Archi's dumping strategy and expansion plans for the Pangisan WRD to be reasonable and appropriate.

8.4.5 Mining equipment

As noted previously, Archi is transitioning to a new mining contract commencing November 2020 and will use a larger mining fleet of excavators and associated off-road haul trucks. The excavator fleet comprises initially two Hitachi EX1900 excavators, with the maximum of three in 2023, initially five Hitachi EX2600 excavators, then fluctuating between four and five for the first eight years of production. The associated off-road haul truck fleet is Komatsu HD785 with a rated 100 t payload. Haul truck numbers are expected to fluctuate over the LOM, but initially there will be 59 haul trucks

required, with a maximum of 78 in 2022. In addition, there is a supporting L&H fleet, a front-end loader and six 45 t haul trucks.

There is a conventional ancillary fleet to support the Toka Tindung Gold Mine mining operations that includes but is not limited to:

- 9 x dozers (Caterpillar D8 and D10)
- 5 x graders (Komatsu 825)
- 5 x water trucks
- 3 x fuel trucks
- 2 service trucks
- 1 x tyre handler
- 1 x crane.

Additionally, the mine has a fleet of light vehicles, buses and lighting equipment.

Section 12.15 includes further details of the mining and auxiliary/support fleet.

8.5 Mine production plan

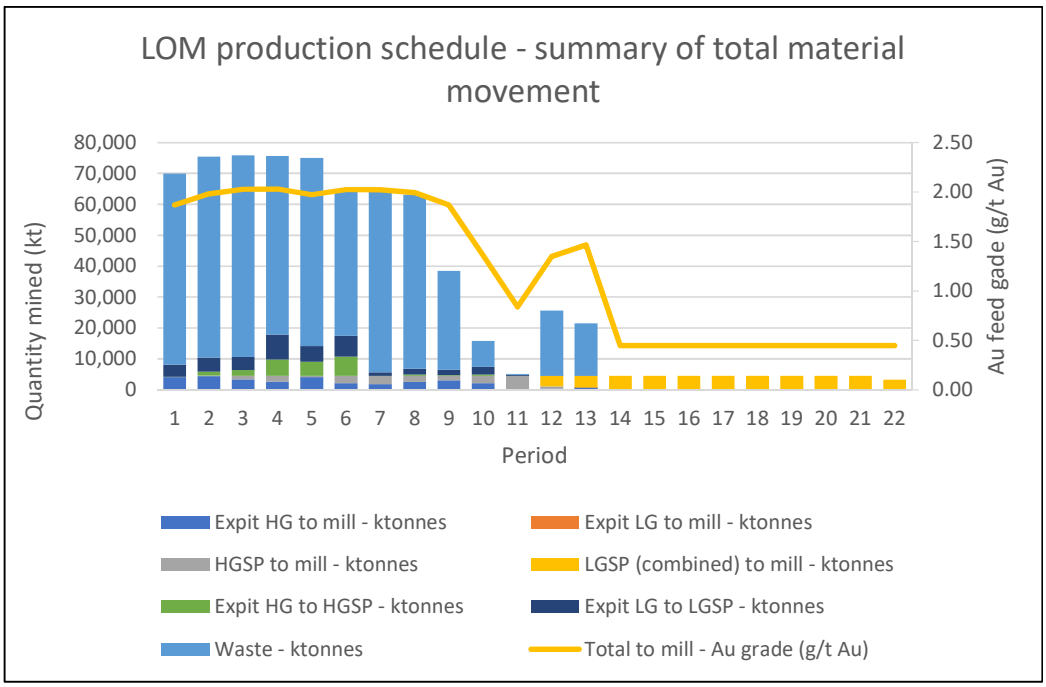
The production schedule was guided by a set of project drivers and constraints, which included:

- Maintain an average gold head grade of approximately 2 g/t Au for as many years as possible.
- Achieve the process plant capacity of 4.1 Mtpa of mill feed in the first year (2021), then 4.5 Mtpa of mill feed every year after that, for the LOM.
- The Talawaan deposit can commence mining once all the high grade ore from the other five deposits has been fed to the mill.
- Mill feed from Talawaan is to be blended with existing defined low grade ore stockpiles, targeting a feed head grade of 2 g/t Au.
- The southern side of the Toka open pit is prioritised to mine to its final limits, ahead of developing the northern zone. This is to allow future tailings deposition into the southern portion of the Toka open pit.
- For years 2021 to 2022, open pit mining at Araren cannot extend beyond the limits of a river diversion being developed.
- Vertical annual advance rates up to 150 m on interim open pit walls and 130 m on final open pit walls are not to be exceeded.

With a strong focus on presenting a schedule which maintained a target gold head grade of 2 g/t Au for as many years as possible, the annual profile of total material movement has been left unconstrained, within reason. SRK understands that the nature of the agreements between the mining contractor on site and Archi allows equipment and personnel to be mobilised/demobilised at short notice to respond to peaks and troughs in the LOM material movement profile.

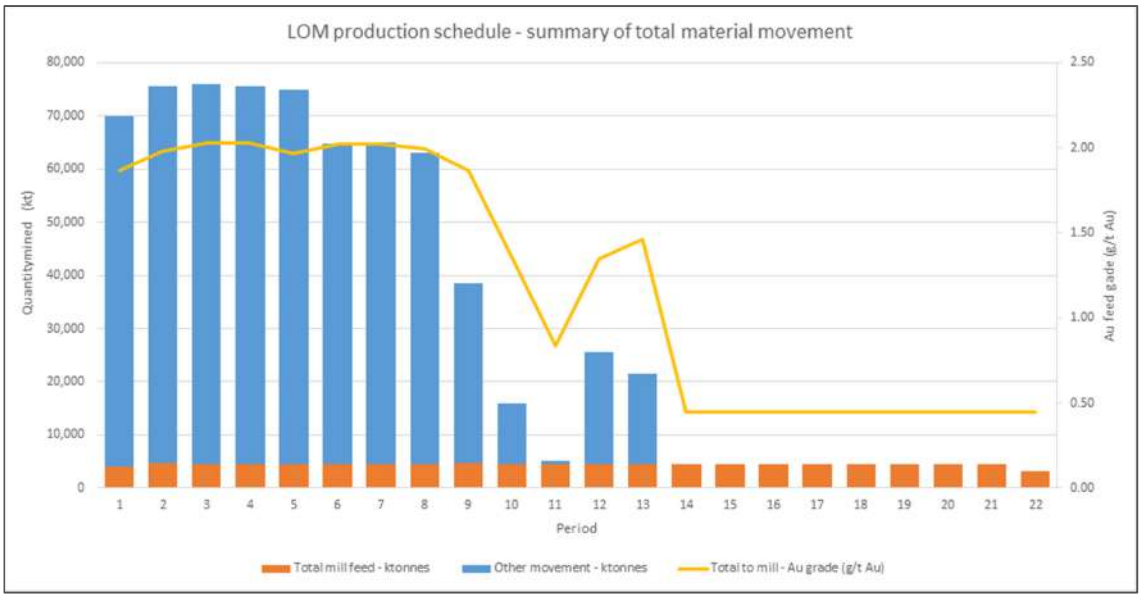
The annual LOM open pit production schedule for the Project is presented in Figure 8-6 and Figure 8-7. Ore feed targets are achieved over the LOM with low grade stockpiled ore fed from 2032 (period 12) for the remaining LOM. In 2032, the high grade Talawaan deposit is mined and blended with the existing lower grade stockpiled materials. There is an opportunity to bring forward (to 2030 – Period 10) the mining of Talawaan to maintain a higher feed grade.

Figure 8-6: Annual production schedule



Source: SRK analysis, 2020 Ore Reserve Statement
Note: Period 1 is 2021, with each period representing a year

Figure 8-7: Annual production schedule – tonnes and grades



Source: SRK analysis, 2020 Ore Reserve Statement.

Note: Period 1 is 2021, with each period representing a year

8.6 Economic assessment

Subsequent economic modelling by SRK demonstrates that the Ore Reserves are technically feasible and economically under the CRU (2021) price assumptions and Credit Suisse's derived discount rate (based on weighted average cost of capital) as provided by Archi. SRK has been advised by Archi's legal advisors that under prevailing stock exchange requirements these modelling outcomes are to remain confidential.

9 Tailings storage facility

9.1 Introduction

In line with the proposed increase in ore mining and processing production capacity, it is also planned to increase the capacity of the TSF by expanding and elevating dam tailings to 28 – 32 Mt (22.5 M m^3) at RL 290 m.

As at the end of 2019, the TSF stood at RL 282 m and was estimated to contain 18.33 Mt of tailings (Archi AMDEL addendum, 2020) in what is locally termed Cell 1. A second cell, (Cell 2), adjoins Cell 1, and was constructed over the period 2018–2020 with engineering complete in Q1 2020. The area approved for the TSF covers a total area of 95 ha, of which 42 ha is for the actual tailings dam and 53 ha for supporting facilities such as roads, piping, drainage systems, the Koba alleviation ponds (3.27 ha), the Toka alleviation ponds (3.87 ha) and decant pump stations.

The Toka Tindung Gold Mine TSF is a valley impoundment located in a seismically active area within northern Sulawesi. The Toka open pit is situated immediately downstream of the dam, as is the mine processing plant, while the remaining open pits are at a distance to the southeast of the TSF. The TSF was constructed in 2010/11 and started receiving tailings in April 2011. Since that time, the TSF has been under a constant regime of raised expansion, in order for it to keep up with the mine's constant need for additional tailings storage capacity.

The TSF has been assigned a High-A consequence category as per the ANCOLD (2019) guidelines, due to the number of people who work downstream at the mine process plant and the Toka open pit, and also due to the major environmental and business impact that would ensue from any future failure event.

When the TSF is full, Archi has proposed to deposit/place tailings into the TSF Toka Stage 1 and 2 in-pit areas upon depletion of that cutback.

9.2 TSF embankment

The cross section of the TSF embankment is generally somewhat wider than other rockfill dams of the same height, with the downstream slopes of the embankment being as flat as 5H:1V, and also featuring several 6 m-wide horizontal benches. The dam cross section features only two zones; a relatively thin clay zone on its upstream face (of 6 m horizontal width), and a massive homogenous zone of mine spoil that forms the vast majority of the structure. This major zone is referred to as a WRD (and in practical terms this is quite a workable proposition), but its relevance as the main structural element of the dam must also be appreciated and respected.

The original design of the embankment was founded on strength parameters that were assumed for the waste rock, based on reportedly conservative values. In particular, a friction angle of 38˚ was originally adopted for the waste rock material in the first few stages of design, from 2010 through to 2016. However, direct shear tests were carried out on two samples of the waste rock in 2017, which indicated friction angles of 37.5˚ and 38.2˚, respectively. This resulted in a new friction angle of 34˚ being adopted for dam raise designs after 2019. This is considered to be a reasonably conservative assumption, but it is recommended that additional waste rock samples be tested, to provide greater certainty of the shear strength.

The stability analyses that have been carried out for static loading cases indicate that the TSF embankment achieves satisfactory factors of safety, but the Operational Basis Earthquake (OBE) and Maximum Design Earthquake (MDE) scenarios in the 2020 TSF raise design report generally fall short of the minimum factors of safety required in the ANCOLD (2019) design guidelines. However, it is noted that deformation analyses were also carried out for the embankment under earthquake conditions, which found that the crest of the embankment is expected to subside by some 41 cm, which is less than the rated minimum freeboard of 1 m. This is an acceptable outcome in meeting the ANCOLD (2019) guidelines.

9.3 Embankment construction

Between 2015 and 2018, the construction of the TSF embankment suffered from some less than satisfactory practices, such as insufficient compaction effort being applied (through an insufficient number of rollers being present on site), poor moisture conditioning, wrong type of roller being used (smooth drum on clay fill), soil compaction testing being carried out incorrectly, insufficient compaction tests being carried out, and a lack of transparency with rectification works. These issues caused there to be a high failure rate in the compaction testing during the affected period, and left some uncertainty over the compaction status of the TSF fill in the affected areas. While the usual approach has been to rework and retest any failed material, we understand that this reworking and retesting did not take place during 2018.

SRK understands that Archi has made some effort recently to investigate the compaction status of the embankment fill in question, by drilling some boreholes into the embankment and carrying out standard penetration (SPT) tests to gauge the degree of compaction of the fill. Unfortunately the SPT testing was not properly calibrated against satisfactorily compacted samples of fill material, so this work was not conclusive in gauging the level of compaction of the embankment fill, but it did indicate that the clay material was “stiff to very stiff”, with a nominal shear strength of 100 kPa. SRK recommends that relevant calibration tests be carried out with the SPT. It is expected that this will enable the recent SPT logs to be used in inferring the level of compaction of the existing fill.

In recent years, the situation has improved with the appointment of Mr Kell Monro as the General Manager of Operations at Toka Tindung Gold Mine. Mr Monro brings experience from the Phu Kham mine in Laos, which featured one of the largest tailings dams in Asia. This greater appreciation for the risk posed by the TSF is a welcome improvement, as is the more focused management of the TSF governance and construction.

Mr Monro advised that the management of embankment construction has significantly improved over the past couple of years, with improvement to the testing laboratory, a larger fleet of dedicated rollers and other construction equipment brought to site, and the workforce increased, including additional leadership and tailings engineers to better manage the work. Furthermore, Mr Monro has advised SRK that the vast majority of test results in recent months have achieved the minimum compaction standards set in the technical specification.

9.4 Dam break analysis

A dam break analysis was presented in the 2018 design report. This analysis confirmed that the outflow from the TSF would inundate the plant site and the Toka open pit. This highlights the importance of the stability of the TSF and its embankment.

9.5 Freeboard

The current freeboard is 1.6 m.

The 2020 TSF design report indicates that a minimum freeboard of 1 m shall be maintained in the TSF. SRK recommends that this freeboard be checked against the ANCOLD (2019) requirements, not only to suit the hydrology of the catchment, but also in terms of the wave run-up and additional allowance requirements set out in the ANCOLD (2019) guidelines.

The TSF design features an emergency spillway to prevent overtopping of the embankment.

The 2020 audit report (CMW Geosciences, 5 March 2020) indicates that the emergency spillway has not yet been constructed, but recent discussions with Archi and CMW indicate that an interim spillway has been constructed to allow excess water from Cell 1 (at the northern end of the TSF) to spill into the new Cell 2 (to the south). SRK recommends that the spillways be constructed as per the design, so that excess water is able to exit the TSF altogether, rather than moving from one cell to another.

Furthermore, the 2020 audit report (CMW Geosciences, 5 March 2020) indicated that the available freeboard in the TSF was very close to the allowable minimum. This is a concern, particularly as the TSF lacked a spillway at the time.

It is noted that there is a hanging drain (a diversion drain) that collects run-off from the higher ground to the west of the TSF, and diverts it to the north around the TSF. It is understood that the calculation of the minimum required freeboard for the TSF is based on the assumption that this hanging drain is operational. However, the 2019 audit report (CMW Geosciences, 15 March 2019) noted that the hanging drain does not appear to have been constructed in accordance with the design. SRK recommends that the drain be properly examined and remedied as necessary in order to meet the requirements of the design. Furthermore, SRK recommends that the emergency spillway be widened to allow for a 1:1,000 year average recurrence interval (ARI) flood, particularly whilst the condition of the hanging drain is in question. Whilst these issues remain uncertain, SRK also recommends that the freeboard allowance be increased to reduce the risk of overtopping.

It is recognised that during 2020, the ability to attain necessary regulator approvals for required forest boundary permit changes were delayed, primarily due to COVID-19 related interruptions, meaning tailings discharge permitting into the already constructed Cell 2 was not possible until December 2020. At the same time the raising of the dam wall above the 286 m RL level to 290 m RL level was also approved, albeit later than planned. Given the approvals are now in place the freeboard is steadily rising as all tailings from January 2021 report to Cell 2 and the dam wall raising has again begun in earnest.

Over time it is expected to raise the dam to a final level of 300–320 m RL should the design gain approval by all parties. SRK has not identified any obvious reason such approval may not be forthcoming.

9.6 Acid generation

The closure design for the TSF calls for NAF material to be placed on top. Discussions with the TSF designer and Archi indicate that there have been no acid rock drainage (ARD) issues

experienced with the tailings to date, and that there is not expected to be any acid forming tailings generated by the mine in the future.

9.7 Storage for future tailings

The rate of waste rock production at Toka Tindung Gold Mine currently exceeds the capacity increases afforded by any raise in the TSF. As a result, the TSF has been subject to constant raising since 2011 in order to provide sufficient space for the storage of tailings.

The density of the stored tailings in 2012 was about 0.6 t/m3, whereas the design assumed a value between 0.8 and 1 t/m^3. In a 2012 audit report, an independent consultant considered that this lower density to be due to poor water management in the TSF, but also possibly linked to mineralogy and fineness of grind (Coffey, 2012). This lower density causes the life of the TSF to be greatly reduced. Fortunately, the density has improved since that time, with greater depths of deposition promoting greater degrees of consolidation of the tailings (CMW Geosciences, 4 July 2018).

9.8 Groundwater monitoring

Groundwater monitoring is carried out at Toka Tindung Gold Mine. Analysis of the water quality from the groundwater bores located in proximity to the TSF however indicates that the total dissolved salts (TDS) values generally exceed the stated limit of 175 mg/l in all boreholes. Furthermore, the Total Cyanide level in the TS01 borehole reached 0.062 mg/l on 04 July 2017, which exceeded the stated limit of 0.05 mg/l (CMW Geosciences, 18 September 2019).

Refer to Section 6 for further details relating to groundwater.

9.9 TSF management

It is evident that some aspects of the Toka Tindung Gold Mine TSF have been managed sub-optimally in the past. Low freeboard was a problem noted in the 2020 audit report. The lack of any spillway at the time was a significant concern. With the more recent construction of the interim spillway between Cells 1 and 2, it is expected that these critical issues are now in hand together with Archi addressing other recommendations for improved engineering and construction aspects, as outlined in Section 9.10, Remediation work plan.

In addition, SRK notes a number of other points:

- Water management previously appeared to be problematic, both in terms of decant water removal, and underdrainage pumping (2012 and 2013 audit reports). Archi advises that a biodiesel-powered decant pump has more recently been set up at the TSF to replace the former electric powered system, and provide more reliable service during power outages.
- Slow installation of embankment monitoring instrumentation and pumping equipment for the decant and underdrainage systems (2013 audit report). Archi advises that considerable effort has been made to address this issue, with an increase in the number of prism stations and use of vibrating wire piezometers.
- One of the two seepage pipes was buried beneath fill for a laydown area, so it is no longer possible to positively identify the water source (2013 audit).

Independent inspections have been occurring each year. SRK understands that these annual inspections will continue into the future. Moreover, it is understood that Archi and its TSF consultant, CMW Geosciences Pty Ltd (CMW), have more recently arranged for a quarterly desktop review of the TSF to take place in addition to the annual audits, which is welcome news. It is expected that this arrangement will enable CMW to maintain a greater awareness of construction progress and operational issues, and exert a greater degree of guidance and control over the construction and operation of the TSF. SRK encourages Archi and CMW to maintain close and regular communications, particularly whenever any climatic, seismic or operational issues or queries should arise in relation to the TSF, the hanging drain and other related infrastructure.

9.10 Remediation work plan

Archi management has committed to the following remediation actions based on SRK's findings and the successful completion of these actions, together with other progressive TSF management plans, are expected to result in an adequate management of the TSF requirements:

- An additional spillway shall be constructed to enable excess water to exit the TSF as per the design (rather than spilling from one internal cell to the other).
- In the interim period, the current spillway shall be widened to enable a 1:1000 year rainfall event to be managed (currently designed/built for a 1:100 event)
- The current hanging drain shall be widened to meet the design requirements (currently has some sections not achieving designed width).
- Review and update of minimum operating freeboard requirements shall be undertaken based on updated ANCOLD (2019) guidelines.
- Calibration shall be undertaken of SPT testing on samples of satisfactorily compacted materials in order to verify the STP bore testing results within the failed clay testing zone results identified in 2018. This calibration would then provide evidence to indicate whether the area has appropriate compaction applied or not.
- Two more shear box tests shall be carried out on the rockfill that is currently being produced at the mine. Furthermore, two more shear box tests shall be carried out every year into the future to verify the shear strength of the rockfill that is being generated as waste rock at that time.
- The stability analysis can be refined with more accurate (and less conservative) material strength parameters once a greater set of relevant test results becomes available. Unless weaker shear strength values are encountered, it is expected that this will enable higher factors of safety to be achieved in future.

9.11 Conclusion

In summary, the Toka Tindung Gold Mine TSF is a major piece of infrastructure that presents some significant risks, and it currently has some issues that require urgent attention. The TSF does not yet have an external spillway that meets the design. Instead, it has recently had an internal spillway constructed as an interim measure, which only allows excess water to spill from one internal cell of the TSF to the other. The TSF is also reliant on the successful operation of a diversion drain which has not been constructed in accordance with its design. This also requires attention. Finally, SRK recommends that the designer's freeboard allowance be checked.

10 Environmental, permitting and closure

10.1 Overview

Archi has implemented EMS systems based on ISO 14001, which are the subject of regular internal and external audits.

Toka Tindung Gold Mine provides an example of sound environmental management in an environment that presents significant challenges, especially with regard to the protection of surface water quality, management of potential acid-forming waste materials and rehabilitation of disturbed areas. The focus of ongoing environmental management at Toka Tindung Gold Mine is on operational support, rehabilitation and mine closure, which is scheduled for completion after 2037 (albeit that operational approval currently extends to 2028). There is no environmental issue considered to pose a major risk in either the short or longer terms.

As at the end of 2020, the total area used for mining activities and supporting facilities within the concessions covered approximately 278 ha in preparation for ongoing and future mining activities at Toka, Blambangan, Araren, Kopra and Alaskar, and associated requirement for stockpiles, roads, erosion control measures and supporting facilities.

Toka Tindung Gold Mine's performance is based on thorough pre-disturbance baseline studies, pre-emptive planning of impact-ameliorating programs and rigorous monitoring and assessment programs, which permit rapid confirmation of compliance with quantitative thresholds and subsequent review and modification of environmental management plans.

Statutory approvals, the primary one of which flows from the Indonesian AMDAL – an environmental impact assessment process – have been obtained in a timely fashion and performance is regularly reported to and discussed with national and local agencies.

A notable change to legislation is the requirement to have river diversions permitted at a regional level (the PUPR, Department of Public Works) from 26 August 2020, instead of at a national level. This new law has only recently been enacted and provides a big step forward to assist in permitting of river diversions. Also, the new Omnibus Law (passed 05 October 2020 and ratified on 02 November 2020), will reduce the bureaucracy and timing of permitting.

10.2 Licensing and approvals

10.2.1 Primary approvals

The Project is required to conform to the laws and regulations of the Minahasa Utara Regency, North Sulawesi Province and the GoI. The principal mining law in Indonesia is the Law on Mineral and Coal Mining 4/2009 (Mining Law) with numerous implementing regulations. The Mining Law replaced an earlier framework whereby mining rights were granted by contractual agreement with the government (CoW), with an area-based Operation Production Mining Business Licence ('*Izin Usaha Pertambangan - Operasi Produksi*' or 'IUP-OP') licensing system. Although a CoW remains valid under the Mining Law, the CoW must be adjusted to align with the relevant mining stage under the MEMR Regulation 11/2018.

Indonesia recently promulgated a new mining law (Law No. 3 of 2020), which significantly amends Law No. 4 of 2009 on Coal and Mineral Mining. The revised mining law is yet to be fully implemented. The revised mining law is supported by a range of government regulations and ministerial regulations, most recently including MEMR Regulation No. 7 of 2020 regarding Procedures for the Granting of Areas, Licensing and Reporting of Mineral and Coal Mining Business Activities. This regulation permits the automatic extension of a CoW and contains obligations for ongoing exploration.

Environmental permits are required prior to the commencement of any mining or construction activities in Indonesia, unless otherwise stated by the Minister for Environment and Forestry (MEF). The following permits are required:

1. **Environmental Impact Assessment (AMDAL)**. The AMDAL defines enforceable environmental and social management and reporting requirements and consists of i) an Environmental Impact Statement (*Analisis Dampak Lingkungan* or ANDAL), an Environmental Management Plan and ii) an Environmental Monitoring Plan (*Rencana Pengelolaan Lingkungan Hidup* and *Rencana Pemantauan Lingkungan Hidup* or RKL-RPL). An AMDAL (2009) and number of AMDAL addendum reports (2015, 2016, 2017) have been produced for the Toka Tindung Gold Mine. The most recent AMDAL addendum for MSM operations was approved on 11 August 2020 (503/DPMPTSPD/SKKL/137). The most recent AMDAL addendum for TTN operations was approved on 14 August 2020 (5O3/DPMPTSPD/SKKL/I40). These consents authorised additional MSM land clearing (to a total of 644.94 ha), additional TTN land clearing (to a total of 277.89 ha), an increase in the area occupied by the MSM TSF (to 98 ha), changes to waste storages (TTN), an increase in plant throughput (to 3,500,000 tpa), approval of dewatering discharge (MSM) and various administrative changes. Under these latest amendments, approval for processing has been extended from 2025 to 2027 and approval for the commencement of post-mining activities from 2026 to 2028.
2. **Environmental Permit (*Izin Lingkungan*)**. The AMDAL and Environmental Permit define the environmental assessment, management and monitoring requirements for the Project. Under Article 50 of Government Regulation No.27/2012, an Environmental Permit remains valid for the term of the business licence, unless a company ceases its activities, amendments are made to government policy, or as a result of changes to the project such as size, duration, environmental conditions or impacts. The Environmental Permit (or AMDAL if issued prior to 2012) is also void if no activities occur within three years of issuance. In all these circumstances a new AMDAL or amendments to existing approvals must be granted by government. Environmental permits (Izin Lingkungan) have been issued for the MSM and TTN operations concurrent with the approval of amended AMDALs in August 2020.
3. '**Clear and clean declaration'** from the Director General of Minerals and Coal, confirmation that mining activities do not overlap. Agreements regarding overlapping tenure must be obtained prior to issue of the 'clear and clean' permits.
4. **CoW or IUP-OP**. The AMDAL and a clear and clean declaration are prerequisites for obtaining an IUP-OP. The CoW so far issued for the Toka Tindung Gold Mine appear to pre-date approvals of the most recent AMDAL amendments and it is not clear to SRK whether updated CoW or IUP-OP consents are required to ensure regulatory alignment.
5. **Borrow Use (*Izin Pinjam Paka* or IPPKH**) for areas within permanent production (*Hutan Produksi Tetap* or HP), limited production (*Hutan Produksi Terbates* or HPT) or convertible

(*Hutan Produksi Dapal Dikonversal* or HPK) production forests. Borrow Use Permits cannot be issued without a clear and clean declaration. Borrow use permits for the MSM and TTN operations were issued in April 2020 (Figure 10-1 and Figure 10-2). These permits appear to authorise exploration (but not mining) activities in specified areas of limited production forest. They do not authorise exploration or mining activities in adjacent area of protected forest (Hutan Lindung or HL).

