Khundii Gold Project NI 43-101 Technical Report


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ACRONYMS & ABBREVIATIONS

Acronyms / Abbreviations	Definition
"	inch
%	Percent
°	Degree (degrees)
°C	Degrees Celsius
µm	micrometre; micron
3D	three-dimensional
AACE	Association for the Advancement of Cost Engineers
AARL	Anglo American Research Laboratories
AAS	Atomic Absorption Spectrophotometer
Ag	Silver
Ai	Abrasion Index
AN	Altan Nar
ANFO	Ammonium Nitrate Fuel Oil
As	Arsenic
Asl	Above Sea Level
ASX	Australian Securities Exchange
Au	Gold
AUD	Australian Dollar
AuEQ	Gold Equivalent
BCR	Blue Coast Research
BK	Bayan Khundii
BWi	Bond Ball Mill Work Index
CAD	Canadian Dollar
CAPEX	Capital Expenditure
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
CIP	Carbon in Pulp
Cm	Centimetre
cm	centimetre
CSS	Closed Side Setting
Cu	Copper
Cwi	Crusher Work Index
DEIA	Detailed Environmental Impact Assessment
DGPS	Differential GPS
DIDO	Drive in Drive Out

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Acronyms / Abbreviations	Definition
DIG22S	3 Acid Digest
DIG43B	4 Acid Digest
Dp-Dp	Dipole-Dipole
DZ	Discovery Zone
DZN	Discovery Zone North
DZS	Discovery Zone South
E&S	Environmental and Social
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPCM	Engineering, Procurement, Construction Management
Erdene; the Company	Erdene Resource Development Corporation
ESMP	Environmental and Social Management Plan
EU	European Union
EUR	European Euro
EW	Electrowinning
F100	100% Passing Feed
FCA	Free Carrier
Fe	Iron
FEL	Front End Loader
FIFO	Fly in Fly Out
FOB	Free Board Marine
G&A	General and Administrative
g/t	grams per tonne
GEIA	General Environmental Impact Assessment
GPS	Global Positioning Satellite
GRG	Gravity Recoverable Gold
GSI	Geological Strength Index
ha	hectare
HCL	Hydrochloric Acid
HCN	Hydrogen Cyanide
HG	High Grade
HLS	Heavy Liquid Separation
hr	hour
HV	heavy vehicle
HVAC	Heating, Ventilation, and Air Conditioning
ICO-OES	Inductively Coupled Plasma Optical Emission Spectrometry

Acronyms / Abbreviations	Definition
ICP	Inductively coupled plasma (mass spectrometry)
ICUN	International Union for Conservation of Nature
ID	Identification
ID^2	Inverse Distance Squared
ID^3	Inverse Distance Cubed
IFC	International Final Corporation
In	Indium
IP	Induced Polarization
IP/R	Induced Polarization / Resistivity
IRR	Internal Rate of Return
IWF	Integrated Waste Facility
k	kilo; thousand
K20	Potassium Dioxide
Kg	Kilogram
KGP	Erdene's Khundii Gold Project
km	kilometre
KV	Kilovolt (1000 volts)
L	Litre
Lb	Pound
LDL	Lower Detection Limit
Leapfrog	Aranz Leapfrog Geo3D
LG	Low Grade
LMBA	London Bullion Market Association
LOM	Life of Mine
LV	light vehicle
m	metre
M	million
m^3	cubic metres
MAK	Mongolian Alt Corporation
MEGDT	Ministry of Environment, Green Development and Tourism
ML	Metal-leaching
mm	millimetre
Mn	Manganese
MNT	Mongolian Tughrik
Mo	Molybdenum
MRPAM	Mineral Resources and Petroleum Authority of Mongolia

Acronyms / Abbreviations	Definition
NaCL	Sodium Chloride
NaCN	Sodium Cyanide
NAG	Non-acid generating
NI 43-101	National Instrument 43-101
NKMA	Carboniferous-Permian New Kazak-Mongol Arc terrain
NML	Non-metal-leaching
NN	Nearest Neighbour
NO_2	Nitrogen Dioxide
NPV	Net Present Value
NQ	A drill bit size of 47.6mm, inside core diameter
NSC EQD	the National Standard of Canada for Explosives Quantity Distances
NSR	Net Smelter Return
NV	Nevada
OES	Optical emission spectrometry
OHC	overhead travelling crane
OK	Ordinary Kriging
OPEX	Operating Expenditure
OREAS	ORE Assay Standards
oz	troy ounce
P.Eng	Professional Engineer
P.Geo	Professional Geoscientist
P80	80% passing size
Pa	Pascals
PAG	Potentially acid generating
PAM	poly acrylamide
Pb	Lead
PEA	Preliminary Economic Assessment
PFS	Preliminary Feasibility Study
PPA	Power Purchase Agreement
ppb	parts per billion
ppm	parts per million
PRC	People's Republic of China
QA/QC	Quality Assurance-Quality Control
QP	Qualified Person
RF	Revenue Factor
ROM	run-of-mine

Acronyms / Abbreviations	Definition
RPM	RPM Global
RQD	Rock Quality Designation
RTP	Reduced to North Magnetic Pole
RWi	Bond Rod Mill Work Index
S	Sulphur
S.R	Strip Ratio
SAG	Semi-autogenous grinding
Sb	Antimony
SMBS	Sodium Metabisulphate
SMC	Sag Mill Comminution
SO2	Sulphur Dioxide
SO_2	Sulfur Dioxide
t	tonne
t/d	tonnes per day
TAT	Trans Altai Terrane
TMI	Total Magnetic Intensity
TMP	Traffic Management Plan
TSX	Toronto Stock Exchange
UCS	Uniaxial Compressive Strength
UDL	Upper Detection Limit
UN	Union North
USA	United States of America
USD	United States Dollar
UTM	Universal Trans Mercator
V	Volt
VAT	Value Added Tax
VG	Visible Au (Visible Gold)
VOC	Volatile Organic Compounds
W	Watt
WAD	Weak Acid Dissociable
WBS	Work Breakdown Structure
Zn	Zinc

1.0 SUMMARY

1.1 Introduction

Erdene Resource Development Corporation (Erdene, or the Company) retained Tetra Tech Canada Inc. (Tetra Tech) to prepare a National Instrument 43-101 (NI 43-101) Technical Report for the Khundii Gold project (the Technical Report), located in Bayankhongor Aimag, Southwest Mongolia. This Technical Report published on December 4, 2019 has the following effective dates: the effective date of the Bayan Khundii Mineral Resource Estimate is October 1, 2019 and the effective date of the Bayan Khundii Mineral Reserve Estimate is October 15, 2019.

Erdene's Khundii Gold Project (KGP, the Property, or the Project) involves the development of two gold deposits (Bayan Khundii and Altan Nar) located 16km apart in southwestern Mongolia, approximately 980 km from the capital Ulaanbaatar. This report encompasses two studies; a Preliminary Feasibility Study (PFS) for the Bayan Khundii deposit and a Preliminary Economic Assessment (PEA) for the Altan Nar (AN) deposit. It is expected that ore from both of these deposits will be processed sequentially in the same processing facility location next to the Bayan Khundii deposit.

1.2 Preliminary Feasibility Study

A PFS level study has been prepared by Tetra Tech for Erdene. The results of the study are documented in the Technical Report in accordance with NI 43-101 reporting standards and focus on the Bayan Khundii deposit and surrounding infrastructure.

The Bayan Khundii PFS envisages a conventional open-pit mining operation scheduled to operate for seven years exclusive of pre-production construction activities. Ore delivery to the processing plant is designed to be maintained at an average of 600 Kt/year, or 1,800 t/day, following commissioning of the processing plant. Over the life of mine, ore will be processed via conventional cyanide leaching and electrowinning to retrieve the contained gold. Initial smelting into doré bars will be completed on site with subsequent transport offsite via the main access road.

Capital and operating costs for the Bayan Khundii PFS have been estimated according to the Association for the Advancement of Cost Engineer's (AACE) Class Four estimate of a +/- 25% level of accuracy. All dollar figures presented in this report are stated in United States dollars unless otherwise specified.

1.3 Preliminary Economic Assessment

An updated PEA level study has been prepared for Tetra Tech for Erdene (AN PEA). The results of the study are documented in Section 24 – Other Relevant Data of the Technical Report in accordance with NI 43-101 reporting standards. The Altan Nar PEA report focusses on the Altan Nar deposit and surrounding infrastructure.

Mine design, cost estimation and processing work completed for the Altan Nar PEA is contingent on the establishment of the Bayan Khundii mine and infrastructure. It has been assumed that the Altan Nar property is designed as an addition to the existing operations at Bayan Khundii and will utilise the Bayan Khundii processing plant, accommodation and infrastructure.

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The Altan Nar PEA focusses on the design of a conventional open pit mining operation for the Altan Nar deposit including mine and infrastructure design, scheduling and financial analysis. The operation is designed with a life of four years excluding pre-development construction activities. The mining schedule at Altan Nar is designed to maintain the nameplate capacity at the Bayan Khundii processing plant of 600kt/year.

Capital and operating costs for the Altan Nar PEA have been estimated according to the AACE Class Five standards, with an expected accuracy range of +/- 30%. All dollar figures reported in Chapter 24 are stated in United States dollars unless otherwise specified.

1.4 Key Study Outcomes

This section presents the outcomes of the mine plan and economic analysis completed for the Bayan Khundii PFS and Altan Nar PEA. These economic analyses represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other modifying factors that may cause actual results to differ materially from those presented. The material factors or assumptions used in the economic analyses and associated risks or uncertainties are fully described in Chapter 15, 21 and 25 for the Bayan Khundii PFS, and Chapter 24 for the Altan Nar PEA.

Mineral resources used in mine design for the Altan Nar PEA include Inferred Mineral Resources, which are considered too speculative geologically to have the economic considerations applied to enable the resources to be categorized as Mineral Reserves and there is no certainty that the Altan Nar PEA plans will be realized. Due to the conceptual nature of the Altan Nar PEA, the Mineral Resources in the Altan Nar PEA have not been converted to Mineral Reserves and therefore do not have demonstrated economic viability.

1.4.1 Key Bayan Khundii PFS Study Outcomes

The key study outcomes for the projected mine plan and economic results are presented in Table 1-1 below.

Table 1-1: Key Bayan Khundii PFS Study Outcomes

Parameter	Unit	Value
Metal Price		
Gold	US$/oz	1,300
Exchange Rates		
CAD	CAD:USD	1.33
MNT	MNT:USD	2,645
Cost Summary (LOM)		
Operating Costs	US$/oz Au	741
Total Cost (All-In Sustaining Cost)	US$/oz Au	746
Initial Capital Expenditure	US$ Million	39.9
Sustaining Capital Expenditure	US$ Million	1.2
Unit Operating Cost	US$/tonne milled	72
Pre Tax Results		
Net Cash Flow	US$ Million	168.8
Net Present Value (NPV) at 5% Discount Rate	US$ Million	124.5
Internal Rate of Return (IRR)	%	48

Parameter	Unit	Value
Payback Period	Years	1.7
Post Tax Results		
Net Cash Flow	US$ Million	133.0
Net Present Value (NPV) at 5% Discount Rate	US$ Million	96.9
Internal Rate of Return (IRR)	%	42
Payback Period	Years	1.84

1.4.2 Key Altan Nar PEA Study Outcomes

The key study outcomes for the projected mine plan and economic results are presented in Table 1-2 below.

Table 1-2: Key Altan Nar PEA Study Outcomes

Parameter	Unit	Value
Metal Price		
Gold	US$/oz	1,300
Exchange Rates		
CAD	CAD:USD	1.33
MNT	MNT:USD	2,645
Cost Summary (LOM)		
Operating Costs	US$/oz Au	929
Total Cost (All-In Sustaining Cost)	US$/oz Au	931
Initial Capital Expenditure	US$ Million	2.5
Sustaining Capital Expenditure	US$ Million	0
Unit Operating Cost	US$/tonne milled	68
Pre Tax Results		
Net Cash Flow	US$ Million	48.9
Net Present Value (NPV) at 5% Discount Rate	US$ Million	30.5
Internal Rate of Return (IRR)	%	110
Payback Period	Years	0.99
Post Tax Results		
Net Cash Flow	US$ Million	39.0
Net Present Value (NPV) at 5% Discount Rate	US$ Million	24.2
Internal Rate of Return (IRR)	%	92
Payback Period	Years	1.07

1.5 Property Description and Location

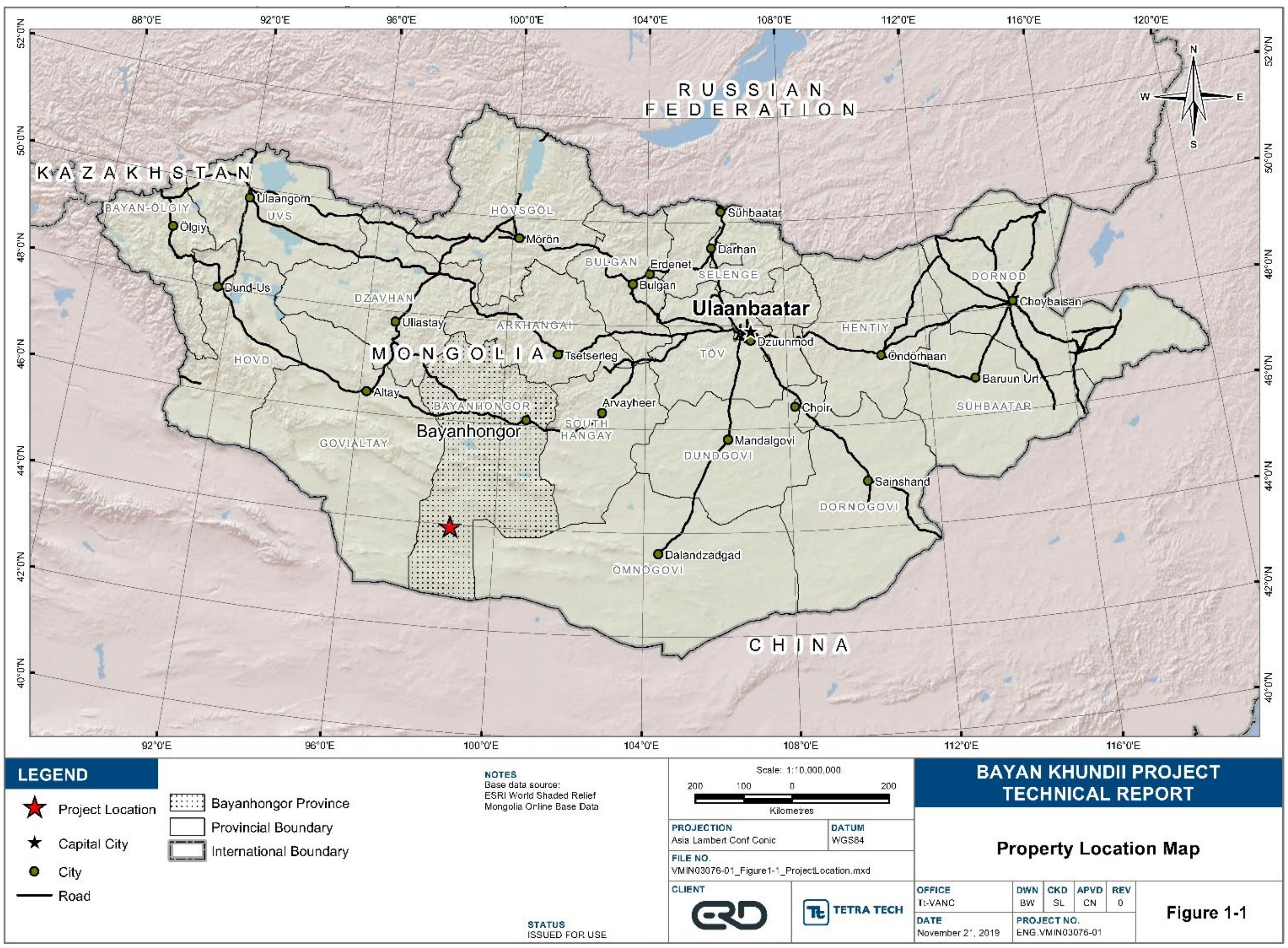
The Property is located in south western Mongolia in the Bayankhongor province and is situated approximately 980 kilometres southwest of the Mongolian capital Ulaanbaatar, and approximately 150 km north of the Chinese border. The Property currently includes the Khundii Exploration License (XV-015569; 2.205.71 ha), the Khundii Mining

License (MV-021444, 2,308.62 ha) and the Tsenkher Nomin Exploration License (XV-016956; 4,668.64 ha). The Bayan Khundii deposit is located on the Khundii Mining license and the Altan Nar deposit is located on the Tsenkher Nomin exploration license. These licenses are 100% held by Erdene Mongol LLC, a wholly owned subsidiary of Erdene.

Vehicle access to the property is via paved roads from Ulaanbaatar to Bayankhongor (630 km), followed by regional gravel roads from Bayankhongor to Shinejinst (310 km), then another 90 km to site via dirt road. A small airstrip is located on site which is capable of accommodating light air craft. Private airline service is available from Ulaanbaatar and a one-way trip takes approximately 3 hours.

The Khundii Gold Project hosts the Bayan Khundii low sulphidation gold vein system, along with the Altan Nar polymetallic gold system.

Figure 1-1: Property Location



1.6 Environmental Considerations

Erdene has completed the following studies and executed the listed agreements for the Khundii Gold Project which comply with the Ministry of Environment and Tourism of Mongolia regulations:

- General Environmental Impact Assessment
- Detailed Environmental Impact Assessment and Management Plan
- Local Cooperation Agreement pursuant to Article 42 of the Law on Minerals of Mongolia

The above studies and agreements act as the basis for issuing operating permissions for the Khundii Gold Project.

Baseline studies undertaken cover potential impact to the environment including these areas: hydrology and hydrogeology, erosion profiles, climate, dust and air quality, noise, flora and fauna, and social impact. Management plans have been created for each of the areas of potential impact.

Groundwater is proposed as the primary water supply for the Bayan Khundii and Altan Nar operations, with no permanent surface water sources in the site area. Potential contamination of surface water was investigated in the event of runoff, with naturally occurring arsenic, molybdenum and copper discovered. Subsequent analysis of water and soil heavy metal content is required prior to commissioning of the mine. The proposed process plant has been designed to optimize water recovery and recycling through the thickening and filtration of tailings. Monitoring of the site wells and surface water drainage design and erosion control techniques are proposed to be implemented to minimise the impact on the local water supply.

Due to the arid climate and strong winds, soil present in the region are significantly eroded; however, the land at the Project site has not been significantly degraded by human settlement or technical operations to date. Ambient dust levels are anticipated to increase with the introduction of mining operations and heavy vehicle traffic, with subsequent plans for control and mitigation proposed for mining operations, haul roads and waste and ore stockpiles.

Given the remote location of the project, approximately 70 km from the nearest town, it is expected that vibration levels from blasting activities and day-to-day mining operations will be within a natural range. Noise attenuation will be provided to meet the relevant project and Mongolian Standards for occupational health and safety requirements.

Impact to vegetation is considered low due to the limited number of species present in the desert region where the Khundii Gold Project will be located. The fauna of the Project area is diverse, with the southern Gobi region of Mongolia a region of interest for fauna conservation.

Social impacts were evaluated in detail with respect to prioritising the employment of local residents from Shinejinst and Bayan-Undur areas, as well as from the wider Bayankhongor region. Local recruitment and training will be included in the Human Resources Management Plan for the project. Community development activities will also be undertaken with respect to local skills development. Monitoring of pasture use will be undertaken throughout the life of the project.

Mine closure plans are based on progressive rehabilitation throughout the life of mine, with the aim of the majority of reclamation earthworks completed by the time mining and processing activities cease. Containment of process tailings and mined waste rock within an integrated waste facility is proposed to reduce the footprint and potential impact of this material on the site and surrounding areas. The remainder of the operations infrastructure and buildings will be removed following mine closure, with subsequent rehabilitation of any impacted areas completed over one season.

1.7 Geology

1.7.1 Bayan Khundii

The Bayan Khundii deposit is hosted within the Trans Altai Terrane ("TAT"). The TAT forms part of the western end of the large, composite, arcuate-shaped Carboniferous-Permian New Kazak-Mongol Arc terrain ("NKMA") and consists mostly of Middle Paleozoic volcanic, sedimentary and meta-sedimentary rocks that were intruded by Middle Paleozoic calc-alkaline plutons.

Locally, the bedrock geology of the Bayan Khundii license area is dominated by a sequence of Devonian and/or Carboniferous volcanic (andesite, andesite porphyry) and pyroclastic rocks (ash, lapilli, and block and ash tuffs). These were intruded by Carboniferous intrusions, with these rocks unconformably overlain by Jurassic volcanic and sedimentary units. All rocks in the region are overlain by unconsolidated sediments of Quaternary or Recent age.

The overall structural model for Bayan Khundii consists of a series of tilted, extensional, domino-style fault blocks with northeast-trending, southeast-verging extensional faults. The main north-northeast trending mineralized zone, comprised of the Striker-Midfield-North Midfield zones, is interpreted as a 'relay ramp' whereby stress is transferred from the ends ('tip points') of adjacent northeast-trending, southeast-verging extensional faults via a series of north-east trending parallel structures.

Bayan Khundii is categorized as a low sulphidation epithermal gold deposit. Mineralization consists of gold ± silver veins within northwest-southeast trending, moderately-dipping (~45°) zones that range in width from 4 to 149 m. These zones are likely hosted within the hypothesized relay ramps. Visible gold is abundant at Bayan Khundii, being observed in approximately 30% of all holes drilled.

Prior to Erdene's initial work programs in 2010, no previous exploration work has been conducted on the Property.

Since 2015, five phases of drilling have been conducted at Bayan Khundii, encompassing 266 drill holes totaling 44,859 m. The primary focus of this drilling has been the Striker, Striker West, Midfield, and Midfield North gold zones. At Altan Nar, 125 drill holes have been completed since 2011, totaling 19,491 m of drilling along with the completion of 42 trenches. Eight of the drill holes were completed on Erdene's neighbouring Nomin Tal prospect, and the remaining targeted Altan Nar.

1.7.2 Altan Nar

The Atlan Nar deposit is also hosted within the Trans Altai Terrane.

The geology on the Tsenkher Nomin license consists of a package of predominantly andesite flows (referred to as 'Sequence A') dominate the eastern part of the license area. These volcanic rocks have pronounced NW-SE trending linear features that are evident on satellite images. These rocks are interpreted to be a steeply dipping volcanic sequence that was intruded by sub-parallel, NW-trending granite porphyry and fine-grained granite intrusions interpreted to be sills, or possibly laccoliths. Widespread development of hornfels textures was noted in the andesite rocks, presumably resulting from contact metamorphism related to the large granite sills or laccoliths.

The geology of the central and western portion of the Tsenkher Nomin license area consists mostly of a sequence of volcanic flows and tuffaceous rocks of andesite composition (referred to as 'Sequence B'), with subordinate rhyolite, rhyodacite, andesite tuff, and green-coloured andesite. Drilling indicates these volcanic units strike to the northwest and dip at approximately 20-30˚ to the northeast.

The Altan Nar deposit is hosted in the Sequence B volcanic units and consists of gold, silver, zinc, and lead within sub-vertically dipping epithermal quartz veins. Altan Nar is characterized as an intermediate sulphidation epithermal polymetallic gold deposit.

1.8 Mineral Resource Statement

The Mineral Resources presented herein are reported in accordance with the Canadian Securities Administrators National Instrument 43-101 and have been estimated in conformity with generally accepted Canadian Institute of Mining and Petroleum (CIM) "Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines". Mineral resources are not mineral reserves and have not demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserves.

The mineral resources for Bayan Khundii were estimated independently by Mr. Cameron Norton of Tetra Tech based on data collected as of May 14, 2019. The Mineral Resource Estimate for the Altan Nar deposit was developed in 2018 by RPM Global Asia Limited (RPM) with an effective date of May 7, 2018. The QP for the Altan Nar Mineral Resource Estimate is Jeremy Clark, Principal Geologist for RPM.

The combined estimate of Khundii Gold Project mineral resources is presented in Table 1-3. The effective date of the Bayan Khundii mineral resource estimate is October 1, 2019, and the effective date of the Altan Nar mineral resource estimate is May 7, 2018. Results of the individual mineral resource estimates for Bayan Khundii and Altan Nar are presented separately in Tables 1-4 and 1-5, respectively.

Table 1-3: Khundii Gold Project Combined Mineral Resources(1)

Resource Classification	Quantity (Million tonnes)	Grade Au g/t	Gold oz
Measured	1.40	3.77	171
Indicated	8.70	2.39	668
Measured & Indicated	**10.10**	**2.59**	**839**
Inferred	4.30	2.10	289

Notes:

1. *The Bayan Khundii mineral resource estimate is effective October 1, 2019, and the Altan Nar mineral resource estimate is effective May 7, 2018.*
2. *Cut-off grades for Altan Nar are based on a AuEq grade; cut-off grade for Bayan Khundii is based on Au only.*
3. *Tetra Tech recommended cut-off grade for Bayan Khundii is 0.55 g/t Au.*
4. *Cut-off grade for Bayan Khundii have been calculated using a gold price of $1,350 /ounce, milling costs of $3.0 / tonne, mining and G&A costs of $16.0 / tonne, and an assumed gold recovery of 95%. Mineral resources contained within Bayan Khundii have been constrained to a preliminary pit shell to constrain blocks which are considered reasonable prospects for eventual economic extraction.*
5. *RPM recommended cut-off grade for Altan Nar is 0.7 g/t AuEq above a pit and 1.4 g/t AuEq below the same pit shell and incorporates mineralization from the oxide and sulphide domains.*
6. *Gold Equivalent (AuEq) for Altan Nar was calculated using long term 2023 - 2027 "Energy & Metals Concensus Forecasts" March 19, 2018 with an average of US$1310/oz for Au, US$17.91/oz for Ag, US$1.07/pound for Pb and US$1.42/pound for Zn. Adjustment has been made for metallurgical recovery and is based on the Company's preliminary testwork results which used flotation to separate concentrates including a pyrite concentrate with credits only for Au and Ag. Based on grades and contained metal for Au, Ag, Pb and Zn, it is assumed that all commodities have reasonable potential to be economically extractable.*

   *a. The formula used for Au equivalent grade is: AuEq g/t = Au g/t + Ag g/t*0.0124+Pb%*0.509+Zn%*0.578 with metallurgical recovery of 88.8% Au, 80.6% Ag, 80.4% Pb and 69.1% Zn.*

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b. Au equivalent ounces are calculated by multiplying mineral resource tonnage by Au equivalent grade and converting for ounces. The formula used for Au equivalent ounces is: AuEq Oz = [Tonnage x AuEq grade (g/t)]/31.1035.

7. *Only the gold ounces from Altan Nar have been combined with the Bayan Khundii gold ounces in the table above.*
8. *Numbers may not be exact due to rounding*
9. *Mineral resources, which are not mineral reserves, have not demonstrated to have economic viability.*
10. *The quantity and grade of reported inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource and it is uncertain if further exploration will result in upgrading them to an indicated or measured mineral resource category*

1.8.1 Bayan Khundii

The results of the Mineral Resource Estimate for the Bayan Khundii deposit, presented in Table 1-4, have been constrained to a conceptual pit shell and are reported at a 0.55 g/t Au cut-off. The mineral resource estimate is based on the combination of geological modeling, geostatistics, and conventional block modeling using the Ordinary Kriging method of grade interpolation. The mineral resources were estimated using a block model with parent blocks of 5 m x 5 m x 5 m with 5 sub-cells allowed in each direction. Estimation of the blocks was completed on the parent blocks and the grades assigned to the sub-cell blocks. The QA/QC protocols and corresponding sample preparation and shipment procedures have been reviewed by Tetra Tech.

The cut-off grade assumes an open pit mining scenario with a gold price of $1,350 / ounce, a milling cost of $3.0 / tonne, mining and G&A costs of $16.0 / tonne, and a gold recovery of 95%.

Table 1-4: Mineral Resource Estimate for Bayan Khundii, Effective October 1, 2019

Cut-off Grade (1) (Au g/t)	Resource Classification	Quantity (tonnes)	Grade Au g/t	Gold oz
0.4	Measured	1,737,000	3.15	176,000
	Indicated	4,616,000	2.45	363,700
	Measured & Indicated	6,353,000	2.64	539,700
	Inferred	1,062,000	3.10	105,800
0.55	Measured	1,410,000	3.77	171,000
	Indicated	3,710,000	2.93	349,700
	Measured & Indicated	**5,120,000**	**3.16**	**520,700**
	Inferred	868,000	3.68	102,800
1	Measured	652,000	7.31	153,300
	Indicated	1,696,000	5.56	303,500
	Measured & Indicated	2,348,000	6.05	456,700
	Inferred	421,000	6.83	92,500
1.4	Measured	506,000	9.09	147,800
	Indicated	1,427,000	6.40	293,600
	Measured & Indicated	1,933,000	7.10	441,400
	Inferred	371,000	7.61	90,800

Notes:

1. *Cut-off grades have been calculated using a gold price of $1,350 /ounce, milling costs of $3.0 / tonne, mining and G&A costs of $16.0 / tonne, and an assumed gold recovery of 95%.*
2. *Bulk density of 2.66 for mineralized domains.*
3. *All figures are rounded to reflect the relative accuracy of the estimate. Numbers may not add exactly due to rounding.*
4. *Conforms to NI 43-101, Companion Policy 43-101CP, and the CIM Definition Standards for Mineral Resources and Mineral Reserves.*
5. *Mineral resources which are not mineral reserves do not have demonstrated economic viability.*

1.8.2 Altan Nar

The Mineral Resource Estimate for the Altan Nar deposit was stated in 2018 by RPM with an effective date of May 7, 2018 and documented in the report titled "NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project" dated February 4, 2019 and available on SEDAR under the Company's profile. There has been no further work conducted on this deposit area since the effective date, and the Mineral Resource Estimate remains current.

The results of the Mineral Resource Estimate for the Altan Nar deposit are presented in Table 1-5. RPM has reported the Mineral Resources using a 0.7 g/t AuEq above pit and 1.4 g/t AuEq below the pit shell as a reporting cut-off based on a mining / process and cost parameters for the Project.

Table 1-5: Mineral Resource Estimate for Altan Nar, Effective May 7, 2018

Type	Indicated Mineral Resource									
	Quantity	**Au**	**Ag**	**Zn**	**Pb**	**AuEq(3)**	**Au**	**Ag**	**Zn**	**Pb**	**AuEq(3)**
	Mt	g/t	g/t	%	%	g/t	Koz	Koz	Kt	Kt	Koz
Oxide	0.6	2.0	12.7	0.6	1.0	3.1	39.3	244.3	3.8	6.3	59.6
Fresh	4.4	2.0	15.0	0.6	0.5	2.8	278.4	2,105.4	27.8	22.7	393.4
Total	**5.0**	**2.0**	**14.8**	**0.6**	**0.6**	**2.8**	**317.7**	**2,349.7**	**31.6**	**29.0**	**453.0**
Type	**Inferred Mineral Resource**										
	Quantity	**Au**	**Ag**	**Zn**	**Pb**	**AuEq(3)**	**Au**	**Ag**	**Zn**	**Pb**	**AuEq(3)**
	Mt	g/t	g/t	%	%	g/t	Koz	Koz	Kt	Kt	Koz
Oxide	0.8	1.8	7.5	0.6	0.9	2.6	43.3	183.7	4.3	6.5	64.2
Fresh	2.7	1.7	8.0	0.7	0.6	2.5	142.4	682.1	19.4	15.8	212.8
Total	**3.4**	**1.7**	**7.9**	**0.7**	**0.7**	**2.5**	**185.7**	**865.8**	**23.7**	**22.3**	**277.1**

Notes:

1. *The Statement of Estimates of Mineral Resources has been compiled under the supervision of Mr. Jeremy Clark who is a full-time employee of RPM and a Member of the Australian Institute of Geoscientists. Mr. Clark has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity that he has undertaken to qualify as a Qualified Person as defined in the CIM Standards of Disclosure.*
2. *All Mineral Resources figures reported in the table above represent estimates based on drilling completed up to 7th May 2018. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.*
3. **Au Equivalent (AuEq) calculated using long term 2023 - 2027 "Energy & Metals Consensus Forecasts" March 19, 2018 average of US$1,310/oz for Au, US$17.91/oz for Ag, US$1.07/pound for Pb and US$1.42/pound for Zn. Adjustment has been made for metallurgical recovery and is based company's preliminary testwork results which used flotation to separate concentrates including a pyrite concentrate with credits only for Au and Ag. Based on grades and contained metal for Au, Ag, Pb and Zn, it is assumed that all commodities have reasonable potential to be economically extractable.*
   a. *The formula used for Au equivalent grade is: AuEq g/t = Au g/t + Ag g/t*0.0124+Pb%*0.509+Zn%*0.578 with metallurgical recovery of 88.8% Au, 80.6% Ag, 80.4% Pb and 69.1% Zn.*
   b. *Au equivalent ounces are calculated by multiplying Mineral Resource tonnage by Au equivalent grade and converting for ounces. The formula used for Au equivalent ounces is: AuEq Oz = [Tonnage x AuEq grade (g/t)]/31.1035.*
4. *Mineral Resources are reported on a dry in-situ basis.*
5. *Reported at a 0.7 g/t AuEq cut-off above pit shelland 1.4g/t AuEq below the pit shell. Cut-off parameters were selected based on an RPM internal cut-off calculator, which indicated that a break-even cut-off grade of 0.7g/t Au Equivalent above pit and 1.4g/t AuEq below pit, assuming a gold price of US$1310 per ounce, an open mining cost of US$6 per tonne and a processing cost of US$20 per tonne milled and processing recovery of 88.8% Au, 80.6% Ag, 80.4% Pb and 69.1% Zn.*
6. *Mineral Resources referred to above, have not been subject to detailed economic analysis and therefore, have not been demonstrated to have actual economic viability.*

1.9 Mineral Reserve Statement

Mineral Reserves estimated for the Bayan Khundii deposit are based on Measured and Indicated Resources and use PFS level engineering designs for the pit and associated operating parameters and infrastructure. Reserve calculations are valid at the time of estimation and use cut-off grade assumptions which were made prior to finalization of the economic model. The Mineral Reserve estimates are based on a mine plan and open pit design developed using modifying parameters including metal price, metal recovery based on performance of the processing plant, and operating cost estimates.

Waste to ore open pit cut-off grades and recoveries were determined using a gold price of $1,267 / ounce. Open-pit Mineral Reserves were calculated using Tetra Tech's pit designs and the 2019 updated Mineral Resource model. These calculations include mining losses of 5% and estimated average internal dilution of 9% over the life of mine. A summary of the Mineral Reserves estimated for the Bayan Khundii deposit as of October 15,2019 can be found in Table 1-6 below.

Table 1-6: Mineral Reserve Statement for Bayan Khundii Deposit, Effective October 15th, 2019

Reserve Category	Quantity (M tonnes)	Average Grade (Au g/t)	Contained Metal (000 Oz)
Proven	1.1	4.4	165
Probable	2.4	3.4	256
Total Proven and Probable	**3.5**	**3.7**	**422**

Notes:

1. *The effective date of the Mineral Reserve estimate is October 15th, 2019. The QP for the estimate is Ms. Maurie Phifer, P.Eng. of Tetra Tech*
2. *The Mineral Reserve estimates were prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines.*
3. *Reserves estimated assuming open pit mining methods*
4. *Reserves are reported on a dry in-situ basis*
5. *Waste to ore cut-offs were determined using an NSR value for each block in the model. NSR is calculated using prices and process recoveries for each metal accounting for all off-site losses, transportation, smelting and refining charges. NSR cut-off was calculated to be $22.93, and includes 5% royalty deduction*
6. *Reserves are based on a gold price of $1267/oz, mining cost of $2.5/tonne, milling costs of $16.46/tonne feed, G&A costs of $6.58/tonne*
7. *Mineral Reserves include dilution of 9% and losses of 5%.*

1.10 Development and Operations

1.10.1 Mining Methods

Mining operations designed as part of this Technical Report focus on the Bayan Khundii open-pit and surrounding infrastructure. The Bayan Khundii site is comprised of the open-pit mine, processing plant and integrated waste rock and tailings storage facility. Additional infrastructure for maintenance facilities and a contractor camp are included. The proposed mine uses conventional open-pit truck and shovel methods for ore extraction.

Initial evaluation of Whittle™ pit shells was completed based on geotechnical and economic parameters to determine potentially economically minable material. Geotechnical investigations were conducted to assess the expected rock quality at Bayan Khundii. Characterization of structural domains was completed for slope stability and pit design considerations. Geotechnical analysis provided recommendations for bench parameters and overall slope angles to maintain a safe and efficient pit design. A selective open-pit mining method was determined as the most efficient method for extraction of the mineralised material due to the shallow placement and structurally controlled nature of the orebody. The final pit design was based on the Whittle™ shell which presented the lowest risk and highest economic viability of the reviewed pit shells.

Tetra Tech proposes a production schedule based on an annualized 1,800 t/d mill feed rate. Mining is planned to take place over six years, inclusive of a one-year commissioning ramp up for the processing plant until nameplate capacity is achieved. One year of predevelopment construction activities is expected.

An overall mining rate of 9.0 Mt/year is proposed for the first four years of the life of mine, with a planned ramp-down in the final two years whilst stockpiled ore is processed at the plant to maintain capacity. The Bayan Khundii open pit will be mined from south to north within two pushbacks and a final ultimate pit, with a minimum mining width of 30 m used based on equipment specifications. Vertical advancement of 60 m per year has been proposed, with designed benches at 5 m high for eventual 15 m high benches in the ultimate pit. A summary of the life of mine operating schedule is presented in Table 1-7 below.

Table 1-7: Bayan Khundii Life of Mine Operating Schedule

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Material Mined (tonnes)	8,749,766	8,773,739	8,749,768	8,735,384	3,499,983	876,811	-
Strip Ratio	9.9	11.3	22.3	22.5	3.0	1.3	-
Plant Feed (tonnes)	449,680	601,338	599,695	599,695	599,695	601,338	69,011
Plant Feed from Pits (tonnes)	449,680	601,338	375,850	371,828	599,695	378,218	-
Plant Feed from Stockpile (tonnes)	-	-	223,845	227,867	-	223,120	69,011
Gold Grade (grams/tonne)	3.91	4.16	3.14	3.40	3.59	4.22	3.66
Gold to Plant (ounces)	56,525	80,462	60,463	65,549	69,233	81,625	8,113
Non-Metal Leaching (tonnes)	1,910,147	4,266,532	1,266,598	597,325	325,703	57,099	-
Metal Leaching (tonnes)	6,040,525	3,796,081	7,107,320	7,766,230	2,289,942	441,495	-
Stockpile Balance at Year End (tonnes)	349,414	459,201	235,356	7,489	292,132	69,011	-

Core mining equipment selected for operations at Bayan Khundii have been chosen based on maintaining productivity and selectivity whilst reducing capital costs. Separate ore and waste equipment are proposed. Additional core equipment including drills and waste dozers are included and summarized in Table 1-8 below. Auxiliary equipment selected includes haul road, pit and waste dump maintenance equipment and mobile equipment support vehicles.

Mining is expected to be undertaken by a contractor, with permanent positions for supervisory and geological technical staff.

Table 1-8: Core and Auxiliary Equipment Selected for Bayan Khundii Open Pit Mine

Core Equipment	Equipment Model	Equipment Class	Number Required
Ore Drill	PowerROC D60	110-178mm hole diameter	2
Waste Drill	FlexiROC D60	110-178mm hole diameter	3
Ore Loader	CAT 349F	311 kW	1
Waste Loader	CAT 6015B	606 kW	1
Ore Truck	CAT 740B	365 kW	2
Waste Truck	CAT 773D	509 kW	9
Waste Dozer	CAT D9	310 kW	1
Auxiliary Equipment	**Equipment Model**	**Equipment Class**	**Number Required**
Wheel Loader	CAT 988K	310 kW	2
Grader	CAT 14M3	178 kW	1
Vibratory Compactor	CAT CS74B	129 kW	1
Water Truck	CAT 773WT	-	1
Support Loader (Mill Rehandle)	CAT 966K	-	1
Fuel and Lube Truck	-	-	1
Maintenance Trucks	-	-	2
Low Bed Truck	-	-	1
Pickup Trucks	-	-	5

1.10.2 Project Infrastructure

Project infrastructure for the Bayan Khundii pit is designed to support efficient day-to-day operations and includes the processing plant, integrated waste and tailings storage facility, maintenance and administration buildings, emergency facilities, site haul roads and accommodation camp.

Infrastructure placement and design was sited with consideration of the prevailing winds on site to mitigate dust formation, areas of light and heavy vehicle interaction on haul roads and drainage and catchment areas to mitigate potential flooding.

An on-site power plant is proposed to meet reliability and anticipated power requirements, with a combined solar-diesel generation method. Average load demand of approximately 4 MW is expected with distribution on site transmitted at 6.6 kV via substations at areas with major power requirements.

Site water supply is expected to be aquifer-sourced from bore fields located approximately 2 km southwest of the Bayan Khundii pit. An aboveground pipeline is proposed to transport water from the bore field to a raw water tank adjacent to the processing plant for desalination and water hardness treatment. Expected water requirements at the processing plant amount to 15 m^3/hour or 4.2 L/second. Secondary water requirements at the accommodation camp and other buildings or site facilities will be treated further to allow a potable water source for drinking water and safety showers.

1.10.3 Integrated Waste Facility and Stockpiles

Mined waste rock and processed tailings will be contained within an Integrated Waste Facility (IWF) as a single above-ground structure located directly east of the Bayan Khundii pit. The IWF will consist of a core of mixed tailings and waste rock encapsulated within an environmentally benign and durable erosion-resistant cover.

Within the IWF, low-grade material, defined as above 0.2 g/t and lower than the process plant feed grade, will be placed in a discreet section of the IWF and integrated into the overall structure. Low-grade material can therefore be reclaimed and processed should it become economically viable.

Provision for a separate run-of-mine (ROM) stockpile has been included in infrastructure considerations in order to accommodate periods where the mining rate exceeds the processing plant capacity. The ROM stockpile will be located adjacent to and directly west of the processing plant and is designed to accommodate the maximum planned stockpiled ore from the mine schedule.

1.11 Mineral Processing and Metallurgical Testing

1.11.1 Metallurgical Testwork

Metallurgical testwork for the Bayan Khundii PFS is largely based on work conducted at Blue Coast Research Ltd. in 2019 and is designed to expand the metallurgical database and build on past work conducted at Blue Coast in 2016 and 2017. The 2019 test program included an expanded cyanidation program, variability tests, a gravity concentration study and a comminution test program.

Metallurgical tests to date include:

- Gravity concentration and cyanidation response tests on composite samples, conducted in 2016 to assess potential recovery rates of Bayan Khundii ore.
- Comminution testwork, cyanide optimisation and cyanide variability programs on composite samples, conducted in 2017 to investigate grinding requirements for maximization of gold recovery.
- Grindability testing for material hardness properties, conducted in 2019.
- Gravity concentration studies to assess the gravity recovery response from average grade material, conducted in 2019.
- Cyanide optimization testwork evaluating the effect of primary grind size, cyanide concentration, lead nitrate and oxygen additions on recovery rates conducted in 2019. An additional variability study was conducted to investigate the head grade to recovery relationships within the deposit.

Composites selected for testing were designed to reflect the variability of different properties of the Bayan Khundii deposit and provide a global estimate of average grades and investigate potential recovery rates. Samples were combined from higher and lower grade areas and from each geological unit present with additional consideration for samples from both fresh and oxidised material.

Results from the metallurgical tests described above indicate a relationship between head grade and recovery. High grade material which will comprise early mill feed in the life of mine showed increased recovery rates when finer primary grinding was used. Additions of lead nitrate and oxygen were not recommended as an overall improvement in recovery was limited with these methods.

Variability testing indicated that recovery from the Striker Zone is highest within the Bayan Khundii deposit, with no clear difference in gold recovery between oxide and fresh rock. Additional testwork is recommended to improve and refine estimates from each area of the deposit and to optimize processing equipment sizes for carbon leaching and adsorption activities.

1.11.2 Mineral Processing and Recovery Methods

Mill feed from the Bayan Khundii pit to the processing plant is expected to average 3.7 g/t gold with minimal additional silver content. Testwork conducted concludes that the ore is amenable to conventional cyanide leaching with recoveries reaching 95% using this method. The correlation between recovery versus grind size shows improved recovery down to 60-micron size, implying very fine-grained gold mineralogy. A final grind size of 60-micron was confirmed. In addition, a relationship between head grade and recovery was found, with higher recoveries expected from higher-grade material.

Gravity recovery testing did show some promise, however, this requires grinding down to the 70-micron size and so does not imply the recovery of nuggets via a gravity circuit, merely a potential ability to reduce the load to the leach and CIP (Cabon-In-Pulp) circuits by removing more of the gold and silver from any high grade feeds. In addition, the capital and operating cost of including a gravity circuit were investigated and did not justify the cost saving gained through reduced load to the leach and CIP circuits. Testing also showed conventional cyanide leaching recovered the same amount of gold as a combined gravity-cyanide leach circuit.

The proposed conventional cyanide leaching process is designed to produce gold doré bars for transport off site for further refining.

The simplified gold recovery process is as follows:

- Comminution
- Cyanide Leaching
- Carbon-in-Pulp Adsorption
- Elution
- Electrowinning
- Carbon Regeneration
- Tailings Treatment

The process plant will consist of secondary crushing, primary grinding via a SAG (Semi-Autogenous Grinding) mill, cyanide leaching, adsorption via carbon-in-pulp methods, elution via the AAL method (Anglo American Laboratories), electrowinning and furnace smelting to produce doré bars. Subsequent carbon regeneration will be conducted in a diesel-fired kiln before replacement in the CIP tanks.

Tailings will be thickened following cyanide detoxification and filtered to a dry cake before disposal alongside waste rock in the integrated waste facility.

1.12 Capital and Operating Cost Estimation

1.12.1 Capital Cost Estimates

Capital costs for the Bayan Khundii operations were estimated according to the Association of Advancement of Cost Engineers (AACE) Class 4 estimate with an expected accuracy range of +/- 25%. All currencies are in United States Dollars unless otherwise specified.

The total estimated initial capital costs for the Bayan Khundii operation is US$39.9M. This capital cost estimate is based on a contractor mining scenario and was established using a hierarchical work breakdown structure as detailed in Table 1-9 below.

Table 1-9: Capital Cost Estimates for Bayan Khundii Operation

Area		Cost (US$ million)
Direct Costs		
2000	Mine	1.9
3000	Process Plant	12.1
4000	Project Services	2.2
5000	Project Infrastructure	3.9
6000	Permanent Accommodation	1.4
Direct Cost Subtotal		**21.7**
Indirect Costs		
7000	Site Establishment & Early Works	3.0
8000	Management, Engineering, EPCM Services	4.3
9000	Pre-Production Cost	10.9
Indirect Cost Subtotal		**18.2**
Total		**39.9**

Note: Rounding may cause some computational discrepancies.

This capital cost estimate includes only initial capital and excludes all costs related to financing, currency fluctuations, lost time, additional inventories, reclamation and closure costs, future studies and community relations. There is no cost allocated for mining equipment as this is assumed as provided by the mining contractor. Mining capital costs relate to mine site infrastructure, utilities and haul roads only.

1.12.2 Sustaining Capital Cost Estimates

Sustaining capital cost estimates included for the Bayan Khundii project relate to the processing plant, as sustaining capital for mining equipment and infrastructure is included within the contractor margin or not required due to the short mine life. Sustaining capital estimated for the processing plant and associated facilities is calculated as 2.5% of the total initial capital costs from years two through five of the life of mine and includes provision for replacement or repair of major processing equipment components, site service and utility repair and replacement and process-related mobile equipment repair and replacement.

1.12.3 Operating Cost Estimates

Operating costs for the Bayan Khundii operations were estimated according to the Association of Advancement of Cost Engineers (AACE) Class 4 estimate with an expected accuracy range of +/- 25%. All currencies are in United States Dollars unless otherwise specified.

The life of mine average operating cost for the Bayan Khundii operations is estimated at US$71.93/t milled at the nominal process rate of 1,800 t/day or 600 kt/year. This operating cost excludes any initial or sustaining capital and excludes pre-production costs. The operating costs for mining, processing and general and administrative costs are summarized in Table 1-10 below.

Table 1-10: Operating Cost Distribution by Operating Area at Bayan Khundii Mine

Operating Cost Summary	Total Cost (LOM Millions)	Cost $/t Milled (LOM Average)
Mining Costs	124.9	35.49
Processing Costs	112.8	32.06
General and Administrative Costs	15.4	4.39
Total Operating Cost	**237.8**	**71.93**

Note: Rounding may cause some computational discrepancies.

Power will be supplied from an on-site power plant located to the southeast of the processing plant. The power plant will supply 6.6 kV power to the process plant and other mine infrastructure through a combination of solar and diesel power generation. Fuel costs will therefore indirectly comprise a portion of the power cost for both mining and processing activities.

1.13 Economic Analysis

An economic evaluation of the Bayan Khundii operation was undertaken based on a pre-tax financial model created for the Bayan Khundii PFS. The estimates included within the financial model are estimated within +/- 25% accuracy. For the seven-year total life-of-mine (including pre-production development) and 3.52 Mt Mineral Reserve, the following pre-tax financial parameters were calculated:

- 48.5% IRR
- 1.70-year payback period on US$39.9M initial capital expenditure
- US$124.5M NPV at a 5% discount rate

Subsequently, a post-tax financial model was created resulting in the following financial parameters:

- 42.1% IRR
- 1.84-year payback period on US$39.9M initial capital expenditure
- US$96.9M NPV at a 5% discount rate

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A summary of the results of the Bayan Khundii economic analysis are presented in Table 1-11 below.

Table 1-11: Financial Results from Bayan Khundii Economic Model

Financial results	Units	Value	$/tonne
Tonnes Milled	tonnes	3,520,452	
Gold Head Grade	g/t	3.73	
Doré production			
Gold Ounces Produced	'000 oz	382	
Total Project Revenue	**Million US$**	**$494**	**$140**
Operating Costs	Million US$	$253	$72
Royalties	Million US$	$30	$8
Operating earnings	**Million US$**	**$211**	**$60**
Initial Capital Expenditure	Million US$	$40	$11
Sustaining Capital Expenditure and Other	Million US$	$3	$1
Pre-tax Cash Flow	Million US$	$169	
Taxes	Million US$	$36	
Post-tax Cash Flow	Million US$	$133	
Post-tax NPV at 5% Discount Rate	Million US$	$97	
IRR	%	42%	
Payback Period	Years	1.8	

Sensitivity analyses were carried out on the post-tax financial model NPV and IRR results with respect to key project variables including gold prices, LOM capital and operating costs and the Mongolian to United States exchange rate. Both the project NPV and IRR are most sensitive to fluctuations in the gold price and operating costs and least sensitive to capital costs and the exchange rate. The results of the sensitivity analyses are presented in Figures 1-2 and 1-3 below.

Figure 1-2: Post-Tax NPV Sensitivity of Key Project Metrics

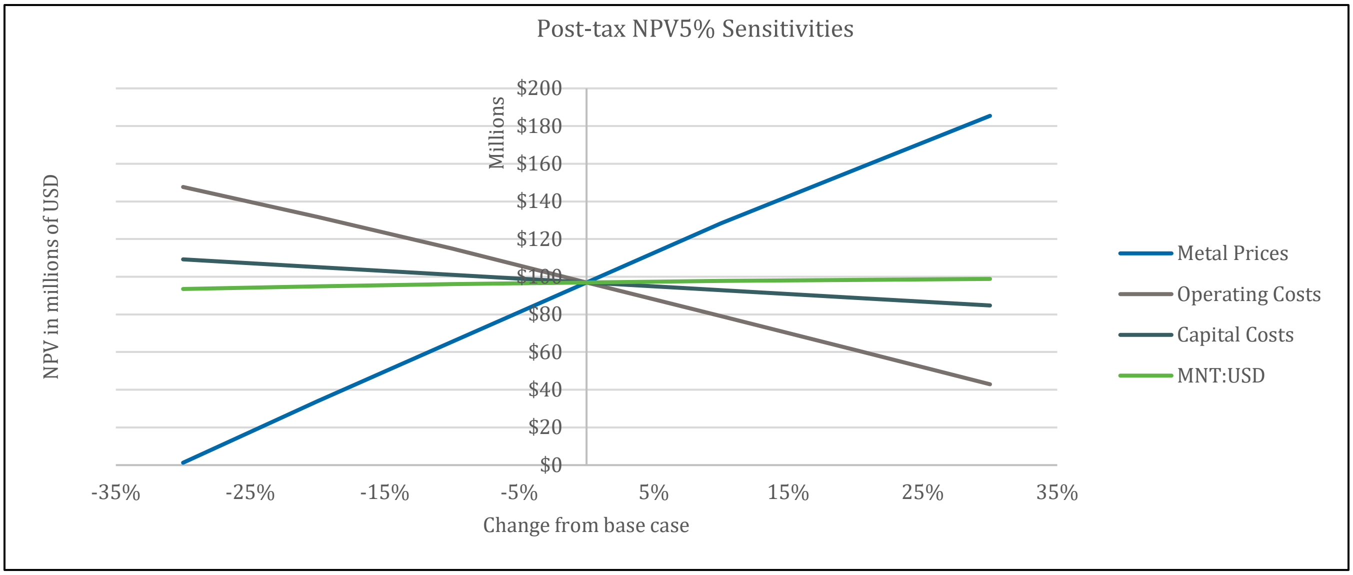
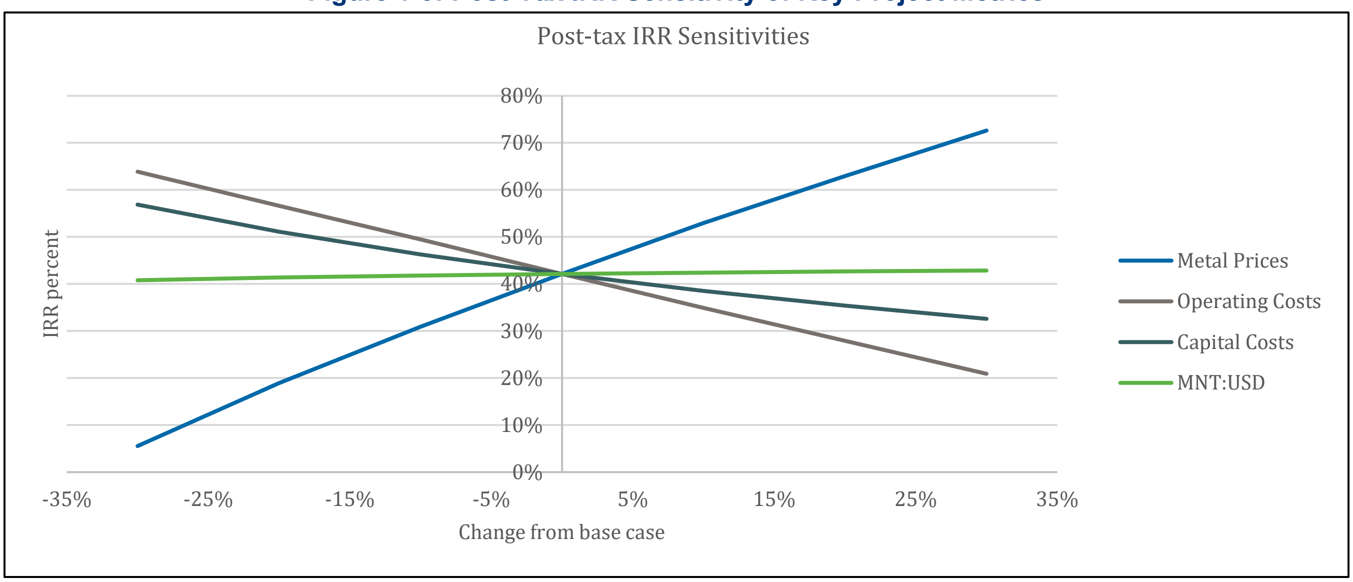


Figure 1-3: Post-Tax IRR Sensitivity of Key Project Metrics



Tetra Tech confirmed that there were no periods of negative cash flow following project start-up and that overall project economics are favorable at both the US$1,300/oz price used for modelling and at a three-year moving average gold price of $1,267/oz.

1.14 Preliminary Economic Assessment of the Altan Nar Project

Tetra Tech was commissioned by Erdene Resource Development Corp (ERD) to complete an updated Preliminary Economic Assessment (PEA) for the Altan Nar (AN) deposit as part of the Khundii Gold Project (KGP) in Mongolia. Previous work was completed by RPM with a PEA released in February 2019.

Technical work completed by Tetra Tech pertains to an updated mine and infrastructure design, schedule and financial analysis of the Altan Nar property to an accuracy of +/- 30%. Tetra Tech relied upon geological and geotechnical data provided by ERD and the previous resource estimate completed by RPM Global and used in the February 2019 PEA.

The Altan Nar PEA is preliminary in nature and contains the results of work completed based on inferred mineral resources which are considered too speculative geologically to enable categorization as reserves. There is no certainty that the proposed operations indicated in the Altan Nar PEA will be realised. All technical work completed for the Altan Nar deposit as a mining operation is contingent on the establishment of the Bayan Khundii mine and infrastructure and Altan Nar is designed as an addition to existing operations at Bayan Khundii as opposed to a standalone operation.

1.14.1 Mineral Processing and Metallurgical Testwork

Metallurgical testwork for the Altan Nar study is based on six test programs conducted between 2012 and 2019 at ALS Ammetc (Perth, Western Australia), Actlabs Asia LLC. (Mongolia), and Blue Coast Research Ltd. (Parksville, BC) and SGS Canada Inc. (Burnaby, BC). Metallurgical tests to date include:

- Gold deportment study conducted in 2012 by ALS Ammtec on one sample from Discovery Zone South.
- Cyanidation tests conducted in 2013 and 2015 by Actlabs Asia LLC. on samples from Discovery Zone North, Discovery Zone South and Union North areas of the deposit. This study found higher gold recoveries in samples with lower arsenic content with maximum gold recovery achieved after 24 hours.
- Heavy liquid separation, gravity testwork, cyanidation, flotation and grindability tests conducted by Blue Coast Research Ltd. In 2015 and 2018. This work focussed on the impact of finer grind sizes and higher cyanide concentrations on overall recovery and found that finer primary grinds resulted in limited impact to overall gold recovery, with flotation and/or oxidative pre-treatment favoured for optimizing gold recovery from areas of the deposit with higher arsenic content. Gravity testwork concluded that a portion of the gold at Altan Nar is amenable to recovery by gravity methods. The results of the heavy liquid separation testwork found pre-concentration of Discovery Zone North material would not be appropriate to improve recovery due to losses in base and precious metals during the process. Flotation was also excluded from the flowsheet due to suboptimal responses from Discovery Zone South and Union North ore.
- Grindability testwork completed in 2015 and 2019 by SGS Canada Inc. The results suggested that material from the Altan Nar deposit is moderately hard to hard. In addition, it was found that material from the Discovery Zone was abrasive, while material from Union North was moderately abrasive.

Gold recovery projections are based on a whole ore cyanidation process, with a relationship between arsenic quantity and recovery expected. As arsenic content increases, overall gold recovery decreases. It was found that the high arsenic zone present in the Altan Nar deposit constitutes 11% of the total mineralized material in the orebody. Selective mining to exclude the high arsenic zone is proposed to reduce the arsenic content of processed ore, with gold recovery of material with an arsenic content of less than 0.16% averaging 88%.

1.14.2 Recovery Methods

Recovery methods for Altan Nar ore are based on the same recovery methodology as Bayan Khundii ore. Mill feed from the Altan Nar pits to the processing plant is expected to average 3.46 g/t gold with additional silver content. It is expected gold and silver will be recovered from Altan Nar ore via conventional cyanidation and Carbon-In-Pulp (CIP) methods with plant tailings being co-disposed with waste rock material in an Integrated Waste Facility (IWF) situated at the Altan Nar site.

The proposed conventional cyanide leaching process is designed to produce gold doré bars for transport off site for further refining.

The simplified gold recovery process is as follows:

- Comminution
- Cyanide Leaching
- Carbon-in-Pulp Adsorption
- Elution
- Electrowinning
- Carbon Regeneration
- Tailings Treatment

Additional provision for increased cyanide requirements when recovering metal from ore with a high silver content (>20 g/t) is included in the process plant setup, with intermittent periods where two carbon elutions per day will be required. Size of rectifier equipment will also be increased to accommodate the additional load of high-grade silver ore. Tailings will be handled through a thickening and filtration process to reduce cyanide content and condense the material for impoundment within the Altan Nar IWF.

1.14.3 Development and Operations

The Altan Nar project consists of seven small satellite pits with ore material being trucked to the mill at the Bayan Khundii operation using 38 tonne road trucks over a length of 21 kilometers. Additional Altan Nar infrastructure includes an Integrated Waste Facility for combined storage of waste rock material and process plant tailings. The Altan Nar operation is designed to integrate with the existing Bayan Khundii open pit mine to the south, and utilize the currently planned processing plant, maintenance workshop, warehouse, refuel facilities, contractor camp and explosive storage area.

Mine planning work is based on the Indicated and Inferred resources defined for the Altan Nar deposit, and additionally on previous work conducted by RPM included within the February 2019 Preliminary Economic Assessment. Other information considered and used for mine planning and design include base economic parameters, metal prices, mining cost data derived from current Bayan Khundii PFS estimates or Tetra Tech's internal database and projected metallurgical recoveries, processing costs and throughput rates.

Pit optimization was conducted using Whittle™ software, using key inputs for metal prices, recoveries and operating costs alongside the Mineral Resource block model. Slope parameters are based on the available geotechnical information presented in the February 2019 PEA completed by RPM Global. A pit shell was chosen with the lowest possible strip ratio whilst maintaining NPV to reduce overall waste material mined.

Mineralisation at Altan Nar is hosted within multiple orebodies separated by barren host rock and as such, multiple smaller pits were proposed to target each orebody whilst reducing waste material mined. A selective mining method was chosen for Altan Nar pit designs, with smaller equipment and 5m bench sizes for greater ore to waste boundary control. The Altan Nar operation is expected to have a life of mine of just over four years.

The Altan Nar operation is designed with a schedule which maintains the 1,800 t/d capacity of the Bayan Khundii processing plant, based on a conventional open-pit truck and shovel mining method. An average mining rate of 4.0

Mt per year is proposed for the first three years, with 3.5 Mt mined in the fourth year of the project LOM. One year of scheduled pre-stripping and development is included in the Altan Nar mine plan. A summary of the proposed LOM plan is displayed in Table 1-12 below.

Table 1-12: Altan Nar LOM Operating Schedule

Year	Year 1	Year 2	Year 3	Year 4	Year 5
Material Mined (tonnes)	3,999,665	4,010,624	3,999,666	3,527,432	1,501
Strip Ratio	10.2	8.6	7.9	5.0	11.3
Plant Feed (tonnes)	-	601,338	599,695	599,695	13,281
Plant Feed from Pits (tonnes)	-	417,554	448,933	590,110	123
Plant Feed from Stockpile (tonnes)	-	183,784	150,762	9,585	13,159
Gold Grade to the Plant (grams/tonne)	-	3.90	3.11	3.35	4.46
Gold to Plant (ounces)	-	75,437	59,950	64,535	1,902
End-of-Year Stockpile Tonnes Balance	357,290	173,506	22,744	13,159	-

Equipment selection for the Altan Nar site is based on the currently recommended fleet for use at Bayan Khundii. A reduction in the total equipment required occurs due to the shorter life of mine and lower mining rate relative to the Bayan Khundii operations. A summary of the equipment fleet selected is provided in Table 1-13 below.

Table 1-13: Altan Nar Equipment Selection

Core Equipment	Equipment Model	Equipment Class	Total Required
Ore Drill	PowerROC D60	110-178 mm hole diameter	1
Waste Drill	FlexiRoc D60	110-178 mm hole diameter	2
Ore Loader	CAT 349F	311 kW	1
Waste Loader	CAT 6015B	606 kW	2
Ore Truck	CAT 740B	365 kW	3
Waste Truck	CAT 773D	509 kW	3
Waste Dozer	CAT D9	310 kW	1
Auxiliary Equipment	**Equipment Model**	**Equipment Class**	**Total Required**
Grader	CAT 14M3	178 kW	1
Wheel Loader	CAT 988K	310 kW	2
Vibratory Compactor	CAT CS74B	129 kW	1
Water Truck	CAT 773WT	-	1
Support Loader (Mill Rehandle)	CAT 966K	-	1
Fuel and Lube Truck	-	-	1
Low Bed Truck	-	-	1
Pickups	-	-	1
Forklift	-	-	1
Maintenance Truck	-	-	2

The workforce build up for Altan Nar was based on the core equipment requirements with supervisory and support roles added based on the relative scale of the project. A reduced workforce compared to the Bayan Khundii operations is anticipated to reduce labour operating costs. Mining activities are proposed to be undertaken by a contractor, with managerial positions and geological technical staff included as permanent positions.

1.14.4 Infrastructure Requirements

The majority of the infrastructure required for the Altan Nar operation will already be established for the Bayan Khundii mine. This infrastructure is predominantly located close to the Bayan Khundii pit, including the processing plant, warehouse and admin buildings and maintenance workshop. The accommodation village is located approximately 12 km southeast of the proposed Altan Nar open pit development. Additions to infrastructure include security and fencing for the Altan Nar site, a potential satellite office and portable ablutions and a haul road upgrade prior to first production.

Existing power facilities at Bayan Khundii will be used, with potential additional power required for the electrowinning circuit to recover the silver present in Altan Nar ore. An upgrade to the existing power station is not required for the Altan Nar operation. Water supply and distribution infrastructure is also expected to remain unchanged from currently proposed Bayan Khundii infrastructure, with haul road maintenance and other activities at Altan Nar which require water to be facilitated with the use of water trucks.

Process tailings and waste rock material mined at Altan Nar will be co-disposed in a single above-ground Integrated Waste Facility (IWF). This facility will be located adjacent to the Altan Nar open pits and will be constructed using the same design criteria as the proposed IWF at the Bayan Khundii site.

1.14.5 Capital and Operating Costs

Capital and operating costs for the Altan Nar operations are estimated to AACE Class 5 standards, with an expected accuracy range of +/- 30%. All costs are based on the equivalent estimates for the Bayan Khundii PFS study with adjustments made for modifying factors specific to the Altan Nar property.

Capital costs estimates for Altan Nar are based on additional infrastructure, upgrades or repair required to establish the Altan Nar site to complement operations at Bayan Khundii towards the end of the LOM. The total initial capital cost for Altan Nar is expected at US$2.2M. The majority of capital costs for the Altan Nar operation surrounds the construction of the haul road network between the Altan Nar mine site and existing Bayan Khundii processing plant. Additional costs have been included for desorption and gold room facilities at the processing plant to meet Altan Nar ore processing requirements. Sustaining capital costs have not been included in the Altan Nar cost estimation due to the short life of mine and expected contract mining arrangement. A summary of the expected capital costs is provided in Table 1-14 below.

Table 1-14: Capital Cost Summary for Altan Nar

Area		Cost (US$ M)
Direct Costs		
2000	Mine (Haul Roads)	1.30
3000	Process Plant	0.05
Direct Cost Subtotal		**1.35**
Indirect Costs		
7000	Site Establishment & Early Works	0.29
8000	Management, Engineering, EPCM Services	0.005
9000	Pre-Production Cost	0.54
Indirect Cost Subtotal		**0.84**
Total		**2.20**

Operating costs include mining, processing, tailings and waste rock storage, water treatment and general and administrative expenses. The LOM average operating cost for Altan Nar is estimated at US$68/t milled. Fuel costs are estimated to indirectly comprise a portion of the power cost for both mining and processing activities as the power plant is designed with a hybrid fuel/solar power generation system. A summary of the operating costs for Altan Nar is provided in Table 1-15 below.

Table 1-15: Operating Cost Distribution by Operating Area at Altan Nar Mine

Operating Cost Summary	Total Cost (LOM $M)	Cost $/t Milled (LOM Average)
Mining Costs	58.5	32.25
Processing Costs	55.9	30.82
General and Administrative Costs	8.4	4.60
Total Operating Cost	**122.8**	**67.67**

1.14.6 Economic Analysis

An economic evaluation of the Altan Nar project was completed based on a pre-tax financial model. For the four-year total life of mine, the following financial parameters were estimated:

- 110.1% IRR
- 0.99-year payback period on US$2.5M initial capital expenditure
- US$30.5M NPV at a 5% discount rate

Subsequently, a post-tax financial model was created, resulting in the following financial parameters:

- 42.1% IRR
- 1.07-year payback period on US$2.5M initial capital expenditure
- US$24.1M NPV at a 5% discount rate

A summary of the results of the financial analysis is provided in Table 1-16 below.

Table 1-16: Financial Results from Altan Nar Economic Model

Financial results	Units	Value	$/tonne
Tonnes Milled	tonnes	1,814,009	
Gold Head Grade	g/t	3.46	
Doré production			
Gold Ounces Produced	'000 oz	136	
Total Project Revenue	**Million US$**	**$186**	**$102**
Operating Costs	Million US$	$123	$68
Royalties	Million US$	$11	$6
Operating earnings	**Million US$**	**$52**	**$29**
Initial Capital Expenditure	Million US$	$2.5	$1.4
Pre-tax Cash Flow	Million US$	$49	
Taxes	Million US$	$10	
Post-tax Cash Flow	Million US$	$39	
Post-tax NPV at 5% Discount Rate	Million US$	$24.1	
IRR	%	92%	
Payback Period	Years	1.07	

A sensitivity analysis was conducted to assess the impact of key project variables on the Altan Nar project's NPV and IRR values. The sensitivity analysis was performed on the gold price, capital costs and operating costs for AN. This analysis is presented graphically in Figures 1-4 and 1-5 below.

Figure 1-4: Post-Tax NPV5% Sensitivities for Altan Nar

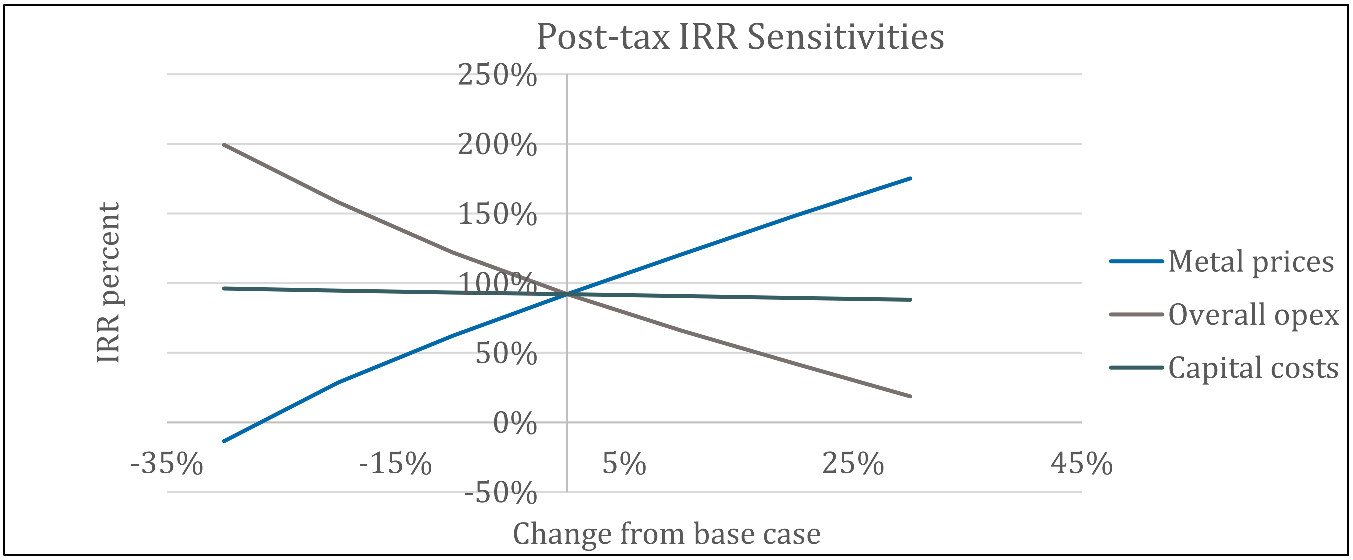
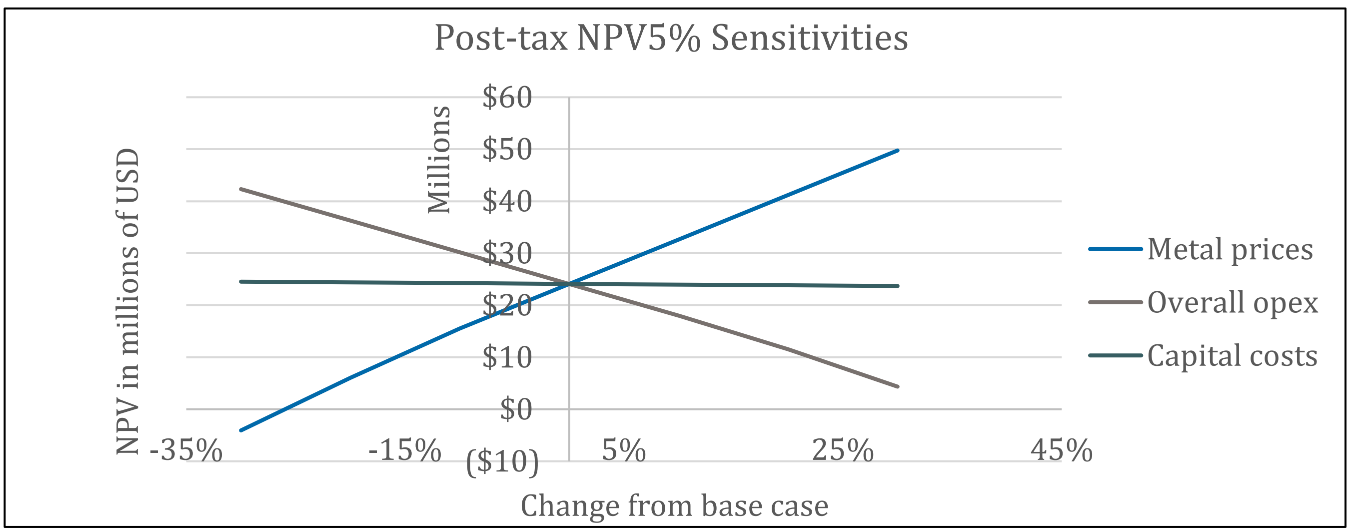


Figure 1-5: Post Tax IRR Sensitivities for Altan Nar



1.15 Conclusions

1.15.1 Bayan Khundii Prefeasibility Study

1.15.1.1 Geology

At a cut-off grade of 0.55 g/t Au, Bayan Khundii has been estimated with a Measured Resource of 1.41 Mt at an average grade 3.77 g/t Au, an estimated Indicated Resource of 3.71 Mt at an average grade of 2.93 g/t Au, and an estimated Inferred Resource of 0.868 Mt at an average grade of 3.68 g/t Au.

Altan Nar Mineral Resource has been estimated with Indicated Resource of 5.0 Mt at 2.0 g/t Au and Inferred Resource of 3.4 Mt at 1.7 g/t Au. The Altan Nar project Mineral Resources were reported in the NI 43-101 Report titled "NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project" dated February 4, 2019.

1.15.1.2 Metallurgical Testwork

Metallurgical testwork completed has confirmed the parameters for the major aspects of the design of the processing plant with tests on the effects of grade versus recovery and grind size versus recovery contributing to the optimization of the proposed grinding and leaching circuit.

1.15.1.3 Mineral Reserve Estimate

A Mineral Reserve has been developed for Bayan Khundii based on Measured and Indicated resources according to the definitions set by National Instrument 43-101 and the CIM standards on Mineral Resources and Reserve Definitions and Guidelines (2014). Using an NSR cut-off of US$22.93, a combined Proven and Probable Reserve of 3.5 Mt at an average grade of 3.7g/t was defined with total contained gold of 422k oz.

1.15.1.4 Mining and Processing Operations

Following pit optimization and mine design, Tetra Tech designed a final pit with dimensions of approximately 850 m x 400 m with a depth to 145 m. A production schedule was created with a six-year life of mine, producing a total of 3.5 Mt mineralized material at an average grade of 3.7 g/t, with an additional 35.8 Mt waste rock. The life of mine strip ratio is 11.7.1.

The processing plant has been designed with a conventional cyanide leaching and CIP recovery circuit. The mine will provide ore to the process plant at a nominal rate of 600 kt/year. A total of 422 k oz is expected to be produced over the life of mine.

1.15.1.5 Cost Estimation and Economic Analysis

Capital and operating cost estimates for the Bayan Khundii operation have been completed to an AACE Class 4 standard, with an expected accuracy range of +/- 25%. All costs stated are reported in United States dollars. Capital cost estimates are based on a contractor mining scenario and include costs for essential infrastructure, utilities and haul roads, excluding provision for mobile mining equipment. Total initial capital costs are estimated at US$39.9M. Sustaining capital costs are estimated at US$1.2M over the life of mine. Operating costs including mining, processing and general and administrative costs are estimated at US$71.9/t milled at the nominal processing rate of 600 kt/year.

Financial evaluation of the project confirmed favorable economics based on the recommended life of mine plan at both the initially modelled US$1,300/oz and a three-year trailing average gold price of US$1,267/oz. Post-tax financial results determined include an NPV of US$96.9M, an IRR of 42.1% and a 1.84 year payback period on initial capital expenditure of US$39.9M. Sensitivity analysis of key project variables showed a sensitivity to the gold price and operating costs, with little impact seen in fluctuations of the exchange rate or initial capital cost estimates.

1.15.2 Altan Nar Preliminary Economic Assessment

The Altan Nar deposit has the potential to be developed as a profitable series of open pit mines in conjunction with the proposed processing facility at the Bayan Khundii operation. The open pit mine will utilize a conventional open-pit truck and shovel mining method with a life of mine of four years inclusive of one year of waste stripping activity. Over the life of mine, the pit will produce 1.8Mt of mineralized material and 13.7 Mt of waste rock with an average ore grade of 3.46 g/t. Waste rock and tailings is anticipated to be stored in a single integrated waste facility to provide long term storage with minimal environmental impact. AN ore is expected to be recovered using conventional cyanide leaching and carbon-in-pulp methods, with additional elution circuit and cyanidation cycles to recover silver content.

Total initial capital cost for Altan Nar is expected at US$2.2M. The Altan Nar project has a pre-tax internal rate of return (IRR) of 110.1% and a pre-tax net present value (NPV) at a 5% discount rate of US$30.5M with recovery of initial capital in 0.99 years.

1.16 Recommendations

1.16.1 Bayan Khundii Prefeasibility Study

1.16.1.1 Geology

At Bayan Khundii, optional additional drilling can be undertaken with a specific focus on expanding and infilling the mineralization at Striker West, along with infill drilling at Striker, Midfield, and Midfield North in order to gain further confidence in the high-grade mineralization present. Further exploration style drilling could also be undertaken to the north-east, south-west of the currently modeled gold mineralization, along with step out style extensional drilling to the east of Bayan Khundii. As drilling continues, and the project continues to progress towards the mining phase, ongoing detailed studies should continue which monitor the variability of gold grades.

It’s further recommended that Erdene insert both a higher-grade gold standard and lower grade gold standard into their data QA/QC protocols in order to better reflect the gold grades encountered at Bayan Khundii.

1.16.1.2 Mining

Tetra Tech recommends a feasibility level study be completed for the Bayan Khundii project, with the following detailed design and estimation elements included:

A dedicated geotechnical site investigation is recommended for the feasibility study to collect additional detailed geotechnical and hydrogeological information. The site investigation should consist of oriented, triple-tubed diamond drilling with associated geotechnical logging, hydrogeological packer testing, installation of vibrating wire piezometers, and laboratory strength testing of core samples.

Tetra Tech recommends a detailed dilution study, encompassing investigation into parameters controlling both internal and external dilution. Remodelling of the Mineral Resource model on a bench by bench basis with a smaller block size and selective mining unit is recommended to further define areas of ore and waste within the orebody to aid internal dilution control. Following this, ore control with respect to pit and blast design is recommended to efficiently recover material from smaller bench sizes and blasted areas to aid in efficient material recovery whilst maintaining the selectivity of the mining method.

Greater detail in scheduling the removal and stockpiling of waste types (Non-Metal Leaching, Metal Leaching) is necessary to maintain the correct mixture and delivery timing of waste materials in the IWF.

A desktop study related to how to access and mine the Striker West mineralisation, likely through an underground portal, in the latter years of the mine life is recommended. Striker West represents a significant opportunity to improve the economic qualities of the project such as total recovered gold and mine life. Desktop studies to understand the project timing, mining equipment purchases, mining method, mine schedule, and how to incorporate additional plant and IWF inputs are necessary to realise the potential value of Striker West.

1.16.1.3 Mineral Processing and Metallurgical Testing

Future phases of testwork are recommended to improve potential recovery rates and optimize processing equipment sizes to reduce initial capital costs. These items include:

- Grindability testing encompassing a JK Drop Weight test, Crusher Work Index test, Variability Bond Ball Work Index tests covering each area of the deposit and a SAG Mill Comminution test covering each area of the deposit at varying depths.
- Expansion of the metallurgical database through additional variability testwork on samples across the deposit, specifically within the 1.0 g/t to 5.0 g/t grade range.
- Carbon adsorption testwork including adsorption isotherms and carbon triple contact tests to determine the carbon loading parameters for detailed design of CIP circuits.
- Conduct leach and carbon adsorption testwork at a variety of densities to understand the options for optimising the equipment sizing in these areas.
- Complete dewatering testwork to determine thickener parameters (i.e., final tails).
- Conduct a cyanide detox testwork program to determine reagent demands and retention time requirements to meet cyanide limits for tailings disposal.

1.16.1.4 Further Study Cost Estimation

Table 1-17: Estimated Budget for Recommended Further Study

Task	Cost (CAD)
Drilling: In-fill, Twinning, and Extensional - 7,500m	$1,500,000
Update of Geological and Resource Model	$35,000
Dilution Modelling and Detailed Blast Design	$25,000
Full Geotechnical Review	$110,000
Underground Study and Design	$80,000
Equipment Selection Review	$8,000
Bayan Khundii Metallurgical Testing	$130,000

1.16.2 Altan Nar Preliminary Economic Assessment

1.16.2.1 Geology and Mineral Resources

Approximately 30% of the Altan Nar Project has been classified as Inferred Mineral Resource. It's recommended that additional drilling occur to increase confidence in the existing Inferred Mineral Resource, focusing on the highest-grade portions as well as additional extensional exploration drilling in the Discovery Zone and Union North areas of the deposit.

It's recommended that Erdene continue recording density measurements, ensuring that measurements cover a variety of Fe grades to further refine the regression equation. Erdene should undertake a bulk density program using the remaining Altan Nar core. This should include up to 200 samples focusing on a range of grades (low to high) with each sample having a density determination as well as assays for Au, Pb, Zn and S.

1.16.2.2 Mining

Tetra Tech recommends that the Altan Nar project proceeds to a pre-feasibility stage study with a detailed mine design and production schedule. Additional geotechnical work is proposed to more accurately define the appropriate pit slope angles and design parameters for the pit, stockpile and waste storage facility.

Geochemical characterization of waste lithologies is recommended in order to identify potential sources of clean construction material for the Integrated Waste Facility. In addition, mine closure planning should be progressed with design optimization of the IWF a priority.

Comminution parameters, in particular primary grind size, should be confirmed to ensure the ability of the currently proposed Bayan Khundii processing plant to recover gold and silver from Altan Nar ore to reduce potential capital expenditure during the construction phases of the Altan Nar project. Further investigation into calculating elution and electrowinning parameters for the silver content of Altan Nar ore is recommended in order to confirm the sizing of CIP, elution, carbon regeneration and electrowinning circuit equipment for increased accuracy in cost estimation.

1.16.2.3 Further Study Cost Estimation

Table 1-18: Estimated Budget for Recommended Further Study for Altan Nar

Task	Cost (CAD)
Drilling: In-fill, Exploration - 2,500m	$500,000
Update of Geological and Resource Model	$35,000
Geotechnical Review	$100,000
Waste Rock Characterization	$30,000
Mine Closure Planning	$15,000
AN Metallurgical Testing	$100,000

2.0 INTRODUCTION

Erdene Resource Development Corporation ("Erdene", or the "Company") retained Tetra Tech to prepare a National Instrument 43-101 (NI 43-101) Technical Report ("Technical Report") for their 100% owned Khundii Gold Project (or the "Property") located in the Bayankhongor Aimag, or province, of southwestern Mongolia. The Technical Report includes a Pre-Feasibility Study (PFS) for initial development and open pit mining of the Bayan Khundii Gold Deposit (Bayan Khundii) with an effective date of October 15, 2019, based on an updated Mineral Resource with an effective date of October 1, 2019.

A second phase of development for the Khundii Gold Project is evaluated as an updated Preliminary Economic Assessment (PEA) for the Altan Nar Gold Deposit (Altan Nar) with an effective date of October 15, 2019. The updated PEA evaluates open pit mining at Altan Nar with mineral processing utilizing the established infrastructure from the Bayan Khundii operation. The Altan Nar PEA is based on a Mineral Resource statement with effective date of May 7, 2018.

Erdene is a Canadian-based resource company with over 19 years' experience in precious and base metal exploration in Mongolia.

2.1 Qualified Persons

In accordance with NI 43-101, the QPs for this Technical Report are listed in Table 2-1.

Table 2-1: Qualified Person Responsibilities

Report Section	Company	QP
1.0 Summary	Tetra Tech	All QPs
2.0 Introduction	Tetra Tech	Maurie Phifer, P.Eng. Cameron Norton, P.Geo.
3.0 Reliance on Other Experts	Tetra Tech	Maurie Phifer, P.Eng. Cameron Norton, P.Geo.
4.0 Property Description and Location	Tetra Tech	Cameron Norton, P.Geo.
5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography	Tetra Tech	Cameron Norton, P.Geo.
6.0 History	Tetra Tech	Cameron Norton, P.Geo.
7.0 Geological Setting and Mineralization	Tetra Tech	Cameron Norton, P.Geo.
8.0 Deposit Types	Tetra Tech	Cameron Norton, P.Geo.
9.0 Exploration	Tetra Tech	Cameron Norton, P.Geo.
10.0 Drilling	Tetra Tech	Cameron Norton, P.Geo.
11.0 Sample Preparation, Analyses and Security	Tetra Tech RPM Global	11.1-11.4, 11.5.1-11.5.4,11.6 Cameron Norton, P.Geo. 11.5.5: Jeremy Clark, P.Geo..
12.0 Data Verification	Tetra Tech	12.1: Cameron Norton, P.Geo. 12.2: Jeremy Clark, P.Geo.

Report Section		Company	QP
13.0	Mineral Processing and Metallurgical Testing	Blue Coast Research	Andrew Kelly, P.Eng.
14.0	Mineral Resource Estimates	Tetra Tech RPM Global	14.1,14.2: Cameron Norton, P.Geo. 14.3: Jeremy Clark, P.Geo.
15.0	Mineral Reserve Estimates	Tetra Tech	Maurie Phifer, P.Eng.
16.0	Mining Methods	Tetra Tech	16.0-16.2, 16.4-16.5 Maurie Phifer, P.Eng. 16.3. Mike Fawcett, MAusIMM.
17.0	Recovery Methods	Tetra Tech	Hassan Ghaffari, P.Eng.
18.0	Project Infrastructure	Tetra Tech	Hassan Ghaffari, P.Eng.
19.0	Market Studies and Contracts	Tetra Tech	Mark Horan, P.Eng.
20.0	Environmental Studies, Permitting and Social or Community Impact	Tetra Tech	Mike Fawcett, MAusIMM.
21.0	Capital and Operating Cost Estimates	Tetra Tech	Mark Horan, P.Eng.
22.0	Economic Analysis	Tetra Tech	Mark Horan, P.Eng.
23.0	Adjacent Properties	Tetra Tech	Cameron Norton, P.Geo.
24.0	Other Relevant Data	Tetra Tech	All QPs
25.0	Interpretations and Conclusions	Tetra Tech	All QPs
26.0	Recommendations	Tetra Tech	All QPs
27.0	References	Tetra Tech	All QPs

Throughout the report, the following terms are used to describe the responsible QPs:

- Geology QP Bayan Khundii: Cameron Norton, P.Geo.
- Geology QP Altan Nar: Jeremy Clark, P.Geo.
- Environmental QP: Mike Fawcett, MAusIMM.
- Mining QP: Maurie Phifer, P.Eng.
- Financial Model QP: Mark Horan, P.Eng.
- Metallurgy QP: Andrew Kelly, P.Eng.
- Process QP: Hassan Ghaffari, P.Eng.
- Infrastructure QP: Hassan Ghaffari, P.Eng.

Cameron R. Norton, P.Geo.

I, Cameron Norton, P.Geo., of North Vancouver, British Columbia, do hereby certify:

- I am a Resource Geologist with Tetra Tech Canada Inc. with a business address at Suite 1000, 10th Fl., 885 Dunsmuir St., Vancouver, BC, V6B 1N5.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I graduated from the University of Victoria in 2010 with a B.Sc. in Earth and Ocean Science.
- I am a registered Professional Geoscientist with Engineers and Geoscientists of British Columbia (#178541)
- Since 2010 I have worked as an exploration and resource geologist for numerous precious metal, base metal, and industrial mineral projects in Canada, Argentina, and Mongolia.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have visited the Property that is the subject of the Technical Report on May 6-May 12, 2019.
- I am responsible for Sections 1.5, 1.7.1, 1.8, 1.8.1, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.1-11.4, 11.5.1-11.5.4,11.6, 12.1, 13.0, 14.1, 14.2, 23.0, 25.1.1, 25.1.9.1, 25.1.10.2, 25.2.1, 25.2.4, 26.1.1 and 26.2.1 of the Technical Report.
- I am independent of Erdene Resource Development Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I confirm that I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 4th day of December 2019, at Vancouver, British Columbia.

Original signed and sealed by
Cameron Norton, P.Geo.

____

Cameron R. Norton, P.Geo.
Intermediate Resource Geologist
Tetra Tech Canada Inc.

Michael N. R. Fawcett, MAusIMM (Env)

I, Michael Nicol Robert FAWCETT, MAusIMM CP (Env), of Darwin, Northern Territory, Australia, do hereby certify:

- I am a Senior Principal Mining with Coffey Services Australia. with a business address at 58 McMinn Street, Darwin, Northern Territory, Australia 0801.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I am a member in good standing of with Australasian Institute of Mining and Metallurgy (209541). I have over 40 years' experience including working in precious and base metal operations and in consulting.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have not visited the Property that is the subject of the Technical Report.
- I am responsible for Section 1.6, 1.10.3, 16.3, 20, 24.9, 24.7.7 24.9, 24.10.3, 25.1.6 and 25.1.10.5 of the Technical Report.
- I am independent of Erdene Resource Development Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I confirm that I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 20th day of November 2019, at Darwin, Northern Territory.

Original signed and sealed by

____
MNR Fawcett, MAusIMM CP (Env)
Senior Principal Mining
Coffey Services Australia.

Mark Horan, P.Eng.

I, Mark Horan, P.Eng., of Oliver, British Columbia, do hereby certify:

- I am a Senior Mining Engineer with Tetra Tech Canada Inc. with a business address at Suite 1000, 10th Fl., 885 Dunsmuir St., Vancouver, BC, V6B 1N5.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I am a graduate of the University of Witwatersrand, South Africa (B.Sc., Mining Engineering, 1997) and Rhodes University, South Africa (M.Sc., 2002).
- I am a member in good standing of with Engineers and Geoscientists of British Columbia (#170768).
- I have 19 years' experience including working in precious and base metal operations and in consulting.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have not visited the Property that is the subject of the Technical Report.
- I am responsible for Sections 1.12, 1.13,1.14.5, 1.14.6, 19.0, 21.0, 22.0, 24.8, 24.10, 24.11, 25.1.7 and 25.1.8 of the Technical Report.
- I am independent of Erdene Resource Development Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I confirm that I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 4th day of December 2019, at Oliver, British Columbia.