6. **Compensation for surface rights or land title holders in Non-forest Estate areas** (*Area Penggunaan Lain* or APL). Holders of surface rights or land title are not compelled to accept offers and compensation can be complicated by rights held by extended facilities who may not permanently reside in the area. SRK has no information about the extent to which existing or proposed mining work impinge on land in non-forest estate areas for which land access and compensation agreements may apply.
7. Approval of the Government of Indonesia Feasibility Study (GoI FS)
8. **Annual work and budget plan (*Rencana Kerja dan Anggaran Biaya*, or RKAB**). This precedes several approval and permit requirements for construction and operations. Annual work plans and budgets for the MSM and TTN operations were most recently approved on 31 December 2020. SRK has been provided with the final RKABs for the period 2020/21.
9. **A community development and empowerment (CDE) program** every five years with financial commitments CDE masterplans have been established for the Toka Tindung Gold Mine operations for the period 2019 to 2026. Annual reports on implementation of the CDE plans were lodged with the Ministry of Energy and Mineral Resources in July 2020.
10. **Approval to construct and operate a TSF.** Permission must be obtained from the Minister of Public Works and Public Housing through the Dam Safety Commission under the Republic of Indonesia Government Regulation No. 37 of 2010 concerning Dams. A current approval (number S. 243/ 1 // KLHK / 2020, issued 7 September 2020 is in place for the MSM TSF for the next five years.
11. **Additional subordinate permits** including (but not limited to) Water Use, Wastewater Discharge, Dumping Permit, Hazardous (B3) Waste, health and safety, tailings storage, storage and use of explosives. A range of permits is held by the Toka Tindung Gold Mine operation. SRK notes that the permit relating to storage for hazardous waste will expire in March 2021 and that an application to extend was submitted in 2020 but remains to be approved (regulator site inspection scheduled in early March 2021). Archi holds the relevant permits authorising ongoing discharge of wastewater (including mine dewatering water) from MSM's operations to the Koba (Permit number O5/IPAL/DPM-PTSP/XI/2018) and Pangisan rivers (Permit number 06/IPAL/DPM-PTSP/XI/2018), which are valid for a five year period. SRK has been provided with copies of these permits which specify the maximum elemental levels in each river system including pH, Total Suspended Solids (TSS), copper, cadmium, zinc, lead, arsenic, nickel, chromium and mercury. Data is to be collected daily and reported to the regulator at least quarterly.

Penalties for operating without an Environmental Permit or causing pollution may include administrative and criminal sanctions. Compliance monitoring by both Archi and the government is proactive with the Company formally presenting environmental data to the regulator on a monthly basis as per the AMDAL requirements. The regulator in turn conducts ad hoc audits, (including collecting samples etc.) to confirm the validity of this data. The regulator then certifies the Company

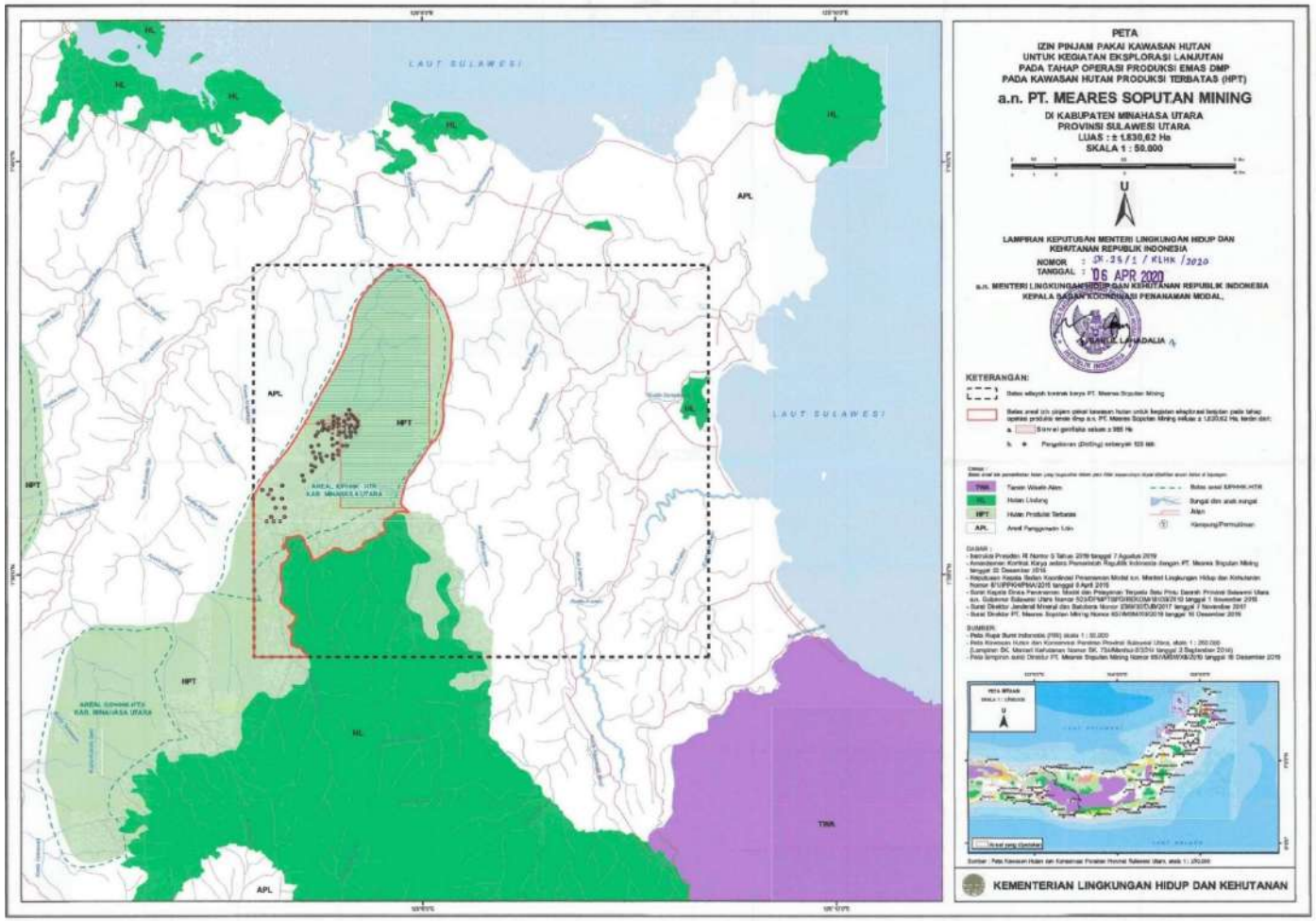
on an annual basis. For the minimum of compliance, MEMR recommends the Company is 'fit to operate' the following calendar year in the annual work plan and budget (*Rencana Kerja dan Anggaran Biaya* or RKAB) process. Should the findings at any stage be found to be non-compliant, the regulator will issue up to three notices for correction. If the Company fails to act, then the operation may be immediately suspended. To date, Archi has not received any such notices.

Active intervention may also occur in cases of community complaints or conflicts of natural resource use. Any such complaint is immediately investigated by the Company according to the grievance procedure (as highlighted by the recent Lorax audit).

Toka Tindung Gold Mine operates under a comprehensive EMS, which is periodically assessed by third party auditors. Based on SRK's review, the Toka Tindung Gold Mine operation holds valid approvals for its current operations and generally complies with applicable statutory requirements relating to environmental management of its operations. This is corroborated by a recent third-party audit of Toka Tindung Gold Mine's EMS (SGS, 2020).

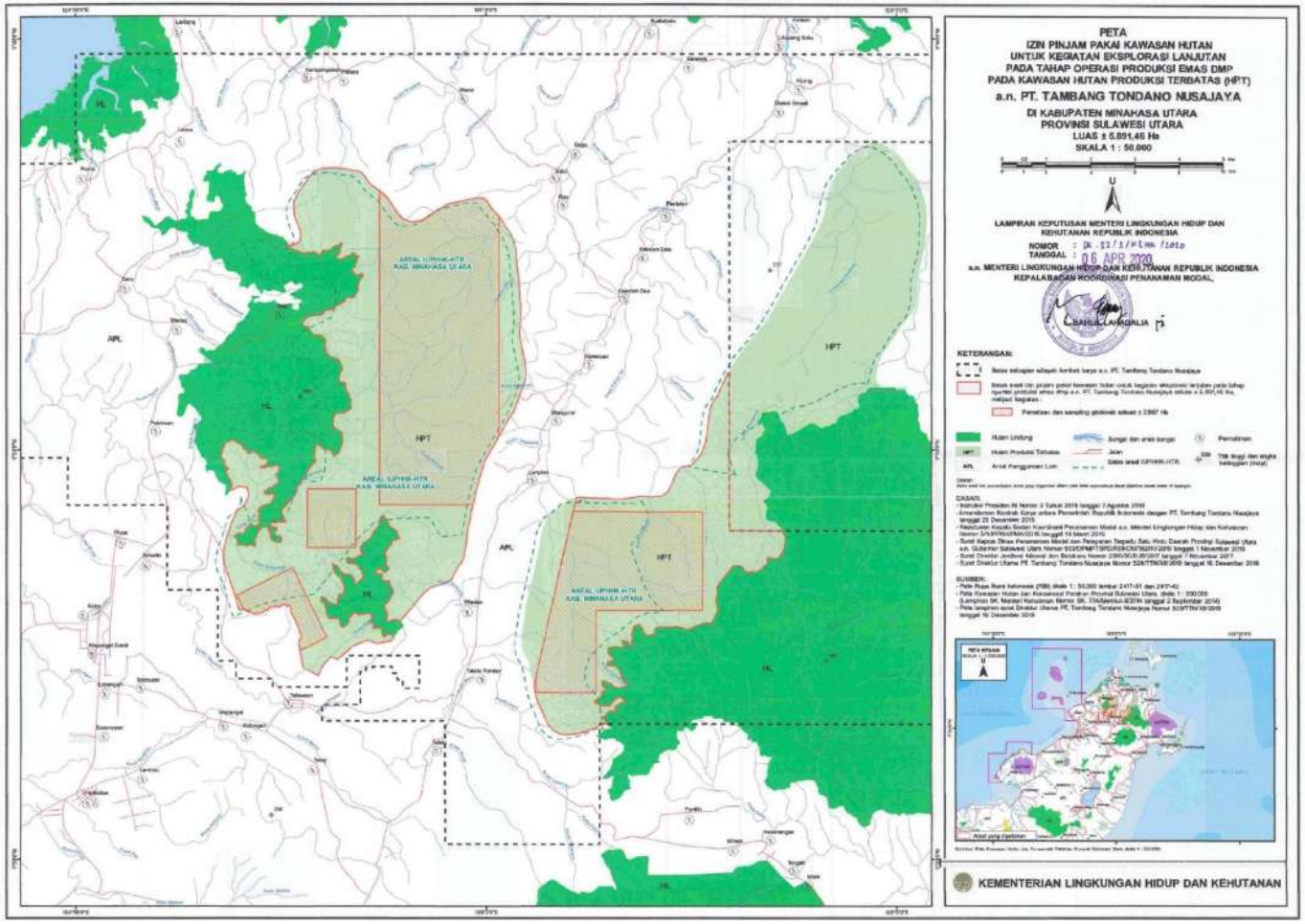
One aspect not addressed in the operation's EMS relates to greenhouse gas emissions and climate change. SRK confirmed that the Toka Tindung Gold Mine operation does not yet actively monitor or report on all of its greenhouse gas emissions (including emissions associated with land clearing). The operations have not yet conducted a climate change risk assessment, as required under the Equator Principles 2020 and described in the Task Force on Climate-related Financial Disclosures Recommendations of the Task Force on Climate-related Financial Disclosures (2017). The recent (January 2021) ESG audit conducted by PT Lorax recommended that Archi establishes targets and commence reporting of these values prior to any listing on an international stock exchange.

Figure 10-1: Extent of approved MSM exploration in limited production forest (April 2020)



Source: Indonesian Ministry of Environmental and Forestry, 2020

Figure 10-2: Extent of approved TTN exploration in limited production forest (April 2020)



Source: Indonesian Ministry of Environmental and Forestry, 2020

10.3 Environmental management approach

10.3.1 Environmental management system

Archi's environmental objectives are supported by a systematic environmental management system (EMS) and the competency of its personnel within its Environmental Department. Collectively, Archi's EMS is indicative of good industry practice.

Archi has developed and communicated an Environmental Policy and has adopted the ISO 14001 EMS system.

To streamline its regulatory and risk compliance processes, Archi use INX software, which enables obligation, stakeholder and environmental management, as well as capture and analysis of environmental data and stakeholder communications. INX is a new generation, web-based management system that replaces disparate systems with a single integrated database to manage processes.

The EMS is supported by regular meetings, corrective action plans and follow-up monitoring towards continual improvement of environmental performance. In addition, the Company conducts regular Environmental Risk Assessments and internal and external audits (including most recently in October 2020 by Lloyds Register).

Highly competent environmental professionals are in place and appropriately scoped to their respective positions and report within an appropriate departmental structure to senior management (with a designated Environmental Manager reporting directly to the President Director, who is also an environmental engineer by profession).

The Company has also developed a cyanide management plan (referencing the International Cyanide Code) which has been implemented and supported by regular inspections and recorded audit procedures.

During 2019, Archi successfully maintained ISO14001:2015 accreditation for its EMS and ISO45001:2018 accreditation for its Management System through *re-certification, audit surveillance activities*.

The efficiency of the EMS is highlighted by several environmental and conservation awards bestowed by government agencies (such as the MEMR and MEF) responsible for the supervision of the Toka Tindung Gold Mine (refer Section 10.4.1).

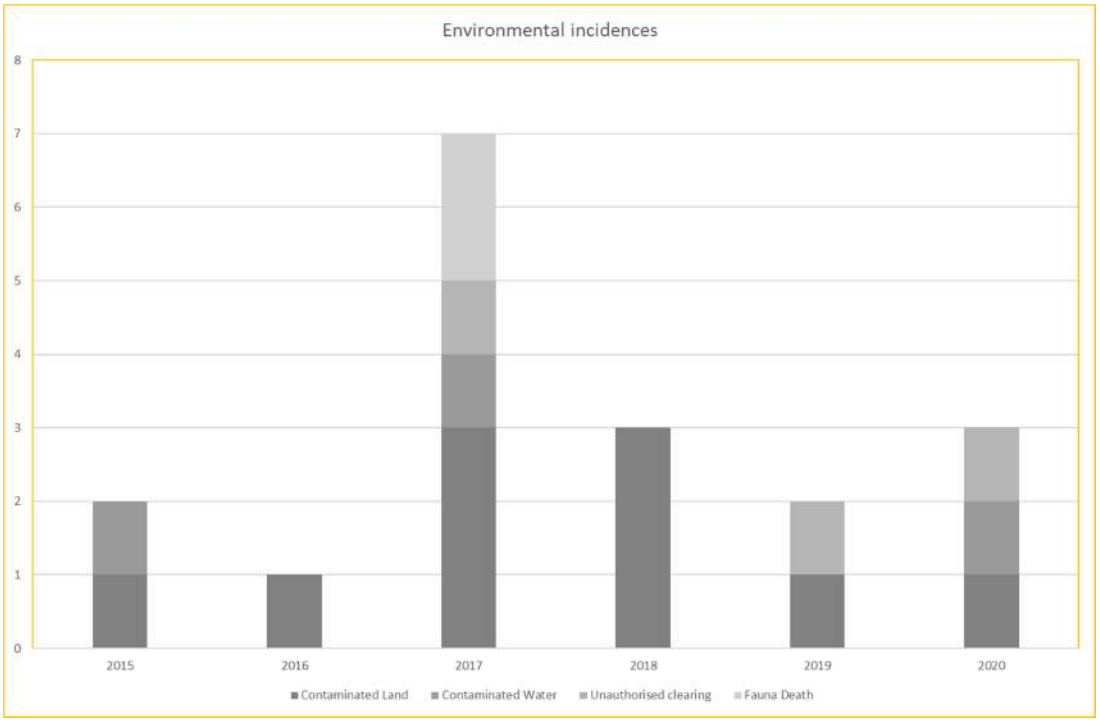
10.3.2 Land use and biodiversity

Archi has developed, implemented and communicated a Biodiversity Policy and Action Plan supported by regular monitoring and reporting of biodiversity with a focus on endangered species (as specified by the International Union for Conservation of Nature's Red List and Indonesian Conservation Regulations).

There is also strong internal support for land use and biodiversity issues as demonstrated by the Senior Supervisor for Biodiversity and Reclamation position within the Environmental Department.

The Company documents and regularly reports on environmental incidents/accidents and associated mitigation measures. In total, there were eighteen environmental incidents documented over the period 2015 to 2020, but none of these were classified as “Reportable” by the regulator and corrective actions/clean-up have been implemented (with the assigned Residual Risk Category: 1 – insignificant and 2 – minor) - Figure 10-3. At the time of writing, two unauthorised clearing events remained with a Residual Risk rating of 3 Moderate and remained in progress. SRK notes that six of these related to minor vehicular oil spills and one to the bursting of the tailings pipeline midway between the plant and TSF. In all these cases, the spillages were cleaned up and disposed of correctly.

Figure 10-3: Environmental incidences at Toka Tindung Gold Mine over the period 2015–2020



Source: Archi Management, 2021.

Progressive reclamation of WRD and TSF embankment is being conducted to restore the terrestrial and aquatic biodiversity at the earliest opportunity consistent with best practice.

Reclamation activities include restoration of former mining lands, topography contouring, re-establishment of soil cover and revegetation. Reclamation and revegetation is focussed on former mine/pit openings, WRDs, topsoil storage areas, former mining and non-mining roads, sediment ponds/erosion control and various supporting facilities. To support its reclamation efforts, Archi maintains onsite plant nurseries as well as procuring forestry plants and seeds from communities surrounding the mining area. In addition to husbandry and planting, Archi carried out maintenance through crop fertilisation, watering, weeding and pest/disease control.

In 2019, the number of seedlings/seeds planted was 11,293 stems, with Archi’s stock at 5,482 stems covering a wide variety of local/non-local plants, hard timber and multipurpose tree species. The plant stems include Kelapa, Nantu ("Nyatoh"), Ketapang, Sengon Laut, Jabon Putih and Jabon

Merah, Mahogany and Walantakan.Plant seeds include Rambutan, Mango, Matoa, Mahogany and Durian.

Revegetation in reclamation areas uses a variety of fast-growing plants, including local plants, as well as cover crops. This is designed to increase the diversity of plant species and, together with good plant growth accompanied by intensive maintenance, expedite site remediation and environmental recovery efforts. Potential impacts resulting from these activities include changes in terrestrial flora and fauna, as well as the broader community aspects such as improving community attitudes and perceptions towards mining.

Reclamation activities are carried out progressively on disturbed lands that are no longer used during mine or processing operations referring to Archi's Reclamation Plan, which has been approved by the relevant agencies. This plan also requires that the remaining disturbed land that is required during the ongoing operations will be reclaimed following the completion of mining.

Total land area used for mining activities and total supporting advice during production operations up to the end of 2020 is an area of ± 277.89 ha. From this total, the area that will be reclaimed during production operations covers an area of ±143.5 ha and at the post-closure ±134.39 ha. At the end of the mining activities, former mine openings (open pits) are expected to remain open and will cover an area of ± 49.08 ha. In detail, these include Araren South Pit covering an area of ± 11.74 ha, Blambangan pit covering an area of ± 12.70 ha, Pit Kopra 3 covering an area of ± 3.93 ha and Kopra 4 covering an area of ± 20.71 ha, with a further 277.89 ha attributable to Araren South and Alaskar.

10.3.3 Energy use and greenhouse gas emissions

Electricity used at Toka Tindung Gold Mine is either purchased from the national grid or generated onsite from the various installed biodiesel generators. During the period 2016–2020, the Toka Tindung Gold Mine consumed 519,884 MWh of electricity, of which 76% (or 396,510 MWh) was generated by diesel generators and 24% (or 123,374 MWh) was purchased from the national grid (PLN). Only minor energy was derived from renewable sources and used primarily for remote lighting and pumping purposes.

Electricity used (which broadly equates to 0.54 MWh/oz gold) and carbon dioxide emissions (0.03 tonnes CO_2/oz gold) as a function of gold ounces produced are higher than the average, reflecting the high water pumping rates and fine grinds required by the geology, compared to other mines in Indonesia (i.e., Toka Tindung Gold Mine is in the lower 50 percentile).

Archi has made a commitment to electrify all of its major installed biodiesel pumps over the 2020–2021 period. Furthermore, Archi has entered into a JV agreement with Ormat Technologies LLC, a global geothermal specialist company, to investigate the feasibility of harnessing geothermal waters within the Toka Tindung Gold Mine area in order to generate electricity. This project remains in the very early stages of assessment.

The company records emissions from the installed biodiesel generators but does not have a complete greenhouse gas (GHG) inventory, as emissions from movable sources (e.g. mining fleet, light vehicles, etc.) are not documented. For the emissions recorded (CO_2, CH_4 and NO_2) there have been reductions over the past four years consisting of an 11% reduction in 2017, 61%

reduction in 2018, 119% reduction in 2019 and 8% reduction in 2020. However, Archi does not have a documented GHG emissions reduction plan or numerical targets in place as yet.

10.3.4 Water Use and management

Over the period 2016 to 2020, total water use for the Toka Tindung Gold Mine operations was 17.3 Mm^3, equating to 94 m^3/oz of gold produced. In total, 92% of this water (or some 16 Mm^3) was recycled from within the mine water management system (predominantly the TSF and Toka pond), with less than 10% (or some 1.3 Mm^3) being extracted from river or surface water sources, demonstrating sound water conservation strategies and minimising impacts on the quantity of water resources in the local environment.

Archi monitors water quality in the surrounding rivers, principally in the upper and lower reaches of the Koba River, upper and lower reaches of the Maen River, the lower reaches of the Pangisan River, and the Marawuwung River. To date, the water qualities have been better or equal to the permitted levels in terms of 'delta' salts loadings.

More recent baseline testing in the Talawaan area by Lorax found that, in general, water quality has not been materially impacted by the previous artisanal miners. Follow-up work has commenced for a Feasibility Study to confirm if mercury and cyanide is present in the waterways and remnant tailings areas of the artisanal miners at Talawaan.

Groundwater quality is also monitored around the TSF area, mine area and outside the mine at Toka WRD (GW 01 and 02), Eastern TSF (GW 03), Toka WRD (GW 04), between Koba Sediment Pond and Toka Pit (GW 06), Koba Quarry (GW 07), Hanging Drain TSF (GW 28 and 29). In addition, groundwaters are monitored at the Winuri, Pulisan, Kalinaun and Rinondoran villages. To date, the water qualities have been better than or equal to the permitted levels in terms of 'delta' salts loadings.

10.3.5 Quality of the receiving environment

Land disturbance

The status of Archi's land clearing and reclamation activities at Toka Tindung Gold Mine as at December 2020 are presented in Table 10-1 and Table 10-2.

Table 10-1: Land clearing progress – December 2020

Company	Target 2020 (ha)	This month (ha)	Year to date (ha)	Progress to date (ha)	Progress
Land clearing					
MSM	27.63	3.60	29,68	489,162	107.4%
TTN	28.79*	0	18,77	189,32	65.2%

Note: * Land clearing plan has already been revised in 2020 and has received approval from MEMR

Table 10-2: Reclamation and re-disturbance progress – December 2020

Company	Target 2020 (ha)	This month (ha)	Year to date (ha)	Progress to date (ha)	Progress
Reclamation					
MSM	14.41	0	5.94	96.22	42%
TTN	3.85*	1,09	1.54	73.16	40%
Re-disturbance of reclamation areas					
MSM	14.71	0.05	10.67	46.17	72.5%
TTN	16.96	0.76	6.48	26.20	38.2%
Total reclamation area after re-disturbance					
MSM	96.22 ha				
TTN	73.16 ha				

Note: * Reclamation plan has already been revised in the revision of RR 2020 and has received approval from MEMR.