Original signed and sealed by
Mark Horan, P.Eng.

Mark Horan, P.Eng.
Senior Mining Engineer
Tetra Tech Canada Inc.

Maureen Phifer, P.Eng.

I, Maureen Phifer, P.Eng., of Richmond, British Columbia, do hereby certify:

- I am the Mining Division Manager with Tetra Tech Canada Inc. with a business address at Suite 1000, 10th Fl., 885 Dunsmuir St., Vancouver, BC, V6B 1N5.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I graduated in 2013 from the Montana Technical University with a B.Sc. in Mining Engineering.
- I am a member in good standing of with Engineers and Geoscientists of British Columbia (#176335).
- My relevant experience includes 9 years of experience working in precious metals and in consulting.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have visited the Property that is the subject of the Technical Report on May 6-12, 2019.
- I am responsible for Sections 1.9, 1.10.1, 1.10.2, 1.14.3, 1.15, 1.16, 2.0, 15.0, 16.0-16.2, 16.4-16.5, 24.3 – 24.5, 25.1.3, 25.1.4, 25.1.9.2, 25.1.10.1, 25.1.10.3, 25.2.3, 26.1.2 and 26.2.2 of the Technical Report.
- I am independent of Erdene Resource Development Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I confirm that I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 4th day of December 2019, at Vancouver, British Columbia.

Original signed and sealed by
Maureen Phifer, P.Eng.

Maureen Phifer, P.Eng.
Manager, Mining Division
Tetra Tech Canada Inc.

Hassan Ghaffari, P.Eng.

I, Hassan Ghaffari, P.Eng., of Vancouver, British Columbia, do hereby certify:

- I am a Director of Metallurgy with Tetra Tech Canada Inc. with a business address at Suite 1000, 10th Fl., 885 Dunsmuir St., Vancouver, BC, V6B 1N5.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I am a graduate of the University of Tehran (M.A.Sc., Mining Engineering, 1990) and the University of British Columbia (M.A.Sc., Mineral Process Engineering, 2004).
- I am a member in good standing of with Engineers and Geoscientists of British Columbia (#30408).
- My relevant experience includes 27 years of experience in mining and plant operation, project studies, management, and engineering.
- I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- I have not completed a site visit to the Property that is the subject of the Technical Report.
- I am responsible for Sections 1.10.2, 1.11.2, 1.14.2, 17.0, 18.0, 24.6, 24.7.1 – 24.7.6, 25.1.5 and 25.2.2 of the Technical Report.
- I am independent of Erdene Resource Development Corp. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I confirm that I have read the Instrument and the sections of the Technical Report that I am responsible for have been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information, and belief, the sections of the Technical Report that I am responsible for contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 4th day of December 2019, at Vancouver, British Columbia.

Original signed and sealed by
Hassan Ghaffari, P.Eng.

____
Hassan Ghaffari, P.Eng.
Director of Metallurgy
Tetra Tech Canada Inc.

Certificate of Qualified Person

I, Andrew Kelly, P.Eng., am employed as the General Manager and Senior Metallurgist with Blue Coast Research Ltd., 2-1020 Herring Gull Way, Parksville, BC, Canada, V9P 1R2. This certificate applies to the Khundii Gold Project NI 43-101 Technical Report dated December 4, 2019, with an effective date of October 15, 2019 (the "Technical Report"). I do hereby certify that:

1. I am a licensed Professional Engineer with the Association of Professional Engineers and Geoscientists of British Columbia (License No. 39900) and with the Association of Professional Engineers of Ontario (License No. 100073664)

2. I am a graduate of the University of New Brunswick and obtained a Bachelor of Science in Engineering (Chemical) degree in 2003.

3. I have worked as metallurgist for a total of 16 years. My experience includes both plant operations and laboratory settings and covers base and precious metals.

5. I am a Qualified Person for the purposes of the National Instrument 43-101 of the Canadian Securities Administrators ("NI 43-101").

6. I am responsible for the preparation and the supervision and final editing of Sections 1.11.1, 1.14.1, 13.0, 24.2, 25.1.2, 26.1.3 and 26.2.3 of the Technical Report

7. I have not visited the property.

8. I have had prior involvement in the property that is the subject of the Technical Report. I have been involved in the management and supervision of various metallurgical testwork programs for Bayan Khundii and Altan Nar between 2015 and the date of the report.

9. To the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading as of the effective date of the report.

10. I am independent of Erdene Resource Development Company in accordance with the application of Section 1.5 of NI 43-101.

11. I have read NI 43-101 and Form 43-101F1 and Sections 1.11.1, 1.14.1, 13.0, 24.2, 25.1.2, 26.1.3 and 26.2.3 of the Technical Report have been prepared in compliance with that instrument and form.

12. I consent to the filing of the Technical Report with any stock exchange or any other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their website and accessible by the public, of the Technical Report.

Signed and Dated at Parksville, British Columbia, December 4, 2019.

Signature of Qualified Person

Andrew Kelly, P.Eng.

Print Name of Qualified Person

PROFESSIONAL
PROVINCE OF
A. C. KELLY
39900
BRITISH COLUMBIA
ENGINEER

Dec 4, 2019

Jeremy Lee Clark

Suites 2-4, 3/F,
Sino Plaza, 255-257 Gloucester Road,
Causeway Bay,
Hong Kong
Phone: +852 9858 3883
jclark@rpmglobal.com

I, Jeremy Lee Clark, MAIG, of Hong Kong do hereby certify:

- I am working as a Principal Geologist for RPMGlobal Asia Limited, Level 13, 68 Yee Woo Street, Hong Kong.
- This certificate applies to the technical report entitled *Khundii Gold Project NI 43-101 Technical Report* with an effective date of October 15, 2019 (the "Technical Report").
- I am a registered member of the Australian Institute of Geoscientists ("AIG") number 3567.
- I am a graduate of the Queensland University of Technology and hold a B App Sc in Geology, which was awarded in 2001. In addition, I am a graduate of Edith Cowan University in Australia and hold a Graduate Certificate in Geostatistics, which was awarded in 2006.
- I have been continuously and actively engaged in the assessment, development, and operation of mineral Projects since my graduation from university in 2001.
- I am a Qualified Person for the purposes of the National Instrument 43-101 of the Canadian Securities Administrators ("NI 43-101").
- I am responsible for the preparation of Sections 1.7.2, 1.8.2, 7.4, 11.5.5, 12.1, 14.3, 25.2.1 and 26.2.1 of the Technical Report.
- I have had no prior involvement with the properties that are the subject of the Technical Report.
- To the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading as of the effective date of the report, October 15, 2019.
- I am independent of Erdene Resource Development Company in accordance with the application of Section 1.5 of NI 43-101.
- I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.
- I consent to the filing of the Technical Report with any stock exchange or any other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their website and accessible by the public, of the Technical Report.

Signed and dated at Hong Kong, December 4, 2019.

Jeremy Lee Clark, MAIG (QP)

2.2 Sources of Information

For the preparation of this work, the QPs have relied upon information provided by Erdene and their agents, including drill hole data, maps, laboratory analytical certificates, costs for contractors and fuel, and from other sources such as publicly available databases, research and academic literature, and observations made during site visits.

The primary source documents supporting the Bayan Khundii Project PFS were:

- NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project, RPM Global, February 4, 2019.
- Bayan Khundii Gold Project (Khundii Exploration License), Bayankhongor Aimag, Southwest Mongolia, NI43-101 Technical Report prepared by Erdene Resource Development Corp, MacDonald, M.A., March 2018.
- Applied Petrologic Services & Research (APSAR), 2017.Petrologic Studies of Drill Core from the Bayan Khundii Gold project, Bayankhongor Aimag, Southwest Mongolia. Independent report prepared for Erdene Resource Development Corp., 40 p.
- Badarch, G., Cunningham, W.D., and Windley, B.F., 2002. A new terrane subdivision for Mongolia: implications for the Phanerozoic crustal growth of Central Asia. Journal of Asian Earth Sciences 21. Pp. 87-110.
- Buchanan, L.J. (1981): Precious Metal Deposits associated with Volcanic Environments in the Southwest; in Relations of Tectonics to Ore Deposits in the Southern Cordillera; Arizona Geological Society Digest, Volume 14, pages 237-262.
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- Kloppenberg, A., 2017. Structural framework analysis, Bayan Khundii and Altan Nar assets, Mongolia. Independent project report 1268 prepared for Erdene Resource Development Corp., 110 p.
- MacDonald, M.A., 2017 Bayan Khundii Gold Project (Khundii Exploration License), Bayankhongor Aimag, Southwest Mongolia, National Instrument 43-101 Technical Report. Internal report Erdene resource Development Corp., 67 p.
- Mineral Resource Authority of Mongolia 1:200,000 scale geology maps of Mongolia; include L-47- XXXII, L-47-XXXIII, L-47-XXXIV, K-47-II, K-47-III, and K-47-IV.
- Windley, B.F., Alexeiev, D., Xiao, W., Kröner, A. and Badarch, G. (2007). Tectonic models for accretion of the Central Asian Orogenic Belt. Journal of the Geological Society. No. 164 (1), pp. 31-47.
- Yakubchuk, A. 2002. Geodynamic reconstructions of Mongolia and Central Asia. Internal report for Gallant Minerals.
- Drilling database – supplied in multiple spreadsheets:
  - BKD_AssayDB_to_266.xls
  - BKD_Collar_to_2266.xls
  - BKD_ Survey.xls
  - BKD_Struc Log.xlsx

- BKD_MagSus.xls
- BKDLithology.xls
- BKD-VienLog_.xlsx
- ScrMet Assay.xlsx
- Topography
- Detailed topographic data were provided by Erdene and surveyed by DGPS total station in UTMWGS84 Datum, Zone N47 in end of 2017

The primary documents for this Altan Nar Project PEA include:

- "Altan Nar Gold Project", Bayankhongor Aimag, Southwest Mongolia, NI 43-101 Mineral Resource Technical Report, prepared by RPM Global Asia Limited, 21 June 2018.
- Khundii Gold Project, Bayankhongor Aimag, Southwest Mongolia, NI43-101 Mineral Resource Technical Report prepared by RPM Global Asia Limited, 1 November 2018.
- Okhi-Us LLC, November 2018. Draft – Altan Nar Hydrology Report on Work Completed August- September 2018.
- Okhi-Us LLC, November 2018. Draft – Khundii Gold Project Hydrology Report on Work Completed September-October 2018.
- Rogans, J, and McArthur, D., May/June 2002. The evaluation of the AAC Pump-Cell circuits at Anglogold's West Wits operations. The Journal of The South African Institute of Mining and Metallurgy.
- ActLabs Asia Metallurgical Test work Spreadsheets:
  - 2013 Data on composite samples from the following drill holes: TDN09. TDC29, TDN35, TDN38, TDN40. TDN41, TDN45, TDN46, TDN50, TDN58
  - 2015 Data on composite samples labelled DZN15-1 through DZN15-8, DZS15-08 through DZS17- 09 through DZS15-15, and UN15-16 through UN15-21
- Blue Coast Research, September 24, 2015. Altan Nar Preliminary Metallurgical Test Work Report
- Blue Coast Research, November 9, 2015. Altan Nar Preliminary Metallurgical Test Work Report – Phase 2
- Blue Coast Research, October 17, 2018. PJ5253 Altan Nar Discovery Zone South Preliminary Metallurgical Test Work Report

2.3 Site Visits

Site visits have been completed by the QP's Mr. Cameron Norton, P.Geo., and Ms. Maurie Phifer, P.Eng.

Mr. Norton and Ms. Phifer visited the property on May 6 to May 12, 2019, at which time the Bayan Khundii and Altan Nar projects were observed, drill core intersections were reviewed, collar locations visited, the physical site was toured, and meetings with technical site personnel were conducted. Independent verification samples were also collected during this visit. Conversations with on-site Erdene technical personnel included Mr. Michael Gillis, Vice President Operations, Mr. Jon Lyons, Vice President Regulatory Affairs and Strategy, and Mr. Bat-Erdene Gendenjamts, Senior Geologist.

2.4 Effective Date

The effective date of October 15, 2019 applied to the Bayan Khundii PFS and Altan Nar PEA reflects the cut-off date by which all scientific and technical information was received and used for the preparation of this Technical Report.

The effective date of October 1, 2019 applied to the Bayan Khundii Mineral Resource Estimate reflects the cut-off date by which all scientific and technical information was received and used for the preparation of the Mineral Resource Estimate for this deposit.

The effective date of May 7, 2018 applied to the Altan Nar Mineral Resource Estimate reflects the cut-off date by which all scientific and technical information was received and used for the preparation of the Mineral Resource Estimate.

2.5 Terms of Reference

Terms of reference used throughout this Technical Report include the following:

- Erdene or the Company refers to Erdene Resource Development Corporation.
- Tetra Tech refers to Tetra Tech Inc., inclusive of Tetra Tech Canada and Tetra Tech Asia Pacific Division.
- Khundii Gold Project: The proposed combined development of the Bayan Khundii and Altan Nar deposits. Bayan Khundii and Altan Nar deposits are 16 km apart and located on two separate licences.
- Bayan Khundii refers to the Bayan Khundii Gold Deposit and activities undertaken at the Bayan Khundii site including proposed extraction of the deposit.
- Altan Nar refers to the Altan Nar Gold Deposit and activities undertaken at the Altan Nar site including proposed extraction of the deposit.
- Resource definitions are as set forth in the "Canadian Institute of Mining, Metallurgy and Petroleum, CIM Standards on Mineral Resource and Mineral Reserves – Definitions and Guidelines" adopted by CIM Counsel on 30th June 2011.

3.0 RELIANCE ON OTHER EXPERTS

The information, QP statements, recommendations and conclusions contained within this Technical Report relies on information from legal, accounting, and technical experts who are not QPs as defined by NI 43-101. The QPs responsible for the preparation of this report have reviewed the information provided and they have concluded that they are acceptable and fairly represent the Khundii Gold Project.

QP's have relied upon information provided by Erdene, and non-technical information contained within the NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project, dated February 4, 2019, published by RPM Global (the RPM PEA).

The portions of the Technical Report and the extent of reliance to which this information applies is provided below.

3.1 Project Background, History, Ownership, and Tenure

Information for sections 4 to 6 of this report are based on information from Erdene.

Information regarding mineral tenure described in Section 4.0, relied on information provided by Erdene and the Mongolian government land title registry, accessible via cmcs.mrpam.gov.mn. (Searches completed on June 13, June 20, and September 19, 2019). The Geology QP has relied on this website and has no reason to believe the information is not true or accurate as of the effective date of this Technical Report.

3.2 Geological Setting, Exploration, Drilling

Tetra Tech has relied upon Erdene for information pertaining to the geological setting of the Property, along with the history of exploration and drilling. The Geology QP reviewed the data presented in these sections and compared this data against geological reports provided by Erdene to verify there is no material issues and there is a reasonable basis for reliance.

Information on these technical areas provided by Erdene forms the basis of Sections 7, 9, and 10.

3.3 Previous Mineral Resource Estimates

Tetra Tech has relied upon the RPM PEA for information provided in section 14.2.2 regarding previous mineral resource estimates for the Khundii Gold Project.

3.4 Mineral Processing, Mining Methods, and Infrastructure

Tetra Tech has relied upon the expertise of Colin J. Fyfe, B.Eng. (Hons), Ph.D., P.Eng. for hydrogeology considerations for open pit mining, Tania Laurencont (BAppSc) for geochemistry considerations for design inputs of co-mingled tailings and waste rock, and Adam Jackson, P.Eng. for geotechnical inputs to open pit mining.

3.5 Environmental Studies, Permitting and Social or Community Impact

For the review of environmental baseline work in Section 20.0, the Environmental QP relied on documentation provided by Erdene. Erdene engaged Eco Trade LLC, a Mongolian certified EIA consultant, to complete the Environmental and Social Baseline surveys for the Project in accordance with Mongolian rules and regulations. Tetra Tech has relied upon the expertise of Colin J. Fyfe, B.Eng. (Hons), Ph.D., P.Eng. for hydrogeology considerations for open pit closure planning, Tania Laurencont, BAppSc (Hons) for geochemistry considerations for closure design inputs for co-mingled tailings and waste rock.

3.6 Economic Analysis

In the preparation of the after-tax analysis in Section 22.0, the Financial Model QP Mark Horan, P.Eng., relied upon a report prepared by PWC Mongolia for Erdene's Mongolian subsidiary in the 2018 tax year.

4.0 PROPERTY DESCRIPTION AND LOCATION

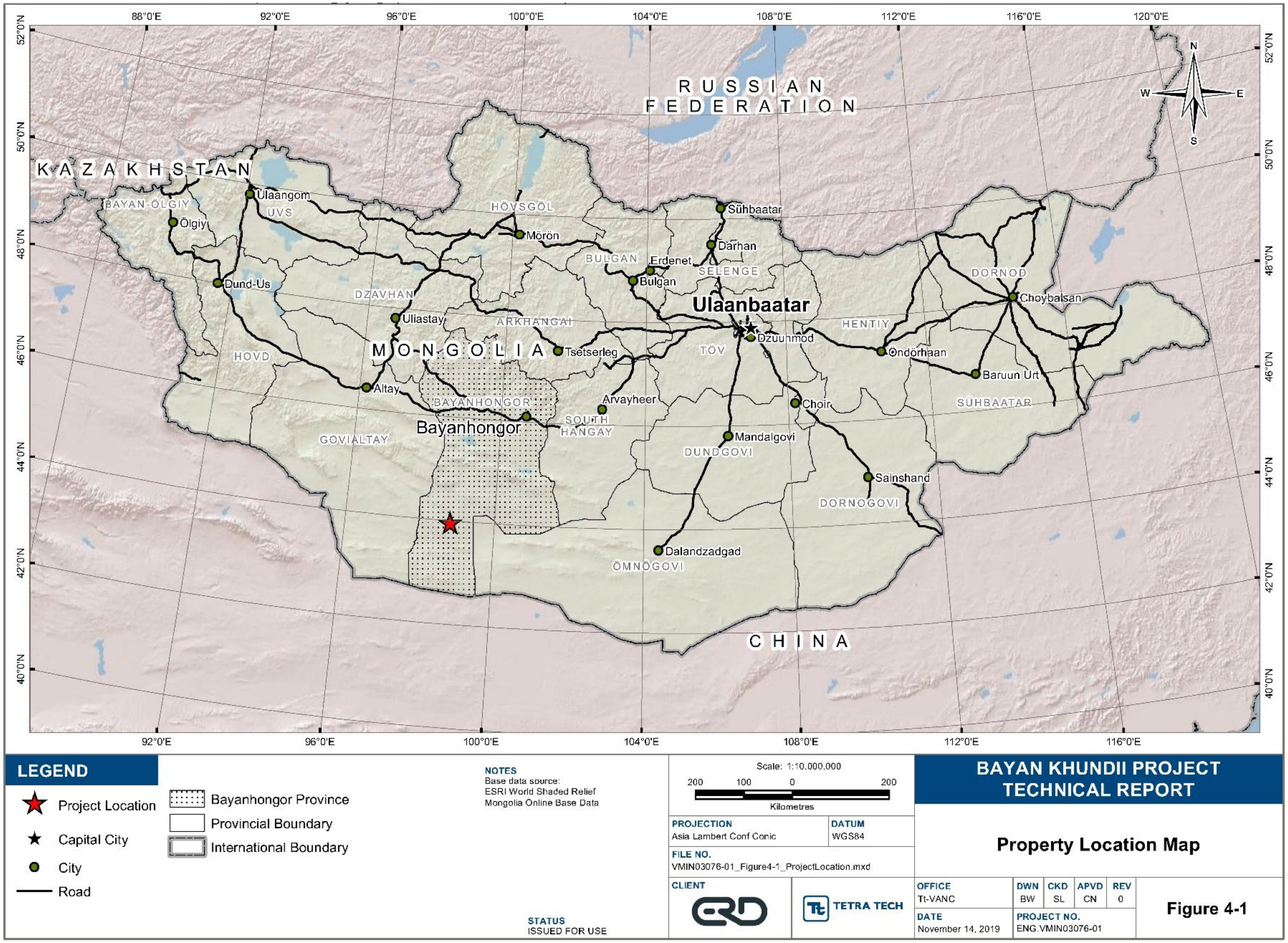
The Property is located in the southwest region of Mongolia and hosts the Bayan Khundii and Altan Nar deposits and is 100% held by Erdene Mongol LLC, a wholly owned subsidiary of Erdene. While the collective deposits and mineral occurrences represent the “Property”, the Bayan Khundii deposit is the focus of this report as it has been progressed to technical level commensurate to a Pre-Feasibility Study.

The Bayan Khundii Project falls within the 115,977.80 km^2 Bayankhongor province which contains a population of approximately 87,243 people, and an overall population density of 0.75 people per square kilometre. The Project is located approximately 980 km southwest of the Mongolian capital Ulaanbaatar (population 1,372,000) and 300 km south of the provincial capital, Bayankhongor City (population 30,931) (Figure 4-1). The nearest towns (soum centres) are Shinejinst and Bayan Undur, located 70 km northeast and 80 km to the north, respectively. The Project area is sparsely populated with nomadic pastoral activity being the main industry.

The Bayan Khundii deposit, located on the Khundii Mining Licence, and the subject of this PFS, is located 19 km (via unsealed road) from the company’s Altan Nar deposit (refer to Section 24), located on the Tsenkher Nomin Exploration Licence.

Field work is currently carried out from an exploration camp located at the Bayan Khundii site.

Figure 4-1: Khundii Gold Project Location Map



4.1 Legal Framework of Mining Rights in Mongolia

In Mongolia, mining is governed by a series of laws (outlined in Table 4-1), whereby mineral resources are the property of the state, and are classified into the following three categories:

1. Deposits of strategic importance.
2. Deposits of common minerals.
3. Deposits of conventional minerals.

A deposit of strategic importance is defined by Article 4.1.12 of the Mineral Law as “a deposit that may have an impact on the national security or the economic and social development of the country, or that is producing, or has the potential to produce more than five per cent (5%) of the total gross domestic product of Mongolia in any given year”. Common minerals are defined by Article 6.3 as “abundant sediments and rocky concentrations that can be used as construction materials”. Minerals or deposits which are not encompassed as either of deposits of strategic importance or common minerals are deemed “conventional minerals”. The Bayan Khundii deposit is currently categorized as a deposit of conventional minerals.

Exploration licences are currently only granted through a tendering process. Once an exploration licence has been granted, it remains valid for a period of three years, and can be extended three times, allowing for a maximum exploration licence period of 12 years.

During the period an exploration licence is active, the licence holder must maintain a copy of the exploration licence, an environmental plan report, along with an exploration work plan which has been reviewed by the state administrative agency and professional inspection agency. The initiation of exploration work must not occur until an environmental management plan has been submitted to, and approved by, the Governor of the soum where the proposed exploration will take place. The holder must also receive written approval from the Aimag (province) head of Environment, Green Development and Tourism. Once received, the holder must submit on an annual basis, environmental management plans. Finally, the holder of the exploration permit must post a bond worth 50% of the proposed environmental protection budget.

At any time during the 12-year tenure, an exploration licence can be converted into a mining licence by meeting the requirements of the Minerals Law of Mongolia. Three main documents must be approved prior to being issued the mining licence: 1. Final Geological report approved by the Minerals Council and the Government Agency (Head of MRPAM); 2. Verification by Soum Governor and Soum environment officer of full performance of the duties with regard to environment protection plan during exploration work; 3. The environment screening document issued by the Ministry of Environment and Tourism. No later than seven days after issuing a mining licence, the Environmental ministry and Governors of the aimag and soum within the licence area are notified by the state administrative agency. The state inspection agency must also be notified, and a notice posted in a local daily newspaper.

Once issued, the mining licence is valid for 30 years, and can be renewed two times, with each period covering 20 years. Including extensions, a mining licence can remain valid a total of 70 years. During the period a mining licence is active, licence holders must maintain a copy of the mining licence, feasibility study, Environmental Impact Assessment (“EIA”), environmental management plan, property leases and product sales agreements, records establishing the boundaries of the mining area, and agreements on land and water use. Similar to an exploration licence, prior to the initiation of annual project work, the holder must deposit funds which are equal to the total annual budget required for the implementation of the environmental protection measures.

Table 4-1: Major Mongolian Laws Related to Mining

Law	Description of Law
Constitution of Mongolia (1992, amended 2001)	Upholds “human rights and freedom, justice, and unity” of Mongolia and aspires to build and develop a “humane, civic and democratic society.” At Article 38, the Constitution requires the Government to develop “the guidelines for national economic and social development”; develop and implement measures on sectoral, inter-sectoral, as well as regional development issues”; and “undertake measures for protection of the environment, the sustainable use and restoration of natural resources.”
Environmental Protection Law of Mongolia (1995)	Regulates “the relations between the State, citizens, business entities, and organizations in order to guarantee the human right to live in a healthy and safe environment, an ecologically balanced social and economic development, the protection of the environment for present and future generations, the proper use of natural resources and the restoration of available resources.”
Law on Information Transparency and Right to Information (2011)	Regulates “relations pertaining to ensuring transparency of the state, and rights of citizens and legal entities to seek and receive information.”
Law of Mongolia on Environmental Impact Assessment (2012)	Aims to protect the environment, “prevent ecological imbalance, ensure minimal adverse impacts on the environment from the use of natural resources, and regulate relations that may arise in connection with the assessment of environmental impacts of and approval decisions on regional and sectoral policies, development programs and plans and projects.”
Law of Mongolia on Land (2002)	Regulates “possession and use of state-owned land and other related issues.”
Law of Mongolia on State Supervision and Inspection (2003)	Regulates “matters relating to state supervision and inspection structure, definition of legal basis for state administrative supervision and inspection activities, and implementation of state supervision and inspection.”
Law of Mongolia on Subsoil (1988)	Regulates “issues related to use and protection of subsoil in the interests of the present and future generations.”
Law on Prohibition of Mineral Exploration and Mining Activities in areas in the Headwaters of Rivers, Protected Water Reservoir Zones and Forested Areas (“Long Named Law” 2009)	Prohibits “mineral exploitation and mining operations at headwaters of rivers, protected zones of water reservoirs and forested areas” and regulates rehabilitation activities carried out in these areas.
Minerals Law of Mongolia (2006, Amended 2014)	Regulates “the prospecting, exploration and mining of minerals within the territory of Mongolia” and establishes environmental protection and regulations in exploration areas and areas surrounding mines and mining operations.
Model Agreement on Issues of Environmental Protection, Mine Exploitation, and Infrastructure Development in Relation to Mine Site Development and Jobs Creation (2016)	Outlines the basis for an agreement to regulate the relationship between a mining licence holder and local government, through the aimag and soum Governor, and issues regarding environmental protection, mineral exploitation, infrastructure development and jobs creation.
State Minerals Policy 2014–2025 (2014)	Focuses on “providing national primary interests by developing conspicuous and responsible mining relied upon by the private sector.” It aims “to develop a multi-sectored and balanced economic structure in the short and mid-term.” The main principles of the policy are “to provide sufficient social and economic benefits from mining industry to the public while considering development of the mineral sector and Mongolian National Development Policy based on the Millennium Development Goals”.

Law	Description of Law
Law on Common Minerals (2014)	Regulates the exploration and mining licence granting on common minerals within the territory of Mongolia, the licence holder's responsibility and establishes environment protection and environment rehabilitation in exploration areas and areas surrounding mines and mining operations.
Regulation on Extraction of Minerals from Micro Mines (Annex to the Government Resolution No. 151 of 2017)	Regulates relations with respect to the extraction of minerals from micro mines and it is applicable for micro mining of all types of minerals except water, ore bearing radioactive elements, petroleum, natural gas and common minerals.

4.2 Mineral Tenure

The Khundii Gold Project is comprised of the Khundii Exploration Licence (XV-015569; 2.205.71 ha), the Khundii Mining Licence (MV-021444, 2,308.62 ha) and the Tsenkher Nomin Exploration Licence (XV-016956; 4,668.64 ha), as shown in Figure 4-2. Table 4-2 outlines the approximate center co-ordinates of each of the three licences along with the licence particulars.

The Bayan Khundii deposit is located on the original Khundii exploration licence which was first acquired in April of 2010 and hence is currently in its tenth year of issue. The Altan Nar deposit is located on the Tsenkher Nomin exploration licence which was first issued in December of 2009 and is currently in its tenth year of issue. Both licences are 100% held by Erdene Mongol LLC, a wholly owned subsidiary of Erdene.

In August 2019 the Khundii mining licence was granted, converting 2,309 hectares of the Khundii exploration licence into a mining licence. The mining licence covers the Bayan Khundii deposit, as well as the Altan Arrow, Khundii North, and Khundii West prospects. The licence is valid for an initial term of 30 years, with the ability to extend to 70 years. The 2,205 hectares of the remaining Khundii exploration licence continues to be owned by Erdene.

A summary of the licence status is provided in Table 4-2 and the licence location is shown in Figure 4-2.

4.3 Surface Ownership and Land Access Agreements

As part of the Minerals Law, licence holders have the right to surface access to carry out exploration work. Erdene has, and continues to meet, the surface rights access requirements as set out under Mongolian Law for carrying out its exploration programs. Additional permits will be required for the construction and operation of any future mining activities. Land use permits are granted by the local Soum or county governor.

4.4 Royalty Agreements

On April 21, 2016 Erdene entered into a royalty agreement with Sandstorm Gold Limited ("Sandstorm") which granted Sandstorm a 2% NSR in exchange for $2.5 million (Canadian). This transaction provided Erdene with a three-year option to buy back 50% of the 2% NSR royalty for $1.2 million (Canadian). On April 12, 2019 Erdene executed the repurchase agreement, buying back 1% of the NSR from Sandstorm.

Following the buyback, the Bayan Khundii and Altan Naar gold projects are now subject to a 1% Net Smelter Return royalty agreement with Sandstorm Gold Ltd.

4.5 Permits

Permits required to carry out planned exploration work on the Khundii exploration licences include annual environmental and water use permits. Similar permits have been obtained in previous years and the Corporation does not anticipate any issues with obtaining these permits for the 2020 exploration season.

The QP is not aware of any other issues or liabilities (including surface rights or access) which could impact the future mining operations. Tetra Tech notes that Erdene will need to obtain additional and separate licences permissions for land and water use to support any future mining operation.

Further permitting considerations for the proposed mining activities are presented in Section 20 of this report.

4.6 Environmental Liabilities

Through its Mongolian-certified contractor, Erdene has completed baseline environmental studies for the Project in accordance with applicable Mongolian standards as part of the Company's mining licence application for the Project.

A discussion of environmental considerations or liabilities are presented in Section 20 of this report.

4.7 Review of Ownership Documents

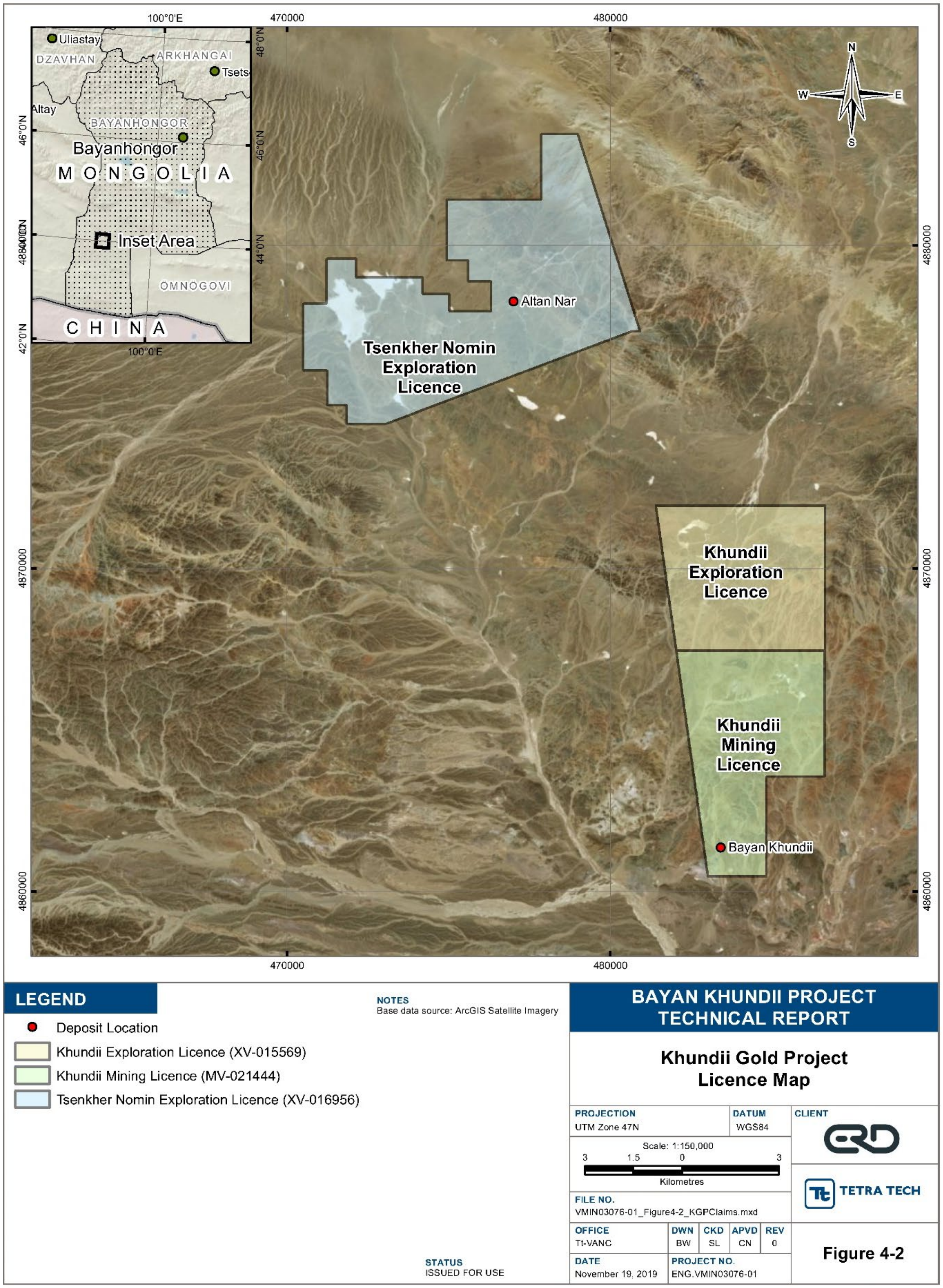
Tetra Tech was supplied with the Mineral Resources and Petroleum Authority of Mongolia ("MRPAM") Annual Licence Document that indicates Erdene's ownership of the exploration licences for the Project. Tetra Tech reviewed these licence details against the MRPAM licence database. Tetra Tech cross-verified the Erdene licences' corner points indicated by MRPAM and found these points correspond to the position on the maps provided by Erdene. To the best of Tetra Tech's knowledge, the applicable licences are in good standing.

Table 4-2: Exploration and Mining Licence Details

Property Name	Licence Number	Description	Province	Date of Issue (dd/mm/yy)	Easting (WGS84 Zone 47N	Northing (WGS84 Zone 47N	Elevation (m)	Hectares	2019 Renewal Fees*	Minimum 2019 Work Commitment
Khundii	MV-021444	Khundii Mining Licence	Bayankhongor	05/08/2019	484,290.6	4,864,605.4	1,266	2,308.62	n/a	n/a
Khundii	XV-015569	Khundii Exploration Licence	Bayankhongor	14/04/2010	484,177.6	4,869,759.8	1,295	2,205.71	US $12,350	US$ 45,143.30
Tsenkher Nomin	XV-016956	Tsenkher Nomi Exploration Licence	Bayankhongor	11/12/2009	475,716.5	4,878,958.2	1,302	4,668.64	US $12,772	US$ 46,686.40

** renewal fees are in Mongolian Tugrik (MNT); F/X rate of 2650 MNT/USD was used*
Source: https://cmcs.mrpam.gov.mn

Figure 4-2: Khundii and Tsenkher Nomin Licence Locations



5.0 ACCESSSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

The Project is accessible via paved roads from Ulaanbaatar to Bayankhongor (630 km), followed by regional gravel roads from Bayankhongor to Shinejinst (310 km), then another 2 hours on to site via dirt road. The Project is located approximately 160 km from the Chinese Mongolian border. The Bayan Khundii and Altan Nar deposits are located approximately 20 km apart and approximately 80 km (straight line) southwest of the soum centre, Shinejinst.

The Project contains a temporary dirt landing strip located 20 km to the northwest of the Khundii exploration camp on the Tsenkher Nomin exploration licence. Annual approval is required to use the temporary landing strip, as it has been constructed on a dry lakebed and is not subject to aircraft control. Permits to operate the airstrip have been approved by the Mongolian Aviation Authority for light aircraft for all previous exploration seasons. A private airline service is available from Ulaanbaatar and a one-way trip takes approximately 3 hours. Presently, the airstrip can accommodate a Cessna 208 Caravan which typically seats nine passengers, however, updates to the landing strip would need to be made if it were to be used to accommodate larger sized passenger or cargo planes.

5.2 Climate & Physiography

The area surrounding the Project is characterized by low hills of exposed rock and lower plains of unconsolidated sediments. There is very little to no soil profile developed, with fresh rock generally occurring from or very near to surface. The elevation of the undulating low hills ranges from 1,300 m to 1,350 m above sea level. Vegetation is sparse and restricted to grasses, saxaul bushes (Haloxylon ammodendron - a local low shrub to small tree), and shrubs.

The Project area is subject to the extreme climate of the continental Gobi Desert region, with four seasons much like the other territories of Mongolia. Orographic conditions and local micro wind affect the air current formation and creates a drier micro region where precipitation and humidity are relatively low, with hot summers and cold winters. Cloudiness, precipitation, and snow cover are generally low. Absolute low temperature reaches -37.4°C and absolute high temperature reaches 44.9°C. Annual mean temperature is around 0.7°C. The region has mean annual precipitation of 105 mm. Although relatively little precipitation falls in this region, there is a one in 50-year chance that the maximum amount of 50 mm to 60 mm precipitation may fall within a single day. In summer, rain falls an average of 15 to 20 days.

Work on the property can be conducted year-round, with only short curtailments occurring during storm or strong wind activity which can result in sandstorms.

5.3 Local Resources

The region hosting the Project is one of the least densely populated areas globally, however, infrastructure to access southwestern Mongolia's natural resources from China is being rapidly developed. The Project is located approximately 200 km northwest of the Nariin Sukhait mining complex (Ovoot Tolgoi) from which South Gobi Resources (TSX:SGS), TerraCom Limited (ASX:TER) and MAK all produce (or have in the past) coal and transport product through the Ceke (PRC) / Shivee Khuren (Mongolia) border point. This border crossing includes a paved eight-lane highway and a major automated railcar coal loading facility with three railway terminals where coal trucked in can be loaded on train and shipped out over the Jiayuguan– Ceke Railway, Ejin–Hami Railway or Linhe–Ceke Railway. Planning is underway to extend the standard gauge rail into Mongolia's coal mining districts. Having noted this, any mining operation would produce only high-value doré which could be trucked and not railed to the border.

5.3.1 Power

To date, power has been provided to site by a generator located on site. Potential future electrical power sources include the recent connection of the Mongolian State Grid with the local sub-province centre (Shinejinst) via a 35 kV line which could be extended.

A more detailed discussion of the proposed electrical infrastructure to support the proposed operations is provided in Section 18 of this report.

5.3.2 Water

To date water has been sourced from local wells. While these sources have been sufficient to carry out the exploration work, additional hydrogeological studies are being implemented by Erdene to locate more suitable water sources which can support the requirements of a mining and milling operation.

A more detailed discussion of the water requirements and potential sources to support the proposed operations is provided in sections 16 and 20 of this report.

5.3.3 Mining Personnel

Sufficient labour and technical workforce is located in nearby populated areas to support the proposed development and operation. A detailed discussion of the available mining personnel and the workforce source is provided in section 16 of this report.

5.3.4 Site Infrastructure

Due to relative remote nature of the project limited infrastructure currently exists on site.

A temporary exploration camp is which can accommodate approximately 60 people is located alongside the Bayan Khundii deposit and contains gers for sleeping, a cooking and dining facility, along with a separate office area, fully plumbed washroom and showering facilities, core logging facility, and core cutting facility. Security at site is provided by an elevated observation building at the entrance to the camp.

There is sufficient suitable land available within the Project area for any tailings disposal, mine waste disposal, and installations such as a process plant and related mine infrastructure that might be needed to support a mining operation.

A more detailed discussion surrounding the proposed site-specific infrastructure that will support any mining operations is provided in Section 18.

6.0 HISTORY

6.1 Historical Property Ownership

Apart from regional geological mapping and prospecting carried out at a scale of 1:200,000 under the direction of the Mongolian government, no recorded exploration, development or mineral resource work is known to have taken place on the Property other than that completed by Erdene since acquisition in 2009-2010. Prior to Erdene, the Property ownership was held by the government.

6.2 Historical Production

No historic mining has been completed on the Project area.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

The majority of the regional geology information presented below has been summarised from Erdene's internal technical reports on the Bayan Khundii and Altan Nar gold projects.

7.1 Regional Geology and Tectonic Setting

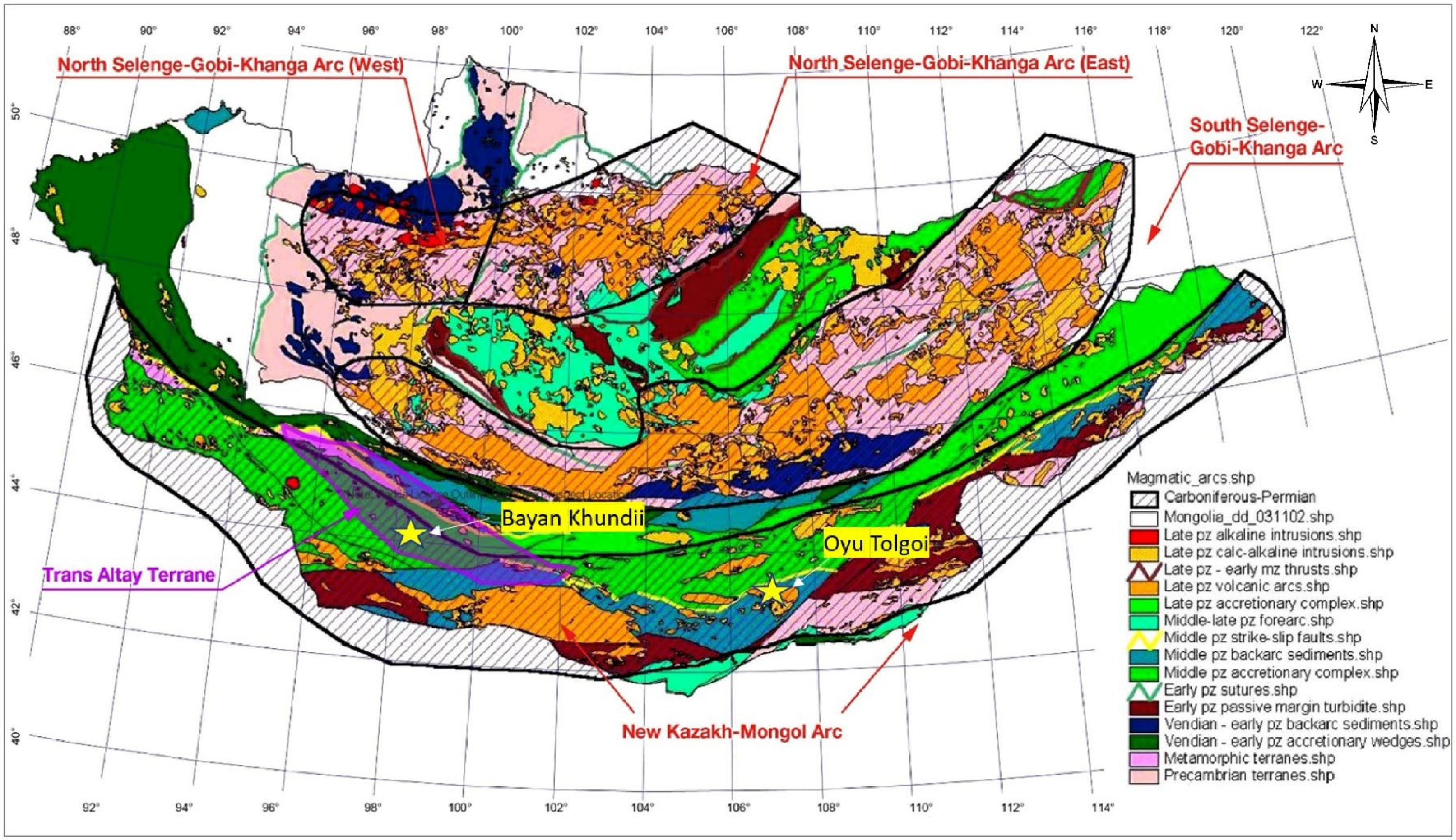
The Project is located within the Trans Altai Terrane ("TAT"). The TAT forms part of the western end of the large, composite, arcuate-shaped Carboniferous-Permian New Kazak-Mongol Arc terrain ("NKMA") as described by Yakubchuk (2002). The Khundii exploration license is located within the Edren island arc terrane, as described by Badarch et al. (2002), which is part of the larger composite Trans Altai Terrane ("TAT") and is comprised by island arc terranes, back-arc and fore-arc basins, and ophiolite, accretionary wedges and metamorphic terranes. The NKMA extends along the southern margin of Mongolia, including the border region with China, and contains the Gurvansaikhan Terrane that is host to the Oyu Tolgoi copper-gold porphyry mine (see Figure 7-1). The TAT is located immediately south of the Main Mongolian Lineament (Badarch et. al., 2002) that separates the dominantly Pre-Cambrian and Lower Paleozoic terranes to the north from the dominantly Upper Palaeozoic terrains to the south. The TAT consists mostly of Middle Paleozoic volcanic, sedimentary and meta-sedimentary rocks that were intruded by Middle Paleozoic calc-alkaline plutons.

The TAT is comprised of three tectono-stratigraphic terrains (refer to Figure 7-1) as defined by Badarch et al. (2002). These include:

- Zoolen Accretionary Wedge, consisting of a lowermost ophiolite sequence of mafic and ultramafic intrusive rocks that are overlain by a sequence of greenschist rocks, pillow lavas, intermediate volcanic and shallow marine sedimentary rocks. The middle stratigraphic portion of the Zoolen Wedge is dominated by intermediate volcanic rocks and rhyolite flows which are overlain by the uppermost sequence of non-marine sedimentary rocks.
- Baraan Back-arc/Fore-arc Terrane is dominated by a lower sequence of intermediate volcanic and volcaniclastic rocks with interbedded shallow marine sedimentary rocks. The upper portion of the Baraan terrane consists of non-marine sedimentary rocks.
- Edren Island Arc Terrane, which hosts the Project, consists of a lowermost minor sequence of mafic volcanic rocks that are overlain by an interbedded sequence of intermediate volcanic and volcaniclastic rocks, shallow marine clastic deposits, and minor turbidite sedimentary rocks. This sequence is overlain by rhyolite and alkaline volcanic and volcaniclastic rocks. The uppermost portion of the Edren terrane is dominated by non-marine sedimentary deposits.

All three tectono-stratigraphic terrains were intruded by Middle Paleozoic calc-alkaline and alkaline intrusions and is overlain by Late Paleozoic, Mesozoic and Cenozoic sedimentary rocks within a series of NW trending sedimentary basins. The geological setting of the TAT, especially the presence of Middle Paleozoic (Silurian-Devonian) island arc rocks intruded by calc-alkaline intrusions, is very similar to the geological setting for the Oyu Tolgoi mine, located approximately 670 km east of the Project and Erdene's Zuun Mod porphyry Mo-Cu deposit.

Figure 7-1: Carboniferous-Permian Arcs of Mongolia showing the location of the Trans Altai Terrain (TAT)



LEGEND

NOTES
Base data source: Erdene Resource Development Corp.

STATUS
ISSUED FOR USE

PROJECTION	DATUM
Asia Lambert Conf Conic	WGS84

FILE NO.
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CLIENT

TETRA TECH

BAYAN KHUNDII PROJECT TECHNICAL REPORT

Carboniferous-Permian Arcs of Mongolia showing the location of the Trans Altai Terrain (TAT)

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BW	SL	CN	0

DATE	PROJECT NO.
November 14, 2019	ENG.VMIN03076-01

Figure 7-1

7.2 General Geology of Eastern Trans Altai Terrain

The regional geology of the Project is outlined in a series of 1:200,000 scale geology maps available through the Mineral Resource Authority of Mongolia (MRAM). The specific maps for the eastern TAT include L-47XXXII, L-47-XXXIII, L-47-XXXIV, K-47-II, K-47-III, and K-47-IV.

The oldest rocks in the eastern TAT comprise a series of Devonian to Early Carboniferous intermediate volcanic and volcaniclastic rocks, minor felsic (rhyolite) volcanic and volcaniclastic rocks, and sedimentary units including sandstone, conglomerate and minor limestone. Bedding orientations in sedimentary and volcanic map units are predominantly northwest trending throughout the eastern TAT, thus paralleling the overall regional scale faults and structural trends. Primary bedding orientations on MRPAM maps were interpreted from lineaments derived from air photograph interpretation and from regional mapping.

The volcanic and sedimentary rocks were intruded by a series of Devonian and Carboniferous calc-alkaline and alkaline granitoid plutons that range in composition from granodiorite and granite, to plagiogranite and syenite, and range in texture from fine- to coarse-grained seriate to equigranular and minor pegmatite. A few small (<5 km^2) Carboniferous age gabbro intrusions are exposed in the study area and are thought to represent the most mafic end-members of intrusive suites. Late-stage and mostly post-mineralization dykes cross-cut both granitic intrusions and volcanic-sedimentary country rocks and range in composition from microdiorite to granite, syenite and lamprophyre. Some dykes may be pre- or syn-mineralization. Dyke orientations may be quite variable on a local scale, as noted in the Altan Nar area, however, most dykes are oriented NE-SW, especially within and near larger granite intrusions, with some dykes also having north-south or east-west orientations.

There are several northwest-southeast trending sedimentary basins throughout the eastern TAT and elsewhere in the western NKMA. These basins were in-filled by Late Paleozoic, Mesozoic and Cenozoic aged sedimentary sequences, including Carboniferous, Permian and Jurassic aged coal bearing strata and overlying, unconsolidated, Quaternary age sediments. The origin of these sedimentary basins is generally thought to be associated with widespread extensional tectonics resulting in large graben structures during the Mesozoic Era. Basin margins cut across all Devonian and Carboniferous rocks including both volcanicsedimentary map units and granite intrusions. Previous work by Erdene in the Zarman Basin to the north of the Project, including limited drilling, geological mapping, magnetic and seismic surveys indicated the basin consists of an asymmetric wedge of Jurassic to Quaternary sedimentary rocks that thickens toward the northern basin margins, to at least 450 m depth, and interpreted as half-graben extensional structures. Based on observations elsewhere in the eastern TAT, basin thicknesses may range from 200 m to as much as 1,500 m.

7.3 Bayan Khundii Geology

The bedrock geology of the Bayan Khundii license area (refer Figure 7-2) is dominated by a sequence of Devonian and/or Carboniferous volcanic (andesite, andesite porphyry) and pyroclastic rocks (ash, lapilli, and block and ash tuffs). These were intruded by Carboniferous intrusions, with these rocks unconformably overlain by Jurassic volcanic and sedimentary units. All rocks in the region are overlain by unconsolidated sediments of Quaternary or Recent age. Geochronological constraints are based on the 1:200,000 scale regional mapping completed by the MRPAM. Geochronological work has recently been undertaken to determine the ages of the host rocks and mineralized material (adularia) at Bayan Khundii. The final results of the geochronological work are pending.

Carboniferous volcanic rocks are present throughout the license area and include several texturally-distinct units of intermediate composition including andesite, porphyritic andesite and basalt. A unit of block and ash tuff is the dominant lithology in the west-central part of the license area. Pyroclastic rocks, that are host to and restricted to the immediate area surrounding the Bayan Khundii mineralization, are interpreted to be Middle-Upper Devonian in age, possibly belonging to the Baruunhuurai Formation that is part of a large area of undifferentiated Devonian units to the south and west of the license area. Pyroclastic rocks include lapilli and ash tuff, and welded tuff with very minor block and ash units. Fine grained Devonian andesite to the northeast of Bayan Khundii was intruded by a series of dacite porphyry plugs which are also interpreted as Devonian.

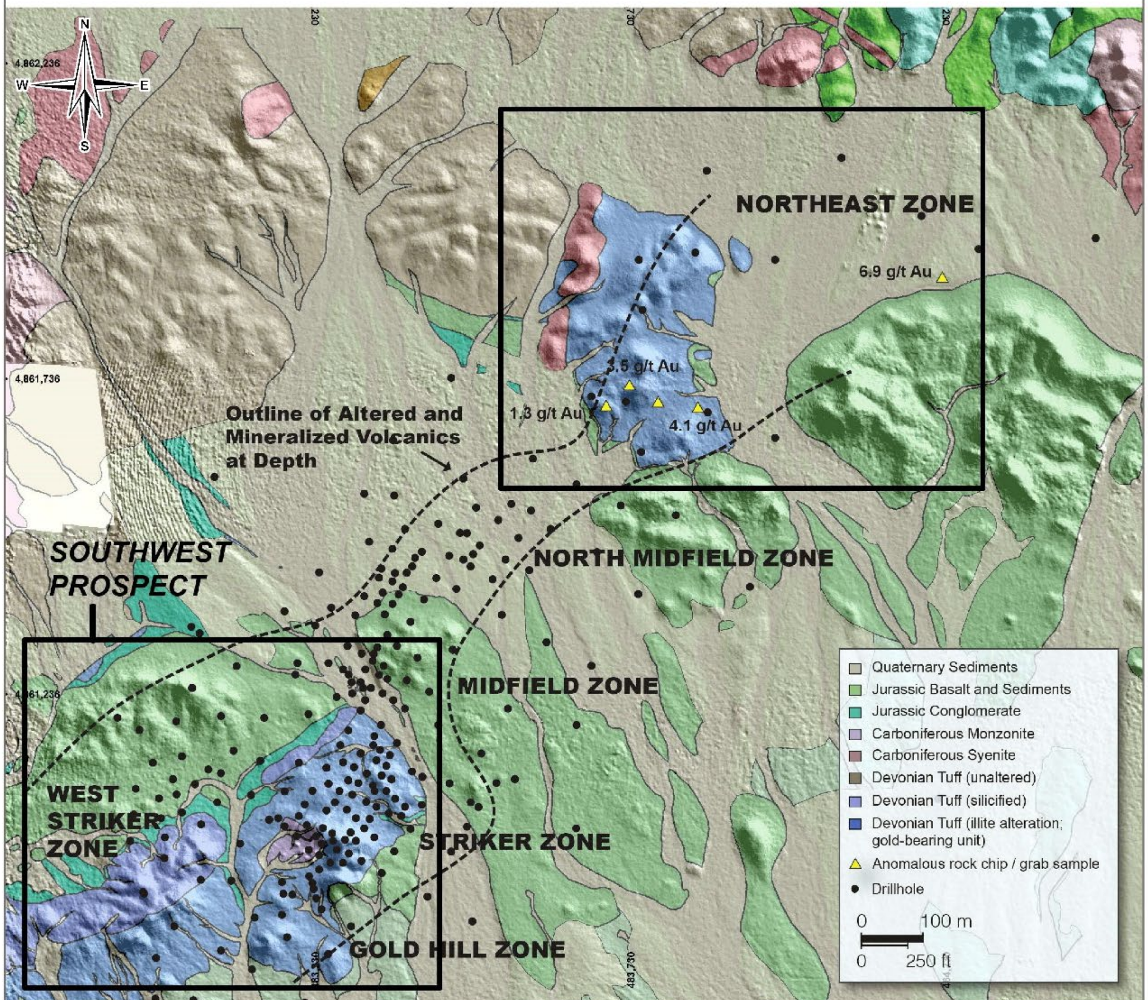
Carboniferous granitoid rocks intrude both the Devonian and Carboniferous volcanic and pyroclastic units and have a wide range in composition from least-evolved medium and coarse-grained diorite, monzodiorite, monzonite and granodiorite, to the most evolved phases of fine-grained granite, granite porphyry, syenite and quartz syenite.

Most Jurassic volcanic rocks are present in the southern part of the license area and consist mostly of basalt (commonly amygdaloidal) units. In addition, a Jurassic sedimentary unit, consisting of a basal conglomerate and overlying red to red and white mottled sandstone and siltstone, has been mapped in the southern part of the license area where it disconformably underlies the Jurassic volcanic rocks. Jurassic lithologies have been observed to unconformably overly the older Devonian and Carboniferous lithologies.

Unconsolidated Quaternary to Recent sediments is present throughout the license area with a large area of colluvial-dominated sediments in the central part of the license north of the Bayan Khundii area. Alluvial sediment-filled stream channels are present throughout the license area and overlie all aforementioned Devonian, Carboniferous, Jurassic and Quaternary rocks and sediments. These ‘stream’ channels are mostly dry, however, flash flooding associated with episodic storm events have recently been observed to deposit additional alluvial sediments.

Several northeast-, northwest- and east-west trending faults were inferred in the license area and these cross-cut, or form contacts of, Carboniferous intrusive and volcanic map units. Faults do not appear to offset Quaternary or Recent sediment deposits; however, some inferred faults form the contacts with older Devonian, Carboniferous or Jurassic lithologies. A detailed structural study at Bayan Khundii and surrounding areas puts these faults into a regional context and are interpreted to represent arc-parallel and arc-normal faults, including northeast-trending extensional faults interpreted as associated with the low sulphidation gold mineralization (see Section 7.3.1 Structure for additional details).

Figure 7-2: Bayan Khundii Project Geology Map



NOTES
Base data source: Erdene Resource Development Corp.

BAYAN KHUNDII PROJECT TECHNICAL REPORT

Bayan Khundii Area Geology Map

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	ERD

FILE NO.
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OFFICE	DWN	CKD	APVD	REV
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DATE	PROJECT NO.
November 14, 2019	ENG.VMIN03076-01

TETRA TECH

Figure 7-2

STATUS
ISSUED FOR USE

7.3.1 Structure

In Q3-Q4 2017 Dr. Armelle Kloppenberg, 4DGeo, was engaged to complete a comprehensive structural analysis of Bayan Khundii and the surrounding region including the area around Erdene's Altan Nar deposit. The following are highlights from this structural analysis:

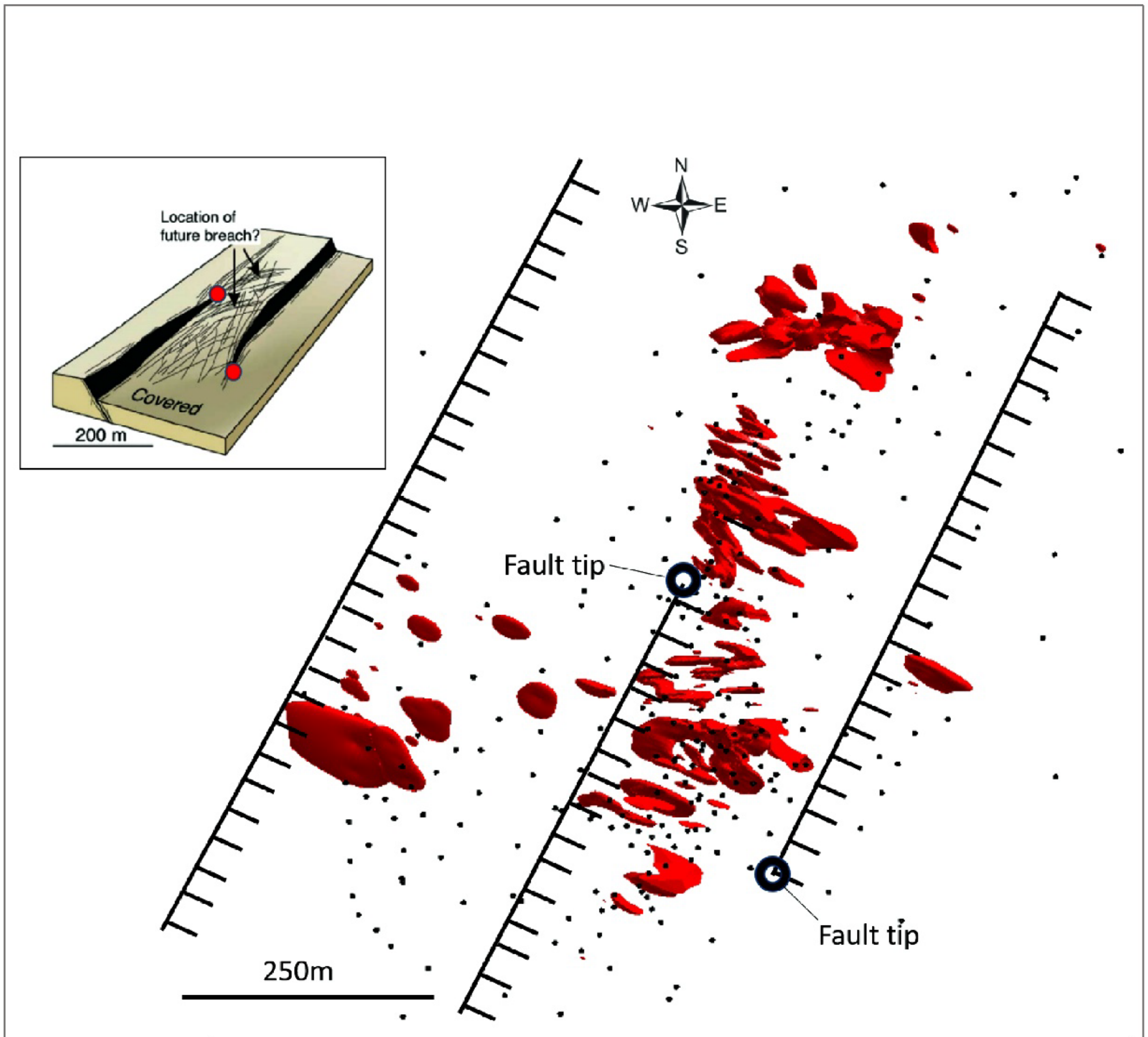
Bayan Khundii

- **Overall Structural Model**: Consists of a series of tilted, extensional, domino-style fault blocks with northeast-trending, southeast-verging extensional faults:
  - The main north-northeast trending mineralized zone, comprised of the Striker-Midfield-North Midfield zones, is interpreted as a 'relay ramp' (Fossen and Rotevatn, 2016) whereby stress is transferred from the ends ('tip points') of adjacent northeast-trending, southeast-verging extensional faults via a series of parallel structures (refer Figure 7-3);
  - The formation of the parallel structures within the relay ramp is thought to explain the south-southeast trending, southwest dipping 'stacked vein zones' at Bayan Khundii;
  - The limited post-Jurassic tilting observed in the volcanic and sedimentary units (~10-25˚ SW) also modified the dip of the epithermal veins, currently ~45˚; and
  - The proposed model of northeast-trending / southeast-dipping extensional faults and 'domino-style' fault blocks at the Project can be used to explain the abrupt changes in alteration and geochemistry observed between Striker West and Striker-Midfield zones (e.g. white mica/illite alteration intensity, K2O concentration), with successive blocks to the southeast representing down-faulted blocks.
- **Northwest trending Structure between Striker and Midfield zones**: A major northwest trending fault through the northeast end of the Striker Zone is interpreted to have formed over a basement structure with individual north trending en-echelon faults at surface that are interpreted to coalesce at depth. The structural report proposes that the Midfield block was down-faulted with respect to the Striker Zone along this fault.
- **Fault Timing**: Many of the faults at the Project are thought to have been active in Devonian and were re-activated such that they displaced Jurassic sedimentary and volcanic units. The report suggests that the northeast trending faults were the earliest faults and northwest trending faults are younger and have offset the earlier northeast faults. The report also suggests that Jurassic units may have in-filled fault-bounded paleo-valleys.
- **Under-represented Veins**: The report notes that there is a northeast trending/southeast dipping vein set (dip= Az. 120o/50o; strike =030o) that is sub-parallel to the predominant azimuth of Erdene's drilling to date and is therefore an under-represented vein set. Erdene drilled several holes in the 2018 drill program to test the abundance of these veins. Results from this work indicated only a few northeast trending veins, thus indicating that these veins orientations were not under-represented in previous drilling.
- **Northeast Extensional Faults**: The report suggested that the northeast trending, southeast verging extensional faults that bound the Striker-Midfield zones may have been active during the mineralizing event and may host auriferous veins. A hole was drilled during the Q4 2017 program to test this hypothesis, although no evidence for mineralized veins in northeast faults were observed.
- **Metre-scale Veins in Midfield**: The multiple m-scale veins in Midfield (e.g. in drill holes BKD-98, BKD99) are interpreted as forming at the intersection of the northeast trending/southeast verging and northwest trending/northeast verging extensional faults and are thought to represent zones of dilatancy, possibly representing 'feeder zones. As noted above, drilling in Q2 2018 was successful in testing of the feeder zone concept at the intersection of a deep-seated northwest-trending fault and the interpreted relay ramp structure

in the Midfield Zone, and returned an average of 34.4 g/t Au over 7 m (BKD-244) from the widest zone of gold-bearing quartz-adularia veins intersected to date at Bayan Khundii.

- **Bedding Orientation**: Data from outcrop and oriented core measurements indicate that bedding in Striker and peripheral areas of the Project have northeast strike and northwest dips whereas the lithologies in the northeast and Midfield zones have northwest trending/southwest dipping orientations. The report suggests that these southwest dips may reflect deposition in active (re-activated) half grabens and do not represent a widespread (i.e. terrane-wide) tilting event.
- **Jurassic:** Flood basalt flows were interpreted as being deposited in fault-bounded paleo-valleys. The northwest trending valley fill shows tilting of the basalts, indicating reactivation of extensional faults (i.e. to form half-grabens). These Jurassic faults have offset the Bayan Khundii mineralized system.

Figure 7-3: North-Northeast Trend of the High-Grade Striker-Midfield Mineralized Zone



NOTES
Base data source: Erdene Resource Development Corp.

STATUS
ISSUED FOR USE

BAYAN KHUNDII PROJECT TECHNICAL REPORT					
North-Northeast Trend of the High-Grade Striker-Midfield Mineralized Zone					
PROJECTION N/A		DATUM			CLIENT
FILE NO. VMIN03076-01_Figure7-3.mxd					TETRA TECH
OFFICE Tt-VANC	DWN BW	CKD SL	APVD CN	REV 0	Figure 7-3
DATE November 14, 2019	PROJECT NO. ENG.VMIN03076-01				

TETRA TECH

Figure 3: Image in upper left is from Fossen and Rotevatn (2016). The model consists of a 'relay ramp' where stress is transferred between the fault tips on 2 adjoining extensional faults. Extensional faults are not likely to be straight, and probably consist of a series of structures within a fault zone, rather than one single discrete fault plane. This proposed model explains the limited lateral extent of SSE-trending, SW-dipping mineralized zones.

7.3.2 Mineralization Style

Mineralization at Bayan Khundii consists of gold with plus or minus silver in massive-saccharoidal, laminar and comb-textured quartz plus or minus hematite veins, multi-stage quartz-adularia-chalcedony plus or minus hematite veins, quartz-hematite breccias, along late fractures (plus or minus hematite/ specularite), and as disseminations within intensely illite-quartz altered pyroclastic rocks, where it is commonly associated with hematite that partially or completely replaced pyrite grains. Gold mineralization is mostly hosted in parallel northwest-southeast trending, moderately-dipping (~45˚) zones that range in width from 4 to 149 m (refer to Figure 7-3).

No gold plus or minus silver in mineralized veins or breccias have been noted in the unconformably overlying Jurassic sedimentary rocks or basalt, indicating these rocks represent an unmineralized cover sequence. Some gold and silver enrichment has been noted in basal conglomerate containing angular, altered, and possibly mineralized Devonian tuff clasts, near the unconformity.

Gold mineralization at surface is present in three separate areas over a 1.7 km northeast trend. These include the Southwest Prospect area (550 m x 300 m), the Northeast Prospect area (300 m x 300 m), located approximately 0.7 km to the northeast, and the NE Extension located an additional 500 m to the northeast. Most of the exploration work to date, and all of the Bayan Khundii mineral resource, lies within the Southwest Prospect area which includes the Gold Hill, Striker, Midfield and Midfield North zones. The Northeast, and Northeast Extension Prospect areas have undergone limited exploration drilling with anomalous gold mineralization intersected in a number of drill holes. The remainder of observations in this section are based on mapping, trenching and drilling within the Gold Hill, Striker, Midfield and Midfield North zones.

7.3.2.1 Visible Gold

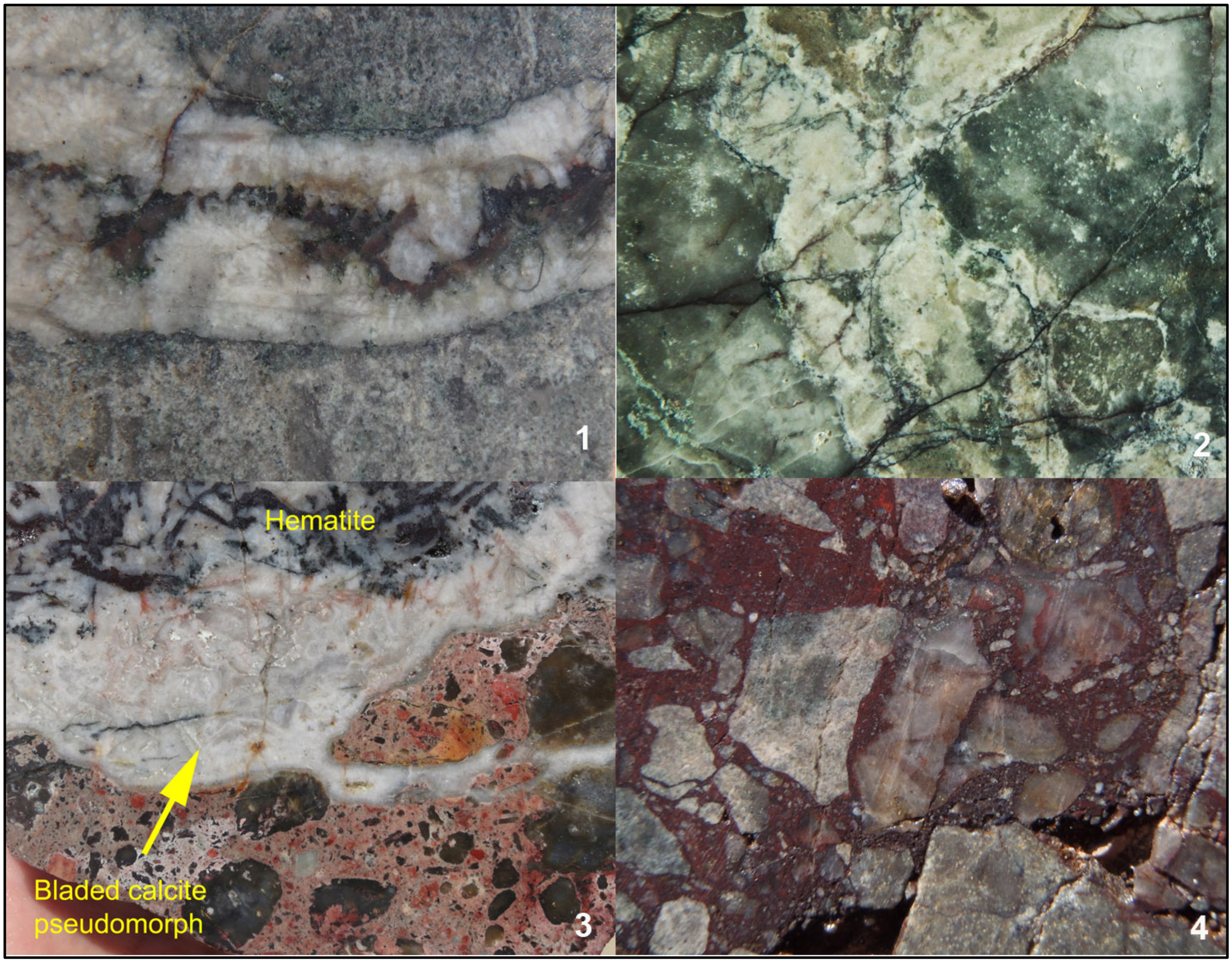
Visible gold (VG) was noted in 31% of the holes drilled from 2015 to 2017 at Bayan Khundii (N=73) (Figure 7-4). It should be noted that visible gold is not always a good indicator of gold grade as numerous samples have returned moderate to high gold values for samples where no visible gold was noted during logging. Visible gold was observed in several modes of occurrence, including:

- In quartz veins with a range of textures (refer to Figure 7-5) including:
  - Whitish-grey comb-textured quartz veins (mostly <1 – 2 cm wide), commonly with hematite ±specularite and/or open space in vein centres. Within these veins gold is present: 1) along prismatic quartz grain boundaries; 2) within the vein centres ±hematite/specularite; and 3) along vein margins at contact with host tuffs;
  - Multi-stage composite quartz-chalcedony-adularia± hematite veins, commonly with a mottled texture (mostly <1 -10 cm wide) with sub-round 'clasts' or fragments of milky light grey-buff quartz adularia or dark-coloured chalcedony, some having very abundant disseminated gold, commonly rimmed by euhedral adularia crystals;
  - Multi-stage quartz-adularia-chalcedony veins with bladed calcite, now pseudomorphed by quartz (i.e. boiling textures) and medium-dark grey gold-rich vein margins; and
  - Large composite veins (up to ≥1 m wide) composed of a, b and c veins described above and commonly with evidence of brecciation with hematite matrix.

- In quartz-hematite breccias (from ~5 to 40 cm wide) that contain sub-angular to sub-rounded fragments of quartz or tuffaceous rocks in a hematite ±specularite matrix.
- Along late angular fractures, micro-fractures and joints commonly associated with hypogene hematite and/or specularite.
- As very fine-grained disseminations in host tuffaceous rocks, frequently associated with hematite partially or totally replacing early-stage pyrite.

Figure 7-4: Visible Gold in Bayan Khundii Quartz Veins (Circled in Red)

Figure 7-5: Photographs of Gold-Bearing Veins and Breccias



1) Comb-textured quartz-hematite/specularite vein from BKD-02; 2) Composite multi-stage quartzchalcedony-adularia vein from BKD-01; 3) Composite quartz-adularia-chalcedony vein from outcrop with bladed calcite (i.e. 'boiling') textures, now pseudomorphed by quartz; and 4) Hematite-specularite-quartz breccia from BKD-60. Source: Bayan Khundii Gold Project (Khundii Exploration License), Bayankhongor Aimag, Southwest Mongolia, NI43-101 Technical report dated March 2018.

7.3.2.2 Quartz Veins and Breccia Zones

Quartz veins and hematite and/or quartz breccias were observed to have variable orientations and commonly form irregular networks of quartz and hematite veins and breccias within SE-NW and E-W trending, SW-dipping, structures. Individual quartz veins, commonly with comb-textures, were observed to vary in width from <1 mm to 2-3 cm over 10 to 30 cm along individual veins. Some quartz veins were noted to form bifurcating veins sets, whereas other veins were noted to form along parallel fractures with common 'jump over' structures. The vein orientations are thought to reflect the orientation of pre-existing fractures, with comb-textured veins possibly representing open-space infillings of structurally-controlled void spaces within a main relay ramp extensional structure as noted in Section 7.3.1 above. Some quartz veins have narrow (<1-2 mm wide) illite-quartz alteration selvages; however, most quartz veins at Bayan Khundii do not have alteration selvages.

Several large composite quartz veins (≤2 m wide) were noted to include comb-textured quartz±adularia, brecciated and mottled-textured massive quartz, and minor chalcedony with hematite ±specularite veins and veinlets and, in a few veins, hematite breccias. These large composite veins are interpreted as forming from multiple pulses of silica and Fe-oxide rich auriferous fluids. The two largest multi-stage auriferous quartz-adularia-chalcedony veins were intersected in drillholes BKD-98 and BKD-99 (2.0 and 1.7 m wide respectively). These two drillholes were drilled near the intersection of a major northwest trending fault and the northeast trending faults interpreted as forming extensional structures within a relay ramp as described in Section 7.3.1 above.

Some tourmaline breccias and tourmaline alteration zones to the west of the Striker Zone contain brecciated fragments of quartz veins and also comb-textured quartz overgrowths on tourmalinized fragments, suggesting a complex inter-relationship between quartz veining and tourmaline alteration events. The relationship between gold mineralization and tourmaline is unclear, however, most tourmaline was observed to the west of the Striker Zone where limited gold mineralization has been encountered to date and there is only rare to trace tourmaline in the Striker and Midfield zones, suggesting these features may be from separate events.

7.3.3 Alteration

Perhaps one of the most striking features of Bayan Khundii is the intense alteration that overprints all Devonian tuffaceous rocks at Bayan Khundii, including the outcropping Southwest and Northeast Prospects that is evident on high resolution satellite images (e.g. GeoEye). This alteration is in sharp contrast to the relatively unaltered unconformably overlying Jurassic sedimentary rocks and basalt. In many locations at Bayan Khundii it is difficult to identify the protolith, as virtually all primary minerals have been variably replaced by quartz and illite.

Alteration at Bayan Khundii can be grouped into two main events, based on observed textures and mineralogical studies. These include:

- An early high-temperature alteration event that formed poorly-developed vuggy quartz lithocaps and underlying well-developed gusano (i.e. ‘wormy’) replacement textures and small isolated zones of advanced argillic alteration (pyrophyllite-dickite-kaolinite) in the vicinity of the Striker Zone. Widespread chlorite-pyrite-magnetite-K-feldspar-biotite alteration that is easily recognized outside the illite alteration zone is considered to have formed during this early alteration event. Fluid inclusion results have identified a hypersaline population of inclusions that may be associated with this early alteration event, possibly associated with a porphyry intrusion at depth.
- A later, lower temperature pervasive illite-quartz alteration event that is interpreted as part of the low-sulphidation epithermal mineralization at Bayan Khundii. There is a second population of lower temperature aqueous fluid inclusions that are interpreted as forming during this alteration/mineralizing event. There is no chlorite, pyrite, or magnetite, or obvious K-feldspar, within the illite alteration zone, although there is some ‘retrograded’ alkali feldspar that was identified in thin section.

The chlorite ±pyrite ±magnetite ±K-feldspar ±biotite alteration assemblage that surrounds the mineralized and illite altered zones at Bayan Khundii are thought to represent a widespread propylitic alteration that may have formed either during the early intrusion-related alteration, or perhaps as a distal alteration assemblage related to the deposition of the low-sulphidation gold mineralization and associated illite alteration.

7.3.4 Sulphide Minerals

The majority of the Southwest Prospect area at Bayan Khundii is either devoid or contains only trace modal amounts of sulphide minerals, including pyrite, sphalerite, galena and chalcopyrite. Most drill holes at Bayan Khundii, especially within the intensely illite-altered areas within the Gold Hill-Striker-Midfield-North Midfield zones, contain only trace to minor amounts of disseminated pyrite. Some zones were noted to contain 12% pyrite, however, pyrite-bearing zones have low gold concentrations and a general antithetic relationship between pyrite and gold concentration was noted in the holes drilled to date. This relationship is interpreted as reflecting the replacement of pyrite by hematite as part of the low-sulphidation gold mineralizing event.

Petrographic work has identified relict disseminated pyrite that has been mostly replaced by hypogene hematite/specularite and has associated visible gold. This relict pyrite may have been associated with the early high-temperature alteration or perhaps it may have formed during an early stage of the low-sulphidation gold event that was then overprinted and replaced by iron oxides during late stages of the low-sulphidation alteration/mineralization event.

As noted in Section 9.3.2 Induced Polarization (IP) Surveys, there are several IP chargeability anomalies at Bayan Khundii that may reflect the presence of disseminated specularite, as noted in some zones intersected in drilling to date, or conversely could be caused by sulphide rich rocks below the current erosional level at Bayan Khundii.

7.3.5 Iron Oxide Minerals

Hematite, often with associated specularite, is a ubiquitous feature at Bayan Khundii, and was observed in surface outcrop, trenches and in drill core, where it is present as:

Fracture/vein infilling, commonly within very sharp-sided angular fractures or veins that may contain wallrock fragments:

- As central vein infilling and vein margins in comb-textured quartz veins;
- As matrix in quartz-hematite breccias, commonly with angular fragments of illite-quartz altered wallrock;
- As rare round disseminations that are interpreted as pseudomorphic replacement of early pyrite; and
- Alteration selvages along the margins of fine grained dark grey quartz or chalcedony veins.

In drillhole BKD-01 there are several narrow specularite veinlets (<1-2 mm wide) with wide medium grey alteration selvages (≤2 cm) consisting of intense silicification and illite alteration. The lack of hematite alteration selvages surrounding quartz-hematite veins at Bayan Khundii, where hematite may reside in the central parts of comb-textured veins, or as vein-parallel bands near vein margins, supports a hypogene versus supergene origin for the iron-oxide minerals at Bayan Khundii. The presence of visible gold in some hematite veinlets establishes a genetic relationship between the gold and hematite-forming fluids. Accordingly, hematite is considered to be associated with the intense silica-illite alteration and deposition of low-sulphidation gold mineralization. The presence of hematite (and minor specularite) indicates oxidizing conditions and suggests the mineralizing fluids at Bayan Khundii may have interacted with oxygenated surface (i.e. meteoric) waters.

7.4 Altan Nar Geology

The Tsenkher Nomin license area was mapped, in increasing detail, between 2011 and 2014. The current detailed geology map for the license area is shown in Figure 7-6. The geology of the license area is dominated by two separate sequences of volcanic rocks, both assumed to be Devonian to Carboniferous in age, based on the 1:200,000 scale MRAM map L-47-XXXIII. These include:

A package of predominantly andesite flows (referred to as ‘Sequence A’) dominate the eastern part of the license area. These volcanic rocks have pronounced NW-SE trending linear features that are evident on satellite images. These rocks are interpreted to be a steeply dipping volcanic sequence that was intruded by sub-parallel, NW-trending granite porphyry and fine-grained granite intrusions interpreted to be sills, or possibly laccoliths. These intrusions are up to 250 m in width with maximum length of 6 km. Several narrow, NW-trending granitic dykes (<100 m in width) that are similar in composition to the large granite intrusion along the eastern margin of the license, intrude the andesite rocks near the Altan Nar area. A few isolated, narrow (10-100 m wide), NW-SE and

NE-SW trending trachy dykes intrude the andesite rocks. Widespread development of hornfels textures was noted in the andesite rocks, presumably resulting from contact metamorphism related to the large granite sills or laccoliths. The wedge-shaped package of extrusive-intrusive rocks has a pronounced NW-trending series of linear topographical features that are clearly visible on satellite images. A ground magnetic survey was completed over most of the license in 2011. The wedge-shaped Sequence A volcanic rocks and associated granite intrusions were noted to have a much higher magnetic response than the Sequence B volcanic rocks to the west and the granite intrusion situated along the eastern margin of the Tsenkher Nomin license. Areas of low magnetic response within the wedge-shaped sequence correspond to granite sills.

The geology of the central and western portion of the Tsenkher Nomin license area consists mostly of a sequence of volcanic flows and tuffaceous rocks of andesite composition (referred to as 'Sequence B'), with subordinate rhyolite, rhyodacite, andesite tuff, and green-coloured andesite. Satellite images for this portion of the license indicate Sequence B volcanic rocks lack the well-developed lineaments and topographical features noted above for the Sequence A rocks. Bedding orientations for the Sequence B volcanic rocks, obtained from 2017 oriented core drilling, indicate these volcanic units strike to the northwest and dip at approximately 20-30 degrees to the northeast. Intrusive rocks are much less abundant in the west and central parts of the license and include a small granodiorite plug (approximately 200 by 300 m) near the southern license boundary, and several variably-oriented trachy-andesite and rhyolite dykes (generally < 50 m wide and up to 1 km in length). The magnetic response of Sequence B volcanic rocks is generally lower than for Sequence A and lacks linear orientations, which supports the shallow-dip interpretation for these rocks.

The Altan Nar deposit is hosted in the Sequence B volcanic units and consists of gold, silver, zinc, and lead within sub-vertically dipping epithermal quartz veins.

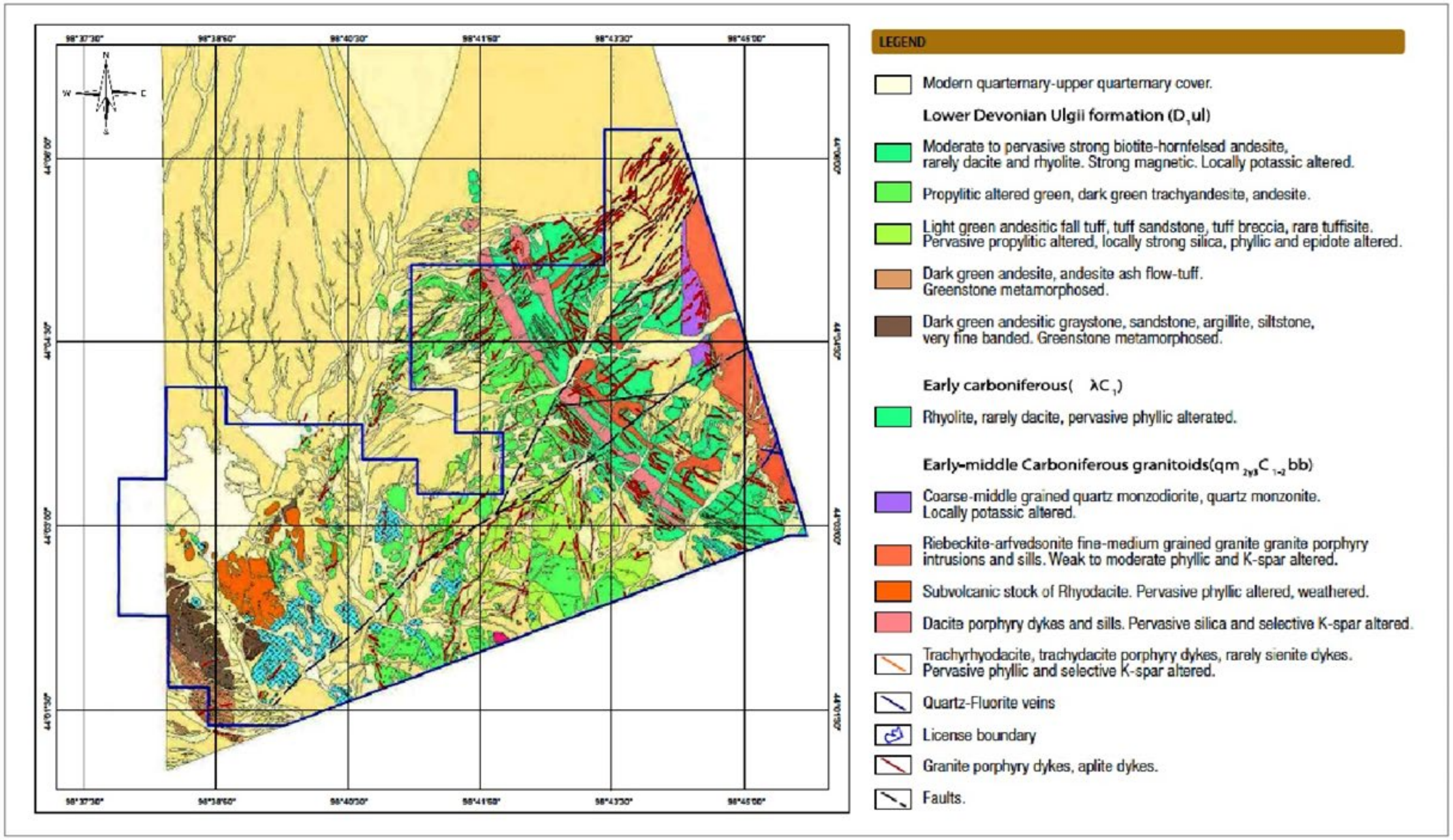
Topographic low areas throughout the Tsenkher Nomin license area are underlain by unconsolidated Quaternary sediments. The pattern and distribution of various facies of Quaternary deposits reflects paleo-drainage systems that were developed along bedrock features including faults and lineament ridges. The abundance and patterns of distribution of Quaternary sediments differs significantly over the Sequence A and B volcanic rocks.

Sequence A andesite and granite rocks are cross-cut by a series of narrow (generally 50 to 200 m wide) regularly spaced (approximately 0.5 to 1.0 km) paleo-drainage valleys that are interpreted to reflect sub-parallel, NE-trending bedrock faults.

Minor north-south and east-west oriented Quaternary valleys may reflect localized structural offsets along some NE faults. Several NE- and ENE-trending faults were mapped in bedrock in the eastern portion of the license. These faults were noted to offset both andesite and later granite dykes and sills, suggesting these structures were developed late in the geological history of this area.

Quaternary deposits and paleo-drainage patterns over Sequence B rocks in the western and central parts of the license are much more abundant than over Sequence A rocks and have more randomly oriented drainage systems. A few narrow NE-SW and N-S oriented Quaternary deposits in the east-central part of the license may reflect extensions of bedrock structures developed over Sequence A rocks.

Figure 7-6: Tsenkher Nomin Geology Map



NOTES
Base data source: Erdene Resource Development Corp.

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Tsenkher Nomin Geology Map

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November 7, 2019	ENG.VMIN03076-01

Figure 7-6

8.0 DEPOSIT TYPES

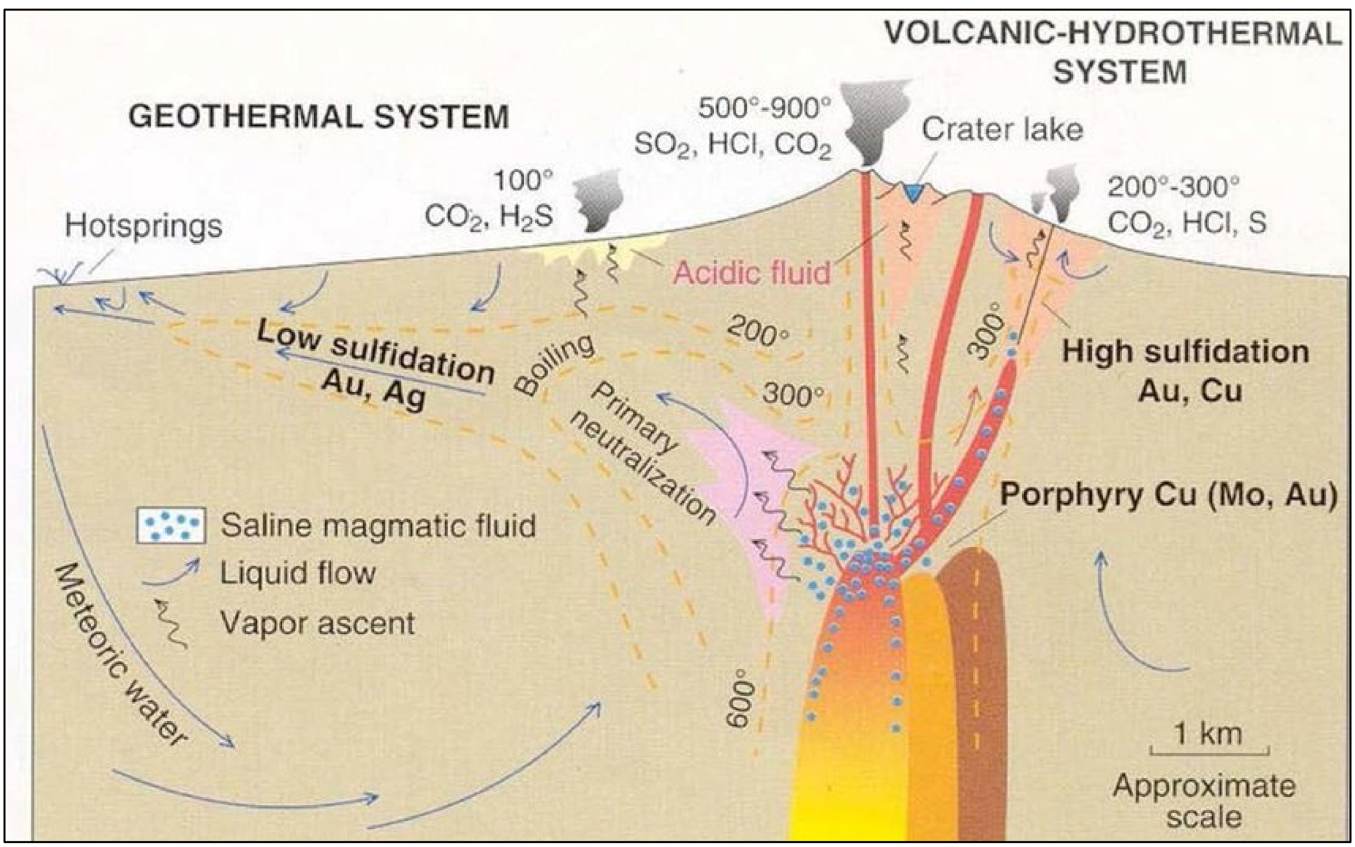
8.1 Bayan Khundii

The Interpretation of Bayan Khundii favours a low-sulphidation epithermal deposit hosted within a corridor of en-echelon extensional faults.