Wastewater

Archi's environmental team conduct regular (daily and monthly) monitoring of wastewater discharge points (Pangisan River DP02 and downstream of Pangisan River PS02, WQ07), which are required to comply with mine wastewater discharge standards (KepmenLH NI.202/2004). Monitoring results confirm that the surface waters from the operation generally comply with environmental quality standards but that TDS, temperature and boron levels may be elevated in spring water (which is not applicable to KepmenLH 202/2004 (but are still monitored for baseline purposes).

Water quality at the monitored sites for the last four months of 2020 are presented in Table 10-3 and Table 10-4, while longer term trends in TDS at PS02 are shown in Figure 10-4.

Table 10-3: Quality of waste water discharged at Pangisan pond (DP02)

Parameter	Unit	KepMenLH No. 202 Tahun 2004 Lampiran II	DP02			
			Sep-20	Oct-20	Nov-20	Dec-20
Total Dissolved Solids	mg/L	N/A	4,570	3,720	4,240	4,230
Total Suspended Solids	mg/L	200	19	12	14	14
Alkalinity – Total	mg/L	N/A	42	48	50	52
Temperature	^{U}C	-	41	42	42	43
pH		6–9	7.94	8.04	7.96	8.02
Arsenic (As)	mg/L	0.5	0.06	0.005	0.052	0.07
Cadmium (Cd)	mg/L	0.1	<0.0001	<0.0001	0.0001	0.0001
Chromium (Cr)	mg/L	-	<0.001	<0.001	<0.001	<0.001

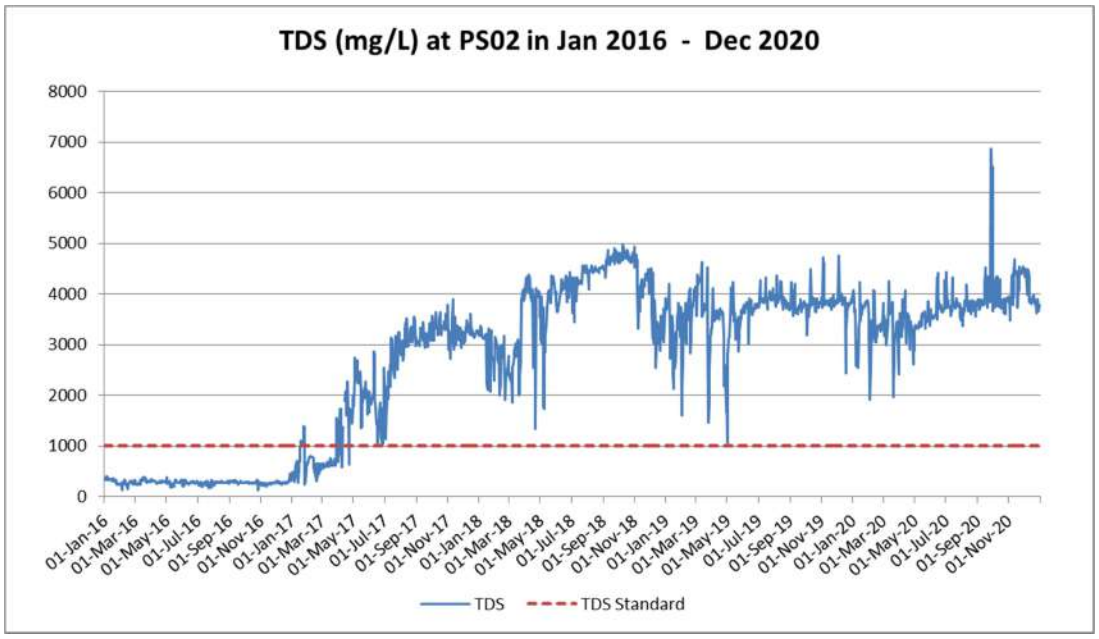
Parameter	Unit	KepMenLH	DP02			
Copper (Cu)	mg/L	2	<0.005	<0.005	<0.005	<0.005
Lead (Pb)	mg/L	1	<0.001	0.003	<0.001	<0.001
Mercury (Hg)	mg/L	0.005	<0.00005	<0.00005	<0.00005	<0.00005

Source, Archi PFS 2021

Table 10-4: Water quality of Pangisan River (upstream and downstream) compared with the surface water quality standard

Parameter	Unit	PP No.82 Tahun 2001 Kelas II	PS02				WQ07			
			Sep-20	Oct-20	Nov-20	Dec-20	Sep-20	Oct-20	Nov-20	Dec-20
Total Dissolved Solids	mg/L	1,000	4,300	3,690	4,230	3,960	4,760	3,900	4,100	3,380
Total Suspended Solids	mg/L	50	24	13	1	5	19	14	2	13
Temperature	^{U}C	+-3^{U}	36.7	38	38	42	33.9	33.2	33.6	34
Conductivity	uS/cm	N/A	5,940	5,800	6,110	5,980	5,890	5,700	6,030	5,210
Hardness (calc.)	mg/L	N/A	1,230	885	760	929	1,120	863	768	807
pH		6-9	7.82	7.38	7.79	8.11	0.021	7.81	7.75	7.69
Arsenic (As)	mg/L	1	0.0640	0.0510	0.0480	0.0620	0.0560	0.046	0.047	0.047
Boron-Dissolved	mg/L	1	3.29	2.44	2.45	3.61	3.24	2.46	2.48	3.01
Cadmium (Cd)	mg/L	0.01	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium Hexavalent (Cr6+)	mg/L	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper (Cu)	mg/L	0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead (Pb)	mg/L	0.03	<0.001	0.002	<0.001	0.005	<0.001	0.002	<0.001	<0.001
Mercury (Hg)	mg/L	0.002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Figure 10-4: TDS in PS02 from 2016 to 2020



Source: Archi PFS, 2021

Aquatic biota sampling is proposed in the future.

Groundwater quality in the vicinity of the TSF is also monitored and shows that several parameters exceed the baseline limits: TDS, chlorine (Cl), fluorine (F), nitrate nitrogen (NO_3-N), manganese (Mn), selenium (Se), zinc (Zn) and lead (Pb). The results of groundwater quality testing from bore holes (GWs) in the TSF area have been evaluated by consultants in order to establish that there is no impact (seepage) from the TSF into the groundwater and leaching pond (KS01 and TS01). Data presented to SRK demonstrates that all parameters were below the stipulated standard requirements in December 2020.

Air

Ambient air quality monitoring is also conducted by Archi. The results of gas and dust in May 2020 are presented in Table 10-5. The four parameters analysed remain within the quality standard thresholds (namely PP No. 41 Year 1999, on Air Pollution Control).

Table 10-5: Results of Gas and Dust Analysis at Toka Tindung Gold Mine

No	Parameters	Unit	Analysis Results		BM PP No. 41 Yr. 1999
			PS 01	PS 02	
1	Sulfur Dioxide (SO_2)	µg/Nm^3	18.16	19.14	9,000
2	Carbon Monoxide (CO)	µg/Nm^3	1,785	1,942	30,000
3	Nitrogen Dioxide (NO_2)	µg/Nm^3	23.18	28.14	400
4	Particle (Dust)	µg/Nm^3	36.6	42.3	230

Source: Primary Data (Analysis Results) May 2020

Noise

Routine noise and vibration monitoring is carried out by Archi's environmental department, principally focused on air blasting and air ambient measurements for areas exposed to mining activities. SRK has been provided with monitoring results that indicate Toka Tindung Gold Mine largely met the requisite environmental quality standards (i.e. PVS Standard (mm/s) SNI 7571:2010 and Noise Level Standard (110 dB) SNI 7570:2010) at both residential and industrial areas monitored over the period July to December 2020.

Acid generation potential

SRK is advised by Archi that, in general, the acid generation potential of the Toka Tindung Gold Mine ores is low due to the limited sulphide content of the mineralisation encountered to date.

Rocks from the Toka Tindung Gold Mine pit have been classified as neutral material (Barren, B), NAF or potentially acid forming (PAF). PAF rocks are further classified as low capacity (L), medium capacity (Moderate Capacity, M) and high capacity (High Capacity, H).

10.3.6 Tailings and waste management

Archi has implemented procedures to monitor and control the entry of Hazardous and Toxic Waste (B3) materials into the mine area, storage, and use prior to waste disposal. Generally, every three months, such waste types are collected from temporary shelters, and transported by licensed collectors to registered B3 waste management companies that have been granted a permit.

Waste management of waste from production and production support activities is achieved through separation based on the form and characteristics of the waste material:

- Tailings are disposed of in the TSF.
- Materials such as fabric liners, filters and contaminated materials, hoses, batteries, freon tubes, hydrocarbons, chemical, sludge, oil, grease, fat, cartridges, glass, pesticides, disinfectants and packaging are typically placed into sealed containers, drums or tanks for storage at the temporary waste warehouse (TPSLB3) prior to periodic (maximum 180-day storage) disposal.
- Various waste materials are incinerated at two incendiary rooms with combustion temperatures ranging from 800˚ to 1000˚C.

The Toka Tindung Gold Mine TSF is a downstream construction, representing the most physically stable type of TSF dam and overburden is stored in engineered WRDs. The dam design is based on ANCOLD (2019) guidelines and permitted by the Dam Safety Committee at the Ministry of Public Works. The TSF dam undergoes regular inspections by the Design Engineer and its operations are compliant with the Archi's Tailings Permit, issued by the MEF. Total tailings generated over the period 2011 to 2020 is 11.6 t/oz gold produced, which is typical for this scale of mining operation.

Domestic waste is derived from the daily activities of employees and contractors on the mining site. It is typically in the form of solid waste (garbage) and liquid waste from sanitation.

Solids are sorted by source by separated indoor and outdoor garbage cans. Organic and inorganic waste is collected in temporary storage garbage. Each day, approximately 1.2–1.5 m^3 is produced

as domestic waste, of which about 0.4–0.5 m^3 is inorganic waste. Treatment of waste that has been sorted is carried out as follows:

- Organic waste (food waste and other) is sent to landfill to be decomposed naturally. Some wood and pallets of non-B3 goods that are still feasible to use will be sorted for re-use.
- Non-organic waste (plastic, paper and non-B3 packaging) is partially recycled and some sent to landfill. Scrap metal is sent for recycling.

Domestic liquid waste from Maesa camps, contractor camps, offices and others, is managed through onsite septic tank systems and sewage treatment plants. The domestic wastewater treatment is designed to prevent river water pollution and soil contamination.

Wastewater contained in the TSF is reused for process plant needs. Wastewater is treated by adding coagulants to remove remnants of fine solids in water, with solid particles pumped to the sludge disposal tank, while the upper flow (clear water) is pumped to a decant tank to be reused as process water or flowed to the Koba and/or Toka settling ponds before being released into the surrounding environment through the wastewater removal point (DP1) on the Koba River.

Given the high annual rainfall (2,000 to +3,000 mm), sediment ponds have been constructed to accommodate and manage run-off water from disturbed areas and dewatering of pits.

- Wastewater caused by mining activities in the northern area of the Toka Tindung Gold Mine is managed in the Koba ponds and Toka ponds, which are then flowed through DP01 release points into the Koba River.
- Wastewater due to mining activities in the southern area of the Toka and Batupangah projects are managed in Pangisan ponds before being released/dumped into the Pangisan River through the DP02 release point.
- Spring water pumped from the Araren North pit (MSM) and Araren South (TTN) has a fairly high temperature >60˚C with discharge ranging from 3,000–6,000 m^3/h flowed/transferred through the pipeline system (polypipe) to the former Araren East mine pit then pumped back and flowed using pipes and open channels to the cooling shingles and Pangisan ponds to be further managed to meet the quality wastewater standards before being released/dumped into the Pangisan River through the DP02 release point.

To increase the effectiveness of high temperature wastewater management, Archi plans to add cooling circuits and new deposition ponds downstream of the Pangisan pond and to relocate the Pangisan pond outlet.

To date, the water qualities have been better than or equal to the permitted levels in terms of ‘delta’ salts loadings.

10.4 Environmental performance

10.4.1 Environmental Compliance Certification and Awards

In line with Archi's commitment to managing the environment aspects of its mining and processing operations at Toka Tindung Gold Mine, the Company has received several awards in the environmental field as outlined in Table 10-6.

Table 10-6: Environmental Compliance Certification and Awards received by Archi's Toka Tindung Gold Mine

Awards and Recognition	Periods	Awarded by
PROPER (Blue Rating) in recognition of Environmental Management	2012-2020	Ministry of Environment of Indonesia
ADITAMA (Gold Award) in recognition of Mining Environmental Management	2013-2017	MEMR
UTAMA in recognition of Mining Environmental Management (presented every two years)	2017, 2019	MEMR
ISDA Award (Gold) in Clean Water for Community	2017	Corporate Forum for Community Development
CSR Best Practice (Platinum)	2017	Coordinating Ministry for Human Development and Culture
IMA Award (Second Place) in Community Empowerment	2019	Indonesian Mining Association
IMA Award (Third Place) in Environmental Management	2019	Indonesian Mining Association
IMA Award (Third Place) in Largest Domestic Spending	2019	Indonesian Mining Association
ADITAMA and UTAMA in recognition of Mining Environmental Management	2019	MEMR
PRATAMA (Bronze Award) in recognition of Conservation Mineral Management	2019	MEMR
CSR Best Practice (Platinum Award)	2019	Corporate Forum for Community Development
Indonesian CSR Award (Platinum) in Accessibility of Clean Water in Supporting the Development of Special Economic Zones based on the Tourism Sector	2019	Corporate Forum for Community Development
Indonesian CSR Award (Platinum) in Reduction in Mortality and Malnutrition at Integrated Posyandu in Achieving Indonesia's Golden Generation	2019	Corporate Forum for Community Development
Indonesian CSR Award (Platinum) in STEM-based School Capacity Building and International Scholarships towards the Creation of Superior Indonesian Human Resources (HR)	2019	Corporate Forum for Community Development
Indonesian CSR Award (Platinum) in STEM-based School Capacity Building and International Scholarships towards the Creation of Superior Indonesian HR	2019	Corporate Forum for Community Development
Indonesian CSR Award (Platinum) in Capacity Development in the Food Estate 4.0 Area based on Toka Tindung Gold Mine Reference of Integrated Ecofarming Development	2019	Corporate Forum for Community Development

Source: PT Lorax Indonesia, 2021

10.4.2 ESG scorecard

In February 2021, PT Lorax Indonesia (Lorax), an Indonesian environmental consultant, issued its independent assessment of the environmental, social and governance (ESG) performance at Archi's Toka Tindung Gold Mine operations.

This assessment adopted the framework of the Precious Metal Scorecard developed by Credit Suisse, with some modifications for its application to the Toka Tindung Gold Mine. Lorax's approach was based on an assessment of both qualitative and quantitative (specified metrics) for the Company's ESG performance relative to applicable Indonesian laws and regulations, international best practice and direct comparison against other Indonesian and International publicly listed metal mining companies operating in Indonesia.

ESG components assessed and the results of Lorax's assessment are presented in Table 10-7. According to Lorax's ESG scoring criteria, "Outperform" indicates "complies with best International practice and is in the top 20 percentile of mining companies in Indonesia", "Exceed" indicates "partially complies with best International practice and is in the top 50–80 percentile of mining companies in Indonesia and "Improvement Opportunity" indicates "is in the bottom 50% of mining companies in Indonesia". All three ratings indicated compliance with applicable Indonesian laws and regulations.

Table 10-7: Lorax's ESG Scorecard – Toka Tindung Gold Mine

Category	Sub-Component Score	Component Overall Score
Environmental		
EMS and Technical Competency	Outperform	Exceed
Land Use and Biodiversity	Outperform	
Energy Use and Greenhouse Gas Emissions	Improvement Opportunity	
Water Use	Exceed	
Tailings Dam and other Waste Management	Exceed	
Mine Closure and Disclosure	Exceed	
Social		
Safety Management and Employee Education	Exceed	Outperform
Community Relations	Outperform	
Local Employment and Procurement	Outperform	
Employee Relations and Diversity	Outperform	
Governance		
ESG Reporting	Improvement Opportunity	Exceed
Board of Directors	Exceed	
Management Compensation	Outperform	
Anti-Corruption Policy	Exceed	

Source: Lorax (2021)

10.5 Mine closure, planning and financial provision

Progressive reclamation plans and financial guarantees are in place for operations on both concession areas covering the period 2018–2022.

Indonesian mining operations such as Toka Tindung Gold Mine are required to operate under an approved progressive reclamation plan, for which a financial guarantee must be lodged. This lodged amount is designed to cover reclamation during both the production and post-mining phases of the operation, with the amount of the guarantee to be approved by the appropriate issuing authority. In addition, mine and processing plant operators are required to submit annual reclamation plans, carry out production stage and post-mining reclamation and report to the relevant authorities on the implementation and execution of these activities.

The Toka Tindung Gold Mine Closure and Rehabilitation Plan (MCRP) references the work program outlined in MEMR-compliant Feasibility Study documents in order to determine the location and size of the disturbance areas. The MCRP is required to address three obligations, namely; the physical remediation and rehabilitation of the mine, engagement with the surrounding community to create post-mining opportunities for a 5-year period following the cessation of mining operations and environmental monitoring for 5-years post closure. These plans are updated annually to match progressive updates to the AMDAL and MEMR-compliant Feasibility Studies.

As a result of the exploration successes and incremental increases in the processing plant capacity, Archi submitted MCRPs for the MSM and TTN CoWs in August 2018 and January 2019, respectively. These submissions were supported by the most recent AMDAL and MEMR-compliant Feasibility Study documents for each concession.

The scope of works for the TTN and MSM MCRPs for physical remediation and reclamation include:

- reclamation of the existing mined out pits, gold processing plant, TSF, workshops, warehouses, administration buildings, major drainage infrastructure and camp accommodation
- reclamation of Batupangah, Palajaran, Kopra and Blambangan WRDs
- reclamation of mining facilities including mine roads
- reclamation of the areas around the Pangisan sediment pond and the Toka sediment pond
- reclamation of Araren, Kopra, Blambangan and Toka open pits, including the construction and maintenance of drainage structures to discharge water back into the natural waterways
- reclamation of all settling ponds and drainage systems that are no longer required
- reclamation topsoil dumps once the topsoil has been removed to rehabilitated areas
- remove fixed plant and infrastructure – dismantle and remove from the mine site conveyors, mills, crushers, tanks, generators, buildings, communication towers, offices, scrap materials, warehouse stock
- remediation of contaminated land and soil from hydrocarbons and other chemicals
- reclamation of land within the processing plant facilities, workshop facilities and other administration areas
- rehabilitate mine access roads within the operation used for non-mining purposes

- demolition of all workshop facilities, offices, magazines, security posts, accommodation and Rundor Port
- revegetate all land and maintain and monitor for a period of 5 years after mining.

The community engagement obligations for the TTN and MSM concessions outlined in the MCRP require:

- consulting with stakeholders (government, residents from surrounding communities, non-governmental organisations and other community groups or stakeholders impacted by the mine closure including local businesses) to obtain their inputs or aspirations that would be a material consideration in the post-mining era
- developing mechanisms to reduce the negative impact of social and economic impact on communities around the mine due to mine closure
- Post-mining plans will be adjusted/integrated with the Master Plan for Community Empowerment and Development 2018–2033.
- Post mining, Archi will employ adequate HR and other resources in order to achieve the post-mining objectives agreed with the stakeholders.
- Regular coordination and consultation with stakeholders through ongoing monitoring and reporting activities.

The following environmental monitoring activities will be undertaken at multiple locations/areas/villages for 5 years post-mining:

- surface water quality
- groundwater quality
- seawater quality
- ambient air quality
- flora and fauna
- community health
- soil quality
- sediment quality
- land stability.

Subsequent to the initial submission of the 2018 MCRPs MSM and TTN, the throughput of the processing plant was increased through the addition of a new mill and additional drilling resulted in new strike extensions at Araren, with subsequent modification of the mine plan and schedule to reflect increased production and larger mine footprint. This triggered an updated AMDAL and MEMR-compliant Feasibility Study, which in turn triggered the requirement for an updated MCRP.

Multiple revisions of the MCRPs for the both concessions were lodged before the final submissions were lodged in June 2020.

In July 2020, Archi received the letter of approval from the MEMR for the revised TTN concession MCRP. This letter acknowledged the larger disturbance area than initially submitted and increased the overall value, most noticeably in the rehabilitation of the former mine site following the addition

of the larger Araren open pit area. MEMR also imposed a higher post-mining obligation to engage with communities regarding post-closure business opportunities.

In August 2020, the MEMR approved the revised MSM concession MCRP. The budgets and guarantees for the MSM concession are significantly higher than for TTN, reflecting its significantly larger disturbance footprint, the location of the processing plant and Archi's planned mining and waste dumping on this concession. The reduction in the values of the MSM MCRP between 2018 and 2020 reflect the ongoing focus of Archi's rehabilitation efforts and a shift in the mine plan towards the TTN concession, with greater volumes to be derived from the Araren and Alaskar open pits.

The following budgets and bank guarantees are now applicable (Table 10-8).

Table 10-8: Applicable Closure Budget and Bank Guarantees

Concession	As per the 2018 MCRP		As per the 2020 MCRP		Environmental Bank Guarantee (US$ M)
	MEMR approved budget (US$)	Bank guarantee (US$)	MEMR approved budget (US$)	Bank guarantee (US$)	
TTN	$1,565,552	$1,565,552	$4,088,005	$1,565,552	0.6
MSM	$9,506,880	$7,289,321	$8,496,635	$7,289,321	0.8

Source: Archi 2021, MEMR 2020

Of the total land disturbed during mining operations (799 ha), 705 ha will be left at closure and will be rehabilitated (representing 88% of the disturbed land), and 70 ha (9%) will represent the open pits (which cannot be reclaimed to their initial landform) and will be managed as pit lakes in the post-closure period.

The increase in the 2020 Ore Reserves will not be recognised by the MEMR until it is supported by an updated AMDAL and an MEMR-compliant Feasibility Study, which Archi has proposed to commence in 2021.

Archi is well experienced in developing MCRPs and working with the MEMR to gain approval based on the last two submissions for TTN and MSM.

The 2020 approved MCRP has a combined total value of US$12,584,640. At the time the 2020 submissions were approved, the mine plan envisaged a total volume (i.e. ore and waste) to be mined of 442 Mt (SMGC, 2019). The 2020 Ore Reserve as outlined elsewhere in this report estimates the volume of ore and waste to be mined at 650.9 Mt, an increase of approximately 150%.

After review of the proposed mine plan and schedule, the current status of rehabilitation of the out-of-pit dumps and the availability of in-pit dumps, Archi has included a provision of US$25 M in its financial model. SRK considers this to be a prudent allowance based on the current understanding of the defined Ore Reserve base as at 31 December 2020.

11 Social or community impact

11.1 Introduction

The population in East Likupang subdistrict is reportedly 15,733 people, with a male-female ratio of almost 1:1 (data of East Likupang District, Year 2015). East Likupang district is part of North Minahasa Regency with a population of 198,084 people (data of North Minahasa Regency in 2015).

The dominant ethnicities in the surrounding villages to the Project are Minahasa, Sangir and Mongondow (one village) Bolaang. Historically, the Minahasa ethnicity was indigenous, but their arrival was almost simultaneous with the arrival of Sangirs in places. In general, all communication is in the Manado Malay dialect.

Most of the population has an elementary school education with a lower percentage achieving a higher level of education, with only some 2% of the population graduating from college or university. This is typical of rural households that are required to meet the need for their children's education costs through government subsidies, especially elementary and junior high school education levels (AMDAL 2009).

Public health and sanitation is actively monitored. Key medical conditions recorded in the surrounding villages include respiratory infections, hypertension, muscular/ligament ailments, gastritis and dyspepsia (indigestion), as well as other bacterial and intestinal diseases. Home sanitation rates are modest with some 27.9% of houses not having an installed toilet.

The pattern of land ownership in North Minahasa Regency follows a road that connects villages with Manado-Bitung-Tondano-Amurang-Kotamobagu.

To the southeast of Archi’s concession areas there is the Tangkoko nature reserve, which has a further extension to the northeast. The reserve covers an area of approximately 8,745 ha including the endangered black macaques and tarsiers. In this area, there is a recreational nature park from Batuputih (a tourist attraction less than 10 km to the southeast) and a nature park from Batuangus.

Geographically, the national park is directly adjacent to the Mount Dua Nature Reserve. This nature reserve is managed by the Natural Resources Conservation Agency (BKSDA) in North Sulawesi. Most of the areas classified as nature reserves are tourist attractions managed by the local community.

The main economic activities in the surrounding region to the Toka Tindung Gold Mine are agriculture, livestock, fishing, forestry, commerce and mining. Land use around the mine has not changed significantly over the past two decades.

The pre-mining land use around the mine was predominantly plantation farming with most infrastructure and services in the settlements surrounding the pre-mining mine site not well developed. Most of the local population resided in six villages in East Likupang District North Minahasa Regency (namely Wineru, Maen, Kinunang, Pulisan, Marinsow, and Kalinaun) and three villages in Ranowulu District, Bitung City (namely Batuputih Atas, Batuputih Bawah and Pinasungkulan). Housing was generally basic and sanitation facilities limited. Water supply was from local rivers and wells. Most households relied on fuel wood for their cooking needs.

Pre-mining, the livelihoods of most people living near the mine site were based on farming and fishing due to the presence of a large area of agricultural land and coastal locations close to most villages in the region. Coconut cultivation was the dominant agricultural activity in the area, with copra as the main product sent to processing companies in the North Sulawesi region. In addition, the cultivation of seasonal crops such as rice and corn was carried out. The two main types of work (agriculture and fisheries) complement each other as fishing is very dependent on weather and agricultural cultivation is still largely dependent on the rainy season/growing season.

Pre-mining, local economic conditions, especially in villages and surrounding villages, depended heavily on the climate with the prices of agricultural and fishery products fluctuating widely as a result. Upon commencement of mine development at Toka Tindung Gold Mine, local economic conditions changed with an overall improvement reported in 2009–2010, which further increased again upon the commencement of mining, as indicated by the increasing number and volume of sales in several village/village stalls, growth and development of new business activities, as well as increased passenger and goods transportation traffic. This increase in economic activity is attributed to increased labour rates and local incomes resulting from new employment opportunities, procurement of goods and services and tax receipts and royalties. Other qualitative factors include construction of mining facilities, catering, bus transportation as well as other flow-on effects resulting from the procurement of other goods and services.

Based on the results of recent socioeconomic studies, the source of income of the surrounding community is derived primarily from agriculture. People's income mostly comes from coconut plantations that are processed into copra. Other sources of income are agricultural crops, fisheries (fishermen), livestock, trade, mining workers, people's gold mines, government (civil servants) and others. The range of people's income based on livelihoods is:

- Agricultural food crops – < Indonesian Rupiah (IDR) 1.2 –1.9 M/month
  - Plantation – IDR 1.2–1.9 M
  - Farming – IDR 1.2–1.9 M
- Fishery (Fisherman) – < IDR 1.2 M
- Mining and quarrying (illegal miner) – IDR 1.9–5 M
- Company services (Mining employees etc.) – IDR 3.5–6 M.

11.2 Social and community issues

Archi is cognisant that continued mining and processing operations at Toka Tindung Gold Mine has to be undertaken with the support of the local community, as well as other stakeholders. Archi maintains a register of complaints and key issues pertaining to the mine and seeks to interact proactively with the community in regard to any arising issues and manage any issues. Key issues being monitored by the Company include:

Community perceptions and attitudes: in general, the attitude of the community is good and conducive to the continuation of mining activities at Toka Tindung Gold Mine. This is facilitated by Archi's implementation of village/CDE activities and the establishment of an advisory committee including members from local government, religious groups and educational institutions.

Blasting activities at the mine site: Due to the proximity of some of the local villages to ongoing mining activities (i.e. Pinansungkulan village is within 200 m of the Araren open pit), local populations experience noise, vibration, dust and potentially fly-rock resulting from blasting activities. Residents have noted that this has caused damage to residential buildings (cracked walls, floors, tiles, etc.), as well as alleged fly-rock entering people's yards and homes. This has resulted in unrest for the residents in nearby villages, with most of the surrounding population concerned about future and expanded gold mining activities at the Project.

Air Quality: Expansion of current operations is likely to result in the greater use of heavy equipment and other operational vehicles leading to increased dust and pollutants and overall reduced air quality, particularly over periods of reduced rainfall (which may be seasonal). Given the prevalence of respiratory diseases in the local population, increased dust levels may lead to lower comfort levels for the population and negatively impact support for the expanded project.

Noise: Expansion of current operations is likely to result in increased noise (both noise levels, intensity and duration) associated with the greater use of heavy equipment and other operational vehicles, which may impact the comfort of local villagers. Efforts to manage noise intensity have been carried out including limiting vehicle speeds, planting trees, installation of bunding and restriction of vehicle movements (both location and timing).

Landscape changes and stability: Mining will lead to modification of the current landscape and may result in localised instability of slopes and increased potential erosion and sedimentation. Efforts by Archi to minimise the impact of mining include immediate reclamation of former mining land.

Increased erosion and sediment potential: Mining, landscape modification and management of rocks and tailings all have the potential to decrease surface water quality and soil fertility. To reduce the impact, Archi limits land clearing, operates and maintains sediment traps, ponds and the TSF, plants cover crops on disturbed lands and reclaims land as soon as practical.

Surface Water Quality: Mining may result in disturbed pH levels, increased dissolved solids and concentration of heavy metals within surface waters, thereby impacting nearby populations who rely on these waters for their daily needs. Archi is actively monitoring for decreases in surface water quality, particularly in the Maen and Araren rivers as the receiving waterways to the mine site. Archi has installed a comprehensive surface water management system designed to minimise the impact of mining and processing operations on the surrounding waterways.

Groundwater Quality: Groundwater is the primary water source for the local population. Importantly, the aquifers supporting the project site are separate from the shallow aquifers used by the community. Broadly speaking, groundwater quality at the site is influenced by materials that are directly exposed (physical contact) and thus groundwater management is strongly related to the mine acid water control plan which is focused on managing the storage of cover rocks.

Land clearing and its impact on flora and fauna diversity: Archi restricts clearing to those lands necessary for operations and maintains a buffer around the site, as well as collection and development of local plants in nurseries prior to reclamation and monitoring and relocating wildlife from disturbed areas.

Local employment and business opportunities: The mine offers significant opportunities to the local labour force (through both direct and indirect means) impacting the local economy through rising income levels and increased regional/state revenues. Archi makes efforts to manage employment opportunities through involvement in the local community, prioritisation of locals for employment and procurement of goods and services, consultation and provision of information to local communities (including government, religious and educational institutions).

Disruption to public health: To understand any disruption to public health arising from proximity to the mine, Archi actively monitors the medical condition of mine workers and supports government health and medical services programs for local communities, as well as assisting to improving and maintaining existing health and sanitation facilities.

The presence of migrant workers: Introduction of a workforce outside of the local region may introduce different customs or behaviours, including lifestyle or conflicts. To date, this has not caused any significant issues or friction in the surrounding community due to the physical location of most employees, who are separated and located at a distance to local settlements. Interaction between migrant workers and local communities is very limited.

11.3 Corporate Social Responsibility programs

Archi is committed to maintaining strong relationships with local communities and to be a significant employer of local residents. To this end, the Company has development and implemented various CSR programs.

An extensive social study was completed by Archi in 2016 (with the support of the Ministry of Manpower) covering the initial 13 local villages allocated through the 2009 Environmental Assessment (AMDAL) process as I&APs and being located in proximity to the Project, to further develop CSR programs based on the needs of the local communities. This survey was used to determine baseline education level and economic circumstances of the local populace, which was then used to develop appropriate CSR programs.

Extensive CSR programs have now been implemented and centre on supporting local infrastructure (buildings, roads, clean water, household electricity, etc.), education (scholarships and teacher training), healthcare (including COVID-19 control), and economic development (e.g., apprenticeships, animal husbandry, agriculture, small enterprises, etc.). Approximately 1,800 local residents directly benefit from economic development programs with the total number of local beneficiaries from all CSR programs numbering approximately 35,000.

Community relations are responsibly managed through a community development program that focuses on local needs and self-help rather than donation, and is aimed at facilitating longer term development of the community. Both local and regional groups are involved in assessment of requests for support and prioritised allocation of resources. Between 2018 and 2020, Archi contributed Total CDE investment of US$5.4 M (US$2.2 M in 2018, US$1.5 M in 2019 and US$1.7 M in 2020), which represents approximately 0.48% of revenue for the same period. It is expected that in the future the proposed CSR budget will be at least US$1.52 M per annum though this number is directed by the MEMR.

Archi also supports:

- involvement of local communities in project activities
- prioritisation of local suppliers of goods and services that meet quality and supply criteria
- provision of relevant and timely information to communities and local governments regarding the acceptance of labour, other opportunities for direct or indirect involvement, and socio-economic impacts
- formation of an advisory committee including representatives from various sectors of society, to assist:
  - dissemination of accurate information about the project to the local community
  - Assisting Archi management in developing policies that are in line with the goals and aspirations of the community
  - Identify opportunities for local communities to provide goods and services for projects and to publish those opportunities in the community
  - Assisting Archi management in resolving conflicts or tensions arising between the company, its employees, and local communities
  - Identifying community concerns or conflicts and providing advice to Archi as to the best way to assuage concerns or resolve the conflict.
- establishment of policies in consultation with local communities to stimulate business growth
- Provision of opportunities for village officials/religious leaders to harvest and process the results of coconut plants owned by the company as an opportunity to support the community. Coconuts harvested from land that has not been used by the company, processed by the community to be copra.
- youth and sports activities in order to explore the potential and talents of young people
- collaboration with its contractors in the form of organising skills training, especially as an ADT operator, dump truck operator, general diesel mechanic or welder
- helping to maintain order, security, and harmony in the community
- developing harmonious relationships between migrant workers and local communities, through:
  - using superiors/managers to encourage a responsible nature among employees
  - establishing a Code of Conduct for employees and promoting an open and tolerant culture.

Archi has established a community grievance mechanism standard operating procedure to register and resolve complaints from local communities.

12 Project infrastructure

12.1 Overview

The Toka Tindung Gold Mine infrastructure is fully developed and includes administration, geology, mining and processing offices, two separate camps with accommodation (dormitory and single room catering to approximately 600 employees, with approximately 60% of the workforce onsite at any one time) and staff/non-staff messing facilities, convenience store, medical clinic, mosque/church, onsite laboratory, workshops, stores area, fuel and oil storage, communications system, a core storage facility, and several security posts. All sites have reticulated power and water. As is normal for an operating mine, programs for incremental improvements are ongoing.

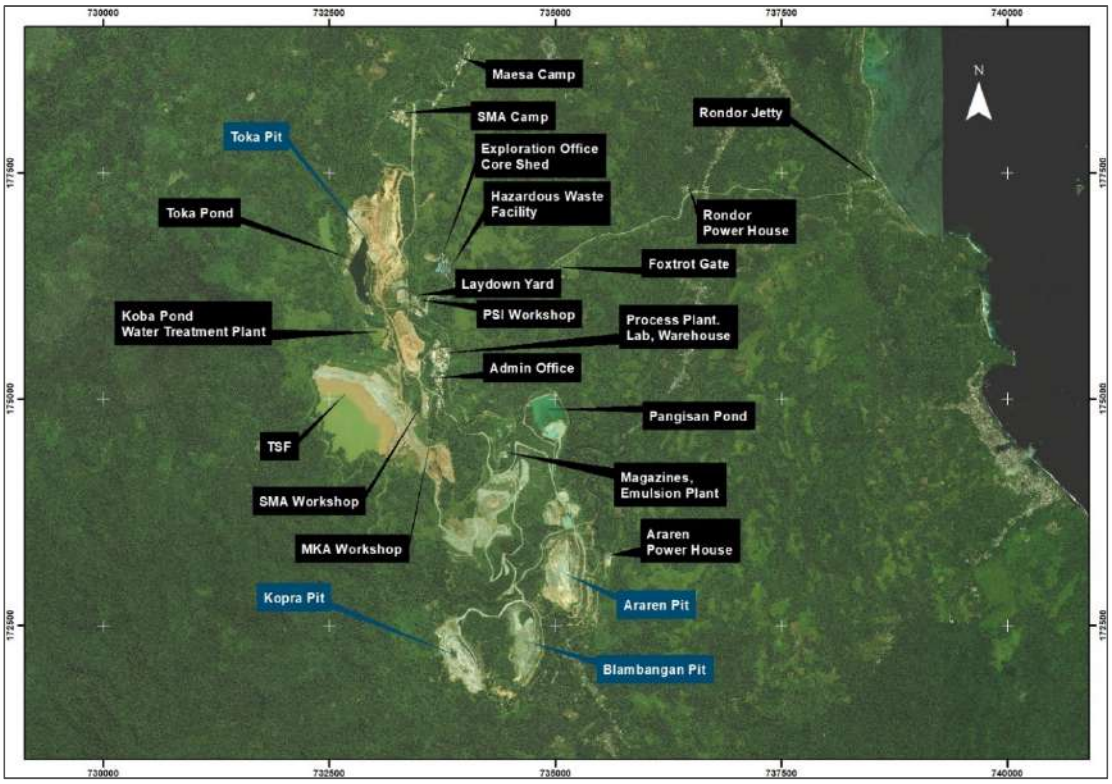
12.2 Current project layout

Figure 12-1 shows the current layout of the Toka Tindung Gold Mine mining and processing operation. The operation straddles the boundary between the MSM and TTN concessions. There are currently three main mining areas, namely:

1. Toka
2. Marawuwung
3. Southern open pits comprising the:
    a. Araren open pits
    b. Kopra open pit
    c. Bone open pit
    d. Jipang open pit
    e. Makassar open pit
    f. Pajajaran open pit (being backfilled)
    g. Alaskar open pit
    h. Blambangan open pit (being backfilled).

In the future, Archi also expects to open a new mining area at Talawaan along the Western Corridor.

Figure 12-1: Toka Tindung Gold Mine – Mining area layout



Source: Toka Tindung Gold Mine Infrastructure & Layout presentation, October 2020.

12.3 Roads

The following all-weather roads support operational and exploration activities at the Project:

- Plant to Rhondor beach and Jetty – 5 m wide, 5.3 km long road with cleared width of 12 m for the transport of wider items. This road is used to move fuel, heavy loads (mobile fleet) and mostly containerised cargo (principally during the construction and operation phases of the Project).
- Roads connections including the various open pits to WRDs including the Kopra – Blambangan, Araren – Batupangah, Araren – Blambangan, Marawuwung – WRD – Toka, RIM2 Blambangan, Blambangan to ROM pad, Batupangah WRD to Pangisan West WRD, Batupangah to Pangisan WRD
- Toka TSF, ROM, to the processing plant – 1,000 m long
- DSTP pipeline access road – 11.8 km long and 2.5 m wide road adjacent to the DSTP pipeline
- Site roads – to provide access between all infrastructure facilities constructed flush with bulk earthworks
- Other access roads between the Project site and the two major national roads connecting all provincial villages and cities of Manado, with Manado Airport, and Bitung, Tomohon Airmadidi, Tangkoko National Park, etc.

12.4 Port infrastructure

The primary port supporting the Toka Tindung Gold Mine is the port of Bitung, located in Bitung city some 19 km to the southeast of the mine site. There are two ports in Bitung: a conventional port with a multipurpose terminal and a container port, with both operated by PT Pelabuhan Indonesia IV (Persero) Cabang Pelabuhan Bitung. The conventional port consists of LCT berth, passenger berth and container berth, while the container port is a specialist port purely for container handling activities. In 2018 (latest available figures), the conventional port handled 2,839 vessels and 1,447 container ships, while the container port handled 299 vessels and 277 container ships for a bulk tonnage of 1,573,924 Mt (LCA, undated).

The port of Bitung is accessible along a 9-mile channel, which is up to 600 m in width and ranges in depth from 12–15 m. Between October and January, the onset of the rainy season places some seasonal constraints on port access.

Existing capacity at the multipurpose terminal at the conventional port includes:

- container yard 43,414 m^2
- warehouses, in total 9,072 m^2
- generator 500 KVA
- electricity (PLN) 555 KVA
- water (PDAM) Max 200 t
- fuel bunker (Pertamina) Max 150 t.

Existing capacity at the container terminal at the container port:

- container yard 1 – 30,000 m^2
- container yard 2 – 22,000 m^2
- container yard 3 – 50,000 m^2
- workshop – 6,083 m^2
- reefer plug container yard 1 – 84 units and container yard 2 – 54 units
- water reservoir – 200 t
- generator set container yard 1 – 500 and 800 KVA and container yard 2 – 500 KVA
- temporary container yard (export – import) 1,260 m^2
- fuel tank 20,000 litres.

In addition, Archi makes use of the Rondor Jetty, which is located on part of the coastline that is relatively sheltered year-round. This jetty can be supported by land-based cranes to unload large items onto flat-bed trucks.

During the mine's construction phase, a jetty was built next to Rhinondor, on the Rondor Beach, for off-loading of containers under the licence of the Bitung harbour authorities, to ease the burden on the Bitung seaport. This jetty has not been used since that time, but could be recommissioned over a period of about three months, if so required. However, the beach is regularly used under licence of the Bitung harbour authorities for beaching of barge craft carrying mobile fleet – thus the large fleet equipment are offloaded directly onto the Rhondor Beach and 'walked' the 5 km to the site. To date, the largest item to do this is a Hitachi EX2600 excavator weighing more than 250 t.

12.5 Airport

The closest airport to the project is at Manado some 30 km by road from the project site. There are no alternative airports within a range of 200 km from Manado.

Manado Airport (IATA: MDC, ICAO: WAMM), also known as Sam Ratulangi International Airport, is a medium-sized airport located in North Sulawesi, 13 km (8.1 miles) northeast of the City of Manado. It is designated as one of the 11 main entry ports to Indonesia by the Ministry of Tourism and Culture of Indonesia and serves as the main gateway to North Sulawesi and the Bunaken National Marine Park.

Runway length is asphalt and measures 2.65 km (8,693 feet) in length and 45 m (148 ft) in width.

In total, six commercial airlines service Manado, namely Lion Air, Wings Air, Sriwijaya Air, Citilink, Garuda Indonesia and Batick Air, typically with '737- class' aircraft. It is currently the hub of Lion Air/Wings Air for the northeastern part of Indonesia and is one of the focus cities of Garuda Indonesia and Citilink. It is served by international airlines. At present, there are 13 domestic flights from Manado with key connections to Jakarta (256 flights/month), Makassar (105 flights per month), Ternate (80), Gorontalo (62), Sorong (54) and Luwuk (31). In addition, it has regular international flight services to/from Singapore (Silkair), Kuala Lumpur (Air Asia), Davao/Philippines (this service does get interrupted periodically) and Xi'anFuzhou plus Ningbo in China (Lion Air).

Prior to the onset of the COVID-19 pandemic, several regular (weekly) charter flights were operating connecting South Korea, China and Japan, predominantly for business and tourism.

12.6 Power supply

The majority of the electricity in the North Minahasa region is supplied by the Indonesian Government-owned electricity company, PLN through both 20 kVA (domestic) and 70 kVA (industrial) overhead lines.

The PLN 70 kVA lines located adjacent to the Project site, and crossing the concession area, have 100% redundancy (two lines) and operate at a total off-take of about 260 MW. This network is supplied by a series of geothermal, solar, hydro, biodiesel and gas power stations in the region.

Since 2016, PLN has been the main energy supply to the Project, with a sub-station built (contracted to AEG) in Rhinondor by the Company, and ceded to PLN to off-set connection and facility charges, with a capacity of 60 MW. Over the last five years, with the mine growing, the power offtake has increased from about 15 to 24 MW of electrical power. The majority of this power is consumed by the plant (21 MW presently) with a further expansion of field dewatering pumps of

3 MW being commissioned in 2021. The current Toka Tindung Gold Mine operation requires approximately 27 MW.

This installed power supply replaced the dedicated 15 MW diesel-fired power station located at the processing plant and the 20 kVA supply to the ancillary areas.

The 15 MW diesel power station is now largely redundant due to the reliability of the grid power at approximately >99% uptime over this period (2016 to 2020).

Recent upgrades (2019/20) to the internal high voltage (HV) transmission lines from 11 kV to 33 kV and the installation of a capacitor bank in the milling circuit switchgear – both being installed to cope with the voltage 'swings' on occasion down to 60 kVA on the main line – have allowed the mills from 2021 to be operated at approximately 100% (recently operating from 85%) of the installed mill power.

The Project's current processing plant power demand is shown in Table 12-1.

Table 12-1: Processing plant power demand (MW)

Area	Plant installed load	Plant maximum demand	Plant average continuous load
Processing plant	30	24	21
Infrastructure	4	3	3
Total	**34**	**27**	**24**

Source: Archi Management, 2021

The application for power offtake of up to 40 MW was lodged in mid-2020, and subsequently accepted by PLN to be available from 2022 for the further expansion plans in place. Current electrical supply is sufficient to power the entire plant and site, but will require this extra power in order to accommodate the installation of the third 6.75 MW ball mill and ancillaries.

Further applications will be made to PLN once the quantum of installed power has been agreed (by 2022) and with the proposed expanded mill capacity to an annualised rate of 8.0 Mtpa or more.

SRK considers the existing power capacity and associated infrastructure to be adequate to support the Company's growth plans.

12.7 Water supply

Water is harvested from the rainwater run-off from site.

There are three major river systems running through the mine operating area, these being:

1. the continuously flowing Batupangah/Araren River system flowing from south and west of the concessions to the northeast with flows of 4,000–10,000 L per hour
2. the seasonal Koba River system flowing north and collecting run-off from upstream of the TSF and the plant area with flows of 0–4,000 L per hour
3. the seasonal Pangisan River system which starts at the Southern pit area and flows north with flows of 0–2,000 L per hour.

Water is harvested from the Koba River system and either stored in the Toka open pit (mined out stages 1 and 2, which collectively are capable of storing up to 2 Mt of water) or pumped directly to the TSF. Historically, prior to the storage of water in the Toka pit (pre-2016), water was occasionally drawn from the Pangisan River or from the Araren River.

The plant is by far the most significant consumer of water, requiring approximately 0.7 t of water per tonne of ore. At the present maximum tonnage rates of 500 tph, the plant requires 350 tph of water. Some 30% of the water pumped to the TSF as tailings remains in the dam, while 70% is recycled back to the plant. As such, there is an average requirement of 105 tph of top-up water. This water is supplied primarily from the Toka storage pit. The Toka storage pit usually contains in excess of 1 Mt of water, providing the Project with a reserve of over one year's supply (noting that recent droughts (over the last ten years) have lasted for up to six months).

Other water consumers also draw off this plant supply, including the water bowser trucks for dust suppression, camp, offices, workshops, etc. The exploration rigs are permitted to take waters directly from the rivers, but must record the off-take and pay the municipalities a nominal surcharge rate.

Waters from the Araren pit dewatering system, at approximately 3 kt/h, are first cooled in cooling dams, prior to dilution with run-off in the Pangisan dam and then discharged under licence to the Pangisan River, thereby providing a continuous flow. These Araren waters have been pumped into the plant on a campaign basis (of up to four weeks) to test the feasibility of a back-up system with no deleterious effects, albeit noting that for continuous use, a clean (demineralised) water supply would be required for the elution and electrowinning circuits.

SRK notes that should the processing operation increase to 8.0 Mtpa, water storage of 1.5–2.0 Mt would be required to be held. There is likely to be further storage options available over the next three years in redundant pits (e.g. Alaskar).

Table 12-2 shows the total processing plant water usage summary, based on an ore moisture content of 10%.

Table 12-2: Processing plant water use summary

Water type	Consumption (m^3/day)
Plant raw water make-up	2,520
All other consumers	700
Total	3,220

Source: Archi Management, 2021
Note: 1 t represents 1 m^3.

SRK considers the installed water infrastructure to offer sufficient capacity to be able to support the Company's growth plans.

12.8 Water management

Settling ponds are extensively used across the operational site areas to collect water-borne sediments prior to discharging run-off waters into the three main river systems. All discharges are monitored, and the results forwarded to the Department of Environmental and MEMR (regulators), who regularly conduct site audits and ad hoc water quality sampling in their own right.

While all open pits are supported by a settling pond to capture run-off water, the key settling ponds at the Toka Tindung Gold Mine include the Toka, Koba, Pangisan and Araren ponds. The Araren pond is the most significant pond in terms of size, while the Toka and Koba ponds supply processing water used to feed the mill. Each settling pond has 2–3 settling bays.

The status of these ponds as at December 2020 are shown in Table 12-3.

Table 12-3: Water volumes until the end of December 2020

Location	Water Level (RL)			Water Volume (m^3)	Capacity Max. (m^3)
	Wall	Spillway	Actual		
Koba Pond	177	175	176.05	48,939	91,934
Toka Pond	151.05	150	150.09	185,219	177,346
Pangisan Pond	85.5	84	84.42	437,509	488,619
Toka inpit Pond	-	-	95.7	780,427	-
Total Water Volume				**1,452,094**	

Note: 1) Not including TSF water volume (decant water).

2) 1 t represents 1 m^3.

Further water management processes and infrastructure include:

- the diversion of the Araren River during Stage 3 of the Araren open pit. The Company has recently received approval, but is awaiting final operating documentation for a further diversion of this river under Stage 5 of the Araren open pit.
- the installation of culverts and drainages to control waters of the Batupanguh River around Blambangan open pit, which have been installed to provide access.

12.9 Fuel supply

Biodiesel fuel is used in the designated contractors' mobile fleet, for dewatering activities and secondary power generation purposes.

Fuel prices are benchmarked to the Means of the Platts Singapore (MOPS), a contract mechanism that derives its value by reference to the average of a set of Singapore-based oil price assessments as published by Platts. Platts is a global energy, petrochemicals, metals and agriculture information provider and a division of S&P Global. The timeframe can be over a week, a month or any agreed period of time.

Diesel fuel is purchased and supplied by PT AKR Corporindo Tbk (AKR), a leading Indonesian logistics and supply chain company. AKR stores its fuel at the Bitung port facility (capacity 12 million litres), prior to transportation by highway from Bitung to the mine site.

Since Q4 2014, Archi has been using biodiesel fuels, comprising a mix of palm oil and traditional diesel. In accordance with the MEMR requirements, initially these comprised B10 Diesel Fuel (10% biofuel), but this has been progressively transitioned by the Indonesian Government to the currently stipulated (from 1 January 2020) B30 Diesel Fuel (30% biofuel) mix. In the future the Indonesian Government had proposed to implement a further rise to B40 in 2021 at the time of writing, but longer term the Government is seeking to transition most fuels to B50 and B100 fuels (Argus, 08 July 2020).