8.1.1 Low Sulphidation Deposit Formation

Epithermal deposits are characterized as forming within subduction-related arc settings, post-collisional orogenic belts, or back-arc settings (Wang et al, 2019), and at depths less of less than 1.5 km. Epithermal deposits can typically be classified as either high or low sulphidation style based upon their proximity to an intrusive heat source, and the interaction from meteoric vs. magmatic fluids (Figure 8-1). High sulphidation deposits form within closer proximity to an intrusive body where they are subjected to increased magmatic fluid interaction; low sulphidation deposits occur more distal to the intrusive body and contain increased influence from meteoric fluids. Regardless of their classification, both deposit types require a sufficient heat source such as a magma chamber to promote the generation and circulation of mineralized magmatic or meteoric fluids.

Figure 8-1: Low and High Sulphidation Epithermal Model

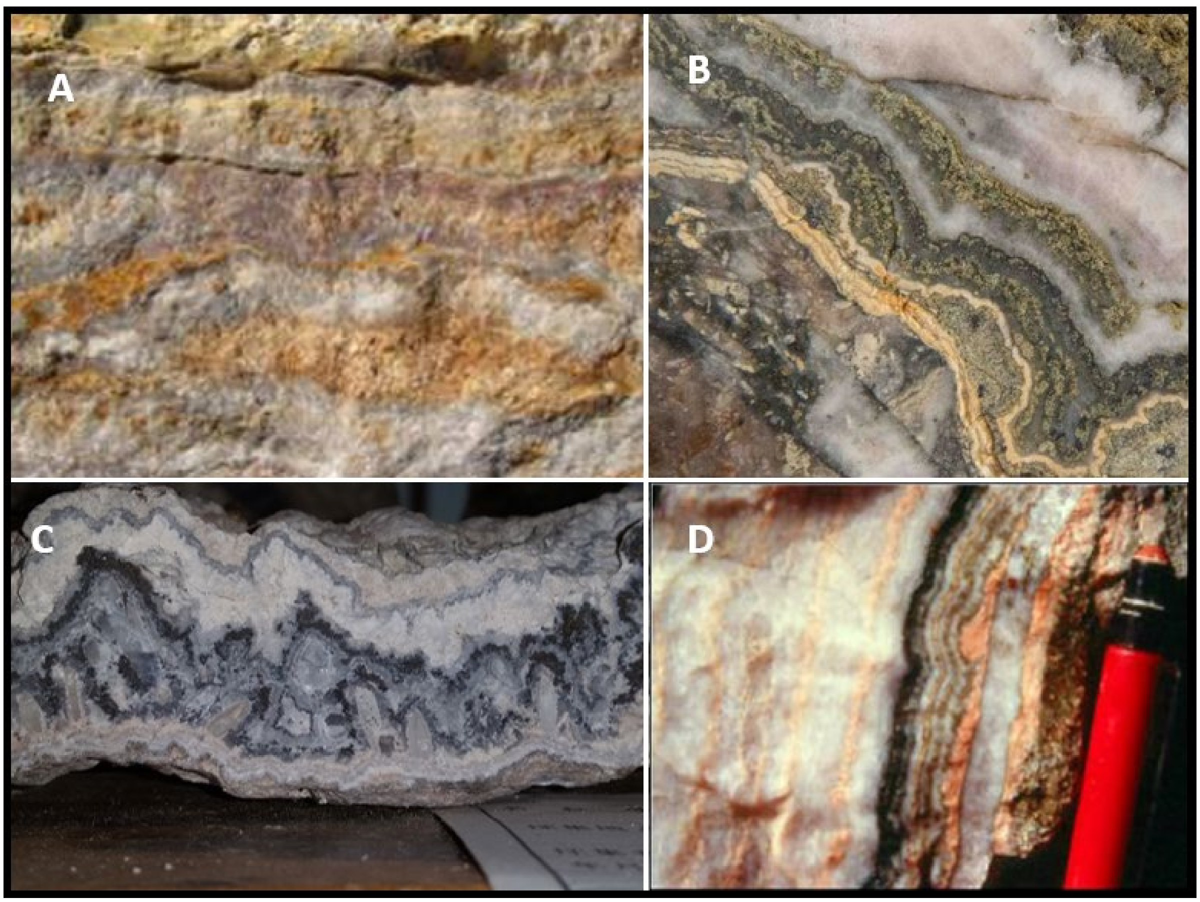


In the case of a low sulphidation deposit, reduced, near neutral pH fluids are formed from the interaction of from magmatic fluids along with deeply circulating meteoric groundwater. As these fluids rise, boiling occurs at approximately 300 m below the topographic surface which stimulates the precipitation of the gold from the fluids. This boiling and rapid cooling of the fluids results in the deposition of fine-grained gold along with the formation of unique mineralogical textures. As a result, these textures can act as import vectors for optimizing exploration targets and locating the boiling zone of an epithermal system. Some primary textures associated with epithermal deposits are as follows:

- Chalcedonic texture: cryptocrystalline quartz with a waxy luster indicates a low temperature silica (1,200°C-2000°C and suggests a depth of formation above the depth of mineralization;
- Saccharoidal texture: vitreous to milky massive granular aggregate the appearance of sugar in hand samples;
- Comb texture: group of euhedral to sub-euhedral crystals resembling the teeth of a comb;
- Colloform texture: rhythmic bands with kidney-like surface of chalcedonic silica grains with reniform habit; and
- Crustiform texture: successive bands oriented parallel to vein walls and defined by differences in mineralogy or colour.

The textures described above are visually presented in Figure 8-2 below.

Figure 8-2: Typical Epithermal Textures



A: Crustiform and Colloform banded saccharoidal quartz. B: Colloform texture showing bands of quartz, sphalerite, galena, ankerite and chalcopyrite. C: Comb Texture. D: Chalcedony with bands of Adularia (pink)

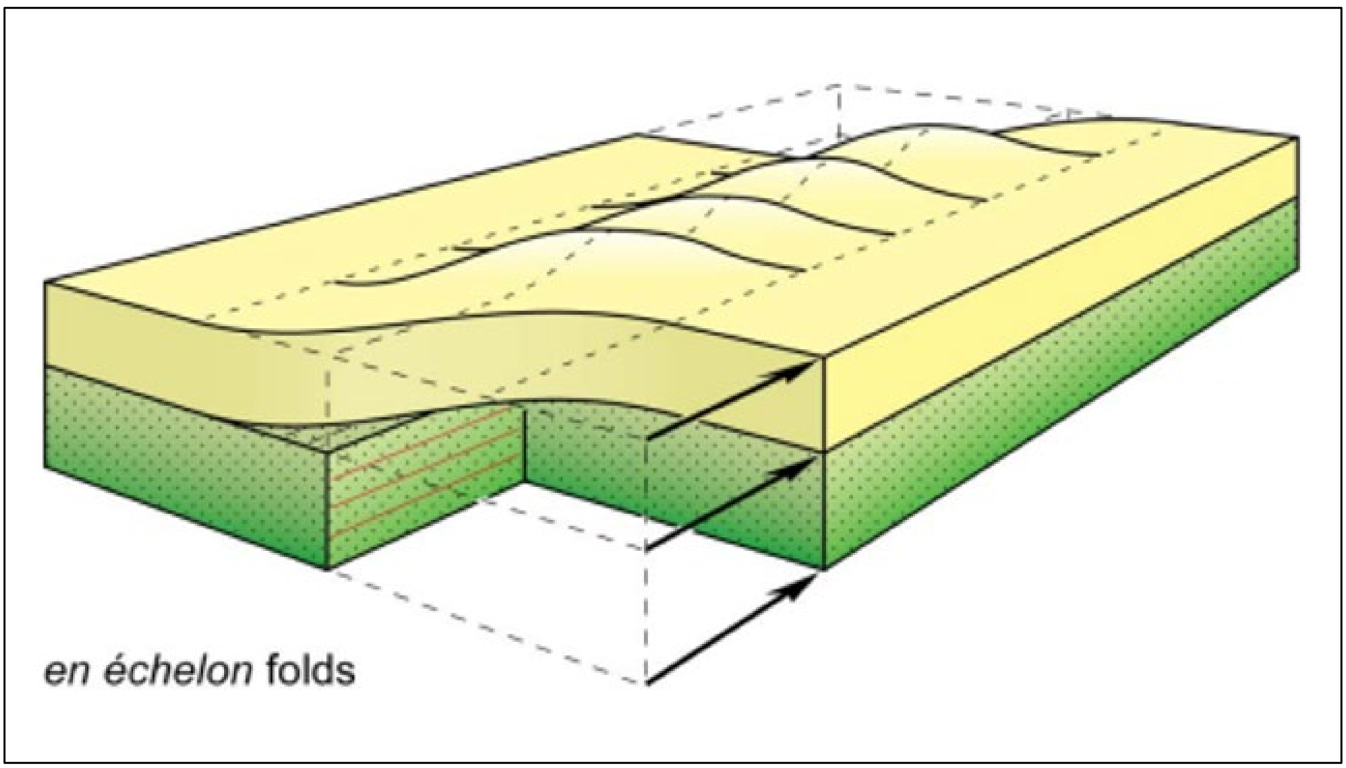
Several features support a low sulphidation model for the Bayan Khundii mineralization, including: the presence of quartz-adularia-sericite (illite) veins and adularia alteration zones in gold mineralized zones; the low Ag : Au values (0.1->5, avg. ~1) local colloform bands of chalcedony (often with finely disseminated gold), bladed calcite (now pseudomorphed by quartz) textures that indicate boiling; the generally low concentrations of base metals, widespread intense illite-quartz alteration zones; the ubiquitous presence of hypogene hematite as fractures, veins and breccias; and the presence of comb-textured quartz veins and chalcedony, albeit minor in abundance.

Pre-epithermal alteration is present, including chlorite, potassium feldspar, biotite and granular quartz with hypersaline inclusions. This alteration assemblage was followed by tourmaline and magnetite along with a muscovite alteration overprint and structurally-controlled advanced argillic alteration and residual quartz alteration. This high-temperature alteration, characteristic of intrusion-centred systems at depths >1 km, was uplifted, eroded and potentially tilted prior to initiation of the subsequent low-sulphidation epithermal system, including the formation of low-temperature illite-quartz alteration and deposition of quartz cement in brecciated structures along with adularia and gold (electrum). The general absence of smectite at Bayan Khundii suggests erosion to at least 150 m depth below the paleo-groundwater table.

8.2 Structural Relationship

The shape of the final orebody is largely dictated by the structural regime present in the vicinity of the geothermal system. The structures present provide a pathway and traps for the fluids, mineralization and gangue minerals. In the case of the Bayan Khundii deposit, the mineralization and fluids are hosted in en-echelon style structures (Figure 8-3) which form perpendicular to the major stress orientation. A more detailed description of the structural model is provided in Section 7.

Figure 8-3: En-Echelon Style Folds Typical of the Bayan Khundii Deposit



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8.3 Altan Nar

The Interpretation of Altan Nar favours a carbonate hosted intermediate-sulphidation epithermal deposit.

8.3.1 Intermediate Sulphidation Deposit Formation

Unlike high sulphidation deposits which form within proximity to an intrusive body and contain greater magmatic fluid interaction or low sulphidation deposits which form more distal to the intrusive body and contain greater meteoric fluid interaction, intermediate sulphidation deposits form between these two end member conditions. Intermediate sulphidation deposits contain a combination of magmatic and meteoric fluid influence and form at depths which range between 0.3 to 1.0 km beneath the surface, at temperatures which also vary between 150°C and 300°C. The source fluids also exhibit an elevated salinity, generally containing greater than 5 weight percent NaCl equivalent.

Intermediate sulphidation deposits typically contain manganese-carbonates such as rhodochrosite and manganocalcite, manganese-silicates, along with intermediate sulphidation state sulphides such as pyrite, chalcopyrite, sphalerite, galena, tetrahedrite, and tenantite. The presence of light-coloured sphalerite which is an iron poor variant to sphalerite is also an indication of an Intermediate sulphidation state. Based on this minerology, intermediate sulphidation deposits represent important targets and sources for gold, silver, lead, and zinc mineralization.

9.0 EXPLORATION

9.1 Bayan Khundii

9.1.1 Initial Exploration

The Project was covered by Erdene's 2009 SW Porphyry evaluation program which included a regional stream sediment survey and limited prospecting over the license areas. The regional stream sediment results identified an area of highly anomalous base metal and gold in the area of the Project.

The Khundii exploration licence was acquired in 2010 through the exploration licence application process of the Government of Mongolia based upon the results of the 2009 regional exploration program.

Between 2010 and 2014, exploration on the Khundii license included property-wide geological mapping, soil sampling and a magnetic survey while more detailed exploration, including detailed geological mapping, rock chip sampling and trenching was focused on the central part of the license on a prospect referred to as Altan Arrow (refer Figure 9-1). The rock chip sampling program for the Khundii licence identified a number of significant anomalies for gold and silver, with lesser base metal anomalism. Generally, the anomalous rock chip samples were from two distinct and adjacent quartz vein systems located at Altan Arrow in the central part of the present day Khundii mining licence, located approximately 5 km north of the Bayan Khundii deposit.

The mineralized quartz vein systems at Altan Arrow were trenched in late 2013. Four trenches were excavated across the mineralized Main Zone and one trench was excavated across an area hosting high-grade gold mineralization within epithermal quartz veins.

Results indicate a 1 m to 11 m wide quartz breccia zone. This breccia is multistage and has hydrothermal-epithermal characteristics with anomalous, however, somewhat low gold concentrations (7m @ 0.29 g/t Au) and positive silver - arsenic-antimony inter-element geochemical correlations.

The fault-related hydrothermal breccia zone divided the project area into two blocks. The NW block is pervasively and strongly altered to an assemblage of kaolinite, montmorillonite, dickite, pyrophyllite and quartz. The SE block is dominated by less altered andesite which is cut by tourmaline veins and breccias, and by quartz veins with epithermal features (CC and comb quartz textures). Rock chip and trench sampling confirmed the presence of high gold values in the quartz veins within the SE block.

While the exploration results at Altan Arrow were encouraging, most of the exploration efforts were focused on the Altan Nar deposit, located on the Tsenkher Nomin licence (Figure 4-2). The identification of high-grade gold mineralization associated with epithermal style quartz veins, however, prompted additional prospecting and mapping in the southern portion on the Khundii exploration license.

In early 2015, Erdene geologists identified, through rock chip sampling, new high-grade gold mineralization associated with a zone of intensely altered (quartz-illite) pyroclastic lithologies located ~5 km south of Altan Arrow. This area, referred to as the Bayan Khundii (Rich Valley) Project (Figure 9-1), was the focus of a detailed exploration program carried out in 2015 – 2019.

In 2017, Erdene completed structural mapping at Altan Arrow, south of the main northeast-trending structure that hosts the originally targeted epithermal veins and breccias. This mapping identified an east-west trending cross-structure with associated gold-in-soil anomalism. Follow-up surface sampling and geological mapping of the soil anomaly resulted in the discovery of surface quartz vein rubble that returned 27 g/t Au.

A second round of drilling in 2017 included two holes to test newly identified east-west structure at Altan Arrow. Hole AAD-11 intersected multiple anomalous gold zones spread over the 100 metre length of the hole, including a shallow gold-bearing epithermal vein at 11 metres vertical depth that returned 1 metre of 39 g/t Au and 8 g/t Ag.

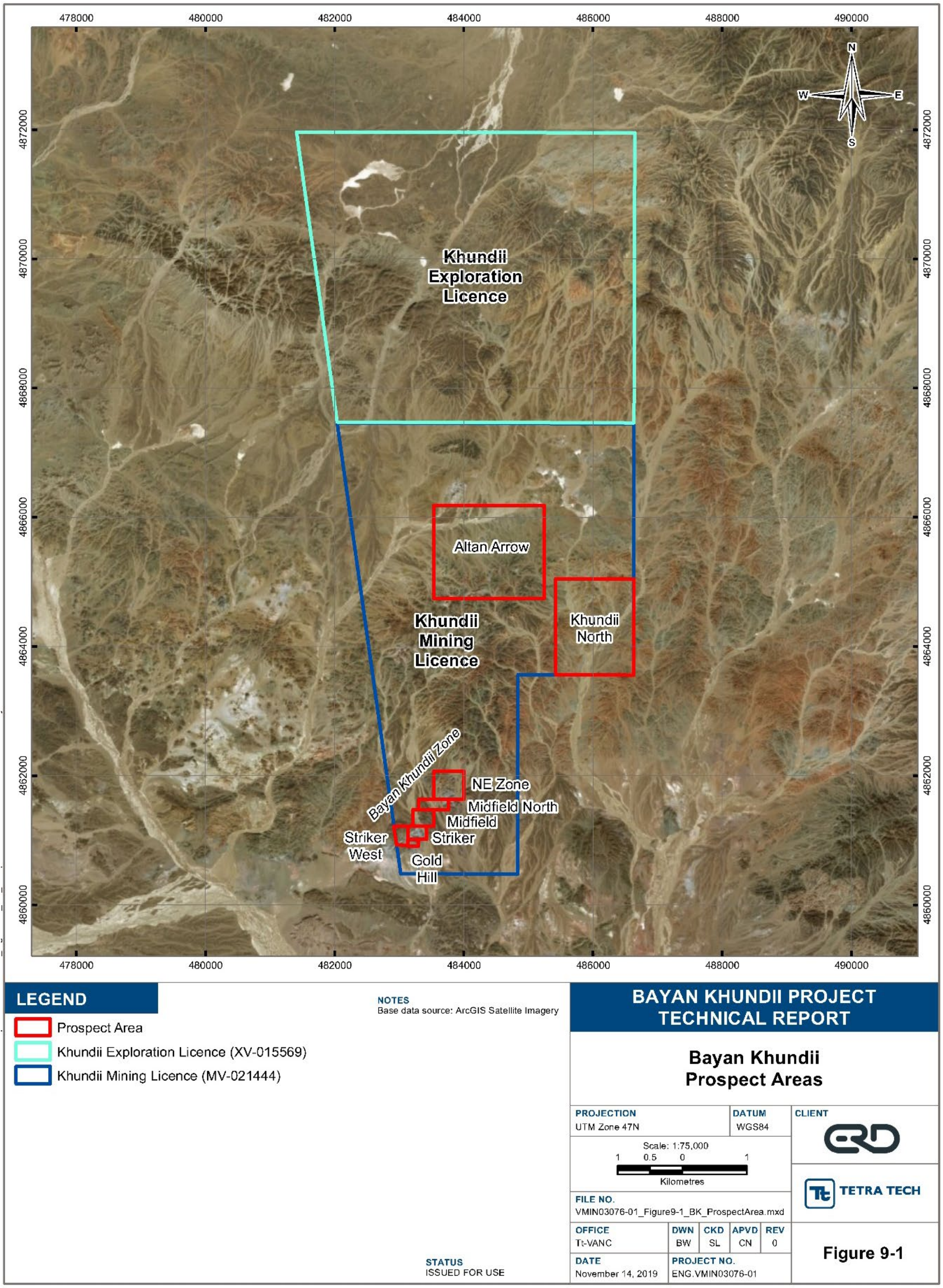
9.1.1.1 Recent Exploration on the Khundii Exploration License

In 2018, Erdene drilled 10 holes at Altan Arrow, totaling 1,412 metres, to test extension along trend of the main structure and at depth. This work extended the mineralized structure 500 m to the west where AAD-18 intersected multiple 2 m to 4 m wide zones of anomalous gold in epithermal quartz adularia veins and stockwork breccias zones containing up to 1.3 g/t Au. Current exploration drill testing of the main mineralized structure indicates a broad corridor of anomalous gold over a 1.2 km trend (open along strike) and up to 400 m south of the main structure in what is interpreted as secondary structural splays. In addition, drill testing of these structural splays, south of the main zone, returned multiple intersects at deeper levels then typically tested (approximately 100 m vertical depth) with gold grades ranging from 0.2 to 2.6 g/t with anomalous silver, molybdenum, lead, zinc and antimony (AAD-25). Exploration results suggest gold mineralization within the district is controlled by a structure associated with zones of major dilatancy and structural intersections. Such zones commonly have associated alteration events that are magnetite destructive, resulting in zones of low magnetic response. In advance of future drilling the Company is in the process of completing a comprehensive geophysical interpretation of the Altan Arrow prospect, including high resolution magnetics, IP dipole-dipole and gravity datasets.

In addition to the Altan Arrow prospect, exploration over the past two years' elsewhere on the Khudnii property has identified several other prospects including Khundii North and the newly identified Khar Mori prospect. The Khundii North target is located 4 kilometres northeast of the Bayan Khundii gold deposit, on the Khundii mining license, and was initially drill tested in 2018. The area was identified through surface exploration in late 2017, when sampling of quartz vein material returned high grade gold mineralization of up to 22 g/t Au from a structurally controlled quartz vein stockwork and breccia zone traced over a 1,500 m strike. Six holes, totaling 970 m and averaging 93 metres vertical depth have now tested the stockwork breccia body, comprised of three collars in the south and two in the north, separated by approximately 500 metres. Although the northern holes returned only minor levels of anomalous gold, the southern holes intersected wide zones of intense multi-phase epithermal quartz stockwork and breccia at depth within an altered monzonite. These stockwork zones are continuous, with up to 35 m widths (AAD-29) and have associated anomalous gold, locally up to 2.1 g/t over one metre intervals (AAD-30) and locally anomalous copper (>500 ppm). In Q3 2019, a single 253 m drill hole (AAD-38) was sunk to test the Khundii North quartz breccia body at depth. Assay results from the drill hole returned modest but anomalous gold values of up to 0.25 g/t Au over 2 m. Gold anomalism appears to be associated within intervals of quartz stockwork veins intersected throughout the drill hole.

The Khar Mori gold prospect was identified in Q3 2019, through a regional prospecting and sampling program completed within the Khundii mining license that returned rock chip samples up to 32.9 g/t Au within a previously unknown area. The Khar Mori prospect is located approximately 4.5 km north of the Bayan Khundii deposit and approximately 1 km southeast of the Altan Arrow target area. Rock chip samples containing the gold consist of quartz veins and quartz stockwork veining within massive tourmaline. An additional sample containing 8.4 g/t Au was collected 500 m west of the 32.9 g/t sample suggesting size potential for future exploration and discovery at the new Khar Mori prospect.

Figure 9-1: Khundii License and Main Prospects



9.1.2 Geological Mapping

A detailed geological mapping program has been completed over the 2 km by 2 km Bayan Khundii area. This work has been principally carried out by one of Erdene's senior exploration geologists, with the assistance of other Erdene geologists. In addition, more detailed mapping of the entire Khundii license was carried out in 2017 resulting in the greater understanding of the distribution of lithological units and zone of alteration across the Khundii license.

9.1.3 Rock Geochemical Surveys

In 2015, rock-chip (outcrop) and rock-grab (float) samples were collected from across the Bayan Khundii area as part of the geological mapping and prospecting programs. No grid-based rock sampling programs have been carried out to date.

All rock sample locations were determined by hand-held GPS units with approximately 3 m location accuracy. All samples were sent to SGS Laboratory in Ulaanbaatar for analysis via fire assay along with a 32-element suite (ICP).

Across the Southwest prospect area, a total of 78 rock chip and grab samples from surface outcrop and sub-crop, and channel samples were collected, principally from quartz veins within multiple mineralized areas, with the majority returning highly anomalous values, and over 20% of the samples returning values in excess of 3.0 g/t Au and up to 4,380 g/t Au. A map showing the sample locations and graduated Au grades symbols has been included for reference (refer to Figure 9-2).

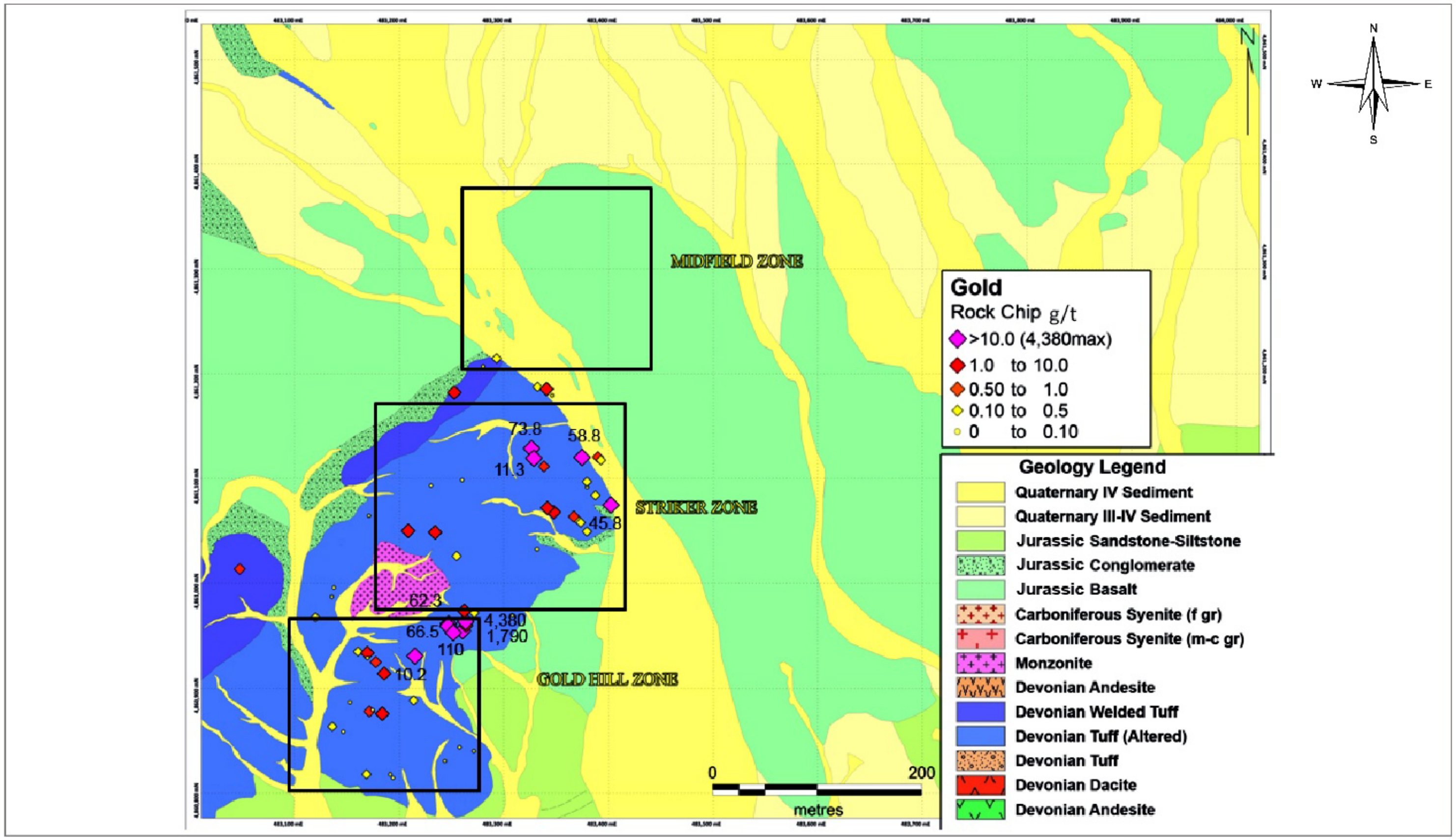
While the highest-grade gold mineralization identified to date is located within the Southwest Prospect, an area located approximately 700 m to the northeast, and aptly named the Northeast Prospect (300 m x 300 m), returned numerous anomalous gold assays (>200 ppb) from mineralized rock chip samples (up to 4.1 g/t Au), and two rock grab samples (from float material) collected a further 500 m to the northeast (NE Extension) returned gold assay values of 7.0 g/t and 0.4 g/t Au (refer to Figure 9-3).

9.1.4 Soil Geochemical Sampling

A grid-based soil sampling program was carried out in April and May 2016. The entire area on the Khundii license, from Bayan Khundii to Altan Arrow (an area approximately 4 km by 6 km) was sampled at a 200 m spacing (infilling from a previous 400 m spaced soil sampling grid). The Bayan Khundii area (approximately 2 km x 2 km) was covered by a 100 m grid and areas of altered pyroclastic rocks exposed on surface, namely the Southwest and Northeast prospect areas, covered by 25 m spaced grid sampling.

A total of 1,088 samples were collected. All samples were sent to SGS Laboratory in Ulaanbaatar for analysis. All samples were assayed for gold (fire assay) and a 32-element suite (ICP). Gold assay results ranged from below detection limit (1 ppb Au) to a high of 1,570 ppb Au (1.6 g/t). Figure 9-4 shows the distribution of the anomalous soil geochemical results, which are mainly focused in and around the two areas of exposed, altered, Devonian pyroclastic rocks at the Southwest and Northeast prospects.

Figure 9-2: Southwest Prospect area Geology Map



NOTES
Base data source: Erdene Resource Development Corp.

Gold Assay Values >10 g/t Au are Labelled

PROJECTION	DATUM
UTM Zone 47N	WGS84

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Southwest Prospect Area Geology Map with Location of 78 Rock Chip and Rock Grab Samples

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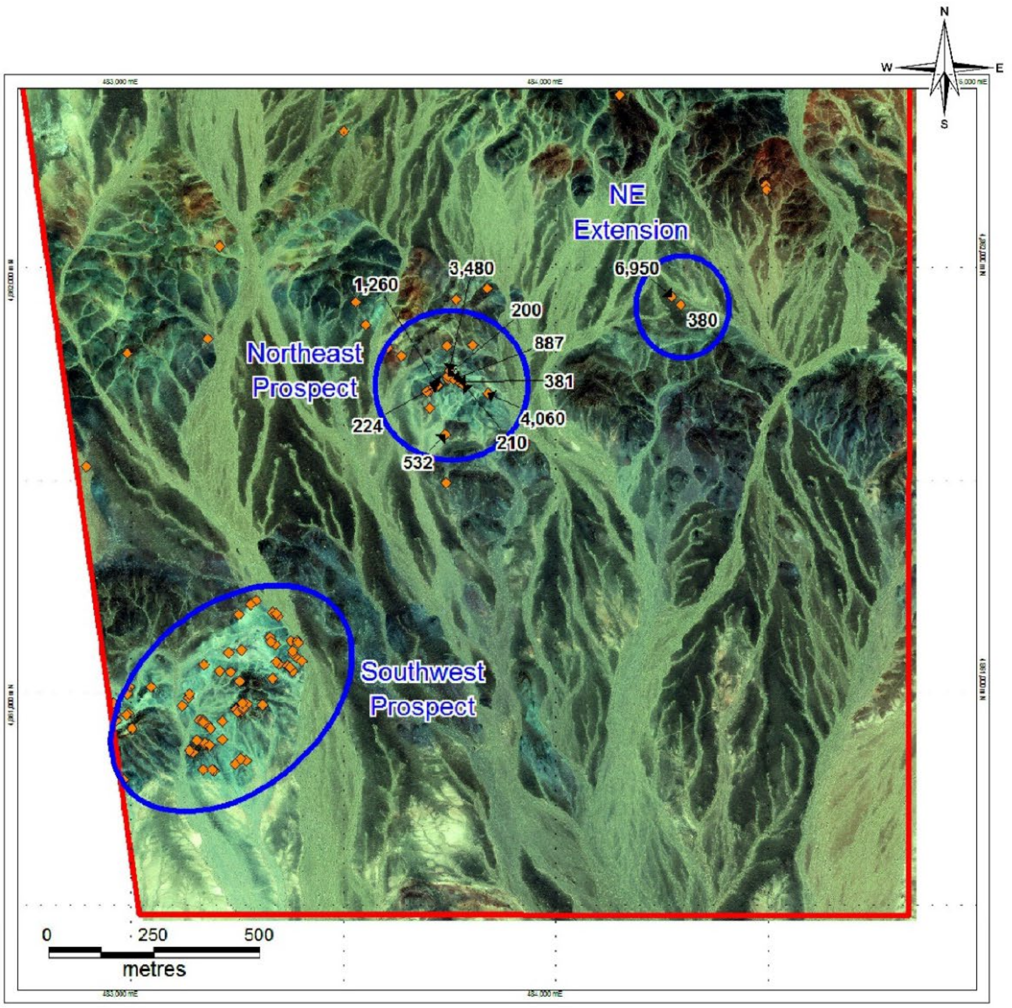
Figure 9-2

Figure 9-3: Gold Values (ppb) for Rock Chip and Rock Grab Samples from the Northeast and NE Extension Prospect areas



NOTES
Base data source: Erdene Resource Development Corp.

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Gold Values (ppb) for Rock Chip and Rock Grab Samples from the Northeast and NE Extension Prospect Areas

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	

Assay Values >200 ppb Au are Labelled

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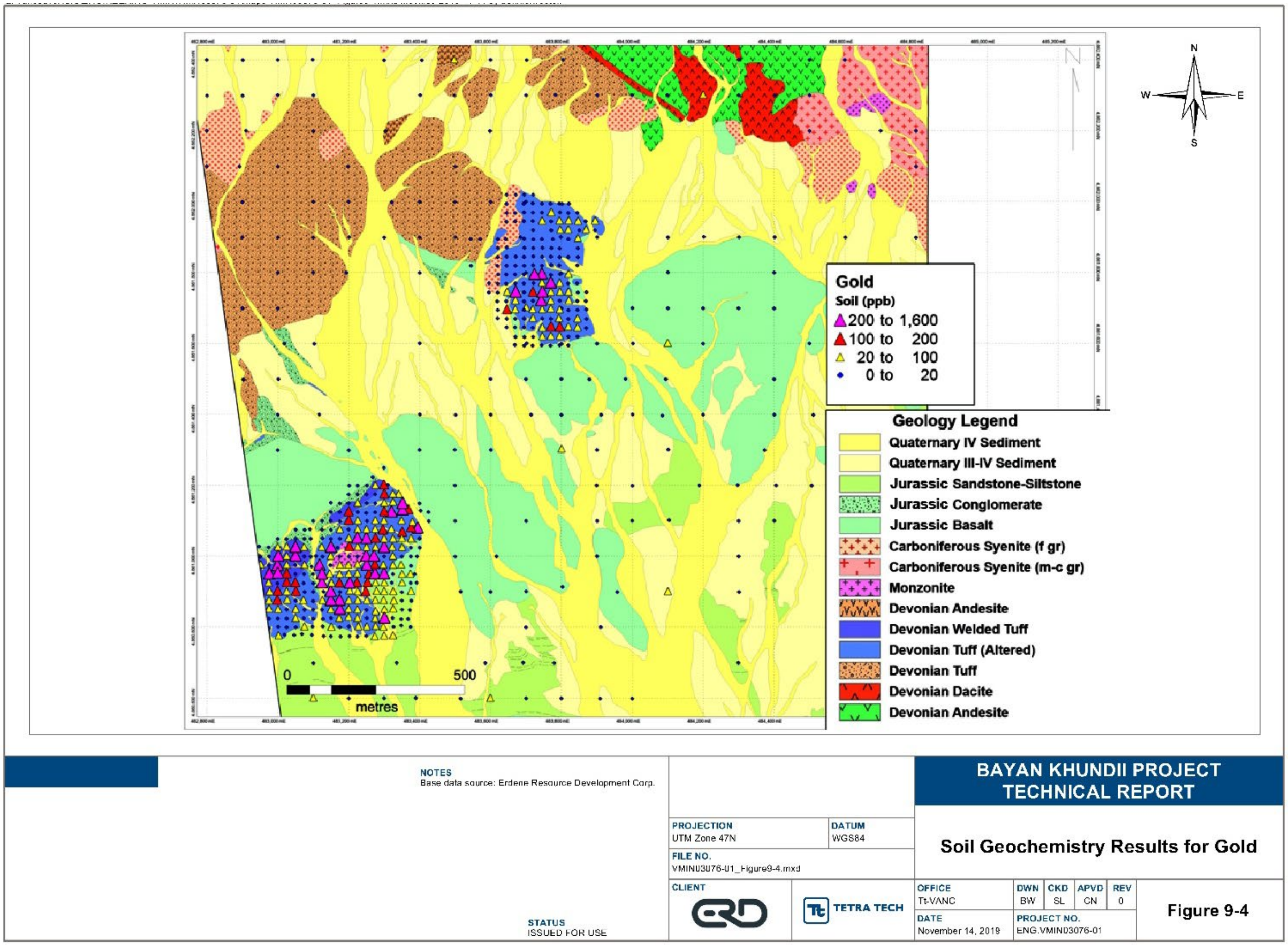
Figure 9-3

Figure 9-4: Soil Geochemistry Results for Gold



9.1.5 Geophysical Surveys

9.1.5.1 Magnetic Survey

In 2012, a licence wide magnetic survey (100 m line spacing) was completed over a 28 sq.km area covering most of the Khundii exploration licence. In October 2015, a detailed (25 m line spacing), magnetic survey was carried out over the Bayan Khundii area (1.7 km by 1.8 km). In June 2017, the area of the magnetic survey was expanded to cover an area of 2.05 km by 1.8 km. All of the magnetic surveys have been conducted by Erdenyn Erel LLC, a Mongolian geophysical consulting firm based in Ulaanbaatar.

Data from the detailed magnetic survey was processed, including quality control analysis, by geophysicist Chet Lide of Zonge International Inc. of Reno NV, USA. Mr. Lide compiled all magnetic datasets and produced the following products for the Bayan Khundii map area: 1) Total Magnetic Intensity, Reduced to North Magnetic Pole (RTP), (UC2 and UC10); 2) Calculated First Vertical Derivative of the RTP-TMI (UC10 and UC20); 3) Tilt Derivative of the RTP TMI (UC3); 4) Analytical Signal of the Total Magnetic Field (UC2); 5) Pseudogravity Transform of the Total Magnetic Intensity; and 6) Horizontal Gradient Magnitude of the Pseudogravity.

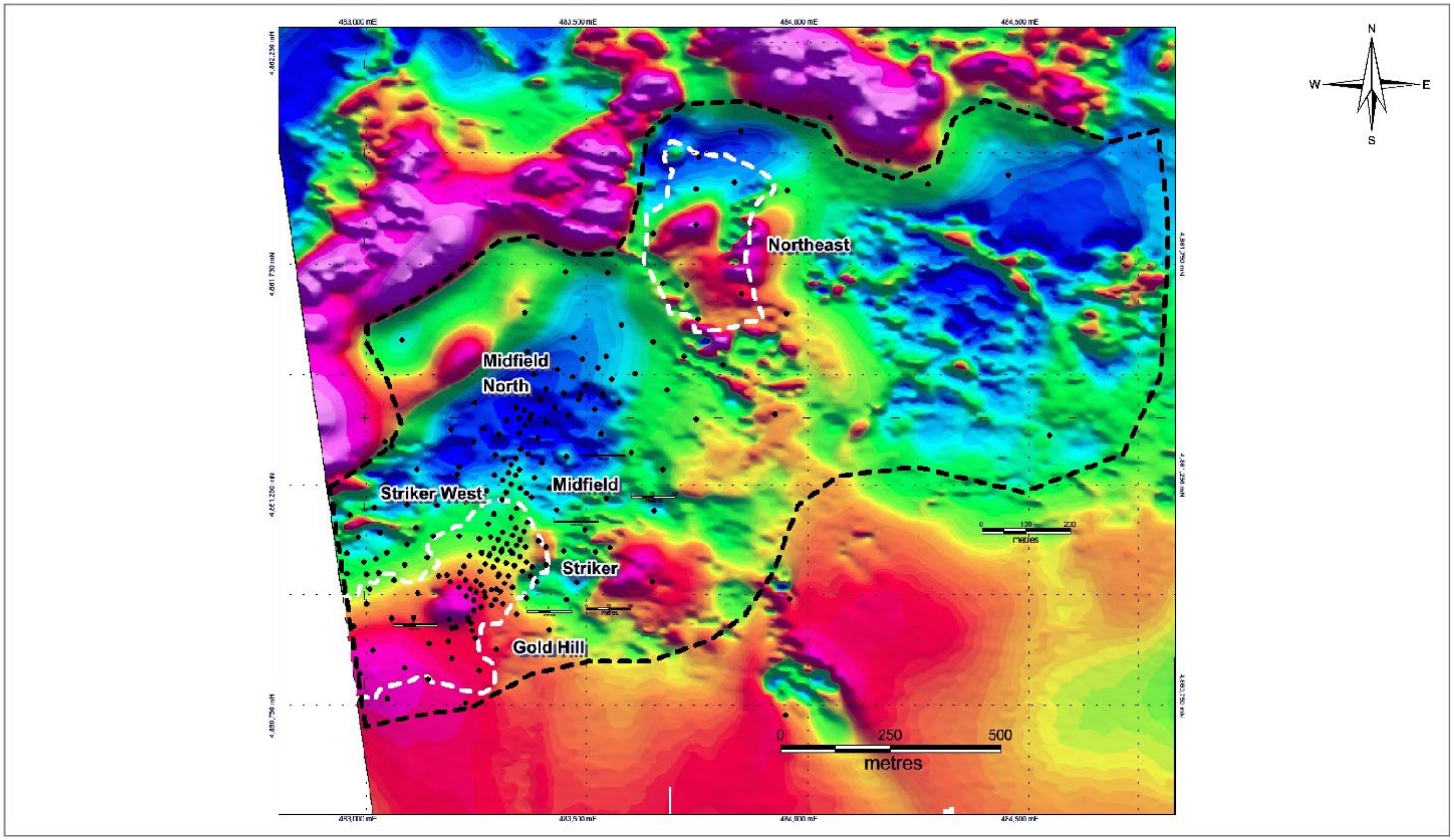
The analytical signal of the total magnetic field provides the magnetic response for near-surface rock units and outlines the distribution of the Jurassic basalt. In contrast, other magnetic products including Reduced to Pole (RTP), 1st Derivative RTP, and Pseudo-gravity provide magnetic response for at-depth rock units.

Gold mineralization at Bayan Khundii is associated with intensely altered (silica-illite) Devonian pyroclastic lithologies. Magnetic susceptibility measurements from drill core have demonstrated that these units have a low magnetic response, interpreted as reflecting the destruction of primary magmatic magnetite present in unaltered pyroclastic lithologies.

Low magnetic response, or ‘quiet zones’ in the Bayan Khundii area are interpreted as reflecting areas of magnetite destruction from hydrothermal alteration. Figure 9-5 shows the RTP (UC10) magnetic response for the Bayan Khundii area and shows the locations of the known zone of mineralization, Gold Hill, Striker, Midfield, North Midfield, West Striker and Northeast prospects. A broad zone of low magnetic response is outlined (black dashed line) in Figure 9-5, measures approximately 1.8 km by 1 km and reflects the extent of the exploration target area at Bayan Khundii. In addition, the outline of the intensely altered Devonian pyroclastic units, as defined by surface mapping, is shown with white dashed lines.

Several smaller areas of moderate to higher magnetic response are observed within the broader low response area. These have been interpreted, based on results from drilling and geological mapping, as most likely related to post mineral intrusions (monzonite) near Gold Hill, east of Striker and in the southern part of Northeast prospect; and younger Jurassic volcanic (basalt) unit, located south-southeast of the Northeast prospect, that unconformably overly the Devonian lithologies (possibly masking underlying altered Devonian lithologies) (see Figure 9-5).

Figure 9-5: Reduced to Pole (RTP-UC 10) Magnetic Response for the Bayan Khundii area



NOTES
Base data source: Erdene Resource Development Corp.

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PROJECTION	DATUM
UTM Zone 47N	WGS84

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Soil Geochemistry Results for Gold

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Figure 9-5

Both IP gradient array and IP dipole-dipole ("Dp-Dp") surveys have been completed on Bayan Khundii. All of the IP surveys were carried out by Erdenyn Erel LLC, a Mongolian geophysical contractor based in Ulaanbaatar. The work was performed using Zonge Universal IP/R equipment and supporting equipment (generator, cables, electrodes etc). The surveys were conducted under the direction of geophysicist Chet Lide of Zonge International Inc. of Reno NV, USA, who also completed all of the post-acquisition data processing, quality control and interpretation. The surveys were conducted in November 2015 and April-May 2016.

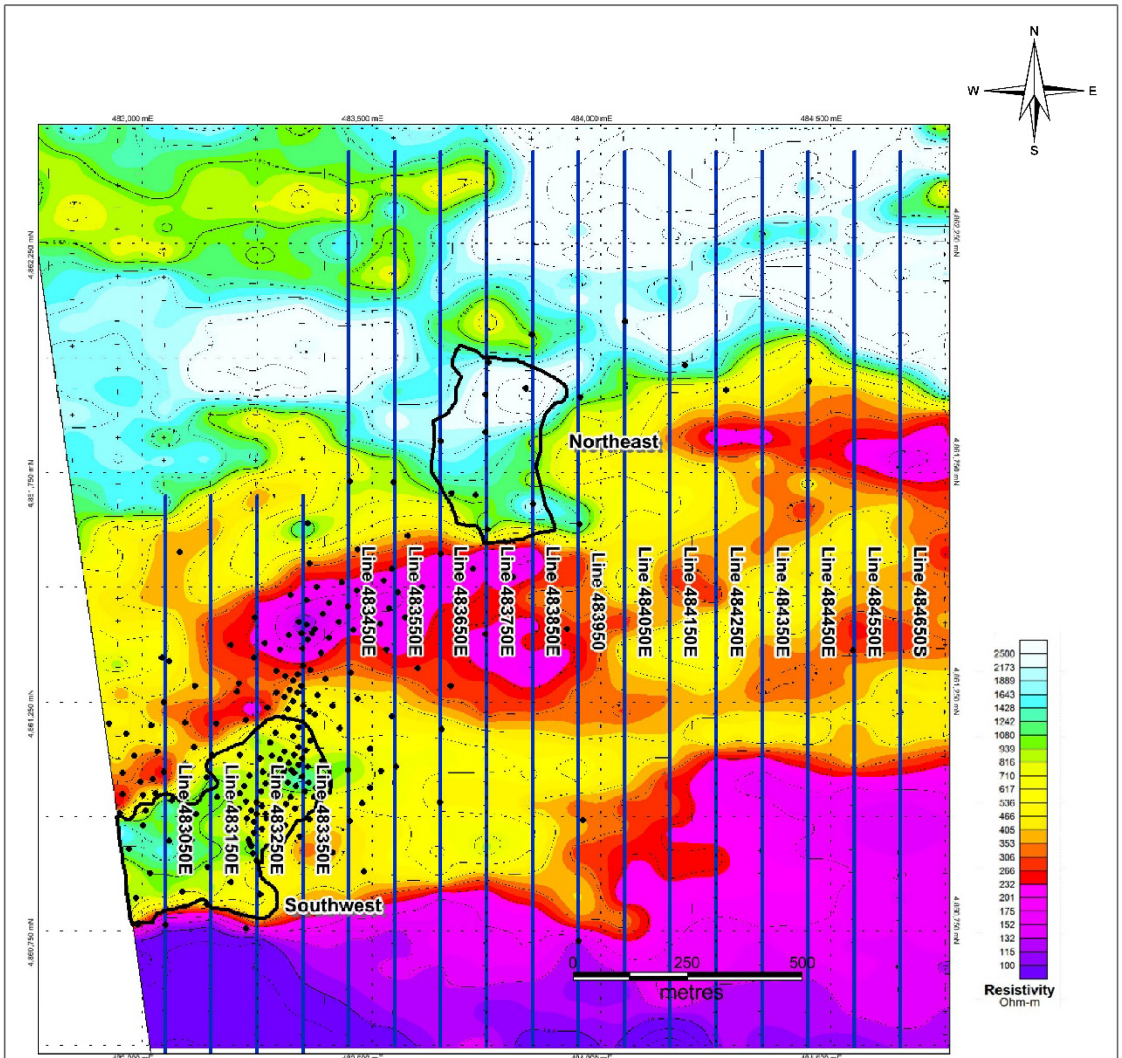
9.1.5.2 Gradient Array Survey

The IP gradient array survey was completed over a 2 km by 2 km area. Survey lines were oriented N-S and spaced at 100 m intervals. Plots of the IP gradient array results for Bayan Khundii are shown in Figure 9-6 (resistivity) and Figure 9-7 (chargeability).

Gradient array induced polarization (IP) data show a correlation between the intense alteration zone at the Southwest and Northeast prospects (outlined on Figure 9-7) and a positive resistivity response that is interpreted as reflecting the intense silicification of host volcanic rocks. The transition from low to high IP resistivity response (red-pink-purple) along the southern margin of the Southwest prospect and between the Southwest and Northeast prospects reflects the mapped Jurassic volcanic and sedimentary units that unconformably overlie the strongly altered (quartz-illite) Devonian pyroclastic units mapped at surface. The high resistivity responses in the northern third of the survey area correspond to an area in and around the Northeast prospect where limited work has been carried out to date and much of this area has little or no outcrop. Additional work will be required to determine the reason for the high resistivity response in this area.

The plot of IP gradient array chargeability data for the Bayan Khundii area indicates a moderate intensity, positive chargeability anomaly (≤ 9 mSec) that corresponds to the Southwest Prospect and has a similar size and orientation as the resistivity data described above. As noted in Section 7.45 Mineralization, there are very few sulphide minerals observed either at surface or in drill core. Specularite has been documented to be a weak charge source for IP chargeability surveys. Specularite commonly accompanies hematite in veins, however, is also present as fine disseminations within altered host rocks and is considered a possible source for the chargeability anomalies. Similarly, clay minerals that are present throughout the alteration zone may also provide a charge source at Bayan Khundii. The moderate chargeability responses over the mineralized and altered rocks in the Southwest Prospect are believed to be related to either specularite or possibly clay minerals. There is a stronger IP chargeability response associated with the Northeast Prospect. This is interpreted to reflective of an increase is sulphide content (pyrite) observed in limited drilling in this area.

Figure 9-6: IP Gradient Array Resistivity plot for the Bayan Khundii Project



NOTES
Base data source: Erdene Resource Development Corp.

STATUS
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BAYAN KHUNDII PROJECT TECHNICAL REPORT

IP Gradient Array Resistivity plot for the Bayan Khundii Area

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	

FILE NO.
VMIN03076-01_Figure9-6.mxd

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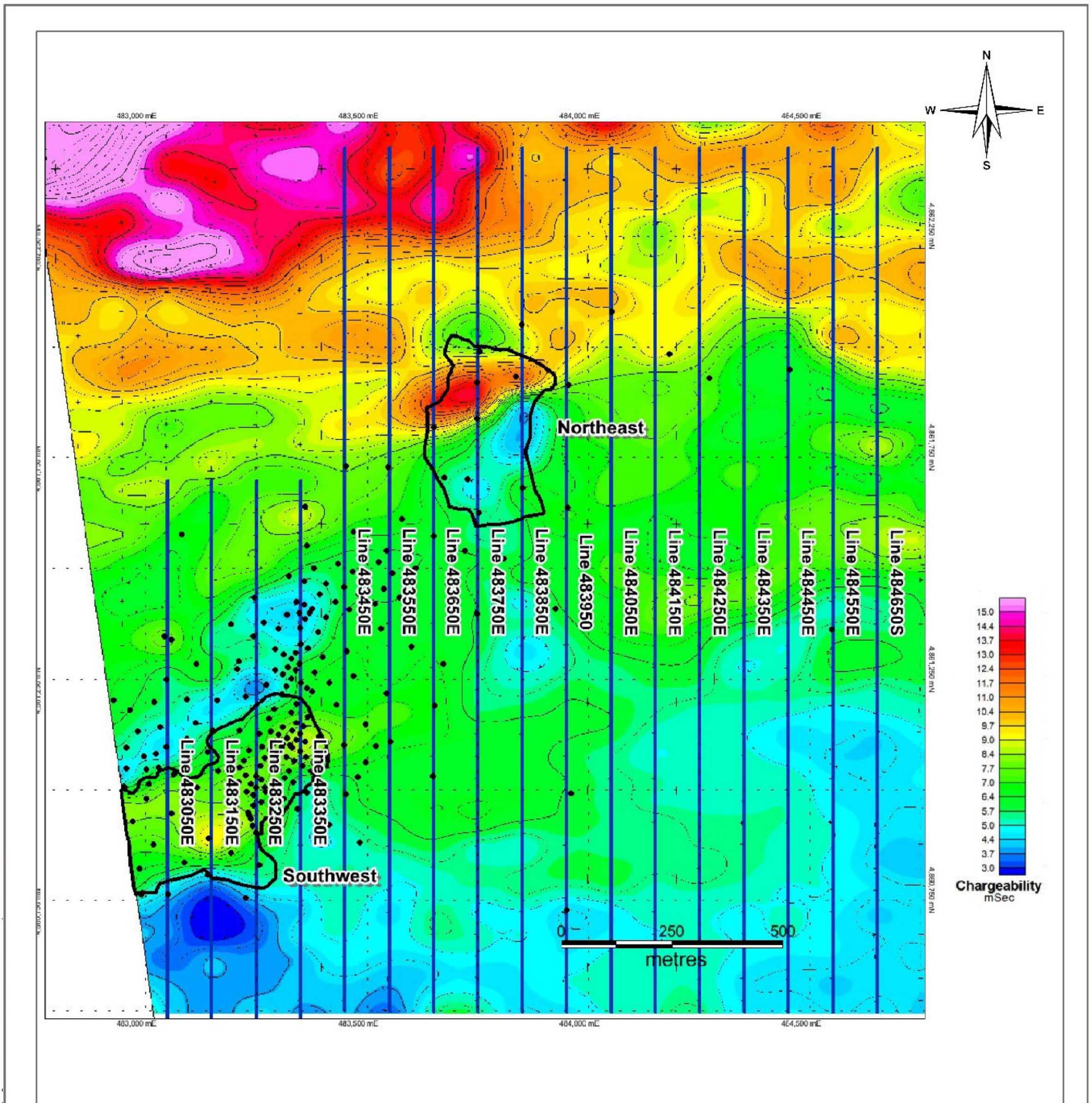
Figure 9-6

Figure 9-7: IP Gradient Array Chargeability Plot for the Bayan Khundii Project



NOTES
Base data source: Erdene Resource Development Corp.

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BAYAN KHUNDII PROJECT TECHNICAL REPORT

IP Gradient Array Chargeability plot for the Bayan Khundii project

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	
FILE NO. VMIN03076-01_Figure9-7.mxd		TETRA TECH

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Figure 9-7

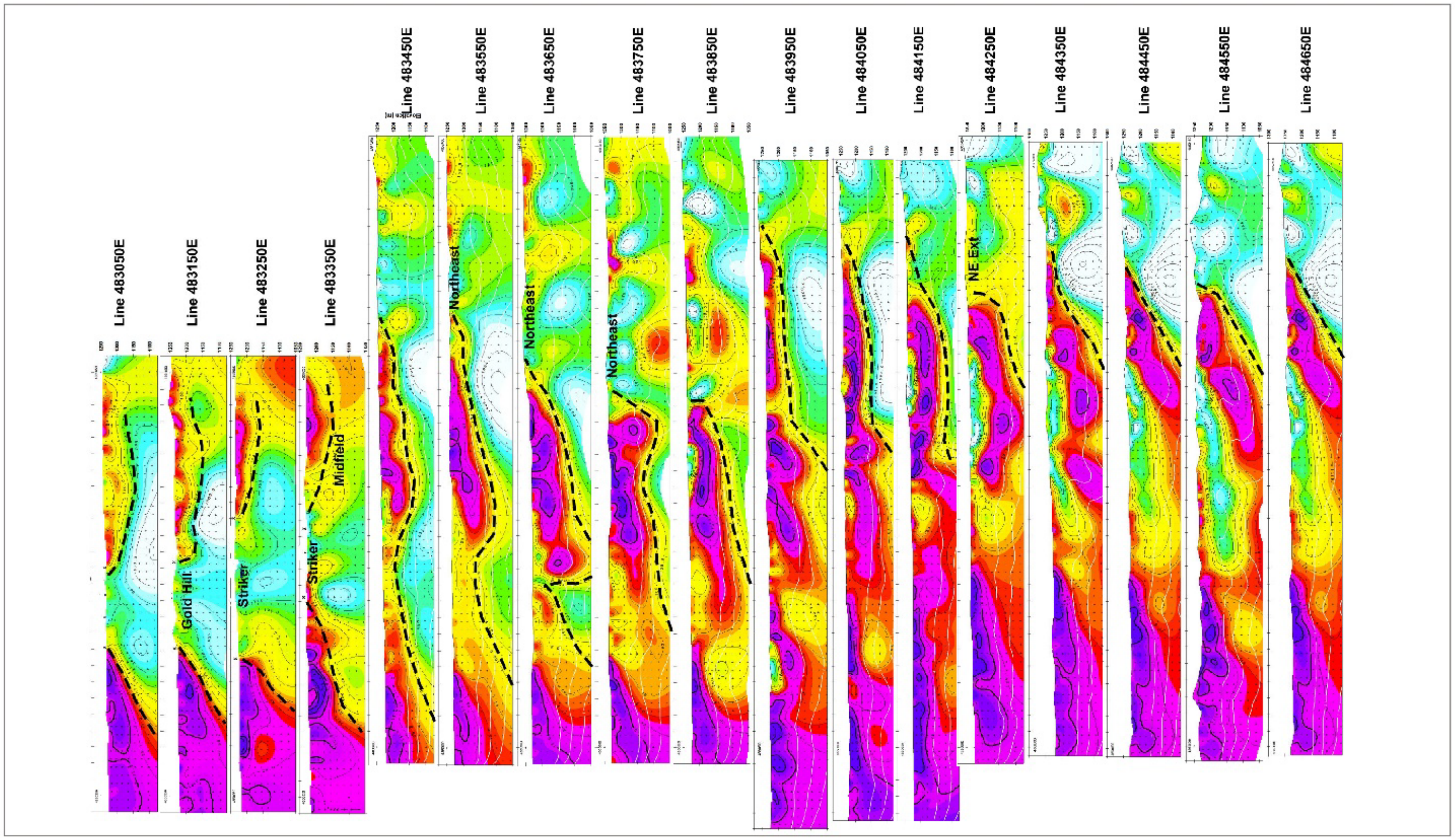
9.1.5.3 Dipole-Dipole Survey

The dipole-dipole survey consisted of a series of 17, north-south oriented lines, spaced 100 m apart, with 50 m spacing of dipoles along the survey lines with a total of 31 line-km surveyed. The location of the IP Dp-Dp survey lines are included on the plan maps of the gradient array IP survey (Figure 9-6 and Figure 9-7). Stacked inverted sections for the 17 IP Dp-Dp survey lines completed over the Bayan Khundii prospect area are provided in Figure 9-8 (resistivity) and Figure 9-9 (chargeability). A dashed black line representing the interpreted unconformity surface between the Jurassic lithologies at surface (poorly resistive) and the quartz-illite altered Devonian tuffs at surface and below the unconformity (highly resistive) has been drawn on each of the Dp-Dp section based on the interpretation of the resistivity signature.

On the south side (south is to the bottom of Figure 9-8 and Figure 9-9) of the southwest prospect (Lines 483050 to 483350) resistivity data show a sharp transition from low resistivity material (red-pink-purple), which is interpreted as Jurassic volcanic (basalt) and sedimentary rocks, to moderate to high resistivity rocks (green-blue white) interpreted as intensely quartz-illite altered Devonian pyroclastic lithologies, that outcrop on surface and host the gold mineralization at Bayan Khundii. These data, together with results from drill holes, confirm the extension of the quartz-illite alteration zone beneath the Jurassic lithologies. The shallow dip of the unconformity, towards the north, beneath the Jurassic rocks, as seen on a number of lines and is similar to the 10o to 25o dips for Jurassic sedimentary strata observed during geological mapping. In some area the unconformity contact appears to be more irregular, likely reflecting undulations in the pre-Jurassic paleo-surface.

As can be seen in Figure 9-9, there is generally a higher chargeability response within the altered Devonian units that outcrop at surface in the Southwest and Northeast prospects and underlie the interpreted unconformity (dashed black line). Several low to moderate positive IP chargeability responses on the dipole-dipole stacked sections generally correlate to the resistivity high response anomalies above. Chargeability high responses, though sometimes small and shallow, generally correlate to the Striker, Gold Hill, and Midfield zones, despite the general lack of sulphide minerals, as noted above. At present, the observed chargeability responses are thought to reflect specularite-rich or clay-rich zones. Chargeability response in the Northeast Prospect is notably higher. This may be a reflection of an increase in sulphide (pyrite) content in this area as noted in limited drilling.

Figure 9-8: Stacked IP Dp-Dp Resistivity Inversion Sections, Bayan Khundii Area, Looking North



LEGEND

- - - - - - Possible location of unconformity surface between altered Devonian lithologies at depth and Jurassic lithologies at surface.

NOTES
Base data source: Erdene Resource Development Corp.

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Stacked IP Dp-Dp Resistivity Inversion Sections, Bayan Khundii Area (Looking North)

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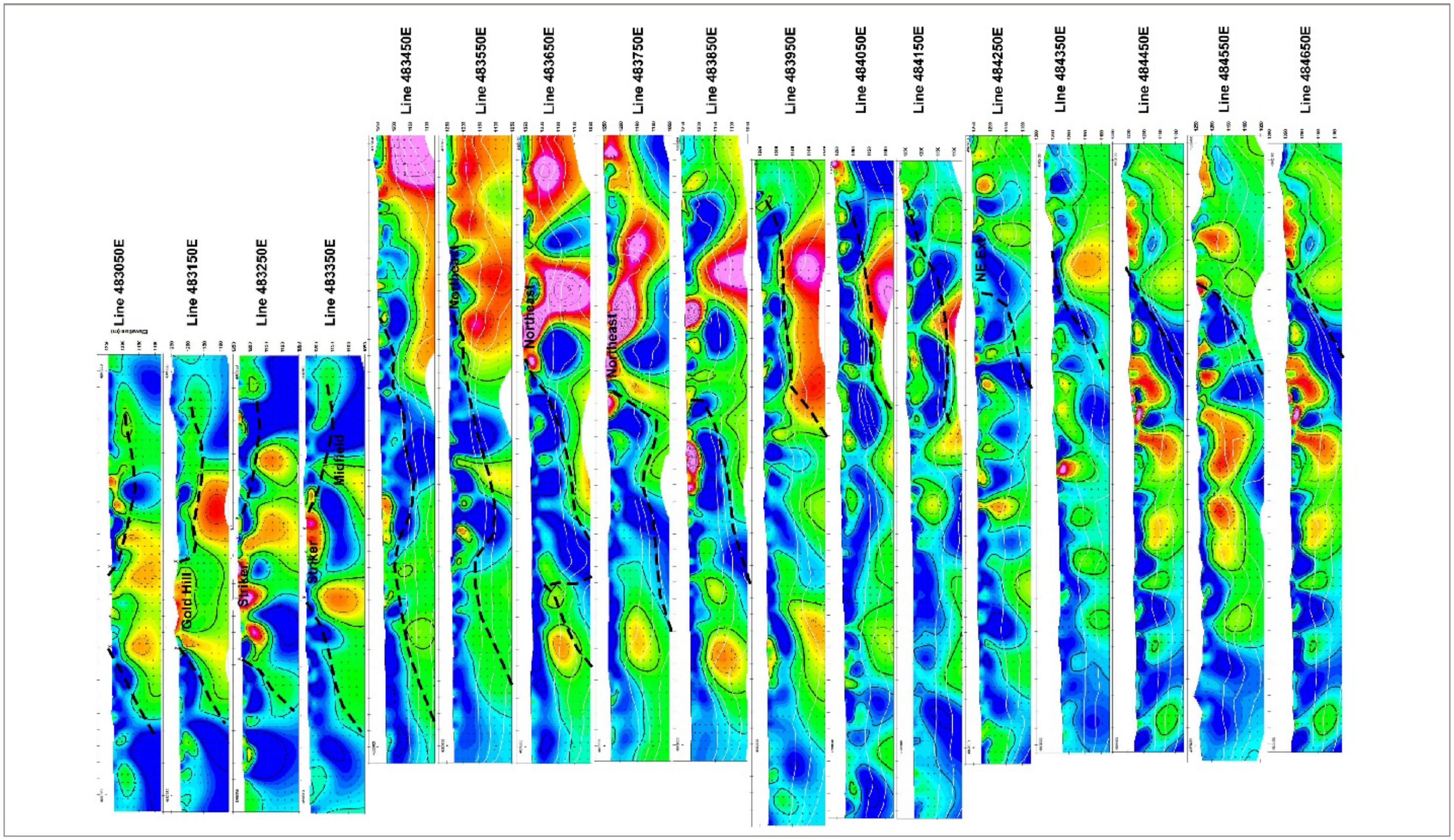
November 14, 2019

PROJECT NO.
ENG.VMIN03076-01

Figure 9-8

Figure 9-9: Stacked IP Dp-Dp Chargeability Inversion Sections Bayan Khundii Area, Looking North



LEGEND

Possible location of unconformity surface between altered Devonian lithologies at depth and Jurassic lithologies at surface.

NOTES
Base data source: Erdene Resource Development Corp.

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PROJECTION | **DATUM**

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VMIN03076-01_Figure9-9.mxd

CLIENT

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BAYAN KHUNDII PROJECT TECHNICAL REPORT

Stacked IP Dp-Dp Chargeability Inversion Sections, Bayan Khundii Area (Looking North)

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DATE
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Figure 9-9

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9.1.6 Trenching Program

In August 2015 and May 2016, Erdene carried out a trenching program across the Southwest and Northeast Bayan Khundii prospects that included a series of 22 trenches, totalling 1,060m and ranging in length from 8 m to 94 m (refer Figure 9-10). The principal objectives of the trenching program were to further define the near-surface mineralization identified through rock chip sampling, improve the understanding of the gold mineralized system and prioritize areas for the planned maiden drilling program.

Trenching was carried out with Falcon Drilling supplying the excavator (Hyundai 290), operator and assistants. Trench locations were selected by Erdene's exploration team, oriented normal to the projected trend of mineralization. Trenches were excavated to a depth of between <1 and 2 m. Trench samples were collected at 1 m or 2 m intervals, as determined by the senior project geologist, based on the lithology and mineralization. Samples were chipped from the base of the trench walls and care was taken to ensure each sample was representative of the entire interval being sampled. Representative hand samples for each interval were also collected for reference.

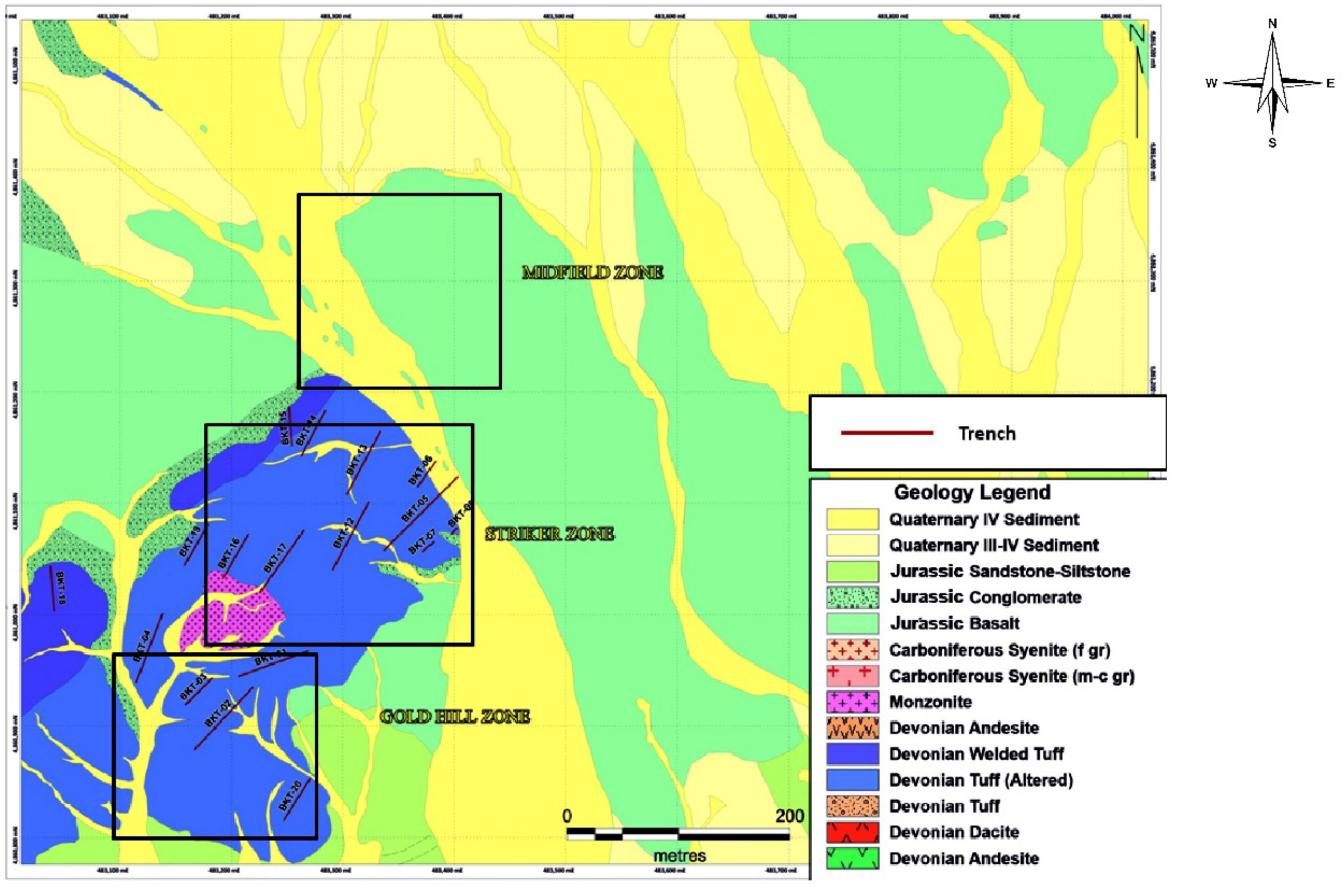
All trench samples were organized into batches of 20 and included a commercially prepared certified reference standard and an analytical blank. Each batch was stored in the field camp in sealed bags. Sample batches were periodically shipped directly to SGS in Ulaanbaatar via Erdene's logistical contractor, Monrud Co. Ltd.

All trench samples are analyzed for gold (fire assay) and a suite of 32 elements using 4 acid digestions with ICP-OES finish (SGS analytical code ICP40B). For details of analytical protocols and detection limits please refer to "Section 11 – Sample Preparation, Analysis and Security".

Most of the trenches were dug on surface exposure areas of Devonian pyroclastic volcanic rocks and the program was successful in demonstrating wide zones of lower grade gold mineralization in the wall rock and confirming the intensity of mineralization in narrow, high-grade veins, as well as demonstrating continuity over a wide area. For example, trench BKT-17, returned 37 m of 2.12 g/t Au and included a 7 m interval of 8.68 g/t Au.

As a result, the extent of alteration and mineralization observed in the trenches commonly exceeded that indicated by surface expression. A combination of mapping, rock geochemical survey and trenching has proven to be successful in guiding exploration in areas of exposed Devonian pyroclastic volcanic rocks.

Figure 9-10: Trench Location Map and Interpreted Mineralization Wireframes



NOTES
Base data source: Erdene Resource Development Corp.

STATUS
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PROJECTION
UTM Zone 47N

DATUM
WGS84

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Trench Location Map and Geology

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Figure 9-10

9.2 Altan Nar

A summary of the activity, including methodologies and results, for the exploration work carried out between March 2010 and February 2018 on the Altan Nar Area is outlined below.

9.2.1 Geological Mapping

Erdene has carried out progressively more detailed and extensive geological mapping on the Tsenkher Nomin exploration license since discovery of the historic workings and associated mineralization at Nomin Tal in the eastern portion of the license in 2010. This work has been principally carried out by Erdene geologists over an area of approximately 50 km^2.

9.2.2 Soil Geochemical Survey

All soil surveys were supervised and carried out by Erdene's field geologists in 2011, 2012 and 2014. Because the Project is located within the Gobi region and therefore virtually devoid of organic materials, no A (depleted), or B (enriched) soil horizons exist. Soil samples in the regions therefore consist, for the most part, of residual weathered bedrock along with Aeolian sediments. Samples were taken from shallow hand-dug pits (average depth 25 cm) to minimize Aeolian contamination. Samples were dry sieved in the field with the -2 mm size fraction bagged and sent for analysis. See "Section 11.0 – Sample Preparation, Analyses, and Security" for more details. All sample locations were determined by hand-held GPS devices with a location accuracy of approximately 3 m.

Analysis of samples was carried out at SGS Laboratories in Ulaanbaatar. All samples from 2011 were assayed for gold, silver, copper, lead, zinc, arsenic and molybdenum. Samples from 2012 were assayed for gold and a suite of 45 elements (SGS Code ICP40B). Samples from 2014 were analyzed for gold and a suite of 33 elements (SGS Code ICP40B-2014). See "Section 11.0 - Sample Preparation, Analyses and Security" for more details.

In 2011, soil sampling was carried out initially on a 400 m square grid with subsequent infill sampling carried out at 200 m and 100 m spacing along similarly spaced lines (i.e. square grid pattern). The initial 2011 soil sampling program identified a wide zone (2 km by 3 km) of anomalous base-metal-in-soil (lead and zinc) mineralization with coincident gold-in-soil mineralization (Altan Nar Area).

In 2012, an approximately 9 sq.km area was selected for detailed soil sampling with samples taken at 25 m intervals along 100 m spaced E-W lines. Sample analysis included Au and 45 additional elements, including copper, lead, zinc, arsenic, molybdenum and manganese. All these elements have anomalous signatures coincident with zones of known epithermal mineralization identified through surface mapping and drilling. Maps showing the results for gold, arsenic, lead, zinc, copper, molybdenum and manganese from the 2011-2012 soil geochemical survey over Altan Nar are included as Figure 9-11 – A through G. The geochemical signature shown on the Altan Nar soil geochemistry maps clearly show an extensive zone of base metal mineralization across the large (~ 1.5 km by 5 km) area of Altan Nar. A significant portion is also covered by coincident gold-manganese-arsenic (and to a lesser extent molybdenum) anomalies. These results reflect the types of mineralization intersected in drilling.

In Q2 2014, samples were collected at 12.5 m intervals along 50 m spaced infill lines over select prospect areas at Altan Nar. The objective of this detailed soil program was to provide greater definition of gold, base-metal and associated alteration-element soil anomalies.

The soil sampling program on the Tsenkher Nomin license has proven to be an effective exploration tool and has resulted in the location of several mineralized zones. There is also a correlation between IP gradient array chargeability highs and geochemical anomalies. Geochemical, geophysical and geological data sets have been used to identify many drill and trenching targets, many of which remain untested by drilling.

9.2.3 Rock Geochemical Survey

Rock-chip (outcrop) and rock-grab (float) samples were collected from across the Tsenkher Nomin license as part of the geological mapping and prospecting programs that have been carried out intermittently as work on the property and various prospects has advanced. No grid-based rock sampling programs have been carried out to date although detailed geological mapping has been completed. Results from all rock samples taken from 2009 to 2014 are included herein.

All rock sample locations were determined by hand-held GPS units with approximate 3 m location accuracy. All samples were sent to SGS Laboratory in Ulaanbaatar for analysis. All samples were assayed for gold, silver, copper, lead, zinc, arsenic and molybdenum. See “Section 11.0 - Sample Preparation, Analyses and Security” for more details.

Graduated bubble plots of each of gold, silver, copper, lead, zinc, arsenic and molybdenum are presented in Figure 9-12. These plots indicate the rock data is similar to soil geochemistry, that is, the mineralization associated with each of the three projects identified to date, Nomin Tal, Altan Nar and Oyut Khundii each have unique geochemical signatures. For example, Nomin Tal has high copper-silver-gold values while Altan Nar has high gold-silver-lead-zinc (±arsenic and molybdenum) but low copper and Oyut Khundii has high copper and arsenic values. These differences are likely related to either different mineralization styles, or perhaps different modes of emplacement of the mineralization, and may represent metal zonation within a large overall mineralized system.

Figure 9-11: 2011 and 2012 Soil Geochemistry – Altan Nar

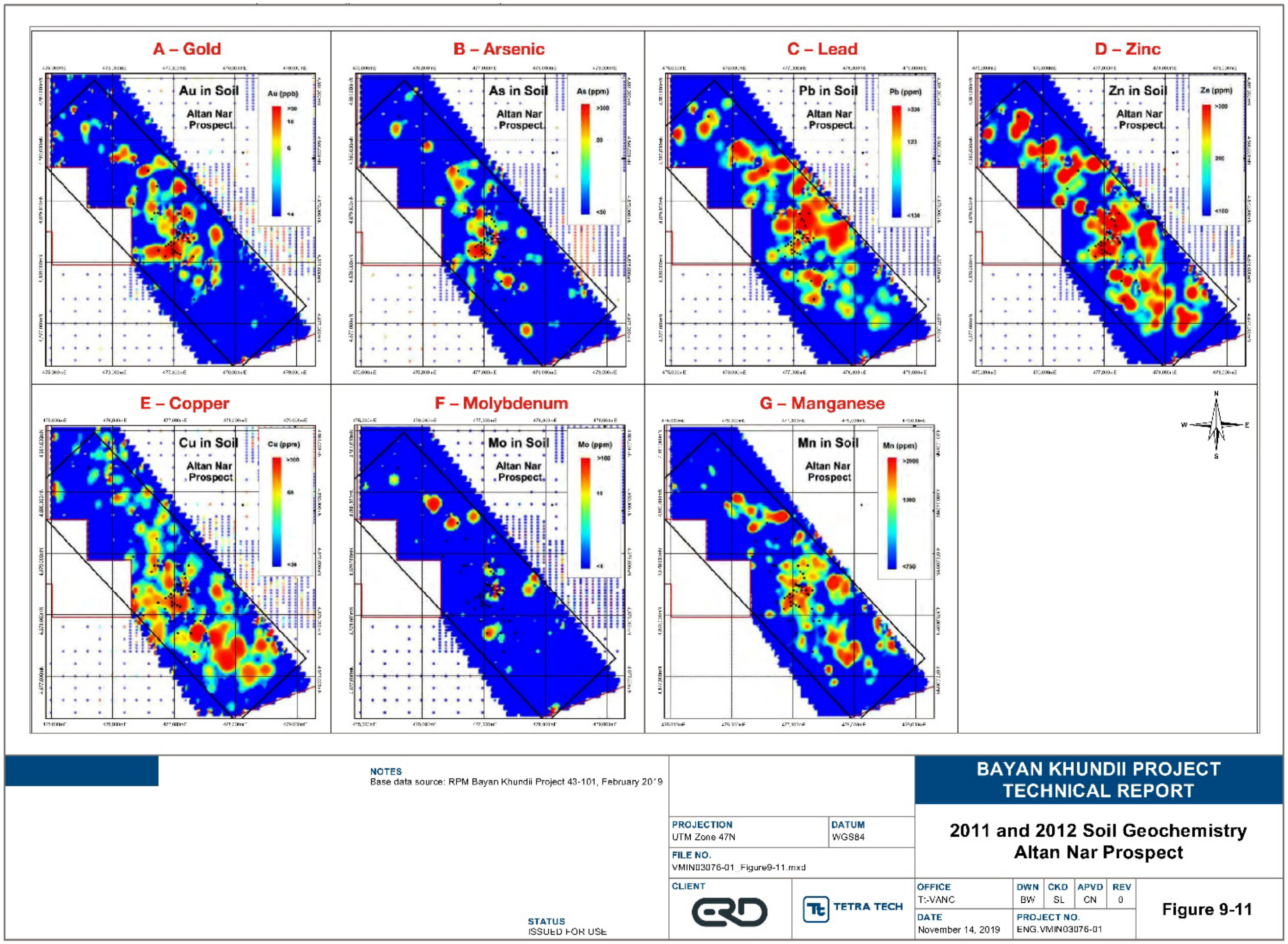
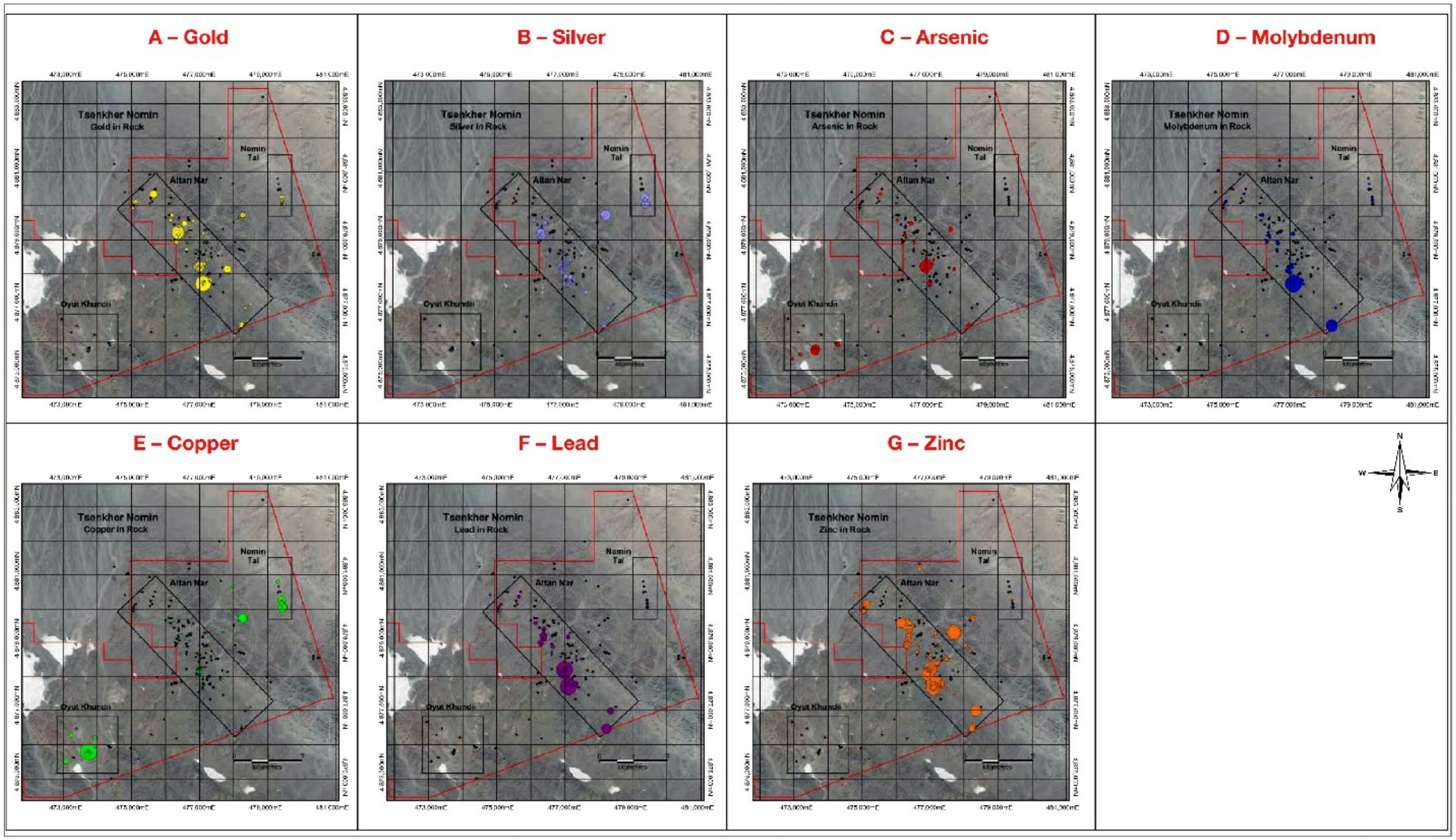


Figure 9-12: Rock Geochemistry



LEGEND

◆ Rock sample location

Au in Rock (ppb)	Ag in Rock (ppm)	Cu in Rock (ppm)	Pb in Rock (ppm)	Zn in Rock (ppm)	Mo in Rock (ppm)	As in Rock (ppm)
20,000	100	50,000	50,000	15,000	1,000	5,000
10,000	50	25,000	25,000	7,500	500	2,500
2,000	10	5,000	5,000	1,500	100	500

NOTES
Base data source: RPM Bayan Khundii Project 43-101, February 2019

STATUS
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Rock Geochemistry

PROJECTION	DATUM
UTM Zone 47N	WGS84

FILE NO.
VMIN03076-01_Figure9-12.mxd

CLIENT

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DATE	PROJECT NO.
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Figure 9-12

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9.2.4 Geophysical Surveys

9.2.4.1 Magnetic Survey

A regional magnetic survey (100 m line spacing) was completed over a 41 km^2 area covering most of the Tsenkher Nomin exploration license (2010-2012). In addition, two areas have been surveyed in more detail, i.e. closer line spacing. Nomin Tal (1.4 km^2 area) and Altan Nar (14.5 km^2 area) prospects was surveyed at 25 m line spacing in 2011. In Q2 2017, the high-resolution ground magnetic survey was carried out over Altan Nar area, using 10 m line spacing, with a total of 1,000 survey line kilometres. All of the magnetic surveys have been conducted by Erdenyn Erel LLC, a Mongolian geophysical consulting firm based in Ulaanbaatar. All data was processed by Chet Lide of Zonge Geosciences Inc. of Sparks NV, USA. Mr. Lide compiled all magnetic datasets and produced a series of magnetic map products for each of the surveys, including: 1) Total Magnetic Field; 2) Calculated First Vertical Derivative; 3) Total Field, Reduced to Magnetic North Pole (RTP); 4) Analytical Signal of the Total Magnetic Field. For the regional scale magnetic survey Mr. Lide also produced maps for; 5) Pseudo-Gravity of Total Magnetic Field; and 6) Pseudo-Gravity Horizontal Gradient Magnitude. Figure 9-13 shows the RTP magnetic survey results for the Tsenkher Nomin license and shows the location of the various survey outlined above.

The results of the regional magnetic survey show distinct magnetic signatures for the main lithological units within the Tsenkher Nomin license area. The large granite pluton on the eastern edge of the license area has a low magnetic signature and shows the sharp, steeply dipping potential fault contact with the higher magnetic response Sequence A volcanic unit to the west. The central portion of the magnetic survey area (Altan Nar) is underlain by Sequence B which have a magnetic response that is generally lower than for Sequence A and lacks linear orientations, which supports the shallow-dip (i.e. 20-30o) interpretation for these rocks. The western portion of the magnetic survey is underlain by trachy-andesite, pervasive white mica altered rhyolite and sub-volcanic rhyodacite. The magnetic high located just north of the Oyut Khundii project may represent a buried intrusive and the magnetic signatures of the lithologies to the north of this feature appear to wrap-around the central magnetic high.

The 25 m detailed magnetic survey carried out over the Altan Nar and Nomin Tal projects has been helpful in identifying possible structural features and lithologic contacts and has been incorporated into the dataset used to interpret and extrapolate the results from the drilling program. There appears to be a correlation between magnetic low features and zones of epithermal mineralization, which is supported by petrographic studies which show evidence of widespread magnetite destruction (‘martitization’) in the host lithologies. This feature is thought to reflect widespread epithermal fluid alteration; however, this relationship needs to be investigated further.

The 2017 high-resolution ground magnetic survey successfully outlined the known mineralized zones and associated white-mica alteration zones (magnetic lows) in much greater detail than previously available. For example, areas which were previously defined as containing broad magnetic low features were shown to contain multiple linear zones with low magnetic response, which reflect structurally-controlled zones of white mica alteration where primary magnetite in the host andesite rocks was altered (‘martitized’), with intervening high magnetic zones of weakly to unaltered andesite. The increased detail in the high-resolution magnetic survey has been and will continue to be used, in conjunction with soil and rock chip geochemistry and IP chargeability data, to defined drill targets.

9.2.4.2 Induced Polarization (IP) Surveys

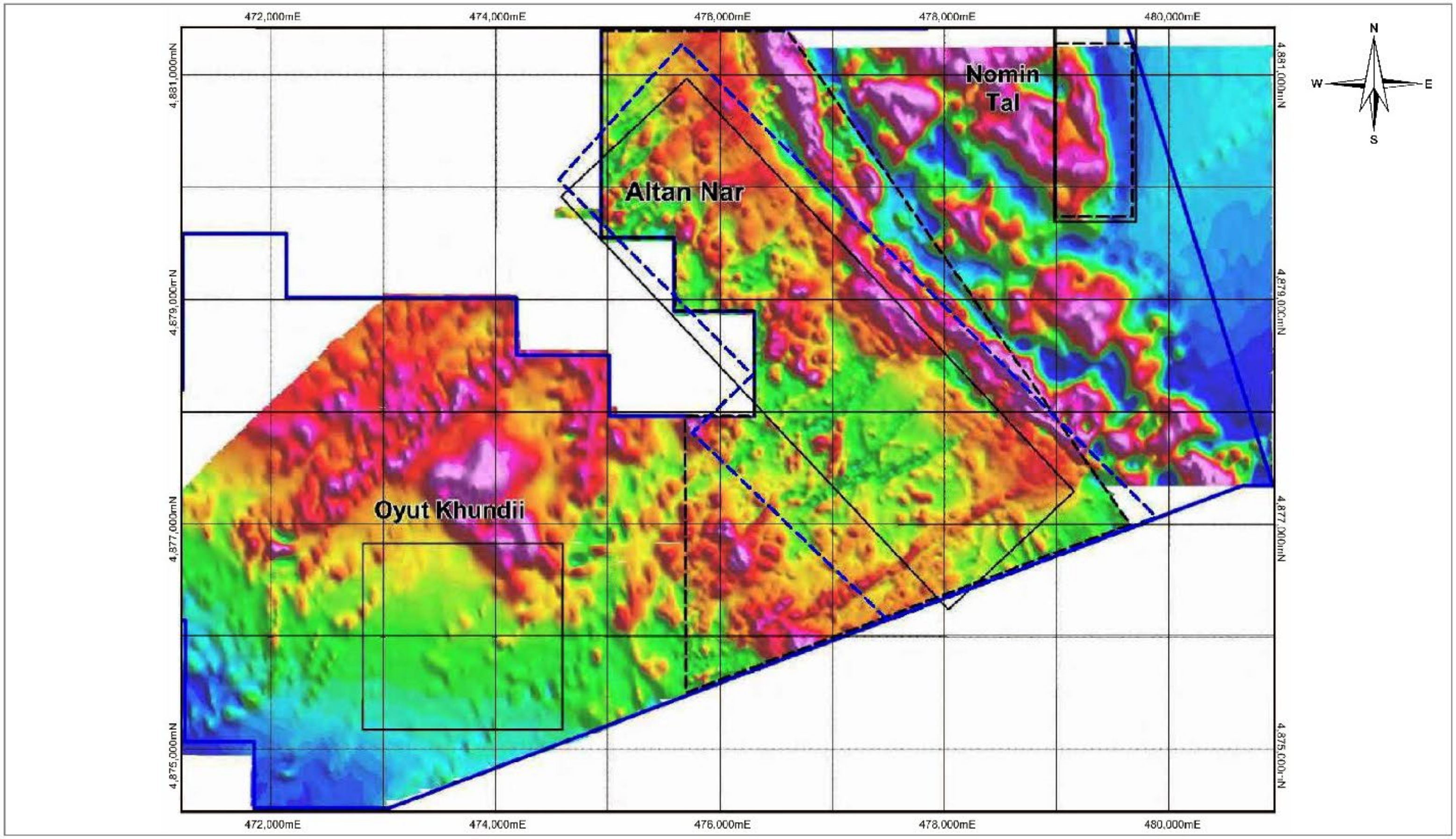
To date, both IP dipole-dipole (“Dp-Dp”) and IP gradient array surveys have been completed on the Tsenkher Nomin property over, and in the vicinity of, the Nomin Tal and Altan Nar areas. All IP surveys were carried out by Erdenyn Erel LLC, a Mongolian geophysical contractor based in Ulaanbaatar, under the direction of geophysicist Chet Lide of Zonge Geosciences Inc. of Sparks NV, USA, who also completed the post-acquisition data processing, quality control and interpretation.