The Project's estimated 2020 diesel consumption was approximately 23.2 ML with the breakdown as follows:

- 15.5 ML for mobile equipment
- 5.5 ML in the mine for pumping etc.
- 0.7 ML for the processing plant
- 0.7 ML for exploration drilling
- 0.7 ML for light vehicles
- 0.3 ML for blast hole drilling.

The fuel is delivered to the mine site by bulk carriers on a daily basis. Currently, two 500,000 litre fuel tanks are installed in proximity to the main warehouse to the south of the processing plant. From here, fuel is distributed via pipeline to the power station in the processing plant and mine services using a dedicated 30,000 litre fuel truck. Both the power stations and mine services facilities have daily diesel tanks.

SRK considers the existing fuel supply logistics and fuel infrastructure to be adequate to support the Company's growth plans.

12.10 Consumables

12.10.1 Blasting materials

Supplies of blasting materials are imported through the Bitung port prior to transport to site. These materials are stored onsite with magazines capable of holding three months supply, with stocks typically replenished every 6–8 weeks.

12.10.2 Sodium cyanide supply

Sodium cyanide (98% min (NaCN)) is supplied to the Project by Hebei Chengxin in 20 ft containers through the Bitung port.

12.10.3 Hydrated lime supply

Hydrated lime is supplied by Pentawira, which is contracted to maintain between 400 and 600 t of stock at the mine site. Hydrated lime is imported to North Sulawesi via the Bitung port.

12.11 Site buildings and mine services infrastructure

Site buildings include: administration offices, warehouses and workshops (mine (MKA and SMA), contractor and mobile equipment), laydown facilities, exploration office, core shed, laboratory, hazardous waste facility, ERT training ground, plant nursery, stockpiles (primary crusher and coarse ore).

The plant buildings consist of two office blocks, training centre, emergency services building, male and female ablution blocks, crib room, security gatehouse, light vehicle (LV) car park, laboratory, fire water storage and distribution systems, and a covered warehouse. Insurance spares for the mills (complete motor and gearbox sets) are housed in a separate, sealed temperature and humidity-controlled building.

The mine services infrastructure adjacent to the processing plant consist of a heavy vehicle (HV) workshop, HV park area, HV/LV wash-down facility, HV lube station, tyre bay and HV/LV fuelling station.

SRK considers the proposed site buildings and mine services infrastructure to be fit for purpose and sufficient to provide a basis for the Company's growth plans.

12.12 Workforce accommodation

The permanent mine camp (Maesa camp) is approximately 2.7 km north-northeast of the processing plant and accommodates up to 400 operational personnel. The camp includes a mess hall, gymnasium, clinic, church and mosque. Contractor SMA has its own camp with a mess hall and mosque, while the drilling contractors occupy the Koba construction camp. In addition, various houses are rented out in the local villages (e.g. Pinenek and Rondor villages).

Recent drilling has located a potable water aquifer and this will be piped into the potable water storage tanks and raw water treatment plant (filter and UV light) in 2021.

SRK is of the opinion that both the construction and permanent accommodation camp and facilities are adequate.

12.13 Communication

The Toka Tindung Gold Mine is supported by the national 4G/5G mobile telecommunication network, with most areas around the site able to receive mobile coverage.

For operational purposes, the mine operates on a high frequency land mobile radio system (citizens band (CB) radio) allowing for short distance person-to-person bidirectional voice communications. The Company operates on several channels that vary according to discipline (i.e. mining, processing, security, etc.) and/or geography. In support, communication towers have been installed on hills near the Blambangan open pit and in the Toka area.

To provide real-time data support to the processing plant and administration functions, the site maintains a fibre optic connection to Telcomsel and a private automatic branch exchange (PABX) system.

SRK considers that the communication infrastructure at Toka Tindung Gold Mine is adequate.

12.14 Tailings pipeline

Plant tailings are pumped via a 2 km-long overland high-density polyurethane pipeline (diameter 450 mm) to the TSF system. There is a 2.5 m-wide road adjacent to the TSF pipeline to enable easy access to the pipe.

SRK is advised that the pipeline ruptured in early 2019 due to the temporary installation of a below specification pipe. The burst pipe was swapped out and the matter rectified.

SRK considers that the pipeline portion of the TSF system is adequate.

12.15 Processing plant and equipment

The Toka Tindung Gold Mine processing plant and ancillary services include the following (Table 12-4 and Table 12-5):

Table 12-4: Key plant installed at Toka Tindung Gold Mine

No	Types of Equipment	Type	Capacity	Utilisation (%)	Amount (Unit)
1	Mobile Crusher	-	150 tph	25%	1
2	Mill Plant	-	3.44 Mtpa at WBI of 20 or 3.6 Mtpa at WBI of 18	91%	1
3	Water treatment plant	-	400 m^3/h	90%	1
4	Generator Machine	Paint	1 MW	90%	12

Source: Archi's MSM Amdal Addendum, 2020

Table 12-5: Key processing equipment installed at Toka Tindung Gold Mine

Pump Name	Type	Number of units	Hood m^3/h	Power Motor (kW)	Head
SAG Mill Disch Pump	Centrifugal pump, Warman, 10/8 AH	1	512	185	50
Ball Mill 1 Disch Pump	Centrifugal pump, Weir, 14/12 G-AH	2	1,659	500	50
Ball Mill 3 Secondary Mill Cyclone Feed Pump	Centrifugal pump, Weir, 300 ST_MCU	2	1,549	500	50
CIL Feed 1 Thickener Pump	Centrifugal pump, Warman, 8/6 AH	2	750	95	50
CIL Feed 2 Thickener Pump	Centrifugal pump, Warman, 8/6 AH	2	750	95	50
Tailing Pump	Centrifugal pump, Warman, 8/6 AH	2	750	250	50
Tailing Booster Pump	Centrifugal pump, Warman, 8/6 AH	2	750	250	100
Cyanide Pump	Centrifugal pump	2	20	7.5	30
Flocculant Pump	Positive displacement pump	3	3	1.5	20
Copper sulphate Pump	Positive displacement pump	2	5	1.5	20
SMBS Pump	Positive displacement pump	2	5	1.5	20

Pump Name	Type	Number of units	Hood m^3/h	Power Motor (kW)	Head
Camp Water treatment Pump	Centrifugal pump	2	6	1.1	50
Toka water treatment Pump	Centrifugal pump	2	450	132	100
Koba water treatment Pump	Centrifugal pump	2	450	132	100
TSF Submersible Pump	Submersible pump	1	450	132	100
Decant water tank pump	Centrifugal pump	2	250	55	50
Process water tank pump	Centrifugal pump	2	450	110	50
Raw water tank pump	Centrifugal pump	2	150	18.5	50
Lime distribution pump	Centrifugal pump	2	8	7.5	30

Source: Archi's MSM Amdal Addendum, 2020

12.16 Mobile equipment and light vehicles

Table 12-6 summarises the current mining fleet at Toka Tindung Gold Mine (post-January 2021) as operated by mining contractor, GMA.

Table 12-6: Current Mining Fleet at Toka Tindung Gold Mine

Equipment Type	Equipment Class	Units
Primary Excavator	260 t Class	2
	120 t Class	5
Support Excavator	40 t Class	6
Truck Fleet	100 t	55
	45 t	6
Dozer	D10	5
	D8	4
Grader	KOM 825	5
Compactor	16 t Class	3
Water Trucks	Kom 465	3
	20 t class	2
Front End Loader (FEL)	100 t Class	1
Fuel Truck	Volvo 25 kL	3
Service Truck	UT Quester	2
Tyre Handler	Manitou X860	1
Lighting Plants	Coates 9000W	12
Crane	Franna 20 t	1
Production Drills	D65 SmartRoc	7

Equipment Type	Equipment Class	Units
Grade Control Drills	D65 FlexiRoc	3
Mechanised mining Units (MMUs)	18 t Class	2
Blast Support Trucks/LVs	Sadko	2

Source: Archi Management, 2021.

The Project also uses additional contractors, namely MKA and SMA, that provide equipment for secondary haulage, ROM rehandle, general project work and infrastructure maintenance across site. Their fleet composition is summarised in Table 12-7.

Table 12-7: Secondary contractor's fleet

Equipment Type	Equipment Class	Units
Support Excavator	30 t Class	6
Truck Fleet	25 t Class	12
Dozer	D6	3
Compactor	12 t Class	2
Grader	14M	2

Source: Archi Management, 2021.

The new (post-January 2021) planned ancillary/support fleet to be utilised is summarised in Table 12-8.

Table 12-8: Project Ancillary/Support Fleet

Equipment Type	Equipment Class	Units
Backhoe	BH01	1
Mobile Crane	20 t	1
Mobile Crane	65 t	2 (with 1 currently under repair)
Mobile Crane	130 t	1
Wheel Loader	-	2
Skid loader (Bobcat)		2 (with 1 currently under repair)
Forklift	1 – 3 t	6
Telehandler	Genie	1 (under repair)
LV (utility/flatbed truck)		5
Garbage Truck		1
Crane and Truck Kazaz		1
Fire rescue truck (Iveco)		1
Manhaul truck		2

Source: Archi Management, 2021

The annual biodiesel consumption of the mobile equipment and LVs is estimated at 15.5 ML (approximately 42,000 litres per day).

In SRK's opinion, the mobile equipment and LV requirements are met and adequate.

12.17 Miscellaneous infrastructure, inventory and materials

Spare parts required for the processing plant or open pit mining operations as well as other fixed infrastructure are readily transportable and accessible from major Indonesian ports to the mine site.

The mine is serviced by miscellaneous items of infrastructure including a concrete batching plant, explosive magazines and emulsion manufacturing plant, fuel farms, lay down areas, and a plant nursery.

As part of the production process, the Project consumes a number of consumable materials, the most significant being explosives, grinding media, lime, sodium cyanide, sodium metabisulphite, copper sulphate and activated carbon. These consumables are readily available from multiple suppliers in Indonesia and internationally and can be sourced at competitive market rates.

13 Workforce assessment

SRK reviewed Archi's workforce and HR function to identify material risk factors that may impact on the Company's ability to deliver on its growth objectives and LOM plan. The HR function was also reviewed for compliance with legislation that governs employee-related matters at the Toka Tindung Gold Mine. The following acts and regulations were reviewed:

- Law No. 13 of 2003 on Manpower (Labour Law) and subsequent amendments
- Law No. 21 of 2001 on Labour Unions and associated amendments
- Law No. 21 of 1999 discrimination in employment and occupation
- Government Regulation No 8 of 1981 Gender discrimination.

In Indonesia, there are three types of workers: fixed-term employees; permanent employees and foreign employees. They are distinguished according to length of service, to the level of education / skill required for the role and the employment conditions (including permanent or specified duration).

The workforce at Toka works on a Department of Labour-approved CLA, which is negotiated and revised every two years and covers such key items as shift cycles, hours of work, leave, minimum wages, medical insurance, overtime, grievance systems etc.

Although the CLA is signed by the representatives of the approximately 747 Company employees and the Company officers, including a Board member, it covers all employees in the operations (~2,445).

Under this agreement, the hours of work and shift cycles are agreed. Given its designation as a continuous operation, the mine is allowed to work longer than the stipulated 40 hours per week provided fatigue management is monitored and employees are compensated accordingly.

Currently, the Toka Tindung Gold Mine operates on a two 12-hour shifts per day, 365 days per year basis. Various rosters are available depending on work location and role. For site-based nationals on a Fly-in – Fly-out (FIFO) basis, this is typically 4 weeks on and2 weeks off. Rosters for Manado-based staff are 10 days on – 4 days off for most staff, with lower level staff on a more conventional working week of 5 days on – 2 days off.

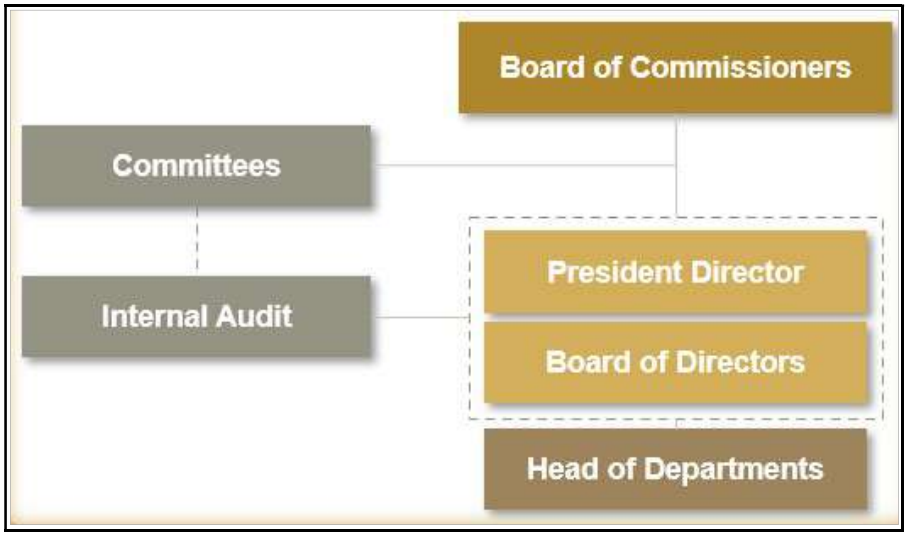
13.1 Management structure

Archi maintains its corporate head office in Jakarta, with regional offices at site and in Manado.

The mine operations of MSM and TTN have three directors, based at site or in Manado, for President Director, Finance Director and Operations Director.

For overall governance and oversight, Archi maintains both a Board of Commissioners (BOC) and Board of Directors (BOD) operating under the governance structure as outlined in Figure 13-1. This structure has been established to ensure Archi maintains good relationships with the regulators, is able to coordinate and communicate effective with the MEMR, local governments and community and to promote Toka Tindung Gold Mine as a "Vital National Object", a status most recently received in October 2020.

Figure 13-1: Archi's governance structure



Source: Archi Management, 2021.

Currently, four Commissioners are appointed (primarily as designates of Rajawali), while five Directors with significant industry expertise are responsible for the management of the Company. Key titles held by directors include President Director/Chief Executive Officer (CEO), Deputy CEO, CFO, Chief Geologist Officer (CGO), and Chief Corporate Officer (CCO). Archi's Directors and Commissioners are highly respected professions from a diverse range of backgrounds covering technical, financial, environmental and management competencies.

In addition, various sub-committees have been established to support the Boards with the following key roles:

- Expenditure Committee – monitor, review and approve proposed quarterly expenditure and/or purchase plan
- Investment Committee – monitor, review and approve corporate actions/investment proposed i.e. merger and acquisition, loan refinancing, project/plant expansion
- Remuneration and Nomination Committee:
  - supervise and evaluate the performance of the BOD and/or BOC
  - formulate nomination and remuneration policies for candidate members of the BOD and/or BOC
  - review and propose candidates who meet the requirements as members of the BOD and/or BOC to be submitted to the General Meeting of Shareholders.

- Audit Committee:
  - one independent commissioner as committee chairman
  - monitor and review financial information and compliance with laws and regulations including appointment of the external auditor
  - review implementation of audits by the internal auditors.
- Ethics Committee **–** conduct or authorise investigations on issues relating to unethical behavior, fraud, and other matters of director, employee and contractors
- Internal Audit
  - develop and implement an annual internal audit working program
  - test and evaluate the implementations of the internal controls and risk management system in accordance with company policy.

A regional management committee has been established and comprises a General Manager, President Director and the CFO of MSM and TTN. The mine site is run under the leadership and auspices of the General Manager. The General Manager has departmental heads reporting and supporting in the discharge of his/her duties of the position. Some functions such as community and external relations report to the President Director.

13.2 Organisational structure

For the day-to-day operation of the Toka Tindung Gold Mine operations, Archi maintains 13 departments, each with their own head, who are ultimately responsible and accountable to the Chief Executive Officer (CEO, current incumbent Shawn David Crispin). The CEO is also known as the President Director and is supported by a Deputy CEO (with line responsibility for the Chief Compliance and CFOs), as well as a CGO (Figure 13-2).

Archi's departments (and the associated responsibilities) include:

Operations – safety performance, environmental leadership, critical risk management, compliance to the Government and stakeholder regulations/requirements, organisation and employee review, employee engagement and development, gold (revenue) production, LOM planning, operations management (mining, maintenance, processing, dewatering), operations efficiency, productivity and cost management, business improvement initiatives and operations support/leadership

Mining – long term planning and technical review/leadership, TSF, water management (including dewatering, river diversions, water dams), professional mentoring and guidance to mining operations and other staff, constraint liaison (impact of land acquisitions, governance, permitting), mining contract review and production management relief

Corporate Affairs – external relations with stakeholders/government, permit and licencing, land compensation, media handling, performance, security

Corporate Social Responsibility – CSR management, program design, plan and implementation, External Relations Management (especially communities within Ring 1 – i.e. 13 villages identified in the initial AMDAL)

Compliance - Compliance and Acting statutory Mine Manager (*Kepala Teknik Tambang*) for MSM.

Human Capital & Corporate Services – talent acquisition, industrial relations, performance management, organisational and personnel development, compensation and benefits

Legal – legal risk management, litigation, external interactions with the relevant government bodies or community

Corporate Control – treasury, tax and information technology

Financial Control – finance, accounting and investments

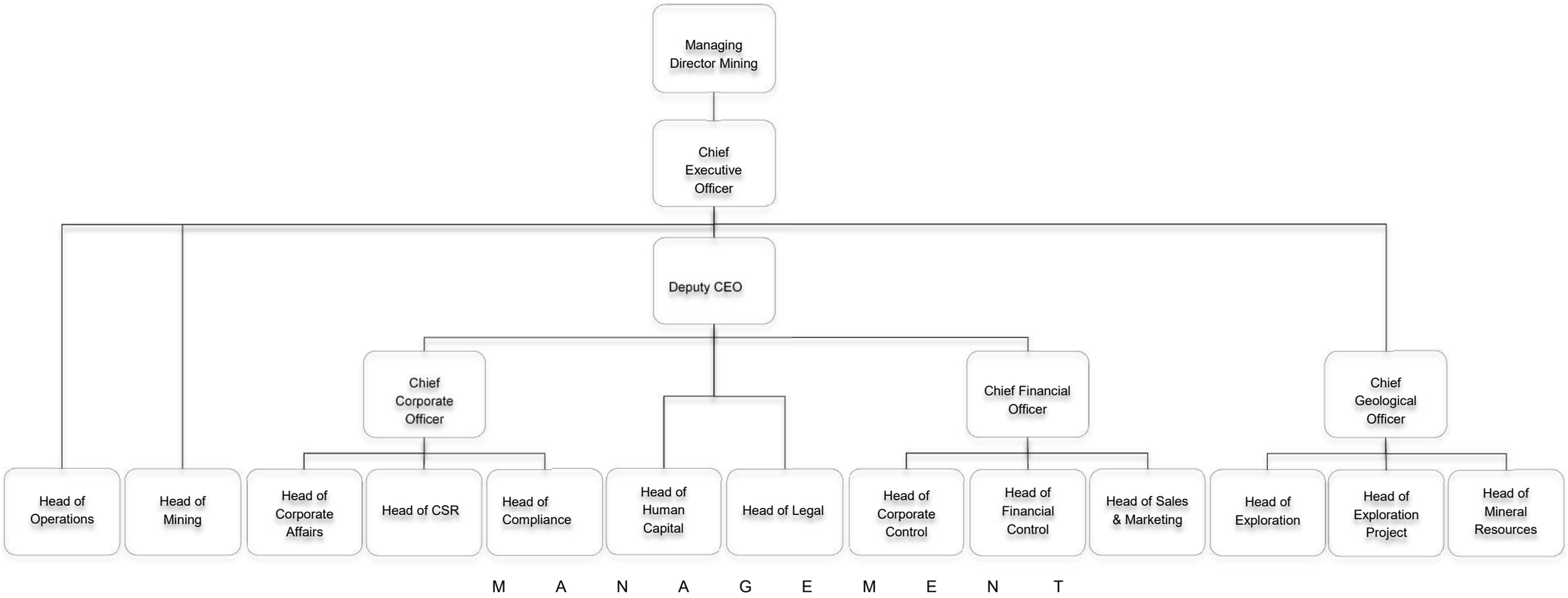
Sales and Marketing – managing sales activities/export, maintaining relationship with existing customers, developing potential buyer/market prospects, sales forecast and gold hedging execution and arranging for refinery processing (Antam, BSI and Lotus)

Exploration – site-based role responsible for all of the physical drilling works, drill pads and core shed management

Exploration Project – project review and evaluation, pre-drilling works (including drill targeting for near mine and regional, spectral mapping and interpretation, specific geological study and exploration budgeting and contract administration)

Mineral Resources – mineral resource evaluation, geological modelling, geostatistical analysis, validation, estimation, classification and reporting.

Figure 13-2: Management Organisational Chart



13.3 Workforce structure

Archi engages mining contractor companies to support its mining operations. Most of these contracts with mining contractors are on a long-term basis (typically 3–5 years). As such, the contractor's employees are considered as Archi's permanent employees under the relevant manpower and labour regulations. Archi provides the contractor's employees with supporting services such as transport, cafeteria services and security.

The current complement of TCE at Toka Tindung Gold Mine is estimated at 2,445 (both employees and contractors) as at 31 December 2020. Of this total, some 70% (or 1,698 people) comprise contractors engaged in open-pit mining activities and support activities such as employee transport, cafeteria services and security.

As at 31 December 2020, women accounted for approximately 14% of Archi's workforce and occupy 4% of Archi's senior management team. Furthermore, women comprise approximately 6.5% of Archi's contractor workforce.

Archi's historical employee complement (excluding contractors) for the Toka Tindung Gold Mine from 2018 to 2020 is provided in Table 13-1.

Table 13-1: Breakdown of Archi's direct employees over the period 2018 to 2020

Department	2018	2019	2020
General Service	218	204	120
General Management	23	45	63
Corporate Social Responsibility	22	23	21
Environmental	69	69	64
Exploration	146	102	96
Human Capital	12	12	12
Maintenance	118	128	115
Mine Geology	51	51	52
Mining	84	92	111
Processing Plant and Processing Plant Project	75	68	93
Total	818	794	747

Source: Archi PFS, 2021

Of Archi's total workforce of 747 people (excluding contractors), approximately 82.2% are full-time permanent employees of Archi, 16% are fixed-term contract employees of Archi and 1.8% are foreign employees. The Company's permanent staff has retained core positions in Commercial, Exploration, Mine Geology, Mining and Processing. The Company has outsourced low skilled and non-core roles to third parties such as mining fleet operation, loading and unloading and hauling.

Archi's permanent and fixed-term workforce is divided into experts (geologists and drilling workers), mining workers, factory workers, administrative workers, workshops and representative workers in Jakarta. The breakdown of Archi's employees (excluding contractors) at the mine as at 31 December 2020 is outlined in Table 13-2.

As of 31 December 2020, 70% of Archi's workforce at the Toka Tindung Gold Mine are from the local community and more than 98% are from Indonesia.

Employment opportunities are available for skilled workers, as well as unskilled workers. Priority is given according to work type and difficulty but generally follows a hierarchy; (i) First priority to the workers from the villages surrounding the Project, (ii) then workers from outside the surrounding villages but within the North Sulawesi region, (iii) then workers from outside North Sulawesi; and (iv) foreign workers, only, but currently in certain positions that require significant work experience and/or managerial and professional skills.

In addition to employment priority, Archi also provides local workers with extensive skills training with a wide range of training programs available for employees at the time.

Some 15 of the mine's major contractors/suppliers are from the project area, which represented 40% of contractor/supplier costs in 2020 demonstrating a strong priority placed on sourcing supplies and services from local sources.

Currently, Archi does not expect to expand its current workforce near term to accommodate its future growth plans. The move to a larger fleet is expected to transition the Company from a smaller, more labour-intensive fleet, and highlights that there will be a surplus of skills over the near to medium term.

Thiess was recently appointed to assist GMA and has committed to training and hiring locally, which will further increase available skills. GMA, through its subsidiary MKA (currently also operating with a smaller fleet of equipment at Toka), will upskill its workforce to the larger equipment fleet, with this transition planned to be relatively quick and smooth.

Table 13-2: Archi's employee data as at December 2020 by sub classification

COMPANY / DEPARTMENT	MSM			TTN			KKM			EMAS			TOTAL ARCHI INDONESIA
	Permanent	Fix Term (Contract)	Total	Permanent	Fix Term (Contract)	Total	Permanent	Fix Term (Contract)	Total	Permanent	Fix Term (Contract)	Total	
BUSINESS DEVELOPMENT	0	0	0	0	0	0	0	0	0	3	0	3	**3**
COMMERCIAL	14	0	14	1	0	1	0	0	0	2	1	3	**18**
COMPLIANCE & REPORTING	7	0	7	1	0	1	1	0	1	0	0	0	**9**
CORPORATE CONTROL	0	0	0	0	0	0	6	3	9	0	0	0	**9**
CSR	11	3	14	2	0	2	0	0	0	0	0	0	**16**
ENVIRONMENTAL	52	2	54	2	8	10	0	0	0	0	0	0	**64**
EXPLORATION	74	4	78	5	3	8	0	0	0	0	0	0	**86**
FINANCE CONTROL	0	0	0	0	0	0	4	0	4	0	0	0	**4**
FIXED PLANT MAINTENANCE	84	13	97	0	1	1	0	0	0	0	0	0	**98**
GA & ADMIN	52	4	56	0	0	0	0	0	0	0	0	0	**56**
GEOLOGY	0	0	0	0	0	0	2	1	3	0	0	0	**3**
GOVERNMENT REL & LAND ACQUISITIONS	0	0	0	0	0	0	0	0	0	0	0	0	**0**
HCCS	10	1	11	1	0	1	7	2	9	0	0	0	**21**
INTERNAL AUDIT	0	0	0	0	0	0	1	0	1	0	0	0	**1**
IT	1	0	1	1	0	1	0	0	0	0	0	0	**2**
LEGAL	0	0	0	0	0	0	3	0	3	0	0	0	**3**
MANAGEMENT	0	2	2	2	1	3	2	0	2	0	0	0	**7**
MINING	31	1	32	5	4	9	0	0	0	0	0	0	**41**
MOBILE MAINTENANCE	12	1	13	0	0	0	0	0	0	0	0	0	**13**
OHS	18	5	23	1	0	1	0	0	0	0	0	0	**24**
PRINCIPLE MINING	3	2	5	3	0	3	0	0	0	0	0	0	**8**
PROCESS PLANT	58	3	61	0	6	6	0	0	0	0	0	0	**67**
PRODUCTION	0	0	0	0	0	0	0	0	0	8	6	14	**14**
PROJECT	23	9	32	0	3	3	0	0	0	0	0	0	**35**
SALES & MARKETING	0	0	0	0	0	0	2	1	3	0	0	0	**3**
SECURITY	3	0	3	0	0	0	0	0	0	0	0	0	**3**
SUPPLY CHAIN	21	0	21	1	0	1	0	0	0	0	0	0	**22**
Supply Chain	0	0	0	0	0	0	3	0	3	0	0	0	**3**
SUSTAINABILITY & EXTERNAL AFFAIRS	17	3	20	0	0	0	0	0	0	0	0	0	**20**
TECHNICAL SERVICE	61	12	73	4	17	21	0	0	0	0	0	0	**94**
TOTAL	552	65	617	29	43	72	31	7	38	13	7	22	**747**

Source: Archi Management, 2021

Note: includes PT EMAS, a pilot JV business which contributes <2% of revenue in 2020 with small margins.

13.4 Human Resources function

Archi has a dedicated HR function with an appointed Executive Vice President for the management of HR at group level. In addition to this appointment, the Board has authorised a Remuneration and Nomination Committee to assist it with the discharge of its duties.

The purpose of the Committee is to assist the Board in discharging its oversight responsibilities relating to the following:

- all compensation including annual base salaries
- annual incentive compensation
- long-term incentive compensation
- employment practices
- severance pay and ongoing pre-requisites
- special benefit items and equity compensation of the Company's executives, including the CEO, as well as retention strategies
- the design and application of material compensation programs
- share ownership guidelines.

With respect to its mandate on HR, the Committee also has strategic oversight of matters relating to the development of the Company's HR with the main objective of creating a competitive HR base for Archi's operations. The Committee has an independent role, operating as an overseer with accountability to the Board.

HR matters are also managed at site through the appointment of HR managers with subordinate support from the following functional disciplines:

- industrial relations
- training, development and talent management
- recruitment
- enforcement of the company's disciplinary code
- assistance with the wellbeing of employees and employee remuneration
- management of employee performance.

Archi has developed and communicated an anti-corruption and anti-bribery policy, which is supported by ongoing training programs. To date, there have been no anti-corruption or anti-bribery audits.

Archi, as a privately held company, has not reported on ESG metrics and performance on a regular basis to date. Upon listing, Archi has committed to the development and integration of such measures into its business.

13.5 Industrial relations climate

As at 31 December 2020, more than 60% of Archi's employees were union members. The only union present on site is the SPKEP SPSI (*Serikat Pekerja Kimia Energi dan Pertambangan – Serikat Pekerja Seluruh Indonesia*).

Archi's employees are free to associate with any labour union. The SPKEP SPSI is a dominant union within the Indonesian mining industry. Trends in trade union membership at Toka Tindung Gold Mine have remained stable over the past five years.

Archi typically negotiates its collective labour agreements every two years. In February 2020, MSM and TTN and the SPKEP SPSI signed a CLA that was subsequently approved by the Social Manpower and Transmigration Office of North Minahasa Regency (*Dinas Sosial Kerja Dan Transmigrasi Kabupaten Minahasa Utara*) for a term commencing in December 2019. This agreement expires in November 2021.

To date, the mine has only lost four days to labour disruptions. In 2016, employees commenced a 4-day labour strike demanding annual increases to remuneration benefits which resulted in the closure of all of Archi's operations over that period. At the time this action was deemed as illegal by the Department of Manpower and resulted in disciplinary action to six employees being senior members of the union. This was never contested by the regional union authorities.

Since then, Archi has focussed on a good working relationship with the SPKEP SPSI. Regular monthly meetings are held on site with union representatives and management.

Certain regional governments have issued regulations and/or decrees regarding increases to the minimum provincial/regional wage in 2021. As a result of the COVID-19 pandemic, certain regional governments, including in Jakarta and North Sulawesi where Archi's business interests are located, have provided employers with some leniency with respect to the mandated salary increase, subject to obtaining relevant approval. Under the policy, employers who are economically affected by the COVID-19 pandemic may apply to the relevant authority to not increase their employees' salary and remain on the minimum wage as was applicable in 2020.

13.6 Performance management

There is a performance management system in place at Toka Tindung Gold Mine.

Archi has a bonus incentive system to drive the performance of employees and therefore the mine. The bonus incentive scheme is paid over and above the employee's remuneration. The bonus incentive scheme is driving the right behaviour among employees by instilling a culture of performance. The bonus system is based on a contribution of 50% of own performance and 50% of the mine's performance. The mine performance parameters are as follows:

- production
- safety, health, environment
- personal key performance indicators.

Personal factors include:

- attitude

- effectiveness
- achievement against specific key performance criteria.

In the year ended 31 December 2020, total remuneration paid to Archi's employees (inclusive of salary, bonuses and other employee benefits, totalled US$26.7 M. Other benefits offered by Archi include health insurance, contribution to provident and social security funds and certain educational scholarships.

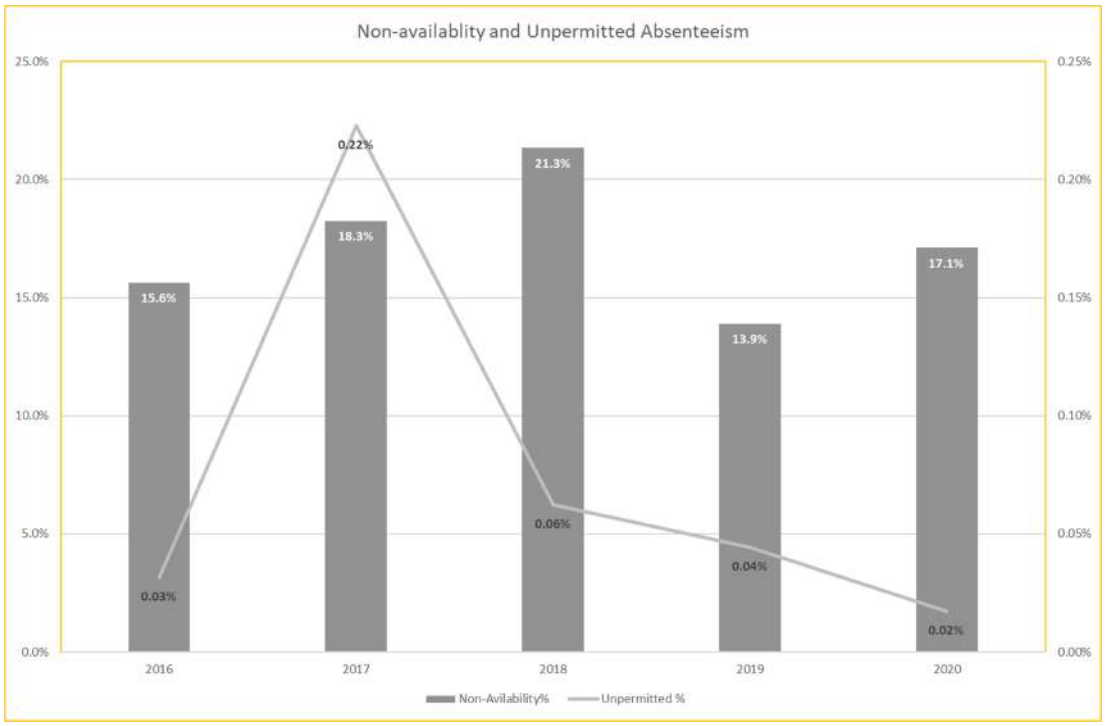
13.7 Labour availability and absenteeism

The labour non-availability and unpermitted absenteeism trend is provided in Figure 13-3.

The labour non-availability has averaged 17.2% and unplanned absenteeism has averaged 0.08% from 2016 to 2020. This rate of absenteeism and labour non-availability is well within the range observed in the mining industry.

SRK does not consider that either non-availability or absenteeism will materially impact on the achievability of Archi's proposed growth plan.

Figure 13-3: Toka Tindung Gold Mine summary of non-availability and unpermitted absenteeism 2016-2020



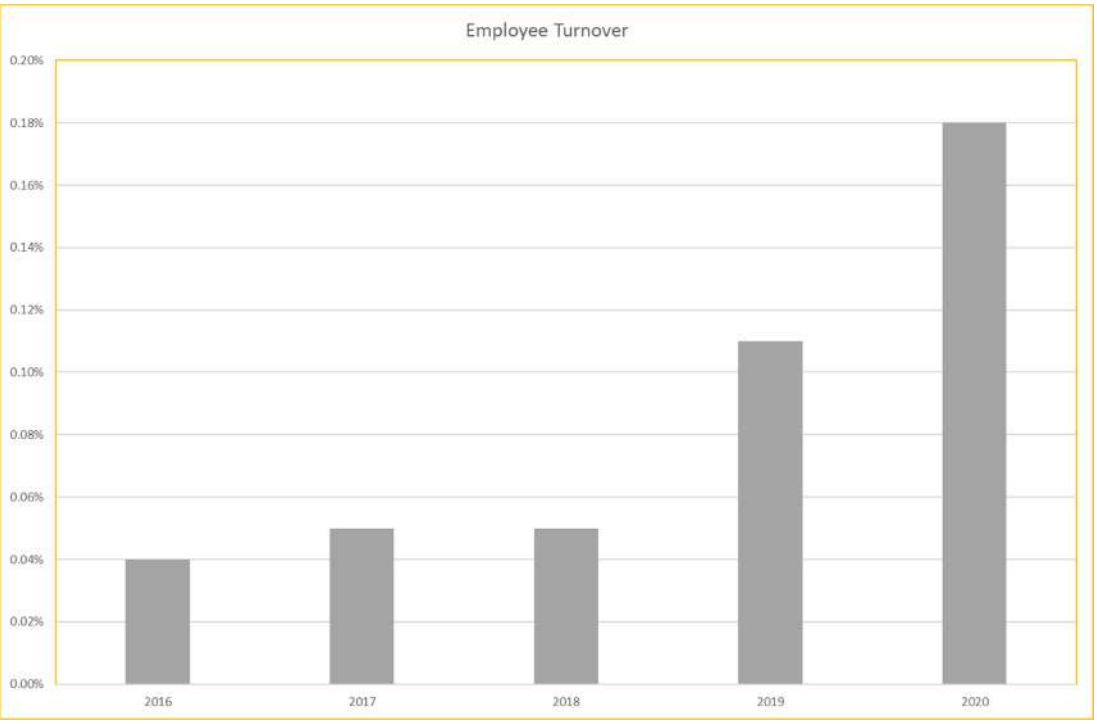
Source: Archi management, 2021

13.8 Employee turnover

Employee turnover/natural attrition statistics for Toka Tindung Gold Mine from 2016 to 2020 are provided in Figure 13-4. The statistics include dismissals, retirements, medical separations and

resignations. The employee turnover rate has gradually increased over the years but remains low overall and does not pose a risk to future operations at the Toka Tindung Gold Mine. SRK considers Archi management has an effective strategy to retain key skills.

Figure 13-4: Toka Tindung Gold Mine employee turnover 2016 to 2020



Source: Archi management, 2021

13.9 HIV, AIDS and COVID-19 management

No statistics are available for HIV/AIDS across the Company as this information is restricted – however SRK has been advised by Archi that HIV/AIDS has not materially affected either Archi's workforce or ongoing operations at Toka Tindung Gold Mine to date.

The Company does not consider there has been any significant disruptions to ongoing operations at Toka Tindung Gold Mine as a result of the COVID-19 pandemic. Archi estimates the impact on its 2020 gold production was approximately 50 koz, which arose due to a combination of the following events:

- Delay in the approvals of the river diversion for the Araren open pit and TSF Cell 2 commissioning from Q1 2020 to Q1 2021 due to COVID-19 related travel restrictions, which prevented earlier field inspections by the regulator.
- Postponement of the redesign and refurbishment of the secondary mill electrical control system from Q1 2020 to Q4 2020.
- In early March 2020, Archi's foreign suppliers were unable to commission process control and pebble crusher projects due to travel restrictions.
- The mobilisation of GMA's 100 t mining truck fleet was delayed from Q3 2020 to Q4 2020.

Some of the key personnel measures implemented as a result of the pandemic included:

- In March 2020, senior executives from Archi's headquarters in Jakarta were immediately relocated to the Toka Tindung Gold Mine so as to maintain operations in the event of lockdowns, civil disturbances and travel restrictions.
- In March 2020, Archi expanded its FIFO camp facilities to accommodate more than 600 key personnel, a significant increase from the initial occupancy of 175 personnel. This enabled local personnel to stay on site and reduced their risk of contracting COVID-19 from local communities. Key personnel were also provided with incentives to work longer cycles to balance out any vacancies caused by travel restrictions and quarantines.
- In April 2020, Archi complied with government and community protocols on COVID-19 testing, quarantines, social distancing and transportation between nearby villages so as to minimise disturbances to the Company's mining and processing operations. Archi also engaged additional buses to transport employees to and from its sites to reduce the risk of contracting COVID-19 from congested areas.
- In May 2020, Archi introduced work-from-home arrangements for its office employees, implemented telecommuting software, limited face-to-face meetings, reconfigured its office space and rented additional space so as to adhere to social distancing protocols.
- Commenced implementation of COVID-19 prevention and control measures following Government policy including body temperature monitoring at the site entrance, keeping safe distances, wearing standard masks, washing hands, an OHS campaign related to COVID-19 prevention and routine antigen SWAB tests to detect COVID-19 antibodies.
- By October 2020, nurses had been trained to conduct antigen tests at site and random testing commenced in December 2020.
- In October 2020, a hotel was leased where all COVID-19 positive employees were to be quarantined until a negative polymerase chain reaction (PCR) test result was achieved, daily temperature measurements and health checks were made, employees showing deteriorating health were transported to Siloam Hospital in Manado.
- All FIFO employees returning to work or visitors originating outside of North Sulawesi were required to have a negative PCR test in Manado prior to being allowed to enter the mine site.
- During December 2020, there were 1,200 swab antigen tests conducted with the results of 1,137 negative and 63 positives.
- Implementation of the SEHAT digital database module to cover COVID-19 management that includes daily antigen test records, quarantine employee management, managing and monitoring all COVID-19 cases, non-compliance of COVID-19 protocol reporting, etc.
- Actual forecast medical supply costs is above the budget, as the majority of the request are related to COVID-19 preparedness and is approved as part of the COVID-19 prevention objective.
- Finalisation of the COVID-19 surveillance testing standard operating procedure.

In the future, COVID-19 is expected to continue to affect Archi's ongoing business relationships with customers, suppliers, contractors and other stakeholders, albeit to a lesser extent than in 2020, as vaccines are rolled out.

To mitigate the ongoing impact of COVID-19, Archi has adopted anti-pandemic measures and implemented health and safety guidelines for all its employees, which comply with Indonesian and industry regulations, as well as Health, Safety and Environmental standards. These measures include, but are not limited to: telecommuting, limiting face-to-face meetings, restricting domestic and overseas business travel, implementing quarantines and mandatory (100%) PCR testing for FIFO employees or external contractors prior to visits to the mine site and conducting regular COVID-19 tests, as well as health and safety checks.

14 Occupational Health and Safety

14.1 Occupational health

Archi has committed to provide and maintain a safe and healthy working place and environment as an integral part of its operations. The Company has developed and communicated a Health and Safety Policy and adopted the ISO 45001 safety management system. Furthermore, it has developed an occupational health and safety management system called TOKASAFE, which complies with Indonesian Health and Safety Management System for Mining (*Sistem Manajemen Keselamatan Kerja Pertambangan* or SMKP) requirements and international standards. The Company was ISO-45001 certified for the period 2020 to 2023 by SGS United Kingdom Limited in September 2019.

To ensure its safety management system standard is maintained and continually improved, Archi conduct regular audits, such as internal audits every month, and certification for ISO 45001 audits every six months.

Additional procedures adopted to improve health and safety performance are the Positive Attitude Safety System (PASS) and the Incident Causal Analysis Method (ICAM) for safety incident management. The PASS system implements a "behavioural-based safety" approach where management and employees lead by example. ICAM is a system to guide investigators to the root causes of adverse events.

INX software is also used to assist Archi in its safety management and risk management processes. The system includes corrective action, email notification with reminders, escalation risk and compliance management and training management. It also includes observations, inspections, meetings, audits, injury management, and supports the full range of health and safety management activities and training activities.

In addition, Archi conducts competency training for employees and contractors and has developed training matrices and training need analysis for each position level in the organisation. Extensive health and safety training programs and contractor and visitor inductions (both on arrival and for workers, repeated annually) have been implemented across the site with approximately 1,600 training events and 9,600 trainees/inductees in 2020.

The working environment at the Toka Tindung Gold Mine open pit mining and processing complex is similar to other open pit gold operations globally and the identified occupational health risks are also similar.

Identified occupational health risks are as follows: silicosis, occupational tuberculosis, noise induced hearing loss (NIHL), whole body vibration, ultraviolet radiation and heat related (thermal stress) illnesses, as well as strain arising from ongoing heavy lifting or repetitive activities and exposure to chemical hazards.

14.2 Health surveillance results

In accordance with prevailing legislation, a manager must establish and maintain a system of medical surveillance of employees exposed to health hazards. Toka Tindung Gold Mine complies with this requirement.

Archi conducts an annual medical check-up for all employees (permanent and contract employees as well as contractor employees). Typical examination includes medical history review, physical assessment, physiological, bloods analysis, urinalysis, heart and lung conditions (including electrocardiogram, treadmill, and chest X-ray, and spirometry), hearing, vision, nervous system and musculoskeletal. If any problems are identified they are referred to a doctor for medical treatment, the cost of which is covered by the Company.

SRK notes the following:

NIHL – Toka Tindung Gold Mine has a comprehensive noise control program in place. Noise levels of all noise emitting equipment have been reduced to below the benchmark of 110 dB and all production employees have been issued with personal hearing protection devices and have to wear these devices in noise zones. Occupational exposure to noise appears to be controlled and NIHL cases should be on the decrease.

Thermal stress (heat illnesses) – in open pit mining, heat stress causes discomfort, decreased productivity, increased accident rates, and abnormal physiological strain on workmen. The ultimate consequence of excessive heat stress is a collapse of the body's temperature regulating system which results in death due to heat stroke. The provision of thermal conditions to minimise the dangers and adverse effects of heat stress is a significant mitigant. Heat discomfort starts at a wet bulb temperature above 27.5ºC.

Radiation – all working places are monitored on a quarterly basis. Radiation levels do not exceed the maximum permissible levels.

Pulmonary Tuberculosis is caused by bacteria. Most employees contract tuberculosis when they have low immune systems. Typical examples are employees who have underlying illnesses such as HIV/Aids and Silicosis. Therefore, not all the diagnosed cases can be classified as an occupationally related health disease.

Malaria is a mosquito-borne parasitic disease, causing fever, tiredness, vomiting and headaches. In severe cases it can cause seizures, coma and death. Archi has noted a reduction in the total number of malaria cases, the malaria days lost and the malaria frequency rate.

COVID-19 is a member of the coronavirus family, a virus that causes respiratory infections. It is transmitted as a result of close contact with an infectious person (including in the 48 hours prior to the onset of symptoms), contact with droplets from an infected person's cough or sneeze or touching objects or surfaces what have droplets from an infected person. As it is a new disease there is no existing immunity in the community.

All diagnosed occupational health disease cases are thoroughly investigated to determine if the illnesses are worked related, inherited or non-occupational illnesses before the cases are certified and compensated.

14.3 Safety

The Toka Tindung Gold Mine may be classified as a shallow open pit mining complex within a seismically active and tropical environment, which presents the continued operations with additional safety and health challenges when compared to similar operations in other locations.

The site has a safety induction system for site visitors and new employees, and a trained emergency response team is maintained on site (known as the Toka Tindung Gold Mine Emergency Response Team or TERT). TERT comprises 90 voluntary members from various departments and contractors. All members have certifications from the Indonesia Search and Rescue Agency (*Badan Nasional Pencarian dan Pertolongan* or BASARNAS) for open mine rescue.

Archi has established a first aid post on site with an ambulance equipped with trauma and cardiac emergency equipment. This first aid post is managed by certified emergency personnel and five certified Emergency Medical Technicians or paramedics, who are on standby onsite 24 hours a day, seven days a week. Onsite medical staff also conduct prevention programs regarding the health and fitness of Archi's workforce.

Occupational protective equipment and clothing is available and well utilised across the site. Safety provisions for surface plant, such as unsafe areas are clearly demarcated and moving machinery is appropriately guarded.

14.4 Statistics

The site has a reasonable safety record in terms of incidences, serious injuries and fatalities, with no fatal injuries recorded over the operational period (2011 to 2021).

The reporting of serious injuries is completed by the site doctor who reports to the Indonesian Departments of Manpower and Mines.

Average incident frequency rate for the full duration of the Toka Tindung Gold Mine operations (2011–2020) is 17.2, with 15.7 in 2020. Average IFR for the period 2011–2020 is 6.7, with 5.9 in 2020. Table 14-1 summarises the Toka Tindung Gold Mine Lag Safety Performance indicators as at December 2020 and covering the period 2011–2020.

Table 14-1: Toka Tindung Gold Mine Lag Safety Performance over time from 2011 to 2020

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No of incident	111	29	32	88	77	95	80	138	109	98
Lost Time Injury (LTI)	2	0	0	0	0	1	0	1	0	3
Restricted Duty Injury (RDI)	0	0	7	1	1	0	0	2	1	1
Medical Treatment Injury (MTI)	0	11	22	4	5	13	8	13	8	16
First Aid Treatment Injury (FAI)	51	18	3	26	13	24	17	22	16	11
Near Miss (NM)	33	1	24	57	58	56	52	101	84	67
Property Damage	62	45	53	59	27	46	38	45	36	32

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Injury Frequency Rate (IFR)	12.6	7.3	7.7	6.1	4.5	9.0	4.9	5.3	4.0	5.9
Lost Time Injury Frequency Rate (LTIFR)	0	0	0	0	0	0.25	0	0.14	0	0.57
Lost Time Injury Severity Rate (LTISR)	0	0	0	0	0	0.44	0	8.14	0	2.48
Days Lost	0	0	0	0	0	14	0	58	0	13
Incident Frequency Rate	20.1	12.9	13.4	17.3	19.1	21.1	15.7	19.4	17.3	15.7

Source: Archi Management, 2021

A key part of the Toka Tindung Gold Mine is its TOKA Safe program that measures lead indicators with respect to the mine's safety performance. Table 14-2 summarises the period of December 2020 and the year of 2020.

Table 14-2: TOKA SAFE Performance

Indicator Measurements	Target Close %	MTD	MTD Close %	YTD	YTD Close %
No of incident	100%	15	0%	130	44%
Lost Time Injury	100%	80	16%	1196	83%
Restricted Duty Injury	100%	1681	100%	5705	100%
Medical Treatment Injury	100%	157	93%	2247	57%
First Aid Treatment Injury	100%	155	91%	1008	95%

Source: Archi Management, 2020

14.4.1 Work stoppages

During 2020, the number of work stoppages was zero (0). The only significant work stoppage at Toka Tindung Gold Mine since operations commenced was related to a 4-day strike in 2017.

Toka Tindung Gold Mine traditionally has mined more tonnes than are able to be processed in order to offset any minor stoppages at the mine, late buses, etc. At 31 December 2020, there was more than 6 Mt of low grade and approximately 0.4 Mt (or around 1.33 months of supply) of mill feed grade on stockpiles at the processing plant.

There have been no fatalities to date and as a result of safety improvement initiatives, there have been significant reductions in injuries since 2011.

14.5 Health and safety programs

Archi has assisted local authorities with the implementation of various community health initiatives including the "First 1,000 days of Life" educational program, construction and operation of a health post centre, assisted in monthly food supplement program targeting toddlers and children in 24 proximal villages to the mine and most recently, COVID-19 prevention efforts (including education and donations of medically equipped buses, personal protective equipment and water bowsers).

14.6 Safety Awards

Archi has received several compliance certifications and awards in the mining safety field as shown in Table 14-3.