9.2.4.3 Dipole-Dipole Surveys

A series of 31, east-west oriented, IP Dp-Dp line, spaced from 100 m to 400 m apart, have been completed with a 50m dipole spacing for a total of 55 line-km. These lines were run at four different times, October 2010, August 2011, October 2011 and April 2014. In addition, in Q2 2017 a six-line induced polarization (IP) dipole-dipole survey was completed with 150-metre dipole spacing. The survey lines were oriented at 135 degrees and were centred over the DZ, and were 2,850 metre in length, for a total of 17.1 line-km. The objective of the IP surveys was to identify any significant chargeability anomalies that could represent sulphide mineralization. Figure 9-13 and Figure 9-14 shows the location, spacing and extent of the various IP Dp-Dp surveys carried out to so far.

High chargeability anomalism has been an important guide, in conjunction with rock and soil geochemical anomalies and magnetic data to identify drill targets. The 2011 IP gradient-array survey (see below) identified a series of high chargeability anomalies, up to 190 m wide that are interpreted as representing broad zones of sulphide mineralization. The IP Dp-Dp survey results show the presence of multiple, locally intense, chargeability high anomalies, extending from near-surface to depth, often continuing below the IP survey detection limit of approximately 150 m.

Figure 9-13: Magnetic Survey Coverage, Tsenkher Nomin Licence (showing RTP)



LEGEND
Licence Boundary
Area of 25m Coverage
Outline of 10m spaced Magnetic Survey Line Orientation SE-NW

NOTES
Base data source: Erdene Resource Development Corp.

STATUS
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PROJECTION: UTM Zone 47N
DATUM: WGS84
FILE NO.: VMIN03076-01_Figure9-13.mxd
CLIENT: ERD
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Magnetic Survey Coverage
Tsenkher Nomin Licence (showing RTP)

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PROJECT NO.: ENG.VMIN03076-01

Figure 9-13

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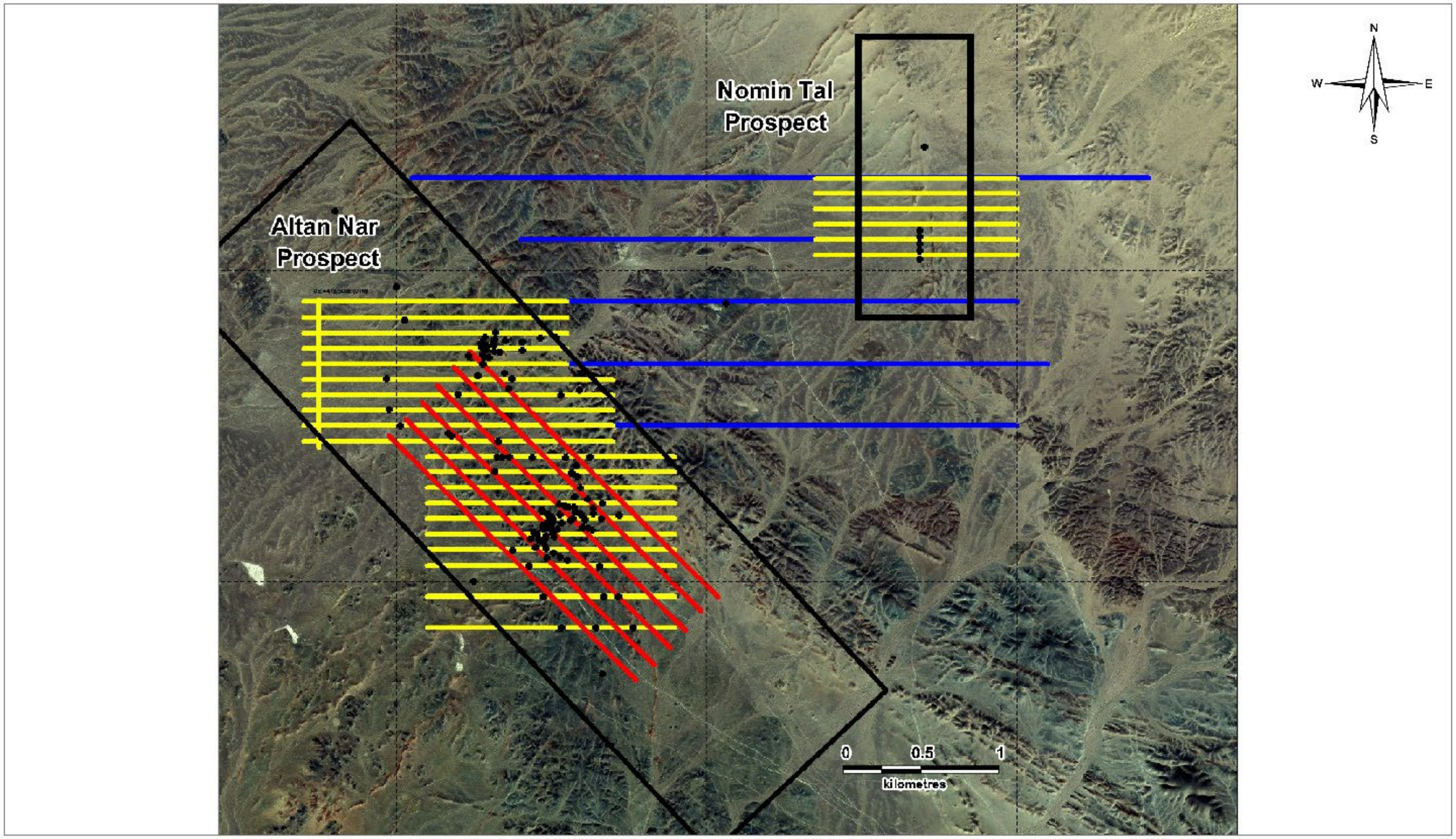
Figure 9-14: IP Dipole-Dipole (2010, 2011-14 & 2017) Coverage, Tsenkher Nomin License



LEGEND

- TND Drill Collar
- IP Dipole-Dipole Survey 2010
- IP Dipole-Dipole Survey 2011-2014
- IP Dipole-Dipole Survey 2017

NOTES
Base data source: Erdene Resource Development Corp.

STATUS
ISSUED FOR USE

PROJECTION: UTM Zone 47N
DATUM: WGS84
FILE NO.: VMIN03076-01_Figure9-14.mxd
CLIENT

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BAYAN KHUNDII PROJECT TECHNICAL REPORT

IP Dipole-Dipole Coverage (2010, 2011-2014 & 2017) Tsenkher Nomin Licence

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DATE: November 21, 2019
PROJECT NO.: ENG.VMIN03076-01

Figure 9-14

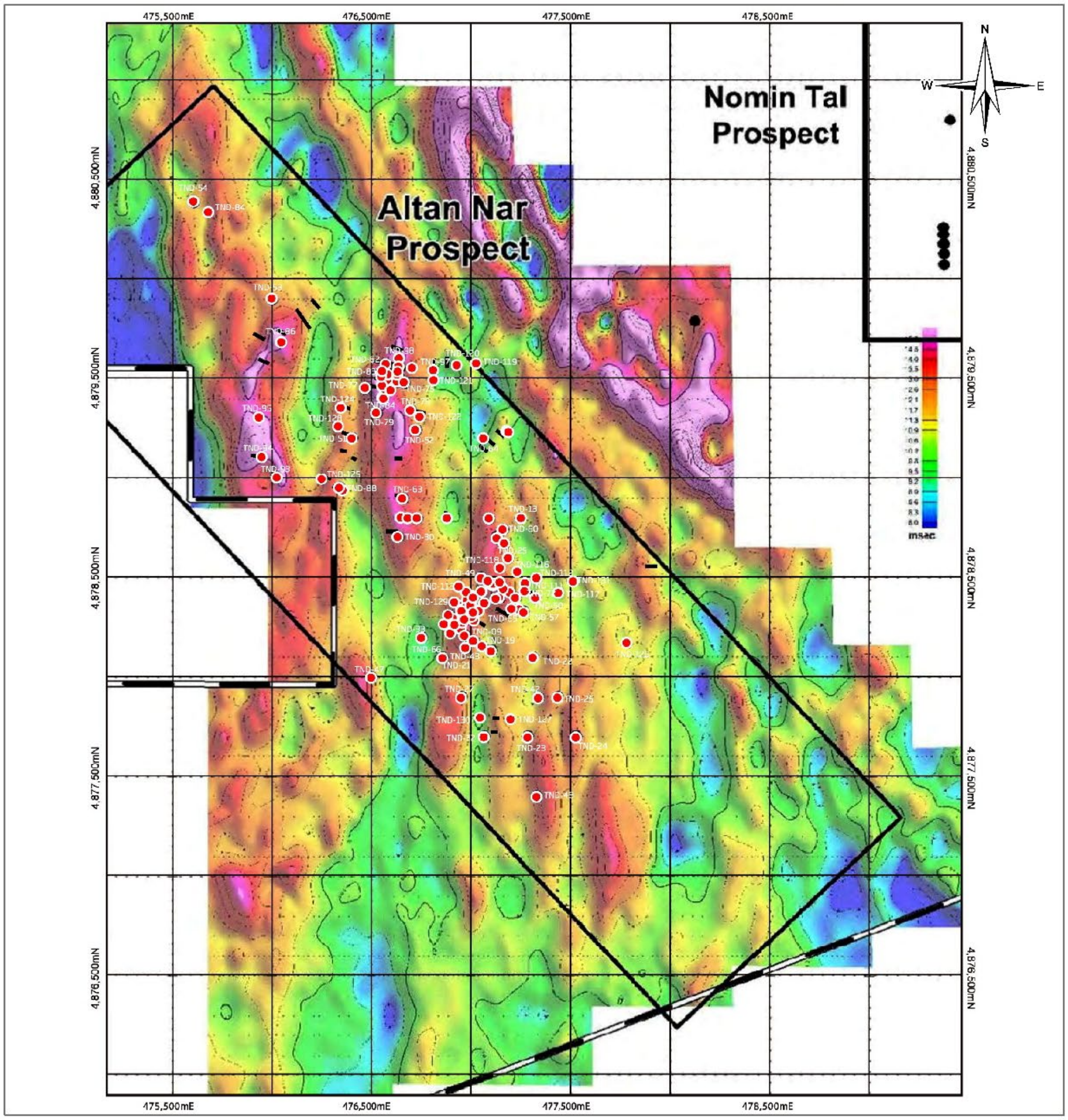
The 2017 IP survey used 150-metre dipole spacing and therefore provided data to approximately 450 m depth (i.e. 3 x dipole spacing) which was considerably deeper than the 150 m depth for data from previous surveys which used a 50 m dipole spacing. The purpose of this survey was to provide information for possible zones of disseminated sulphide at depths greater than 150 m. This survey clearly defined a major structural/lithological break at the Discovery Zone where tuffaceous rocks to the south of the DZ have a much higher IP resistivity response than the andesite flows north of the DZ. A broad zone (1-2 km wide) of moderate coincident IP chargeability and high IP resistivity response is evident in the southern part of the survey, to the southeast of the DZ. In addition, several smaller (100-200 m wide) coincident IP resistivity and chargeability anomalies were noted in the north-western part of the survey near the Southbow target and between the Riverside and Union South target areas. Several of these anomalies remain untested by drilling.

9.2.4.4 Gradient Array Survey

In addition to the IP Dp-Dp surveys, an IP gradient array survey was completed in 2011 over both the Nomin Tal and Altan Nar prospects for a total coverage area of 6.83 km^2. In 2012, the gradient array survey at Altan Nar was expanded, for a total area of coverage at Altan Nar of 16 km^2. Line spacing for the gradient array surveys was 100m. The results of the IP gradient array survey for Altan Nar are shown in Figure 9-15 (chargeability) and Figure 9-16 (resistivity).

The IP gradient-array survey corresponds to an area of anomalous soil geochemistry at Altan Nar. Results from the IP gradient-array survey identified a series of high chargeability anomalies, up to 190 m wide that are interpreted as representing broad zones of sulphide mineralization. The morphology of these IP anomalies, coupled with the geometry of the lineaments evident on satellite imagery, suggests the sulphide mineralization may intensify within dilation zones along a NNW trending dextral fault system over a distance of approximately 5 km. A review of drill and trenching data to date shows a strong, positive correlation between mineralized intersections and IP gradient array chargeability highs.

Figure 9-15: IP Gradient Array Chargeability (2011-2012) with Drill Hole Locations



LEGEND

- Drill Hole
- Trench Lines

NOTES
Base data source: RPM Bayan Khundii Project 43-101, February 2019

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IP Gradient Array Chargeability (2011-2012) with Drill Hole Locations

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	

FILE NO.
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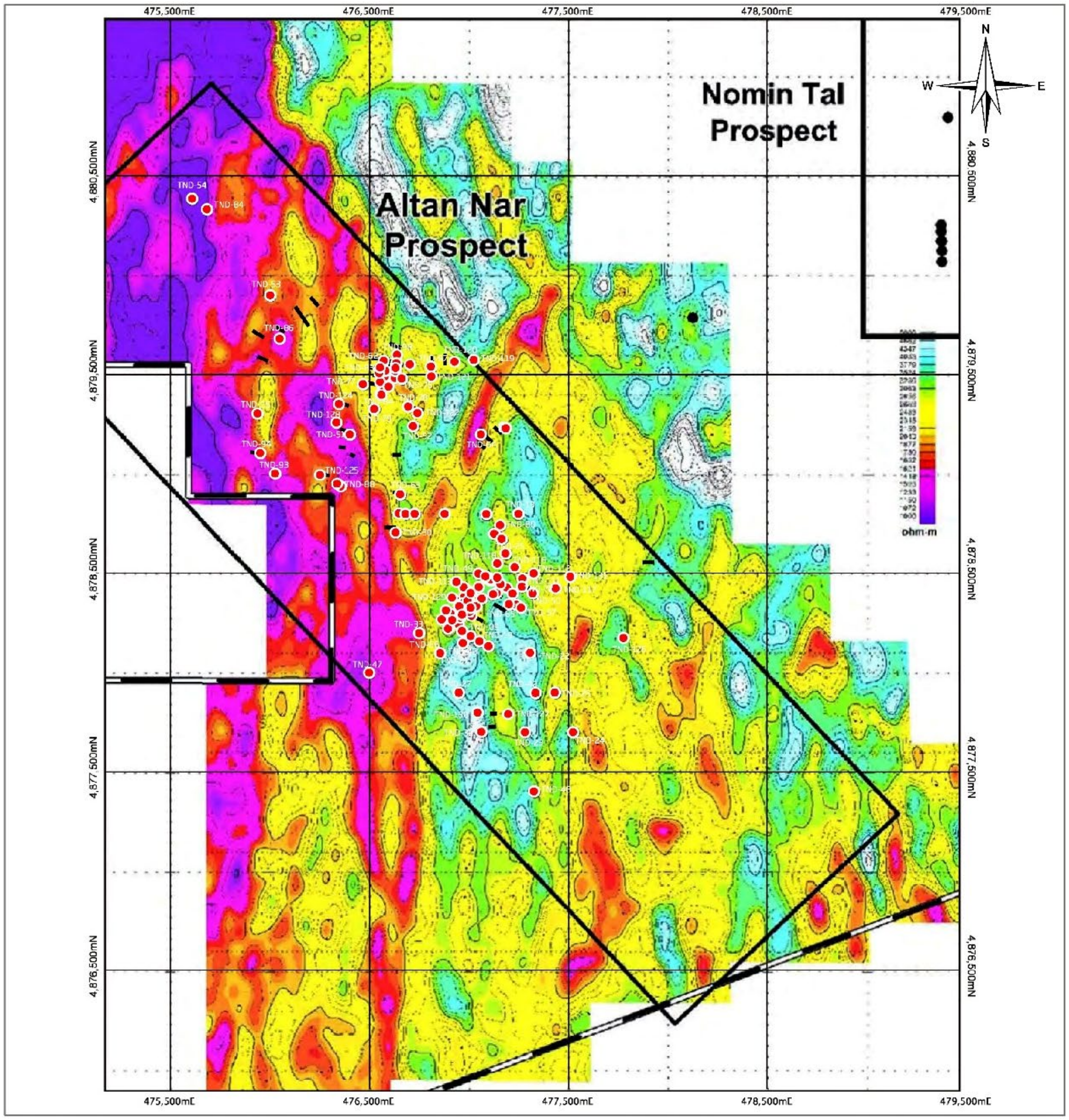
Figure 9-15

Figure 9-16: P Gradient Array Resistivity (2011-2012) with Drill Hole Locations



LEGEND

- Drill Hole
- Trench Lines

NOTES

Base data source: RPM Bayan Khundii Project 43-101, February 2019

BAYAN KHUNDII PROJECT TECHNICAL REPORT

IP Gradient Array Resistivity (2011-2012) with Drill Hole Locations

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	

FILE NO.
VMIN03076-01_Figure9-16.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BW	SL	CN	0

DATE
November 14, 2019

PROJECT NO.
ENG.VMIN03076-01

STATUS
ISSUED FOR USE

TETRA TECH

Figure 9-16

TETRA TECH

9.2.4.5 Trenching Program

Erdene has carried out a series of trenching programs across the Altan Nar Area (October 2013, September 2014, and August 2015) that included 42 trenches, totalling 3,151 m and ranging in length from 14 m to 202 m. The principal objectives of the trenching programs were to further define the near-surface mineralization identified to date, improve the understanding of the gold mineralized system and prioritize areas for the next phase of delineation drilling (refer Figure 9-17).

Trenching was carried using an excavator (Hyundai 290) supplied and operated by Falcon Drilling. Trench locations were selected by Erdene's exploration team, oriented normal to the projected trend of mineralization. Trenches were excavated to a depth of between 1 and 3 m. Trench samples were collected at 1 m or 2 m intervals, as determined by the senior project geologist, based on the lithology and mineralization. Samples were chipped from the bottom of the trenches and care was taken to ensure each sample was representative of the entire interval being sampled. Representative hand samples for each interval were also collected for reference.

All trench samples were organized into batches of 30 and included a commercially prepared certified reference standard and an analytical blank. Each batch was stored in the field camp in sealed bags. Sample batches were periodically shipped directly to SGS in Ulaanbaatar via Erdene's logistical contractor, Monrud Co. Ltd.

All trench samples from 2013 and select samples from 2014 and 2015 were analysed for gold (fire assay) and a multi-element suite (45 elements in 2013, 33 elements in 2014 and 2015) using 4 acid digestions with ICP-OES finish (SGS analytical code ICP40B). For details of analytical protocols and detection limits please refer to "Section 11 – Sample Preparation, Analysis and Security".

The trenching programs include six trenches within the DZ and six trenches at Union North. Also, an additional 30 trenches were excavated to test eleven targets across a 5.6 km length of the Altan Nar Area (refer Figure 9-17).

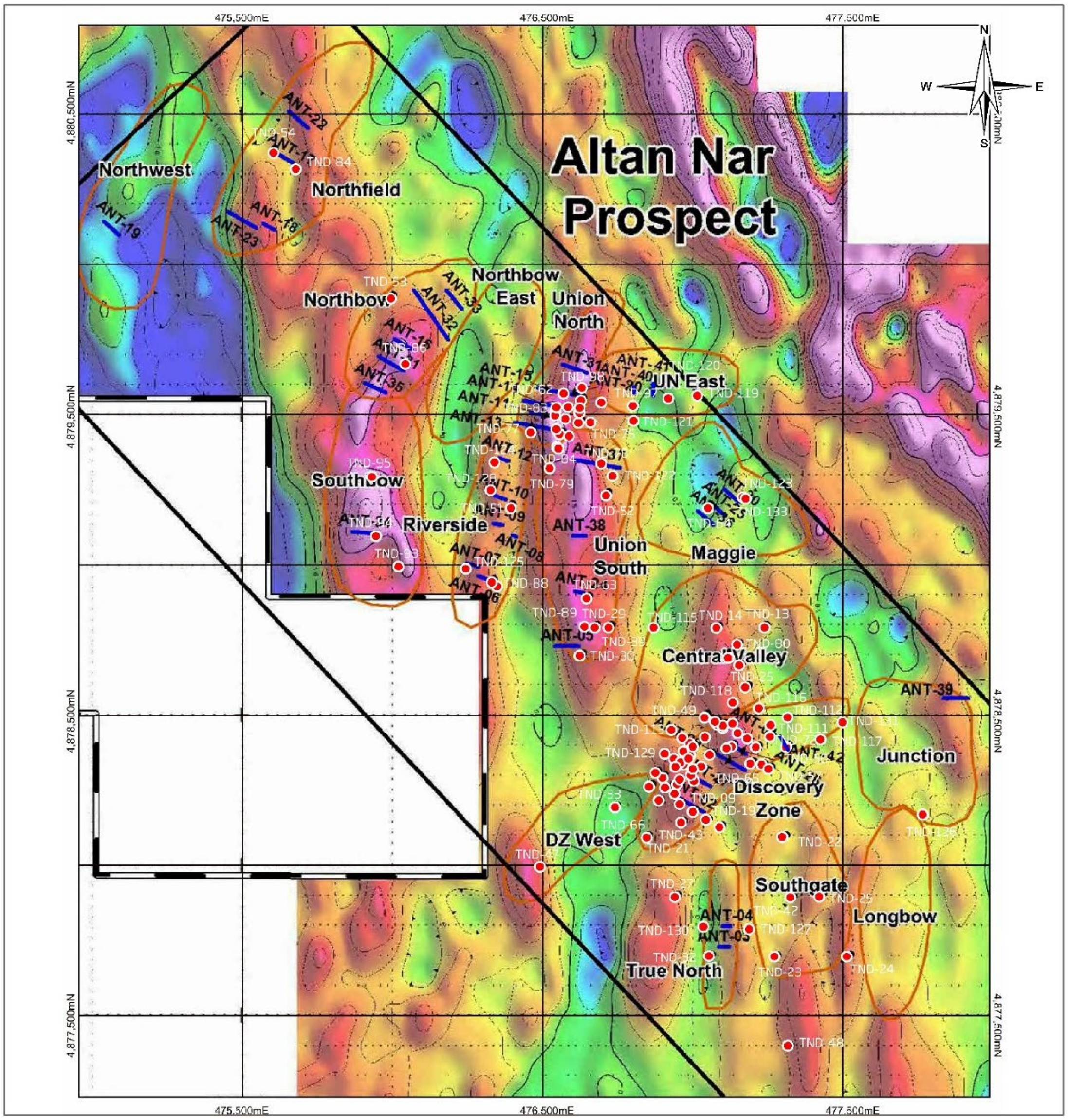
Outside the DZ and Union North, twelve of the prospects have been tested by scout drill holes, so far, and have intersected anomalous gold-silver-polymetallic mineralization (Northfield, Northbow, Southbow, Riverside, Union South, Union East, Maggie, Central Valley, DZ west, True North, Southgate and Junction). Resource modelling has been completed on nine of these prospects. The remaining eight target areas have had very limited or no scout drilling but have coincident geochemical anomalies (soil and/or rock) and geophysical anomalies (IP gradient chargeability highs and/or magnetic lows).

The trenching program met the planned objectives, to further define the near-surface mineralization identified to date, improve the understanding of the gold mineralized system and prioritize new areas for the next phase of exploration.

The surface expression of the Altan Nar area is one of low relief with thin Quaternary cover over much of the area, interspersed with low rolling hills. The intense weathering of the altered, sulphide-rich, stockwork breccia zones leaves little surface expression of the targets and little indication of their size other than remnant quartz rubble. As a result, the extent of alteration and mineralization observed in the trenches commonly exceeded that indicated by surface expression. A combination of mapping, geochemical and geophysical surveys has been successful in guiding exploration to date; however, results from the trenching program would suggest that even the subtlest of anomalies may indicate significant mineralization under shallow cover.

The trench results, in conjunction with previous drill results, confirm the potential for a series of gold-silver-lead-zinc mineralized systems at Altan Nar outside of the DZ and Union North.

Figure 9-17: Altan Nar Trench Location Map on IP Gradient Chargeability and Target Locations



LEGEND

- Drill Hole
- Trench Lines

NOTES
Base data source: RPM Bayan Khundii Project 43-101, February 2019

STATUS
ISSUED FOR USE

BAYAN KHUNDII PROJECT TECHNICAL REPORT

Altan Nar and Trench Location Map on IP Gradient Chargeability

PROJECTION	DATUM	CLIENT
UTM Zone 47N	WGS84	ERD

FILE NO.
VMIN03076-01_Figure9-17.mxd

TETRA TECH

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BW	SL	CN	0

DATE	PROJECT NO.
November 14, 2019	ENG.VMIN03076-01

Figure 9-17

10.0 DRILLING

The drilling programs at both Bayan Khundii and Altan Nar were designed and carried out under the direction of Erdene's senior technical staff. In the field, the drilling program was under the supervision of Erdene geologists who were responsible for communicating and supporting the program's technical details with the drilling contractor as well as logging and sampling the drill core.

After holes were completed collars were DGPS surveyed. Down-hole orientation surveys were carried out at 50-100 m intervals and/or at the bottom of each hole. Down-hole readings included both dip and azimuth of the hole at the recorded depths. There is little dip movement and minor amounts of azimuth movement in the surveyed holes at both locations.

During drilling, core was placed in core boxes and a marker showing the depth in the hole was placed in the core box at the end of each drill run. All drill cores were photographed and logged by Erdene geologists prior to sampling. Standard sampling protocol involved the halving of all drill core using a core saw and sampling over either 1 m intervals (in clearly mineralized sections) or 2 m intervals (elsewhere). Half of the core was placed in sealed sample bags and dispatched to SGS's Ulaanbaatar laboratory for analysis and the other half remained on-site in core boxes. Core recoveries are between 90-100% throughout the mineralized zones. No relationship exists between sample recovery and grade. Mineralization is generally dipping at 40 degrees to the south-west at Bayan Khundii, and sub-vertical dipping at Atlan Nar.

10.1 Bayan Khundii

Five phases of drilling programs have been conducted on the Bayan Khundii deposit, which encompasses 266 drill holes totaling 44,859 m. All phases of drilling are shown in Figure 10-1. The initial drill program in 2015 included 15 shallow scout holes for a total of 696 m to test surface targeted mineralized zones identified from rock geochemical survey, geological mapping, ground magnetic and dipole-dipole geophysics surveys. Those holes demonstrated continuity of high-grade mineralization within broader low-grade mineralization at Bayan Khundii. The second phase of drilling completed in 2016 focused on the Gold Hills and Striker Zones with 81 diamond core holes for a total of 11,808.9 m spaced at approximately 40 m. The third phase of drilling completed in 2017 comprised 138 drill holes for a total of 25,638.35 m which tested the extension of previously defined zones at Striker West, Striker, Midfield, and Midfield North as well as to test other prospective targets on the property such as the NE Zone. The fourth phase of drilling completed in 2018 was comprised of 24 drill holes for a total of 4,831 m mainly targeting the Midfield and North Midfield zones. The fifth phase of drilling in 2019 comprised 8 drill holes for a total of 1,886 m targeting the Midfield, Midfield North, Striker West, and the southern Bayan Khundii zones. A second phase of drilling for 2019 was announced in September 2019 but results were not published prior to the cut-off date for this report. Approximately 400 m of drilling is planned for the area between Striker and Midfield. A description of drilling completed is shown below in Table 10-1.

Table 10-1: Bayan Khundii Diamond Drilling Summary

Period	Drilling Method	Number of Holes	Metres
2015	**Diamond Drilling**	15	696
2016		81	11,809
2017		138	25,638
2018		24	4,831
2019		8	1,886
Drilling total		**266**	**44,859**

10.1.1 Striker Zone

Since the first hole at Bayan Khundii in Q4 2015 (BKD-01: 27.5 g/t Au from 14-21m depth; northern Striker Zone), more than 60 drill holes have been completed in the prospect, with approximately 70% intersecting at least one interval of greater than 10 g/t Au, indicative of the high-grade nature of the Bayan Khundii mineralization. Erdene has identified multiple, high-grade Au zones, including both high concentrations of gold (e.g. 306 g/t Au over 1 m from 111-112 m; hole BKD-77), wide intervals of high-grade Au (e.g. 5.3 g/t Au over 63 m from 50-113 m; hole BKD-17), and broad, lower grade intervals surrounding the high-grade mineralization (ex. 1.2 g/t Au over 112 m from 0-112 m; hole BKD-51).

10.1.2 Striker Midfield Connection

Prior to the 2017 exploration season, limited drilling had taken place in a 200 m wide zone separating Striker from Midfield.

In Q2 2017, the Company completed several holes at 40 m centres along the northern end of Striker to test between the high-grade Striker and Midfield Zones. Additional drilling in Q3/Q4 2017, including the extension of several previous holes, continued to define the continuity of mineralization between Striker and Midfield zones, including a 128 m wide zone of mineralization in BKD-194 that averaged 1.1 g/t Au from 49-177 m depth, including a 22 m wide interval that averaged 3.3 g/t Au from 115-137 m. This drilling began to define a new near-surface, high-grade zone between Striker and Midfield. Hole BKD-222, announced in Q4 2017, intersected 23 m at 6.7 g/t Au from 41-64 m depth with individual 1 m samples containing grades up to 139 g/t Au (at 42m depth) within 50 m of the surface.

10.1.3 Midfield and North Midfield Zones

As drilling results continued to be received and interpreted throughout 2017, and in conjunction with independent technical experts, a greater understanding of the controls on mineralization at Bayan Khundii was gained. As a result, high priority drill targets were identified in Q4 2017. These included:

- Testing the recently discovered North Midfield Zone with more detailed, closer-spaced drilling and testing structural concepts and extensions at depth; and
- Testing the Midfield area for the presence of shallower zones of mineralization; and testing the continuity of broad mineralized zones in the central portion of the North Midfield target area (Figure 10-2).

Figure 10-1: Bayan Khundii Drill and Prospect Location Map

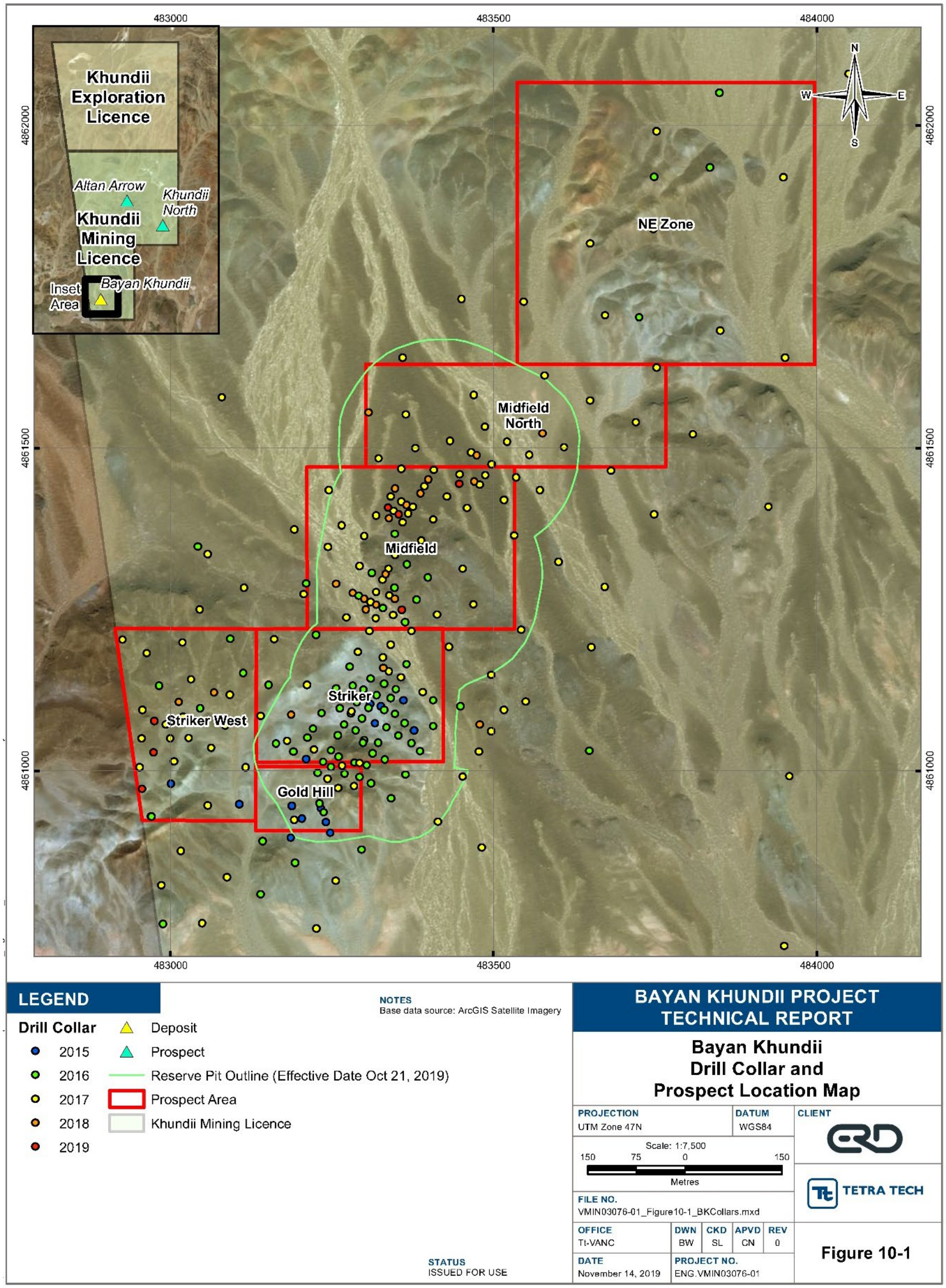
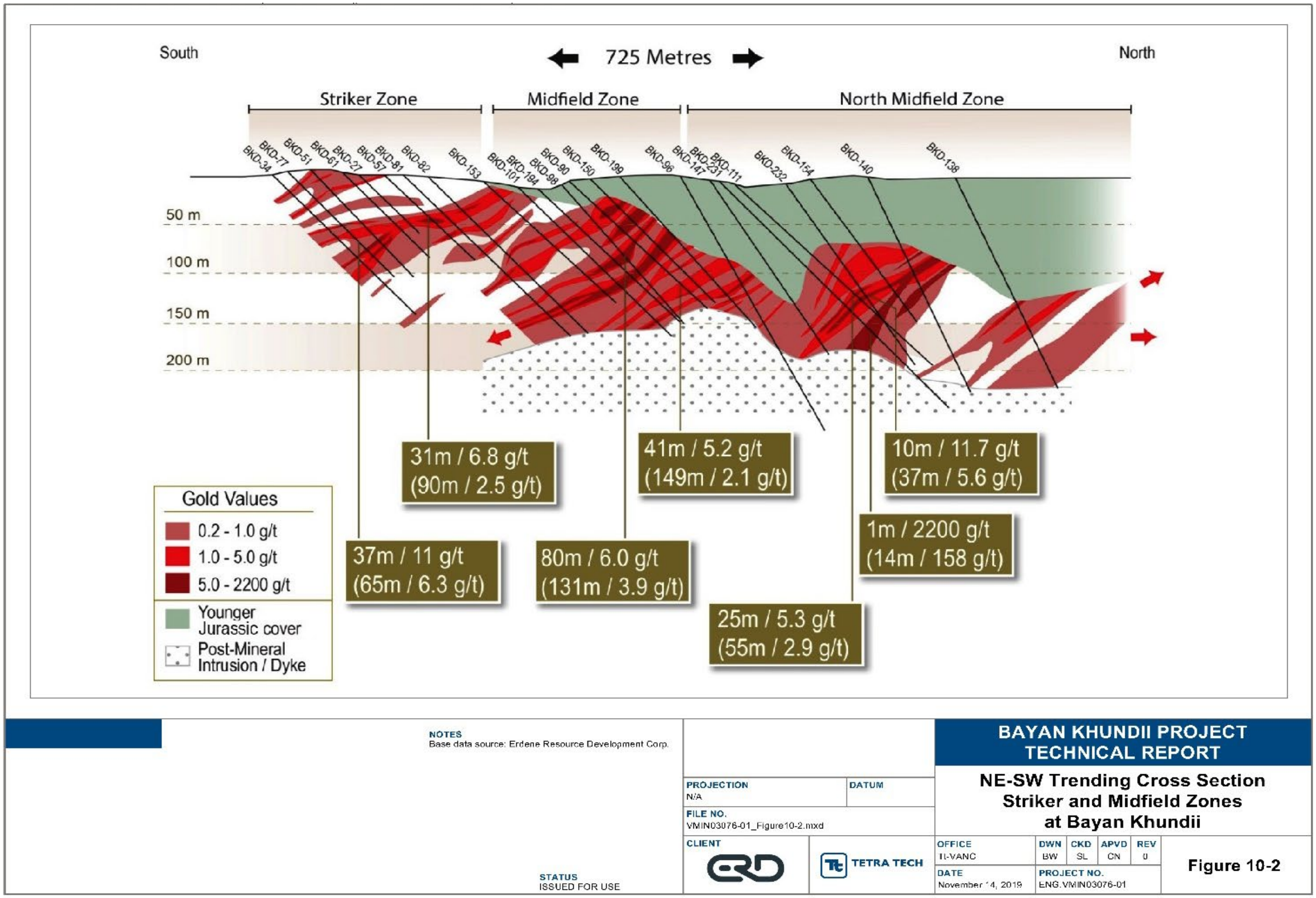


Figure 10-2: NE-SW Trending Cross Section Striker and Midfield Zones at Bayan Khundii



Note: the consistent moderate SW dip to the parallel mineralized zones. Overlying Jurassic cover rocks are indicated in green colour and post-mineralization syenite intrusion is indicated by stippled pattern. Source: Bayan Khundii Gold Project (Khundii Exploration License), Bayankhongor Aimag, Southwest Mongolia, NI43-101 Technical report dated March 2018

Drilling within the Midfield and North Midfield Zones in 2017 and 2018 extended the area of gold mineralization down dip to the south and strengthened the continuity of the high gold grades reported previously in the central Midfield area. The results support the observation that this area contains the most intense hydrothermal activity and the most robust gold mineralization at Bayan Khundii. Several holes continued to define the continuity within the Midfield and North Midfield Zones. BKD-179 returned 40 m of 3.3 g/t Au from 106-146 m, including 9 m of 12.5 g/t Au from 106-115 m, which was drilled in the North Midfield Zone, 165 m to the northeast of the main Midfield Zone. Hole BKD-178, drilled 80 m north of the main Midfield Zone, returned 71.6 m of 1.6 g/t Au from 136.5-208.1 m, including 19 m of 4.6 g/t Au from 167-186 m, and hole BKD-182, drilled 200 m north of Midfield returned 39 m of 2.1 g/t Au from 70-109 m, including 9 m of 8.2 g/t Au from 88-97 m.

In Q4 2017, the Company intersected a new extension to the east of Midfield. While most of the drilling in the Midfield area has focused on pushing the northern limits of the gold mineralized zone towards the Northeast Zone, hole BKD-210, located 80 m east of Midfield's eastern boundary, returned 43 m of 1.8 g/t Au from 89-132 m, and included Au values up to 44.8 g/t, suggesting a new eastern extension to the Midfield Zone that justifies further follow-up drilling.

Six holes (BKD-229 to BKD-234), totalling 1,192 m, were completed at Bayan Khundii in November 2017. Two of these holes (BKD-231 and BKD-232) were completed in the North Midfield Zone to test the down-dip extension of the high-grade gold intervals in this area. Hole BKD-231 intersected 1 m of 2,200 g/t Au and 948 g/t Ag from 193-194 m within a broader 14 m wide interval which returned 158 g/t Au from 193-172 m (140 m vertical depth), the highest-grade gold interval to date. The mineralization was hosted by multi-phase quartz-adularia-specularite veins and a hematite rich breccia, with abundant fine-grained visible gold. This high-grade intersection continues to suggest gold continuity down-dip from earlier holes, including BKD-110, located 30 m north, intersected 115 g/t Au over 1 m from 144-145 m, along with 1 m of 108 g/t Au from 177-178 m, and BKD-111, located 30 m northwest, intersected 1 m of 44 g/t Au from 150-151 m and 1 m of 33 g/t Au from 162-163 m.

Hole BKD-232 was completed approximately 65 m north of BKD-231 and 100 m north of the Midfield Zone, within an area that previously had 80-m hole spacing and relatively lower grade results. This hole returned 22 m of 8.3 g/t Au from 102-124 m, and included multiple zones grading over 10 g/t Au.

In Q4 2017, three holes were completed along the south and southeast end of the Midfield Zone (BKD-229, 230 and 233). Hole BKD-230, completed near the centre of Midfield, intersected a continuously mineralized 127 m interval from 31-157 m that averaged 1.8 g/t Au, and included a 25 m wide interval that averaged 5.8 g/t Au from 73-98 m. Two additional holes (BKD-229 and BKD-233) successfully intersected high-grade gold mineralization, and in the case of BKD-233, although lower grade, expanded the southeast boundary of the Midfield Zone which remains open to the east while BKD-229 intersected gold mineralization at the shallowest levels to date.

The results for the first six holes of the Q2-2018 drill program, BKD-235 to BKD-240, totalling 1,423 m, were completed at the North Midfield Zone and were designed to test high-priority structural targets and to test continuity and potential extensions of the high-grade mineralization in this area. Hole BKD-236 was also drilled to test the interpreted controlling structure on the western boundary of the gold mineralization and a sub-set of gold-bearing, north-south trending veins, approximately perpendicular to the main trend of mineralization (azimuth of 108 degrees). Holes BKD-239 and BKD-240 were step-out holes, located near previously completed hole BKD-232 (Q1-2018) that returned 36.5 m of 5.6 g/t Au from 90.5-127 m.

The results from this initial drilling continued to support the continuity within the North Midfield high-grade zone, with all six holes intersecting visible gold mineralization. High-grade assay results were encountered in the core of the North Midfield Zone, with hole BKD-238 returning 18 m of 21.6 g/t Au from 152-170 m, including 2 m of 169 g/t Au from 152-154 m.

All holes intersected broad gold mineralized zones enveloping the high-grade cores, ranging from 16 m to 102 m of greater than 1 g/t Au. In addition, drilling provided evidence of gold-bearing feeder zones, with multistage quartz-chalcedony veins and breccias being intersected in holes BKD-236 and BKD-237.

In 2019, two additional holes were drilled at Midfield. An updated 2019 summary of the zone is that the zone is characterized by high-grade mineralization below 100 metres, with lower grades near surface. Prior drilling indicated a core zone extending to within metres of surface with indications of increasing grade, although limited continuity. Structural interpretation suggests favorable mineralization occurs at the intersection of northeast-trending extensional faults and the northwest trending basement structure. The identification of a secondary north to south orientated gold bearing vein set supported testing this feature with a new orientation, thereby drilling this target to the northeast. BKD-261 and BKD-262 are scissor holes crossing the interpreted trend of the mineralization and intersecting the main vein set at an approximate 50 to 60-degree angle of incidence, with an interpreted true width of approximately 88% and 93% of reported apparent width, respectively.

BKD-261 was drilled at a 45-degree dip angle through the central portion of Midfield with mineralization intersected 13 m from surface and continuing to a depth of 125 m for 112 metres of 5.9 g/t Au. Excluding a 7-metre wide dyke, immediately above the high-grade zone, the grade averages 6.2 g/t Au over 105 m. Above the dyke, the gold mineralization averages 3.0 g/t Au over 97 m, and below, averages 45.2 g/t Au over 8 m. The gold mineralization is hosted within a strongly silica- and illite-altered tuff cut by quartz-adularia-hematite veins and breccias of variable width, where wider veins typically host the highest gold grades.

BKD-262 was drilled adjacent to the collar of BKD-261 at a 60-degree dip angle and returned the highest near surface results at Midfield. Beginning 9 m down hole, or 7 vertical metres from surface, the first 14 m of mineralization averaged 14 g/t Au, beginning with a 1-metre interval of 147 g/t Au in a strongly altered (illite-silica) volcanic host with intense iron oxidation. The hole also returned 106 m of 1.4 g/t Au from 51-157 m, including 5 m of 12 g/t Au from 61-66 m in a similar host to BKD-261.

The North Midfield Zone is the deepest of the three main zones, with gold mineralization beginning at approximately 125 m depth in the central portion of the zone. Erdene drilled three holes in this area (BKD-259, -260 and -263) to test for nearer surface mineralization, and extension and continuity of the high-grade veins intersected just below the proposed PFS open pit boundaries. These holes intersected gold mineralization ranging from 85 to 117 m vertical depth with BKD-260 returning 23 m of 4.4 g/t Au, beginning at 85 m vertical depth. In addition, BKD-259 intersected 2 m of 39 g/t Au from 202-204 m depth in a vein in the vicinity of other high-grade intervals outside the current pit perimeter.

10.1.4 West Striker Zone

As of the end of the 2018 drill program, Erdene has completed a total of 27 holes in the area west of the Striker Zone at 20 to 80 m spacing, over a 375 by 250 m area. The depth of drilling has ranged from 97 to 340 m vertical depth, with an average of 223 m. Of the 27 holes, 26 have intersected anomalous gold mineralization, with 13 returning high-grade intervals of greater than 10 g/t Au. In Q4 2017, the Company reported results for three holes (BKD-219 to 221) including the highest-grade intersection to date within this zone, 116 g/t Au from 141-142 m along with 9.2 g/t Au from 131-146 m in hole BKD-220, 250 m west of the Striker zone, further establishing the potential that exists at West Striker to identify additional high-grade zones.

Results to the end of the 2018 drill program have:

- Continued to support the orientation, grade and continuity of mineralization initially identified through mapping and trenching;

- Extended the area of drilled gold mineralization to include the Midfield and Midfield North Zones beneath Jurassic cover rocks;
- Discovered additional gold mineralization west of Striker, also under Jurassic cover rocks; and
- Identified gold mineralization in ash and welded tuff host rocks up to 1.3 km northeast of the Striker Zone.

Gold mineralization is mostly hosted in parallel northwest-southeast, moderately-dipping (~45^{o}) zones that range in width from 4-174 m. Drilling results indicate that individual higher-grade mineralized zones can be correlated between drill holes. Higher grade gold ± silver intersections are located within widespread lower-grade envelopes, for example hole BKD-90 has several high-grade intervals including a 41 m wide high-grade zone (41 m at 5.2 g/t Au) from 40-81 m within a broader mineralized envelope that averages 2.1 g/t Au from 23-172 m.

The 2019 drill program drilled an additional two holes into the West Striker zone, located approximately 100 m west of the proposed PFS pit. This target has been drilled at a lower density than the other main targets and the objective was to establish greater continuity of the locally high-grade intervals and to test for near surface mineralization. Both objectives were met with BKD-265 returning the widest high-grade interval to date for Striker West, 40 g/t Au over 3 m from 142-145 m, a second one-metre interval graded 34.6 g/t Au from 165-166 m, and a near surface zone returned 1.1 g/t Au over 16 m from 28-44 m.

10.1.5 Northeast Zone

The Company has completed 11 holes in the Northeast Zone over a 600 m by 400 m area. Hole BKD-122, on the southern boundary of the Northeast Zone (500 m northeast of Midfield), returned 14 m of 0.75 g/t Au from 1 m, including 2 m of 4.4 g/t Au from 11-13 m, and 21 m of 0.72 g/t Au at 65-86 m. Two rock chip samples collected 600 m northeast of hole BKD-122 returned gold assay values of 6.9 g/t and 0.4 g/t Au.

10.1.6 Southern Bayan Khundii

A single hole was drilled south of the defined resource in 2019, BKD-266, to test for down dip extensions of mineralization to the south of the deposit. The hole intersected a broad zone of moderate to strong silica-illite and magnetite altered volcanics with increased quartz vein density at a depth of 238 m. A 4 m wide quartz vein was intersected in the zone with associated chlorite-magnetite alteration and visible gold at the upper contact. Gold values up to 51.9 g/t over 1 m were returned from this zone. The zone remains untested and open to the south. Further east, the down dip extension of higher-grade veins is supported by hole BKD-19 that returned 1m of 36 g/t Au from 182-183 m, and to the east of the deposit, BKD-118 returned 102.5 g/t Au over 1 m from 113-114 m. Further testing is required outside of the current resource and the planned open pit perimeter.

10.2 Altan Nar

A staged exploration and resource delineation drilling program was carried out across the Altan Nar prospect between 2011 and 2017 (Figure 10-3). Table 10-2 provides a breakdown of the number of holes and metres drilled over this time period. All drilling on the Tsenkher Nomin license was carried out by the independent drilling contractor, Falcon Drilling Limited. All holes were diamond drilled using a truck mounted Longyear 44 wireline drilling rig with all core HQ sized. First drilling at the project started in 2011 at the Nomin Tal prospect (8 holes) and all remaining holes (125) were drilled on the Altan Nar prospect.

Table 10-2: Altan Nar Drilling Summary

Company	Period	Drilling Method	Number of Holes	Metres
Erdene	2011	**Diamond Drilling**	24	4,043.4
	2012		26	4,611.1
	2014		22	2,604.3
	2015		13	1,057.9
	2016		9	1,380.0
	2017		31	5,793.9
	Drilling total		**125**	**19,490.6**
		Trenching	**42**	**3,151.0**
Total			**292**	**22,641.6**

Drilling across the Project area had an average hole length of 156 m (average vertical depth 117 m) and extend in a couple of holes to a maximum vertical depth of approximately 390 m. Drill hole spacing over the deposit area is approximately 50 m by 50 m with closer spaced drilling in select areas (20-25 m by 20-25 m spaced holes).

Since the discovery of mineralized epithermal quartz veins on surface and widespread soil geochemical anomalism across the Altan Nar Area in August 2011, there have been a number of rounds of drilling over a seven year period (see Table 10-2). Resource delineation drilling has taken place over the Discovery Zone and Union North deposits while exploration and scout drilling has taken place across several other identified prospects. A drilling exploration summary by prospect is provided in Table 10-3.

Table 10-3: Drilling Summary by Project

Company	Method	Prospects	Number of Holes	Metres
Erdene	Drilling	Discovery Zone	56	10,557
		Union North	24	2,449
		Central Valley	8	1,276
		Discovery Zone West	2	250
		Junction	1	200
		Maggie	3	446
		Northbow	2	173
		Northfield	2	197
		Riverside	6	806
		Southbow	3	539
		Southgate	6	897
		True North	2	320
		UN East	3	400
		Union South	5	782
		Others	2	200
Total			**125**	**19,492**

In the following descriptions of Altan Nar prospect drilling results it should be noted that all drill holes were drilled at a dip between -70 to -45 degrees and intersected zones are interpreted to be steeply-dipping to vertical. Additional information is required to determine true widths. Also, gold equivalent (AuEq.) has been used to express the combined value of gold, silver, lead and zinc as a percentage of gold, and is provided for illustrative purposes only. No allowances have been made for recovery losses that may occur should mining eventually result. Calculations use US$ metal prices of $1200/oz gold, $18/oz silver, and $0.90/lb for lead and zinc.

The following sections summarize the drilling carried out to the end of 2017 on the main prospects which have Indicated Resources, Discovery Zone (“DZ”) and Union North (“UN”), followed by those prospects that have had scout drilling and have Inferred Resources, namely, Central Valley, Maggie, Riverside, UN East, Union South, True North, and Northfield.

10.2.1 Discovery Zone

The DZ is located in the central part of the Altan Nar Area. Drilling to date at the DZ has identified a minimum strike length of 650 m. Fifty-six, mostly shallow (<150 m vertical extent) drill holes with hole length ranges from 57.3 m (TND-93) to 450 m (TND-31 and TND-129) have been drilled at the DZ and drill spacing was generally at 50 m to 50 m intervals. Some areas were infill drilled at 25 m spacing. Along with seven trenches across zones of surface mineralization, the drill holes have demonstrated vertical and lateral continuity of gold, silver, lead and zinc mineralization (see Figure 10-4).

Within the DZ, gold mineralization appears to be structurally controlled within NNE to NE trending sub-parallel shear zones that are steeply dipping to sub-vertical. Gold-bearing zones are associated with epithermal quartz veins and breccias in a northeast-southwest trending fault/breccia zone. Preliminary evidence suggests that andesite units, particularly near the contact with more competent silicified volcanic breccia units, act as a favourable host for mineralization.

Drilling results to date at the DZ have culminated in the modelling of a series of near vertical and sub-parallel mineralized lodes as displayed in Figure 10-4 (cross section A). The mineralized lodes have been coloured only to help distinguish the individual lodes.

Hole TND-58, one of the deepest holes drilled to date (~230 vertical metres) within the DZ, terminated in 6 m at 4.7 g/t Au, 8.5 g/t Ag and 1.3% combined Pb-Zn from 266-272 m. This intersection demonstrates that additional potential remains to intersect high-grade mineralization at depth and that the true vertical extent of the mineralization within the DZ is yet to be determined.

Hole TND-101 was an exploratory hole drilled at a 45-degree dip to a depth of 300 m perpendicular to an interpreted cross-cutting feature observed in geophysical surveys but at a low oblique angle to the mineralized DZ trend and to the lithologic boundary. The hole was oriented to test the intersection of these three structures, and to test possible extensions of mineralization at depth under DZ North.

Hole TND-101 intersected 110 m at 10.5 g/t AuEq (9.3 g/t Au, 32.0 g/t Ag, and 1.42% combined Pb-Zn) from 32-142 m. This intersection included 14 m at 60.4 g/t AuEq (55.6 g/t Au, 131.1 g/t Ag, and 5.65% combined Pb-Zn) from 96-110 m. This hole was consistently mineralized from surface to 170 m with high gold grades not previously observed at Altan Nar. Due to the hole orientation the wide intervals reported do not represent the true width of the intersected zone, however, adjacent holes reported in 2015 immediately south of TND-101 (TND-69 and 90), returned some of the most continuous zones of mineralization at the DZ, including 51 m of 2.5 g/t AuEq from 47-98 m and 53 m of 2.0 g/t AuEq from 78-131 m, respectively. These holes were drilled at a 45-degree dip, perpendicular to the interpreted vertical structure, implying a true width to the NE trending mineralized zone in the range of approximately 25 to 35 m.

Of particular note, 10 samples in the high-grade portion of hole TND-101 contained in excess of 31.1 g/t Au (i.e. 1 ounce of gold per tonne), whereas only two samples from the more than 9,000 previously assayed drill core samples from Altan Nar drilling between 2011 and 2015 exceeded this grade-threshold. In addition to the high base metal gold zones intersected in TND-101, a distinct zone of high copper-gold mineralization was intersected that may reflect a new fluid phase at the DZ. Copper levels assayed up to 2.43%. The host rocks include lapilli tuffs and andesites that have been moderately to intensely altered (quartz, mica, pyrite), mineralized (precious metals and carbonate base metal suite), and cut by comb quartz veins, breccias and chalcedony veins.

Drilling to date has supported lateral and vertical continuity of gold-silver mineralization within the Discovery Zone. The DZ remains open along strike to the north and additional drilling will be required to determine the true vertical extent of the gold mineralization. Drilling to date has tested to a vertical depth of 175 m (south) to 230 m (north). Figure 10-4 shows schematic sections across the DZ (Section A) and Union North East (Section B) that display the extent of gold mineralization intersected by the drilling program.

10.2.2 Union North Prospect

Union North ("UN") is located 1.3 km northwest of the Discovery Zone. During 2014 infilling drilling of this zone was undertaken in order to better understand the nature of the mineralization. The prospect has been tested by 24 holes to date (2018). These results at UN have culminated in the modelling of a series of steeply dipping and sub-parallel mineralized lodes as displayed in Figure 10-4. Stronger co-incidence of gold and base metal mineralization compared to the Discovery Zone was noted. Strong development of porphyritic dyke development is also a characteristic of this area.

10.2.3 Altan Nar – Scout Drilling

To date, exploration programs at Altan Nar have included close-spaced soil and rock geochemical sampling as well as detailed IP gradient array and magnetic geophysical surveys. This work has resulted in the identification of numerous exploration drill targets along the 5.6 km strike length of the Altan Nar Area, outside the area of the DZ and UN. This work expanded the identified gold-bearing epithermal mineralization on the Altan Nar property. To date, 45 scout holes have been drilled across the Altan Nar area outside of the DZ and Union North Zones (see Figure 10-3).

The following sections summarize the drilling carried out on the prospects that have had scout drilling and Inferred Resources identified, namely, Central Valley, Maggie, Riverside, UN East, Union South, True North and Northfield.

10.2.3.1 Union South Prospect

Union South is located directly south of Union North and represents the possible continuation of the Union North mineralization, slightly offset to the east as suggested by the IP gradient chargeability anomaly in the area. A series of widely spaced drill holes (100m spacing) returned from up to 3.4 g/t AuE, along with trech samples which returned up to 4.46 g/t Au. The results from this preliminary work suggest future work is warranted to follow up on the initial intersections of mineralization.

10.2.3.2 Riverside Prospect

Riverside is located 300 m to the west and is sub-parallel to Union South and at the northern end it appears to merge with Union North. This prospect is characterized by an 800 m long gradient IP and geochemical anomaly that follows the trend of white mica alteration and quartz/breccia rubble fields. Four of six widely spaced drill holes returned anomalous results. TND-45 returned 18 m of 1.0 g/t AuEq from 20-38 m, THD-51 returned 6 m of 0.84 g/t AuEq from 10-16 m, and TND-128 returned 8 m of 0.9 g/t AuEq from 92-100 m.

Figure 10-3: Altan Nar Drill Hole and Prospect Location Map

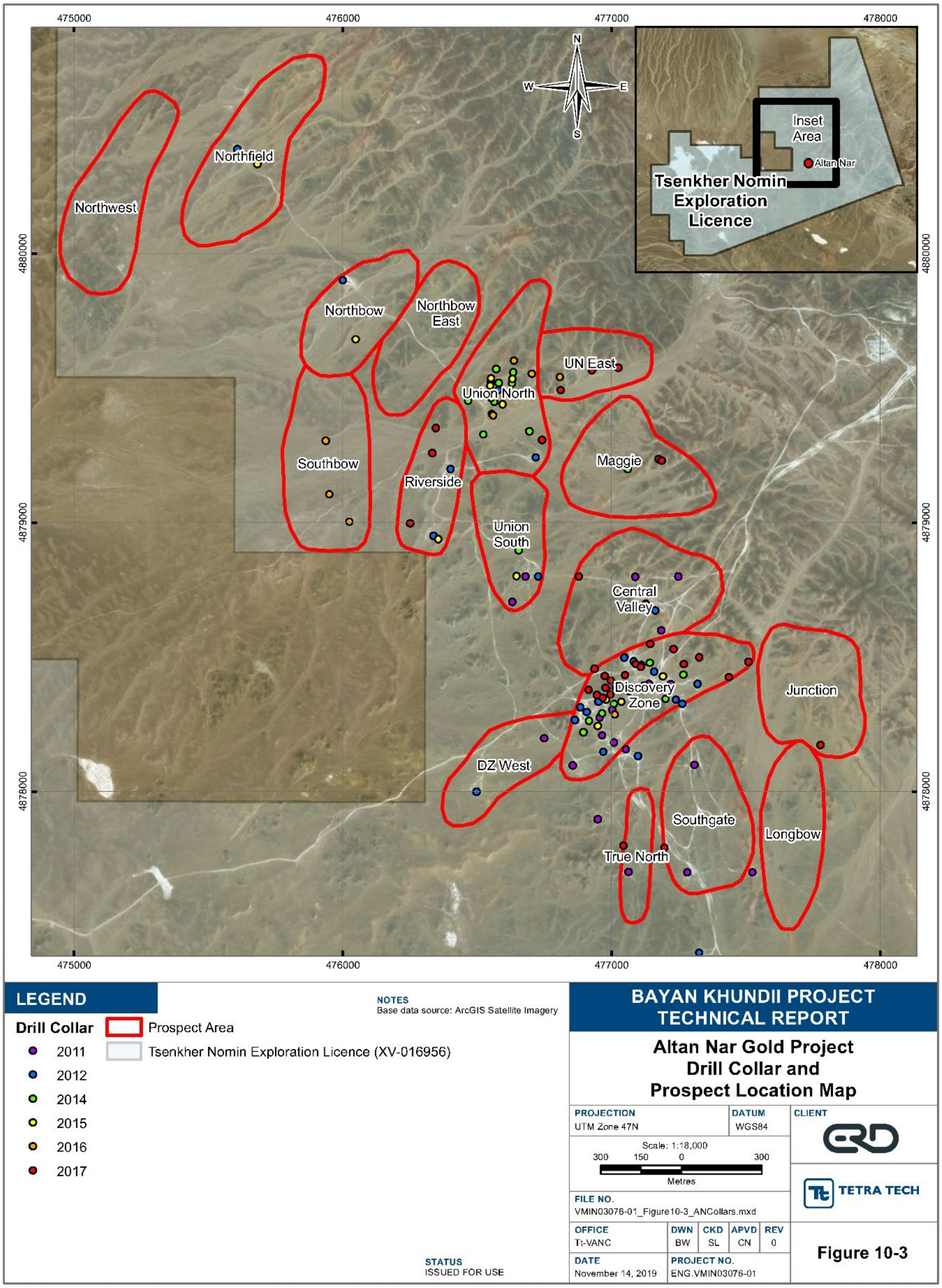
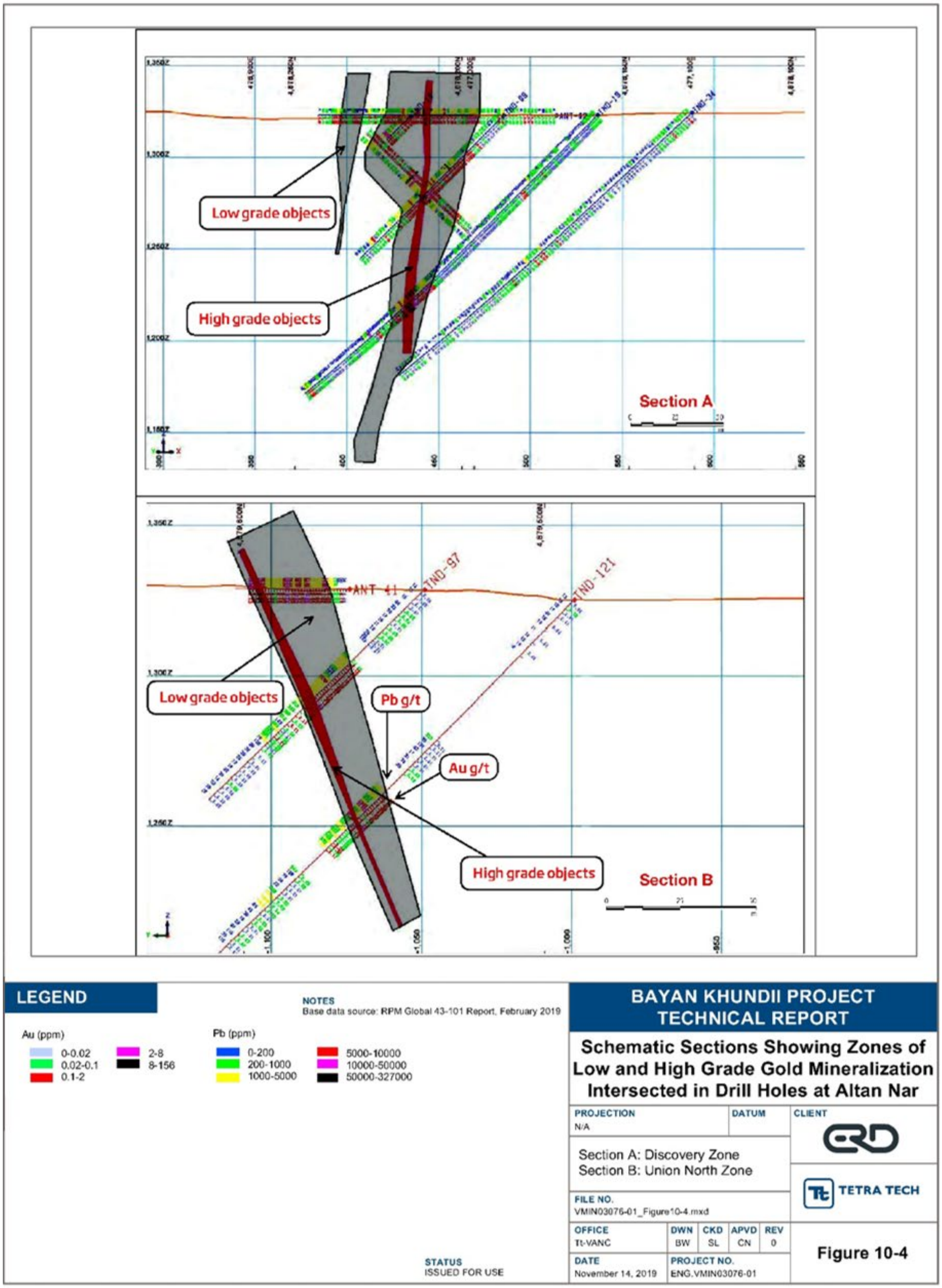


Figure 10-4: Schematic Sections within the Discovery Zone and Union North East Zone; Section A Discovery Zone, Section B Union North East Zone



10.2.3.3 Maggie Prospect

Located 1 km north of the DZ and 700 m east of the Union North Prospect, the Maggie Prospect area is a 500 m x 400 m triangular shaped area. This target is characterized by a 10 to 40 m wide linear white mica alteration zone with gold, silver, lead and zinc mineralization traced over 300 m on a NE trend through the centre of the target. A single drill hole, TND-64, returned two narrower zones with mineralization apparently displaced by a post-mineral porphyry dyke. These two zones, 3 m and 5.35 m wide returned 2.6 g/t Au Eq from 40-43 m and 1.8 g/t AuEq from 62.65-68 m, respectively. Trenching completed to test soil and IP anomalism northeast and southwest of the drill established a 120 m strike length that remains open.

In 2017 two diamond holes, TND-123 and TND-133 were drilled at -45 and -60 respectively from the same collar location at the Maggie Prospect and both holes intersected high-grade gold and base metal mineralization. TND-123 intersected 16m at 4.3 g/t AuEq (3.75g/t Au, 9.3g/t Ag, 0.8% combined Pb and Zn) from 28m. TND-133 intersected 4 m of 2.89g/t AuEq (2.24g/t Au, 7.5g/t Ag, 1.04% combined Pb and Zn from 32m. This hole also intersected the same andesitic barren dykes that occurred in TND-123.

Mineralization at Maggie Prospect is open along strike (NE-SW) and down-dip directions and mineralization appear to get wider towards the northeast.

10.2.3.4 Central Valley Prospect

Two holes in this prospect, TND-14 and TND-44 returned broad zone of anomalous lead-zinc mineralization including 47 m of 0.08g/t Au, 2.5g/t Ag and 0.53% combined Pb and Zn from 41-88 m depth and 50m of 0.08g/t Au, 1.5g/t Ag and 0.61% combined Pb and Zn from 47 m-97, respectively.

Two additional holes were drilled in the Central Valley Prospect, TND-80 and TND-115. TND-80 was collared halfway between TND-14 and TND-15 and intersected broad low-grade halos. TND-115 did not hit any significant gold mineralization however it intersected 12 m at 0.71g/t AuEq (4.2g/t Ag, and 1.19% combined Pb and Zn) from 179-191 m. Drill intercepts at the Central Valley Prospect are summarized in Table 10-4.

Table 10-4: Summary of Central Valley Prospect Intersections

Drill Hole	From(m)	To (m)	Interval*(m)	Gold g/t	Silver g/t	Lead %	Zinc %	AuEq g/t *
TND-14	41	88	47	0.08	2.5	0.23	0.30	0.38
TND-44	47	97	50	0.08	1.5	0.23	0.38	0.41
TND-115	179.0	191.0	12.0	0.03	4.2	0.60	0.59	0.71

Note: All drill holes were drilled at a dip between -70 to -45 degrees and intersected zones interpreted to be steeply-dipping to vertical. Additional information is required to determine true widths.
**AuEq. has been used to express the combined value of gold, silver, lead and zinc as a percentage of gold, and is provided for illustrative purposes only. No allowances have been made for recovery losses that may occur should mining eventually result. Calculations use USD metal prices of $1200/oz gold, $18/oz silver, and $0.90/lb for lead and zinc.*

10.2.3.5 True North Prospect

The True North Prospect, located 200 m south of the DZ, intersected mineralization from a single drill hole, TND-32, which returned 3 m at 1.42 g/t Au and a combined Pb and Zn value of 6.9% from 51-54 m. This result was reflected at surface by a subsequent trench that returned a 4 m zone at 1.3 g/t Au and a high combined Pb-Zn content of 3.8%.

An additional single hole (TND-130) drilled in 2017 collared 100 m north of TND-32 and intersected 2m of 0.32g/t Au, 0.4% combined Pb and Zn from 110 m. Mineralization appears to increase to the south.

10.2.3.6 Northfield Prospect

A total of four trenches and two scissor holes were drilled at Northfield. The best results to date are trench ANT-17 with a 28 m intersection of 0.41 g/t Au, 10g/t Ag, and 0.4% combined Pb and Zn. Two scissor holes (TND-54 and TND-87) were drilled near trench ANT-17 and hole TND-54 intersected 2 m at 1.16g/t Au from 54-56 m depth while TND-87 did not intersect any significant gold mineralization.

10.2.3.7 Union North East Prospect

This prospect is located 250 m east of the Union North Zone and both zones are potentially connected to each other. Two trenches (ANT-40 and ANT-41) tested a surface geochemical anomaly and ANT-41 returned 27.5 m at 1.95g/t Au, 4.4 g/t Ag, 1.16% combined Pb and Zn and includes 2m at 8.4g/t Au, 10g/t Ag, 3.82% combined Pb and Zn. Trench and drill hole results indicate that grades are increasing toward the Union North Prospect. Initial scout hole TND-97 intersected 22 m at 1.1g/t Au, 5g/t Ag, 0.8% combined Pb and Zn from 34-56 m.

In 2017, three diamond holes (TND-119 to TND-121) were drilled in this prospect. TND-121 was collared as a 50 m step back to the south of TND-97 and intersected 14.5m at 0.93g/t Au, 6.8g/t Ag, 0.89% combined Pb and Zn from 89.5-104 m. TND-120 was collared 120m east of TND-97 and intersected 5 m at 1.1g/t Au, 29.4g/t Ag, 3.3% combined Pb and Zn from 36.9-41.9 m. Mineralization looks to have been wider at one stage but has been subsequently cut by barren volcanic dykes.

The prospects described above in Section 10.2.3 all have identified Inferred Resources, and along with a number of un-drilled high priority prospects with strong geochemical and geophysical anomalies, require additional exploration, including trenching and drilling, to determine their full mineral potential. Resource modelling has been carried out on 9 prospects out of 20 and the remaining prospects have been tested by very limited (shallow) drilling (Discovery Zone West, Junction, Southbow, Southgate, and Others) or no drilling.

11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

The details of the sample preparation, analytical methodology and sample security protocols executed by Erdene for soil, rock, trench and drill-core sampling from the exploration programs carried out to date on the Tsenkher Nomin exploration license and the Bayan Khundii exploration license are included in this section.

11.1 Sample Selection

11.1.1 Soil Samples

Soil samples were taken at regular intervals on a grid varying between 400 m intervals on 400 m spaced lines to down 12.5 m intervals along 50 m spaced lines. Sample locations were determined by hand-held GPS devices with a precision of approximately 3 m in lateral directions. All samples were taken using a consistent sampling methodology which included digging shallow holes (avg. 25 cm) and dry sieving to -2 mm.

11.1.2 Rock Chip Samples

Rock chip and rock grab samples were taken from outcrop / sub-crop, respectively, by Erdene's geologists with locations determined by hand-held GPS devices (±3 m lateral precision). Samples were taken from mineralized and un-mineralized surface rocks that are, as much as possible, representative of the lithological unit identified while in the field. No grid-based rock chip sampling was carried out over the prospect areas.

11.1.3 Trench Samples

All trenches were excavated to bedrock, although zones of intense alteration and deep weathering were encountered and therefore the term 'bedrock' is used loosely. Trench samples were collected at 1 m or 2 m intervals, as determined by the senior project geologist, based on the lithology and mineralization. Samples were chipped from the bottom of the trenches and care was taken to ensure each sample was representative of the entire interval being sampled. Representative hand samples for each interval were also collected for reference.

11.1.4 Drill Core

Drill core was delivered directly from the drill site to the Company's exploration camp at the end of every shift. All logging and sampling were completed in camp by Erdene geologists. Drill core was logged for geology and RQD, and sample intervals were marked. Core was then photographed before being sawn in half with a core saw after which half-core samples for assay were bagged. Magnetic susceptibly readings were taken for each sample interval. For Altan Nar, the remaining half-core prior to and including 2014 drilling (up to TND-80) is securely stored at the Company's Zuun Mod exploration camp while post 2014 drilling half core samples were stored at the Bayan Khundii camp site (TND-81 to TND-133). For Bayan Khundii, the remaining half-core is securely stored at the Company's Bayan Khundii exploration camp.

Erdene's sampling protocol for drill core consisted of routine collection of samples at 1 m, 2 m or 3 m intervals (depending on the lithology and style of mineralization) over the entire length of the drill hole, with the exception of more recent drilling where late stage dykes were not sampled. Sample intervals were generally based on metreage, not geological controls or mineralization. However, in the case of early stage or scout drilling programs, samples were sometimes selected based on geological controls to get a better understanding of the distribution of mineralization.

At Altan Nar, some of the mineralized zones were selectively sampled in the initial drill holes (TND-09 to 12). However, subsequent drill holes (TND-13 to 133) were all sampled at 1 m, 2 m or 3 m intervals, depending on the lithology and intensity of mineralization. For example, all clearly mineralized zones were sampled at 1 m intervals while late-stage, un-mineralized dykes were sampled at 3 m intervals, or not at all. All other drill-hole sections were sampled at 2 m intervals. Drill core recovery was excellent and did not impact the accuracy and reliability of the assay results.

Following the logging and selection of drill core for sampling, a geotechnician took the selected core into the cutting room and cut the marked core in half using a diamond rock saw, such that one half of the core was left in the box as a record. To mitigate the risk of sample bias, the same side of the cut drill core was always placed back in the box. The cutter would then place the other half of the cut core in a polypropylene bag. After the entire sample has been cut, the cutter would then obtain the corresponding sample slip, and place it in the mouth of each bag and subsequently seal the sample bag. The diamond core saw was connected to a hose line which supplied fresh water to the saw, and then discharged the cutting laden water directly into a sump. No water was recirculated during cutting.

11.2 Sample Security

For Altan Nar, all samples (soil, rock, trench and drill core) were organized into batches of 20 or 30 samples and included a commercially prepared certified reference standard and an analytical blank. Each batch was stored in the field camp in sealed bags. Sample batches were periodically shipped directly to SGS in Ulaanbaatar via Erdene's logistical contractor, Monrud Co. Ltd.

For Bayan Khundii, all rock, trench and 2015-2016 drill core samples were organized into batches of 20, while all soil sample and 2017 drill core samples were organized into batches of 30. All sample batches included two commercially-prepared certified reference material standards (standards), including a gold standard (generally alternating between a high-level gold-bearing standard and low-level gold bearing standard) and a 'blank' consisting of either 'basalt blank chip' (2015) with very low gold concentration (<1 ppb Au) or coarse silica sand (OREAS 24p, 2016-17). Both of these samples were used as an analytical blank for gold. Batches with 30 samples (all soil and 2107 drill core) included duplicate samples. For soil samples, this included duplicate samples taken from the same location. For drill core batches in 2017, duplicate samples alternated between a field duplicate, consisting of two ¼ core samples from the same interval, or a laboratory duplicate, consisting of duplicate pulps created from the same coarse grind material. Each batch was stored in the field camp in sealed bags. Sample batches were periodically shipped directly to SGS in Ulaanbaatar via Erdene's logistical contractor, Monrud Co. Ltd.

At SGS, all client-submitted material is retained under cover in the secure Ulaanbaatar facility where 24-hour security is maintained. Sample integrity is maintained during the analysis process by laboratory LIMS generated sample labeling throughout the analytical process.

11.3 Sample Preparation

All first assay samples have been prepared and assayed at the Ulaanbaatar laboratory of SGS Mongolia LLC ("SGS"). The laboratory is one of largest commercial laboratories in Mongolia and operated to ISO17025 specifications. Table 11-1 provides a summary of the analytical methods used by SGS to analyze all of the samples. At SGS, all rock samples (drill core, chip and grab) are handled as follows:

- Samples as received are initially sorted and verified against the client Sample Submission Form.
- Samples are air dried at 90°C.
- All samples are crushed to 3.35 mm using a jaw crusher and Boyd crusher in a two-stage process.
- Samples were then split by rotary sample divider to 600-700 g, with reject retained.
- The sample splits are pulverized to 90% passing <75 µm mesh.
- The pulverized samples are mixed and divided manually, with approximately 200 g retained for the client and 300 g retained for laboratory analysis.

At SGS, all soil samples are handled as follows:

- Samples as received are initially sorted and verified against the client Sample Submission Form.
- Samples are air dried at 90°C.
- Whole samples are pulverized to 90% <75 µm.

11.4 Analytical Methodology

11.4.1 Bayan Khundii

11.4.1.1 Drill Core, Rock, and Chip Samples

Gold was first analyzed by fire assay with an instrument finish using 30-gram aliquots, whereas all other metals analyzed by ICP40B, 4 acid digestion with ICP OES finish (see Table 11-1 for details). Any samples that had an original assay of >5 g/t Au the results of screen metallics were used preferentially in the database over original fire assay values. All drill core sample rejects are saved and stored at a secure facility and are available to carry out check analyses as necessary.

Table 11-1: Bayan Khundii SGS Analytical Methods and Detection Limits

SGS Code	Description	Element	Lower Detection Limit	Upper Detection Limit
FAE303	Fire Assay, Solvent Extraction, AAS1 finish, 30g sample	Au	1 ppb	10,000 ppb
FAA303 FAG303	Fire Assay, AAS[1] finish, 30g sample Fire Assay, gravimetric, 30g sample	Au Au	0.01 ppm 0.03 ppm	1,000 ppm 100,000 ppm
ICP40B	4 acid digestion2 with ICP OES3 finish	Ag: 2 ppm – 50 ppm; Al: 0.03% - 15%; As: 5 ppm - 1%; Ba: 5 ppm - 1%; Be: 0.5 ppm - 0.25%; Bi: 5ppm - 1%; Ca: 0.01% - 15%; Cd: 1 ppm - 1%; Co: 1 ppm - 1%; Cr: 10 ppm - 1%; Cu: 2 ppm - 1%; Fe: 0.1% - 15%; K: 0.01% - 15%; La: 1 ppm - 1%; Li: 1 ppm - 1%; Mg: 0.02% - 15%; Mn: 5 ppm - 1%; Mo: 2 ppm - 1%; Na: 0.01% - 15%; Ni: 2 ppm - 1%; P: 0.01% - 15%; Pb: 2 ppm - 1%; S: 0.01% - 5%; Sb: 5 ppm - 1%; Sc: 0.5 ppm - 1%; Sn: 10 ppm - 1%; Sr: 5 ppm - 1%; Ti: 0.01% - 15%; V: 2 ppm - 1%; W: 10 ppm - 1%; Y: 1 ppm - 1%; Yb: 0.5 ppm to 1000 ppm; Zn: 5 ppm - 1%; Zr: 3 ppm - 1%		

1. *AAS: Atomic Absorption Spectrophotometer*
2. *Acid Digest: Perchloric (HClO4), Hydrochloric (HCl) and Nitric (HNO3)*
3. *Acid Digest: Same as 3-acid plus Hydrofluoric (HF)*
4. *ICP OES: Inductively Coupled Plasma Optical Emission Spectrometry*
5. *LDL: Lower Detection Limit*
6. *UDL: Upper Detection Limit*

Source: Bayan Khundii 43-101Report, Bayan (Khundii Exploration License), Bayankhongor Aimag, Southwest Mongolia, National Instrument 43-101 Technical Report, Erdene Resource Development Company, M. A. (MacDonald), MSc, P.Geo., March 1, 2018

11.4.1.2 Screen Metallic Analysis of Bayan Khundii Drill Core

All drill core samples from Bayan Khundii that returned an initial assay of 5000 ppb (5 g/t) gold were retested using screen metallic fire assay analysis.

Screen metallic ("SM") analysis used 500 grams of minus 3.35 mm material that was crushed/pulverized to 90% <75um. The total sample was then screened to create a +75um and a -75um fraction, and each fraction was weighed. All of the +75 um fraction, that will contain all of the coarse Au, was then analyzed by fire assay (FA). For the -75um fraction, three individual subsamples (30 g) were analyzed by FA methods. The total Au content for the sample was calculated by using the weighted average of the +75um fraction results and the mean of the three -75um results.

The gold assay results from the screen metallic assay analysis were used in calculating the Bayan Khundii resource estimate.

11.4.1.3 Soil Samples

For soil samples, gold was analyzed by fire assay with an instrument finish using 30 gram aliquots, whereas all other metals analyzed by ICP40B, 4 acid digestion with ICP OES finish (see Table 11-1 for details).

11.4.2 Altan Nar

11.4.2.1 Drill Core, Rock, and Chip Samples

At Altan Nar samples underwent both gold and polymetallic analysis. Gold was first analyzed by fire assay with an instrument finish using 30-gram aliquots. For all other metals a 300-gram aliquot of each sample underwent a 3-acid digest and assayed using multi-element analysis with an atomic absorption spectrophotometer finish in accordance with SGS's AAS21R package.

If any samples assayed using the AAS21R package returned over-limit grades, then the specific samples were re-assayed using either AAS22S (e.g. Cu range 0.01-5%) or AAS43B (e.g. Cu range 0.01-40%) using the laboratory split. For the AAS22S package a 400 mg aliquot is used, where as for AAS43B a 250 mg aliquot is used.

Prior to 2013, rock samples (rock-chip/grab, trench, drill core) were assayed for gold, silver, copper, lead, zinc, arsenic and molybdenum. Samples from TND-09 to 12 were also analysed for bismuth and antimony. In 2013, rock samples were analysed for Au and a suite of 45 elements using a four-acid digest and ICO-OES finish with 'ore-grade' analysis completed on over detection limit samples. Since 2014, the standard suite of elements analysed by SGS has been reduced from 45 to 33 (see Table 11-1 for details).

All drill core sample rejects are saved and stored at a secure facility and are available to carry out check analyses as necessary.

11.4.2.2 Soil Samples

All soil samples from 2011 were assayed for gold, silver, copper, lead, zinc, arsenic and molybdenum, however, soil samples from 2012 were assayed for gold and a suite of 45 elements and samples from 2014 were assayed for gold and a suite of 33 elements. Table 11-2 provides a summary of the analytical methods used by SGS to analyse all of the samples. All drill core sample rejects are saved and stored at a secure facility and are available to carry out check-analyses as necessary.

Table 11-2: Altan Nar SGS Analytical Methods and Detection Limits

Gold Analysis			Detection Limits	
SGS Code	**Description**	**Element**	**LDL**	**UDL**
FAE303	Fire Assay, Solvent Extraction AAS[1] finish, 30g sample	Au	1 ppb	10,000 ppb
FAA303	Fire Assay, AAS[1] finish, 30g sample	Au	0.01 ppm	100 ppm
Multi-Element Analysis				
AAS21R	DIG21R (3 acid digest[2]) with AAS[1] finish	Cu	2 ppm	10,000 ppm
		Ag	1 ppm	100 ppm
		Pb	3 ppm	5,000 ppm

Gold Analysis			Detection Limits	
		Zn	2 ppm	10,000 ppm
		As	50 ppm	5,000 ppm
		Mo	5 ppm	10,000 ppm
Multi-Element Ore-Grade Analysis				
AAS22S	DIG22S (3 acid digest[2]) with AAS[1] finish	Cu	10 ppm	5,000 ppm
		Ag	5 ppm	500 ppm
		Pb	10 ppm	2%
		Zn	10 ppm	2%
		As	0.01%	2.50%
		Mo	20 ppm	5%
Multi-Element Ore-Grade Analysis - Higher Detection Limits				
SGS Code	**Description**	**Element**	**LDL**	**UDL**
AAS43B	DIG43B (4 acid digest[3]) with AAS[1] finish	Ag	500 ppm	2%
		Pb	0.01%	20%
		Zn	0.01%	40%
		As	0.02%	40%
		Mo	0.02%	40%
45-Element Analysis				
ICP40B	4 acid digestion[3] with ICP OES[4] finish	Ag: 2 ppm – 10 ppm; Al: 0.01% - 15%; As: 3 ppm - 1%; Ba: 1 ppm - 1%; Be: 0.5 ppm - 0.25%; Bi: 5ppm - 1%; Ca: 0.01% - 15%; Cd: 1 ppm - 1%; Ce: 0.05 ppm-1000 ppm, Co: 1 ppm - 1%; Cr: 1 ppm - 1%; Cu: 0.5 ppm - 1%; Eu: 0.05 ppm -1000 ppm, Ga: 0.05 ppm – 500 ppm, Ho: 0.05 ppm – 1000 ppm, Fe: 0.01% - 15%; K: 0.01% - 15%; K2O: 0.01% - 35%; La: 0.5 ppm - 1%; Li: 1 ppm - 1%; Mg: 0.01% - 15%; Mn: 2 ppm - 1%; Mo: 1 ppm - 1%; Na: 0.01% - 15%; Na2O: 0.01% - 35%; Nb: 3 ppm – 1%; Nd: 0.05 ppm to 1%; Ni: 1 ppm - 1%; P: 0.01% - 15%; P2O5: 0.01% - 35%; Pb: 2 ppm - 1%; S: 0.01% - 5%; Sb: 5 ppm - 1%; Sc: 0.5 ppm - 1%; Se: 2 ppm to 1000 ppm; Sn: 10 ppm - 1%; Sr: 0.5 ppm - 1%; Ta: 0.05 ppm to 1%; Te: 0.05 ppm – 500 ppm; Th: 2 ppm to 1%; Ti: 0.01% - 15%; U: 3 ppm to 1%; V: 2 ppm - 1%; W: 10 ppm - 1%; Y: 0.5 ppm - 1%; Yb: 0.5 ppm to 1000 ppm; Zn: 1 ppm - 1%; Zr: 0.5 ppm - 1%		
33-Element Analysis				
ICP40B (2014)	4 acid digestion[3] with ICP OES[4] finish	Ag: 2 ppm – 50 ppm; Al: 0.03% - 15%; As: 5 ppm - 1%; Ba: 5 ppm - 1%; Be: 0.5 ppm - 0.25%; Bi: 5ppm - 1%; Ca: 0.01% - 15%; Cd: 1 ppm - 1%; Co: 1 ppm - 1%; Cr: 10 ppm - 1%; Cu: 2 ppm - 1%; Fe: 0.1% - 15%; K: 0.01% - 15%; La: 1 ppm - 1%; Li: 1 ppm - 1%; Mg: 0.02% - 15%; Mn: 5 ppm - 1%; Mo: 2 ppm - 1%; Na: 0.01% - 15%; Ni: 2 ppm - 1%; P: 0.01% - 15%; Pb: 2 ppm - 1%; S: 0.01% - 5%; Sb: 5 ppm - 1%; Sc: 0.5 ppm - 1%; Sn: 10 ppm - 1%; Sr: 5 ppm - 1%; Ti: 0.01% - 15%; V: 2 ppm - 1%; W: 10 ppm - 1%; Y: 1 ppm - 1%; Yb: 0.5 ppm to 1000 ppm; Zn: 5 ppm - 1%; Zr: 3 ppm - 1%		

1. *AAS: Atomic Absorption Spectrophotometer*
2. *Acid Digest: Perchloric (HClO4), Hydrochloric (HCl) and Nitric (HNO3)*
3. *Acid Digest: Same as 3-acid plus Hydrofluoric (HF)*
4. *ICP OES: Inductively Coupled Plasma Optical Emission Spectrometry*
5. *LDL: Lower Detection Limit*
6. *UDL: Upper Detection Limit*

Source: Altan Nar Gold Project (Tsenkher Nomin Exploration License), Bayankhongor Aimag, Southwest Mongolia, National Instrument 43-101 Technical Report, Erdene Resource Development Corporation, J. C. (Chris) Cowan, MSc, PEng, March 10, 2014

11.5 Data Quality Control

11.5.1 Bayan Khundii

A QA/QC program was completed at the Bayan Khundii zone which included the insertion of standards and blanks into the sample stream, as well as the collection of quarter core duplicates. Reject duplicates were also analysed, as well as umpire testing at a third-party laboratory.

All samples were submitted to SGS IMME Mongolia LLC for analysis using the FAE303 method for gold and the ICP40B method for multi-elements. Select higher grade samples were also submitted for screen metallic assay.

A random selection of assay values provided from the Erdene database were compared to digital pdf laboratory certificates from SGS and results were found to be consistent.

Table 11-3shows the QA/QC sample summary for the project, including QA/QC sample insertion rates. Overall standard and blank insertion rates are acceptable, but the frequency of duplicate samples should be increased as the project advances towards a mining phase. One thing of note, the number of samples processed at the lab per batch is quite small, often incorporating only one standard and one blank within each batch. A suitable insertion rate should be selected in the future to adapt to the small batch sizes, or else perhaps request the lab increase the number of samples in each batch.

Table 11-3: Bayan Khundii QA/QC Sample Insertion Summary

	# of Samples	Insertion Rate
Half Core Samples	23,853	
Quarter Core Duplicates	304	1.3%
Reject Duplicates	114	0.5%
Standards	1,074	4.5%
Pulp Blanks	159	0.7%
Coarse Silica Blanks	814	3.4%
Total	**26,318**	
Umpire Lab Samples	500	2.1%

11.5.1.1 Standards

Standard analyses were monitored by Erdene and if SGS analysis varied from the determined assay value by more than 15% for one or more elements then Erdene's protocol is to request that the entire batch be re-analyzed. The average difference between gold assay values and gold certificate values for the Bayan Khundii drilling program was -2.9 %. No re-analysis has been required to date.

Five different gold-certified reference standards were used in the Bayan Khundii zone program (Table 11-4) which contained standardized gold values ranging from 1.24 g/t Au to 9.13 g/t Au. A detailed discussion of the performance of each standard is presented in the following sub-sections.