Table 14-3: Mining Safety Compliance Certification and Awards as received by Archi's Toka Tindung Gold Mine

Awards and Recognition	Periods	Awarded by
PRATAMA in Mining Safety Management	2013	MEMR
UTAMA in Mining Safety Management	2014	MEMR
IMA Award (First Place) in Mining Safety Management	2019	Indonesian Mining Association
UTAMA and PRATAMA in recognition of Mining Safety Management	2019	MEMR

Source: PT Lorax Indonesia, 2021

15 Capital and operating costs

15.1 Introduction

Archi is responsible for any costs that are not incorporated in the prevailing contractor's rates for the mining operation. These additional costs typically include:

- acquisition of land to support future mining and exploration endeavours
- preparing areas to accommodate relevant infrastructure, including:
  - waste dump
  - ROM stockpile
  - workshop and office areas
  - topsoil dump
  - environmental compliance discharge point for mine water
  - haul roads
  - mine access roads for non-production vehicles
  - mobilisation of the mining contractor, as well as the drill & blast contractor
  - mobilisation of the haulage contractor for ore to the Toka Processing Plant
  - establishment of workshop facilities, fuel storage, security, fencing, lighting, information technology, power and communications
  - items required by Archi's staff to complete their tasks in a professional manner
  - maintenance of environmental discharge compliance points, loading of ore haulage trucks and maintenance of mine access roads
  - rehabilitation and mine closure.

These costs are predominately capital costs, whilst applicable unit rates from the prevailing contracts are operating costs. However, some operating costs incurred by Archi are related to dayworks and Archi's own mining-related overheads.

Contractor rates typically include:

- L&H – unit rates
- drilling – unit rates
- blasting – unit rates
- hauling ore to Toka Gold Processing Plant – unit rates (included in processing costs)
- loading ore at ROM – dayworks (included in processing costs)
- dewatering – dayworks (included in support costs)
- grade control drilling – unit rates (included in support costs)
- environmental compliance – dayworks (included in support costs).

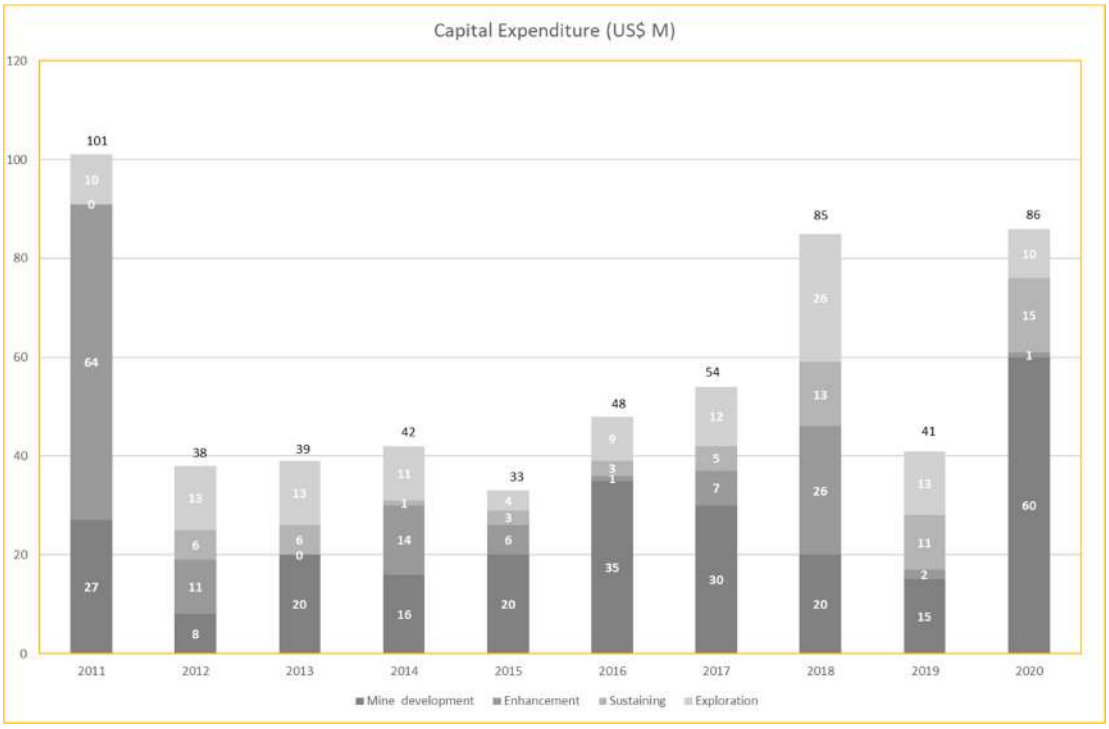
Operating costs associated with works completed by Archi personnel are included in support costs and all costs associated with ore processing are included in processing costs.

15.2 Capital expenditures

15.2.1 Historical

Archi's historical capital cost profile for the period 2011 to 2020 is presented in Figure 15-1. Over this period, annual capital expenditure has ranged between approximately US$33 M and US$101 M.

Figure 15-1: Capital expenditures at Toka Tindung Gold Mine over the period 2011 to 2020



Source: Archi Management, 2021

Capital expenditures peaked in 2018 as a result of the installation of a 2nd ball mill, as well as a change in the exploration philosophy (from simply maintaining Ore Reserve levels to replenishment and growth of the Ore Reserve position).

During 2020, approximately US$86 M was expended on capital projects at Toka Tindung Gold Mine. These capital projects largely focused on purchasing mining equipment, increasing the processing capacity to 4.0 Mtpa, construction and development of mining infrastructure, land acquisition, and waste capitalisation, as well as assessment of exploration opportunities in and around the Toka Tindung Gold Mine's Eastern corridor and the emerging Western Corridor, with a total of US$10 M spent on exploration.

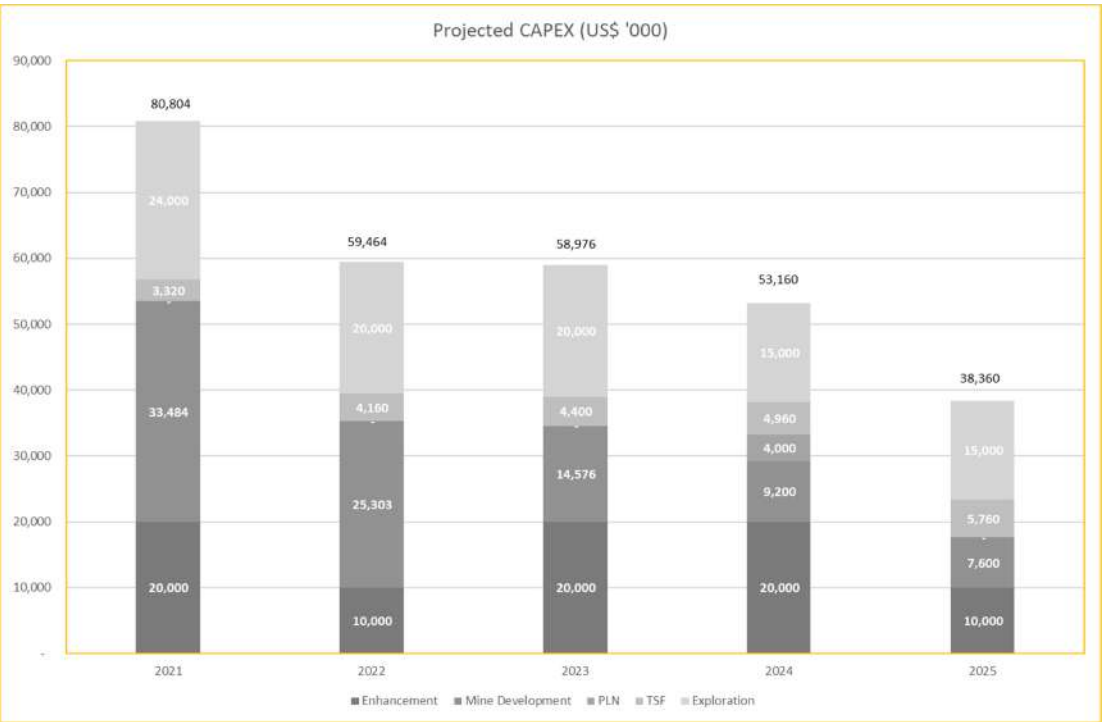
15.2.2 Capital forecast

SRK has also reviewed Archi's capital expenditure projections over the next five years, as presented in Figure 15-2 and excludes sustaining capital.

These capital costs have been estimated by Archi from actual costs associated with mining and processing operations to date or by following a series of indicative prices received from major equipment manufacturers and suppliers.

In general, SRK considers that appropriate capital has been allocated for maintaining the current production level and to support the planned mine production expansion to 8.0 Mtpa.

Figure 15-2: Projected capital expenditure at Toka Tindung Gold Mine over the period 2021 to 2025



Source: Archi Financial Model, 2021

15.2.3 Mining capital

Higher mine development capital costs are expected in 2021 and 2022 due to land acquisitions and associated relocation costs (principally road relocation near Araren and village relocations in the Talawaan area of the Western Corridor), as well as implementation of the grout curtain at Araren.

Over the period 2021 to 2025, a further US$27.9 M is allocated to the development of open pits (expansion of current or additional open pits) in both the Eastern and Western Corridors, as well as a further US$94 M (in the range US$15 to US$24 M per annum) in exploration expenditure.

15.2.4 Processing plant capital

The ongoing plant production creep to 4.0 Mtpa is costed in Archi's Toka Tindung Gold Mine LOM Model, including the addition of a new pebble crusher and additional CIL tankage. The Toka Tindung Gold Mine LOM Model incorporates a line item of US$9.48 M in 2021 for this work.

Enhancement capital cost allowances have been incorporated into the Toka Tindung Gold Mine LOM Model as the throughput is expanded above 4.0 Mtpa. The expansion of the plant to 8.0 Mtpa has been defined on an annual basis between 2021 and 2025 at US$84 M (including upgrade to PLN electricity to support mill expansion), with capital cost of US$20 M, US$10 M, US$20 M, US$24 M and US$10 M respectively. The study and planning work to support these cost estimates has been undertaken by Como Engineers Pty Ltd at a scoping level of study only. The work and level of accuracy will be updated as part of the Feasibility Study being undertaken by Archi beginning Q1 2021. Increased throughput is considered project upside based on Archi Management's intent and in this Report has been considered as a potential 8.0 Mtpa upside case.

15.2.5 Processing sustaining capital

Due to COVID-19 travel restrictions at the time of writing, a site inspection of the processing plant has not been undertaken as part of this review. It is understood that the processing facility has been maintained in a reasonable condition for an operation of its age, given it is located in a tropical climate that generally requires increased levels of plant maintenance. SRK has not been provided with recent plant structural integrity, SAG mill and ball mill condition reports, or other plant condition reporting to verify this statement on plant condition by Archi.

Appropriate critical (insurance) spares are carried on site including parts for the primary gyratory crusher, SAG and ball mill motors and pinion gears, and a spare girth gear for both the original SAG and ball mills. A spare girth gear for the new ball mill has been fabricated and is being transported to site. Critical spares are stored in air-conditioned facilities and the spare girth gears on engineered concrete pads in order to maintain their condition.

Archi's total general sustaining capital allowance for processing only is approximately US$5 M/year, which extends into the final year of operation. It is not separated into specific cost centres such as processing, tailings storage, infrastructure, mining or G&A. In SRK's opinion, the allowance is likely to be moderately low for the process plant and general infrastructure (i.e. once the TSF expansion costs are removed).

Sustaining capital for an operating plant is best forecast from historical costs and through a list of sustaining capital projects. The August 2020 year-to-date sustaining capital was US$4.7 M and ,if annualised, is equivalent to approximately US$7 M/year. Alternatively, it can also be either benchmarked from other operations or factored from a percentage of capital costs over the LOM or as a percentage of mechanical equipment replacement (but not necessarily used for mechanical equipment replacement). The processing and infrastructure sustaining capital costs can be calculated several ways including an annual percentage of the installed capital cost replacement, for example 1–2.5% or the application of a cost per tonne, often around US$0.75–$1.00/t.

Using the rules of thumb above and benchmarking against similarly sized gold operations, SRK recommends the incorporation of a sustaining capital allowance of between US$3 M/year (base case) and US$4 M/year (stress case sensitivity analysis) for processing and infrastructure, which excludes the tailings and other sustaining capital requirements. SRK considers that for modelling purposes, the sustaining capital can be tapered to 50% in the second last year of production and 25% in the final year of production.

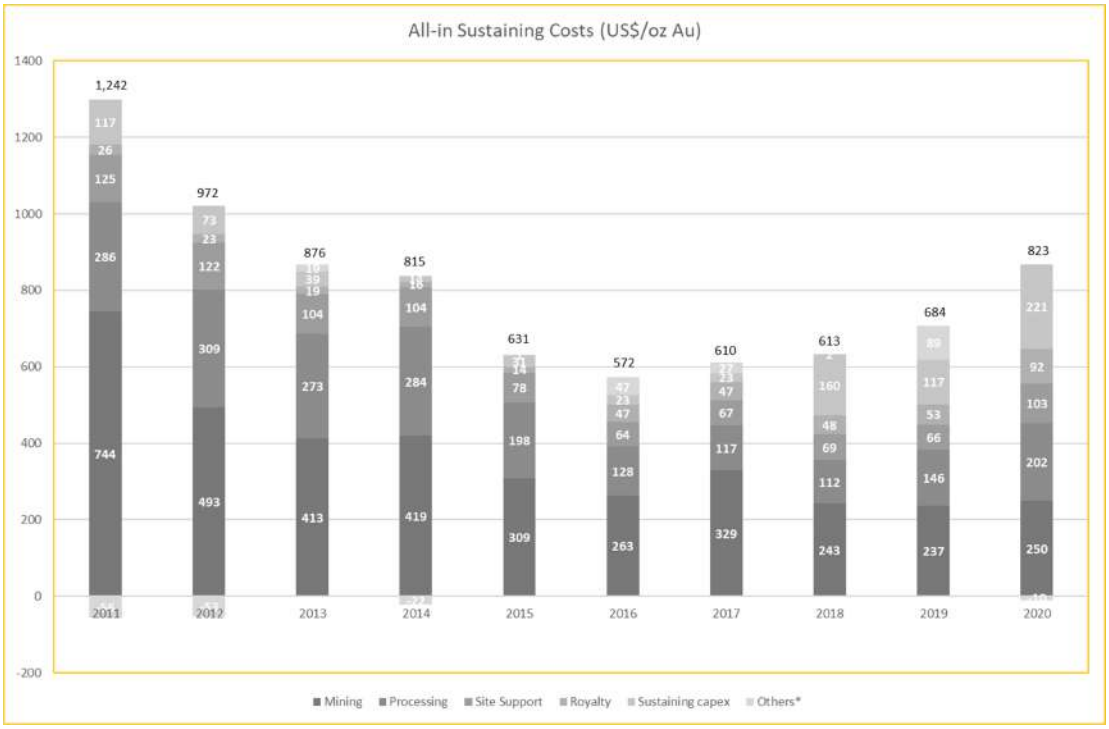
15.3 Operating costs

15.3.1 Historical operating costs

Archi's historical operating cost profile for the period 2011 to 2020 is presented in Figure 15-3. Over this period, annual operating expenditure (expressed in terms of All-in Sustaining Costs (AISC)) has ranged between approximately US$572/oz and US$1,242/oz. In 2020, AISC was US$822.6/oz.

Unit costs were subdued in 2016, as a result of higher strip ratios associated with the opening of the Araren open pit (peaking at 13.5 waste to ore tonnes), which drove increased waste production volumes (23.9 and 27.4 Mt of waste in 2016 and 2017 respectively). These strip ratios have progressively improved since that time (being 3.7 x in 2020) and resulted in lower overall waste production volumes (18.6 Mt in 2020).

Figure 15-3: Toka Tindung Gold Mine – All-in Sustaining Costs (2011 to 2020)



Source: Archi Management, 2021

Mining

The actual unit mining costs were US$3.11/t, US$3.74/t and US$3.25/t ROM for 2018, 2019 and 2020 respectively (Table 15-1). The main costs are dewatering, grade control drilling and assay, waste and secondary haulage and L&H operations.

Table 15-1: Mining, Processing and G&A unit operating cost summary

Cost Centre	2018 Actual	2019 Actual	2020 Actual
Mining Cost (US$/t mined)	3.11	3.74	3.25
Processing Cost (US$/t processed)	13.00	12.08	12.58
G&A Cost (US$/t processed)	9.07	6.13	6.51

Source: Archi Management, 2021.

Note: * The Site support costed increased significantly in September 2020 to US$6.98/t due to one-off costs associated with the SAG mill reline. SRK expect this to moderate back to the US$6/t level for the full year.

Processing

The actual unit processing costs were US$13.00/t, US$12.08/t and US$12.58/t feed for 2018, 2019 and 2020 respectively (Table 15-1). The downward trend continued into 2020 reversed slightly in 2020, principally as a result of the impact of the COVID-19 pandemic.

The main costs are electrical power, grinding media, cyanide, salary including on costs, consumables, maintenance, stockpile rehandling, SMBS, lime and other reagent costs.

General and Administrative

The actual G&A (site support) costs were US$9.07/t, US$6.13/t and US$6.51/t feed for 2018, 2019 and 2020 respectively (Table 15-1). The downward trend reversed slightly in 2020, mainly due to the impact of the COVID-19 pandemic, as well as the SAG mill reline and other works.

The main costs are associated with site management, security, information technology and finance functions.

When these costs are benchmarked against SRK's database of operating gold plants and projects, they are considered to be within, but at the high end, of the typical range.

15.3.2 Operating cost forecast

Mining

In preparation of the 2020 Ore Reserves, the mining cost forecast for Toka Tindung Gold Mine has been reviewed by SRK and compared against historical operating costs, albeit noting the transition to a new contractor operating a larger sized mining fleet. As a result of these changes, Archi is forecasting the mining costs (per tonne mined (ore and waste)) to fall from US$3.25/t in 2020 to US$2.36/t in 2021. Between 2021 and 2033, the average mining cost is forecast at US$2.58/t, within a minimum of US$2.02/t and maximum of US$3.57/t.

In SRK's opinion, the forecast mining costs used for the Toka Tindung Gold Mine LOM Model are reasonable and are supported by historical costs for a 4.0 Mtpa operation. Further analysis is required under the proposed Feasibility Study commencing Q1 2021 to establish reliable mining operating costs above this production rate.

Processing

The processing cost forecast in the Toka Tindung Gold Mine LOM Model has been reviewed and compared against historical operating costs, the best indicator of likely future costs when processing similar ores at a comparable throughput. The processing costs have also been benchmarked against peer operations of comparable size, processing a predominantly fresh ore feed blend. They also consider the impact of the expanded production rate to 4.0 Mtpa in 2021 and the operating cost of the proposed increase to 8.0 Mtpa by the end of 2025, with 2026 being the first full year of production at 8.0 Mtpa.

The forecast processing cost used in the Toka Tindung Gold Mine LOM Model is fixed at US$12.38/t feed. There is no cost reduction associated with the increase in throughput from 3.6 Mtpa to 4.0 Mtpa in Q2 2021. Part of the processing cost is fixed and SRK expects there to be a reduction, i.e. as a function of the fixed cost component but with increasing production.

The Toka Tindung Gold Mine actual and forecast processing costs benchmark well against SRK's throughput versus processing cost relationship developed from a database of operating gold plants and projects. These include regional operations and project references in Indonesia and Southeast Asia that process a predominantly fresh ore feed blend. Toka Tindung Gold Mine costs sit close to the trend line.

In SRK's opinion, the forecast processing costs used for the Toka Tindung Gold Mine LOM model are reasonable and are supported by historical costs. SRK has not identified a reason that would see a material increase in the estimated unit cost. Conversely, the processing costs do not decrease with the increased throughput to 4.0 Mtpa and potentially higher annual tonnages. Furthermore, the processing costs have moderated since 2018, a trend which continues into 2020 year to date. Because of this, in SRK's opinion, the processing cost assumption is likely to be conservative, namely already on the high side of the likely actual unit cost.

SRK support the forecast processing costs and consider there is an opportunity for further modest decreases in the longer-term operating costs. It offsets any minor cost risk associated with increased cyanide addition, oxygen addition and/or detoxification required to maintain gold recoveries.

Archi has identified potential processing cost savings of 10% to be realised by 2024. Sources of the savings have been listed but are generalised in nature, i.e. have not been defined in detail. SRK supports the majority of the proposed savings opportunities and the overall quantum of the saving, at the current throughput rate.

The processing costs at the proposed expanded throughput scenario of 8.0 Mtpa fall to US$8.49/t feed. This is currently an estimate but does have some basis. It assumes that cost savings of approximately 10% are achieved at the current throughput, then once the remainder of the costs are adjusted for the increased throughput, assuming a fixed to variable cost ratio of 50:50 it would be of this order. In SRK's opinion, this is likely to be at the low end of the likely range and could be US$0.50/t–1.00/t feed above this. SRK recommends sensitivity testing should be undertaken as

part of the 2021 Feasibility Study around this to determine the robustness of the project economics to the higher processing cost.

General and Administrative

The G&A cost forecast in the Toka Tindung Gold Mine LOM plan has been reviewed and compared against historical operating costs, the best indicator of likely future costs when processing similar ores at a comparable throughput. They have also been benchmarked against peer operations of comparable size, processing a predominantly fresh ore feed blend. They also consider the impact of the expanded production rate to 4.0 Mtpa in 2021.

The forecast G&A cost used in Archi's LOM plan is US$6.16/t feed. There is no reduction associated with the increase in throughput from 3.6 Mtpa to 4.0 Mtpa in January 2021. The G&A cost is predominantly fixed and SRK expect there would be a reduction proportional to the increase in tonnes.

In SRK's opinion, the forecast G&A costs used for the Toka Tindung Gold Mine LOM Model are reasonable and are supported by historical costs and trends, and the proposed expansion project. SRK supports their use and consider there is an opportunity for further modest decreases in the longer-term operating costs.

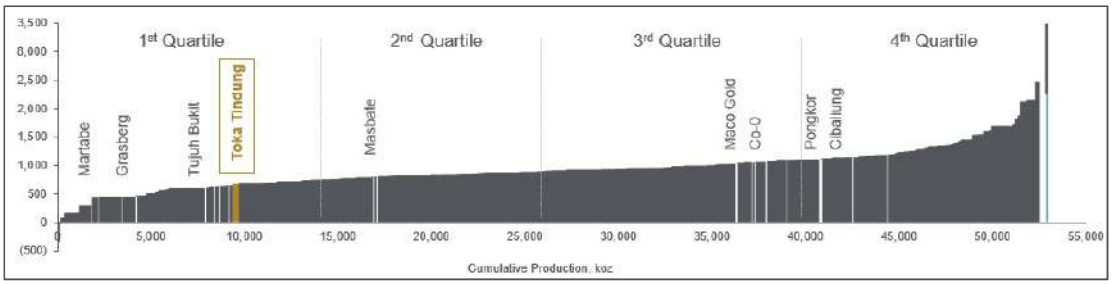
The G&A costs at the proposed expanded throughput scenario of 8.0 Mtpa drop to US$5.68/t feed during the ramp-up period between 2021 and 2025, fall to US$4.26/t feed once production has been ramped-up to the full capacity for the following five years and then ultimately fall further to US$3.41/t feed. The bulk of these costs are largely fixed and so decrease with the increasing throughput. In SRK's opinion, the revised G&A costs are also reasonable and are likely to be conservative savings in the first 5 years of production reaching 8.0 Mtpa.

15.4 Global cost curve positioning

According to CRU (2021), Toka Tindung Gold Mine's position on the 2019 global cost curve of AISC is in the first quartile as shown in Figure 15-4.

The mine is currently relatively well placed in the Indonesian gold mining industry and costs would normally be expected to decrease as tonnages increase.

Figure 15-4: Toka Tindung Gold Mine's position on the 2019 global cost curve (US$/oz, 2019 AISC)



Source: CRU, 2021

Further discussion of Toka Tindung Gold Mine's positioning on the 2019 global cost curve is outlined in CRU's report.

16 Risk assessment

16.1 Introduction

Relative to many industrial and commercial operations, mining is a relatively high-risk business. Each mineral deposit is unique. The nature of the mineralisation, the occurrence, orientation and grade of the ore, and its behaviour during mining and processing can never be entirely predicted.

Estimation of the tonnes, grade and overall metal content of a deposit are not precise calculations but are based on interpretation and on samples from drilling or channel sampling which, even at close sample spacing, remain very small samples of the entire orebody. Despite best endeavours, there is always a potential error in the projection of sampling data when estimating the tonnes and grade of the surrounding rock and significant variations may occur. Reconciliations of past production and Ore Reserves can confirm the reasonableness of past estimates, but cannot categorically confirm the accuracy of future predictions.

Estimations of project capital and operating costs are rarely more accurate than ±10% and will be at least ±15% for projects in the planning stages (at a Feasibility Study level or ±20-25% for Pre-Feasibility Study level). Mining project revenues are subject to variations in metal prices and exchange rates, though some of this uncertainty can be removed with hedging programs and long-term contracts.

In reviewing the potential modelling scenarios for Archi's Toka Tindung Gold Mine, SRK has considered areas where there is perceived technical risk to the operation, particularly where the risk component could materially impact the projected production and resulting cashflows. The assessment is necessarily subjective and qualitative. Risk has been classified from low through to high based on the following definitions:

- **High Risk**: the factor poses an immediate danger of a failure, which if uncorrected, will have a material effect (>15%) on the project cash flow and performance and could potentially lead to project failure.
- **Moderate Risk**: the factor, if uncorrected, could have a significant effect (>10%) on the project cash flow and performance unless mitigated by some corrective action.
- **Low Risk**: the factor, if uncorrected, will have little or no effect on project cash flow and performance.