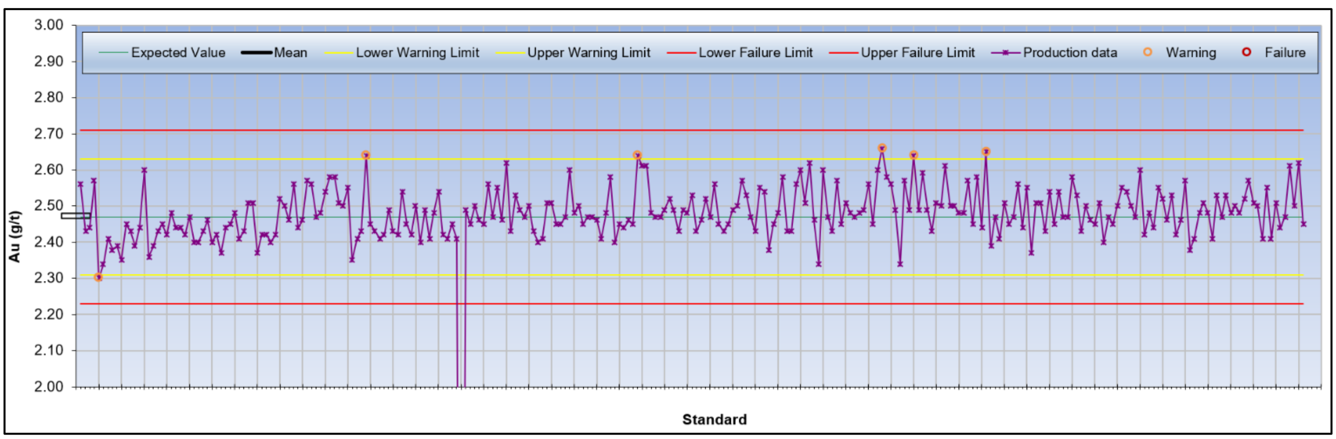
Table 11-4: Standard Summary

Standard ID	# of Samples	Au value (ppm)
OREAS 60c	271	2.47
OREAS 62c	90	8.79
OREAS 62e	516	9.13
OREAS 66a	94	1.24
OREAS 67a	103	2.24
Total	**1,074**	

Standard OREAS 60c

A total of 271 OREAS 60c standards were included in the drill program. Standard performance overall is acceptable, with only 6 of the sample or 2% falling beyond the two-standard deviation "warning" threshold (Figure 11-1). One sample returned a below detection limit value for gold and is suspected to be a mis-labelled blank.

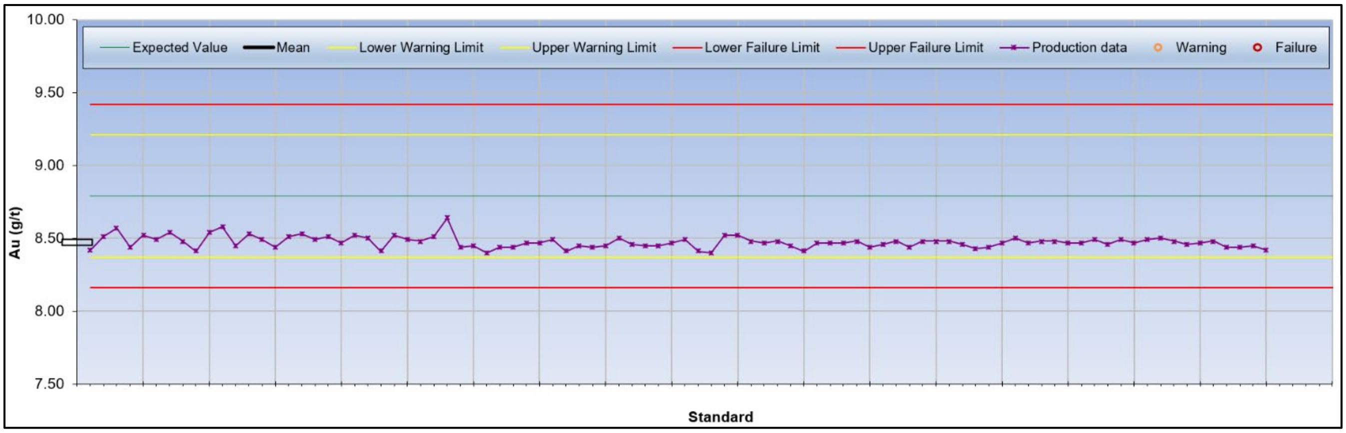
Figure 11-1: Standard OREAS 60C Au Performance



Standard OREAS 62c

A total of 60 OREAS 62c standards were included in the drill program. Standard performance overall is acceptable, with results showing excellent precision, however a consistently low bias for this grade is observed (Figure 11-2). Considering this trend is not observed in other standards, this low bias is assumed to result from an issue with the standard rather than the laboratory.

Figure 11-2: Standard OREAS 62c Au Performance



Standard OREAS 62e

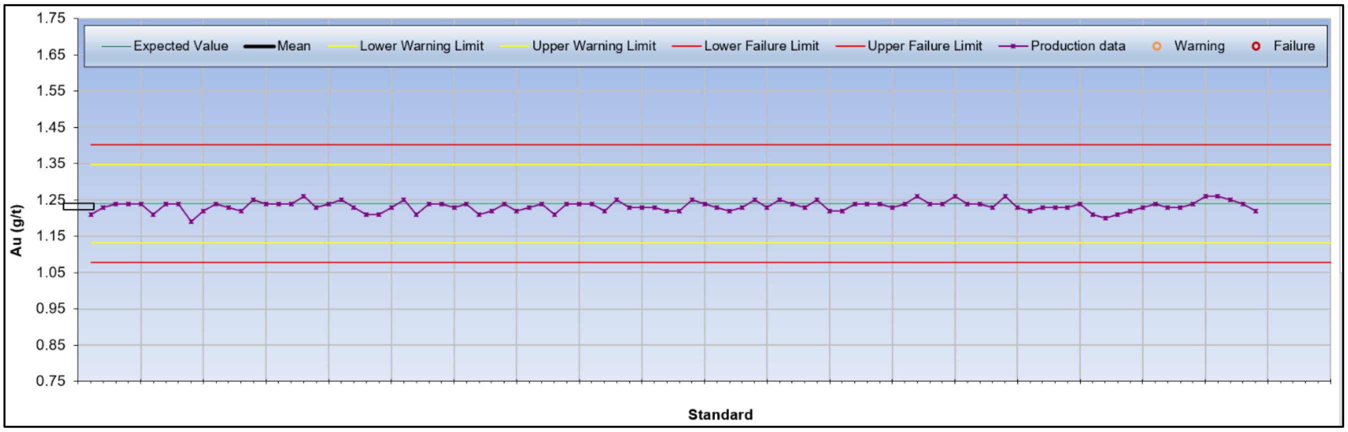
A total of 516 OREAS 62e standards were included in the drill program. Standard performance overall is acceptable, however plotting of results over time identifies two trends (Figure 11-3). The first two thirds of the standards contain excellent precision but poor accuracy when compared to the reported standard mean grade, whereby the reported grades show a consistent low-grade bias. This bias appears to abruptly disappear for the last third of these standards, where the assayed mean values for the standard are quite close in value to the expected standard mean value. Considering this jump in values is not observed in the performance of other standards in the program, these later standards are likely sourced from a different batch of standard material and is likely not a reflection of an issue with the laboratory.

Figure 11-3: Standard OREAS 62e Au Performance

Standard OREAS 66a

A total of 94 OREAS 66a standards were included in the drill program. Standard performance overall is excellent, showing both high precision and high accuracy in the results (Figure 11-4).

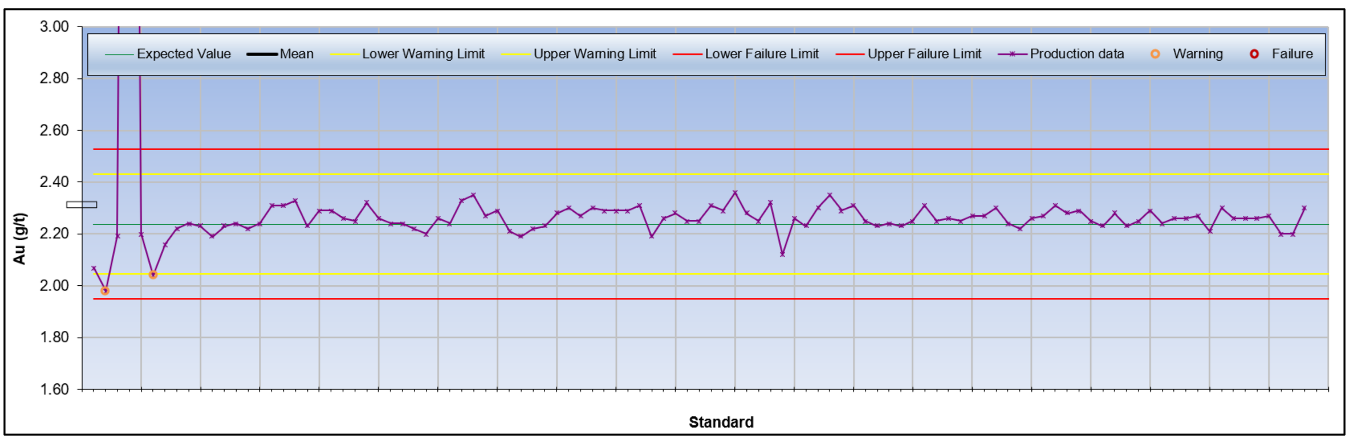
Figure 11-4: Standard OREAS 66a Au Performance



Standard OREAS 67a

A total of 103 OREAS 67a standards were included in the drill program. Standard performance overall is acceptable, with only 2 of the samples falling beyond the two-standard deviation threshold (Figure 11-5). One sample returned a value for gold of 8.48 ppm which is very likely a mis-labelled standard of OREAS 62c.

Figure 11-5: Standard OREAS 67a Au Performance



11.5.1.2 Blank Analyses

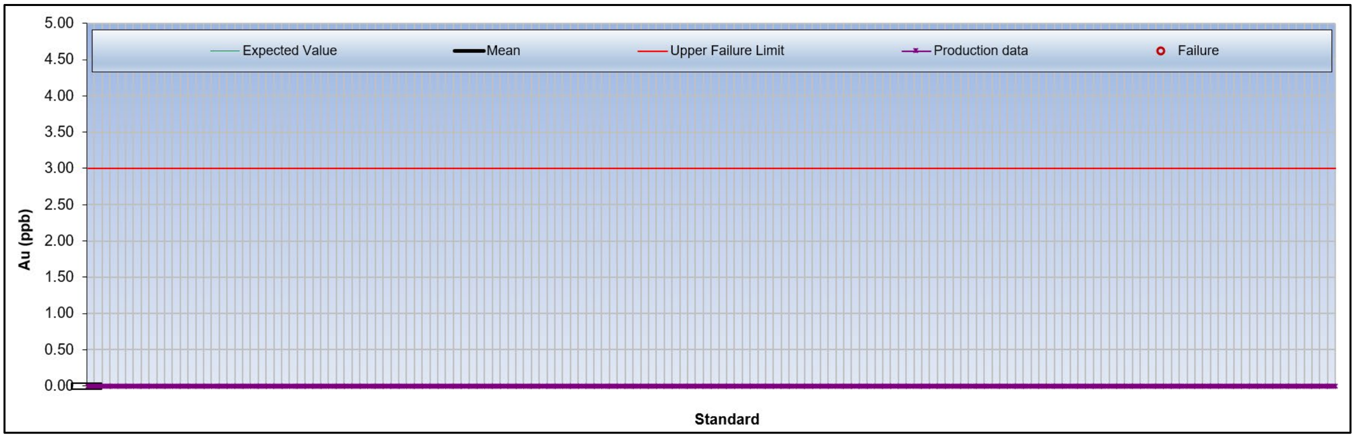
11.5.1.3 Certified Pulp Blanks – OREAS24P and OREAS26a

Two certified pulp blanks were used for drill holes BKD-01 to BKD-42 (a total of 159 samples). Certified pulp blanks are used to test the calibration of the analytical procedure and for sample contamination resulting during the sample preparation phase. All results returned below detection limit values.

11.5.1.4 Certified Coarse Silica Blanks – ASL ½" Mesh Silica Blank

Coarse silica blanks are used to monitor potential contamination at the lab due to insufficient cleaning during the sample preparation process. Coarse silica blanks were used in the program for holes BKD-43 to BKD-255 (814 samples). All results returned below detection limit values, as shown below in Figure 11-6, indicating no suspected issues with contamination during sample preparation.

Figure 11-6: Coarse Silica Blanks (Au ppb)



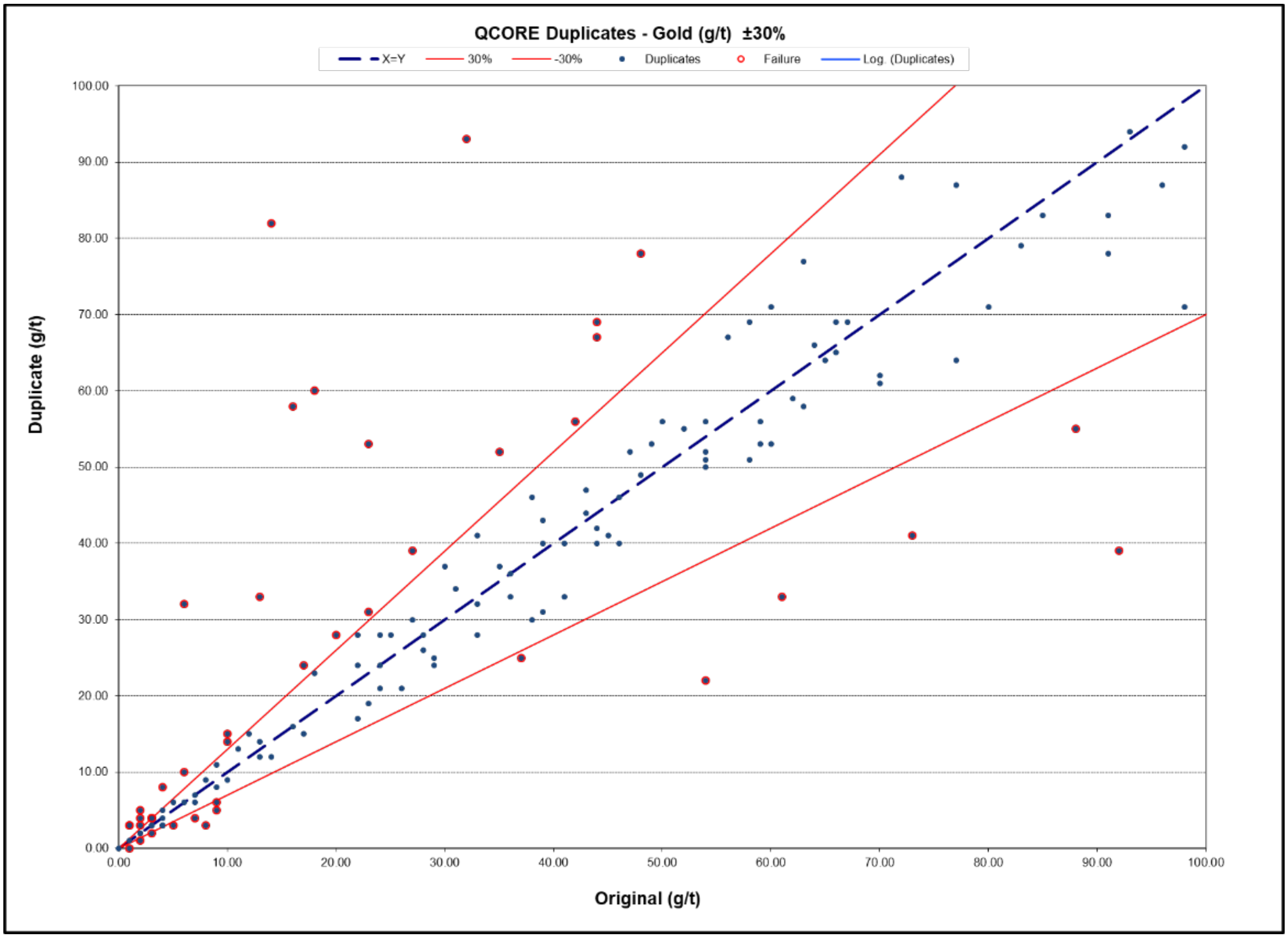
11.5.2 Field Duplicates

A total of 304 quarter core duplicate samples were collected, representing an insertion rate of 1.2%.

While submitting quartered duplicate core samples to lab is considered good industry practice, the spatial distribution of gold across a sample is often not uniform which can make interpreting the duplicate lab results difficult. In theory, the best way to obtain a representative gold sample is to submit the entire diameter of drill core to the lab. In practice, this is not practical. Half of the drill core sample should always be retained by the exploration company for their own records and core library. If the gold mineralization is nuggety, or not homogenously distributed, then the resulting two halves of drill core can have significantly different grades. Later, should the sample remaining portion of the sample require a further analytical test, such as for field duplication or third-party testing, the remaining ½ of the originally sampled drill core, is again cut in half. This results in ¼ of the original core sample being sent to the lab, and only ¼ of the original core sample remaining in the core box. At these sample sizes, the absence or presence of even a pinpoint fleck of gold can a significant implication on the reported sample grades.

The results of Erdene's field duplication study are presented graphically in Figure 11-7. While the majority of the duplicate samples fell within the accepted +/- 30% threshold, 93 of the 304 samples fell outside of this accepted relative difference suggesting the presence of a small potential nugget effect.

Figure 11-7: Quarter Core Duplicate Samples (Au g/t)

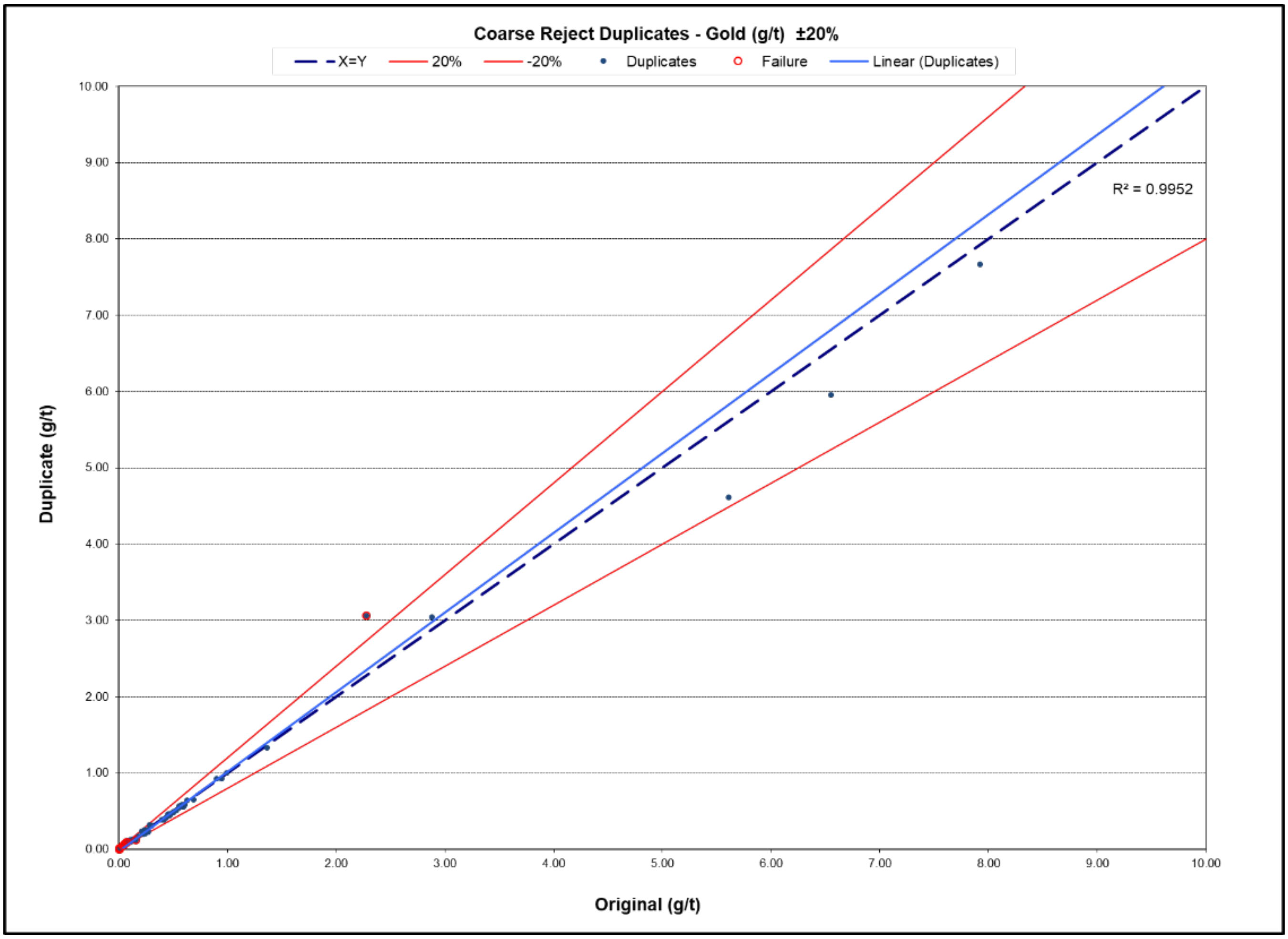


11.5.3 Reject Duplicates

A total of 114 samples were collected from lab reject material (0.4% insertion rate) and analysed using the same technique as the original assays. A threshold of +/- 20% is considered an acceptable pass/fail rate for reject samples. While 15 samples, or 13%, fall outside these thresholds, only 1 failed above a gold grade of 0.5 g/t Au (Figure 11-8). Samples which failed below 0.5 g/t are considered non-material failures given that analytical equipment for these lower grades is less accurate.

Moving forward, it is recommended that Erdene request that SGS run duplicates on a broader range of sample grades in order to better test higher grade mineralization.

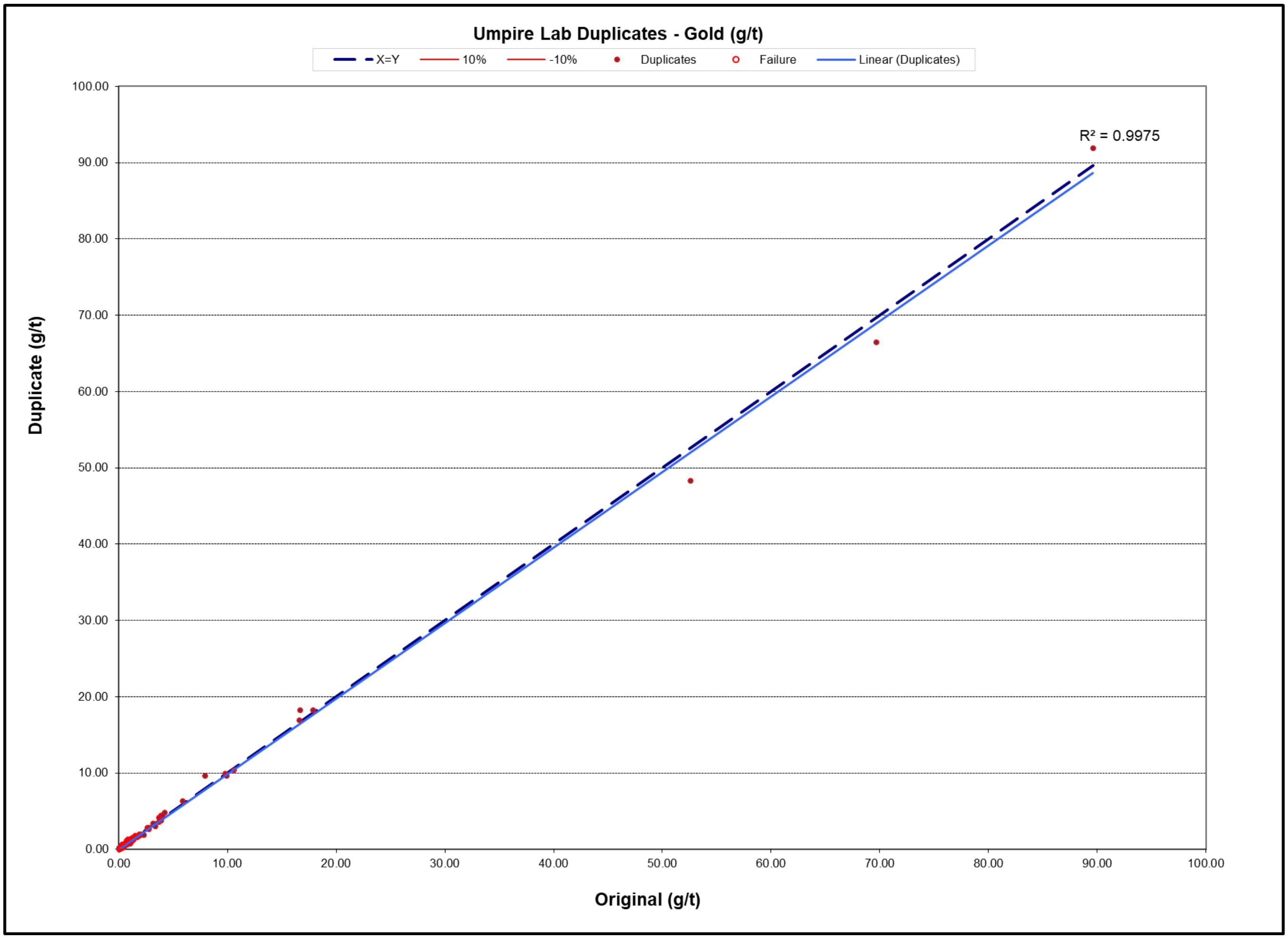
Figure 11-8: Coarse Reject Duplicate Samples (Au g/t)



11.5.4 External Laboratory Assay Verification

A total of 500 pulps were selected to be sent to ALS Chemex for umpire sampling, representing 1.9% of the samples collected. No sample bias is observed between ALS and SGS (Figure 11-9).

Figure 11-9: Umpire Duplicate Samples (Au g/t)



11.5.5 Altan Nar

Review of the sampling quality controls and data quality assurances for Altan Nar was completed by Jeremy Clark of RPM Global in a previous technical report titled "NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project" dated February 4, 2019. Detailed information regarding data quality control procedures and results for Altan Nar can be found in section 11.6 of the aforementioned technical report. No additional sampling has been conducted by Erdene on Altan Nar since the filing of the above report.

Jeremy Clark, RPM Global QP for the Altan Nar QA/QC provided the following summary in the February 4, 2019 Technical Report:

"Erdene has carried out a program of QA/QC for drilling since 2011 at the Altan Nar Area. Certified Reference Material standards were inserted at regular intervals and results have accurately reflected the original assays and expected values. Certified blanks have all reported below 0.001g/t Au.

Slight underestimation of Au (8.0g/t) and Ag (10 g/t) grade was observed from the OREAS62c standards inserted in 2015 drilling campaign; however most of the results were within 2SD (Standard Deviations).

A large degree of scatter was observed in Zn (105ppm) and Pb (3ppm) for the low grade OREAS 26a standard. But these levels are far below plant feed grade as they are primarily Au / Ag standards.

Slight underestimation of Au (9.2g/t) grade was also observed from OREAS 62E for 2016 drilling while Ag performed well. For 2017 the OREAS 62E Au standard performed very well with majority of the results falling within 2SD; however, Ag standards showed poor performance as most of the results fall outside 2SD. It is suggested that a move to a routine ppm level Au analysis be made.

The majority of the field duplicate samples were at low Au values, while the few higher duplicates are widely scattered, suggesting but not proving the possibility of coarse gold. At some point in the future this needs to be confirmed using screen fire assay analysis. Zn and Pb field duplicates are also at low but more "in range" values than Au and Ag. They show significant scatter at economically significant grades. Given the spread of duplicate values in general it is suggested that sample splitting protocols be reviewed.

RPM recommends duplicate pulp testing of plant feed grade base metal samples prior to the next re-estimation of the Resource to confirm laboratory performance. This will require inclusion of sufficient base metal CRM to form a statistically valid population.

Instead of two Au CRM's, RPM recommends the use of separate Au and plant feed grade base metals standards in appropriate ranges to confirm Au and base metals values in future programs.

RPM recommends selection of pulp duplicates from economically significant grade ranges.

Generally, QAQC data suggests slight negative bias for high Au standards potentially as a result of approaching the method over-range limit. The results for Au grades >9ppm are likely to be understated, this is not considered a material issue and supports the assay data used in the Mineral Resource estimate."

11.6 QP Opinion on Sample Collection, Preparation, and Analyses For Bayan Khundii

Overall the Geology QP holds the opinion that the data from drilling on the Bayan Khundii deposit has been obtained in accordance with contemporary industry standards, and that the data is adequate for the calculation of Measured, Indicated, and Inferred mineral resource categories, in compliance with National Instrument 43-101.

Given that the grade of gold mineralization encountered at Bayan Khundii has a significantly greater range, it's recommended that future programs conducted by Erdene utilize standard grades which are more reflective of the grade ranges present at the deposit. A more suitable low gold standard of approximately 0.5 g/t Au would be beneficial, along with the insertion of the occasional higher-grade standard of approximately 50 g/t Au should also be considered.

12.0 DATA VERIFICATION

12.1 Bayan Khundii

12.1.1 Database Audit

The Geology QP carried out an internal audit of the drill hole database provided to Tetra Tech from Erdene in order to verify that the information fairly represented the original drill logs and assay certificates for the Bayan Khundii database.

12.1.1.1 Drillhole Collar, Survey and Lithology Database

The verification was completed on 28 holes, examining collar coordinates, end-of-hole depths, down-the-hole survey measurements, and “from” and “to” intervals. Scans of the original recorded survey information was not available and so survey information was compared between the values recorded in the drill logs, and the database. No errors were found in survey database. Table 12-1 summarizes the results of the data base audit completed for the Bayan Khundii database.

Tetra Tech imported the drill hole data into Datamine Studio RM software version 1.2.47.0 which has a function that checks for duplicate intervals, overlapping intervals, and intervals beyond end-of hole. Any errors identified in the routine were checked against the original logs and corrected.

Table 12-1: Erdene Database Verification Statistics

Analysis	Total Data Set	Verified	Verification Rate	Number of Errors	Error Rate (%)	Comments Regarding Error
Collar	285	28	10%	0	0	Database contains surveyed collar positions. Drill logs often contain handheld GPS survey locations. Recommend updating logs to contain final survey coordinates. Differences not counted as errors.
Lithology	5,642	1,810	32%	0	0	
Assay	25,046	2,619	10%	0	0	

12.1.1.2 Assay Database

Assay data was provided to Tetra Tech as a compiled excel database which contained the following information:

- Hole ID
- Sample From
- Sample To
- Gold assay values (g/t)

- Silver assay values (g/t)
- Iron assay values (%)
- Gold screen metallic assays (g/t)

A total of 2,619 samples or approximately 10% of the assays in the database were compared against assay certificates. These random spot checks verified the assays in the excel sheets, as no issues were identified during the assay verification.

12.1.2 Independent QP Site Visit

The Geology QP visited the Property from May 9th-11th, 2019, and was accompanied by Erdene personnel. Mr. Norton examined several core holes, drill logs, and assay certificates, along with inspecting the core logging facilities, sampling procedures, and core security. Assays were examined against drill core mineralized zones. Mr. Norton also examined the collar and trenching locations, along with surface mineralization during a tour of the property. Given that no active drilling was underway at the time of the site visit, the QP was not able to observe the real-time procedures relating to the collection of drill core, logging, sampling, and cutting of core.

12.1.3 Drill Collar Verification

During the site visit, Mr. Norton visually observed the diamond drill setups on surface. Manual GPS verification was completed using a Garmin GPSMAP® 62CS handheld device. This handheld device has a lower accuracy than professional survey device which was used to survey Erdenes holes, and as such, minor collar differences are expected for each hole location surveyed (Table 12-2). Coordinates were collected using WGS84 coordinate system.

No issues were identified during the drill collar verification.

Table 12-2: Drill Collar Verification Results

Hole ID	Erdene Co-Ordinates (WGS 84)			Tetra Tech Co-Ordinates (WGS 84)			Difference (m)		
	Easting	Northing	Elevation	Easting	Northing	Elevation	Easting	Northing	Elevation
BKD-61	483259	4861055	1240	483260	4861054	1236	1	1	4
BKD-76	483296	4861081	1237	483299	4861081	1233	3	0	4
BKD-227	483266	4861008	1246	483268	4861008	1245	2	0	1
BKD-234	483293	4861012	1245	483290	4861014	1241	3	2	4

12.1.4 Tetra Tech Verification Samples

Verification samples were identified in order to test a range of gold grades and provide insight into grade variability in samples which returned initial assay results of less than 1 g/t Au up to the 100 g/t Au range.

All of the Geology QP's independent samples collected from the Bayan Khundii site were security tagged and photographed by the independent Geology QP and delivered via courier to the ALS Chemex preparation facility in Ulaanbaatar, Mongolia. To be consistent with current Erdene analytical procedures, the same procedures were requested for the verification samples. The standard analytical procedures are as follows:

- All samples were received, registered, and dried.
- All samples were crushed to 80% less than 3.35 mm, then split with a riffle splitter.
- A 750 g split from all samples were then pulverized to 90% less than 75 µm.
- All pulverized splits were submitted for 50 g gold fire assay with AA finish (Au-AA23).
- Samples returning grades above the upper detection limit of Au-AA23 (10 ppm) were submitted for 50 g ore grade fire assay with AA finish (Au-AA26) and screen metallics (Au-SCR22AA).

12.1.4.1 Independent Check Assay Results

The Geology QP conducted a field duplicate program using 5 samples collected from drill core at Bayan Khundii to evaluate variability in analytical test results. Results are shown in Table 12-3.

The results of the independent coarse reject verification sampling confirm the presence of mineralization. As would be expected in a low sulphidation epithermal system, the grades display high variability even at a short range of a distribution of quartered core (Table 12-3). The observed grade variability is primarily attributed to the verification sample size of ¼ NQ core, which is being compared against a more representative original sample size of ½ of the NQ core.

Table 12-3: Independent Check Assay Quarter Core Duplicate Results

Hole ID	From (m)	To (m)	Original Sample Number	Au Results (g/t)			
				Au (orig)	Au (dup)	Au (met)	R.P.D. %
BKD-230	97.0	98.0	121228	42.58	48.6	45.2	13%
BKD-230	98.0	99.0	121230	0.96	0.685		-33%
BKD-242	114.0	115.0	122735	22.08	51.6	51.1	80%
BKD-242	115.0	116.0	122736	4.03	2.430		-50%
BKD-242	121.0	122.0	122743	98.57	84.4	83.6	-15%

Note: "orig" is the original ½ core sample, "dup" is a duplicate of the original using ¼ core sample (combined AA23 and AA26 values), and "met" is screen metallics performed on the duplicate core sample.
RPD is relative percent difference between original and duplicate sample.

Screen metallic duplicates were completed on 3 core duplicate samples for gold, as shown in Table 12-4.

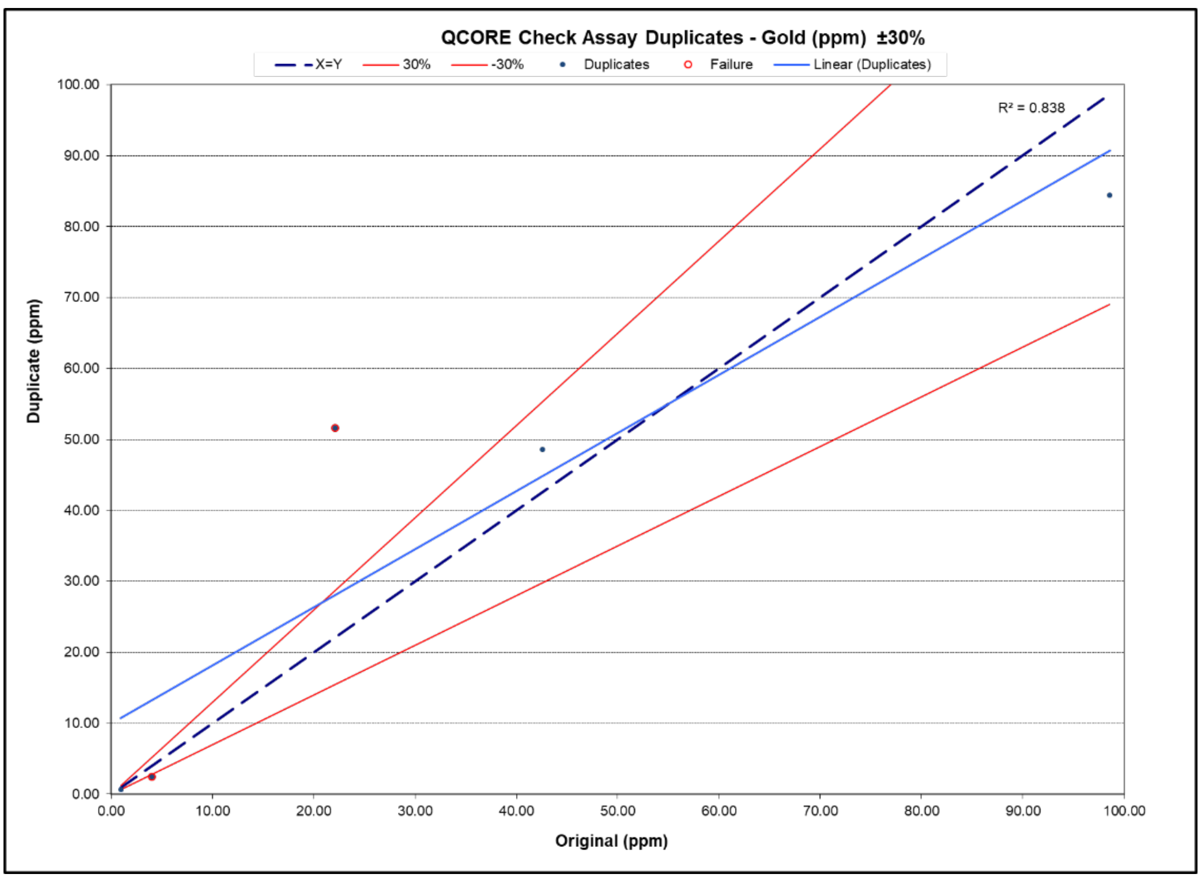
Table 12-4: Independent Check Assay Screen Metallic Duplicate Results

Hole ID	Sample Number	Au (gpt) Original	Screen Metallic Au (gpt)	R.P.D.%	% Au > 75 µm
BA18-123	445240	42.58	45.2	6%	17%
BA18-123	445241	22.08	51.1	79%	7%
BA18-123	445242	98.57	83.6	-16%	6%
Overall Average		54.4	60.0	23%	10%

The screen metallic results indicate that approximately 10% of total gold grade by mass is contained in the coarse +75 µm fraction. These results confirm the presence of coarse-grained gold in the system. Overall comparison of gold grades between the screen metallics fire assay and the 50 g fire assay with an AA finish indicates an average RPD value of -3%. This result indicates that variability exists in the relative percent difference for grades reported by each method, however, no significant positive nor negative bias was observed overall between the two analytical methods.

Core check assay duplicate results for AA23/AA26 methods are shown for gold in Figure 12-1. Core check assay duplicate results for screen metallics (compared to original) are shown in Figure 12-2, and for duplicate AA26 vs screen metallics are shown in Figure 12-3.

Figure 12-1: Quarter Core Check Assay Duplicate Results



TETRA TECH

Figure 12-2: Original vs Screen Metallic Check Assay Duplicate Results

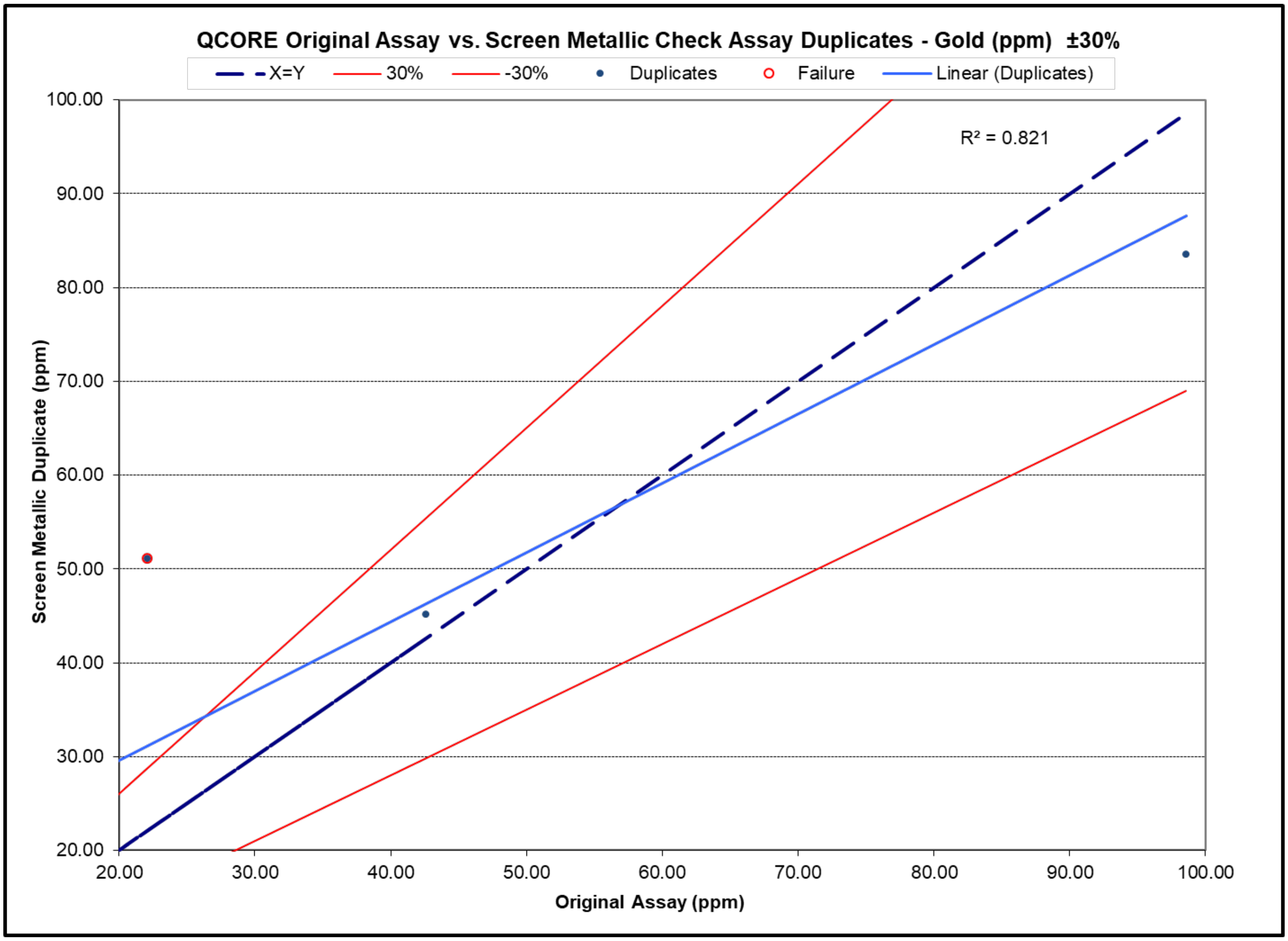
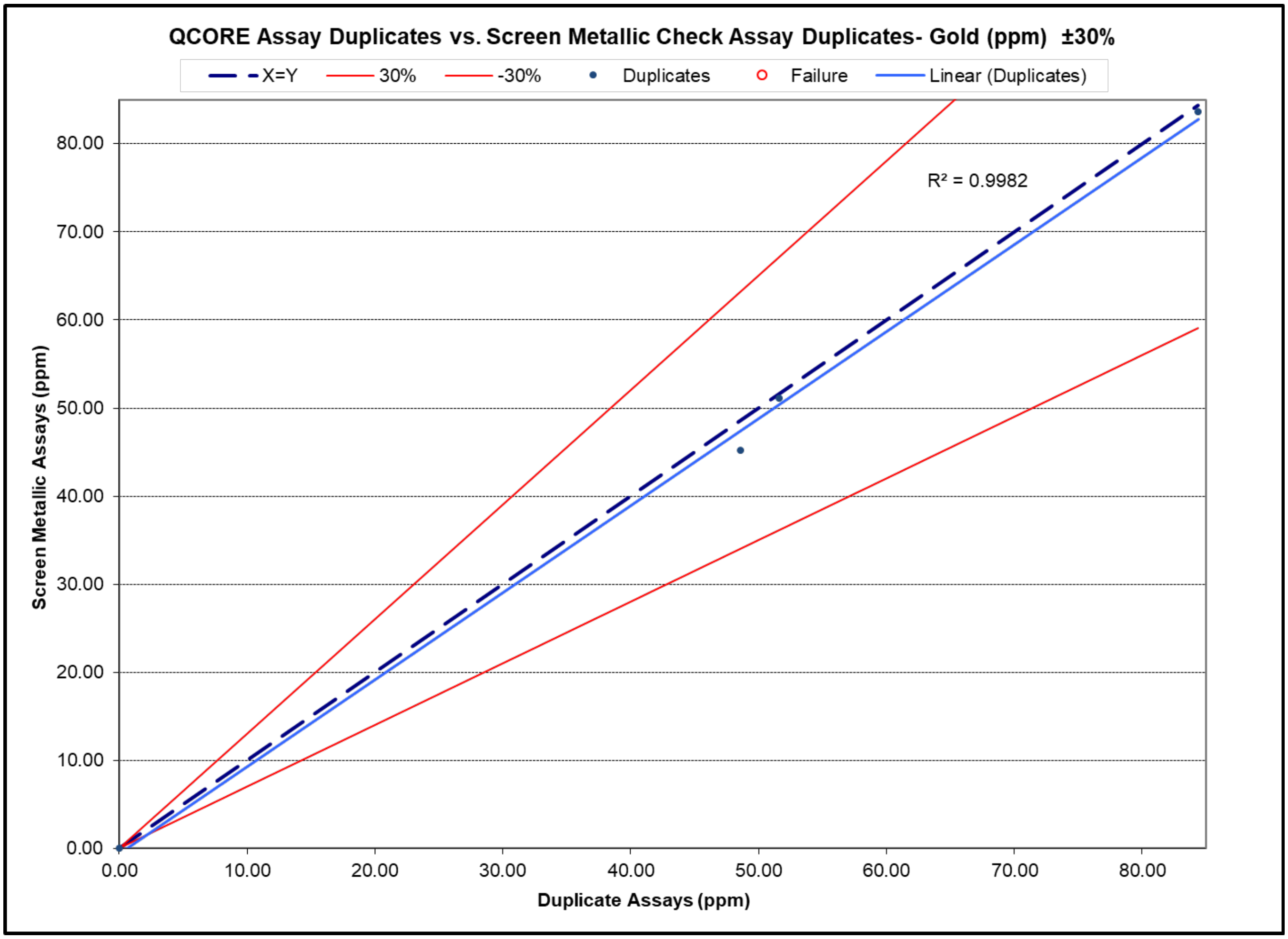


Figure 12-3: AA26 Duplicate vs Screen Metallic Check Assay Results



12.1.5 QP Opinion on Data Verification

The Geology QP has conducted a review of the project database, has compared analytical certificates with reported assay results for drill core and trench samples, has visited the Property, and collected mineralized drill core samples from the Property. It is the Geology QP's opinion that the data reported for the Project can be verified and is acceptable for mineral resource estimation.

12.2 Altan Nar

Review of the data verification for Altan Nar was completed by Jeremy Clark of RPM Global in a previous technical report titled "NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project" dated February 4, 2019. Detailed information regarding data verification procedures and results for Altan Nar can be found in section 12.1 of the aforementioned technical report. No additional sampling has been conducted by Erdene on Altan Nar since the filing of the above report.

Jeremy Clark, RPM Global QP for the Altan Nar data verification provided the following summary in the February 4, 2019 Technical Report:

"RPM conducted a review of the geological digital data supplied by Erdene for the Project to ensure no material issues could be found and there was no cause to consider that the data was not accurate. RPM completed systematic data validation steps after receiving the database. Checks completed by RPM included:

- *Down hole survey depths did not exceed the hole depth as reported in the collar table.*
- *Hole dips were within the range of 0° and -90°.*
- *Assay values did not extend beyond the hole depth quoted in the collar table.*
- Assay and survey information was checked for duplicate records.

No errors were noted by RPM.

The database review conducted by RPM shows that Erdene has supplied a digital database that is largely supported by verified certified assay certificates, original interpreted sections, and sample books.

Based on the data supplied, RPM considers that the analytical data has sufficient accuracy to enable a Mineral Resource estimate for the Project."

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Metallurgical testwork for the Bayan Khundii prefeasibility study is largely based on work conducted at Blue Coast Research Ltd. in 2019. The testwork was designed to expand the metallurgical database and build on past work conducted at Blue Coast in 2016 and 2017. The 2019 test program included an expanded cyanidation program, additional variability tests, a gravity concentration study and a comminution test program. A detailed summary of the testwork may be found in the individual Blue Coast reports, referenced in Chapter 27.

13.1 Prior Metallurgical Testwork Programs

13.1.1 2016 Metallurgical Testwork

The 2016 testwork program evaluated the response of two Bayan Khundii composites to gravity concentration and cyanidation methods. These composites, having grades of 24.9 g/t (BK-MET_15-01) and 0.71 g/t (BK-MET-15-02), had overall gold recoveries of 99% and 92% respectively through a combined gravity and cyanidation flowsheet. A summary of the metallurgical performance from these composites is summarized in Table 13-1.

Table 13-1: Overall Metallurgical Recoveries from BK-MET-15-01 and BK-Met-15-02

Composite	BK-MET-15-01		BK-MET-15-02	
Process Unit	**Au Distribution (%)**	**Ag Distribution (%)**	**Au Distribution (%)**	**Ag Distribution (%)**
Gravity Conc	71	27	32	10
Tails Leach	28	34	60	10
Gravity+Tails Leach	99	61	92	20

13.1.2 2017 Metallurgical Testwork

The 2017 metallurgical testwork program expanded the metallurgical database by conducting comminution testwork, a cyanidation optimization program and a cyanide variability program.

Master composite testwork was conducted on global composites made up of samples from across the Bayan Khundii deposit. The optimization testwork pointed to the need for a primary grind in the range of 80% passing 60µm in order to maximize gold recovery. A moderate cyanide concentration of 1.0 g/L was necessary to maintain gold extractions.

The cyanide variability program consisted of 16 discreet samples that were tested under conventional cyanide leach conditions. The composites represented both variations in grade and geography of the Bayan Khundii deposit. The majority of the composites had head grades less than 1.0 g/t Au and were designed to test the limits of recovery from lower grade material. Each test was conducted as a standard 48-hour bottle roll, with a cyanide concentration maintained at 1.0 g/L NaCN. pH was held between 10.5 and 11.0.

Table 13-2 summarizes the gold recovery from various composites and their location. Composites with head grades greater than 1.0 g/t consistently returned gold recoveries that were greater than 90%. Some evidence was noted amongst lower grade samples (BK-MET-16-15 through BK-MET-16-20) whereby recovery decreased at depth. Further study is required to determine if this holds true at higher grades.

Table 13-2: Summary of Recoveries compared to Sample Locations

Test	Composite	Location	Grind Size (p80, µm)	Head Grade, Au (g/t)	Au Recovery (%)
CN-31	BK-MET-16-01	no specific area	56	1.88	90.4
CN-30	BK-MET-16-03	no specific area	60	5.01	95.9
CN-20	BK-MET-16-04	no specific area	59	4.72	92.4
CN-4	BK-MET-16-05	no specific area	59	2.30	92.5
CN-5	BK-MET-16-06	no specific area	66	1.18	90.8
CN-6	BK-MET-16-07	no specific area	72	0.60	83.8
CN-7	BK-MET-16-08	no specific area	57	0.35	83.0
CN-8	BK-MET-16-09	BKD-32 – no specific depth	94	0.37	75.4
CN-9	BK-MET-16-10	BKD-32 – no specific depth	140	0.96	83.2
CN-10	BK-MET-16-11	Midfield, BKD-60 – no specific depth	86	0.38	83.0
CN-11	BK-MET-16-12	Midfield, BKD-60 – no specific depth	67	0.84	87.5
CN-12	BK-MET-16-13	Striker/West BKD-40/49 – no specific depth	62	0.41	73.9
CN-13	BK-MET-16-14	Striker/West BKD-40/49 – no specific depth	56	1.10	93.5
CN-14	BK-MET-16-15	Striker/Au Hill 0-40m	67	0.45	86.0
CN-15	BK-MET-16-16	Striker/Au Hill 0-40m	53	0.70	91.4
CN-16	BK-MET-16-17	Striker/Au Hill 40-80m	60	0.40	84.2
CN-17	BK-MET-16-18	Striker/Au Hill 40-80m	47	0.79	84.4
CN-18	BK-MET-16-19	Striker/Au Hill >80m	56	0.37	79.8
CN-19	BK-MET-16-20	Striker/Au Hill >80m	55	0.75	82.4

13.2 Samples and Composite Characterization

Samples for the prefeasibility testwork were collected by Erdene personal. These composites (having composite ID's BK-MET-18-xx) were designed to reflect different aspects of the Bayan Khundii deposit. BK-MET-COMP_18-01 was selected from drill holes from the Striker, Midfield and Midfield North areas and was designed to be a global composite representing the average grade of the Bayan Khundii deposit. BK-MET-COMP_18-02 was selected from the Striker area only and targeted an average grade of 10 g/t gold. This composite was designed to reflect the higher-grade portions of the deposit that will be mined early in the mine life. Additionally, 13 variability composites (BK-MET-COMP_18-03 through BK-MET-COMP_18-15) were prepared. These composites were smaller and were designed to represent various geographic areas, grades and rock types (oxidized versus fresh material).

Chemical characterization of the composites was performed at Blue Coast Research. Gold content was measured by fire assay with an atomic adsorption finish. Silver was assayed with a four acid (near-total) digest followed by an atomic adsorption finish. Total sulphur and total carbon were assayed directly on an ELTRA Carbon-Sulphur analyzer. Sulphide sulphur and organic carbon were determined by first pre-treating the sample with 20% HCl for 1 hour at 75°C. This removed any sulphates and carbonates that may be present. The remaining residue is then analysed on the ELTRA with any sulphur and carbon present being attributed as sulphide sulphur and organic carbon. A summary of the measured head grades of the composites is presented in Table 13-3.

Table 13-3: Summary of Head Assays from Bayan Khundii Metallurgical Composites

Composite ID	Deposit Location	Description	Au (g/t)	Ag (g/t)	S_{tot} (%)	S_{2-}(%)	C_{tot}(%)	C_{org}(%)
18-01	Bayan Khundii Global	Deposit Wide Master Composite	3.17	2.89	0.05	0.04	0.17	0.02
18-02	Striker	Striker High Grade Master Composite	10.79	4.30	0.02	0.02	0.06	0.01
18-03	Striker	Oxide; ~1.5 g/t	1.31	2.57	0.01	0.01	0.05	0.01
18-04	Striker	Oxide; ~3.5 g/t	6.05	2.97	0.15	0.15	0.16	0.01
18-05	Striker	Fresh; ~3.5 g/t	4.83	2.67	0.06	0.07	0.10	0.01
18-06	Striker	Oxide; ~5.0 g/t	4.71	2.73	0.02	0.02	0.12	0.01
18-07	Midfield	Oxide; ~1.5 g/t	1.07	1.72	0.01	0.01	0.09	0.02
18-08	Midfield	Oxide; ~3.5 g/t	3.02	1.92	0.01	0.01	0.09	0.01
18-09	Midfield	Fresh; ~3.5 g/t	4.73	2.35	0.14	0.14	0.69	0.01
18-10	Midfield	Oxide; ~5.0 g/t	4.37	3.94	0.01	0.01	0.16	0.01
18-11	Midfield North	Oxide; ~1.5 g/t	1.19	2.42	0.01	0.02	0.08	0.01
18-12	Midfield North	Oxide; ~3.5 g/t	4.21	5.64	0.01	0.01	0.11	0.01
18-13	Midfield North	Fresh; ~3.5 g/t	3.31	2.87	0.03	0.04	0.07	0.02
18-14	Midfield North	Oxide; ~5.0 g/t	5.59	6.32	0.00	0.01	0.07	0.02
18-15	Bayan Khundii Global	Heap Leach Amenability	2.31	3.20	0.01	0.02	0.13	0.02

13.3 Grindability Testing

Grindability testing on Bayan Khundii material included Bond Ball Work Index tests, SMC tests and Abrasion index tests. The Bond Ball Mill Work index tests were conducted on a closing screen size of 106µm. Results indicate the material is moderately hard to hard. The abrasion index suggests the material is moderately abrasive to abrasive.

These results are consistent with prior grindability testing undertaken in 2017. Results of all grindability test conducted to date are summarized in Table 13-4.

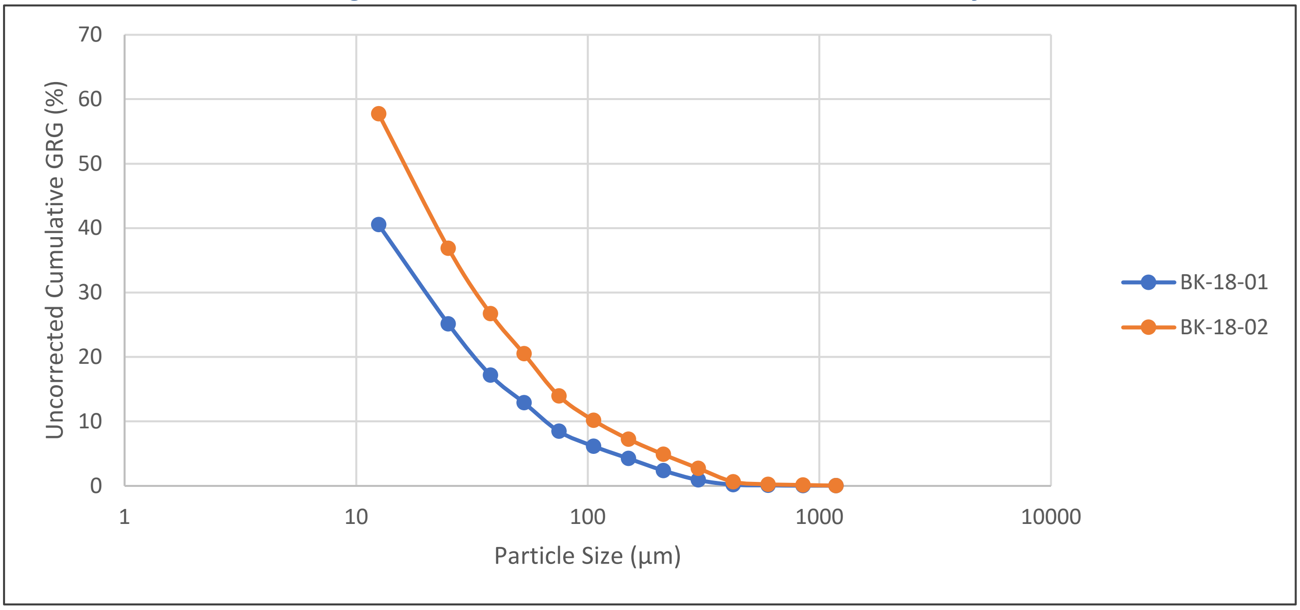
Table 13-4: Bayan Khundii Grindability Test Results

Test	Bond Ball Mill Work Index (kWh/tonne)	Bond Rod Mill Work Index (kWh/tonne)	SMC (Axb)	Abrasion Index (g)
BK-MET-COMP_18-01	18.1	N/A	35.9	0.426
BK-MET-COMP_18-02	17.1	N/A	39.2	0.496
BK-MET-COMP_16-01	16.1[1]	17.8	N/A	N/A

13.4 Gravity Concentration

Gravity concentration studies conducted during the Prefeasibility Study were completed to obtain a greater understanding of the gravity response from average grade material (BK-MET-COMP_18-01) and from high grade material which could make up a portion of the mill feed early in the mine life (BK-MET-COMP_18-02). The cumulative gravity recoverable gold (GRG) ranged from 40.5% for BK-MET-COMP_18-01, to 57.7% for BK-MET-COMP_18-02. While there was a reasonable about of gold present as GRG in each composite, that gold was quite fine and late liberating, thus making high recovery by gravity alone quite difficult.

Figure 13-1: Uncorrected Cumulative GRG Recovery



[1] *The closing screen size of the Bond Ball Work Index test on composite BK-MET-COMP_16-01 was 150µm, rather than the 106µm standard used during the 2019 study.*

TETRA TECH

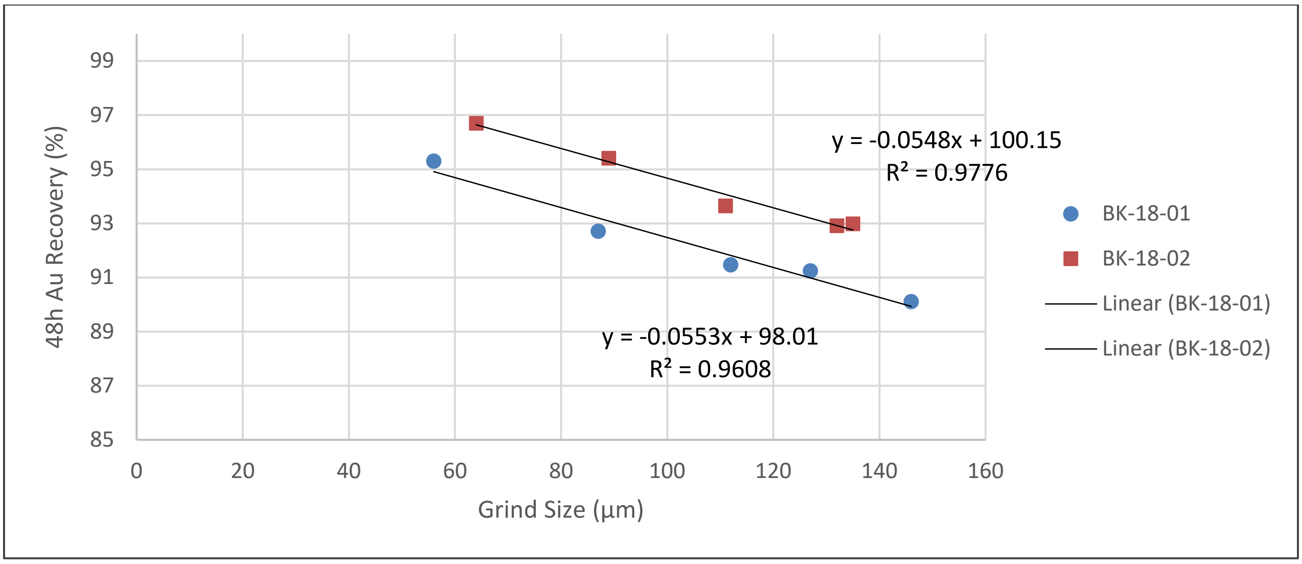
13.5 Cyanidation Optimization Testwork

Optimization of Bayan Khundii leach conditions was conducted using the two master composites (BK-MET-COMP_18-01 and BK-MET-COMP_18-02). The program evaluated the effect of primary grind size, cyanide concentration, lead nitrate and oxygen addition. An additional variability study was conducted to further refine the head grade recovery relationships for the deposit.

13.5.1 Effect of Primary Grind Size

Grind sensitivity tests were conducted on BK-MET-18-01 (3.17 g/t Au) and BK-MET-18-02 (10.79 g/t Au). Grind sizes for each test ranged from a p80 of 146µm on the coarse end to a p80 of 56µm on the fine end. Each test was conducted as a standard 48-hour bottle roll. Cyanide concentration was maintained at 1.0 g/L throughout the test and pH was maintained between 10.5 and 11 with the addition of lime. Results are summarized in Figure 13-2.

Figure 13-2: Relationship between Grind Size and Gold Recovery (BK-MET-COMP_18-01 and BK-MET-COMP_18-02)

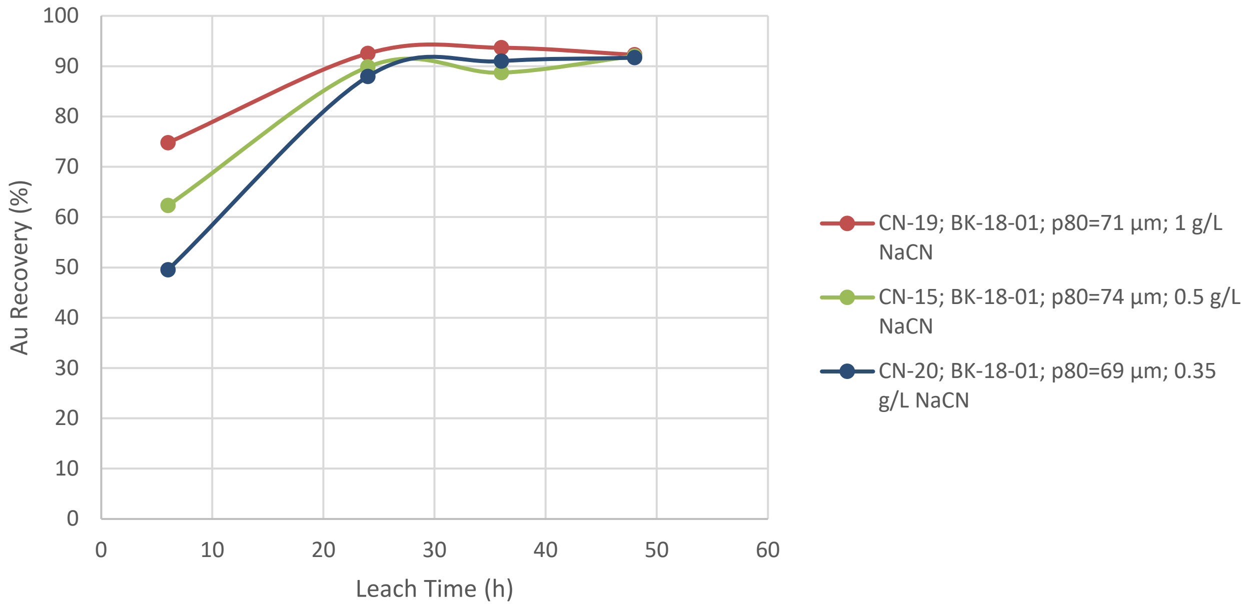


These results clearly indicate that finer primary grinds produce higher overall gold recoveries. This is in line with previous Bayan Khundii testwork and the gravity testwork which indicates that a large portion of the gold is relatively fine. Accordingly, grinding to a target p80 of 60µm was selected as the design basis for the process plant.

13.5.2 Effect of Cyanide Concentration

A series of three tests was conducted on the average grade composite (BK-MET-COMP_18-01) at differing cyanide concentrations to determine the impact that cyanide concentration had on overall gold recovery. Each test was conducted as a standard 48-hour bottle roll at 40% solids, with a primary grind size of approximately 80% passing 70µm. Three levels of cyanide concentration were evaluated: 0.35 g/L, 0.5 g/L and 1.0 g/L. Initial leach kinetics were faster at a sodium cyanide concentration of 1.0 g/L, however after 48 hours of leach time there was little difference in the overall gold recovery of all tests however the higher overall recovery was observed with the highest (1.0 g/L) sodium cyanide concentration. A sodium cyanide concentration of 1.0 g/L was used in the design basis for the Bayan Khundii plant.

Figure 13-3: Effect of Cyanide Concentration on Bayan Khundii Leach Kinetics

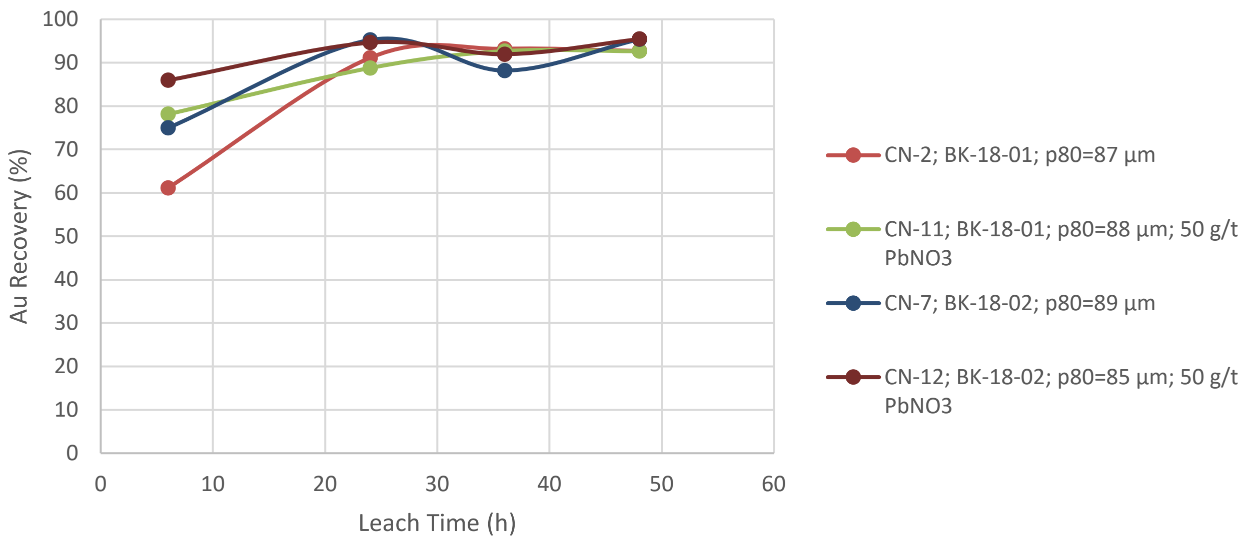


13.5.3 Impact of Lead Nitrate Addition

Each master composite (BK-MET-18-01 and BK-MET-18-02) was subjected to a bottle roll test to determine if the addition of lead nitrate would improve overall recovery from Bayan Khundii material. Each test was conducted with a primary grind of 80% passing 90µm and a pulp density of 40% solids. Sodium cyanide concentration was maintained at 1.0 g/L and lead nitrate was dosed at 50 g/t prior to the start of the test.

No increase in overall recovery was observed after 48 hours of leaching. Lead nitrate addition did result in an increase in the initial gold leach kinetics (measured after the 6 hour mark), however this performance generally equalized after approximately 36 hours. As a result, lead nitrate addition was not recommended as part of the Bayan Khundii flowsheet.

Figure 13-4: Leach Kinetics of Bayan Khundii Material with and without Lead Nitrate addition

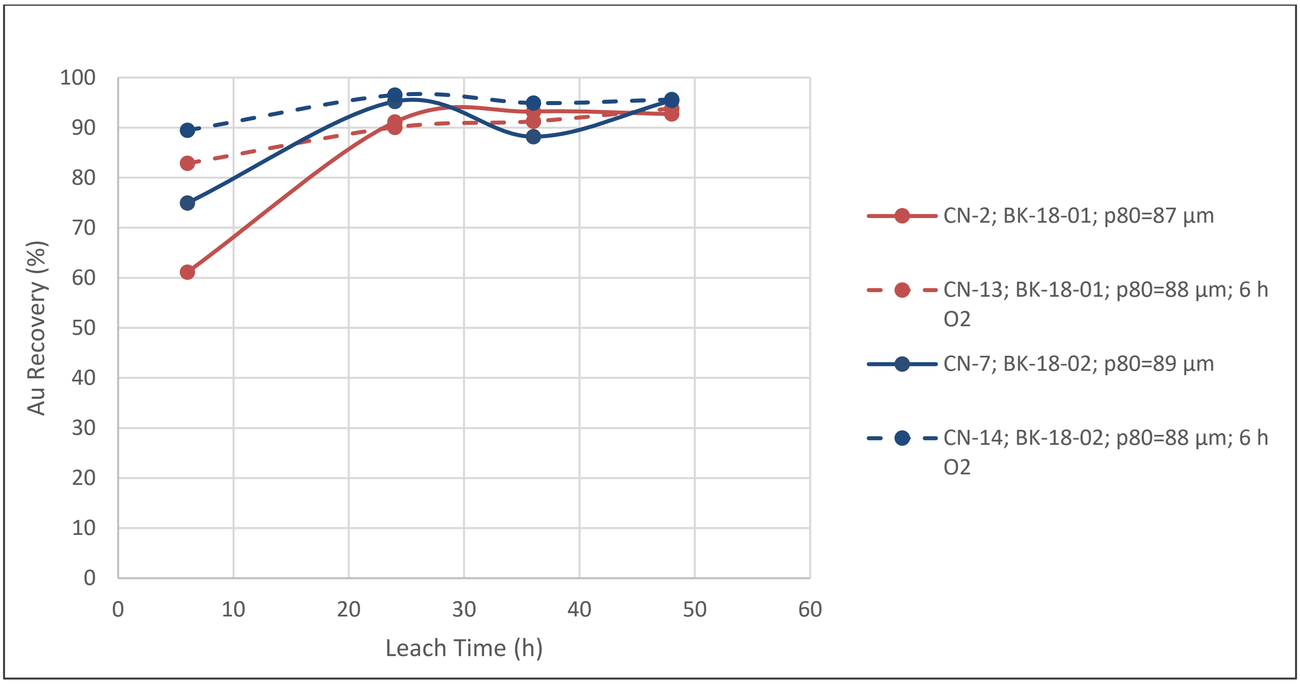


13.5.4 Impact of Oxygen Addition

Oxygen availability can be a limiting factor during gold leaching. Two tests were conducted whereby pure oxygen was sparged into the pulp during the first 6 hours of the test thereby substantially increasing the dissolved oxygen content and increasing the oxygen available for gold extraction. Tests were conducted with a primary grind size of 80% passing approximately 90µm, a sodium cyanide concentration of 1.0 g/L and a pulp density of 40% solids.

While the initial gold extraction kinetics increased during the period of oxygen sparging, the overall recovery was essentially unchanged after 48 hours. The limited benefit coupled with the added cost and complexity of adding oxygen meant that it was therefore not recommended for future use as part of the Bayan Khundii flowsheet. Figure 13-5 highlighted the leach kinetics with and without oxygen addition.

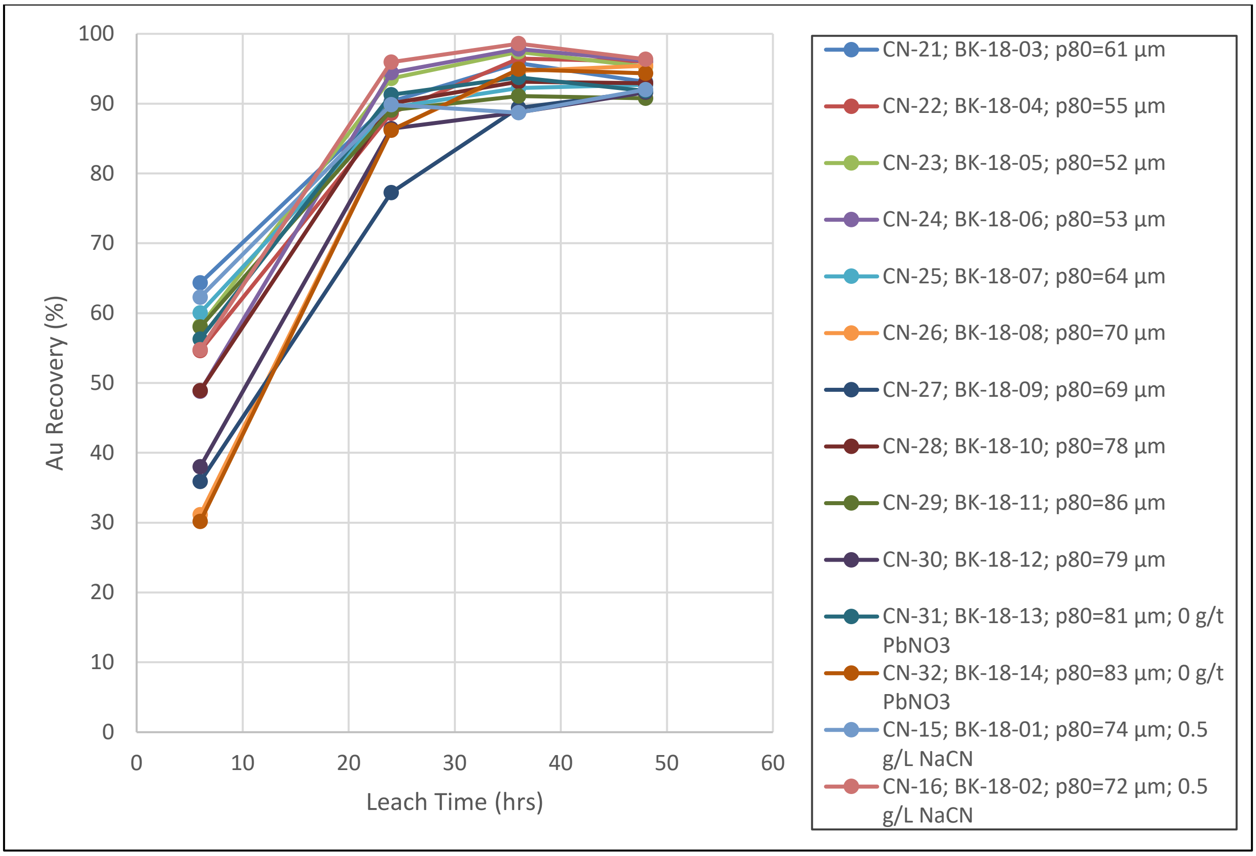
Figure 13-5: Impact of Oxygen Addition on Bayan Khundii Gold Extraction Kinetics



13.5.5 Retention Time

Kinetic checks conducted on Bayan Khundii material over the entire prefeasibility test program showed that maximum gold recovery was often achieved after 36 hours of leach time. Average gold recovery after 24 hours was 88.6%. After 36 hours the average gold recovery was 93.8% and was 93.5% after 48 hours. The slight difference between 36 and 48 hours is not considered significant. The higher grade master composite (BK-MET-COMP_18-02) generally required 48-hour retention times to achieve maximum recovery. The possibility of some slightly coarser gold in this composite may explain the requirement for longer leach times. Master composite BK—MET-COMP_18-01 generally displayed a maximum recovery after 36 hours, however a few tests continued to leach until 48 hours. Figure 13-6 highlights the kinetic curves from the variability tests as well as the master composites under similar conditions.

Figure 13-6: Leach Kinetic Curves from Bayan Khundii Master and Variability Composites



13.5.6 Variability Testwork

As part of the prefeasibility study a variability study was completed which evaluated the gold extraction of 12 samples under similar leach conditions. The composites represented both variations in grade and geography of the Bayan Khudnii deposit. Each test was conducted as a 48-hour bottle roll, with cyanide concentration maintained at 0.5 g/L. Tests were conducted at 40% solids and the pH was held between 10.5 and 11.0. A summary of test results is presented in Table 13-5 and Figure 13-7. Figure 13-8 highlights the variability test results by geography, rock type and grade band. This highlights a few salient features:

- Gold recovery from the Striker Zone material is higher than that from Midfield and Midfield North.
- Midfield North consistently results in material with the lowest recovery.
- There is no clear difference in gold recovery between oxide and fresh rock. Recovery from the Midfield oxide sample was higher than the corresponding Midfield fresh rock sample.

It is important to bear in mind that these observations are based on this limited dataset and further testwork is recommended to understand if differences in recovery strongly influenced by geographic location.

Table 13-5: Summary of Variability Composite Test Results

CN Test ID	Feed	Composite Location	Description	NaCN Dosage (g/L) Initial	Consumption (kg/t)		Final Recovery (%) Au	Residue Grade (g/t) Au	Residue p80 (μm)
					NaCN	CaO			
CN-21	BK-18-03	Striker	Oxide; ~1.5 g/t	0.50	0.10	0.96	93.1	0.11	61
CN-22	BK-18-04	Striker	Oxide; ~3.5 g/t	0.50	0.18	0.97	96.0	0.22	55
CN-23	BK-18-05	Striker	Fresh; ~3.5 g/t	0.50	0.21	0.95	95.3	0.24	52
CN-24	BK-18-06	Striker	Oxide; ~5.0 g/t	0.50	0.21	0.93	96.1	0.22	53
CN-25	BK-18-07	Midfield	Oxide; ~1.5 g/t	0.50	0.35	0.72	92.7	0.10	64
CN-26	BK-18-08	Midfield	Oxide; ~3.5 g/t	0.50	0.53	0.65	95.4	0.16	70
CN-27	BK-18-09	Midfield	Fresh; ~3.5 g/t	0.50	0.56	0.99	91.7	0.45	69
CN-28	BK-18-10	Midfield	Oxide; ~5.0 g/t	0.50	0.08	0.71	92.9	0.32	78
CN-29	BK-18-11	Midfield North	Oxide; ~1.5 g/t	0.50	0.07	0.93	90.8	0.13	86
CN-30	BK-18-12	Midfield North	Oxide; ~3.5 g/t	0.50	0.18	0.98	91.6	0.33	79
CN-31	BK-18-13	Midfield North	Fresh; ~3.5 g/t	0.50	0.08	0.95	91.8	0.29	81
CN-32	BK-18-14	Midfield North	Oxide; ~5.0 g/t	0.50	0.15	0.97	94.4	0.33	83

Figure 13-7: Erdene Variability Composite Gold Recovery

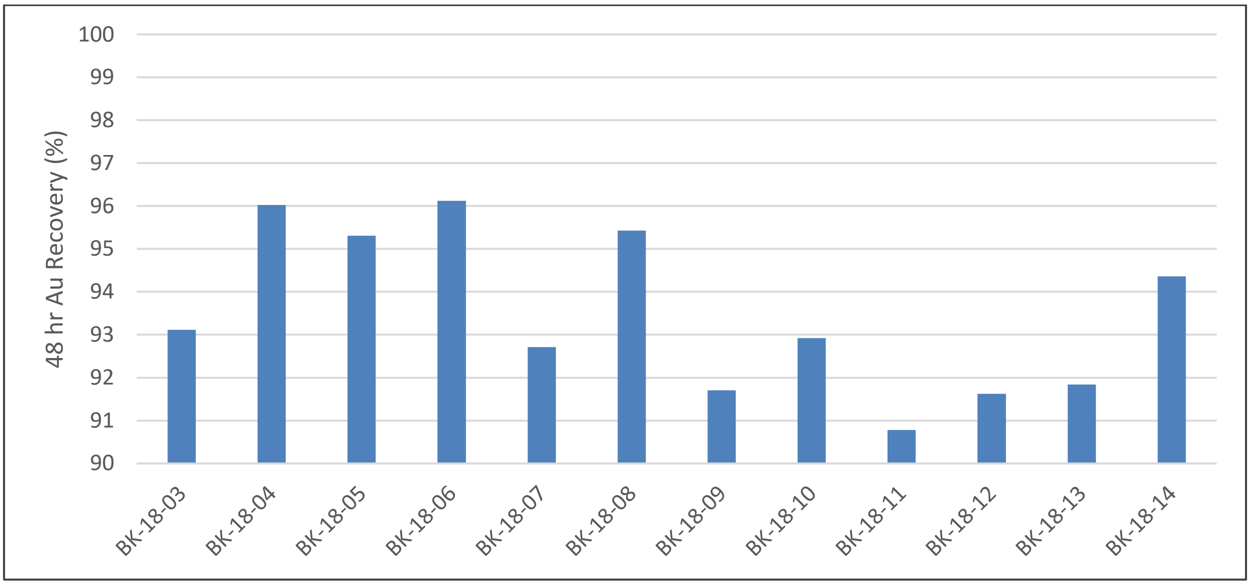
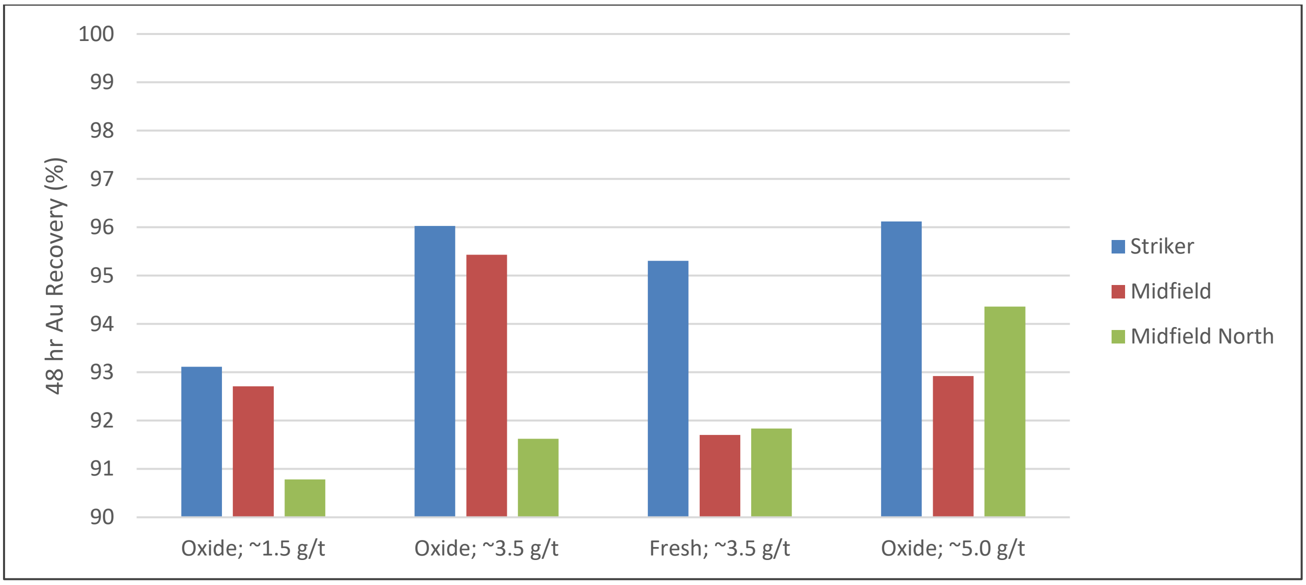


Figure 13-8: Variability Recovery Sorted by Geography, Rock Type and Grade Range



13.6 Projected Gold Recovery

The 2019 PEA described a relationship between head grade and gold recovery. This relationship was a series of linear equations based on specific head grade bands. The 2019 testwork conducted as part of this prefeasibility study specifically addressed the lack of resolution in the grade bands between 1.5 g/t and 5.0 g/t gold by including several variability composites within this range. As the 2019 testwork did not include any composites with head grades of less than 1.18 g/t, then the first two bands of the recovery curve remain unchanged.

Adding 2019 master and variability composites into the existing dataset increases the coefficients in the recovery equation for the 1.18 to 21.9 g/t grade band. Compared to the recovery curve from the 2019 PEA this results in an increase to the projected recovery of between 0.6% and 0.7% across most of the grade band. Recovery was capped at 99%. Since the recovery curve was steeper this reduced the grade subject to the cap to 21.9 g/t. The new recovery equations are highlighted in the table below.

Table 13-6: Bayan Khundii Feed Grade – Recovery Relationship

Grade Band (g/t)	2019 Recovery Equation
0 – 0.35	Au Rec (%) = 230.61*Au Grade (g/t)
0.35 – 1.18	Au Rec (%) = 13.32* Au Grade (g/t) + 76.052
1.18 – 21.9	Au Rec (%) = 0.324* Au Grade (g/t) + 91.856
>21.9	99.0

The equations were fit through the data based on the following criteria:

- A linear regression analysis was conducted using the variability composites with head grades between 0.35 g/t and 1.18 g/t.
- A separate linear regression analysis was conducted suing data points with head grades greater than 1.18 g/t and less than 21.9 g/t.
- Recovery from head grades greater than 21.9 g/t was been capped at 99%.
- A line is drawn between the origin and the 0.35 g/t grade point to describe recoveries below 0.35 g/t.

Figure 13-9: Overall Bayan Khundii Head Grade - Recovery Relationship

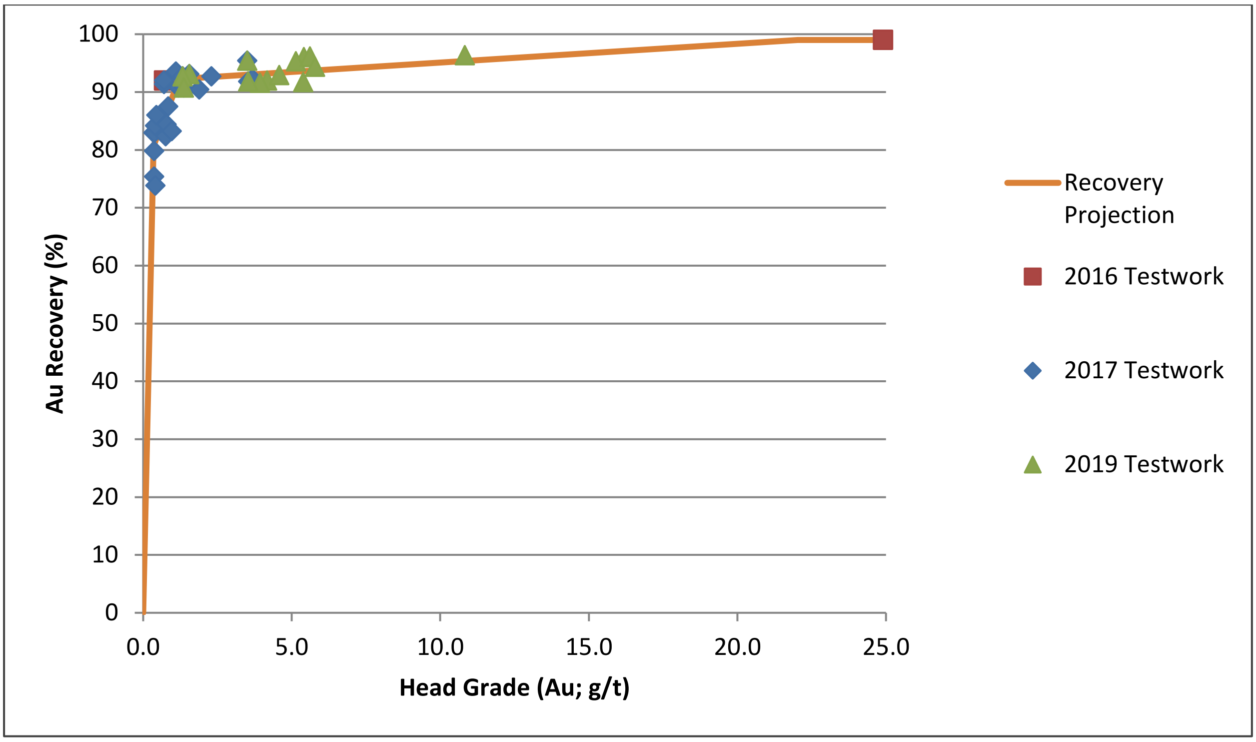
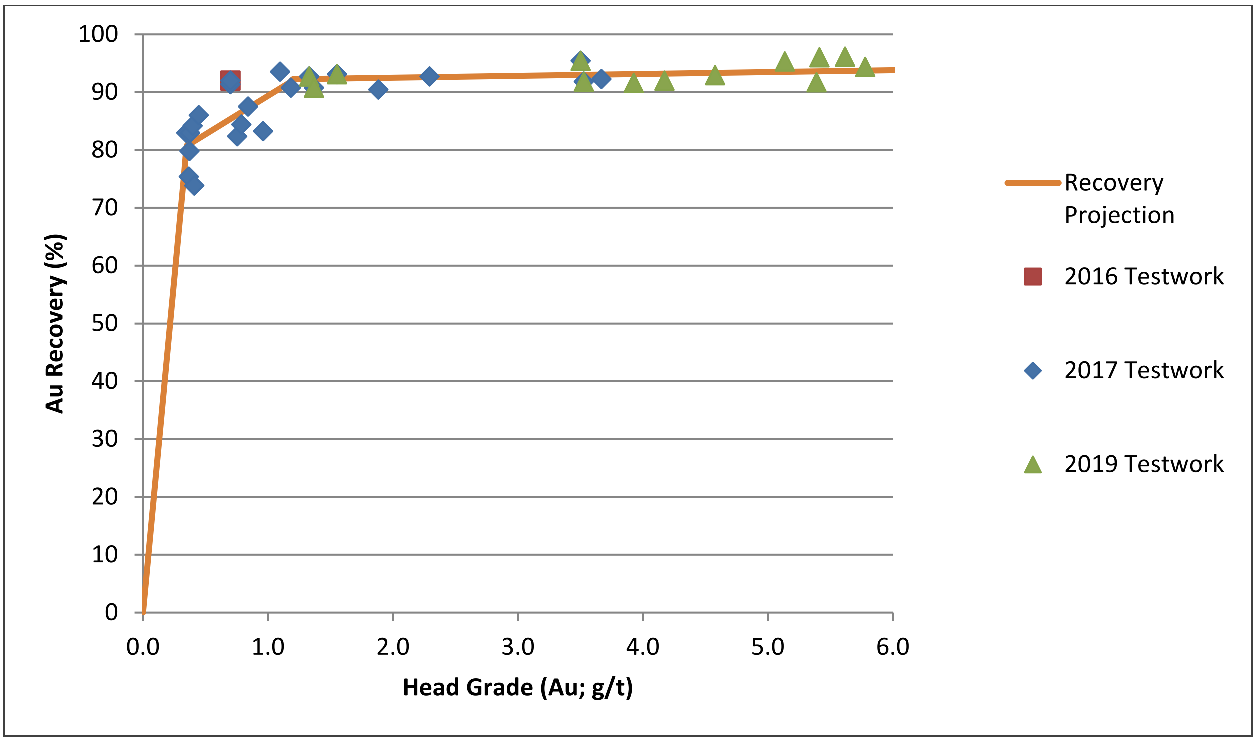


Figure 13-10: Bayan Khundii Head Grade - Recovery Relationship (0-6 g/t Au)



13.7 Recommended Future Testwork

The following items are recommended for study as part of future phases of testwork:

- Conduct additional grindability testing including the following:
  - JK Drop Weight test on a sample of material from the Bayan Khundii deposit
  - Crusher Work Index test on a sample of material from the deposit
  - Variability SMC tests covering each main area of the deposit at varying depths
  - Variability Bond Ball Work Index tests covering each main area of the deposit at varying depths
- Expand the metallurgical database by conducting additional variability testwork on samples from across the deposit, specifically within the 1 g/t to 5 g/t Au range.
- Conduct carbon adsorption testwork (adsorption isotherms, carbon triple contact test) to determine carbon loading parameters for design of CIP circuits.
- Complete dewatering testwork to determine thickener parameters (i.e., final tails).
- Conduct a cyanide detox testwork program to determine reagent demands and retention time requirements to meet cyanide limits for tailings disposal.
- Conduct cyanide leaching and carbon adsorption testwork at a variety of densities to understand the options for optimising the equipment sizing in these areas.