16.2 Mineral Resources (low risk)

The Mineral Resource Estimates have been produced by, or under the supervision of, SRK, using the database provided by Archi. The Mineral Resources are reported under the JORC Code (2012).

The Measured Resources are generally defined by close spaced drill holes from surface or within the existing open pits, while the Indicated Resources are generally defined by more widely spaced drill holes.

A low risk, in the form of tonnage uncertainty, exists at the Talawaan deposit due to the uncertainty associated with the extent of artisanal underground mining. An allowance for such depletion has

been made with the best possible available information and the tonnage involved is classified as Indicated or Inferred, rather than Measured to reflect the associated uncertainty.

There is a low risk associated with the density values assigned to the deposits due to minor historical anomalies. Density is not expected to be highly variable, but this has not yet been established sufficiently well to enable block by block density estimation. Densities are broadly assigned on a combination of lithology and oxidisation. Potential density fluctuations may be in the order of ± 5%.

For the Marawuwung deposit, there is a low risk relating to the relative proportion of high-grade gold mineralisation (~2 g/t Au average grade material) due to the estimation method (OK) used and the relatively low average grade of the deposit. This risk is mitigated at the Toka deposit, which has a similarly low average grade, by the use of an alternative estimation methodology (Local Uniform Conditioning). This risk is not relevant to the remaining deposits, as the average grade is substantially higher.

16.3 Ore Reserves (low to moderate risk)

The Toka Tindung Gold Mine Mine Ore Reserve has been produced by SRK, with inputs from Archi. The Basis of Design, defining the parameters for optimisation, open pit design and production scheduling, was prepared by Archi with support from SRK. Archi took responsibility from a Competent Person's perspective for these input parameters. SRK undertook the optimisation, open pit design and production scheduling aspects with support and guidance from Archi. SRK used procedures and parameters which are considered appropriate and conformable to the JORC Code (2012).

Only the Measured and Indicated Mineral Resources that are planned to be mined have been converted to the Proved and Probable Ore Reserves. The mining dilution and mining recovery factors used for conversion of Mineral Resources to Ore Reserves are factors between the in situ Mineral Resources and ore delivered to the mill for processing. Appropriate design losses have been included in the mining recovery factors. In a number of cases the modifying factors are informed by recent production experience and in such cases are relatively well-informed and present low risk, while other forward-looking estimates in the mine plan and schedule are considered to be at a Pre-Feasibility level of accuracy, so supporting the Ore Reserve, but not at the level of a Feasibility Study.

SRK considers that the Ore Reserves risk is generally low for Toka Tindung Gold Mine except for the following aspects, which have a moderate risk: The gold grades for the Marawuwung deposit is relatively low at 0.93 g/t Au, and the mining operation may not be profitable at a low gold price.

16.4 Geotechnical (moderate to high risk)

There have been several instances of instabilities in the existing open pits, with the two failures in the Araren pit being the most serious. One of these failures hindered ramp accessibility, with the resultant loss of pit production for a significant period. Reviews of the failures have led to recommendations for redesign of slopes and for other mitigating actions (depressurisation and slope/groundwater monitoring).

The effects of a severe seismic event on pit slopes in weak materials, or on natural hillslopes above infrastructure and pit slopes below infrastructure (for example, the river diversion channel and power line above the east wall of the Araren Pit), could present a risk to safety of personnel and mining operations.

Where multiple pits are in operation, more aggressive slope angles can be considered, as the consequences of failure on production delays in any one pit are less severe than for all pits.

Archi has been managing the Toka Tindung Gold Mine open pits since mining operations commenced in 2011. It is apparent that Archi now has a better understanding of the failure mechanisms within the pits, as well as relevant experience, skills and infrastructure to hand in order to adequately manage the geotechnical risks. However, it is likely that specialist consulting assistance will still be required for complex stability analyses, depressurisation assessment and design review as pit development is ongoing.

Significant effort is being made by Archi's onsite teams and consultants to constantly assess the causes of instabilities and mitigate the risk of future instabilities by design adjustments, slope depressurisation, erosion protection and monitoring. However further data collection and comprehensive and/or targeted studies are required as the pits, in particular the Araren pit, become larger and deeper.

16.5 Geohydrology (low risk)

The management of high temperature, high salinity groundwater presents a low risk to the Project principally associated with the sourcing and costs of dewatering infrastructure (e.g. pumps, piping) required to manage the high temperature and salinity groundwater and management of the effluent. SRK agree with the DVH proposal to consider the opportunity to use managed aquifer recharge (i.e. reinjection of effluent) as an option for disposal of effluent. Archi has been managing these groundwaters over several years since mining operations commenced in 2011 and has the appropriate skills and infrastructure in place to adequately mitigate the associated risks.

16.6 Mining (low to moderate risk)

Archi has appointed a new mining contractor, utilising a significantly larger size fleet. The expectation and planning is based on improved production efficiencies and reduced mining costs, and there is a risk that these are not achieved. A number of mitigating actions have been put in place to ensure planned achievements are made, including Archi's ongoing access to the management of the contract, the early appointment of suitably qualified Maintenance Manager and Operational Readiness Manager. Archi also has access to appropriate mining sub-contractors, if required.

There is the need to relocate/re-route certain obstacles for the mine expansion, i.e. river, road and power lines, resulting in the need for permitting approval, land acquisition and construction. All current mine planning is supported by a permitting, licence and land acquisition plan with the appropriate management and supporting teams to deliver the required outcomes for key mine expansions. The success of ongoing incremental upgrades to the mining production capacity are dependent on the success of the various upgrade plans. Should the upgrade plans not achieve

their stated objective, including timelines, then the expansion-related improvements may not occur as forecast.

The mine is planning for a greater than 100% expansion in mine production from 2021 to 2025/2026 and the increase will be derived from ore somewhat different from those ores currently being mined. In particular, some future ore sources are expected to be softer than ores presently being mined.

In general, groundwater control and ground control problems are recognised and well defined. However, there is some risk in every open pit mine, particular, those located in a high rainfall and seismically active environment. This is particularly the case when forecasting the cost for expansion projects that are somewhat different from those mined previously. These factors combine to increase the mining risk from low to low-moderate.

16.7 Processing (low risk)

The Toka Tindung Gold Mine plant is supported by adequate supplies of feedstock, and is located proximally to established electrical, water and transportation infrastructure capable of supporting future growth plans. The plant is supplied with suitable reagents and consumables from established suppliers, with gold products sold to existing buyers. As such, the risks in these areas are considered to be low.

There is potential for throughput to exceed 4.0 Mtpa but the ultimate value will only be evident after the current upgrade projects are completed in 2021 and the proposed Feasibility Study finalised.

16.8 Infrastructure (low risk)

The Toka Tindung Gold Mine has been in operation for more than 10 years and is supported by well-established infrastructure. The mine is located in relative proximity to major highway/road systems with good paved roads connecting the mine to nearby villages, towns and cities. There is sufficient power and water supplies to support the current operations and planned expansions.

16.9 Gold production (low risk)

The production of gold in the near future from Toka Tindung Gold Mine is expected to steadily grow due to planned capacity expansions. Given the expansion to the Mineral Resource and Ore Reserve base as at 31 December 2020, planned increases to the production capacity and planned expansions, SRK considers that the production forecasts are reasonable and of low risk. SRK cautions that throughput may be below forecast for an additional few months than forecast during project implementation and ramp-up.

The success of ongoing incremental upgrades to the production capacity are dependent on the success of the current upgrade projects. Should the current upgrade projects not achieve their stated objectives then subsequent planned projects may not occur.

Production upgrades remain dependent on further capital investments in the processing plant infrastructure. If this is not forthcoming then Archi's stated production objectives will not be achieved.

16.10 Operating cost (low risk)

The 2020 actual unit operating costs for the Toka Tindung Gold Mine are generally considerably lower than that for similar operations in Indonesia. The operating cost projections are mostly based on the historical and current actual operating costs. Future increases in labour and material costs have been factored into the operating cost projections. However, these are based on a much smaller operation than the planned 8.0 Mtpa and can be considered to only be at a scoping study level of accuracy. Further definition and improved processing operating cost estimate accuracy is required as part of ongoing feasibility study.

16.11 Capital cost (low to moderate risk)

The Toka Tindung Gold Mine operations are planning to increase the mine production significantly in the near future.

SRK has been provided with high-level, conceptual capital cost estimates for Archi's proposed expansion of the mine, which remains subject to confirmation (including greater definition and improved cost estimation accuracy) during a Feasibility Study due to commence in Q1 2021. Based on its review of the currently available capital cost estimates, some of which are currently at scoping level, SRK considers that the capital costs for Toka Tindung Gold Mine have a low to moderate risk as to their accuracy over the longer term (principally beyond 2022) during the upgrade from 5 to 8 Mt.

16.12 Environment and community (low risk)

The Toka Tindung Gold Mine mining and processing operations possess the necessary environmental approvals. The permits for air and water emissions stipulate the environment protection conditions for the site, including the frequency of site inspections to ensure compliance with the environment protection requirements.

Environmental monitoring, which includes the monitoring of wastewater quality, air quality and general site inspections, is undertaken by the individual site environment protection group on a daily to weekly basis. Monitoring results confirm compliance with individual site permit requirements.

Archi faces risks associated with the closure of its mines including the long-term management of permanent engineered structures, achievement of environmental closure standards and orderly retrenchment of employees and contractors. The success of these is dependent upon the Company's ability to successfully negotiate agreements with the local government, community and employees.

16.13 Workforce (low risk)

The success of the Toka Tindung Gold Mine is highly dependent on qualified geologists, mining engineers and other mining specialists, as well as its senior management team. Only a limited number of skilled mining specialists with adequate qualifications and experience are available in the local and international labour market, and there is an increasing demand for such qualified personnel as more international and domestic companies invest in mining industries. Archi

provides its employees with market competitive salary packages and benefits including rosters and as a result current turnover rates are acceptable and no cause for concern.

A substantial portion of Archi's exploration, mining and mine construction supporting works (excluding mineral extraction and processing activities) are subcontracted. As such, Archi is exposed to contractors who may take actions contrary to its instructions or requests, be unable, or unwilling, to fulfil their obligations, or have economic or other interests or goals that are inconsistent with those of Archi. Archi seeks to mitigate this risk by maintaining long-term and stable working relationships with contractors and if warranted, by taking a direct equity stake to maintain direct oversight and control over its operations.

16.14 Occupational health and safety (low risk)

The technical competence and experience of Archi's staff is good and the safety statistics of recent years reflect a low OHS risk environment. Safety statistics are available at all department levels.

Archi has in place a certified Occupational Health and Safety Management System, with site systems based on this format. The site has systems for regular internal and external site inspections, identification of safety risks and associated development of mitigative measures.

17 Conclusions and Recommendations

17.1 Conclusions

Toka Tindung Gold Mine is a high-grade gold mine with substantial Ore Reserves and Mineral Resources presently defined (as at 31 December 2020), in addition to excellent prospectivity for the discovery of additional resources. Economic modelling and sensitivity analysis by SRK has demonstrated the robustness of the stated Ore Reserves, which is further underpinned by a sizeable Mineral Resource base and additional Exploration Targets able to support the LOM schedule to 2041. The mine is currently well placed in the Indonesian gold mining industry, being in the higher part of the first cost quartile and costs would normally be expected to decrease as tonnages increase.

Archi's growth plans to expand to 4.5 Mtpa near term are well supported by the asset's previous operating history, the approvals, permits, contracts and agreements which are either in-place or under renewal, as well as the existing infrastructure and the assembled workforce.

Longer term plans to increase annual production capacity to 8.0 Mtpa remain conceptual in nature and will need to be fully assessed as part of the proposed Feasibility Study commencing in Q1 2021. A key success factor in the proposed expansion will be Archi's ongoing interactions with community, government and other stakeholders to gain the necessary approvals to support this growth opportunity. In light of recent successful applications for such and Archi's proposed capital expenditure profile, SRK does not expect there will be any major constraints for the expansion beyond 4.5 Mtpa.

17.1.1 Geology and Mineral Resources

The 2020 Toka Tindung Gold Mine Mineral Resource shows a large increase in total tonnage and metal with a decrease in overall gold grade compared to the 2019 reporting. There are three main reasons for the increase. Firstly, the constraining pit shells used are based on very different gold price assumptions. The 2019 constraints assumed a gold price of US$1,800/oz and the 2020 constraining shell used a gold price of US$2,340/oz thus producing a larger pit shell. Secondly, the reporting cut-off has also been reduced from 0.5 /0.6 g/t Au to 0.2 g/t Au in line with the gold price used. Thirdly, the geological modelling methodology is also significantly different in that a more diffuse mineralisation style is considered for the 2020 models that takes in more of the peripheral low grade.

In addition, the Talawaan Mineral Resource, which did not form part of the overall Toka Tindung Gold Mine Mineral Resource in 2019, is now included.

While most of the deposits have been well explored, i.e. drilled out, to close to their open pit depth limits either geologically or economically, there is still potential for the discovery of additional gold-bearing strike extensions and parallel structures at each deposit.

17.1.2 Geotechnical

The main hazards with regards to pit slopes can be summarised into two categories:

Large scale slope failure

The risk is the presence of deep weathering or alteration may result in unexpectedly great depth or thickness of poor quality, weak rock mass; with a high risk of multi-batter, inter-ramp scale or overall slope failures.

Structural control may enhance the risk of slope failure, either as a result of the presence of structures of low strength and high persistence (faults) or as a result of toppling and rock mass dilation.

Poor depressurisation of slopes and/or transient recharge/re-pressurisation may increase the risk of slope instability, particularly in weathered altered, weak and highly fractured materials after heavy rainfall.

The risk could potentially be high (catastrophic in extreme cases, ,i.e. slope failures significantly impacting infrastructure, people and therefore production), however the residual risk can be reduced to medium to high by the appropriate slope re-design, additional data collection and modelling, and slope depressurisation and monitoring. SRK considers that attaining a medium to high risk profile for the geotechnical slope management would be as expected for any mining operation in similar conditions, requiring high levels of appropriate design, monitoring and responsiveness.

Bench scale instability and rockfall

The risk is there may be an increased risk of rockfall due to insufficient catch capacity resulting from poor performance of batters (crest loss and rilling) or overly steep slope designs (batter failures and collection of failed material obscuring berms).

This risk could be considered medium to high in places, however mitigation measures including suitable batter/berm design configurations, surface drainage, erosion protection and monitoring will likely reduce the risk to medium to low, which SRK considers appropriate for this mining scenario, supported by high levels of appropriate design, monitoring and responsiveness.

17.1.3 Hydrogeology

Significant hydrogeological investigation has been completed for the Project and preliminary estimates for surface water and groundwater inflows into the proposed pit have been developed as part of the existing studies. Dewatering is the data gap with the highest material risk to the Project, based on the recent investigations that identified high yielding zones of the high salinity, high temperature groundwater. Understanding the impact of the potentially high yielding, high temperature and salinity groundwater on any dewatering strategies and infrastructure requirements is considered a key data gap and risk for the Project. This includes the sourcing and costs of dewatering infrastructure (e.g. pumps, piping) required to manage the high temperature and salinity groundwater as well as the management of the dewatering effluent.

Other data gaps include the requirement for depressurisation, development of a detailed water balance and completion of a groundwater impact assessment and these matters should be addressed as Archi proceeds with more detailed mining studies and mine expansion.

In support of this observation it is noted that the Company has embarked upon a research project with the hydrogeology company DVH Pty Ltd delineating the major aquifers intercepted by the Araren pit mining and assessing the feasibility of installing a grout curtain to reduce the water inflows over 2021.

17.1.4 Mining and Ore Reserves

The Toka Tindung Gold Mine operations have over 10 years of production history, utilising conventional open pit mining methods, undertaken by a mining contractor. The ongoing production has provided Archi with a solid understanding of mining/geotechnical conditions and operability of the open pits, as well as the processing facility's response to mixed ore types. Through production experiences to date, Archi has learnt how to operate Toka Tindung Gold Mine in an efficient and profitable manner.

Any mining issues that are encountered are managed and resolved by an experienced technical team.

The 2020 Ore Reserve estimate is based on a Pre-Feasibility Study (PFS) level of assessment as required to be reported in compliance with the JORC Code (2012). In the opinion of the Competent Persons who prepared the estimate of the Ore Reserves, the Ore Reserves are acceptable as a reasonable representation of global grades and tonnages and have been prepared to a sufficient quality standard under the guidelines set out in the JORC Code (2012).

The Competent Persons are not aware of any new information or data that materially affects the information and that all material assumptions and technical parameters underpinning the Ore Reserves are valid as at 31 December 2020 and continue to apply and have not materially changed up to the date of this Report.

17.1.5 Processing

SRK considers the Archi Gold Operation process plant flowsheet to be conventional and suited to the continued processing of the Toka Tindung Gold Mine gold ores.

In SRK's opinion, the forecast throughput of 4.0 Mtpa and the metallurgical gold and silver recoveries of 88.1% and 72% respectively over the LOM used in the Toka Tindung Gold Mine LOM model and for the ore Reserve Update are reasonable and are supported by historical production data, ongoing metallurgical/geometallurgical testwork, the recovery correlations developed and the recently completed and proposed future expansion projects. The current comminution circuit upgrade projects, scheduled for completion in 2021, may enable a further increase above 4.0 Mtpa.

Based on the review undertaken, and benchmarking against other comparable gold operations, SRK considers that the forecast LOM processing and G&A operating costs are reasonable. They are supported by historical production data and the recently completed and proposed future expansion projects. In SRK's opinion the forecast process and infrastructure sustaining capital costs are likely to be moderately understated.

In SRK's opinion, there is a good likelihood of a reduction in processing and G&A costs and potential for further throughput increases. The most notable risk is that of gold recovery variability. This is being addressed by current upgrade works including increasing the power absorbed in the secondary mill, optimising ball sizes and quality, modifying mill discharge liners, additional CIL tanks, improved pebble crushing and improved oxygen addition.

The proposed future plant expansion to nominally 8.0 Mtpa has not been developed past a scoping level of study. Feasibility level engineering and costing will be initiated in Q1 2021. The indicative increase in throughput, marginal increase in gold recovery associated with a small decrease in the grind size, and a reduction in the processing and G&A costs largely as a function of the fixed cost component are all reasonable assertions based on historic production but require further development to increase the level of confidence in these values for the purposes of economic modelling.

17.1.6 Tailings storage facility

The Toka Tindung Gold Mine TSF is a major piece of infrastructure that presents some significant risks, and it currently has some issues that require urgent attention. While interim measures are in place, the TSF does not yet have an external spillway that meets the design requirements. Instead, an internal spillway has recently been constructed, which only allows excess water to spill from one internal cell of the TSF to the other. The TSF is also reliant on the successful operation of a diversion drain, which was not constructed in accordance with its design. This also requires near term attention.

17.2 Recommendations

17.2.1 Exploration

As outlined by previous independent exploration consultants, future exploration at Toka Tindung Gold Mine should consider the following geological scenarios for gold mineralisation:

- Vertical growth history: younger faults in cover rocks may not be well-mineralised, but they may sit above or very near the position of older reactivated ore-controlling structures at depth. Examples may be weaker parts of the Marawuwung and Toka North prospects.
- Fault reactivation: several faults were probably reactivated during several stages of deformation, not all of which were relevant for mineralisation; the sense of movement upon reactivation depends on the orientation of the prevailing stress field.
- Strain partitioning: although faults are modelled as single surfaces, they are likely represented by several individual segments.

17.2.2 Mineral Resources

At the Toka deposit, further RC and diamond drilling is recommended to better define Inferred portions of the presently defined Mineral Resource, as well as extensions along strike and at depth down-dip. Infill drilling to increase confidence in the resource model and support upgrading Indicated to Measured and Inferred to Indicated is also recommended.

At the Marawuwung deposit, further RC and diamond drilling is recommended to upgrade Indicated portions of the presently defined Mineral Resource to the Measured category and similarly Inferred to Indicated. In addition, extension drilling is recommended to extend open pit resources along strike and at depth down-dip. Infill drilling will target increasing confidence in the resource and upgrading.

Further infill and extensional drilling is recommended at Kopra focused on extending open pit resources along strike and at depth, as well as defining additional Inferred material and upgrading the Inferred portions to Indicated status.

Further infill and extensional RC and diamond drilling programs are recommended at Araren to target areas along strike to the south and to extend existing vein mineralisation wireframes towards surface in this direction.

Near term exploration at Alaskar is focused on extending open pit resources along strike and at depth. Existing wide-spaced drilling indicates the resource is likely to extend along strike to the northwest. In addition, the resource is also interpreted to remain open at depth, particularly in the central part of the deposit. Infill and extensional drilling programs are recommended to target these areas.

Additional infill and extensional RC and diamond drilling is recommended at Talawaan to upgrade the Inferred portions, and to assess the along strike and at depth potential, of the current Mineral Resource.

Exploration targets outside of the main resource areas include:

- the potential for defining parallel northwest-trending zones of mineralisation, with numerous >1 g/t Au drill intersections already identified to the west of the current Alaskar resource
- testing for a ‘feeder structure’ at depth and wide-spaced step-out drilling across an area of resistivity identified by a CSAMT geophysical survey to the northwest of the Toka deposit.

17.2.3 Geotechnical

SRK recommends the following:

- Ongoing mapping of pit walls; and drilling, logging and laboratory testing for better definition of geotechnical and structural models in critical slope areas and pit cutbacks
- Review of stability for key pit walls, with sensitivity analyses performed for: groundwater, rock fabric and presence of faults. These analyses should be undertaken to review existing designs where these may be critical in terms of mine planning or exposure of personnel to instability; and for all new pits and cutbacks in the future
- Installation of piezometers in specifically targeted areas around the pits
- Collection of site-wide hydrogeological data, and more information on current groundwater levels, to construct a conceptual hydrogeological model for the pits
- Improved depressurisation modelling for the design of drainhole lengths and spacings
- Installation of depressurisation holes, with drainage ditches installed to ensure that groundwater outflow is removed from benches and ramps

- Ongoing monitoring of site-wide groundwater levels
- Ongoing slope monitoring
- A comprehensive study to evaluate stability of WRDs.

17.2.4 Hydrogeology

Further studies are recommended for the Project and should include:

- Development of a finalised dewatering plan for the pits, specifically identifying:
  - the location of proposed bores, including depths and proposed pumping rates
  - numerical groundwater modelling of the proposed dewatering plan to support the proposed bore network
  - identification and assessment of a preferred option for disposal of high temperature, high salinity water
  - additional costs for infrastructure required to handle high temperature, high salinity water
- Development of a depressurisation plan for the pits to support geotechnical slope designs
- Development of an integrated, site wide water balance to assess dewatering flows, storm water volumes, process water requirements and mining requirements.

17.2.5 Assessment of potential impacts/interference with local groundwater supplies due to dewatering bore pumping.Processing

In SRK's opinion, the key requirements to be considered as part of further project expansion development work and risk mitigation include:

- update of the capital and operating costs as part of the future expansions above 4.0 Mtpa
- development of the scope, engineering, schedule and cost details supporting the staged future expansion from 4.0 Mtpa to 8.0 Mtpa based upon the new Mineral Resource and Ore Reserve data
- investigation of the potential to increase throughput above 8.0 Mtpa if the Ore Reserve supports this
- continue to generate metallurgical and engineering design data from the new ore bodies to support the expansion designs.

17.2.6 Tailings storage facility

From a TSF perspective, SRK recommends Archi completes the following:

- construction of an additional spillway to enable excess water to exit the TSF as per the design (rather than internal spilling between internal cells)
- widening of the current spillway as an interim measure to manage a 1:1,000 year rain event
- widening of the existing hanging wall drain in line with design requirements

- review and update the minimum operating freeboard requirements and check the designer's freeboard allowance
- undertake further testing (SPT, shear box and stability analysis) of the current dam wall.

17.2.7 Environmental

From an environmental perspective, SRK recommends Archi completes the following:

- Update of the relevant environmental documents to accommodate the increased Mineral Resources and Ore Reserves outlined in 2020. In particular, the increase in the 2020 Ore Reserve over that previously declared by Archi will not be recognised by the MEMR until it is supported by an updated AMDAL and an MEMR-compliant Feasibility Study, which Archi has proposed to commence in 2021.
- Development of a comprehensive inventory of all greenhouse gas emissions for all sources (specifically, mining fleet and light vehicles as well as other identified sources) and establishment of numerical targets with specified timeframes for emission reductions in the future. These targets will need to be supported by detailed management plans to ensure tracking and documentation of any achievements made.
- Initiate annual ESG reporting in line with prevailing international standards but taking into account stakeholder interests.

Closure

This report, Independent Technical Assessment Report, was compiled by

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All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

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- Araren Multi-Element Footprint and Geological Model
- Araren Shoot Controls Modelled Intersections
- Structural Prospectivity around Batupangah
- Gold Ore Shoot Interpreted Locations
- Batupangah Veins Structural Groups
- Key Marker Horizons
- Major Faults Interpretation
- Characterization of “Near Miss” Structures
- Comparison of Stratigraphy across Deposits
- Toka Goldfield Current Stratigraphy and Stratigraphic Column Update
- Interpreted Key Targets and 3D Structural Interpretation
- Toka Marawuwung Horst Targets
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