14.0 MINERAL RESOURCE ESTIMATES

14.1 Summary

The Bayan Khundii Gold Project includes Mineral Resource Estimates for the Bayan Khundii and Altan Nar deposits as outlined in the following sections.

14.2 Bayan Khundii

14.2.1 Basis of Current Mineral Resource Estimate

Tetra Tech was commissioned by Erdene to generate an updated Mineral Resource Estimate for the Bayan Khundii Deposit. The update incorporates 8 additional drillholes (totalling 1,885.6 m) and structural interpretation study completed by Erdene on the Property since the previously announced Mineral Resource Estimate with effective date September 12th, 2018 (RPM, February 2019). The Bayan Khundii Mineral Resource Estimate is based on data from 266 holes, totaling 44,859 metres of drilling. The focus of the 2019 drilling program consisting of infilling drilling was to:

- Expand the understanding of the mineralization at Striker, Midfield, and Midfield North Zones;
- Build upon the previous geological interpretation; and
- Improve drill spacing to show continuity of mineralization and increase overall confidence in the deposit.

Completion of the updated Bayan Khundii Mineral Resource involved the assessment of an update drill hole database and subsequent generation of an updated geological model, updated structural control model, an updated three-dimensional (3D) grade model. The Geology QP visited the property from May 6 to May 12 2019. The effective date of the Bayan Khundii Mineral Resource Estimate is October 1st, 2019.

Ordinary Kriging (OK) restricted to a mineralized domain was used to interpolate gold grades (g/t) into a block model. Measured, Indicated and Inferred Mineral resources are reported in summary tables in Section 14.9 The mineral estimate takes into consideration that the Striker, Midfield, and Midfield North zones will be mined by open pit mining methods.

14.2.2 Previous NI 43-101 Mineral Resource Estimate

A Mineral Resource Estimate with an effective date of September 12, 2018, was developed for the Bayan Khundii deposit. This mineral resource estimate was based on 42,670.17 m of drilling from 255 diamond drillholes, and 1,059.52 m of trenching from 22 trenches.

The block model was developed using wireframing method and was classified with Measured, Indicated, and Inferred Resources in accordance with CIM definitions and standards (2014). Measured blocks were those which contained an average drill spacing less than 20 m by 20 m, and where the geological structure and continuity of the mineralized lodes were able to be modelled with high confidence. Indicated blocks were those which were confined within areas of 40 m by 40 m or less drill spacing, and where the continuity and predictability of the lode positions was good. Inferred blocks were assigned to areas where drill spacing was greater than 40 m by 40 m, where small isolated pods of mineralization occur outside the main mineralized zones, and to geologically complex zones.

Table 14-1 shows the previous Mineral Resource Estimate which is superseded by the current Mineral Resource Estimate stated in Section 14.7 and should no longer be relied upon as current.

Table 14-1: Previous Mineral Resource Estimate for the Bayan Khundii Project, Effective September 12, 2018 (RPM, 2019)

Class	Au Cut-off	Tonnes	Au g/t	Au Ounces
Measured	0.60 g/t	1,101,000	3.6	161,100
Indicated	0.60 g/t	2,343,000	2.3	271,800
Total Measured and Indicated	**0.60 g/t**	**3,444,000**	**2.71**	**432,900**
Inferred	0.60 g/t	1,755,000	1.9	104,900

1. Mineral Resources do not have demonstrated economic viability but have reasonable prospects for eventual economic extraction. Indicated Resources have lower confidence than Measured Resources, and Inferred Resources have lower confidence than Indicated Resources. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.
2. A 0.60 g/t cut-off grade has been applied
3. The cut-off grade assumes a gold price of $1,500 per ounce, an open pit mining method of US $6 per tonne, a processing cost of US $20 per tonne milled and a gold processing recovery of 95%.

14.2.3 Comparison to Previous Mineral Resource Estimate

A comparison of the current Bayan Khundii Deposit updated Mineral Resource Estimate completed by Tetra Tech and the 2018 Mineral Resource Estimate completed by RPM is presented in Table 14-2. The 2018 mineral resource estimate for Bayan Khundii has been superseded by the 2019 mineral resource estimate, and as such, should no longer be relied upon.

The increase in gold ounces along with the higher level of confidence in the mineral resource estimate is the result of additional diamond drilling, and updated modeling approaches, whereby high-grade domains were re-modeled based upon this drilling and structural information. The 2019 model was able to utilize a significant dataset of structural measurements which has subsequently increased the understanding of the deposit, specifically, the orientation and continuity of higher grade mineralized zones.

Table 14-2: Comparison of the 2018 and 2019 Bayan Khundii Deposit Mineral Resource Estimates

Class	Au Cut-off	Tonnes	Au g/t	Au Ounces
2018 Measured	0.60 g/t	1,101,000	3.6	161,100
2019 Measured	0.55 g/t	1,410,000	3.77	171,000
2018 Indicated	0.60 g/t	2,343,000	2.3	271,800
2019 Indicated	0.55 g/t	3,710,000	2.93	349,700
2018 Inferred	0.60 g/t	1,755,000	1.9	104,900
2019 Inferred	0.55 g/t	868,000	3.68	102,800

1. *The 2019 and 2018 mineral resource estimate have utilized different modeling techniques, utilized different input parameters, and have been reported at different cut-off grades based upon changes in market prices. The 2018 mineral resource estimate for Bayan Khundii has been superseded by the 2019 mineral resource estimate, and as such, should no longer be relied upon.*

14.2.4 Database

In order to complete an updated Mineral Resource Estimate for Bayan Khundii, a database comprising a series of excel spreadsheets containing drillhole and trenching information was provided by Erdene to the Geology QP. The database includes hole and trench location information (UTM WGS 84, Zone 47N), survey data, assay data, lithology data, bulk density data, and structural data. The data was verified (Section 12) and then imported into Aranz™ Leapfrog Geo3D version 1.2.47.0 software ("Leapfrog") for geological modeling and the development of the grade wireframes. Numerical modeling was completed using Datamine Studio RM version 1.2.47.0. Overall, information for 263 drillholes and 22 trenches was provided to Tetra Tech. The particulars of the information provided to Tetra Tech are presented below in Table 14-3.

Table 14-3: Bayan Khundii for Mineral Resource Estimate

Type	Drillhole and Trenching Records	Survey Records	Lithology Records	Assay Records	Bulk Density	Structural Records
Drillhole	266	1,134	5,658	24,451	1,043	71,424
Trenches	22	29	0	724	0	0
Total	288	1,163	5,658	25,175	1,043	71,424

14.2.5 Specific Gravity

A specific gravity of 2.66 was used for the mineralization constrained wireframes based upon measurements collected by Erdene using the water displacement method. This method utilizes Archimedes' principal, whereby selected drill core is first weighted in air, then immersed in water where its submerged weight is recorded. To accomplish these measurements, Erdene geologists or technicians would isolate intervals of drill core and weigh the dry core on the scale. Next, the core was suspended in water while attached to the underside of an electronic scale, and its weight in water was recorded. The resulting specific gravity of the sample is the ratio of its weight in air to the difference between its weight in air and its weight submersed in water in accordance with the following formula:

$$\text{Specific Gravity} = \text{Weight in Air} / [(\text{Weight in Air}) + (\text{Weight in Water})]$$

In addition to the mineralized tuff, specific gravity measurements were also collected for the surrounding waste rock and are summarized in Table 14-4.

Table 14-4: Bayan Khundii Density Summary

Rock Type	Number Samples	Minimum	Maximum	Range	Mean Bulk Density
Mineralized Tuff	763	1.8	5.47	3.67	2.66
Jurassic Sediment	54	2.32	2.79	0.47	2.58
Porphyry	142	1.78	3.74	1.96	2.59
Dacite Dyke	100	2.43	2.87	0.44	2.66

14.2.6 Geological and Resource Interpretation

14.2.6.1 Geological Interpretation

In order to better model and geologically constrain the mineralization, a 3D geological model was constructed in Leapfrog Geo 3D prior to any resource interpretation.

Geologically, the low sulphidation gold mineralization observed at Bayan Khundii is hosted within a brittle faulted, quartz-illite altered Devonian lapilli tuff. This mineralization is constrained stratigraphically by a package of Jurassic sediments (primarily conglomerates and sandstones) which unconformably overlay the mineralized tuff and contain localized intercalated basalt flows. At depth, mineralization is further constrained by a granitoid body which may represent a granitic laccolith. Finally, Syenite and dacite dykes which range from centimetre to metre scale (modeled as “granitic dykes”) are observed cross-cutting the mineralized tuff.

An isometric and cross section of the geology model is provided below in Figures 14-1 and 14-2 respectively.

Figure 14-1: Bayan Khundii Geology Model Isometric

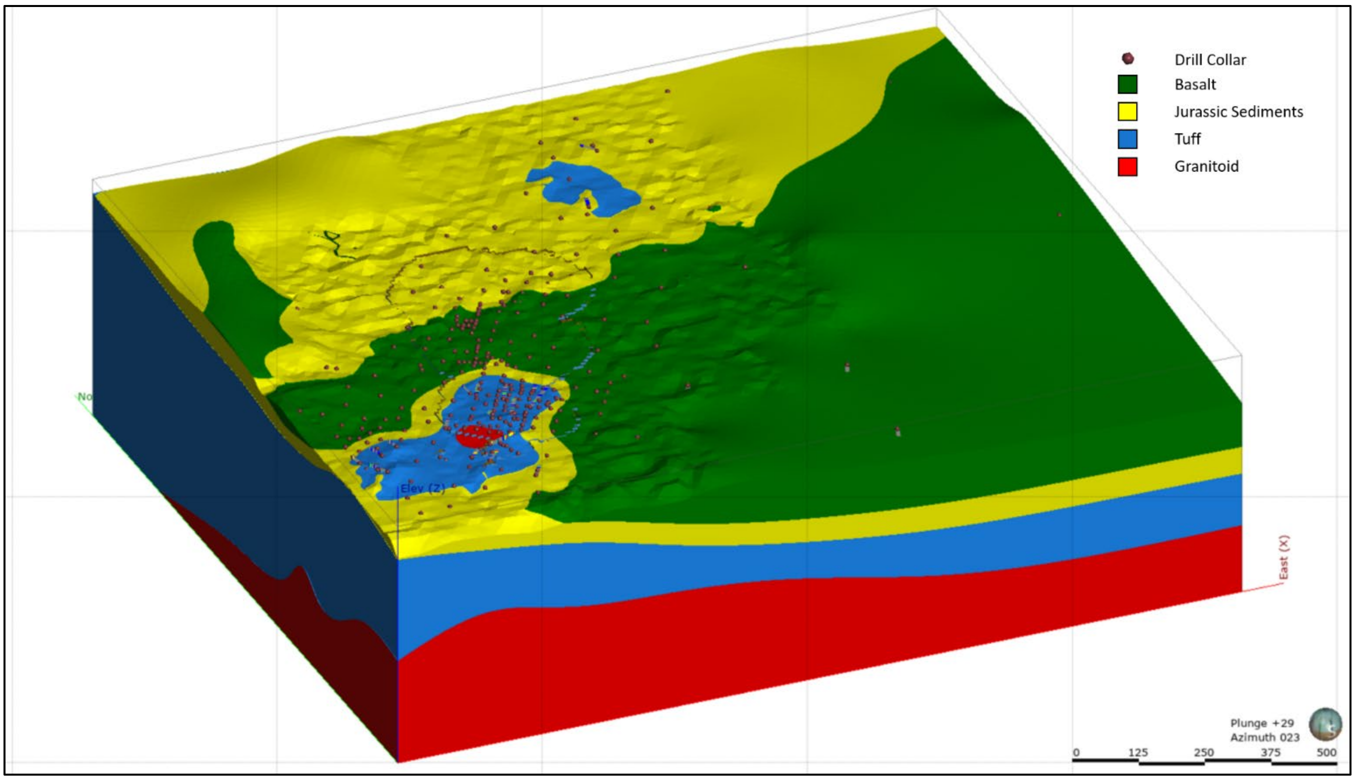
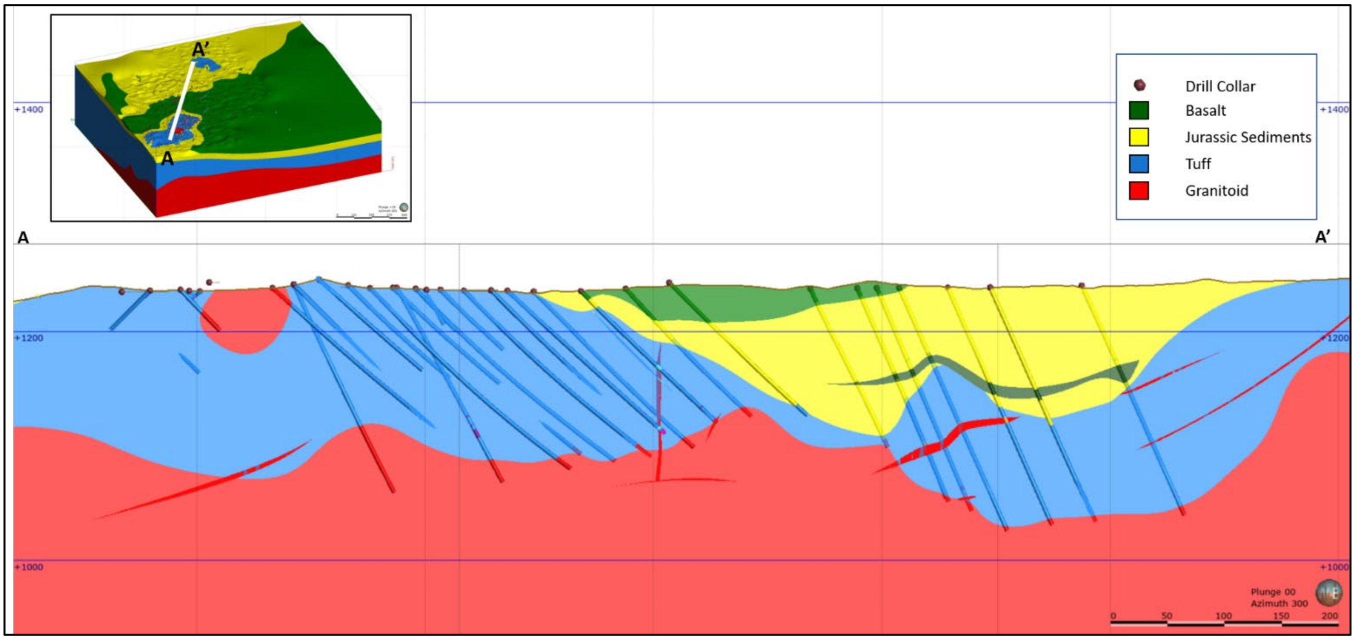


Figure 14-2: Bayan Khundii Geology Model Cross Section



14.2.6.2 Structural Interpretation

As previously noted, Bayan Khundii gold mineralization is hosted within brittle tension fractures which formed approximately perpendicular to two north-east trending dip-slip style "zipper" faults. These mineralization-filled structures can be categorized into four distinct geospatial structural domains, with each domain representing a differentiated zone (Figure 14-3).

The Striker West Zone is the flattest dipping of the four zones, with long tabular lenses dipping approximately 35 degrees to the west south-west.

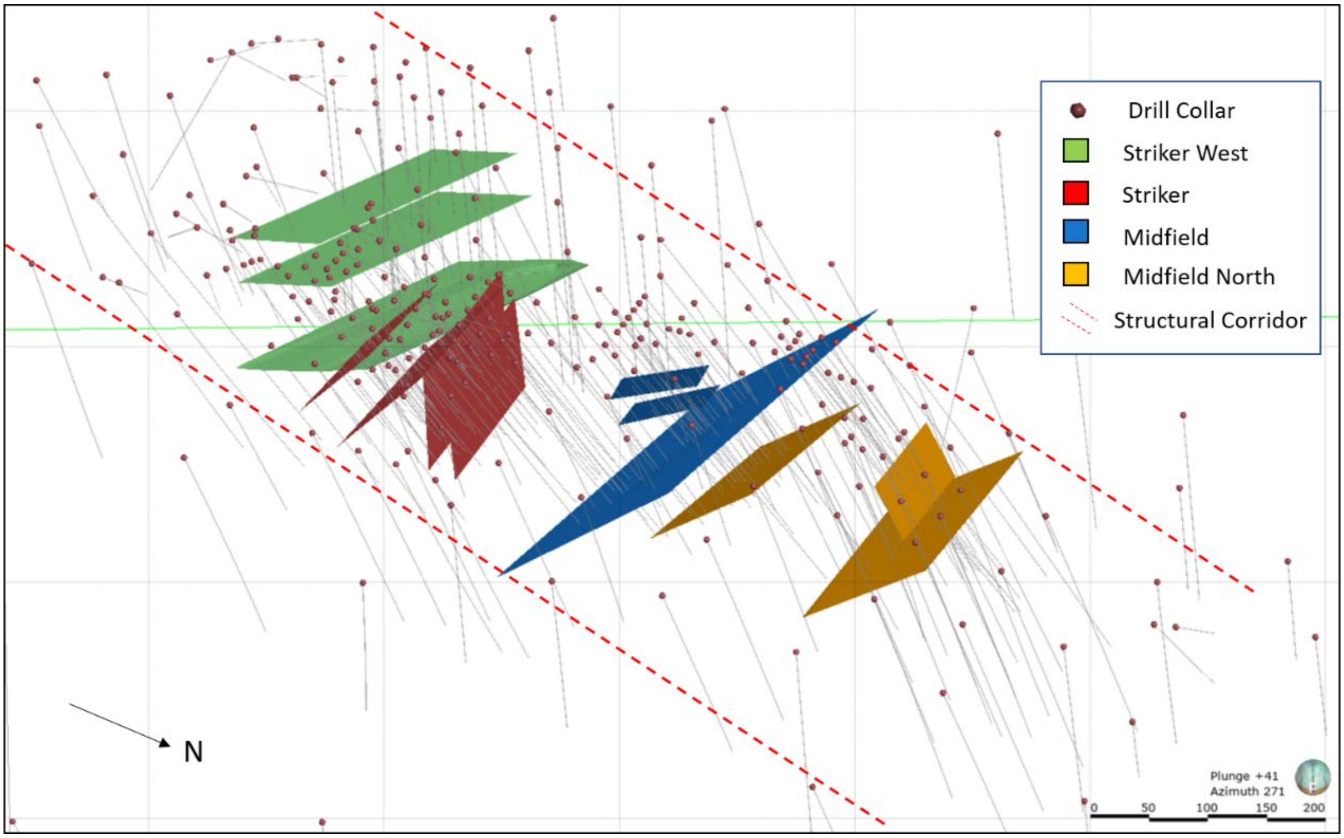
Located approximately 200 m to the east of Striker West, the Striker Zone is rotated slightly compared to Striker West, with the primary high-grade lode bearing structure dipping approximately 55 degrees to the south south-west. A second structure appears to splay obliquely off the main Striker lode which dips approximately 60 degrees to the south.

Approximately 200 m to the north-east of Striker, the Midfield primary high-grade lode is hosted within a structure with a primary dip of approximately 50 degrees to the south south-west. In the region separating the main Midfield and Striker structures, exists a likely mineralization filled conjugate fracture regime with host structures dipping approximately 55 degrees to the west south-west.

Finally, approximately 200 m from the Midfield structure is the Midfield North high-grade structure which dips approximately 45 degrees to the south south-west, with minor splays or bifurcations which dip approximately 50 degrees to the south-east. Structurally, it appears that Midfield North may be offset from Midfield by a north-east dipping graben, however, this hypothesis has not been fully tested given that most of the drillholes present in this region have been drilled sub-parallel to the potential fault plane.

Given the strong structural influence on mineralization, a structural model was developed in Leapfrog Geo3D to guide the interpretation of the mineralization solids. Structurally, 13 domains were interpreted within this mineralized corridor to result from varying stress fields generated from the deformational regime. These structural orientations represent localized structural rotations, cross structures, and bifurcations across the four main zones and are presented below using planar surfaces for simple visualization in Figure 14-3 along with the two bounds of the structural corridor which hosts the Bayan Khundii mineralization.

Figure 14-3: Bayan Khundii Structural Domains



14.2.6.3 Mineral Resource Interpretation

Following the completion of the structural interpretation, mineralization domains were generated in Leapfrog Geo3D, using the geological model to constrain the mineralization to the appropriate lithology, and the structural model to inform the mineralization trends.

Three-dimensional gold mineralization interpretations were generated for a low-grade and high-grade domain using Leapfrogs RBF interpolant function. The low-grade domain was defined by gold mineralization occurring over a minimum of 1 m width with grades equal to or greater than 0.4 g/t Au. High grade domains were defined by hosting gold mineralization greater than 2 g/t over a minimum of 1 m. Figures 14-4 and 15-5 below presents an isometric and cross-sectional image of the mineralization model respectively for Bayan Khundii.

The zones of mineralization for each domain are generally contiguous however, due to the nature of the mineralization there are portions of the wireframes that have grades less than the assigned cut-off grade yet are still within the mineralizing trend.

All mineralized wireframes were trimmed to topography, the unconformity between the Devonian Tuff and Jurassic sediments, and the Granitoid intrusion in order to avoid over estimates of material (Figure 14-6).

Figure 14-4: Plan View Isometric of Mineralization Domains

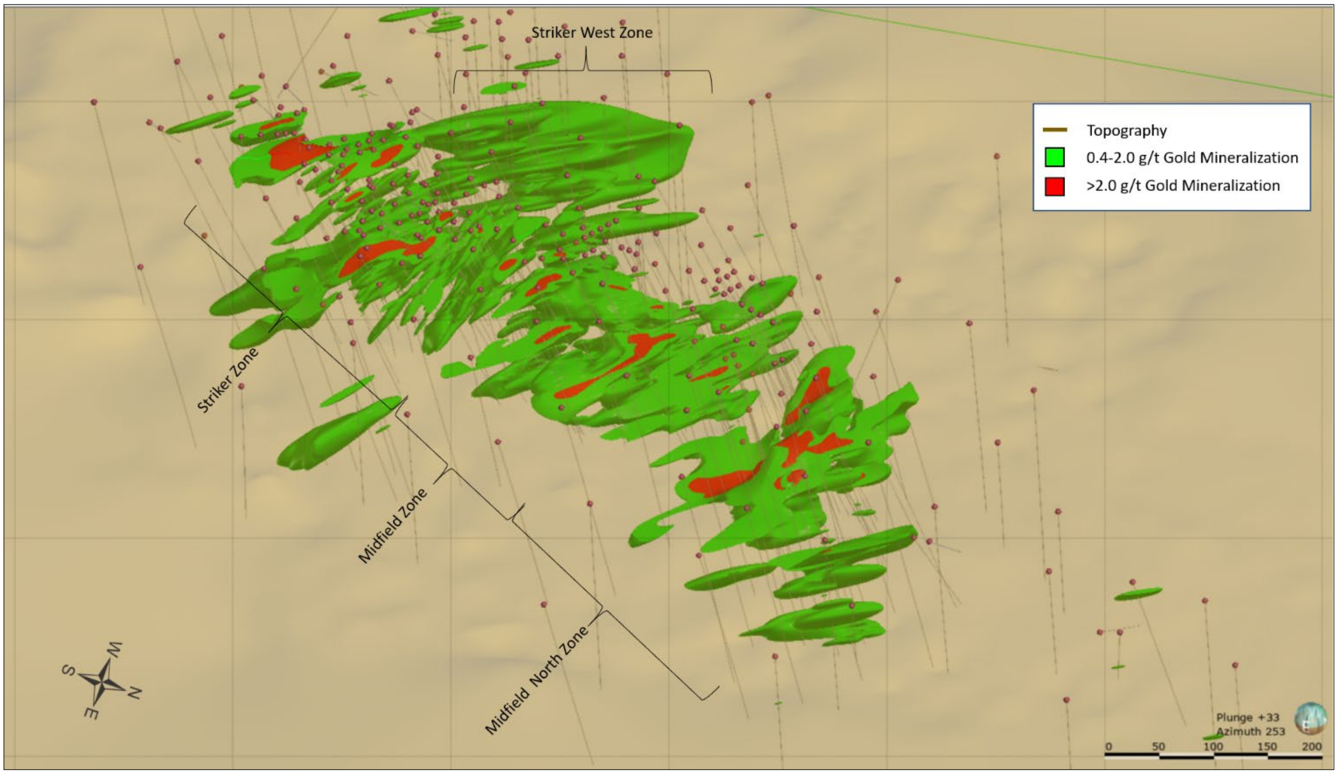


Figure 14-5: Cross Sectional Isometric of Mineralization Domains

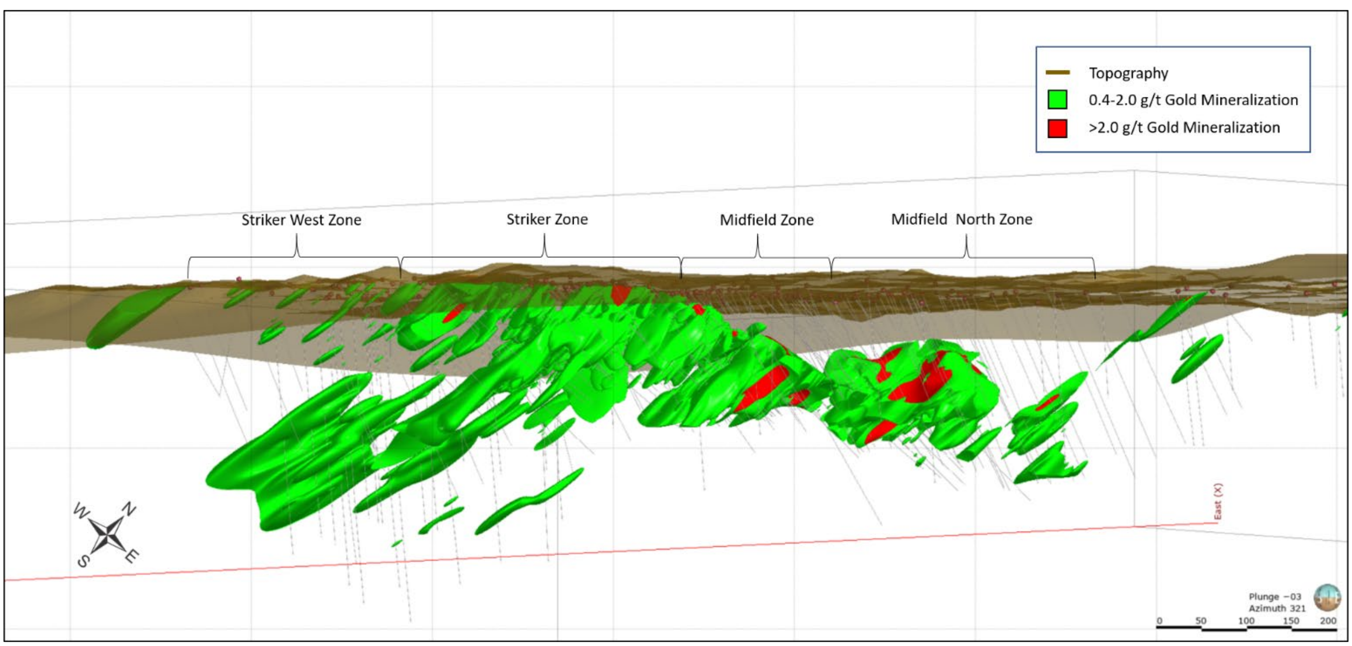
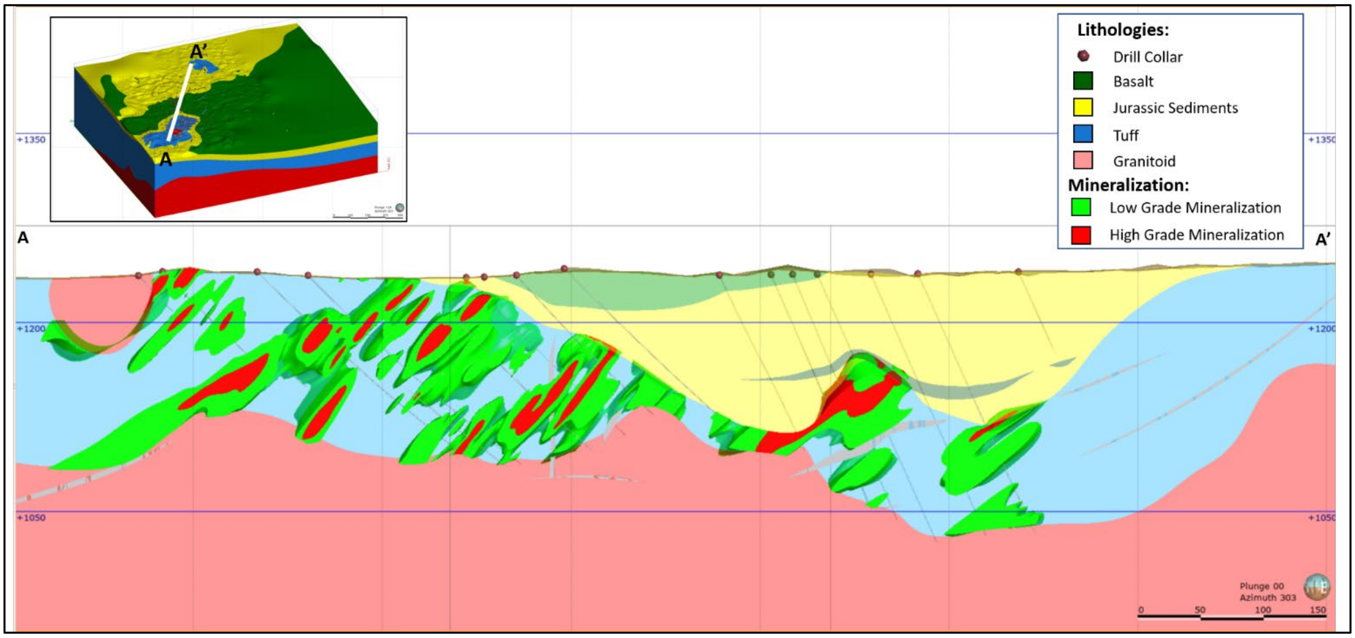


Figure 14-6: Cross Section of Combined Mineralization, Structural and Geological Models



14.2.7 Exploratory Data Analysis

Upon completion of the geological model, grade solids were imported into Datamine Studio RM version 1.2.47.0 where numerical modeling was undertaken. The sections below summarize details associated with the various aspects of the numerical modeling process.

14.2.7.1 Assays

The portion of the deposit included in the mineral resource estimate was sampled by a total of 6,933 gold assays. The assay intervals within each domain were captured using a Datamine macro into individual drillhole files. These drillhole files were reviewed to ensure all the proper assay intervals were captured. Table 14-5 summarizes the basic statistics for the assays in the various domain wireframes.

The non-assayed intervals were given zero a zero (0) value.

Table 14-5: Bayan Khundii Mineral Domain Statistics

Zone	Type	Num Samples	Min	Max	Mean	Coefficient of Variation	Standard Deviation	Skewness
Global Low Grade Domain	Au_Ok	5,283	0.00	7.79	0.67	0.96	0.64	2.91
	length	5,283	0.01	2.75	0.97	0.40	0.39	0.41
Midfield North High Grade	Au_Ok	385	0.01	2,200.00	12.97	8.73	113.20	18.75
	length	385	0.01	2.15	0.94	0.33	0.31	-0.06
Midfield High Grade	Au_Ok	585	0.00	314.00	11.82	2.80	33.05	6.30
	length	585	0.01	2.29	0.80	0.49	0.39	-0.39
Striker High Grade	Au_Ok	566	0.00	306.00	7.89	2.87	22.66	7.07
	length	566	0.02	2.00	0.94	0.35	0.33	0.06
Striker West High Grade	Au_Ok	114	0.04	116.00	5.67	2.32	13.15	5.92
	length	114	0.01	2.00	0.78	0.53	0.41	-0.17

14.2.7.2 Compositing

Compositing of all assay data within the wireframes was completed at 1.0 m and 2.0 m intervals. The downhole intervals honoured the interpretation of the geological solids. The backstitching process was used in the compositing to ensure all captured sample material was included. The backstitching routine adjusts the composite lengths for each individual drillhole in order to compensate for the last sample interval.

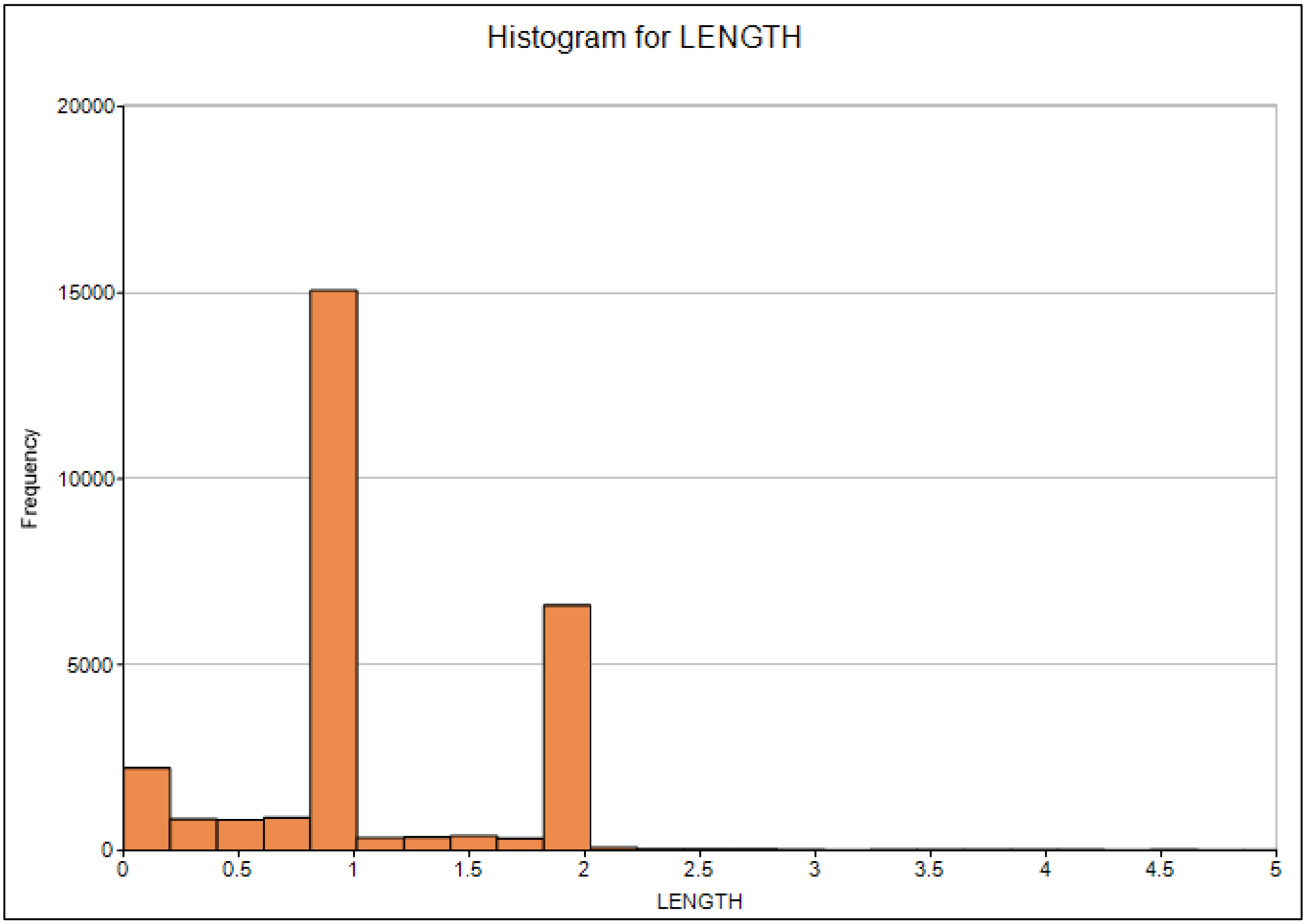
The 1.0 m composites were selected as the composite length to use in the estimate based on the drilling and in order to maintain the complex nature of the high-grade domains.

Table 14-6 summarizes the statistics for the drillholes after compositing. Figure 14-7 presents a histogram of the samples before compositing.

Table 14-6: Bayan Khundii Composite Statistics

Zone	Type	Num Samples	Min	Max	Mean	Coefficient of Variation	Standard Deviation	Skewness
Low Grade Domain	Au g/t	5,138	0.00	7.50	0.66	0.95	0.63	2.99
Midfield North HG	Au g/t	350	0.02	2,200.00	13.03	9.09	118.44	18.01
Midfield HG	Au g/t	471	0.02	236.22	7.81	2.63	20.52	6.46
Striker HG	Au g/t	529	0.00	306.00	7.71	2.90	22.34	7.43
Striker West HG	Au g/t	88	0.03	116.00	5.98	2.29	13.71	6.27

Figure 14-7: Bayan Khundii Sample Length Histogram



14.2.7.3 Capping Analysis

Composited assay data was examined for each zone to assess the amount of metal that is at risk from high-grade assays. The Datamine advanced geostatistics module was used to determine if grade capping was required. Capping was based on examination of the log probability plots and histograms for each metal and caps were applied where graphs showed significant outlier influence or deviation from the general trend-line. Table 14-7 shows a summary of the top cuts that were applied to the various zones' datasets. More detailed capping descriptions are provided in the following sub-sections for each zone.

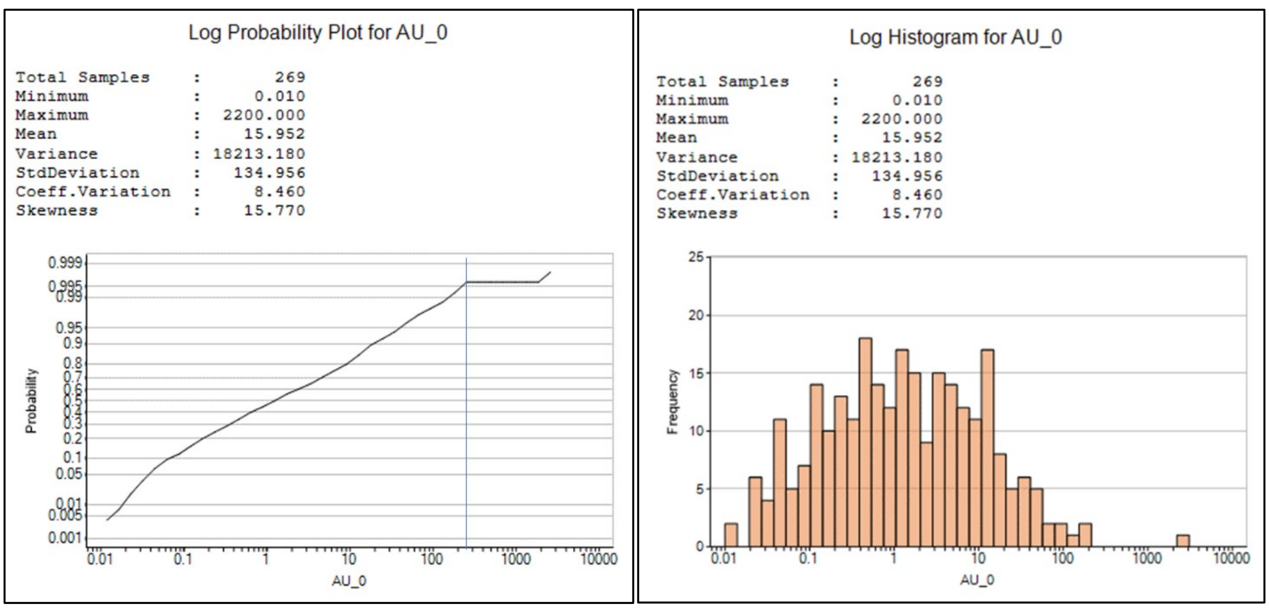
Table 14-7: Bayan Khundii Capped Composite Statistics

Zone	Type	Num Samples	Min	Max	Mean	Variance	Standard Deviation	Skewness	Coefficient of Variation
Low Grade Domain	Au g/t	5,138	0.00	7.50	0.66	0.40	0.63	2.99	0.9
Midfield North HG	Au g/t	350	0.02	250	7.45	491.25	22.16	6.93	2.9
Midfield HG	Au g/t	471	0.02	236.22	7.81	421.02	20.52	6.46	2.6
Striker HG	Au g/t	529	0.00	306.00	7.71	499.24	22.34	7.43	2.9
Striker West HG	Au g/t	88	0.03	116.00	5.98	188.09	13.71	6.27	2.3

Midfield North

A sharp inflection in the log probability plot was observed approximately 250 g/t Au for Midfield north along with a visual outlier on the log histogram plot for gold assays within Midfield North. This outlier represents a single 2,200 g/t Au assay. As such, at top cut for this zone was set at 250 g/t Au.

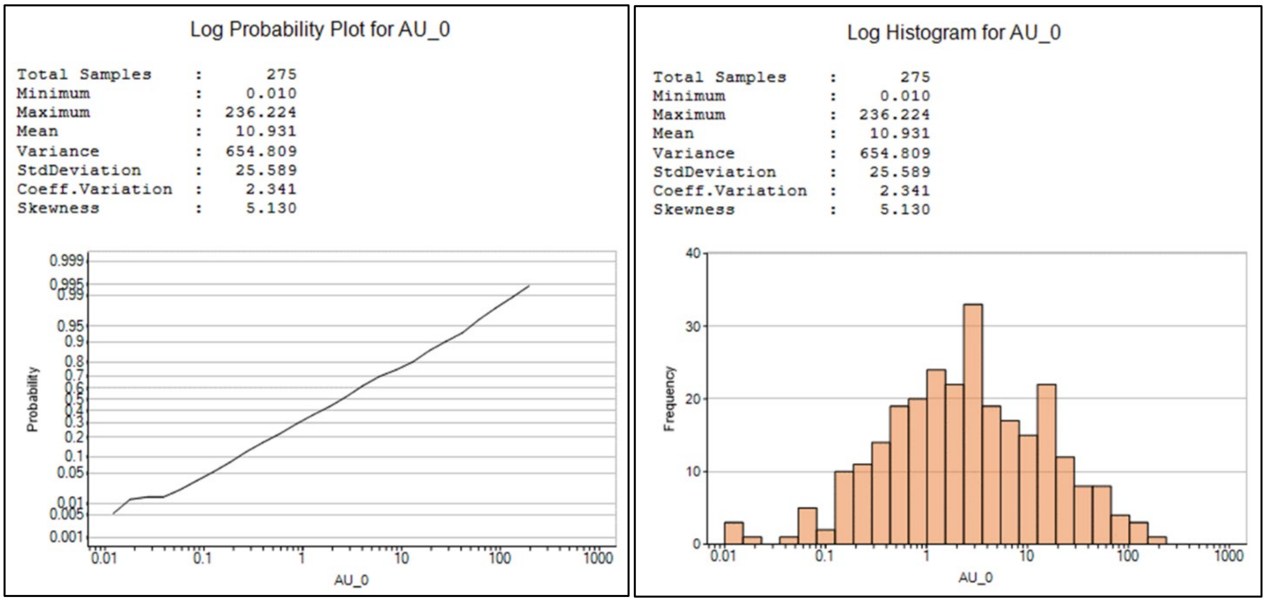
Figure 14-8: Left: Midfield North High-Grade Log Probability Plot. Right: High Grade Gold Domain Log Histogram



Midfield

At Midfield, the high-grade domain (>2 g/t Au) shows a linear log probability plot, along with a normally distributed log histogram plot (Figure 14-9). As a result, it was deemed that the high-grade domain at Midfield did not require the application of any top-cuts.

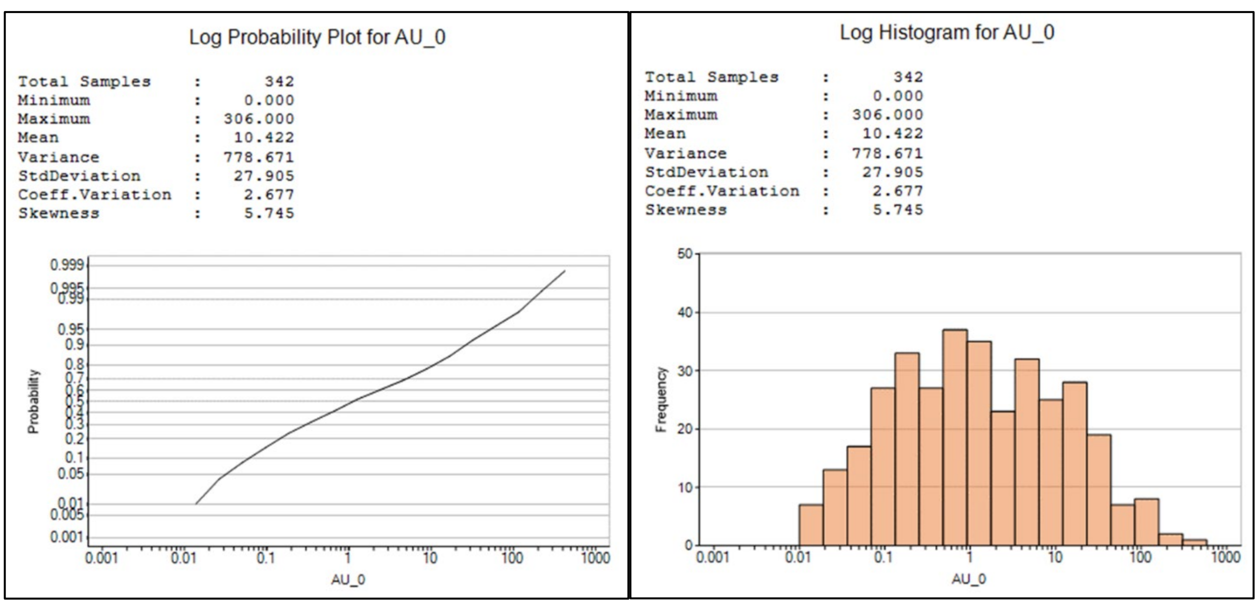
Figure 14-9: Left: Midfield High-Grade Log Probability Plot. Right: High Grade Gold Domain Log Histogram



Striker

Similar to Midfield, the Striker Zone exhibited a linear log probability plot, along with a normally distributed log histogram plot (Figure 14-10). As a result, it was deemed that the high-grade domain at Striker did not require the application of a top-cut.

Figure 14-10: Left: Striker High-Grade Log Probability Plot. Right: High Grade Gold Domain Log Histogram

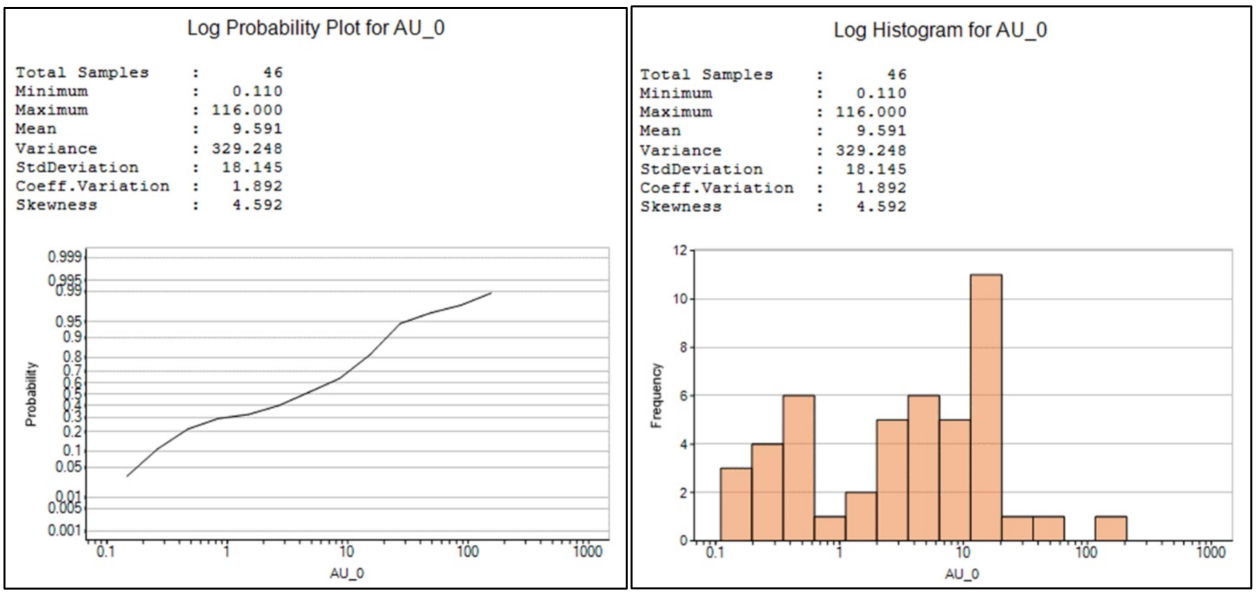


Striker West

With a total population of 46 high grade samples, a robust top-cut statistical analysis was not possible for the Striker West zone. Given that the highest-grade assay present in Striker West was 116 g/t Au, which was within the normal grade distribution of the other three zones, it was determined that capping was not necessary at Striker West.

The capping regime as Striker West should be revisited upon completion of any future drilling which targets this zone.

Figure 14-11: Left: Striker West High-Grade Log Probability Plot. Right: High Grade Gold Domain Log Histogram



14.2.7.4 Variogram Assessment

Variography was used to assess grade continuity and spatial variability in the estimation domains and to determine sample search distances and kriging parameters for block grade estimation.

Variography using Datamine software was completed for the gold zones in Midfield, and applied to the Striker West, Striker, and Midfield North zones. Downhole variograms were used to determine the nugget effect, then the variograms were modeled with two structures to determine spatial continuity in the zones. The results of the variography analysis are summarized below in Table 14-8, while Figures 14-12, 14-13, and 14-14 present the variograms for each the major, semi-major, and minor axes respectively. Overall, the best variogram was achieved in the plane of the orebody.

Table 14-8: Bayan Khundii Variogram Summary

VDESC	VANGLE1	VANGLE2	VANGLE3	VAXIS1	VAXIS2	VAXIS3	NUGGET
BK_Var	210	0	45	3	2	1	11.949
ST1PAR1	ST1PAR2	ST1PAR3	ST1PAR4	ST2PAR1	ST2PAR2	ST2PAR3	ST2PAR4
32	43.2	3.6	37.502	74.9	90.6	15	124.725

Figure 14-12: Bayan Khundii Major Axis Variogram

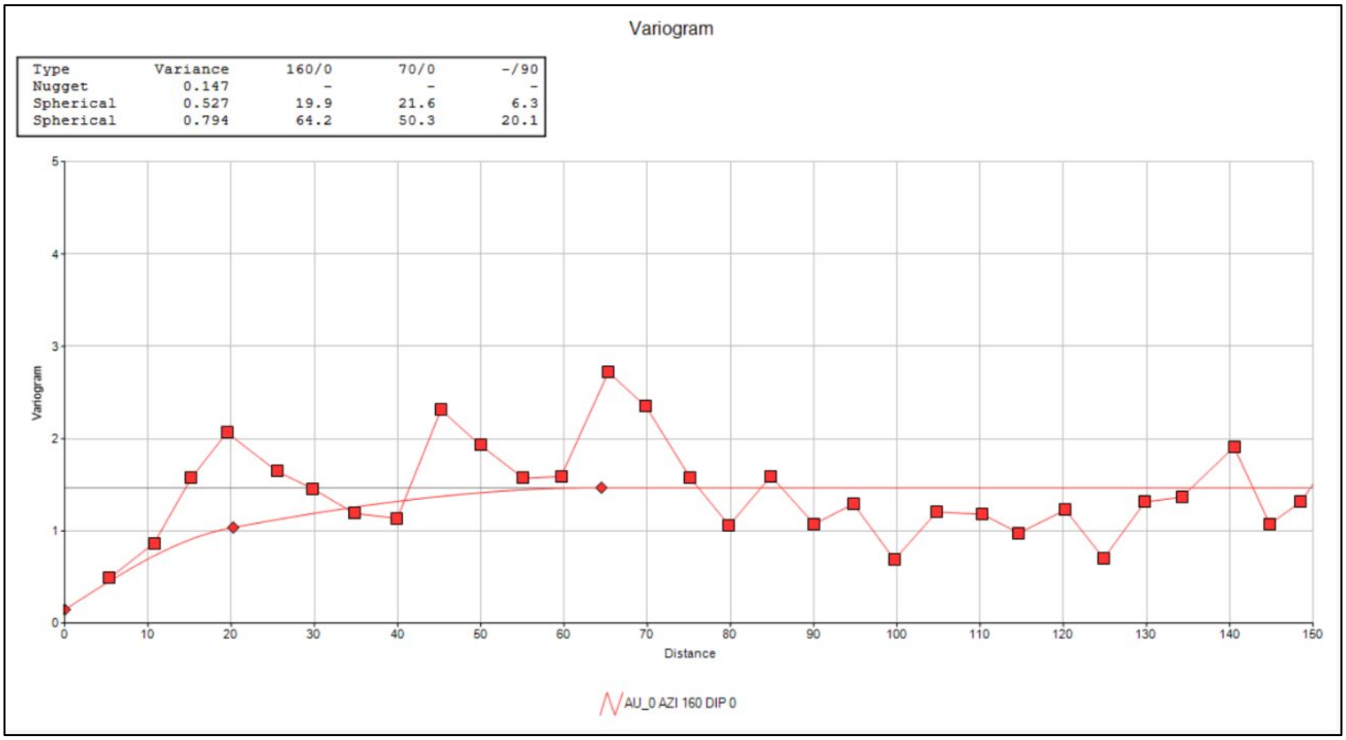


Figure 14-13: Bayan Khundii Semi-Major Axis Variogram

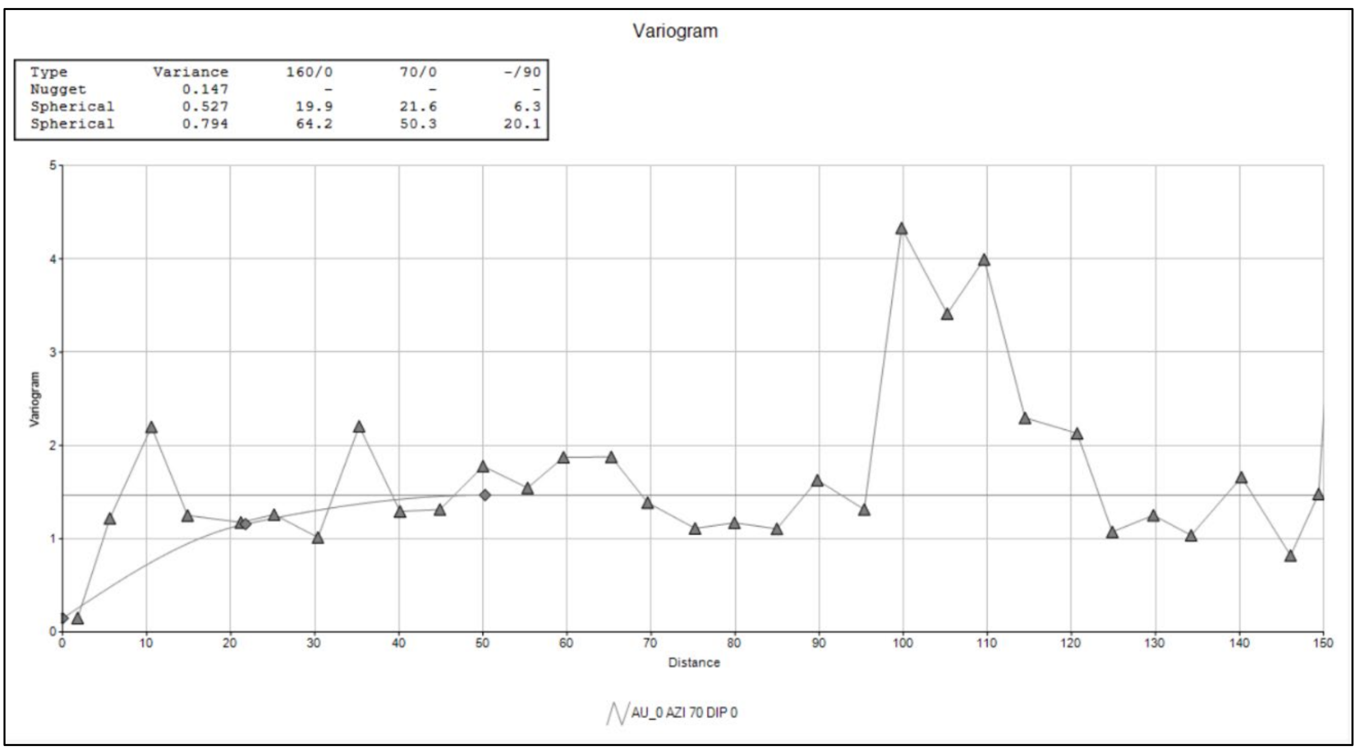
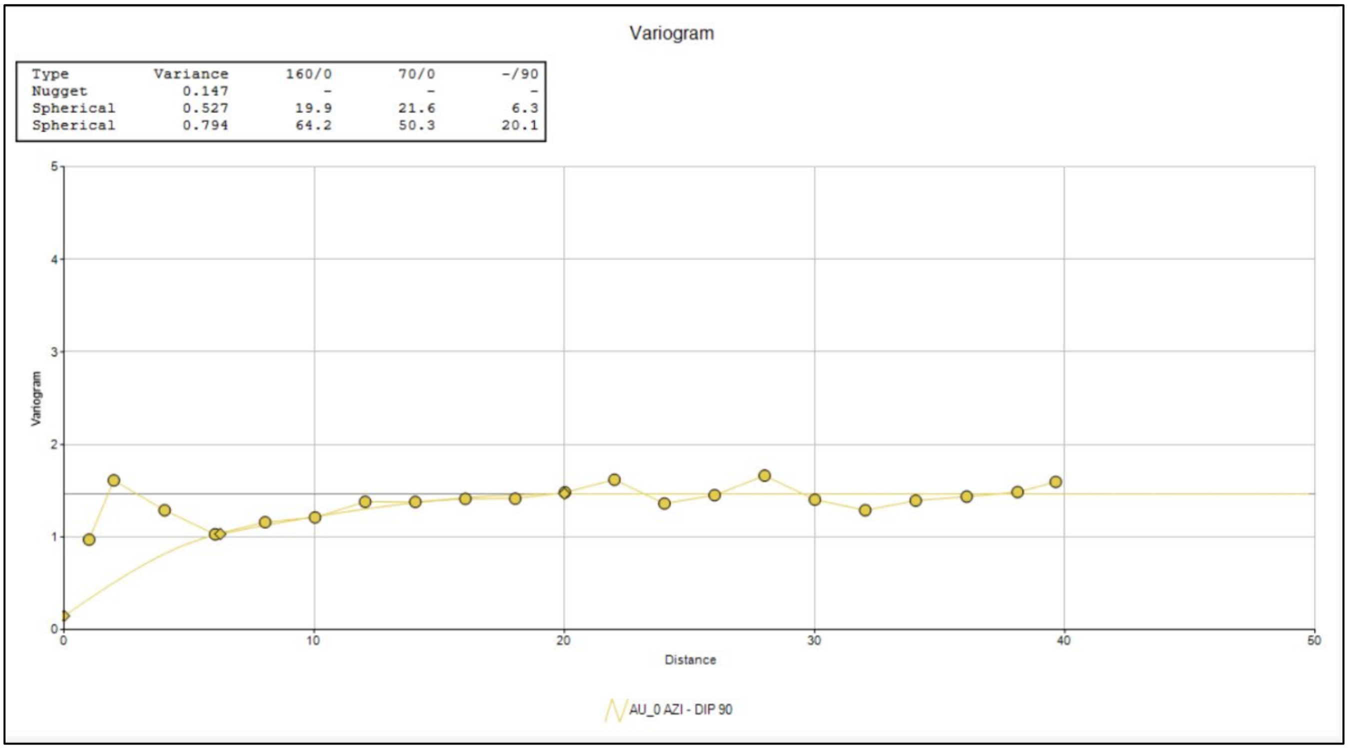


Figure 14-14: Bayan Khundii Minor Axis Variogram



14.2.7.5 Resource Block Model

Individual block models were established in Datamine for the mineral wireframes using one parent model as the origin. The model was not rotated. Drillhole spacing is typically quite tight, with drilling spaced along 10-75 m sections and at 10-100 m centers on section. Typically, within the center regions of the zones, drillhole spacing occurs at 10 m to 15 m centers.

A block size of 5 m by 5 m by 5 m was selected in order to accommodate the narrow nature of the high-grade mineralization, the tight drill spacing across the majority of the deposit, composite lengths, and the proposed mining method. Within the parent cells, 5 sub-cells were allowed in each direction to more accurately fill the volume of the wireframes and thereby more accurately estimate contacts and tonnage of each wireframe. Estimation of the blocks was completed on the parent blocks and the grades assigned to the sub-cell blocks.

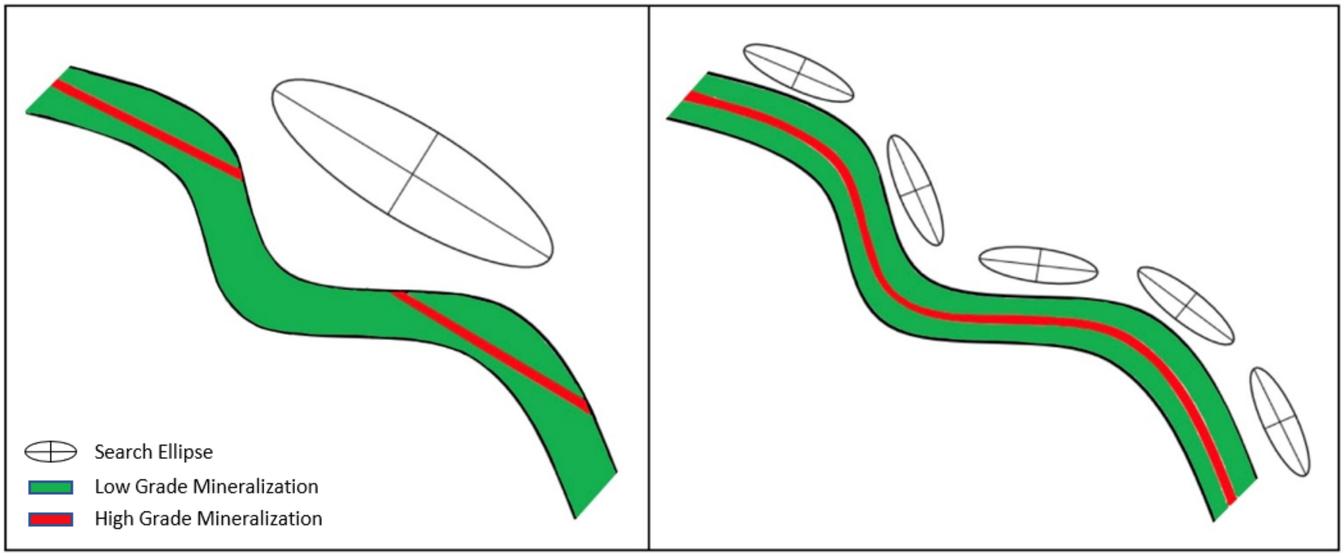
Upon completion of the block modelling, all zones were combined to form the composite Bayan Khundii block model.

14.2.7.6 Dynamic Anisotropy

Due to the local changes in zone orientations and local anastomosing nature of the wireframes a single search ellipse would not truly reflect the distribution of mineralization within the zones. To accommodate the changing orientation of the domains, dynamic anisotropy was utilized to better represent continuous mineralization within the mineralized structures.

Dynamic anisotropy is a function in Datamine RM that permits the search ellipse orientation to be continuously adjusted to match the tangent of the average orientation of the mineralized zone to mimic curvature or folding structures (Figure 14-15). This allows the search volume to be oriented to follow the trend of mineralization. The azimuth of the major and semi-major axes and the search dimensions remained unchanged within the search ellipse.

Figure 14-15: Schematic of Dynamic Anisotropy (Red-High Grade Mineralization, Green-Low Grade Mineralization)



14.2.7.7 Estimation and Search Parameters

The interpolation plan of the Bayan Khundii resource estimation was completed using the following estimation methods: Nearest Neighbour (NN), Inverse Distance Squared (ID^2) and Ordinary Krigging (OK). The estimations were designed as a three-pass system which were run independently within each individual wireframe using composite data constrained within the wireframe. In each pass, a minimum and maximum number of samples were required as well as a maximum number of samples from a drillhole in order to satisfy the estimate criteria.

Table 14-9 below summarizes the interpolation criteria for the various mineral domains.

Table 14-9: Bayan Khundii Estimation and Search Parameter Summary

Pass Number	Resource Category	Domain	Search Distance			Rotation			Number of Composites		
			X	Y	Z	Z	X	Z	Min	Max	Max per Drillhole
Pass 1	Measured	HG	30	25	5	217	54	0	9	12	3
		LG	30	25	5	217	54	0	12	16	4
Pass 2	Indicated	HG	60	50	10	217	54	0	6	15	3
		LG	60	50	10	217	54	0	8	16	4
Pass 3	Inferred	HG	90	75	15	217	54	0	4	18	3
		LG	90	75	15	217	54	0	8	20	4

14.2.8 Mineral Resource Statement

The general requirement that all mineral resources have "reasonable prospects for eventual economic extraction" implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade, while accounting for possible extraction scenarios and processing recoveries. To meet this requirement, Tetra Tech considers the Bayan Khundii mineralization as a reasonable prospect for open pit extraction.

As a reasonable test for potential economic extraction, the block model was analyzed by, and constrained to, a conceptual pit shell generated in Whittle™ using the Lersch-Grossman algorithm for definition of the Mineral Resource Estimate.

In addition to the mineralization being constrained within a Whittle pit, the geological continuity of the zones, and the near surface nature of the mineralization has been assessed. A review of the metallurgical testing results also suggests reasonable processing recoveries can be achieved. Based on these considerations, the pit constrained mineralization presented in Table 14-9 is deemed to have reasonable prospects for eventual economic extraction.

The reader is cautioned that the results from the pit optimization are used solely for testing the "reasonable prospects for eventual economic extraction" by open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cut-off grade. A Mineral Reserve analysis and statement for the Bayan Khundii deposit is presented in section 15 of this report.

14.2.8.1 Mineral Resource Classification Parameters

The updated mineral resource estimate presented in this Technical Report were prepared and disclosed in compliance with all disclosure requirements for mineral resources set out in the NI 43-101 Standards of Disclosure for Mineral Projects (2011). The classification of the mineral resource is consistent with CIM Definition Standards - For Mineral Resources and Mineral Reserves (2014), including the critical requirement that all mineral resources "have reasonable prospects for eventual economic extraction".

A Mineral Resource is 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.

Several factors are considered in the definition of a resource classification:

- NI 43-101 requirements;
- Canadian Institute for Mining, Metallurgy and Petroleum (CIM) Guidelines;
- Authors' experience with low sulphidation epithermal gold deposits;
- Spatial continuity based on variography of the assays within the drillholes;
- Drillhole spacing and estimate runs required to estimate the grades in a block;
- Observed mineralization on surface;
- The confidence with the dataset based on the results of the validation; and

- The number of samples and drillholes used in each of the block estimations.

The confidence classification of the resource (Measured, Indicated, and Inferred) is based on an understanding of geological controls of the mineralization and the drillhole pierce point spacing in the resource area. Blocks were classified as Measured, Indicated, or Inferred if they were populated with grade during pass 1, pass 2, or pass 3 respectively during the interpolation process (Table 14-9).

Description of Classifications

Measured Mineral Resource

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit.

The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability.

This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

Indicated Mineral Resource

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Preliminary Feasibility Study which can serve as the basis for major development decisions.

Inferred Mineral Resource

An ‘Inferred Mineral Resource’ is 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.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drillholes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource. Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource.

14.2.9 Mineral Resource Tabulation

The resource reported as of October 1, 2019, has been tabulated in terms of a gold cut-off grade and has been rounded to the nearest thousand tonnes due to the nature of the precision of the block model.

The Bayan Khundii Mineral Resource Estimate has been constrained to a preliminary pit shell developed using the Lerchs Grossman algorithm in Whittle™ using parameters outlined below to constrain blocks which are considered reasonable prospects for eventual economic extraction. Table 14-10 presents the Mineral Resource Estimate and Figure 14-16 shows the blocks forming the Mineral Resource Estimate within the constraining conceptual Whittle pit.

No environmental, permitting, legal, title, taxation, socio-economic, marketing or other relevant issues are known to Tetra Tech that may affect the estimate of the mineral resources. Mineral reserves can only be estimated on the basis of economic evaluation that is used in a preliminary feasibility study or a feasibility study of a mineral project. The Indicated and Measured Mineral Resources are inclusive of the Mineral Reserves presented in Section 15. As per NI 43-101, mineral resources, which are not mineral reserves, do not have to demonstrate economic viability.

Table 14-10: Mineral Resource Estimate for Bayan Khundii, Effective October 1, 2019

Cut-off Grade (1)	Resource Classification	Quantity (tonnes)	Grade	Gold
			Au g/t	oz
0.4	Measured	1,737,000	3.15	176,000
	Indicated	4,616,000	2.45	363,700
	Measured & Indicated	6,353,000	2.64	539,700
	Inferred	1,062,000	3.10	105,800
0.55	Measured	1,410,000	3.77	171,000
	Indicated	3,710,000	2.93	349,700
	Measured & Indicated	**5,120,000**	**3.16**	**520,700**
	Inferred	**868,000**	**3.68**	**102,800**
1	Measured	652,000	7.31	153,300
	Indicated	1,696,000	5.56	303,500
	Measured & Indicated	2,348,000	6.05	456,700
	Inferred	421,000	6.83	92,500
1.4	Measured	506,000	9.09	147,800
	Indicated	1,427,000	6.40	293,600
	Measured & Indicated	1,933,000	7.10	441,400
	Inferred	371,000	7.61	90,800

Notes:

1. *Cut-off grades have been calculated using a gold price of $1,350 /ounce, milling costs of $3.0 / tonne, mining and G&A costs of $16.0 / tonne, and an assumed gold recovery of 95%.*
2. *Bulk density of 2.66 for mineralized domains.*
3. *Numbers may not add exactly due to rounding.*
4. *Conforms to NI 43-101, Companion Policy 43-101CP, and the CIM Definition Standards for Mineral Resources and Mineral Reserves.*
5. *Mineral resources which are not mineral reserves do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate.*

14.2.10 Selection of Reportable Cut-off Grade

The tabulated resource is reported at a 0.55 g/t Au cut-off grade and is based upon the following assumptions:

- Price of gold: $1,350 / ounce
- Milling costs: $3.0 / tonne
- Mining and G&A costs: $16 / tonne
- Gold Recovery: 95%

Additionally, the mineralization was constrained within a Whittle pit in order to further facilitate identifying mineralization which contains reasonable prospects for eventual economic extraction at the reported cut-off grade.

The reader is cautioned that the results from the pit optimization are used solely for testing the “reasonable prospects for eventual economic extraction” by open pit and do not represent an attempt to estimate mineral reserves. The results are used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cut-off grade.

14.2.11 Model Validation

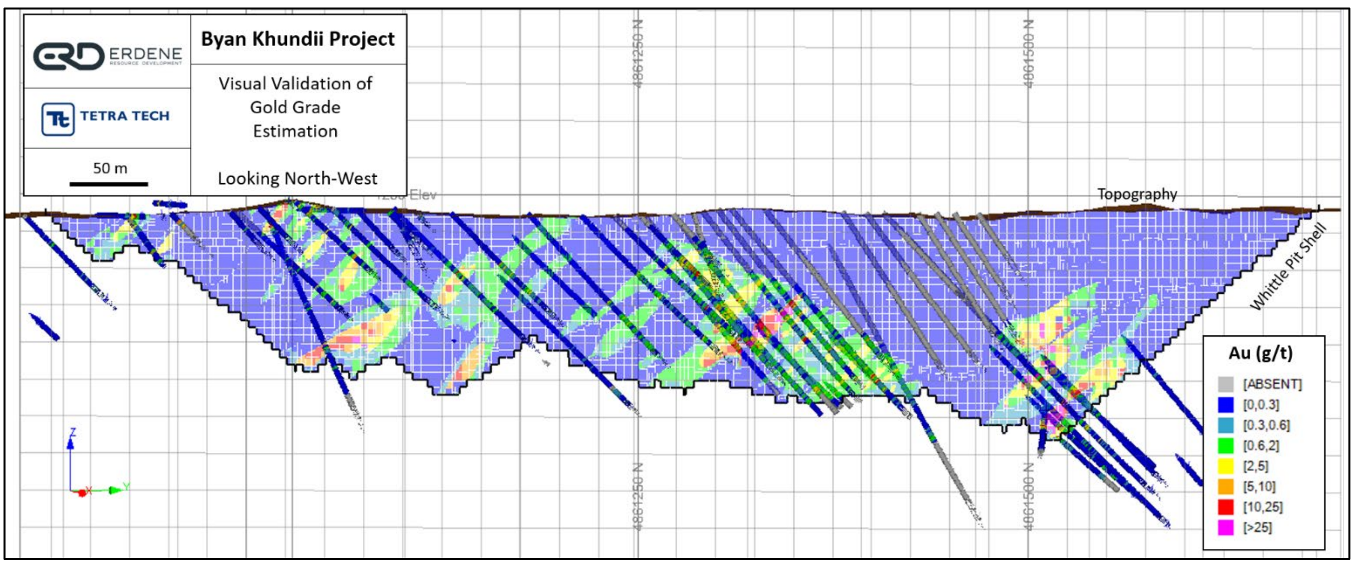
The Bayan Khundii model was validated by the following three methods:

- Visual comparison of colour-coded block model grades with composite grades on section and plan;
- Comparison of the global mean block grades for NN, ID^2, OK, and composites; and
- Swath plots in both plan and sectional views.

14.2.11.1 Visual Validation

The visual comparison of block model grades against composite sample grade shows a strong correlation between the values. No significant discrepancies were apparent between the sections and the plans reviewed, yet some grade smoothing is apparent (Figure 14-16).

Figure 14-16: Bayan Khundii Visual Validation



14.2.11.2 Global Comparison

The global block model statistics for the OK model were compared to the global NN and ID^2 values as well as the composite capped data. Table 14-11 shows this comparison of the global estimates for the three estimation calculations. In general, there is agreement between the NN, ID^2, and OK models. Larger discrepancies are reflected as a result of sample clustering or lower drill density in some portions of the model. There is a degree of smoothing apparent with comparison between statistics of block model grades to the assay composite grades. Comparisons were made using all blocks at a 0 g/t Au cut-off.

Table 14-11: Global Estimate Comparisons

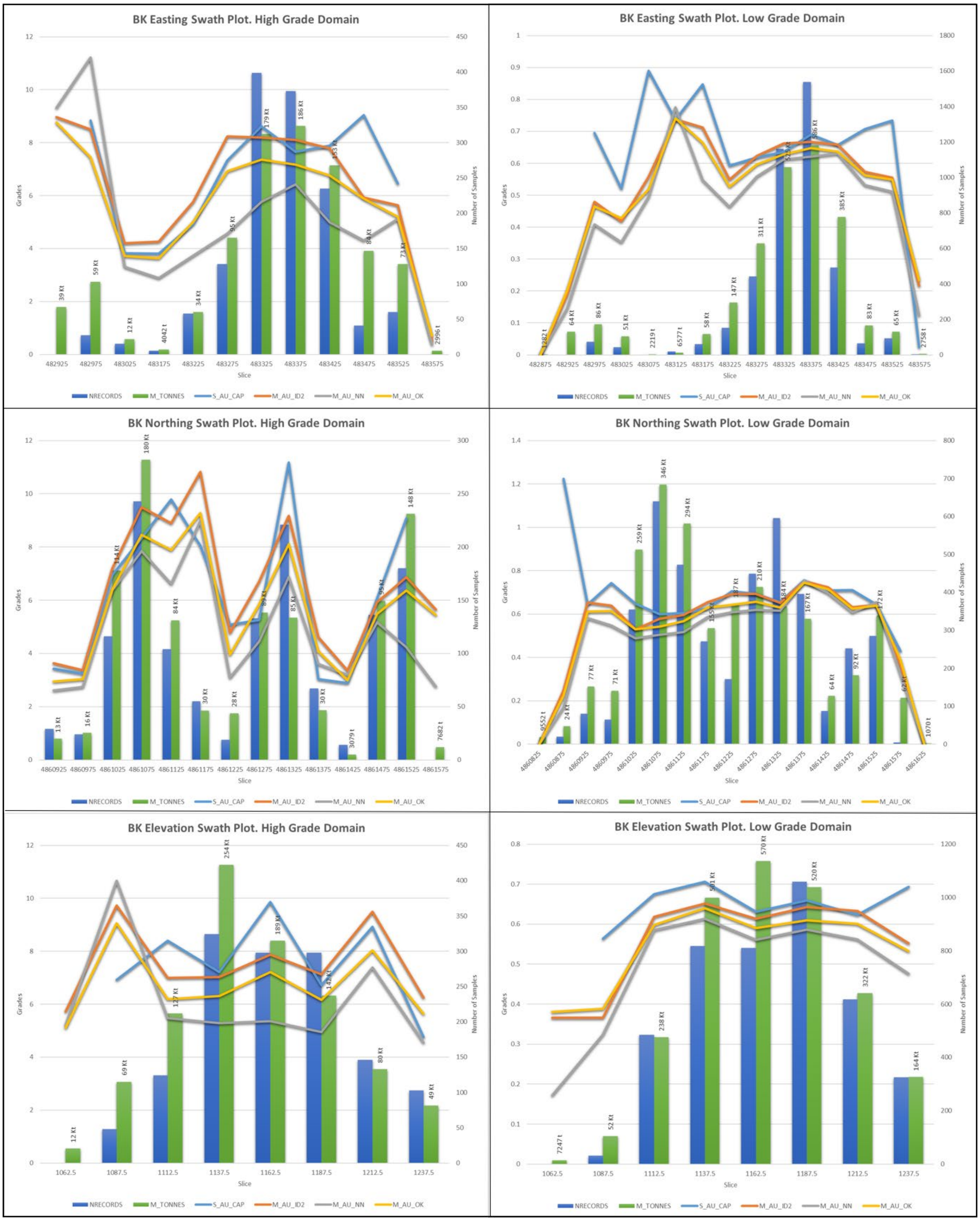
Grade Shell Domain	DDH Au Capped Values (g/t)	Au NN (g/t)	Au ID^2 (g/t)	Au OK (g/t)
Low Grade	0.66	0.54	0.60	0.57
High Grade	7.86	4.55	6.99	6.07

14.2.11.3 Swath Plots Comparison

Swath plots provide a qualitative method to observe preservation of the input composite grade trends on a spatial basis in the block model results. The data is plotted with average values along discrete intervals along the Cartesian X, Y and Z axis (i.e., easting, northing, and elevation). Input sample data used for these swath plots is composited and capped, resulting in a slightly smoother trend than raw data. However, the sample data can be clustered and may misrepresent areas of high-grade mineralization that have been oversampled. The block data is based on the composited and capped data and can also appear clustered due to the creation of sub-blocks. Both datasets have been constrained to the geological and grade shell models.

Swath plots for the low-grade domain show excellent correlation between the NN, ID^2, OK estimated models, with all three methods showing only minor smoothing in comparison to the average capped and composited drillhole grades shown for each section. The greatest deviations between the estimation grade and drillhole grade correlation can be attributed to a decrease in the number of sample records for a region. The high-grade domains also show good correlation between NN, ID^2, and OK estimation methods, however, to a lesser extent when compared to the low-grade estimation. A greater smoothing of grades is also observed when the estimation methods are compared to the average capped and composited drillhole grades for each section. This difference in performance is attributed to the higher-grade domain containing a smaller number of records (or assays) when compared to the lower grade domain. Further, the higher-grade domain contains a greater degree of grade variability between samples, and therefore, increased smoothing of the drill data will be observed depending on the estimation process. Swath plots for the Bayan Khundii resource estimate are presented below in Figure 14-17.

Figure 14-17: Bayan Khundii Swath Plots



14.2.12 Grade Tonnage Curves

Figures 14-18 through 14-20 shows the grade-tonnage curves for the Bayan Khundii block model. The current mineral resources are reported at a 0.55 g/t Au cut-off which is represented by the yellow line in the figures below.

Figure 14-18: Bayan Khundii Measured Grade-Tonnage Sensitivity Curve

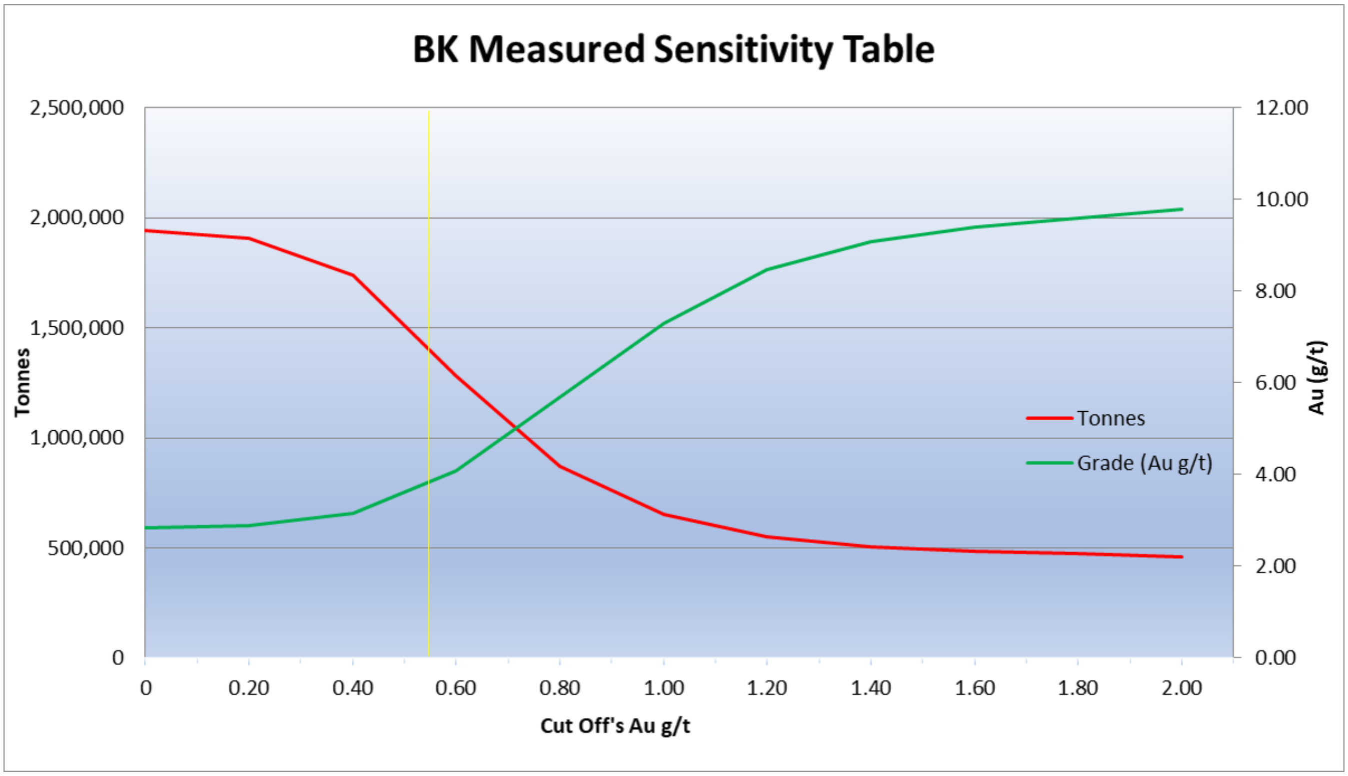


Figure 14-19: Bayan Khundii Indicated Grade-Tonnage Sensitivity Curve

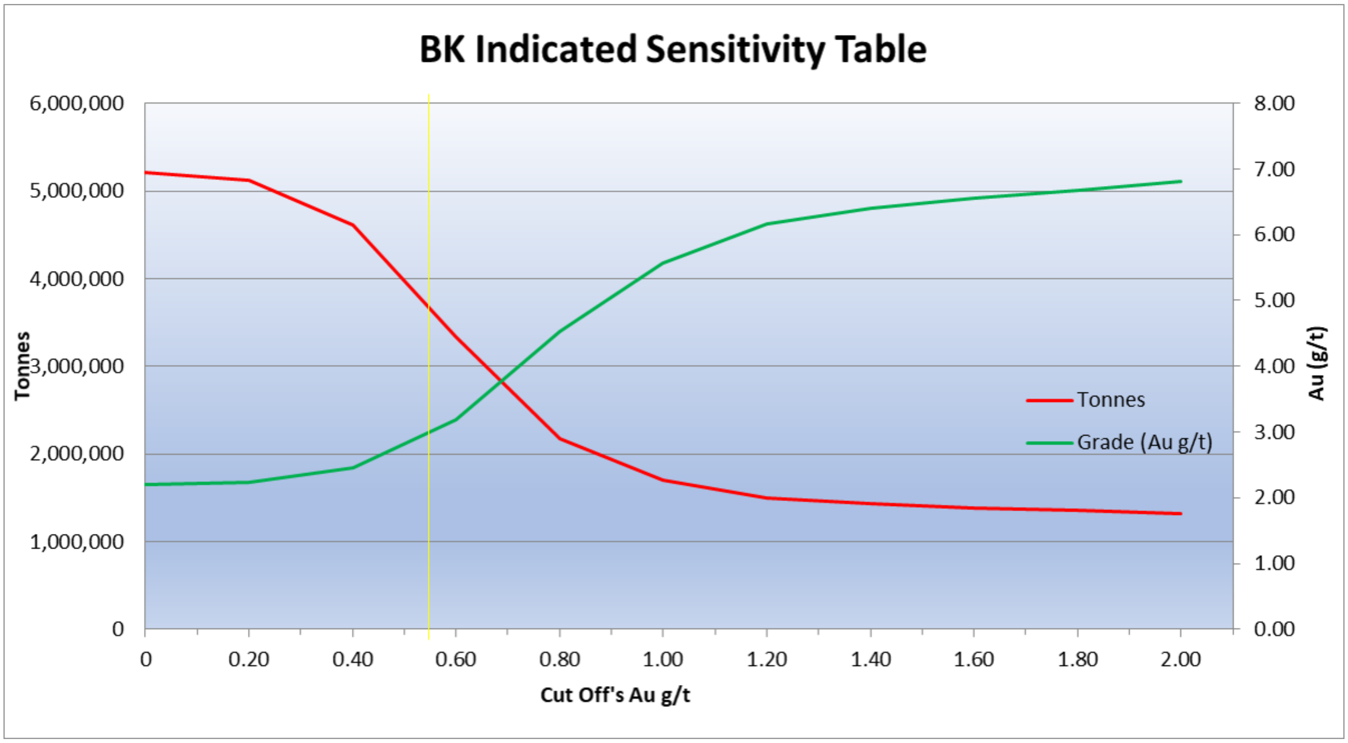
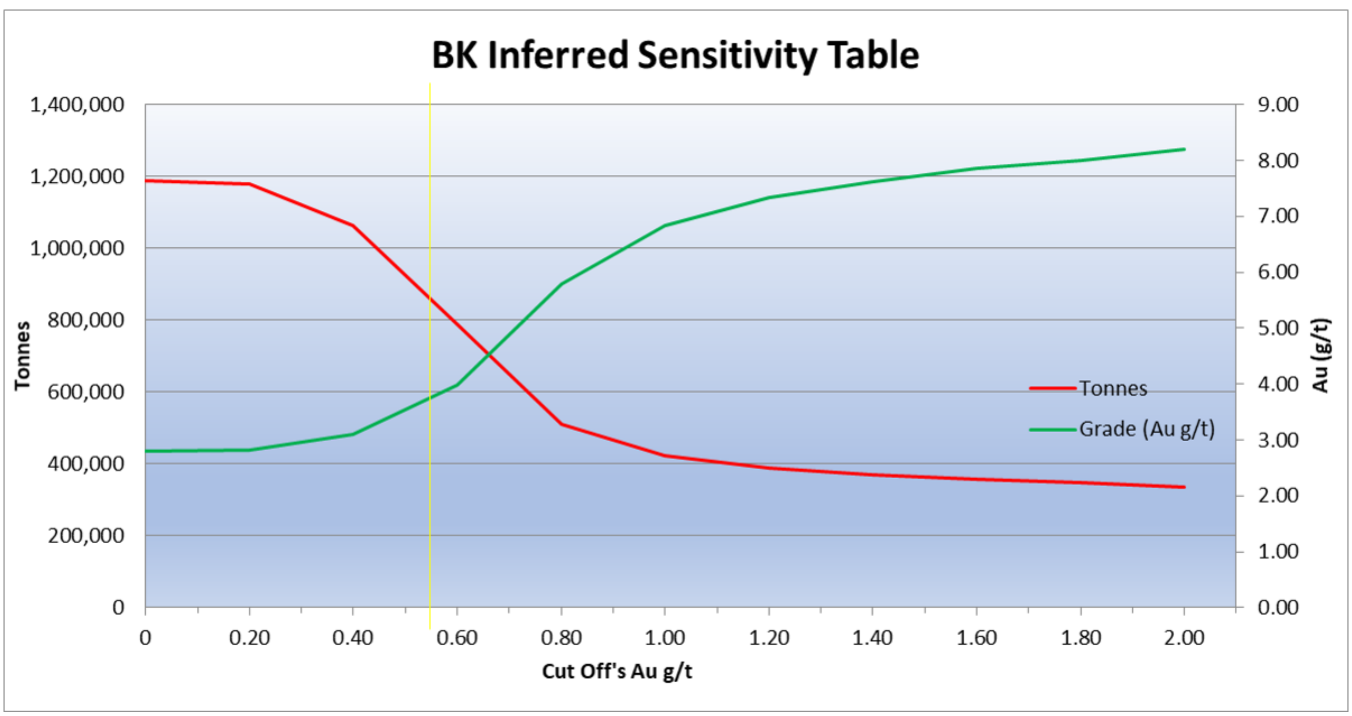


Figure 14-20: Bayan Khundii Inferred Grade-Tonnage Sensitivity Curve



14.3 Altan Nar

The Mineral Resource Estimate for the Altan Nar deposit was developed in 2018 by RPM with an effective date of May 7, 2018 and documented in the report titled “NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project” dated February 4, 2019. Additional work has not been completed on this deposit area since the effective date, and the Mineral Resource Statement remains current. The QP for the Altan Nar Mineral Resource Estimate is work is Jeremy Clark, Principal Geologist for RPM Global Asia Limited. Extracts relevant to the Mineral Resource Estimate are included in this section, however for a detailed review of the Altan Nar mineral resource estimate parameters and procedures, the reader is directed to the aforementioned technical report.

14.3.1 Mineral Resource Statement

RPM has independently estimated the Mineral Resources contained within the Project, based on the data collected by Erdene as of 1st February 2018. The Mineral Resource estimate and underlying data complies with the guidelines provided in the CIM Definition Standards under NI 43-101 and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines. Therefore, RPM considers it is suitable for public reporting. The Mineral Resources were completed by Mr. David Princep of RPM and under the supervision of Mr. Jeremy Clark of RPM.

The Statement of Mineral Resources has been constrained by the topography, and a cut off 0.7 g/t AuEq above a nominal pit shell and 1.4 g/t AuEq below the same pit shell.

The results of the Mineral Resource estimate for the Altan Nar deposit are presented in Table 14-12. RPM suggests using a 0.7 g/t AuEq above pit and 1.4g/t AuEq below the pit shell as a reporting cut-off based on a mining / process and cost parameters for the Project.

Further details are included in the report titled “NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project” dated February 4, 2019.

Table 14-12: Altan Nar Deposit Mineral Resource Estimate, May 2018

Type	Indicated Mineral Resource										
	Quantity	Au	Ag	Zn	Pb	AuEq	Au	Ag	Zn	Pb	AuEq
	Mt	g/t	g/t	%	%	g/t	Koz	Koz	Kt	Kt	Koz
Oxide	0.6	2.0	12.7	0.6	1.0	3.1	39.3	244.3	3.8	6.3	59.6
Fresh	4.4	2.0	15.0	0.6	0.5	2.8	278.4	2,105.4	27.8	22.7	393.4
Total	**5.0**	**2.0**	**14.8**	**0.6**	**0.6**	**2.8**	**317.7**	**2,349.7**	**31.6**	**29.0**	**453.0**
Type	**Inferred Mineral Resource**										
	Quantity	Au	Ag	Zn	Pb	AuEq	Au	Ag	Zn	Pb	AuEq
	Mt	g/t	g/t	%	%	g/t	Koz	Koz	Kt	Kt	Koz
Oxide	0.8	1.8	7.5	0.6	0.9	2.6	43.3	183.7	4.3	6.5	64.2
Fresh	2.7	1.7	8.0	0.7	0.6	2.5	142.4	682.1	19.4	15.8	212.8
Total	**3.4**	**1.7**	**7.9**	**0.7**	**0.7**	**2.5**	**185.7**	**865.8**	**23.7**	**22.3**	**277.1**

Note:

1. *The Statement of Estimates of Mineral Resources has been compiled under the supervision of Mr. Jeremy Clark who is a full-time employee of RPM and a Member of the Australian Institute of Geoscientists. Mr. Clark has sufficient experience that is relevant to the style of mineralization and type of deposit under consideration and to the activity that he has undertaken to qualify as a Qualified Person as defined in the CIM Standards of Disclosure.*
2. *All Mineral Resources figures reported in the table above represent estimates based on drilling completed up to 7th May 2018. Mineral Resource estimates are not precise calculations, being dependent on the interpretation of limited information on the location, shape and continuity of the occurrence and on the available sampling results. The totals contained in the above table have been rounded to reflect the relative uncertainty of the estimate. Rounding may cause some computational discrepancies.*
3. **Au Equivalent (AuEq) calculated using long term 2023 - 2027 "Energy & Metals Concensus Forecasts" March 19, 2018 average of US$1310/oz for Au, US$17.91/oz for Ag, US$1.07/pound for Pb and US$1.42/pound for Zn. Adjustment has been made for metallurgical recovery and is based company's preliminary testwork results which used flotation to separate concentrates including a pyrite concentrate with credits only for Au and Ag. Based on grades and contained metal for Au, Ag, Pb and Zn, it is assumed that all commodities have reasonable potential to be economically extractable.*
    a. *The formula used for Au equivalent grade is: AuEq g/t = Au g/t + Ag g/t*0.0124+Pb%*0.509+Zn%*0.578 with metallurgical recovery of 88.8% Au, 80.6% Ag, 80.4% Pb and 69.1% Zn.*
    b. *Au equivalent ounces are calculated by multiplying Mineral Resource tonnage by Au equivalent grade and converting for ounces. The formula used for Au equivalent ounces is: AuEq Oz = [Tonnage x AuEq grade (g/t)]/31.1035.*
4. *Mineral Resources are reported on a dry in-situ basis.*
5. *Reported at a 0.7 g/t AuEq cut-off above pit shelland 1.4g/t AuEq below the pit shell. Cut-off parameters were selected based on an RPM internal cut-off calculator, which indicated that a break-even cut-off grade of 0.7g/t Au Equivalent above pit and 1.4g/t AuEq below pit, assuming a gold price of US$1310 per ounce, an open mining cost of US$6 per tonne and a processing cost of US$20 per tonne milled and processing recovery of 88.8% Au, 80.6% Ag, 80.4% Pb and 69.1% Zn.*
6. *Mineral Resources referred to above, have not been subject to detailed economic analysis and therefore, have not been demonstrated to have actual economic viability*

15.0 MINERAL RESERVE ESTIMATES

15.1 Introduction

Mineral Reserves for the Bayan Khundii deposit are based on the Measured and Indicated Resources presented in Chapter 14 and use PFS level engineering designs for the pit and associated operating parameters. Reserve calculations are valid at the time of estimation and use cut-off grade assumptions which were made prior to finalization of the economic model. The Mineral Reserve estimates are based on a mine plan and pit design developed using modifying parameters including metal price, metal recovery based on performance of the processing plant, and operating cost estimates.

Tetra Tech confirmed that there were no periods of negative cash flow following project start-up and that overall project economics are favorable at a three-year moving average gold price of $1,267/oz. Tetra Tech adopted standard mine planning processes to determine the Mineral Reserve estimate for the Bayan Khundii deposit. The following inputs and constraints were utilized for pit optimization and further defined in the following sections:

- Resource model with associated assay grades and densities for mineralized zones (Chapter 14)
- Topographic surface provided by Erdene
- Metallurgical recoveries provided by Blue Coast Research (Table 15-2)
- Geotechnical slope parameters (Table 15-3)
- Gold price of $1,267/oz
- Operating cost assumptions, including mine, mill, and G&A (Table 15-4)
- Dilution (Section 15.3.2)
- Processing rate of 600 kt/year (Section 15.3.4)
- Balanced total material movement per annum (Section 16.2.2)

15.2 Reserve Estimation Parameters

15.2.1 Geotechnical Parameters

Rock masses are characterized into rock mass and structural domains based on their engineering characteristics and how they are expected to behave during mining. Rock mass domains are used to define the rock mass quality and strength of the different materials. Structural domains are used to define the orientations and strengths of the discontinuities and large-scale structures.

A geotechnical gap analysis of the available data was conducted for Bayan Khundii pit. In order to gain new geotechnical information, core photographs of full core from six drillholes (BKD-167, BKD-236, BKD-246, BKD-248, BKD-255, BKHGD-02) spaced around the proposed pit were used to assess the rock mass quality using the Rock Mass Rating classification system (Bienawski, 1989). Geotechnical logging runs were selected based on zones of similar quality. The core photographs were used to estimate recovery, RQD, weathering, joint count and discontinuity conditions. Discontinuity conditions assumed a persistence of > 20 m, the remaining parameters were conservatively estimated based on what could be seen in the photographs and experience logging similar rock types. Estimates of Uniaxial Compressive Strength (UCS) were based on laboratory strength testing of 48 samples from 9 drillholes completed during the PEA. A zone of weathered material with poor RQD values (less than 50%) and weathering ratings of W3 or W4 (moderately to highly weathered) was encountered to varying depths (5.2 m to 33.2 m downhole) in most drillholes. Where the basalt is exposed on surface, a small zone of reduced rock mass quality was found below the basalt that is believed to have overlain a paleosoil. Fault intersections were also reviewed through core photographs. The most significant reduction in rock mass quality was found to be near-surface; this may also be an effect of the near-surface weathering. More potentially problematic faults include Fault Midfield, Fault Striker, Fault NE1 and Fault MFN.

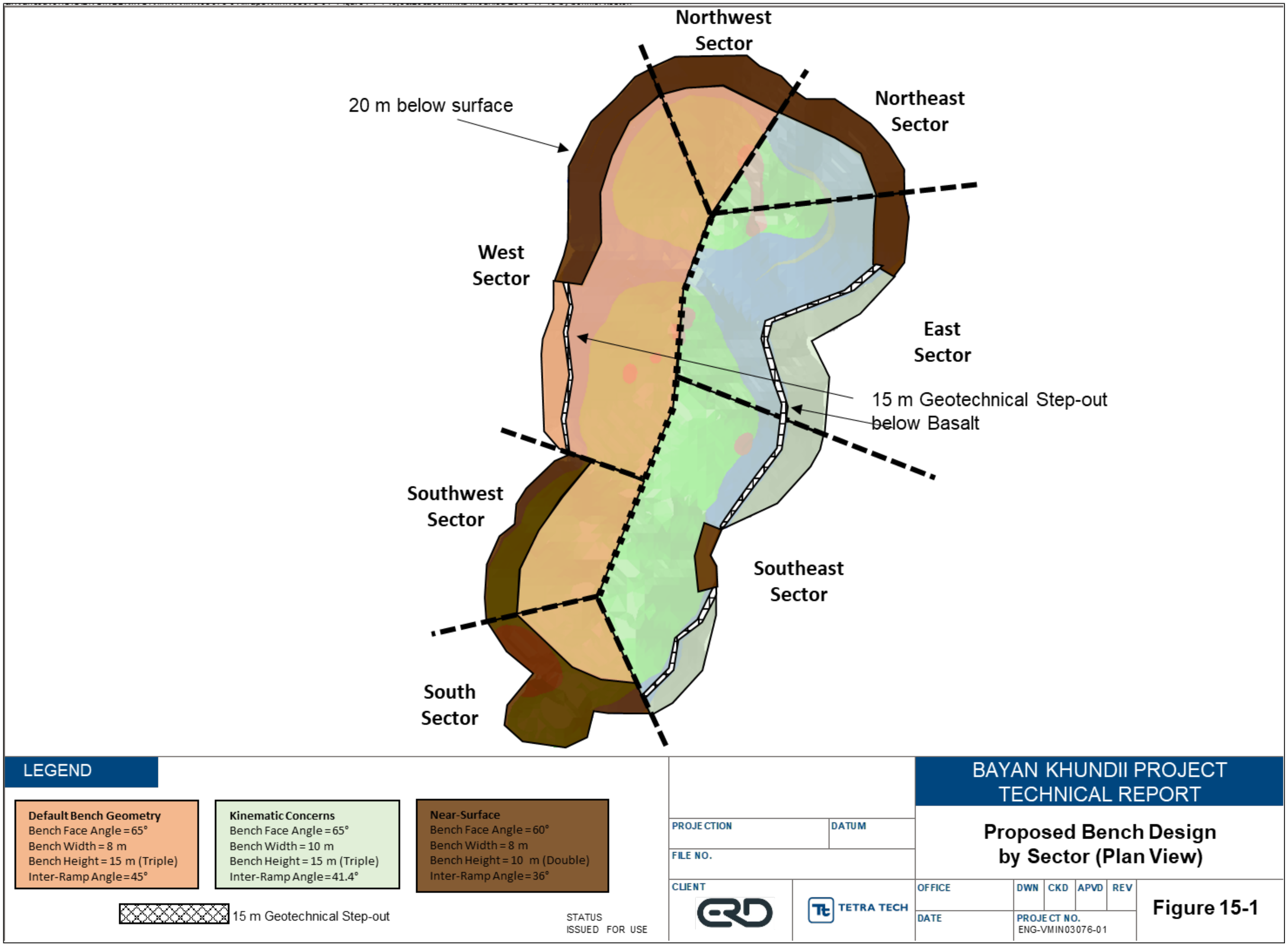
Five rock mass domains were identified for use in the stability analyses; their geotechnical parameters are outlined below on Table 15-1 and shown on Figure 15-1. RMR89 values are based on an average of the geotechnical logging completed from the core photographs of six drillholes for each rock type. Geological Strength Index (GSI) is based on the correlation of RMR_{89} – 5 (Hoek, 2007). m_i is based on typical values for each rock type (Hoek, 2007), and UCS and Unit Weight are based on an average from the laboratory testing. Rock mass domains are generally classified as FAIR quality, except for the rock masses near surface which are classified as POOR quality.

Table 15-1: Rock Mass Properties by Domain

Rock Mass Domain	Unit Weight (KN/m^3)	GSI	UCS (MPa)	m_i
Near Surface (20 m below surface except within Basalt)	24	33	25	8
Jurassic Sequence	24	52	31	13
Lapilli Tuff	26	55	48	8
Basalt	26	57	32	20
Granitoid	25	52	83	20

Erdene had collected oriented core data from 277 drillholes. Orientation data was reviewed in pockets of nearby drillholes looking for consistent data. A rotation in the main joints was found to exist in the northeast quadrant of the pit. As such, structural domains for Jurassic Sequence and lapilli tuff were divided into two structural domains; one for the northeast quadrant and one for the remainder of the pit. The rotation was not observed within the basalt due its younger age, as such a global structural domain was used. The granitoid formed a small portion of the final pit walls and was not included the kinematic stability analyses.

Figure 15-1: Geotechnical Domains cut against PFS Pit Shell



15.2.2 Pit Slope Design

Kinematic analyses were performed for each structural domain for each pit wall design sector using stereographic projections with the software Dips™ by Rocscience. The analyses evaluated the potential for planar, wedge and toppling failures in order to properly size the benches. A semi-quantitative approach was taken based on the concentration of the joint sets and the percent critical located within the failure window. Direct shear testing of discontinuities had been completed, however after review, they were determined to be un-reliable. As such, a 30° friction angle was used, this is considered to be an appropriate value for this level of study in absence of reliable data. Wedge and planar failures of major significance were used to limit the bench configuration.

In the absence of kinematic controls, a default bench geometry was given; this included a bench face angle of 65° and a bench width of 8 m (the modified Ritchie formula suggests 7.5 m). The bench height for the ultimate pit had been set to a 15 m height based on 5 m benches stacked in a triple bench configuration. This results in an inter-ramp angle of 45°. Kinematic controls were found within the Jurassic Sequence and Lapilli Tuff along the eastern wall of the pit. As a result, the bench width was increased to 10 m to accommodate to increased likelihood of kinematic failures; it was found that reducing the bench face angle would not help to limit the likelihood of planar and wedge failures.

After the mine design was completed, an overall slope stability check was evaluated with a limit-equilibrium analyses using Slide™ by Rocscience. Slope stability models were evaluated for six cross sections around the ultimate pit. The modelling incorporated the rock mass domains (as described above) and a disturbance zone behind the pit wall varied by depth. The groundwater conditions were conservatively assumed to be fully saturated (i.e., no drawdown and water to surface). The results of the analyses concluded that all cases exceeded the target Factor of Safety of 1.3. In the ultimate pit walls, a geotechnical step-out is recommended below the Basalt. Within the first 20 m from surface except for within the Basalt, a reduced bench height to 10 m and a reduced bench face angle to 60° (inter-ramp angle = 33°) is recommended.

15.3 Mine Design

15.3.1 Pit Optimization Methodology

Whittle™ analysis based on the Bayan Khundii resource was completed in order to develop a final pit shell and optimize the extraction schedule. The basis of the pit optimization is the resource model, which contains 5.74 Mt of ore, hosting 508 koz of gold in the Measured and Indicated categories. Recovery inputs are based on the gold grade and are taken from the previous technical work completed by Blue Coast Research. A summary of the recovery inputs can be seen in Table 15-2 below. Slope parameters are based on the available geotechnical information and are summarized in Table 15-3 below.

Table 15-2: Recovery Equations Based on Grade at Bayan Khundii

Grade Range (g/t)	Recovery Equation
0.00 - 0.35	Au Rec (%) = 230.61*Au Grade (g/t)
0.35 - 1.18	Au Rec (%) = 13.32*Au Grade (g/t) + 76.052
1.18 - 24.9	Au Rec (%) = 0.318*Au Grade (g/t) + 91.222
24.9 - 99.9	Au Rec (%) = 99

Table 15-3: Geotechnical Slope Parameters

Sector	Structural Domains	BFA (°)	Bench Width (m)	Bench Height (m)	IRA (°)
All (where applicable)	Near-Surface	60	8	10	36
North East	Jurassic Sequence, Lapilli Tuff	65	10	15	41.4
East	Basalt, Jurassic Sequence, Lapilli Tuff	65	10	15	41.4
South East	Basalt, Jurassic Sequence Lapilli Tuff	65	10	15	41.4
South	Lapilli Tuff	65	8	15	45
South West	Lapilli Tuff	65	8	15	45
West	Basalt, Jurassic Sequence, Lapilli Tuff	65	8	15	45
North West	Jurassic Sequence, Lapilli Tuff	65	8	15	45

Operating cost parameters are based on a three-year trailing average gold price of $1,267/oz. Initial life-of-mine operating costs were based on the data provided by RPM for evaluation and were subsequently updated with pre-feasibility level operating costs estimated by Tetra Tech which are summarized in Chapter 21. A summary of the operating cost parameters can be found in Table 15-4 below.

Table 15-4: Operating Cost Parameters

Cost	Unit Cost ($/oz Au)
Mining Contractor	319
Transport from Altan Nar to Bayan Khundii	7
Processing	183
Product Transport	1
Smelting and Refining	5
Overheads	73
Royalty	62
Contingency	58
Total	**708**

15.3.2 Dilution

There is both internal and external dilution to consider as a mining project is developed from conceptual to production phases. Internal dilution is caused by the geometry of the ore body and the constraints of the size of the blocks in the model. Tetra Tech chose a SMU (selective mining unit) of 5 x 5 x 5 m. This SMU was chosen to accommodate the narrow morphology of the high-grade mineralization, tight drill spacing, the best associated bench height to control dilution, mining equipment, and mining method. In order to more accurately estimate the ore and waste material present in the deposit, 5 sub-cells of each 5 x 5 x 5 m parent block were factored in in each direction in order to fill the volumes of the wireframes. This was done for the purpose of granularity and accuracy during resource modelling.

Subsequently, the block model was reblocked to a 1 x 1 x 5 m size (vertical columns); this was completed in order to more accurately constrain the dilution in a vertical direction, as the mining method allows for good horizontal material control but minimal control in a vertical sense. This also maintains the higher resolution of the high grade within the zone domains of the larger 5m blocks.

Benches of 5.0 m height were designed and splitting of the benches into 2.5 m flitches was not incorporated into the design hence the requirement for additional vertical control at a block level.

The dilution was reported within the block model at a 1 x 1 x 5 m scale (ore blocks vs waste blocks) which was imported in MineSched™ and reported on a quarterly or annual basis in the schedule as a percentage of waste material which is mined with the ore. The dilution reported from the MineSched™ schedule averages 9% over the Life of Mine (LOM).

External dilution can be related to the size of the mining equipment, minimum mining width, contact dilution, and blasting movement and intermixing of material. Equipment selection to minimize dilution is discussed in Chapter 16, alongside recommendations for ore control measures.

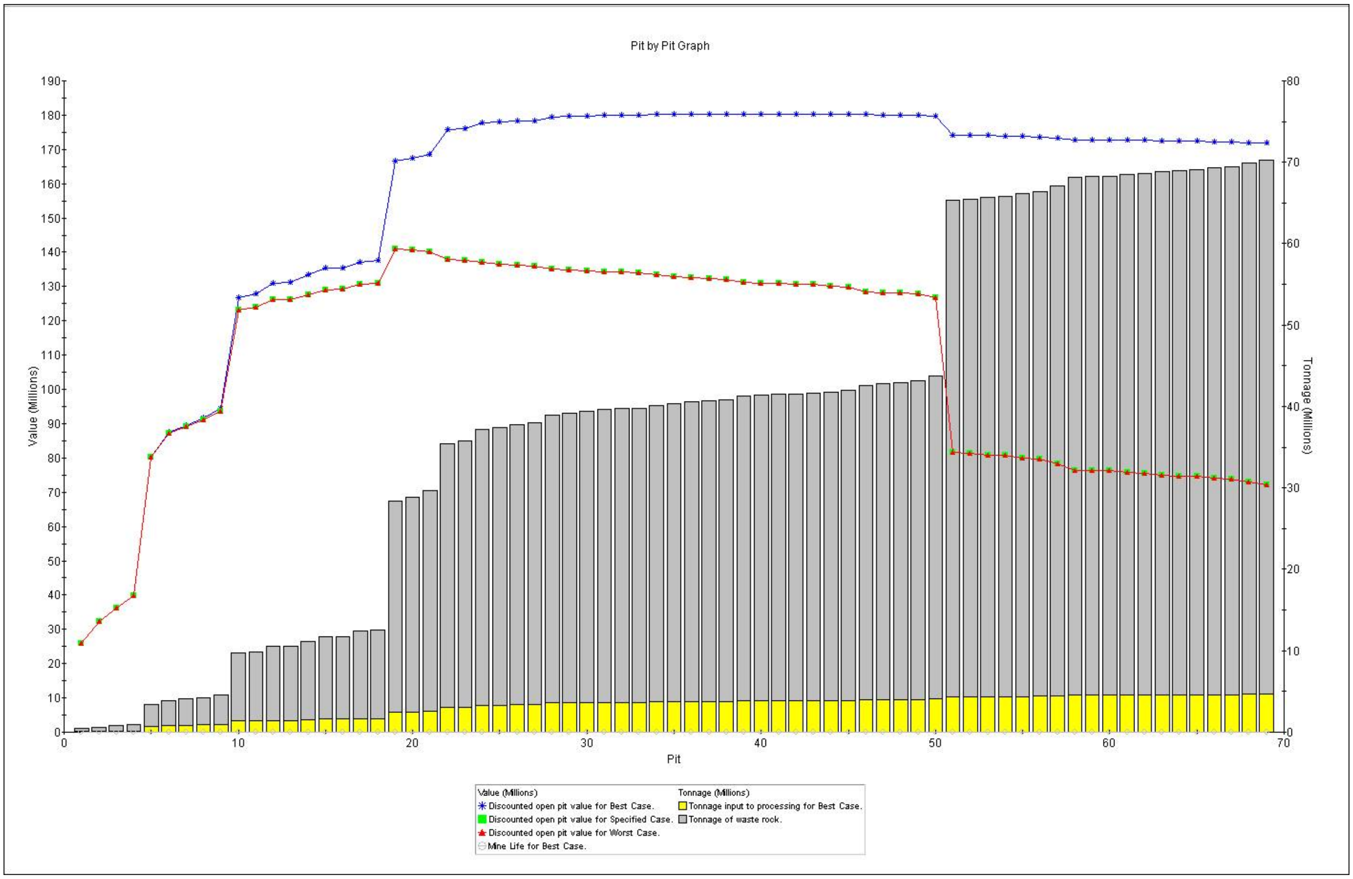
15.3.3 Whittle Shell Calculations

The creation of the Whittle™ pit shells was based on an evaluation of each block in the resource model, with blocks defined as ore provided the gross revenue for each block was greater than the combined mining, processing and selling costs. Waste to ore cut-offs were determined using an NSR (Net Smelter Return) for each block in the model. NSR is calculated using prices and process recoveries for each metal accounting for all off-site losses, transportation, smelting and refining charges. NSR cut-off was calculated to be $22.93 and includes 5% royalty deduction.

From the above data, a series of nested Whittle™ pit shells were created based on a series of revenue factors (RF); achieved by varying the prices of the contained metal while keeping the mining, processing, and selling costs constant. The pit optimization results are shown in Figure 15-2. The base metal price assumptions represent the revenue factor 1.0, corresponding to pit shell #41. Each pit shell represents a 2% increment in revenue factor.

From the analysis of the graph, the pit shells with RF’s 0.78 and 0.88 were evaluated against the Base Case shell (RF 1.0). The pit shells in between pit 41 and pit 35 (RF 0.88) have an incrementally small change in ounces but an increase in waste, which lowers their economic value. Pit 30 (RF 0.78) was evaluated as it had slightly lower waste than pit 35, but it also had less ore which led to a higher strip ratio and less revenue. The pit shells closer to RF 1.0 are much more sensitive to changes in gold price or operating costs, which strengthens the case to select RF 0.88 as the optimum pit. As the gold price was increased, a satellite pit over the Striker West area was created, but this is only economically viable at a gold price of $1,420/oz.

Figure 15-2: Bayan Khundii Pit Optimization



15.3.4 Pit Optimization and Cash Flow Analysis

A cash flow analysis was completed to determine the economic viability and sensitivity of shells against the base case. This cash flow assumed a 600 kt/year production rate, a 10% discount rate and a constant gold price of $1,268/oz. The process rate of 600 kt/year was based on the previous analysis done by RPM during the PEA and confirmed with Erdene as the process rate to be used in the PFS study. In addition to the 600 kt/year processing rate, other schedule constraints included a maximum vertical advancement of 60 m/year, and a balanced overall total material moved.

Only Measured and Indicated resources were considered. This analysis evaluated the potential of improving project economics by increasing the RF. In this analysis, the results showed that cash flow does not increase with a RF higher than 0.88 and decreases once the waste from the satellite pit is included at RF 1.12. Increasing the RF therefore will only include more waste and increase the strip ratio as the cash flow was shown to plateau after RF 0.88 (See Figure 15-3 below).

Tetra Tech's objective of maximizing extraction of the available Mineral Resources whilst minimizing the quantity of waste material excavated over the life of mine was achieved by selecting RF 0.88 as the optimum pit shell. This pit shell was used as the basis for the ultimate designed pit and represented the best balance of value and risk for pit sizing. The quantities of RF 0.88 are shown in Table 15-5, inclusive of the modeled internal dilution.

Following the cash flow analysis, a high-level sensitivity analysis was performed on key input parameters for pit optimization including gold price, overall slope angle and internal dilution.

Both dilution and overall slope angle were shown to have minimal effect on the revenue generated, however the analysis confirmed a sensitivity to the gold price. A full financial model sensitivity analysis was subsequently performed for the project following pit shell selection, mine design and cost estimation as described in Chapter 22.

Table 15-5: Optimum Pit Shell

Optimum Pit Shell – RF 0.88, Pit 35		
Ore	Tonnes (Dry, In-situ)	3,739,021
Waste	Tonnes (Dry, In-situ)	36,626,991
Total	Tonnes (Dry, In-situ)	40,366,012
Strip Ratio		9.8
Input Grade	g/tonne	3.537
Contained Au	ounces	425,241
Recovered Au	ounces	400,509
Average Recovery Au	ounces	94.2%

Figure 15-3: Revenue Factor Pit Shells and Resulting Discounted Cash Flow

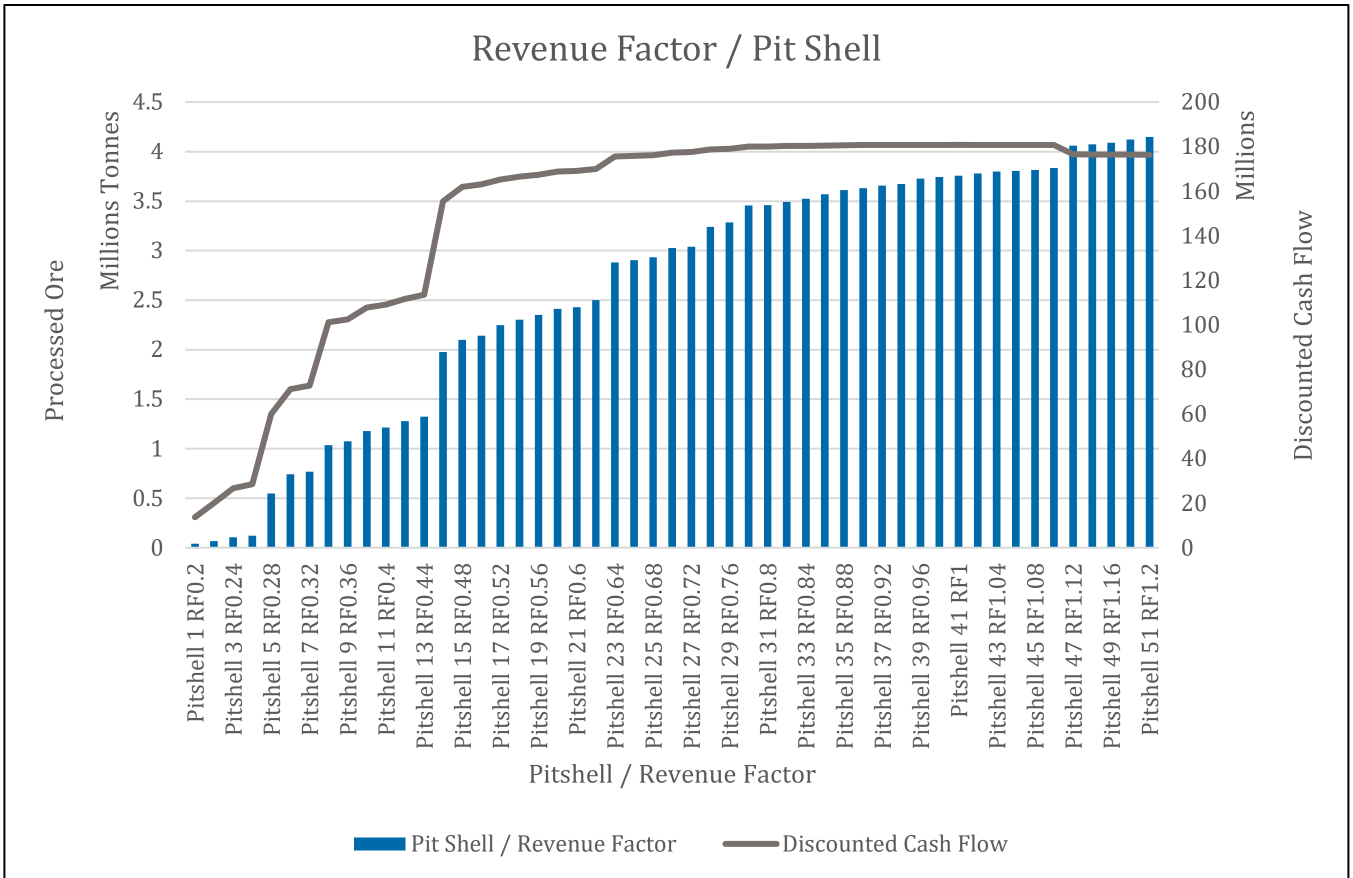
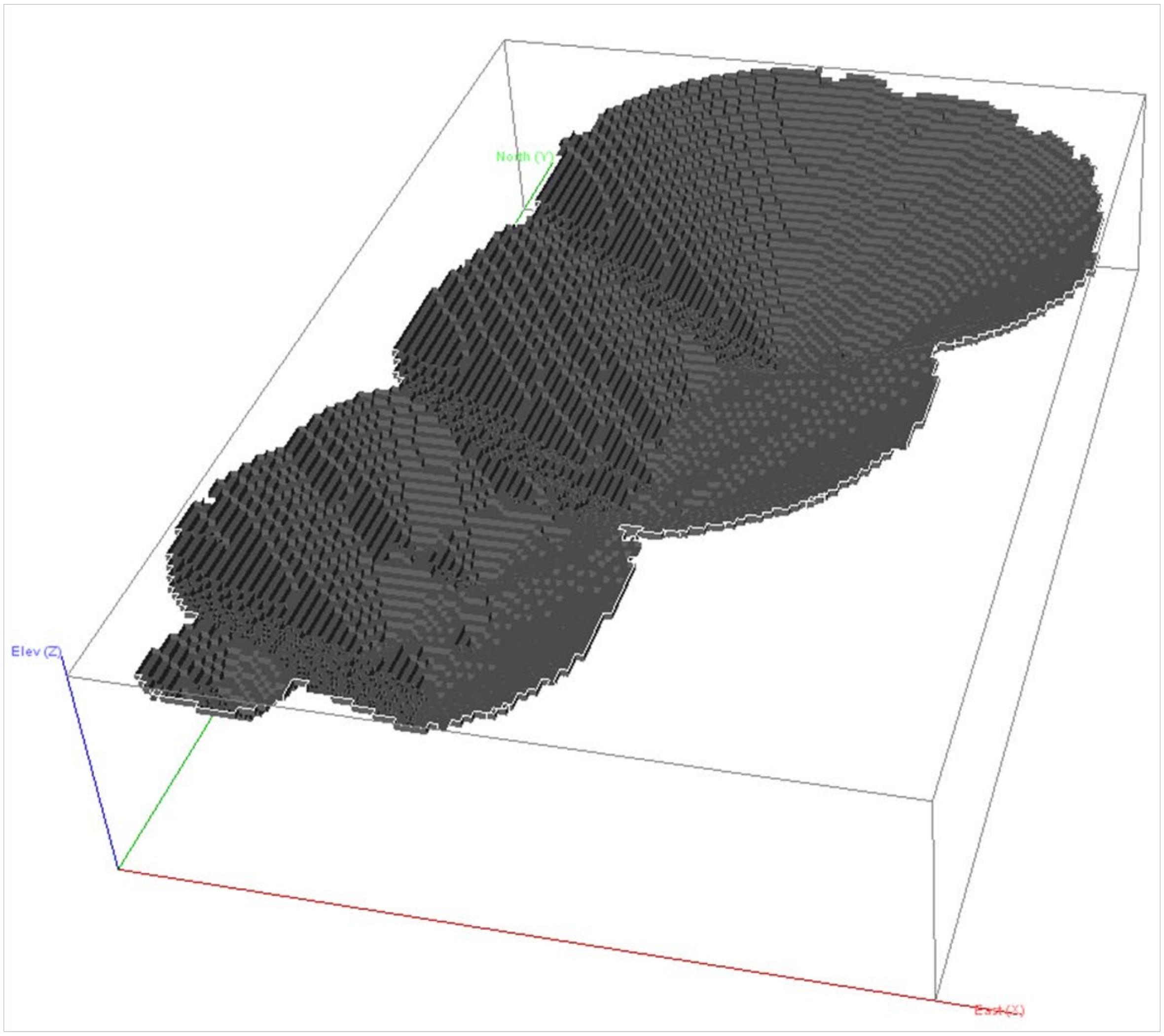


Figure 15-4: Whittle™ Shell Used for Mine Design, Oblique View, Looking North



BAYAN KHUNDII PROJECT
TECHNICAL REPORT

Whittle™ Shell Used for Mine Design, Oblique View, Looking North

PROJECTION	DATUM	CLIENT
FILE NO.		TETRA TECH
OFFICE	DWN / CKD / APVD / REV	**Figure 15-4**
DATE November 20, 2019	PROJECT NO. ENG-VMIN03076-01	

STATUS
ISSUED FOR USE

15.3.5 Mine Phase Design

Two pushbacks were designed in GEMS™ based on a mining sequence from south to north. These pushbacks dictate the overall mining sequence between the three main areas of the deposit: Striker, Midfield and Midfield North. Pushbacks were designed in order to defer stripping as much as possible and to focus on targeting the high-grade ore located at the base of the Striker area to the south of the Bayan Khundii pit shell.

In order to achieve this, constraints were set in Surpac™ during design and further to this during the scheduling process in MineSched™. This allowed mining to be completed in the Striker pit prior to advancing north towards the Midfield and Midfield North areas of the orebody.

Figure 15-5: Pushback Designs for Bayan Khundii, Oblique View, Looking North

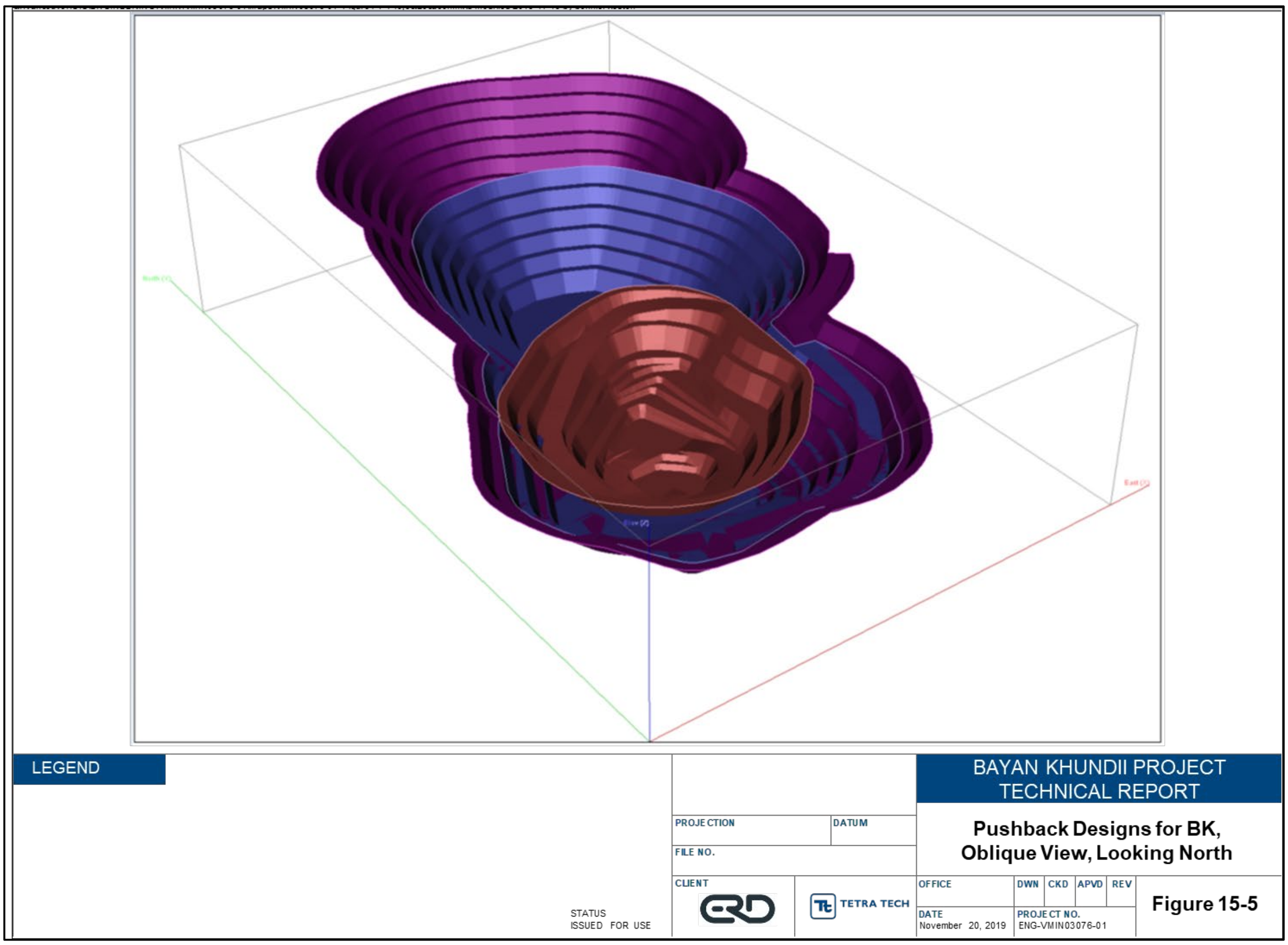
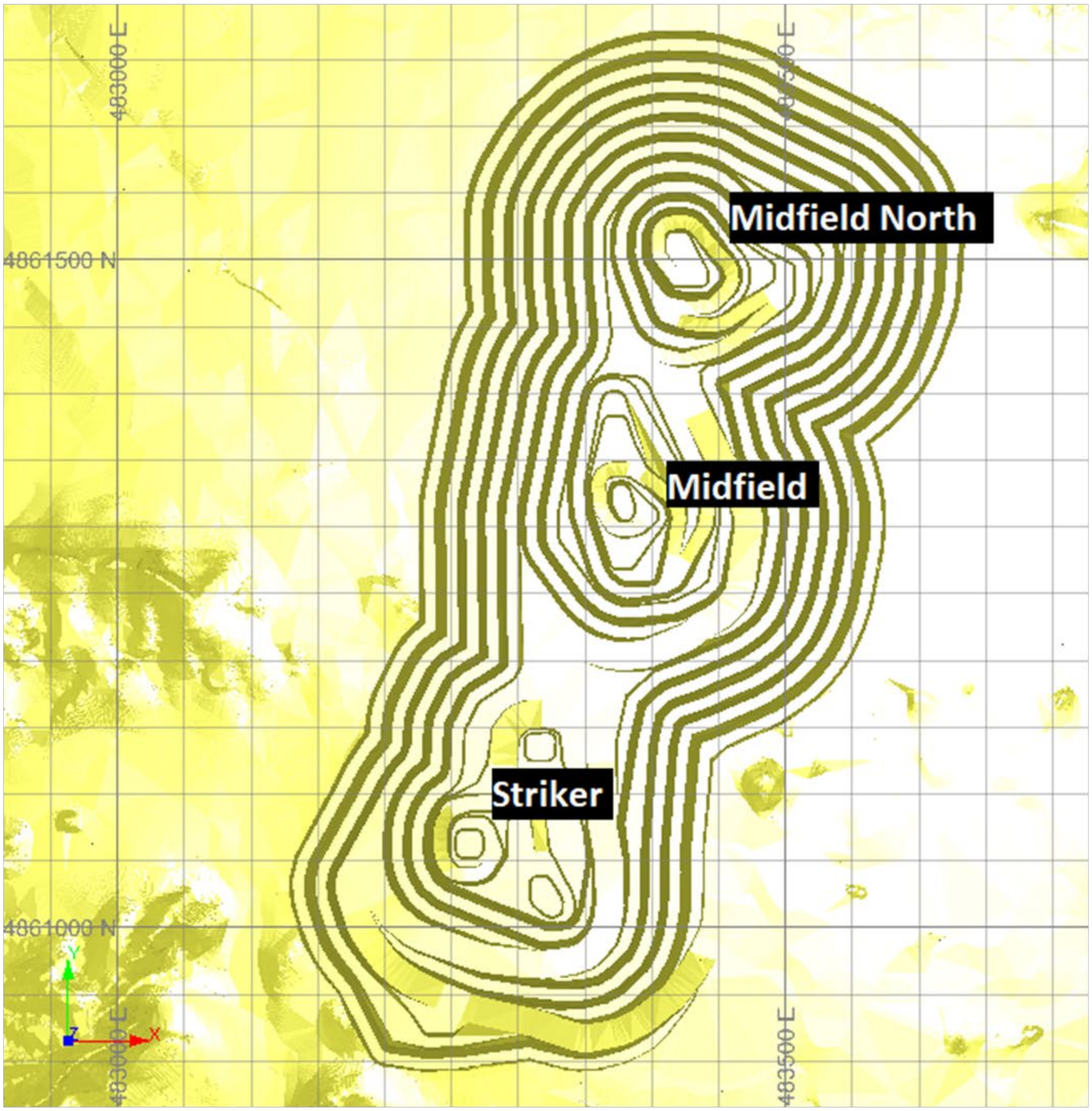


Figure 15-6: Pit Design Showing Striker, Midfield and Midfield North Target Areas, Plan View



STATUS
ISSUED FOR USE

BAYAN KHUNDII PROJECT TECHNICAL REPORT					
Pit Design Showing Striker, Midfield, and Midfield North Target Areas, Plan View					
PROJECTION		DATUM			CLIENT
FILE NO.					TETRA TECH
OFFICE	DWN	CKD	APVD	REV	**Figure 15-6**
DATE November 20, 2019	PROJECT NO. ENG-VMIN03076-01				

15.3.6 Ultimate Pit Design

The proposed pit design for Bayan Khundii is located in the southwest corner of the Erdene mining property in an area with relatively uniform topography. The pit footprint is designed at approximately 860 m long by 420 m wide, with the long axis of the pit aligned in a roughly N-S direction. The PFS level pit design demonstrates the viability of accessing and mining the economic reserve at Bayan Khundii. Pit design was completed using Geovia GEMS™ software and was based on the Whittle™ shell RF 0.88 outlined in Section 15.3.2. In addition, the pit design complies with the geotechnical parameters previously stated in Table 15-1 in Section 15.2 and the following additional mining parameters:

- Minimum mining width of 30 m, chosen to accommodate the highest possible ore retrieval using the equipment selected (Section 16.6 for details on equipment chosen).
- Ramp width of 20m at a gradient of 12% for crest to lowest two benches, with a ramp width of 10m and gradient of 15% for access to lower sections of the orebody in lowest two benches.
- Pit limits designed within the mining boundary on the east side of the Bayan Khundii deposit.
- Overall pit wall height no greater than 130 m in any area.

The ultimate pit design is shown in Figure 15-7 and Figure 15-8 below. The ultimate pit design improved on the RF 0.88 shell and was able to bring more ounces into the final design.

Figure 15-7: Bayan Khundii Ultimate Pit Design, Oblique View, Looking Southwest

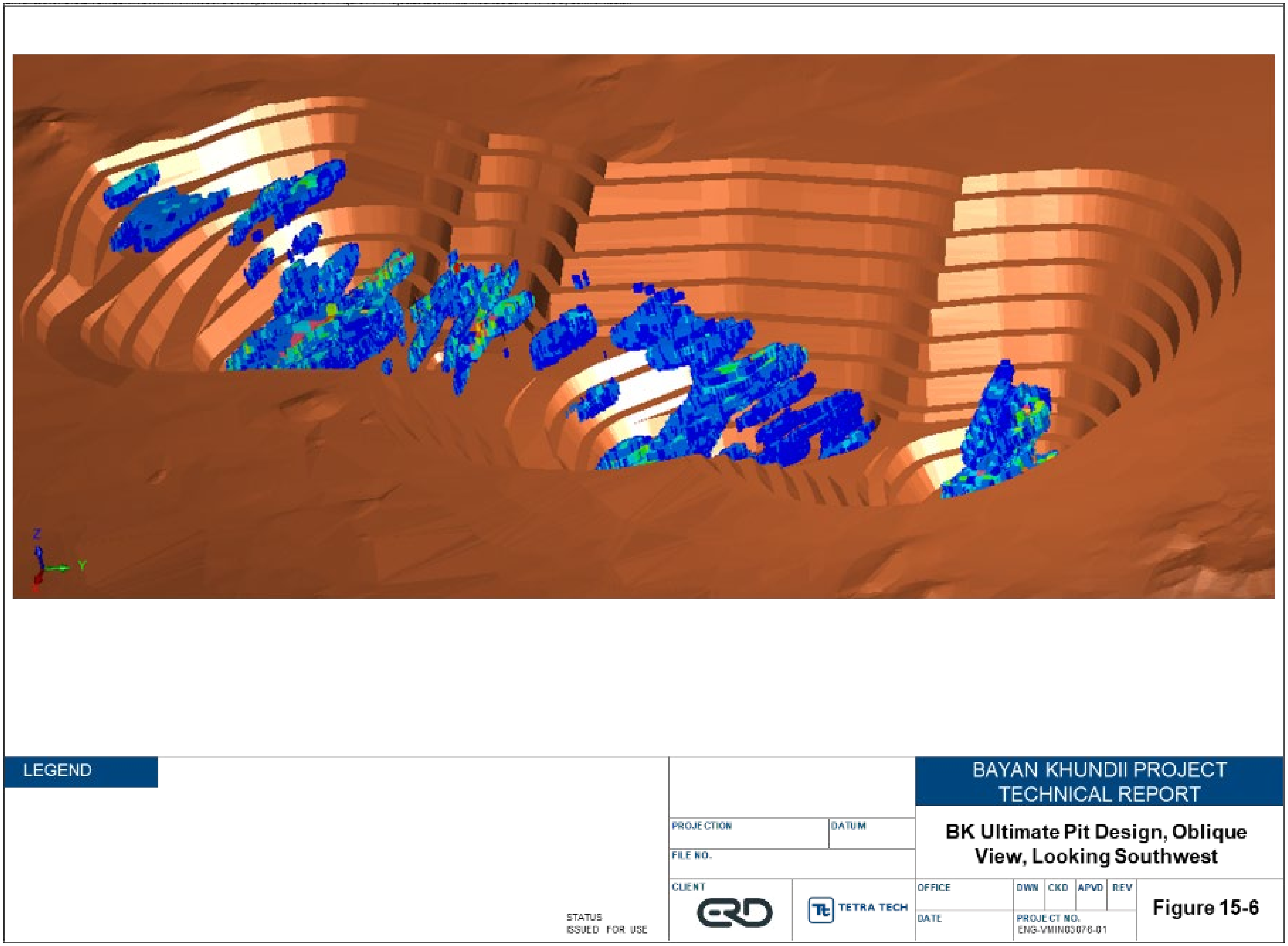
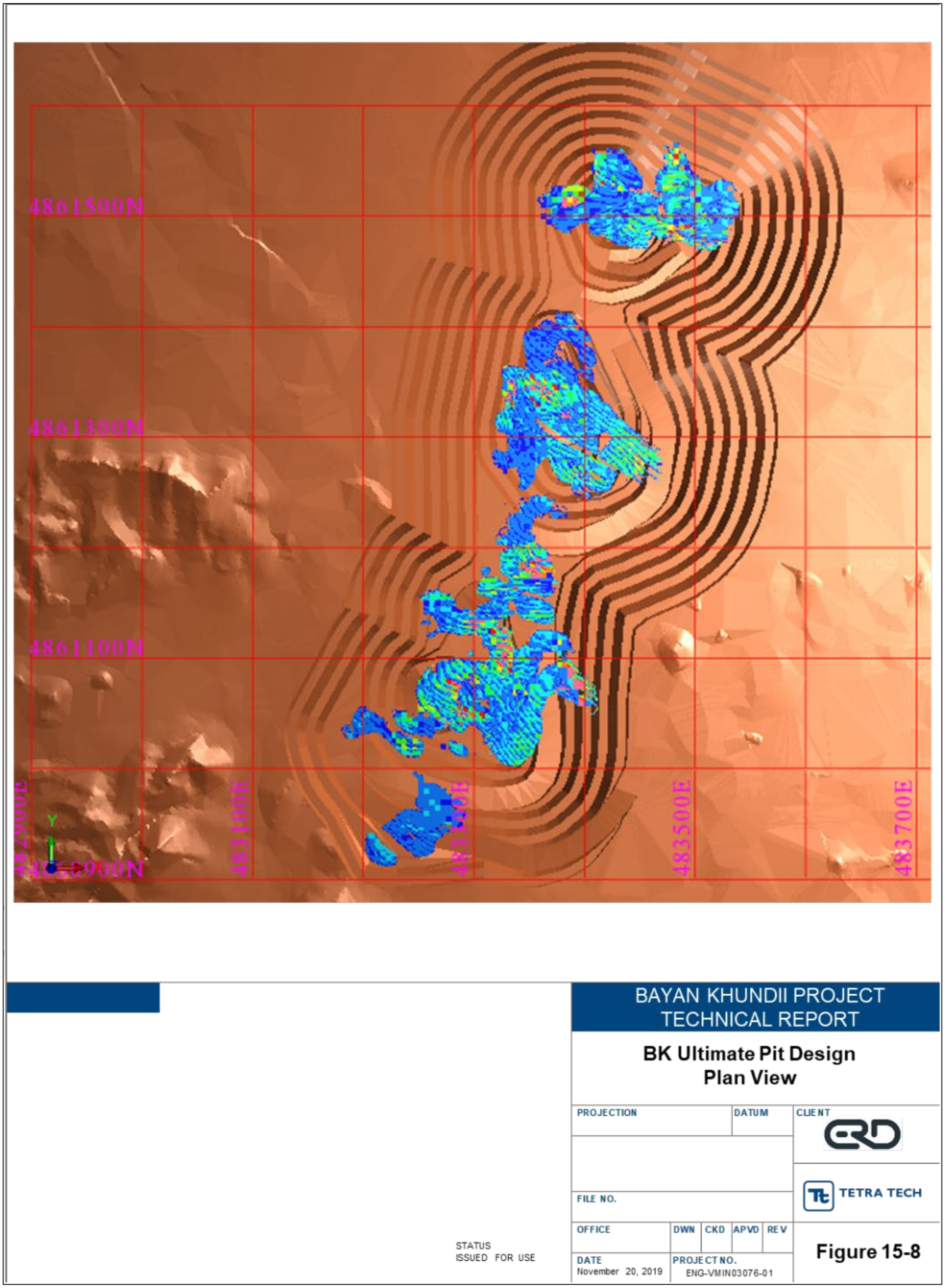


Figure 15-8: Bayan Khundii Ultimate Pit Design, Plan View



15.3.6.1 Haul Road Design

Haul roads in the Bayan Khundii pit are designed to provide both safe and efficient haulage routes from the base to the crest of the pit, and onwards to the processing plant and waste storage facility. All site haul roads outside of the Bayan Khundii pit are designed as two-lane roads. The use of one-lane roads is limited to the lowest two benches in the Bayan Khundii pit. Roads are designed with the following BC Mines Regulations specifications:

- For dual lane traffic, a minimum haul road width of no less than three times the width of the widest haulage vehicle used on the road.
- For single lane traffic, a minimum haul road width of no less than twice the width of the widest haulage vehicle used on the road.
- Provision for a safety berm with a height at least three-quarters the height of the largest tire on any vehicle operating on the road where a drop-off greater than 3 m exists.

Based on a 60 t CAT 773 model haul truck, the following parameters for haul roads have been set:

- Largest vehicle overall width: 5 m
- Double-lane haul road width: 20 m
- Single-lane haul road width: 10 m
- Roads are designed with allowances for ditches and culverts and will have a total thickness of 1 m, created with surfacing and base layers to improve durability.

15.3.6.2 Minimum Mining Width

A minimum mining width has been maintained between pit areas and at the deepest portions of the ultimate pit which is intended to allow efficient mining operations. For this study and the size of equipment chosen the minimum mining width required conforms to 30 m, which in turn maximises the extraction of the available resources.

15.4 Mineral Reserve Statement

- Proven and Probable Reserves for the Bayan Khundii operation are inclusive of mineral resources and based on a three-year moving average gold price of $1,267/oz.
- Mining costs of $2.50/t, milling costs of $16.46/t and general and administrative costs of $6.58/t have been used to estimate the reserves along with the gold price stated above.
- The pit reserves reported below assume full mine recovery and are reported on a dry in-situ basis.
- Dilution has been incorporated into the block model and is reported as a percentage of waste in ore material within the schedule. Additional dilution of 9% and losses of 5% have been included in the Mineral Reserves.
- Waste to ore cut-offs were determined using an NSR for each block in the model. NSR is calculated using prices and process recoveries for each metal accounting for all off-site losses, transportation, smelting and refining charges. NSR cut-off was calculated to be $22.93 and includes 5% royalty deduction.
- Reserve estimates were completed using a pit-constrained resource, with an economic pit shell designed in GEMS™.

- Mineral Reserves were estimated by Maurie E Phifer, P.Eng., of Tetra Tech, in accordance to National Instrument 43-101 standards and with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines.

Table 15-6: Mineral Reserve Statement for Bayan Khundii Deposit, Mongolia: Tetra Tech Canada Inc., October 15th, 2019

Reserve Category	Quantity (M tonnes)	Average Grade (Au g/t)	Contained Metal (000 Oz)
Proven	1.1	4.4	165
Probable	2.4	3.4	256
Total Proven and Probable	3.5	3.7	422

Notes
1. The effective date of the Mineral Reserve estimate is October 15th, 2019. The QP for the estimate is Ms. Maurie Phifer, P.Eng. of Tetra Tech
2. The Mineral Reserve estimates were prepared with reference to the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (2014 CIM Definition Standards) and the 2003 CIM Best Practice Guidelines.
3. Reserves estimated assuming open pit mining methods
4. Reserves are reported on a dry in-situ basis
5. Waste to ore cut-offs were determined using a NSR for each block in the model. NSR is calculated using prices and process recoveries for each metal accounting for all off-site losses, transportation, smelting and refining charges. NSR cut-off was calculated to be $22.93, and includes 5% royalty deduction
6. Reserves are based on a gold price of $1267/oz, mining cost of $2.5/tonne, milling costs of $16.46/tonne feed, G&A costs of $6.58/tonne
7. Mineral Reserves include dilution of 9% and losses of 5%.

15.5 Relevant Factors

Tetra Tech is not aware of any existing environmental, permitting, legal, socio-economic, marketing or political factors that are likely to materially affect the mineral reserve estimate. In addition to the mine and processing facility development, all infrastructure required to support the stated mineral reserve have been accounted for in this PFS. Mineral reserves have been economically tested to ensure that they are economically viable. The project remains economic across a range of key input parameters.

If for any reason any of these project cost factors are changed such that the project capital or operating cost estimates change materially, then the mineral reserve estimates stated in this report could be materially affected.

A full sensitivity analysis of the operating and financial inputs affecting the Bayan Khundii project is presented in Chapter 22.

16.0 MINING METHODS

16.1 Overview

16.1.1 Introduction

Mining operations designed as part of this pre-feasibility level report focus on the Bayan Khundii pit and surrounding infrastructure. The Bayan Khundii site is comprised of the open pit mine, mill and processing facility and integrated waste rock and tailings storage facility. Additional infrastructure includes provision for offices, crib and ablutions, change and dry facilities, a heavy and light vehicle maintenance workshop, a warehouse, refuel facilities, an accommodation village, an explosive storage area, access and haul roads and all utilities as described in Chapter 18.

A production schedule based on an annualized 1,800 t/d mill feed rate has been developed for a conventional open-pit mine plan for Bayan Khundii. The mine design and schedule are based on the resources and reserves defined in Chapter 14 and 15. A life-of-mine (LOM) schedule is provided in Section 16.2.3.

Mine planning work is based additionally on previous work included in the February 2019 PEA study conducted by RPM Global and updated with design criteria obtained from geotechnical work, the site visit and environmental studies. Other information considered and used for mine planning and design include base economic parameters, metal prices, mining cost data derived from supplier estimates or Tetra Tech's internal database and projected metallurgical recoveries, ore processing costs and throughput rates. Consideration of safe operating distances for explosives storage and blasting activities have been adhered to with respect to infrastructure placement as discussed in Chapter 18.

16.1.2 Proposed Ore and Waste Mining

Tetra Tech proposes conventional open-pit truck and excavator methods for extraction of ore at the Bayan Khundii mine. The Bayan Khundii orebody sits close to surface with 90% of the mineralized material present at approximately 100 m depth and as a result is amenable to open-pit methods. Relatively shallow deposits are well-suited to open-pit mining as this method promotes low initial capital costs, higher selectivity and flexibility and greater recovery of mineralized material. As the Bayan Khundii deposit is medium to high grade and relatively shallow, the conventional open-pit method suggested can improve the potential value of the project overall by reducing capital costs significantly and allowing for higher selectivity of ore while minimizing dilution from waste.

The properties of the material excavated at the Bayan Khundii site are expected to vary slightly based on the geological unit mined; details of which are described in Chapter 7. Variation in strength and hardness is expected during waste stripping activities due to the differing geological units present, with more homogenous and competent material comprising the orebody. In general, both waste and ore material are classified as hard rock and as such, all material will be drilled and blasted for extraction.

The Bayan Khundii orebody is composed of a series of high-grade, steeply-dipping lode structures and as such, a selective mining method is required to efficiently recover mineralized material whilst controlling dilution and losses. Both ore and waste areas are designed with 5 m benches (plus 0.5 m sub drill). Ore zones are drilled with a 76 mm hole and 2.0 m x 2.4 m burden and spacing. Waste zones are drilled with a 129mm hole and 4.0 m x 4.5 m burden and spacing. Holes are charged with an emulsion type explosive using conventional non-electric initiation and downhole detonators typically used in gold mining operations. Ore control is expected to be monitored using a blast movement monitoring system, as discussed in Section 16.4. This mine design and blast practice was chosen to provide more control over ore to waste boundaries and in addition, smaller equipment was selected to improve efficiency in a selective environment. Loading and hauling is completed with a fleet of excavators and trucks for both waste and ore material. Ore material is extracted using an 8t bucket excavator and a 38 t articulated truck, with waste removed using an 11 t bucket excavator and 54 t rigid read dump trucks. Each of the core equipment pieces recommended has been chosen on the basis of performance and control in a highly-selective method, and maneuverability in areas with limited space. Details of the equipment fleet selection can be found in Section 16.4.

16.2 Open Pit Operations

16.2.1 Open Pit Scheduling Methodology

To generate the LOM schedule for the Bayan Khundii pit, Whittle™ was used to develop a strategic mine schedule focused on maximizing NPV. The LOM schedule was then optimized in Geovia MineSched™ (MineSched) to produce a practical mine schedule, that met all scheduling constraints.

As discussed in Chapter 15, waste to ore cut-offs were determined using an NSR (Net Smelter Return) for each block in the model. NSR is calculated using prices and process recoveries for each metal accounting for all off-site losses, transportation, smelting and refining charges. NSR cut-off was calculated to be US$22.93 and includes 5% royalty deduction. Blocks were categorized as: Ore, Marginal, Metal Leaching (ML) or Non-Metal Leaching (NML). Ore blocks have an NSR of greater than US$53.20. Marginal Blocks have an NSR of less than US$53.20 but greater than US$22.96. By splitting the economic grade material into Marginal and Ore categories allowed higher grade material to be targeted in the production schedule.

Only Measured and Indicated blocks could be considered Ore or Marginal. NML and ML blocks are non-ore and non-marginal blocks delineated based on rock type. Ore and Marginal blocks are sent to the processing plant while NML and ML are sent to the waste dump, with NML rock stockpiled as cover material.

Table 16-1: NSR Calculation Parameters

NSR Inputs	Value	Units
Gold Recovery (Gold Grade < 0.35 g/t)	=230.6117 * Gold Grade	%
Gold Recovery (Gold Grade > 0.35 g/t < 1.2 g/t)	=13.320 * Gold Grade + 76.052	%
Gold Recovery (Gold Grade > 1.2 g/t)	=0.324 * Gold Grade + 91.856	%
Payment Rate	99.95	%
Gold Price	1,267	USD$
Refining, Insurance, Transport	7	USD$
Royalty	5	%
Mining	2.5	USD$
Processing	16.46	USD$
General and Administrative	6.5	USD$

16.2.2 Mine Schedule Strategy

The objective to the Bayan Khundii LOM schedule was to maximize the early cash flow from the pit by targeting high grade material to be fed to the processing plant while delaying costs by deferring waste stripping to later in the project life. The optimum throughput to the processing plant was determined to be 600 kt/year in the RPM PEA. The primary objective of the schedule was ensuring continuous ore supply to the processing plant by delivering the highest NSR value ore first and meeting milling capacity constraints. To allow for commissioning of the processing plant, the first year of production is adjusted to 75% of full production.

Other considerations for the production schedule included:

- A maximum vertical advancement of 60 m/year; Tetra Tech considers that this is a reasonable vertical advancement rate and can be met by the loading equipment selected.
- Balancing the production schedule so that the annual material moved did not fluctuate greatly year to year to allow fleet depreciation. Due to the short mine life, a high strip ratio at the start of the project does not allow for the optimum fleet depreciation as either the owner or contract miner would require a lot of equipment early on in the mine life but dropping off significantly after the first few years. An average of 8.7 Mt of material per annum was selected as the total material movement as this tonnage met the mill process constraint and honored the 60 m/year vertical advancement constraint.
- Use of stockpiling to maximize the grade of material to the processing plant.

The initial schedule produced in Whittle™ is shown below in Figure 16-1. Although this schedule had the highest NPV in Whittle™, visual inspection of the schedule revealed that the schedule was not meeting the 60 m of vertical advancement and was pre-stripping above the Midfield North region of the orebody. Additional constraints were set in MineSched™ to ensure that 60 m/year of vertical advancement was met to allow for the high-grade material in the Striker pit to be mined as early as possible, as well as delaying the stripping above Midfield to later in the project life. The additional constraints were able to optimize the schedule so that the final selected schedule maximized the NPV of the project within the constraints of the equipment and resources available. Figure 16-2 shows the optimized schedule that was selected as it delivered the most ounces to the processing plant in the first few years of operation, while honoring process plant feed, vertical advancement and total material movement constraints.

Figure 16-1: Initial MineSched™ Schedule Results, N-S Cross Section, Looking West

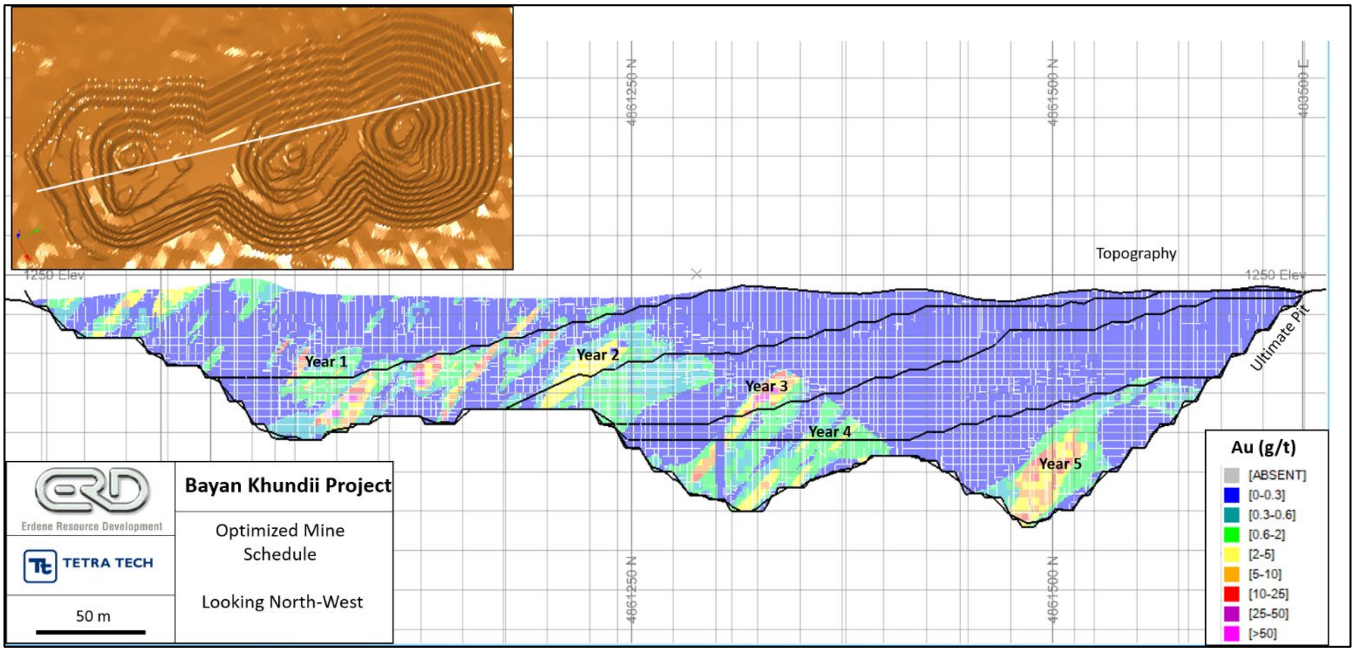
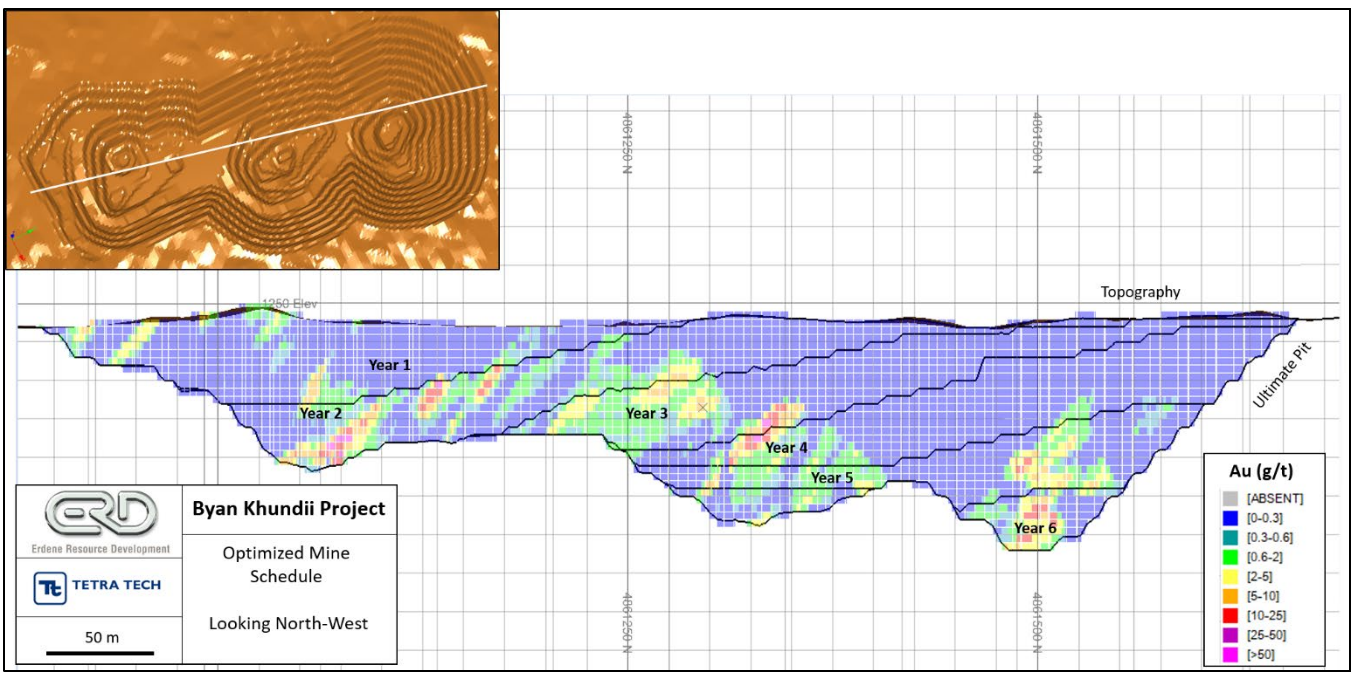


Figure 16-2: Adjusted MineSched™ Schedule Results, N-S Cross Section, Looking West



16.2.3 Open Pit Operating Schedule

The Bayan Khundii Pit has no satellite pits and will be mined in a northern direction in 5 m benches with a maximum vertical advance of 60 m per year. There is no scheduled pre-stripping period, although early stripping is delayed as much as possible. The mining plan includes stockpiling on an annual basis to allow the highest-grade material to be fed to the processing plant. To minimize dilution in the production schedule, 5 m benches have been designed to allow for greater equipment selectivity.

During the first year of scheduled production it was assumed that the processing plant would be run at a capacity of 75% of actual capacity. Mining will take place 365 days a year and no allowance has been made for climate change, labor action, or any other unscheduled shutdowns.

Mining is planned to take place over six years with a planned plant ramp up in the first year and compensatory stockpiling. An overall ex-pit material movement constraint of approximately 8.8-9.0 Mt per year was applied.

Another consideration of the schedule included evaluating the waste rock schedule to ensure that sufficient NML was available for construction of the Integrated Waste Facility (IWF). When additional waste rock characterization work is done for Bayan Khundii, optimization of the waste rock schedule can be completed.

Table 16-2: Bayan Khundii LOM Operating Schedule

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total / Weighted Average
Material Mined (tonnes)	8,749,766	8,773,739	8,749,768	8,735,384	3,499,983	876,811	-	39,385,450
Strip Ratio	9.9	11.3	22.3	22.5	3.0	1.3	-	15.0
Plant Feed (tonnes)	449,680	601,338	599,695	599,695	599,695	601,338	69,011	3,520,452
Plant Feed from Pits (tonnes)	449,680	601,338	375,850	371,828	599,695	378,218	-	2,776,608
Plant Feed from Stockpile (tonnes)	-	-	223,845	227,867	-	223,120	69,011	743,844
Stockpile Rehandle	200,000	175,000						375,000
Gold Grade (grams/tonne)	3.91	4.16	3.14	3.40	3.59	4.22	3.66	3.73
Gold to Plant (ounces)	56,525	80,462	60,463	65,549	69,233	81,625	8,113	421,970
NML (tonnes)	1,910,147	4,266,532	1,266,598	597,325	325,703	57,099	-	8,423,404
ML (tonnes)	6,040,525	3,796,081	7,107,320	7,766,230	2,289,942	441,495	-	27,441,593
Stockpile Balance at Year End (tonnes)	349,414	459,201	235,356	7,489	292,132	69,011	-	-

Figure 16-3: Annual Tonnes Mined over the Bayan Khundii Life of Mine

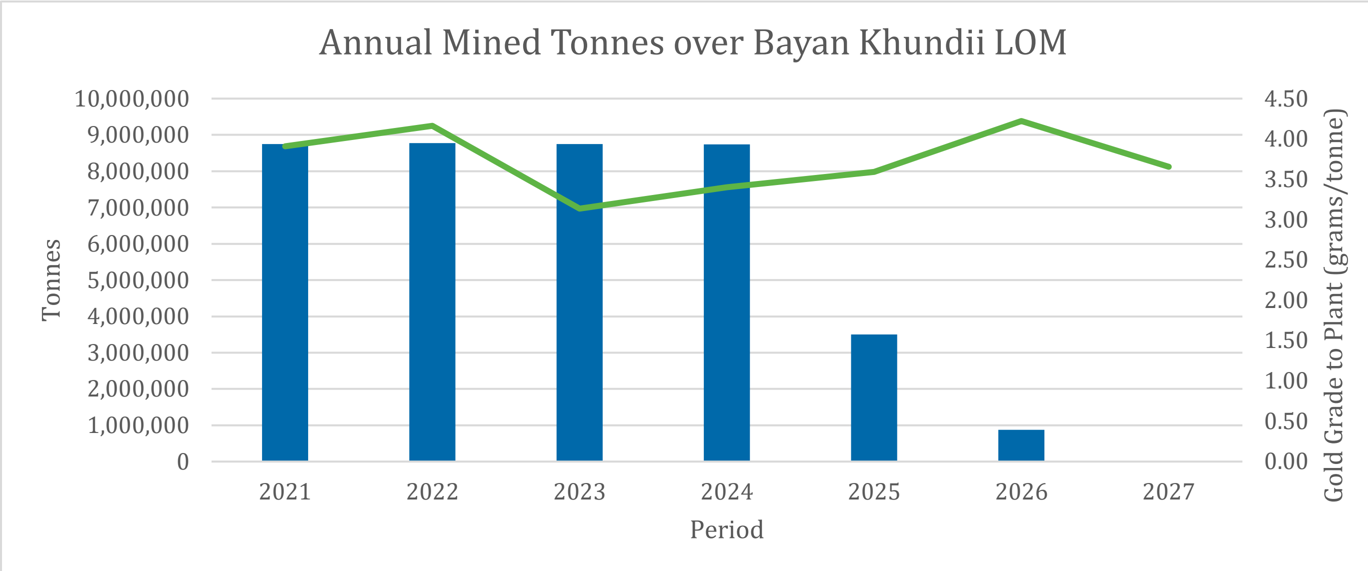


Table 16-3: Annual Tonnes Mined over the Bayan Khundii Life of Mine by Phase

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Pushback 1 (tonnes)	4,321,108	471,505	-	-	-	-	4,792,613
Pushback 2 (tonnes)	4,380,215	6,757,540	6,350,631	1,309,975	1,172	-	18,799,533
Ultimate Pit (tonnes)	82,005	1,508,834	2,376,879	7,399,368	3,494,877	871,445	15,733,408

Figure 16-4: Annual Tonnes Mined over the Bayan Khundii Life of Mine by Phase

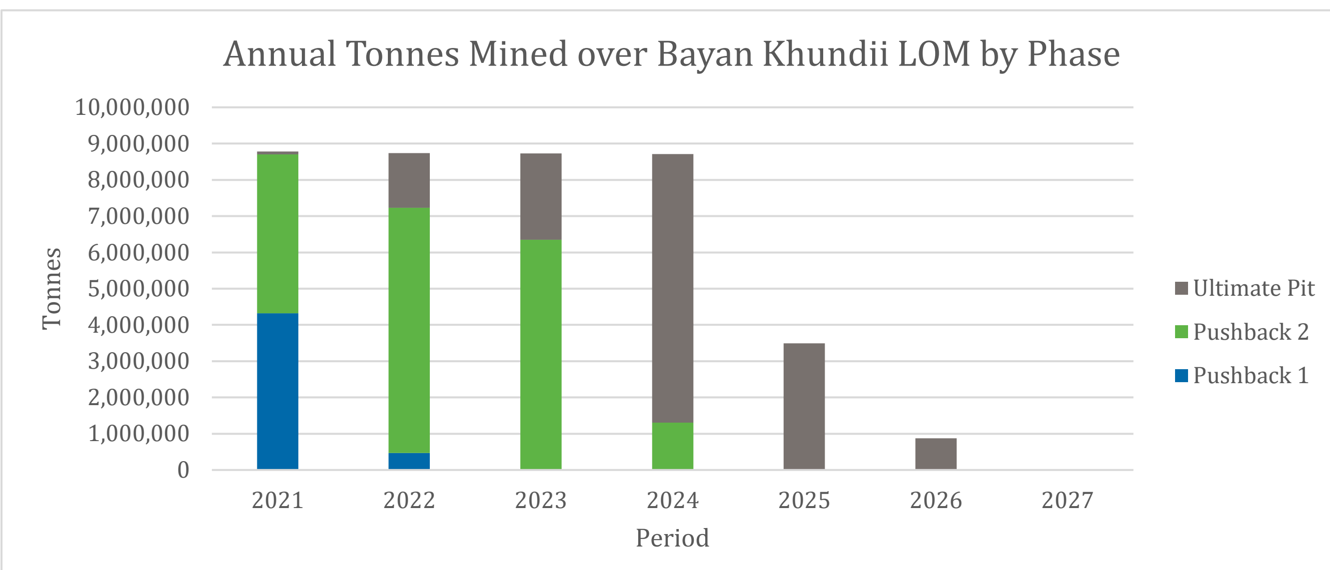


Figure 16-5: End-of-Year Stockpile Balance and Gold Grades for Bayan Khundii LOM

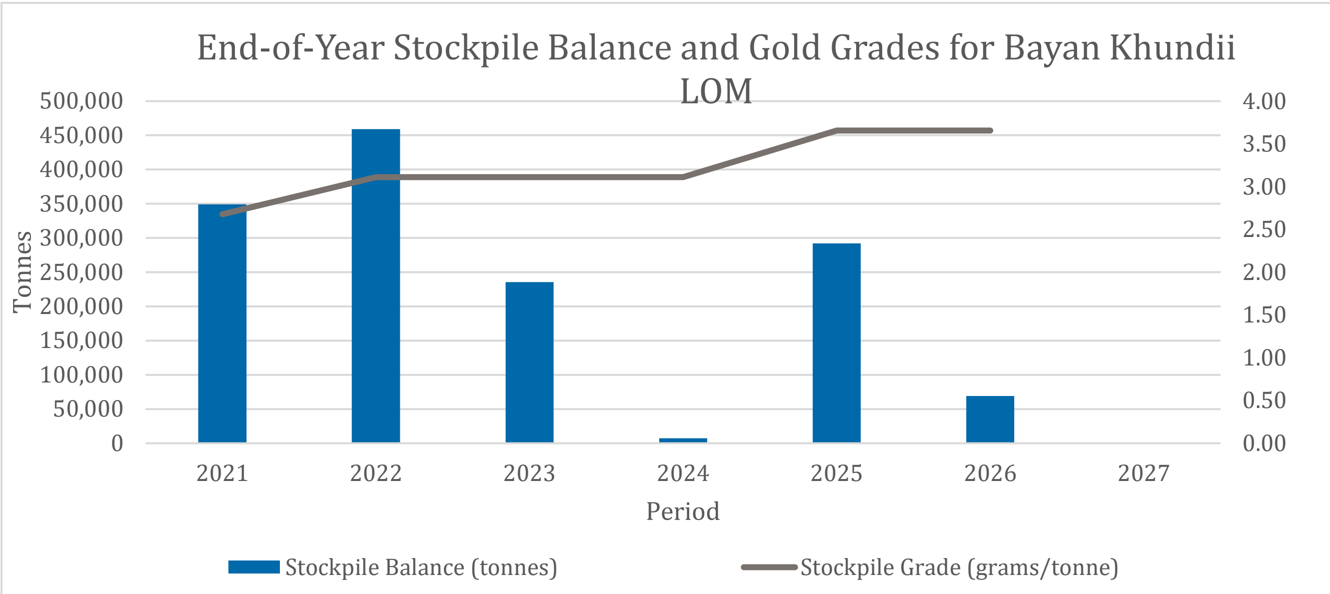
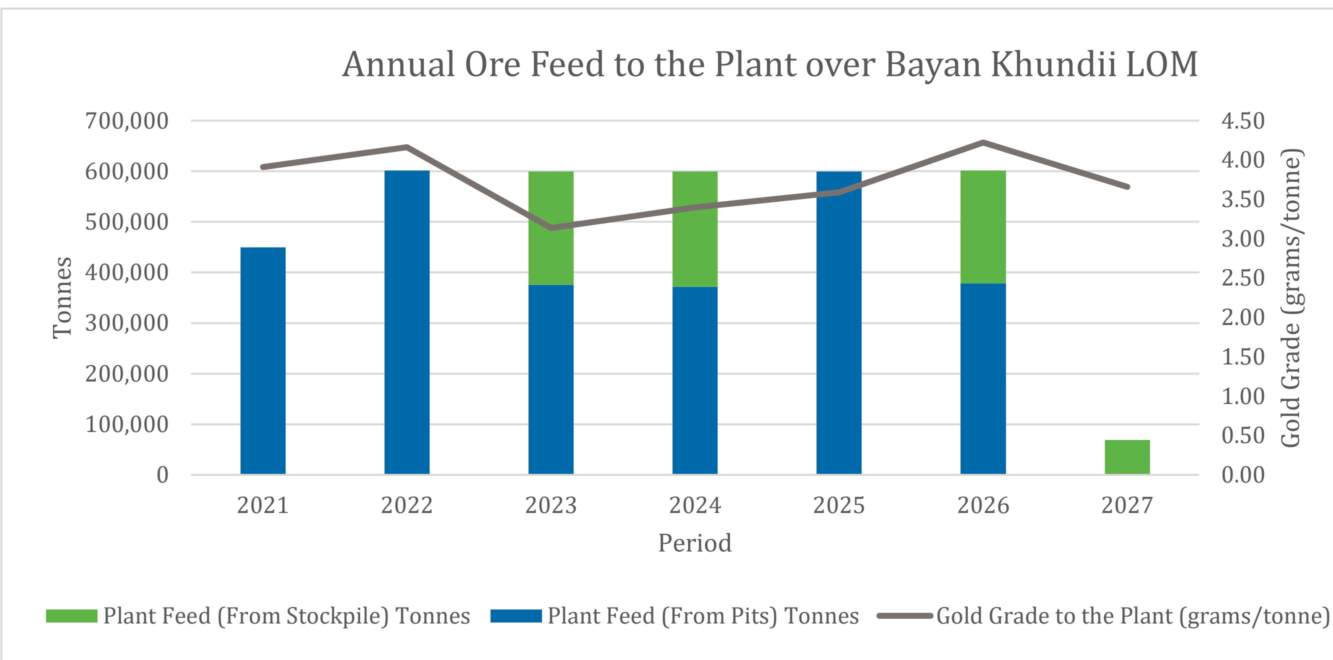


Figure 16-6: Annual Ore Feed to the Plant over Bayan Khundii LOM



16.2.4 Pit Water Balance and Dewatering Requirements

Tetra Tech has completed geotechnical, hydrological and hydrogeological evaluations based on the currently available information for the proposed Bayan Khundii pit. This information has been used to conservatively estimate pit water balance and dewatering requirements throughout the life of mine and post-closure during remediation phases.

As previously stated in Chapter 15, initial geotechnical work related to pit design assumed that the groundwater conditions at the Bayan Khundii site will be fully saturated, taking a conservative approach to pit slope design recommendations while maintaining the appropriate factor of safety.

Work completed subsequent to this initial geotechnical investigation was based on a scenario analysis estimating the potential range of groundwater inflow to the ultimate pit. The results from this investigation predicted groundwater inflow to the ultimate pit in a range of approximately 12 m^3 per day to 595 m^3 per day. Since groundwater inflow ranges are low, further geotechnical analysis could consider steeper pit slope design recommendations.

Multiple hydraulic conductivity values were applied in the scenarios analyzed which resulted in the large range of resulting groundwater inflow values. Measurements taken from the three drillholes included in this study predicted low hydraulic conductivity for the rock mass at Bayan Khundii, with groundwater inflow produced from fracture zones. This study predicted a groundwater inflow estimate to the ultimate pit of approximately 33 m^3 per day.

Dewatering requirements recommended based on this information are based on a tiered system of sump pumps, set up at elevation intervals of approximately 40 m as the pit is mined progressively deeper. This approach is used to improve pump efficiency over the LOM and reduce initial capital expenditure for dewatering equipment. Further investigation into dewatering requirements will be required for pump specification however this approach also allows for adjustment based on in-situ condition changes as the pit progresses.

Post-closure pit water balance studies have indicated the potential formation of a pit lake, approximately 35 m deep, which is predicted to reach equilibrium approximately 38 years following the cessation of mining activities. Detail of reclamation and remediation processes following mine closure can be found in Chapter 20.

16.3 Waste Rock Facilities and Stockpile Designs

16.3.1 Waste Rock Facility Parameters

Mining (waste rock) and processing waste (tailings) will be contained within an Integrated Waste Facility (IWF) as a single above ground structure. The IWF will consist of a core of co-mixed tailings and waste rock encapsulated with an environmentally benign and durable erosion-resistant cover system.

Constructing an IWF to contain the tailings and waste rock from Bayan Khundii provides the following benefits:

- Reduced alienation of land through not needing to construct separate tailings and waste rock storages.
- Substantially reduced permeability of the structure when compared with a conventional waste rock dump, reducing the potential for contaminated leachate to be generated and discharged.

The IWF will be constructed in the following manner:

- The footprint (approximately 57 ha) will be cleared of topsoil and sub-soil.

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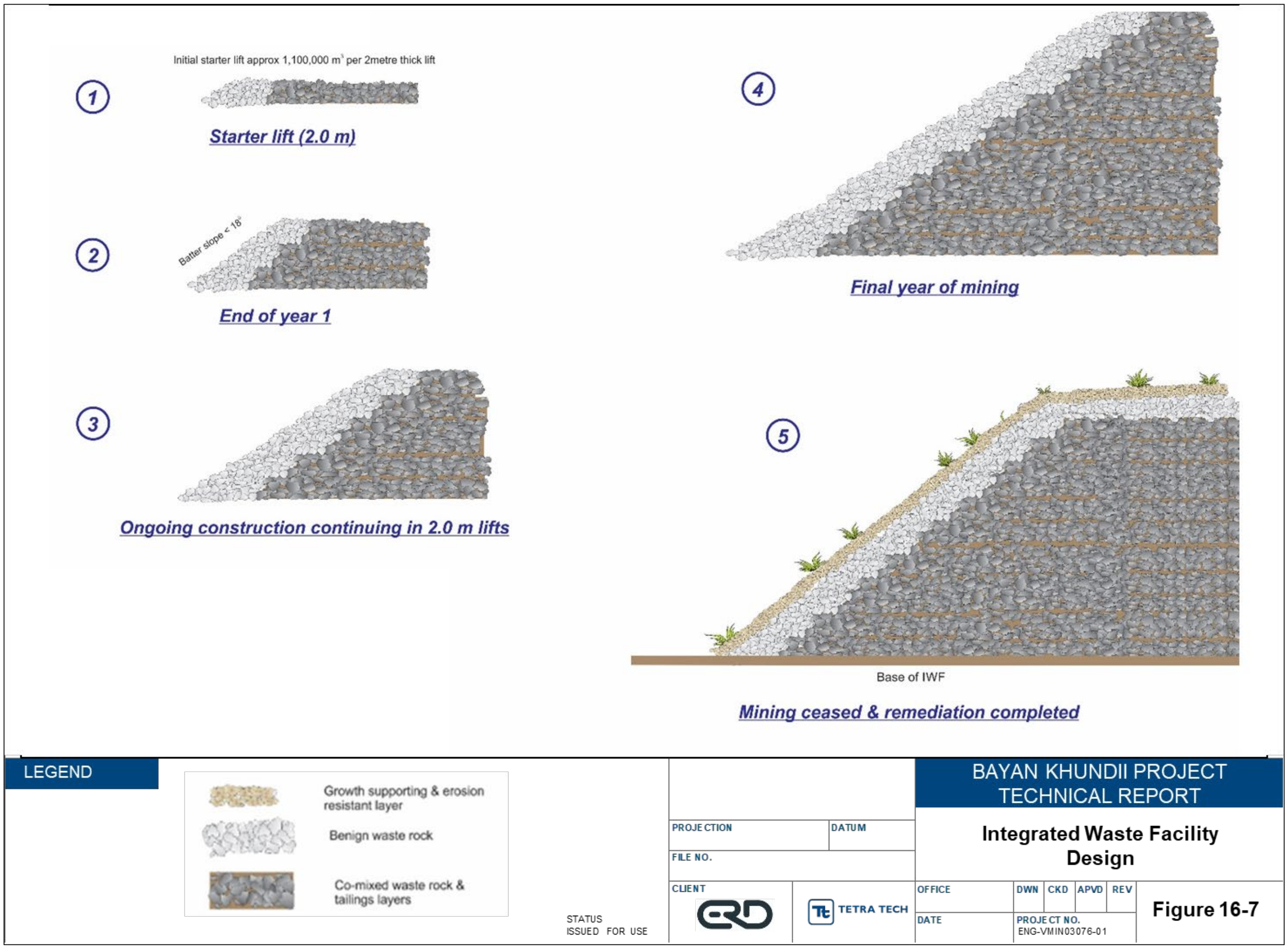
- The topsoil and sub-soil will be stockpiled for subsequent placement on the surface of the IWF during rehabilitation.
- An initial starter layer (approximately 2.0 m thick) will be constructed across the entire footprint. It will consist of an outer circumference of benign waste rock around a core of co-mixed tailings and waste rock.
- Tailings and waste rock will be co-mixed on the surface of the IWF and then placed in 2.0 m lifts until completion.
- Tailings placed in the IWF will have been passed through filter presses to recover process liquid and are anticipated to have a moisture content of around 15%. They will be transported to the IWF by truck from the process plant.
- The 2.0 m lifts will be compacted using dedicated compaction equipment.
- The batter slopes of the IWF will nominally be ≤ 18°, with the actual slope to be based on the erosion resistance properties of the available cover material.
- A vegetation growth supporting layer will be placed over the final surface of the IWF, it is anticipated that the stockpiled topsoil and sub-soil will be used for this layer. As described in Chapter 20, available topsoil and subsoil material is minimal due to the arid climate of the Project location and further investigation is required to quantify potential material for use in the IWF.
- Rip-rap for erosion protection will be incorporated into the growth supporting layer.

Constructing the IWF in this manner means that at the completion of mining and processing only a small portion of the final layer will require completion, with all the external slopes having been completed progressively over the operating period. It is expected that this small portion will be less than 15 ha of the upper surface.

Figure 16-7: Bayan Khundii Integrated Waste Facility Design

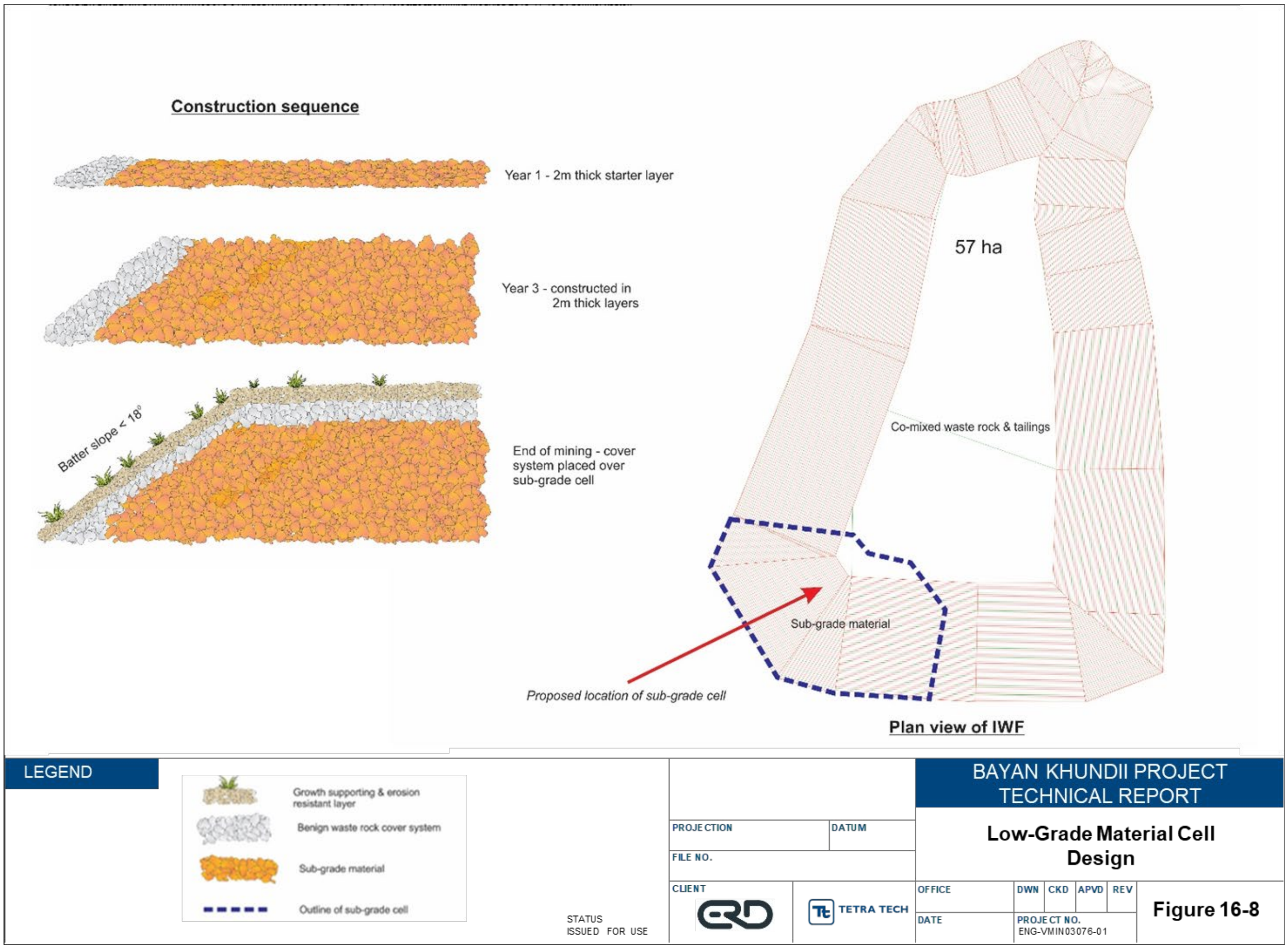


16.3.2 Stockpile Parameters

16.3.2.1 Low-Grade Stockpile

In accordance with Mongolian requirements to stockpile subgrade ore for potential future processing subject to justifiable project economics, low-grade material (defined as material below the process plant feed grade and above 0.2 g/t Au) will be placed in a discrete section of the IWF. The south-west section of the IWF has been identified as the preferred location for the sub-grade stockpile. It will be integrated into the overall IWF and have the same cover system placed over it. Should in the future the low-grade become economic to process, it can be reclaimed from the IWF efficiently without disturbing the overall landform.

Figure 16-8: Bayan Khundii Low-Grade Material Cell Design



16.3.2.2 Process Run of Mine Stockpile

A run-of-mine (ROM) stockpile has been included in infrastructure considerations in order to accommodate periods where the mining rate exceeds the processing capacity at the mill. The ROM stockpile is located adjacent to and west of the process plant for direct loading into the primary crusher, with an estimated footprint of approximately 0.045 km^2. The ROM stockpile has been designed with this footprint to accommodate the maximum tonnage of planned stockpiled ore, with a maximum height of 5 m based on a conservatively estimated 30˚ angle of repose for the coarse ore material.

16.4 Mining Equipment

16.4.1 Equipment Requirements

Equipment requirements are based on the design parameters of the pit, production rate requirements, selective mining capability and the relative size-classes in order to pair equipment efficiently. Equipment requirements are estimated on a first principles basis, with haul truck requirements based on measured haul profiles. Equipment availability and utilization is based on Tetra Tech's experience and judgement and vendor guidance.

For determining the equipment size, following items are taken into consideration:

- Minimum working bench width and required mining selectivity
- Bench height
- Equipment capacity
- Capital cost

For determining the number of each piece of equipment required, the following is considered in addition to the above parameters:

- Annual production rate
- Haul road profile, gradient and length
- Operating speeds
- Equipment mechanical availability, utilization and overall efficiency
- Cycle times including spot, load, haul, dump and maneuvering times
- Effective life of the machines to be used

For the Bayan Khundii operations, three main fleets of equipment were selected. The open pit equipment has been sized to support detailed ore mining and bulk mining required for waste stripping. A separate ore and waste fleet of loading and hauling equipment was recommended, selected with different size classes in order to efficiently move the required ore and waste material at a comparable rate. In addition to the core operating equipment, an auxiliary fleet was selected with equipment included for maintenance of the mobile equipment and pit, waste facility, stockpile and haul road operation and maintenance requirements.

The mining equipment described in this section are based on currently available equipment and standard sizes and/or weight classes. Conventional equipment from established suppliers was recommended due to the reliability of proven technology, access to multiple potential vendors and spare components and to allow for a leasing or contract mining scenario which has been recommended in this study. A summary of the recommended equipment fleet is presented in Table 16-3 below.

Table 16-4: Core and Auxiliary Equipment Selected for Bayan Khundii

Core Equipment	Equipment Model	Equipment Class	Number Required
Ore Drill	PowerROC D60	110-178mm hole diameter	2
Waste Drill	FlexiROC D60	110-178mm hole diameter	3
Ore Loader	CAT 349F	311 kW	1
Waste Loader	CAT 6015B	606 kW	1
Ore Truck	CAT 740B	365 kW	2
Waste Truck	CAT 773D	509 kW	9
Waste Dozer	CAT D9	310 kW	1
Auxiliary Equipment	**Equipment Model**	**Equipment Class**	**Number Required**
Wheel Loader	CAT 988K	310 kW	2
Grader	CAT 14M3	178 kW	1
Vibratory Compactor	CAT CS74B	129 kW	1
Water Truck	CAT 773WT	-	1
Support Loader (Mill Rehandle)	CAT 966K	-	1
Fuel and Lube Truck	-	-	1
Maintenance Trucks	-	-	2
Low Bed Truck	-	-	1
Pickup Trucks	-	-	5

Table 16-5: Core Equipment Requirements by Period for Bayan Khundii

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Max
PowerROC D60	2	1	1	1	2	1	1	2
FlexiROC D60	3	3	3	3	1	1	1	3
CAT 349F	1	1	1	1	1	1	1	1
CAT 6015B	1	1	1	1	1	1	1	1
CAT 740B	2	2	1	1	1	2	2	2
CAT 773D	7	9	9	9	3	2	-	9
CAT D9	1	1	1	1	1	1	1	1

For this prefeasibility study, assumptions have been made based on the average working life of each of the equipment listed above. Average working life is defined as the total number of operating hours a piece of equipment can complete, including regular maintenance, before overhaul maintenance or replacement is required.

Core equipment including drills, loaders and haul trucks have been allocated a working life of 50,000 hours. The recommended waste dozer and all the auxiliary equipment listed, excluding pickup trucks, have been allocated a working life of 25,000 hours. Pickup trucks are expected to have a slightly shorter life as a light vehicle, totalling 15,000 hours before replacement is required.

Due to the relatively short life of mine at Bayan Khundii, equipment replacement is not required for most core and auxiliary equipment and is expected to be undertaken by the mining contractor. Details of capital and operating costs for mining operations can be found in Chapter 21.

16.4.2 Drilling and Blasting

Primary production drilling will be conducted using a 76 mm and 129 mm hole for ore and waste blasting respectively. The PowerRoc D60 and FlexiRoc D60 were selected due to their flexibility and ability to perform production, pre-splitting, and pioneering. There is also the option to use the drills for horizontal drilling if pore pressure builds up in the final walls and dewatering of the walls is needed. Both of these drills are durable and reliable and have highly efficient dust collection systems which will ensure the mechanical availability of the drills remains high while operating in a dusty environment.

Blast design assumptions have been used to estimate the drilling production rate and consumables required. Two ore drills and three waste drills are required at peak production. The following assumptions are used:

Table 16-6: Blast Design Assumptions and Parameters

Parameter	Units	Ore	Waste
Bench height	m	5	5
Subdrill	m	0.5	0.5
Burden	m	2.0	4.0
Spacing	m	2.4	4.5
Hole Diameter	mm	76	129
Powder Factor	kg/m^3	0.73	0.62
Powder Factor	kg/tonne	0.29	0.24
Drill Penetration Rate	m/hr	25	25

Blasting is assumed to be conducted three times per week during full production, with drilling and blasting completed by a contractor. It is assumed that ore material will require a more compact blast pattern than waste material in order to achieve the desired fragmentation prior to crushing. Detailed blast design can be undertaken provided further geotechnical review is completed in the pit area.

In order to effectively define ore and waste material and reduce dilution during blasting, an ore control system such as Blast Movement Monitoring is recommended for the Bayan Khundii operation. Tracking sensors are placed downhole to track known ore and waste areas and are mapped following blasting to track material movement.

16.4.3 Loading and Hauling Equipment

Following blasting and ore and waste classification using the Blast Movement Monitoring system recommended in Section 16.4.2, loading will be completed with separate ore and waste loaders. Selection of loading equipment was based on the ore to waste ratio, bench sizes and material selection control, with ore excavators a smaller size for higher selectivity, particularly in the lower benches of the pit where available space is lower due to the minimum mining width. Diesel hydraulic excavators were selected to further improve maneuverability.

One ore excavator and one waste excavator are required throughout the life of mine, inclusive of any time unavailable due to maintenance. The ore excavator was chosen assuming a 9 t bucket capacity, and the waste excavator with 13 t bucket capacity which have been paired with haul trucks which can be loaded within five passes.

Both excavator models were chosen due to their high reliability and proven performance in open-pit mines where maneuverability and selectivity are prioritized. Due to the high strip ratio at the Bayan Khundii pit, the CAT 6015B was selected for the waste excavator as it has higher productivity, better fuel efficiency, and a larger bucket than other shovels in this class.

Haul trucks were selected based on loader capacity and expected ore and waste material volumes from the schedule. A 38 t capacity articulated ore truck was chosen, with a 60 t capacity waste truck. Both ore and waste truck models selected are rear-dump vehicles, configured with a sloped truck box, to increase the fill factor and reduce the quantity of fine material retained following dumping. This is particularly useful for the ore trucks, as they will be used to transport tailings from the process plant to the waste storage facility as part of the ore cycle. This class of truck was chosen because of the excellent productivity and performance CAT740 trucks provide in operations worldwide. There is the additional benefit of reduced maintenance and operating costs than bigger, heavier trucks. Haulage profiles were developed in Talpac™ for both ore and waste cycle times. Over the life of mine, two ore trucks and nine waste trucks are required to meet the estimated production schedule.

16.4.4 Auxiliary and Support Equipment

Auxiliary and support equipment required for operations at Bayan Khundii have been selected for activities including creation and maintenance of the waste dump, in-pit bench preparation for drill and blast and load and haul activities, re-handling of the ROM stockpile at the process plant, haul road upkeep and refueling and maintenance of the heavy vehicle fleet.

Equipment allocated for waste facility use includes a primary dozer for material movement, a vibratory compactor and wheel loaders for support activities. A support loader has been recommended for stockpile re-handling at the processing plant following periods of peak production where the stockpile requires additional maintenance.

Mobile equipment maintenance trucks, a fuel and lube truck and low bed are included in the estimate to support heavy equipment during day-to-day operations. Additional maintenance facilities are included in the mobile equipment workshop, described in Chapter 18. A fleet of five light pickup trucks has also been included for staff transport and site activities as well as light maintenance tasks.

16.4.5 Equipment Utilization

Several assumptions were incorporated into equipment selection and usage calculations to model the overall equipment efficiency and estimate working hours for each piece of equipment on an annual basis. Initial assumptions for mechanical availability utilization and overall efficiency are shown in Table 16-7 below.

Table 16-7: Equipment Efficiency Factors

Equipment Efficiency Factors		
Item	**Unit**	**Value**
Availability	factor	87%
Utilization	factor	92%
Efficiency	factor	88%

To complete the equipment performance calculations, parameters based on the specifications of each piece of core equipment were included to calculate cycle times and estimate the maximum material movement possible based on the remaining available time. Annual truck hours were then derived, with excavator hours based on bucket capacity and individual loading and dumping times as described in Section 16.4.3. From this, the required equipment numbers on an annual basis are derived as described in Section 16.4.1. Haul truck parameters including load factors and travelling speeds are included in table 16-8, with excavator parameters included in Table 16-9.

Table 16-8: Haul Truck Parameters

CAT 740 Ore Truck			CAT 773D Waste Truck		
Item	**Value**	**Unit**	**Item**	**Value**	**Unit**
Truck Life	50,000	hours	Truck Life	50,000	hours
Truck Nominal Payload	40	tonnes	Truck Nominal Payload	54	tonnes
Truck Load Factor	0.9	factor	Truck Load Factor	0.9	factor
Actual Truck Payload	36	tonnes	Actual Truck Payload	49	tonnes
Speed Loaded Ramp	12	km/hr	Speed Loaded Ramp	12	km/hr
Speed Loaded Flat	45	km/hr	Speed Loaded Flat	45	km/hr
Speed Unloaded Ramp	30	km/hr	Speed Unloaded Ramp	30	km/hr
Speed Unloaded Flat	45	km/hr	Speed Unloaded Flat	45	km/hr

Table 16-9: Excavator Parameters

CAT 349 Ore Excavator			CAT 6015B Waste Excavator		
Item	**Value**	**Unit**	**Item**	**Value**	**Unit**
Excavator Life	50,000	hours	Excavator Life	50,000	hours
Nominal Bucket Payload	9	tonnes	Nominal Bucket Payload	13	tonnes
Passes to Load	5	passes	Passes to Load	5	passes
Average Time Loading	33	%	Average Time Loading	79	%
Average Time Maneuvering	11	%	Average Time Maneuvering	5	%
Average Time Idling	56	%	Average Time Idling	16	%

16.5 Work Force

The workforce build-up for the Bayan Khundii project is based firstly on the core equipment requirements stated in Section 16.4 above, with supervisory and support roles added relative to the scale of the project. A summary of the peak personnel requirements is presented in Table 16-10 below.

As it is expected that mining activities will be undertaken by a contractor, the majority of technical staff and equipment operators and maintenance crews will be contracted in. Managerial positions and geology technical staff will be permanent positions. Further detail of labor costs can be found in Chapter 21.

Table 16-10: Personnel Requirements

Peak Permanent Staff	
Mining Staff	
Mining Manager	1
Senior Mining Engineer	2
Junior Mining Engineer	3
Mine Planning Engineer	1
Senior Surveyor	2
Mine Surveyor	4
Geology Staff	
Chief Geologist	1
Senior Grade Control Geologist	2
Senior Exploration Geologist	1
Geologist	2
Field Technician	1
Core Shed Technician	1

Peak Contract Staff	
Supervision/Admin	
Mine Area Supervisor	3
Drill and Blast Supervisor	2
Drill and Blast Technician	10
Field Technician	3
Administration Clerk	2
Maintenance	
Maintenance Superintendent	2
Maintenance Foreman	3
Heavy Vehicle Mechanic	18
Store Person	3
Administration Clerk	2
Service, Fuel, and Lube	3
Maintenance Planner	2
Core Equipment Operators	
Ore Drill	6
Waste Drilling	9
Ore Loader	3
Waste Loader	3
Ore Truck	6
Waste Truck	27
Waste Dozer	3
Auxiliary Equipment Operators	
Wheel Dozer	6
Grader	3
Vibratory Compactor	3
Water Truck	3
Support Loader (Mill Rehandle)	3
Fuel and Lube Truck	3

17.0 RECOVERY METHODS

17.1 Introduction

The level of effort of the process design needs to estimate the process plant equipment to the correct level of accuracy. The process design has intentionally focused attention on the items that will be the significant contributors to the CAPEX and OPEX. Other items have been developed to an appropriately lower level of accuracy.

A significant body of test work has now been amassed for the ore in the Bayan Khundii deposit. The test work has concentrated on the higher risk items and has been utilized in the process design of the processing plant. The low risk items however, have used common industry values, which is appropriate at this stage of the design.

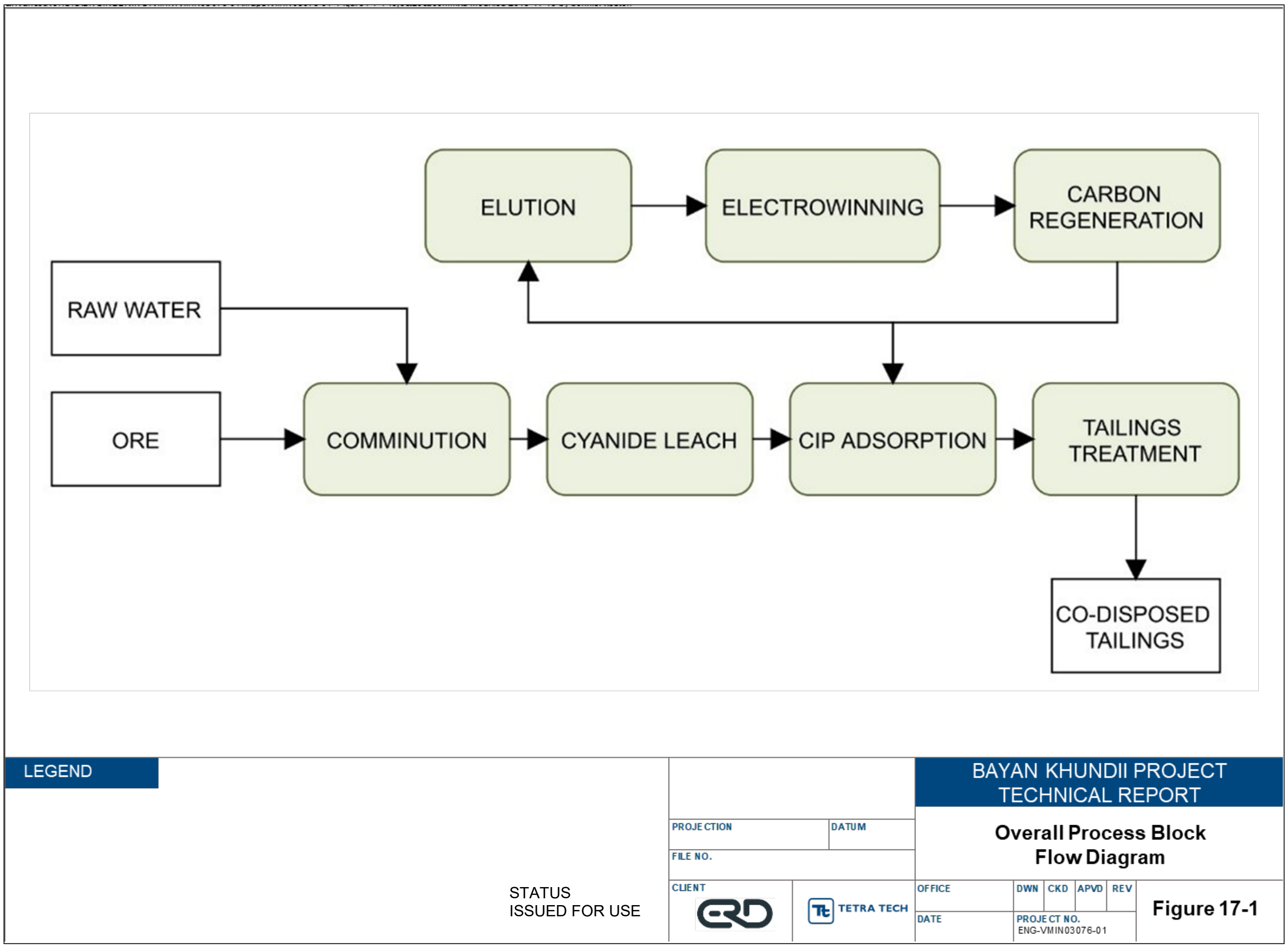
The feed grade to the plant is expected to be in the order of 3.7 g/t Au with reportedly low silver as a feed into the crusher. Overall, the test work shows that the ore is amenable to conventional Cyanide leaching with reported recoveries reaching low to mid 90's. The recovery versus grind size correlation shows continued improved recovery down to 60 micron, implying a very fine grained mineralogy.

Gravity recovery does show some promise however, this requires grinding down to the 70 micron size and so does not imply the recovery of nuggets via a gravity circuit, merely a potential ability to reduce the load to the leach and CIP (Cabon-In-Pulp) circuits by removing more of the gold and silver from any high grade feeds. In addition, the capital and operating cost of including a gravity circuit were investigated and did not justify the cost saving gained through reduced load to the leach and CIP circuits. Testing also showed conventional cyanide leaching recovered the same amount of gold as a combined gravity-cyanide leach circuit.

Various methods of cyanide recovery and reuse have been implemented to minimize the cyanide consumption and discharge to the environment. Plant tailings is then expected to be co-disposed with mine waste.

The overall Process Block Flow Diagram is shown in Figure 17-1.

Figure 17-1: Overall Process Block Flow Diagram



17.2 Headline Process Design Criteria

The following were used as the process design criteria to size and cost the processing plant for this phase of the project.

Table 17-1: Headline Process Design Criteria

Description	Value	Units
ROM (Run-of-Mine) Ore		
Throughput	600,000	tpa
F100 (100% of feed under or at this size)	700	mm
P80 (80% of feed under or at this size)	370	mm
CWi (Crusher Work Index)	16	kWh/t
SMC (A x b) (Impact breakage parameters)	39.2	
BWi (Bond Ball Mill Work Index)	16.1	kWh/t
RWi (Bond Rod Mill Work Index)	18.5	kWh/t
Ai (Abrasion Index)	0.496	
Average Gold head grade	3.74	g Au/t ore
Average Silver head grade	0	g Ag/t ore
Crusher		
Type	Jaw	
Utilization	70	%
CSS (Closed Side Setting)	70	mm
P80	63	mm
SAG Mill (Semi Autogenous Grinding Mill)		
Utilization	92	%
Length	2.7	m
Diameter	4.9	m
Installed Power	1000	kW
SAG Mill Circuit P80	700	micron
Recirculating Load	250	%
Ball Mill		
Utilization	92	%
Length	6.4	m
Diameter	3.7	m
Installed Power	1500	kW
Ball Mill Circuit P80	60	micron
Recirculating Load	350	%
Leach		
Residence Time	36	hours
Slurry Density	40	% solids w/w
Oxygen Source	Compressed Air	Low Pressure
Cyanide Concentration	1.0	g/l
Cyanide Consumption	0.12	kg NaCN/t feed
pH	11	
Carbon in Pulp (CIP)		
Carbon Concentration	30	g/l
Carbon Loss	20	g C/t feed
Carbon Gold Loading	3000	g Au/t Carbon
Carbon Silver Loading	0	g Ag/t Carbon
Tailings Treatment		
Tailings Thickener Underflow Density	50	% solids w/w
Specific Settling Rate	0.25	t feed solids/m2/h
Flocculant Dose	20	g/t feed solids
Detoxification Method	INCO/SO2/air	
Detoxification pH	8	

Description	Value	Units
SMBS (Sodium Metabisulfite) dosing rate	4	gSO2/g WAD CN
Copper concentration	30	mg/l
Dissolved Oxygen Concentration	3	ppm
Specific Filtration Rate	150	kg solid/m2/h
Cake Moisture Content (to IWF)	85	% solids w/w
Gold Room		
Elution method	ARRL	
Elution time	12	hours
Total cycle time	17	hours
Carbon Batch Size	3.0	t
Reagents		
Preferred supply phase	Solid	
Nominal mixing tank size	1	day
Nominal storage tank size	2	days

17.3 Processing Plant

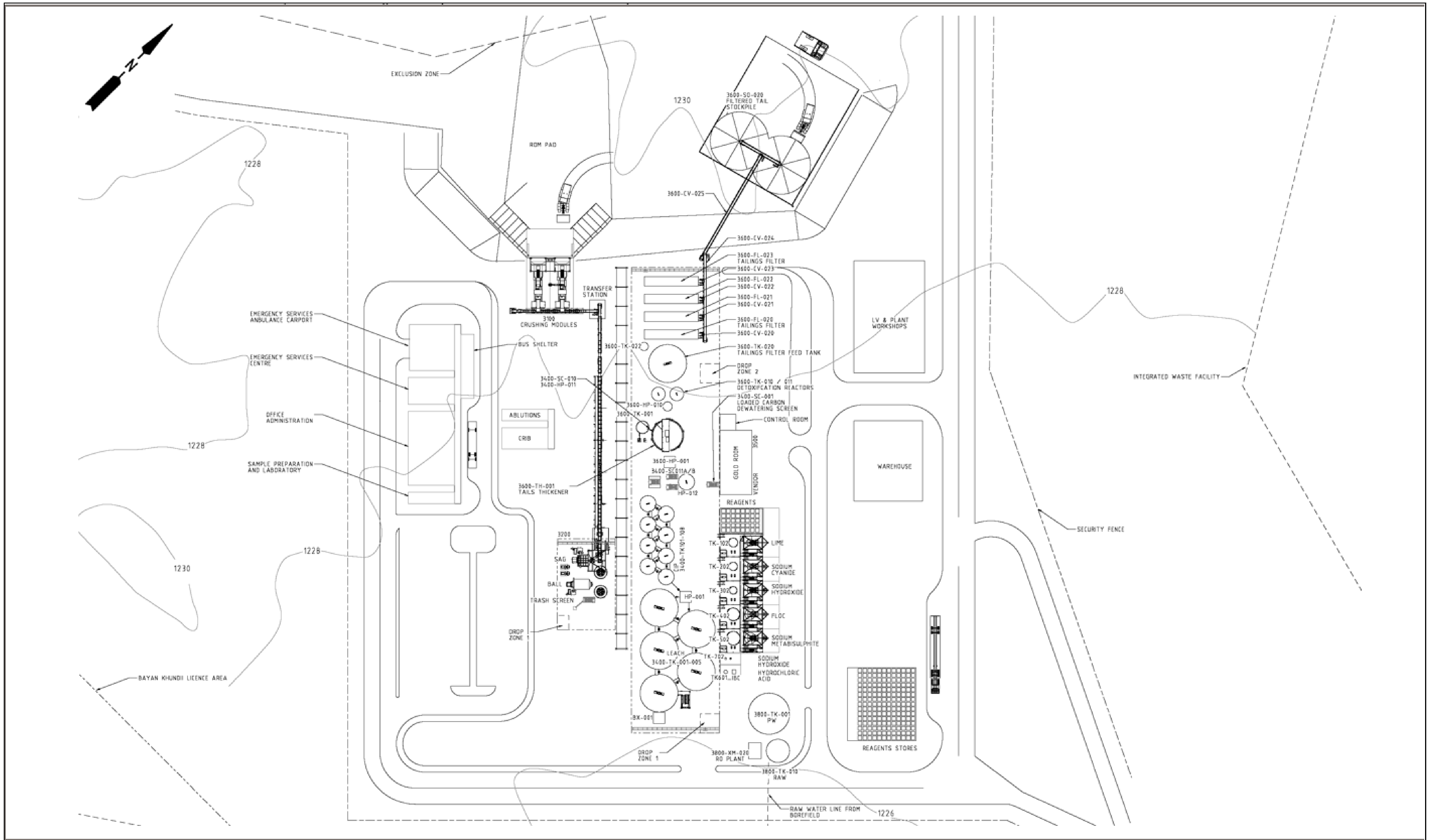
17.3.1 Process Plant General Arrangement

A conceptual general arrangement of the process plant is provided in Figure 17-2. Details provided by vendors were used where available to develop the equipment footprints and arrangements for each area of the plant.

The plant can be separated into five distinct areas, these are:

- Comminution
- Leach, CIP
- Gold Recovery Circuit
- Tails Handling
- Reagents

Figure 17-2: Process Plant General Arrangement



LEGEND

5 0 10 20 30 40 50m

SCALE 1:500

STATUS
ISSUED FOR USE

PROJECTION	DATUM
FILE NO. 226093-DM-003	
CLIENT	TETRA TECH

BAYAN KHUNDII PROJECT TECHNICAL REPORT

Process Plant General Arrangement

OFFICE	DWN	CKD	APVD	REV
Tt - Aus	MS	GS	GC	C
DATE	PROJECT NO.			
27th September 2019	754-PERPO226093			

Figure 17-2

17.3.2 Comminution

Ore from the Bayan Khunii pit is dumped on the ROM pad for storage and potential blending of feed grades. This ore is dumped into the crusher feed hopper via a grizzly screen by a Front-End Loader (FEL), which can potentially blend the feed by utilizing "fingers" of various grades stored on the ROM pad. Any oversize ore will be broken up via a rock breaker located by the grizzly screen. The crusher has a suitably sized dump hopper to allow the FEL operator to maintain the required plant feed rate.

As the utilization of a single crusher is expected to be nominally 70%, but the utilization of the mills is expected to be 92%, two full tonnage crushers will be installed in parallel in a duty/standby configuration. This was found to be cheaper than using a crushed ore stockpile, with feeders and an underground vault. Dust on the ROM pad and in the dump hopper is managed via water sprays.

The crushed ore is fed to a high aspect SAG mill via the SAG mill feed conveyor. The SAG mill operates in a closed loop configuration with cyclones as classifiers. The circuit is designed to operate with a 250% recirculating load, which is typical for this kind of circuit. Mill scats report to a bunker for disposal as they should be free of gold. Sump pumps operate in the area and feed into the SAG mill feed chute.

The Ball mill operates in a closed loop configuration with cyclones as classifiers. The circuit is designed to operate with a 350% recirculating load. Mill scats report to a bunker for disposal as they should be free of gold. Sump pumps operate in the area and feed into the Ball mill feed chute. The primary grinding cyclone cluster overflow reports to the Secondary Grinding Cyclone Feed Hopper in order to minimize over-grinding in the ball mill. The secondary grinding cyclone cluster overflow reports via a trash screen to the Leach Feed Box.

17.3.2.1 Determination of final grind size

The recovery versus grind size test work shows that the recovery improves down to 60 micron and defines the expected recovery for a considerable range of grind size.

A desktop comparison was performed to check if it would be possible to minimize the CAPEX and utilize only a jaw crusher and SAG mill for comminution. Although this circuit configuration could potentially perform down to a final product size of 70 micron, the more likely scenario is that the final product size would be in the order of 105 micron. Although this would result in reduced CAPEX option, the value of the loss of recovered gold was found to be greater than the projected additional CAPEX and OPEX associated with an option that included the addition of a ball mill and so this option was rejected in favor of a circuit which had a final grind size significantly less than 100 micron. To achieve this, a ball mill is required as the final element of the circuit.

As the circuit now includes the CAPEX for a ball mill as the final element, the CAPEX was assumed to remain essentially constant for any given feed throughput, but the relative OPEX versus recovered gold revenue was analyzed for a 70 micron vs 60 micron discharge size. This review showed a clear cost benefit of reducing the comminution product to 60 micron.

A comminution product of lower than 60 micron was not reviewed as this typically leads to significant and adverse effects on rheology, pumping, thickening and filtering stages. The final tails is expected to be co-disposed with mine waste and this is seen as a further constraint on the final product size, in order to minimize dust.

Given the implications on CAPEX, operations and maintenance, the final grind size of 60 micron was therefore maintained.

17.3.3 Leach, CIP and Gold Recovery

The finely ground ore is leached with cyanide for 36 hours in agitated leach tanks. A configuration of five tanks in series was chosen to balance circuit complexity and cost, whilst minimizing any short circuiting of the feed to the product. Any additional oxygen required for the reaction will be provided by sparging Low Pressure Compressed Air down the shafts of the leach tank agitators. As the ore was not found to be “preg robbing” (an abbreviation commonly used to describe ore that adsorbs the leached gold thereby preventing it from being captured by the carbon), no carbon is added into the leach tanks, thereby maximizing the feed gold concentration to the first CIP tank.

The leached gold is adsorbed onto activated carbon in the Carbon-In- Pulp (CIP) tanks. A configuration of eight tanks in series was chosen to balance circuit complexity and cost, whilst providing enough equilibrium stages and minimizing any short circuiting of the feed to tails. The carbon flow is counter-current to the leach liquor, with the barren carbon being added to the last CIP tank. The carbon in each tank is regularly moved upstream using air-lift pumps. Each CIP tank is fitted with output screens to keep the carbon from flowing downstream.

The overflow liquor from the final CIP tank will be essentially barren of gold. This flow passes over a carbon safety screen to ensure no slippage of carbon to the tails area. The CIP tails is thickened to recover cyanide containing liquor for recycling and reuse. This process water is reused in the mills.

17.3.3.1 Elution Circuit

Several Elution methods were considered with each varying slightly in complexity and benefit. Two methods that were found to be most suited to the elution frequency requirements identified were the Pressure Zadra method and the Anglo-American Research Laboratories (AARL) method. The difference in the achievable elution times between these two methods is too small to provide a significant CAPEX or OPEX advantage between these two methods at this level of study. Vendors were requested to offer either option. Atmospheric Zadra was removed as an option on grounds of the significantly larger batch times.

The loaded carbon will be removed from the first CIP tank daily. The carbon is dewatered over a screen and then sent to the gold room to batch fill the elution column.

17.3.3.2 ElectroWinning

The gold will be electrowon from the pregnant elution liquor using standard atmospheric cells. The cells will be powered by rectifiers that are designed to maximize the maintainability of the cell room, whilst keeping the design simple. The cell room is designed to allow additional cells and their associated rectified, should Altan Nar ore be processed at a later date.

17.3.3.3 Gold Room

The gold room uses fluxes in a furnace to purify the sludge using pyrometallurgy and the clean molten precious metal is poured into Dore’ and kept in a safe until the product is dispatched from site. Due to the size and cost of the gold room and since most plants are very similar, no test work was performed to optimize the costs or performance of this section of the plant. Typical fluxes and consumptions were used from similar projects. The gold recovery circuit was priced as a vendor package, with design criteria developed by Tetra Tech.

17.3.3.4 Carbon Regeneration

The barren carbon will be regenerated in a small diesel-fired kiln. This will remove any volatile Organic Compounds (VOCs), leaving the carbon with the maximum active sites for storing gold in the CIP circuit. The hot carbon will be quenched in water prior to reporting back into the final CIP tank.

17.3.4 Tails Handling

The thickened tails is to be co-disposed with the mine waste and so the cyanide must be detoxified. The thickener overflow liquor is used in the primary grinding circuit to recover any contained cyanide in this liquor.

Given the plant tonnage and the remoteness of the site, the INCO method was determined as the most appropriate detoxification method. This system will combine Sodium Metabisulphate (SMBS) as the SO2 source, low pressure compressed air as the oxygen source and a small amount of Copper Sulphate to add to any copper in the ore. The reaction will take place in two tanks in series to minimize any feed short circuiting to the product stream and is sized for enough residence time to allow the reactions to go to completion.

The detoxified tailings will be filtered in a pressure filter to a “dry cake”, which will be conveyed to a shed on the ROM to allow for ore trucks to be backloaded using a FEL. A feed tank and a filtrate tank will be provided to account for and match the batch cycles of the filters to the continuous rate of the plant. The detoxified filtrate will be used as process water for the plant.

17.3.5 Reagents

Due to the remoteness of the site and the requirement for two weeks storage, the majority of the reagents are expected to be delivered as solids, either in 25kg bags on pallets, or in 1-2 t bulka bags. The lime is expected to be delivered as a powder and the flocculant and hydrochloric acid will be delivered as a liquid. The hydrochloric acid will be used at the supply strength however, all other reagents will be mixed to their required strength. Each reagent will have an agitated mixing tank and a large storage tank. Tank sizes have been chosen to allow enough time for operators to manage the mixing during day shift.

17.3.5.1 Lime

Lime is used in Leach and CIP to maintain pH in the range of 10 – 11 to prevent highly poisonous Hydrogen Cyanide (HCN) gas being produced. Lime is also used in cyanide detoxification to maintain the pH of the detoxification stirred tanks to approximately 8 – 9. This is also to avoid the evolution of HCN but also serves to ensure Weak Acid Dissociable (WAD) cyanide is oxidized to the less toxic Cyanate efficiently.

A Lime consumption of 975 g/t ore was calculated using a process model and is based on keeping Leach through to detoxification at the aforementioned pH’s.

17.3.5.2 Sodium Cyanide

Sodium Cyanide (NaCN) represents the largest reagent cost in the process plant. Mitigation of Sodium Cyanide consumption is increased by recovery of cyanide liquor from the Tails Thickener overflow and the reuse of barren Electrowinning liquor. Sodium Cyanide is primarily used as a gold lixiviant during the leaching process, however is also be used to prepare the elution circuit pre-soak solution, but to a lesser extent.

A Sodium Cyanide consumption 1,379 g/t ore was calculated using a process model and is based on:

- Test work for Sodium Cyanide consumption during the Cyanide leach step (Refer to Section 13.0 for test work details).
- Approximately 1.5 Elution Column Bed volumes of pre-soak solution for the pre-soak step of elution. The Pre-Soak solution contains approximately 3 % w/v NaCN.

17.3.5.3 Sodium Hydroxide

Sodium hydroxide is used as a pH modifier in the gold recovery circuit and represents the other main component in the Pre-Soak solution described above, in section 17.3.5.2. Sodium Hydroxide is used to ensure the pH does not become acidic in the presence of Cyanide.

A Sodium Hydroxide consumption of 363 g/t ore was calculated using a process model and is based on approximately 1.5 Elution Column Bed volumes of pre-soak solution for the pre-soak step of elution. The Pre-Soak solution contains approximately 2 % w/v NaOH.

17.3.5.4 Flocculant

Flocculant is regularly used for improving the settling characteristics of solid slurries, especially those with a lower particle size. Given the final grind size of 60um, it is likely the tails thickener will require flocculant assistance to thicken to nominally 50% w/w solids and to avoid needing an excessively large thickener.

In the absence of thickening and flocculant screening test work, a high molecular weight poly acrylamide (PAM) type flocculant was assumed for the purpose of pricing. A dosing rate of 20 g Flocc / t solids was used.

17.3.5.5 Sodium Metabisulphite

Sodium Metabisulphite or SMBS as it is commonly known, is used in the INCO/SO2/Air cyanide detoxification process as a source of Sulphur Dioxide (SO2). The SO2 dissolves into solution to produce Sulphite $SO3^{2-}$ which when combined with dissolved oxygen and a copper catalyst, will oxidize the Weak Acid Dissociable (WAD) cyanide into the less toxic form, cyanate (OCN^{-}).

A SMBS consumption of 2,930 g/t ore was calculated using a process model and is based on literature and represents a typical SMBS dosing rate for detoxification of slurries, this basis being 4 g SO2 / g WAD Cyanide. If the process stream requiring treatment did not contain solids, this dosing requirement would likely be in the order of 3 g SO2 / g WAD Cyanide.

17.3.5.6 Hydrochloric Acid

Hydrochloric acid is used solely for acid washing loaded carbon before it is stripped of gold. This step reduces fouling of the activated carbon, which if left unchecked could significantly reduce the effectiveness of the carbon to remove leached gold from the pregnant liquor in CIP.

A Hydrochloric Acid consumption of 560 g/t ore was calculated using a process model and is based on 1 column bed volume of acid wash at a HCl strength of 3% w/v.

17.3.5.7 Copper Sulphate

Copper Sulphate is used as a source of copper catalyst for the cyanide detoxification process. It is relatively minor in terms of total reagent costs and may not be required if there is enough soluble copper naturally occurring in the ore. A Copper Sulphate dosing of 21 g/t ore was calculated using a process model and is based on a target soluble Cu concentration of 30 mg/l in cyanide detoxification.

17.3.6 Heat Management

The buildings are configured to conserve heat, thereby providing a comfortable working environment for operational and maintenance staff.

The crusher modules are expected to require little direct operational and maintenance intervention and are not located in a building.

The two grinding circuits are collocated in a separate building to the main processing plant. This provides a measure of noise mitigation and the excess heat from grinding will help to heat this building. This building is serviced with an overhead travelling crane (OHC) in order to provide a simple means of maintenance and ball charge for the both mills. The building also includes a drop zone for the OHC, with ready access to the outside.

The leach, CIP and tailings handling areas are collocated in a common building. This building is also serviced with an OHC in order to provide a simple means of maintenance for all of the equipment. The building also includes a drop zone for the OHC, with ready access to the outside.

The gold room is in a separate building, adjacent to the main process plant building. This enables the plants to be separated and the security around the gold to be maintained however, the proximity will allow for a combination of the building heating facilities.

18.0 PROJECT INFRASTRUCTURE

18.1 Introduction

Project Infrastructure for the Bayan Khundii Project will be predominately located in close proximity to the Bayan Khundii pit and the Integrated Waste Facility (IWF). The exception to this is the Accommodation Village and its associated infrastructure, which is sited approximately 6 km north of the Bayan Khundii pit.

The Infrastructure located near the Bayan Khundii pit is expected to consist of or be attributed to:

- Process plant facility
- Power plant
- Fuel farm
- Heavy vehicle (HV) workshop
- HV refuel
- Wash-down facility
- Warehouse and laydown area
- Administration buildings
- Messing and ablution facilities
- Emergency facilities
- Access and haul Roads
- Security and fencing

Infrastructure located further north near the Accommodation Village is expected to consist of:

- Accommodation village and associated messing and recreational facilities
- Village boiler and generator set compound
- Well / bore – water source for village
- Access roads
- Waste treatment

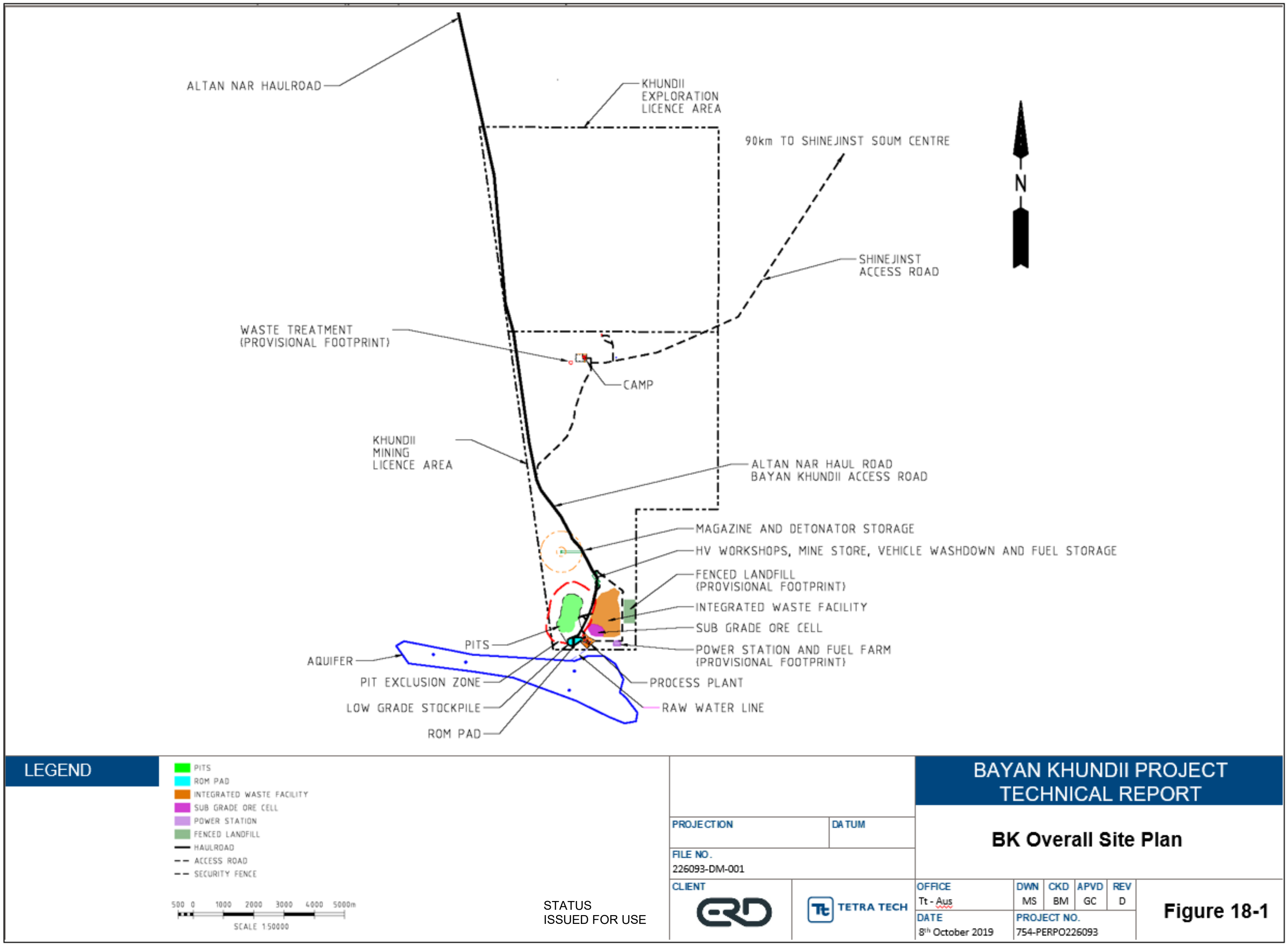
18.2 Site Layout

The Bayan Khundii Site Plan and the overall site plan are presented in Figure 18-1. The site plan also shows a haul road heading towards the Altan Nar pits and IWF which is the subject of the updated Preliminary Economic Assessment (PEA) documented in Section 24.0 – Other Information.

Infrastructure, where possible, was sited with consideration of:

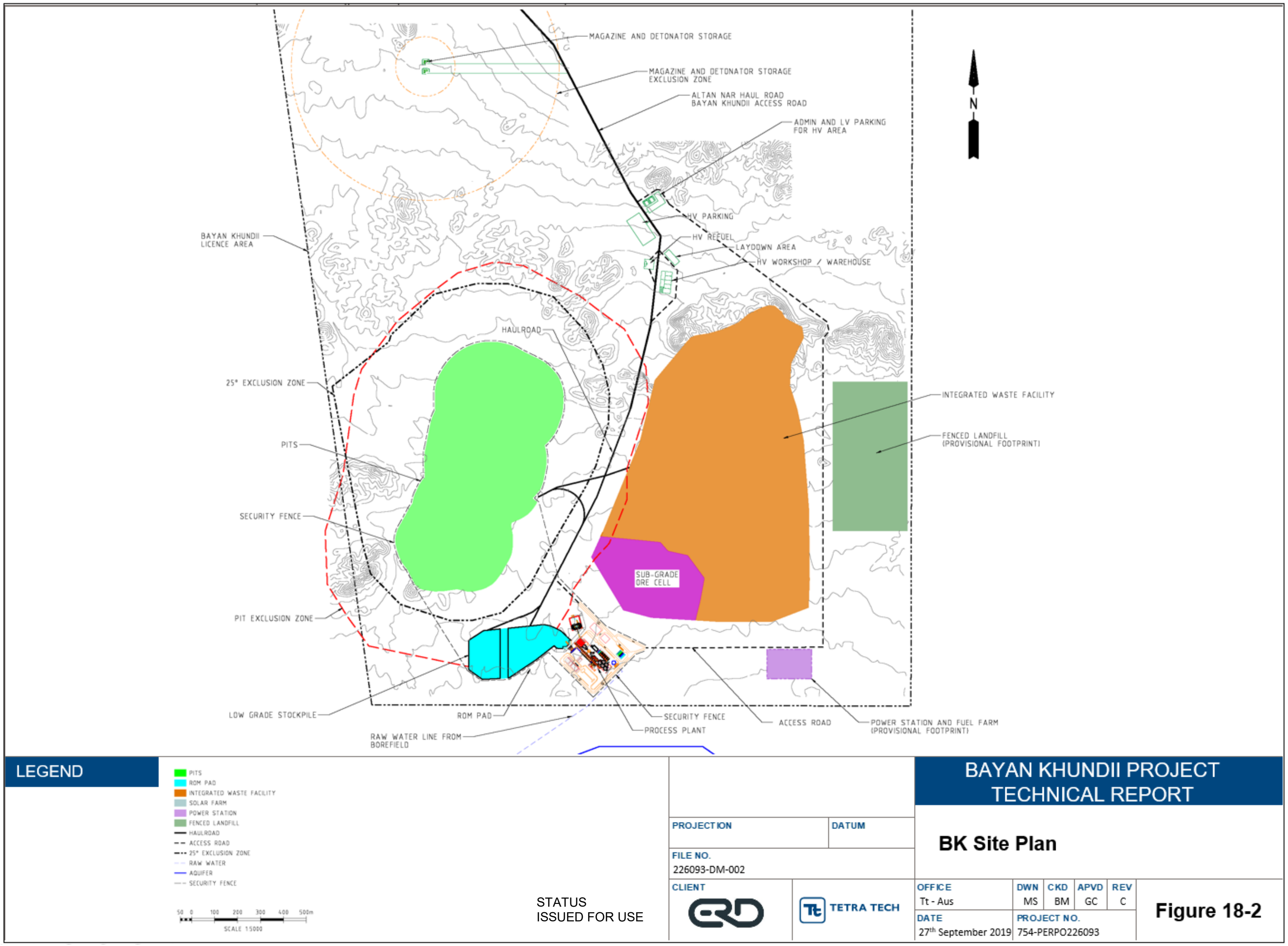
- Interaction of Heavy Vehicle (HV) and Light Vehicle (LV) movements with a focus on safety
- Potential pedestrian traffic
- Drainage and catchment areas to mitigate potential flooding and collection of storm water
- Prevailing winds to mitigate dust

Figure 18-1: Bayan Khundii Overall Site Plan



The layout presented in Figure 18-2 covers only Bayan Khundii's local site, consisting of infrastructure that is close to the pit and IWF.

Figure 18-2: Bayan Khundii Site Plan – Close Up



18.3 Site Roads

18.3.1 Site access roads

General site access will be achieved via an access road from Shinejinst, which is approximately 90 km in length to the currently proposed accommodation village and approximately 100 km in length to the Bayan Khundii Pit. No improved road currently exists from Shinejinst to site, and road conditions are fair to poor.

An access road that follows the east side of the IWF has been included to allow vehicular traffic for plant consumable supply (reagents, liners, media etc.), diesel fuel supply for the power station and general LV traffic for maintenance and landfill. This access road will be the primary access for this type of traffic and serves to reduce LV traffic interaction with haul truck operations between the IWF and the Bayan Khundii Pit.

18.3.2 Haul roads

The basis behind haul road preparation and maintenance has not changed from the PEA, with both being undertaken by the Mining contractor. Details of the haul road dimensions and parameters can be found in Chapter 16.

18.4 Power

This section describes the infrastructure related to power, power source and/or generation and the current design intent on infrastructure to distribute power throughout the site.

18.4.1 Power Supply

There are two overarching options to consider when deciding on a power source. These are whether power is sourced off-site, i.e. from the grid, or other off-site installation, or whether it is generated locally. In consultation with Erdene, it was agreed that power sourced from the existing grid is likely to not meet reliability requirements as it is known locally to be prone to fluctuations and (planned and unplanned) outages. Due to this, an on-site power generation solution was investigated and selected.

Renewable energy generation options were considered, with solar power being a frontrunner due to expected cost and reliability. Utilizing their local contacts and with input from Tetra Tech, Erdene solicited quotations from a number of local power station vendors with a hybrid solar-diesel power station being selected for the PFS. The power station will be designed to allow for an average load demand of approximately 4 MW, a maximum demand of approximately 5 MW and to be able to maintain a stable voltage and frequency output when the High Voltage mill drives are started.

18.4.2 Power Distribution

The power station will generate at 6.6 kV to supply power for transmission to the process plant and mine infrastructure. Transmission is expected to be achieved using a combination of buried high voltage cable and overhead power lines to both these locations. The voltage will be stepped down at the main process plant substation located near the milling area, with low voltage and high voltage power reticulated from here throughout the plant. This distribution will likely include another two smaller substations for other areas not in proximity with major drives/switchgear requirements i.e. Crushing Area and Filtration/Tailings Area.

Power will also be stepped down at the mine infrastructure location with low voltage power distributed to office, warehouse, workshop and HV refuel areas.

18.4.3 Fuel Supply and Storage

Diesel will be stored at the HV refuel facility and the fuel farm and represent approximately 1/3 : 2/3 of total diesel storage requirements respectively. These facilities are located in proximity to the HV workshop/parking and adjacent to the power station, respectively. Storage will be achieved using a containment design that will be compliant with local regulatory and design standards. In consideration of local experience afforded by Erdene and local precedents, it is anticipated that storage requirements for diesel must meet a minimum of at least two weeks and so these facilities will meet this requirement. It is expected that diesel fuel will be transported to the site fuel farm and HV refuel station using fuel tankers.

18.5 Water

This section describes where raw water will be sourced from and the current design intent on storage and distribution throughout the Bayan Khundii site.

18.5.1 Water Supply

Site water is proposed to be supplied from the Khuren Tsav aquifer, and the associated bore fields will be sited approximately 2-3km south west of the Bayan Khundii Pit. Each bore pump will pump to a booster pump station, if required, which will supply raw water to the process plant raw water tank, which will then provide distribution to the rest of the site.

Due to the high salinity content and hardness of the bore water, a portion will need to be treated to provide a potable water supply for drinking water and safety showers and high-quality water supply to the Gold Recovery Circuit (Elution).

It is expected a significant proportion of water demand will be attributed to the process plant, with the current expected process plant water requirement being approximately 15 m^3/hr or 4.2 L/s.

18.5.2 Water Distribution

An aboveground pipeline will transport bore water to the raw water tank located near the process plant. The terrain between the tank and the varying bore field locations is relatively flat and has little shrubbery, which will lend itself to decreased earthworks during the construction phase.

Site reticulation will be fed from the raw water tank which will include feed lines to mining infrastructure, power station/fuel farm and plant infrastructure.

18.5.3 Surface Water

Civil modelling software (12d) was utilized to prepare earthwork quantities for major infrastructure such as the Process Plant and Power Station. During this process, a high-level assessment on surface water and drainage was undertaken to ensure preparation of diversion drains and storm water ponds were included in these quantities and therefore costing.

Minor infrastructure such as buildings and access roads not within the limits of the areas mentioned above were sited to ensure they were not in an area prone to flooding. This was achieved by assessing the surrounding topography and catchment areas prior to siting.

Site surface water modelling will be undertaken in the next phase of the project to support the site civil design.

18.6 Site Buildings

18.6.1 Introduction

This section describes the major site buildings categorized into those used primarily for process plant operations and those by the mining contractor.

18.6.2 Plant Buildings

The buildings described in this section are in close proximity to the Process Plant which is sited approximately 500 m South East of the Bayan Khundii pit. They are expected to service predominantly Process Plant operations.

Building footprints reported below are indicative and based on similar projects given a certain person or vehicle count requirement. Building descriptions provided below are conceptual and describe typical fit-out for the building being described. The discussion shows the basis of the capital costs allocated to these areas.

18.6.2.1 Plant Equipment Buildings

To allow plant operation to continue unimpeded during the winter months of November to February, the process plant mechanical equipment will be contained within several buildings and the conveyors will need to be enclosed. The areas currently expected to be contained in common buildings are:

Nominal footprints are based on similar projects and sized for required mechanical equipment.

- Primary Crushing Building – Nominal footprint: 12 m x 7 m
- Primary and Secondary Grinding – Nominal footprint: 14 m x 9 m
- Leach, CIP, Tails thickening, detoxification and filtration – Main building – Nominal footprint: 72 m x 14 m
- Gold recovery circuit (Elution, Electrowinning and Carbon Regeneration) – Nominal footprint: 10 m x 5 m
- Reagent (Prep and Dosing) Building – Nominal footprint: 22 m x 9 m
- Filtered Tails Stockpile Building – Nominal footprint: 20 m x 16 m

18.6.2.2 Office Administration

Nominal footprint: 23 m x 14 m, based on similar projects and for approximately 30 people.

Single storey transportable building of 6 butted floors for use by admin staff. Comprises 28 office open planned work stations, 2 individual offices for manager/superintendent, 1 boardroom, 2 meeting rooms, 1 comms room, 1 kitchenette/breakout meals room. Includes office furniture, cupboards and reverse cycle heating/air conditioning.

18.6.2.3 Emergency Services Centre

Nominal footprint: 15 m x 8 m, based on similar projects and sized for 4 people.

Single story transportable building of 2 butted floors for use by first aid and fire services staff. Comprises treatment room, ESO office, waiting/reception room, kitchen, pharmacy room, office. Includes office furniture, cupboards and treatment beds and reverse cycle heating/air conditioning.

18.6.2.4 Emergency Services/Ambulance Carport

Nominal footprint: 15 m x 14 m, based on similar projects and sized for 2 vehicles.

Single story insitu building of carport kit structure on concrete floor slab. Open plan and to be located next to Emergency Services Centre.

18.6.2.5 Sample Preparation and Laboratory

Nominal footprint 15 m x 4 m, based on similar projects and sized for 4 people.

Laboratory: single story transportable building of 1 floor for use by sampling staff. Comprises sample preparation area, laboratory, storeroom and offices for processing of samples. Samples will be assayed for composition and gold loading. Includes office furniture, cupboards, sampling benchtops and reverse cycle heating/air conditioning.

Sample storage: single story separate steel shed with insulated walls and roof on concrete floor slab for the receipt and storage of samples.

18.6.2.6 LV and Plant Workshop

Nominal footprint: 50 m x 15 m, based on similar projects.

Single story in situ building of steel portal framing with insulated walls and roof on concrete floor slab. Comprises offices, LV workshop floor, Plant workshop floor, small kitchenette/meals room. Includes power, lighting, comms, compressed air, specialist equipment for maintenance of LV fleet, tool storage. Office reverse cycle heating/air conditioning and workshop floor heating/cooling.

18.6.2.7 Plant Warehouse

Nominal footprint: 25 m x 20 m, based on similar projects.

Single story insitu building of steel portal framing with insulated walls and roof on concrete floor slab. Comprises offices, warehouse floor with storage shelves/racks, small kitchenette/meals room. Office reverse cycle heating/air conditioning and warehouse floor heating/cooling.

18.6.2.8 Reagent Stores (Short term and long term)

Long Term Store nominal footprint: 25 m x 20 m, based on similar projects.

Short Term Store nominal footprint: 12m x 8m, based on similar projects.

Long Term Store consists of 1 flat roofed shelter fixed to sea containers on concrete floor slab. Sea containers provide additional storage space for reagents. Includes lighting, perimeter fencing for security. To be located on side of warehouse.

Short Term / Day Store consists of 1 flat roofed shelter fixed to sea containers on concrete floor slab. Sea containers provide additional storage space for reagents. Includes lighting, perimeter fencing for security.

18.6.2.9 Control Room

Nominal footprint: 5 m x 5 m, based on similar projects.

Prefabricated building containing computer interface and control panels for the plant management system.

18.6.2.10 Ablutions

Nominal footprint: 15 m x 4 m, based on similar projects.

Single story transportable building for male, female, disabled patrons. Includes sanitary fixtures, partition system. Reverse cycled heating/air conditioning.

18.6.2.11 Rubbish Shed

Nominal footprint: 6 m x 6 m, based on similar projects.

Single story insitu building of open carport kit structure on concrete floor slab. Comprises open plan with no roller doors or walls. Includes wash down area, bins and power for potential future installation of a compactor.

18.6.2.12 Bus Shelter

Nominal footprint: 20 m x 4 m, based on similar projects and sized for two buses.

Single story insitu building of carport kit structure on concrete floor slab. Comprises steel structure with roof and walls for weather protection. Includes bench seating. To be located next to Office Administration building.

18.6.2.13 Ice Machine

Nominal footprint: 15 m x 4 m, based on similar projects.

Single story transportable building for proprietary ice machines, drinking fountains/hand wash basins and utility/storeroom. Includes reverse cycle heating/air conditioning.

18.6.2.14 Meals Room

Nominal footprint: 15 m x 7 m, based on similar projects and sized for 50 people.

Single story transportable building of 2 butted floors. Comprises dining tables, seats, kitchenette, drinks fridges, microwave and coffee/tea making appliances. Includes reverse cycle heating/air conditioning.

18.6.2.15 Gatehouse

Nominal footprint: 9 m x 7 m, based on similar projects.

Single story transportable building of 2 butted floors for use by security staff for recording movement to/from site, plus drug/alcohol testing of contractors and staff. Includes boom gate, swipe card access, control work stations, CCTV equipment, kitchenette. Includes reverse cycle heating/air conditioning.

18.6.3 Mining Buildings and Infrastructure

Mining buildings including the heavy vehicle workshop and warehouse, contractor mining offices and light vehicle parking, explosive storage magazines and heavy vehicle laydown areas are located approximately 500 m northeast of the Bayan Khundii pit and service mining contractor activities. Explosives and blasting accessories magazines are located approximately 2 km north of the Bayan Khundii pit.

Building footprints reported below are indicative and based on similar projects given a certain personnel or vehicle count requirement. Building descriptions provided below are conceptual and describe typical fit-out for each required building.

18.6.3.1 Offices and Administration Building and LV Parking

Provision has been included for an office building containing 20 individual offices and a central meeting room and break rooms on the second floor, and a change and dry area with lockers which is located on the ground floor. This building is expected to cater for management and mining and geology contract staff. Parking for passenger and light site work vehicles is located directly outside the office building.

18.6.3.2 Heavy Vehicle Workshop and Warehouse

The heavy vehicle workshop is designed with four maintenance bays for large mobile equipment, sized to accommodate the largest working vehicle on site, CAT 773 waste haul trucks. One of the maintenance bays will be equipped with wash-down equipment for both haul trucks and other mobile equipment when required. This building has also been designed with provision for a warehouse for all equipment parts and tools necessary for maintenance, sized at 15 m x 25 m. In addition, this workshop and warehouse complex will host supply chain activities and is designed with 10 offices for maintenance management or planning staff and supply chain staff. A change and dry area with lockers and a break room is also included. The currently planned refuel and storage area is located opposite the maintenance and warehouse buildings for ease of access.

18.6.3.3 Laydown Area

The heavy vehicle laydown area is located on the main haul road between the admin and warehouse facilities. This area is designed at 100 m x 50 m and built as a raised gravel pad to accommodate space for all mobile equipment to be parked between shifts and for ease of access by the equipment operators change and dry area in the admin building opposite.

18.6.3.4 Magazine and Detonator Storage

Magazine and detonator storage are required to be located at a distance of at least 450 m from any building or area containing flammable or explosive material according to the National Standard of Canada for Explosives Quantity Distances (NSC – EQD) and as such, has been placed north of the admin building on the main haul road to the Bayan Khundii pit, approximately 2km north of the mine and mill facilities. In addition to the exclusion zone for volatile materials, explosive storage must be kept at least 100 m from any building or road and have been located outside the minimum distance radius from the planned site access road. There will be two magazines for explosives and accessory storage, built with reinforced roofs at a distance of 40 m, with a surrounding earthen berm of the same height as the buildings for protection as specified in the NSC - EQD. Explosive storage silos have not been included as the drilling and blasting activities on site are expected to be conducted by a local contractor, providing both explosives and loading of the holes on scheduled blasting days.

18.6.3.5 Security and Fencing

In addition to the employment of security guards, fencing will be included to be prevent trespass to the mine site and associated infrastructure. The fence is expected to enclose the pits and process plant, with localised fencing enclosing other infrastructure. The main purpose of fencing is to assist in the prevention of equipment and gold theft as well as to limit access of wild-life for the safety of the local fauna and the area's operators.

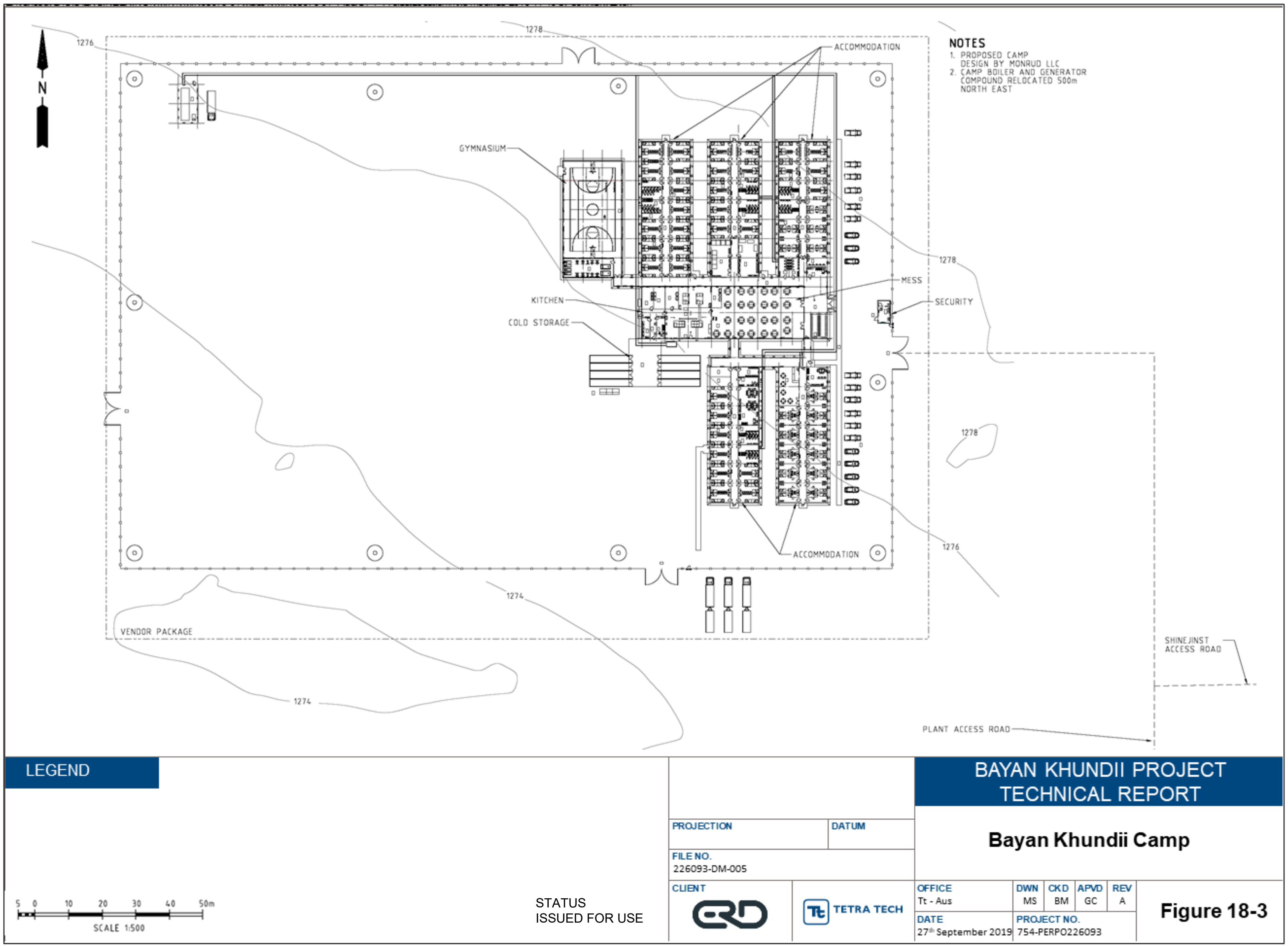
18.7 Accommodation and Messing

18.7.1 Accommodation Village

As the site is located in a remote location with the nearest town being Shinejinst (Approximately 90 km north of Bayan Khundii site), an accommodation village is included to allow for a combination FIFO/DIDO (fly-in/fly-out / drive-in/drive-out) arrangement. The Accommodation Village conceptual design was provided by Monrud LLC in solicitation with Erdene and allows for capacity of approximately 300 to 375 personnel. It will be provided as a vendor package consisting of site preparation, supply and installation with power, water and access being provided by the owner.

The village boiler and generator set compound is located out from the boundary of the village and offset approximately 500 m. These are sited approximately 500 m North East of the village and is accessible using a dedicated access road. The Accommodation village layout is presented in Figure 18-3.

Figure 18-3: Accommodation Village



18.7.2 Construction Camp

The accommodation village will be constructed in the early phases of construction to allow it to support the ongoing construction activities. Erdene currently have a 60-bed temporary camp on-site to service drilling and exploration activities. This temporary camp will be used and expanded if required to service construction activities while the permanent village is constructed. Both facilities will provide self-contained accommodation and messing for construction labour during the construction period.

18.8 Waste Infrastructure

This section describes the infrastructure associated with waste management, particularly waste water and inert solid waste.

18.8.1 Landfill

Inert solid waste will be transported, disposed and handled at the landfill area sited to the east of the Integrated Waste Facility (IWF). The landfill area will be fenced and is expected to be separated into and operated as cells, sequentially opened and then closed and rehabilitated.

Prevailing winds, predominantly blowing from the South West were taken into consideration when siting the landfill to ensure any odor and/or dust resulting from landfill operations is not transported over the populated areas.

18.8.2 Waste water

Grey and black water treatment will be achieved using a packaged plant. Grey water will be treated and recycled where possible to reduce raw water makeup requirements.

18.8.3 Plant Tailings and Mine Waste Rock

Plant Tailings will be stockpiled in an enclosed building sited on the ROM Pad for Haul Truck backloading and transport to the IWF for co-disposal.

Mined waste rock will be transported via Haul Truck to the IWF for co-disposal with Plant Tailings. The IWF is sited approximately 500 m due east of the Bayan Khundii pit with its northern face blended into the existing hilly terrain.

The IWF design is described in detail in Chapter 16, Section 16.4: Waste Rock Facilities and Stockpile Design.

19.0 MARKET STUDIES AND CONTRACTS

19.1 Marketing Studies

Gold is a commodity that is freely traded on the world market and for which there is a steady demand from numerous buyers. It is also possible to sell gold for delivery at a fixed price at a future date (forward sale). There are a number of refiners in the world whose bars are accepted as “good delivery” through associations like the London Bullion Market Association (LBMA).

In Mongolia, the Government of Mongolia supports the purchase of gold through Mongolbank, the central bank. Sales of gold to Mongolbank have a fixed, discounted royalty, currently set at 5 percent under the Gold-2 Program. Mongolbank gold purchases are transacted according to the daily spot price on the London Metals Exchange. Exports of gold from Mongolia are subject to a graduated royalty scheme, ranging between 5 and 10 percent.

As a freely-traded commodity with clear framework for sales domestically in Mongolia, no marketing studies were considered necessary for the Bayan Khindii PFS or Altan Nar PEA.

19.2 Metal Selling Price

The selling prices used in the Bayan Khundii PFS and Altan Nar PEA were US$1,300/oz for gold and US$17.50/oz for silver.

The gold and silver selling prices are based on the three-year trailing average prices for each metal, for the period ending October 1, 2019. Given the variability and uncertainty surrounding future gold price, gold prices from $1,200 to $1,500 were considered in sensitivity analysis.

Tetra Tech considers this approach reasonable for the purposes of the Bayan Khundii PFS and Altan Nar PEA.

19.2.1 Sales Contract

No sales contract is required for the sale of doré to the Mongolbank. At the time of study, at least four points of sale for doré had been identified. In the closest provincial centre (Bayankhongor aimag centre) to the Project, Mongolbank operates a point of sale. Additionally, at least two commercial banks (Khan Bank and Golomt Bank) purchase doré at Mongolbank rates in Bayankhongor aimag centre. In Ulaanbaatar, the Mongolbank also purchases doré. For the purposes of this study, the point of sale of Project doréis assumed to be Bayankhongor aimag centre, due to its proximity to the Project site.

The Company is responsible for transportation, insurance, laboratory, and other charges associated with delivering the doré to the point of sale. For the purposes of this study, these charges have been calculated directly using budgetary quotations provided by licensed services providers in Mongolia.

No precious metals refinery currently operates in Mongolia. Refinement of doré purchased by Mongolbank is managed directly by Mongolbank.

Alternatively, the doré may be exported and sold internationally. Due to the increased royalty for precious metals export, export sale is not as economically viable as direct sales to Mongolbank.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Environmental Assessment Process

Mongolia's environmental assessment process for mining projects involves the following two steps:

i. General Environmental Impact Assessment (GEIA)
ii. Detailed Environmental Impact Assessment (DEIA), included Baseline Research and an Environmental Management Plan (EMP)

20.1.1 General Environmental Impact Assessment

The General Environmental Impact Assessment (GEIA) of a Project is a preliminary screening based on the nature, scale, and location of the Project. The GEIA is carried out by the Ministry of Environment and Tourism as part of the mining licence application process. Ordinarily, the GEIA is conducted to determine whether a Detailed Environmental Impact Assessment is required for the Project.

20.1.2 Detailed Environmental Impact Assessment and Management Plan

The Detailed Environmental Impact Assessment acts as the official assessment of potential environmental and social impacts of a given Project, including the Project's Baseline Research and initial Environmental Management Plan.

The Environmental and Social (E&S) Baseline Research examines the existing context within which the Project is planned. The resulting description draws upon secondary data from government sources as well as primary information. The E&S Baseline makes up part of the registration of mineral deposits in Mongolia and is documented in full technical detail in the Detailed Environmental Impact Assessment.

The DEIA and EMP cover environmental and community or social impacts. A DEIA is obligatory for all mining projects in Mongolia and must be carried out by a Mongolian entity with professional certification for DEIA services granted by the government. The DEIA of a given project must be filed within 12 months of issuance of the mining licence. The DEIA methodology is prescribed by the government and covers the potential impacts of a given project. During the DEIA, consultation with the local government at the soum (sub-province) level is required, covering potential impacts and proposed management plans.

20.2 Environmental Permits

20.2.1 Detailed Environmental Impact Assessment

The DEIA approved by the Ministry of Environment and Tourism of Mongolia acts as the Project's statutory environmental assessment and the basis for issuing operating permissions for the Project.

20.2.2 Local Cooperation Agreement

Pursuant to Article 42 of the Law on Minerals of Mongolia, minerals licence holders are required to enter into a Local Cooperation Agreement with the local government of the jurisdiction within which a given minerals licence is located. In 2016, the Government of Mongolia approved model Local Cooperation Agreements for minerals licence holders that commit companies to undertake environmental management in the course of operations and encourage public information sharing about the licence holder's activities locally.

20.2.3 Land and Water Use

Land use permissions are required for the mine and its facilities and associated infrastructure and are issued by the soum government authorities. Water use permission is based on the availability of surface and sub-surface resources and is issued by local, regional, or national authorities, depending on the required annual consumption.

20.2.4 Annual Environmental Management Plan and Report

Licence holders are required to earn approval of Environmental Management Plans for operations planned in a given year. Performance is reported annually to the government.

20.2.5 Other

Additional permitting may be required for chemicals and/or explosives handling, use, and storage, depending on the nature of the mining operations and mineral processing of a given project.

20.3 Baseline Studies

From 2016 to 2018, Erdene engaged Eco Trade LLC – a Mongolian certified DEIA consultant – to complete the Environmental and Social Baseline Research for the Project, in accordance with Mongolian rules and regulations. In 2019, a consortium, including Eco Trade LLC, Sustainability East Asia LLC, and Ramboll LLC, completed additional baseline studies for the Project.

20.3.1 Environment

The Project is in the northern part of the Altai Southern Gobi Desert region. The regional landscape is characterised by Gobi low hills which exhibit porous, rough surfaces. These hills have typically been eroded by water, temperature and wind, to create gullies that can be affected by erosion between hills, small dry channels, and the flat steppe existing between low hills. The central part of the Project area is flat in terms of land surface. The southern part of the licence area where mineral exploration work has been conducted is composed of knolls with an elevation between 1,250 to 1,300 m.

20.3.2 Surface Water Quality, Hydrology and Hydrogeology

Groundwater is proposed to be provided from a borefield within the Khuren Tsav and Bosgyn Sair basins, which will provide the raw water supply for the Project, located approximately 3 km to the south of the Bayan Khundii. The Project Site, Khuren Tsav and Bosgyn Sair aquifers lie within the arid climate of the continental Gobi Desert region. There are no permanent surface water sources, outside of the brief flow events in the ephemeral watercourses following a significant rainfall. The amount of rainfall required to generate surface flows will depend on the intensity of the rainfall, duration, slope and surface runoff capacity.

As these surface flows are short-lived and unpredictable, the flows are of limited use to the local population and wildlife (other than their importance for the recharge of shallow aquifers). The climatic records of the region indicate that an average year would include between two and five rainfall events resulting in surface water flows. Analysis of climate data has identified that approximately 70% to 80% of surface water flow events occur during the months of July and August.

Due to potential for contamination of surface water and riverbeds near the mine sites in the event of runoff, sediments of the riverbed were sampled at three locations, two in the same dry riverbed in the Bayan Khundii survey area and one to the west. These were analysed for heavy metal content. Arsenic and molybdenum content in two samples in the Bayan Khundii area were above the permissible level stated in the national standard for pollutant content in sandy soil. Copper was also above the permissible level in one sample from inside the Bayan Khundii area. The samples suggest the presence of the ore body is naturally elevating copper and molybdenum content in soils.

Shallow groundwater has traditionally been the main source of water for the herders and their animals and where shallow enough, can also be exploited by larger wildlife. This shallow groundwater also locally supports small stands of groundwater dependent vegetation.

Baseline surveys of water and soil quality have shown elevated heavy metal concentration in drainages and herder wells. Arsenic, molybdenum and copper were all detected at levels above the relevant standards, particularly in areas near ore bodies. The levels are naturally occurring, and this should be considered in subsequent analysis of water and soil heavy metal content.

20.3.3 Erosion

Soils in the region are significantly eroded from prevailing strong winds. There is a lack of soil structure on the Project site, including low humous content and very low moisture retention capacity. Other than areas of isolated mineral exploration activity and unimproved dirt roads, the occasional herder shelters and the effects of grazing are evident (primarily camels and goats). However, the land has not been significantly degraded by human settlement or technical operations.

20.3.4 Climate

The Project area is subject to the extreme climate of the continental-Gobi-desert region, and to four seasons much like the other territories of Mongolia. Orographic conditions and local micro wind affect the air current formation and creates a dry and drier micro region where precipitation and humidity are relatively low, with hot summers and cold winters. Cloudiness, precipitation and snow cover are generally low. Absolute low temperature reaches -37.4°C and absolute high temperature reaches 44.9°C. Annual mean temperature is around 0.7°C. The region has mean annual precipitation of 105 mm.

Although precipitation is generally low in this region, there is a 1 in 50 year chance that the maximum amount of 50 to 60 mm precipitation could fall within a single day, creating flooding, cloudburst and lightning to occur. In summer, rain falls in 15 to 20 days, lightning occurs in 5 to 10 days and they last for about 35 hours totally.

Frequency of the dominating wind direction is 28.7% from northeast, 25.1% from west and 16.9% from northwest. The prevailing wind direction varies seasonally. Depending on the wind force, 10 to 15 days of blizzard occurs and 28 to 30 days of dust storm blows per year of which most of them occur in windy spring months of March to May. When wind reaches the speed of 6 m/s, dust and soil becomes mobile, and when it reaches 10 m/s, dust storm intensifies. In this region, wind with a speed of more than 10 m/s blows for 35-40 days per annum.

20.3.5 Dust and Air Quality

The locality surrounding the Project Site is subject to seasonal strong winds and short-term dust storm events during the spring season. The area is characterised by naturally elevated ambient particulate concentrations generated by wind erosion processes on desert soils.

Short monitoring campaigns were completed measuring particulate matter (PM_{10} and $PM_{2.5}$) in the vicinity of the Project during 2016 and 2019, and for sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) in 2019. From the available data, all 24-hour periods were below the relevant Mongolian Air Quality Guidelines (MNS 4585:2007), International Final Corporation (IFC) Environmental Air Emissions and Ambient Air Quality Guidelines (2007) and EU Directives 2008/50/EU.

The nearest permanent settlements to the KGP site are Shinejinst and Bayan-Undur, located 70 km northeast and 80 km to the north, respectively. The Project are is located on sparsely populated region (i.e. <0.8 per person per square km) as of 2018. No permanent human settlement near the KGP site, however, nomadic pastoral activity occurs in the region. There are known seasonal herder camp sites approximately 15 km to north-east of the project and approximately 19 km to the south-west of the Project boundary. These herder camps are not continuously inhabited and lack any permanent facilities.

The nearest sensitive receptor to the Project is the KGP workers accommodation camp, located within the Project boundary about 5 km north from the mine site at Khundii. It is expected that workers from the mine will reside in this location.

20.3.6 Noise

The Project site is located in a greenfield area, 70-80 kms away from the nearest towns, with no permanent anthropogenic noise sources identified. Limited drilling activities during spring to autumn and the temporary exploration camp are the only observed man-made noise sources currently. Apart from these, wind is the main natural noise source at the Project site. The baseline noise levels are under the threshold levels recommended by Mongolian national and International standards. Due to the remoteness of the Project site from any industrial development and human settlements, it is believed that the vibration level is within a natural range.

No permanent summer or winter herder camps within a distance where people or livestock will be detrimentally affected by noise or vibration from the KGP have been identified. Shinejinst and Bayan-Undur soum residents will not be impacted by the increased noise levels by the KGP due to the large distance (i.e. 70 km) between the mine site and the soums. Potential sensitive receptors that may be negatively impacted by an increase in ambient noise and vibration levels during the construction and operation of the Project are the mine site workers at the Project site and herder families temporarily camping close to the mine site.

20.3.7 Vegetation

Vegetation within the Project area was surveyed in 2016, 2017 and 2019 to record a variety of parameters including species composition, abundance and conservation status. Plant samples taken during the surveys were compared with the key references on Mongolian flora together with the Mongolian Red List of Plants (2012), Mongolian Law on Natural Plants (1995), and the IUCN Red List to identify rare, very rare or otherwise conservation significant taxa.

According to the geographical zonation of wildlife in Mongolia, the Khundii Gold Project area is situated within the Gobi Altai Mountain range zone. Similar to other southern Gobi regions in Mongolia, flora species diversity in this region is ‘generally poor’ (i.e., relative low numbers of species), with some Central Asian endemic plants. Diversity and abundance of vegetation species in the region is highly dependent on seasonal precipitation levels and distribution.

20.3.8 Fauna

The fauna of the Project area was surveyed during the summer of 2016, 2017 and again in 2019. The fauna of the Gobi region is diverse, with many widespread species typical of the Central Asian and Near Eastern deserts. The low human population density and high degree of isolation of the southern Gobi region of Mongolia has resulted in the survival of many threatened species that are much rarer in neighbouring countries, making the South-West Gobi a region of interest for fauna conservation. The KGP is situated between the Great Gobi Strictly Protected Area Part A (to the south to west) and Gobi Gurvan Saikhan National Park (to the east), thus the Project area could be an important corridor area linking the protected areas for wildlife movement.

20.3.9 Social

The Project is located within the territories of Shinejinst and Bayan-Undur soums of Bayankhongor aimag in southwestern Mongolia. The direct Project area does not contain any permanent structures and is occasionally populated by mobile herders during the spring and autumn, depending on local weather conditions.

Researchers from The Department of Anthropology and Archaeology, School of Sciences of the National University of Mongolia conducted surveying of the Project area in 2016. This survey was done in the places with potential to host ancient tomb or ritual establishments, in and around mountains, and near vegetation. As a result of this survey, no artifacts related to ancient tombs or other human activities were identified in the suspected places.

The primary economic activity of the two soums is animal husbandry, with the majority of household income derived from the sale of raw cashmere wool. The two closest settlements are located approximately 90-100 km north of the Project, each hosting approximately 200 households. Basic goods and services are available in the town centres, including fuel, household items, and national grid electricity. Without centralized water distribution or waste water treatment and disposal, fresh water is distributed by truck from water wells in the settlements. Permanent job opportunities in the soums are limited and mostly involved in the provision of government and public services.

20.4 Consultation

Erdene consults with stakeholders in the course of its business, including both statutory and voluntary.

20.4.1 Statutory Consultations

Mongolian law requires consultation with local stakeholders during the DEIA process. The Project proponent must provide information about the Project’s potential impacts and management plans to the public in a manner which is accessible for the residents of the soum (sub-province) within which the Project is located. Certification of local consultation is supplied by the local government. The Local Cooperation Agreement provides an additional pledge for ongoing consultation with local stakeholders over the course of the Project life cycle.

20.4.2 Company Stakeholder Engagement Policy

In addition to the DEIA process, Erdene engages with stakeholders on an ongoing basis. All material information regarding the company’s performance is translated into Mongolian within approximately 48 hours of disclosure and made available on the websites of Erdene and the Mongolian stock exchange. The company maintains a grievance handling mechanism for both internal and external stakeholders at its field sites and Ulaanbaatar office, and provides training for company personnel on how to implement the mechanism. Additionally, Erdene shares the results of its local environmental monitoring programs during fieldwork periods.

20.5 Environmental Management

The Project Overarching Environmental and Social Management Plan (ESMP) is the key tool through which the commitments to mitigation, management and monitoring measures are expected to be implemented, many of which will be defined through the Project's ESIA process. The Overarching ESMP will comprise a framework document and a suite of topic-specific management plans that will cover the construction and operations phases of the Project. The Overarching and topic specific ESMPs will be living documents and will be reviewed periodically (and updated, as necessary) to ensure that they reflect the requirements applicable to the Project and its activities.

20.5.1 Dust Management

With the introduction of motor vehicle traffic and mining operations, ambient dust levels may potentially increase locally. Although there are no permanent residents at the Project site, seasonal residents may be concerned about the potential effects of elevated dust levels on human and animal health and well-being. Appropriate control and management options shall be developed for the Project and implemented as part of the Management Plans, like those in place at other industrial mines elsewhere in Mongolia's Gobi region.

20.5.2 Geochemical Characterization

Geochemical characterisation was undertaken to assess the properties of the waste expected to be generated by the mining of the Bayan Khundii deposit and to also determine the geochemical suitability of materials for use as construction material. The sampling program focused on the Basalt, Jurassic Sediments and Lapilli Tuff lithologies.

The results of the geochemical characterisation program indicate that the three waste lithologies are non-acid forming. The results suggest there is the potential under neutral conditions for the mobilisation of arsenic from all lithologies, while the basalt lithology also had the potential to mobilise vanadium under these conditions.

The results also suggest that under weakly acidic conditions there is the potential to mobilise manganese from all lithologies. Some samples also had the potential to mobilise arsenic, barium boron and uranium. Under both neutral and weakly acidic conditions, the ash tuff sample within the Jurassic sediments demonstrated the least potential to mobilise metals, with only manganese elevated. Further aassessment of the Jurassic Sediments targeted towards the ash tuff and material higher in the stratigraphic profile (i.e. furthest from the contact with the Lapilli Tuff) will be undertaken to identify a source of benign waste rock for construction activities. The results of this characterisation program has supported the design of the Integrated Waste Facility detailed in section 16.4 and development of the overall mine closure strategy (section 20.5.6).

20.5.3 Water Management

The Project process plant has been designed to optimize water recovery through the thickening and filtration of tailings. It is expected that a groundwater monitoring program will be implemented to identify potential impacts to existing herder water supplies, if any. The ongoing analysis of water quality in groundwater wells within the Project area is likely to be a consideration to address potential perceptions of mine impacts to water quality. Construction related impacts to surface and groundwater are expected to be of low significance and are proposed to be managed using Good International Industry Practice and will be defined in the Project design documentation and the relevant Management Plans. These practices include the use of surface water drainage design and erosion control techniques.

20.5.4 Infrastructure Requirements

Noise attenuation will be provided to meet the relevant Project and Mongolian Standards for occupational health and safety requirements.

A key aim for the Project is to minimise waste and ensure that every effort is made to recover and recycle waste on-site through design and the strict application of the relevant environmental management plans.

An issue specific Traffic Management Plan (TMP) is expected to be prepared to document a range of strategies, responsibilities, monitoring and outcomes required.

20.5.5 Social and Community Impacts and Benefits

The Project is committed to prioritising the employment of local residents from Shinejinst and Bayan-Undur soums, as well as from the wider Bayankhongor aimag. Building on existing Company policy, local recruitment and training will be articulated in the Human Resources Management Plan. Community development activities that foster local skills development will be supported through the Community Development Management Plan, including for example, continuation of Erdene's existing scholarship programme.

The Project will result in increased revenues accruing to the national and local budgets through various fees, taxes, and royalties, Project payments of which will be disclosed by the Company through for example, annual reporting requirements, in addition to dedicated communications with local government about public investment.

Ongoing monitoring of pasture use through fit-for-purpose consultation with the herders in the Project area will be conducted to understand changes / impacts to land use (if any). All off-road driving by any KGP Project-related vehicle will be prohibited unless in an emergency situation. Erdene's Grievance Mechanism will be refreshed and adapted to the construction, operation and closure needs of the Project.

A Chance Finds Procedure, building on Erdene's work stoppage policy and designed to ensure the safety, integrity and proper handling of any previously undocumented objects of cultural or historical significance (including archaeological assets and paleontological features), will also be implemented as part of the Project.

20.5.6 Mine Closure Plans

Mining and processing of Bayan Khundii ore is a relatively short-term project, scheduled to be completed in six years. The closure strategy is based on progressive rehabilitation throughout that period, which will result in the majority of earthworks having been completed by the time mining and processing ceases.

Central to this strategy is the Integrated Waste Facility (IWF) which has been designed to contain all the tailings and waste rock produced by the Bayan Khundii Project. Erdene has adopted the concept of an IWF as opposed to constructing a conventional tailings storage facility and a separate waste rock dump.

The overall vision of closure for the site is to have all evidence of the operation removed, with the exception of the Integrated Waste Facility. The remainder of the areas impacted by the operation will be returned to their pre-operation form and revegetated. As the IWF is designed to facilitate progressive rehabilitation during the operational phase, works remaining at closure are substantially reduced. The works remaining at closure are; completion of the IWF cover, demolition and disposal of the processing plant, disposal of infrastructure and rehabilitating areas impacted during the operations. It is expected that all of these activities will be completed in one season.

Integrated Waste Facility

The IWF will be constructed and operated in the following manner:

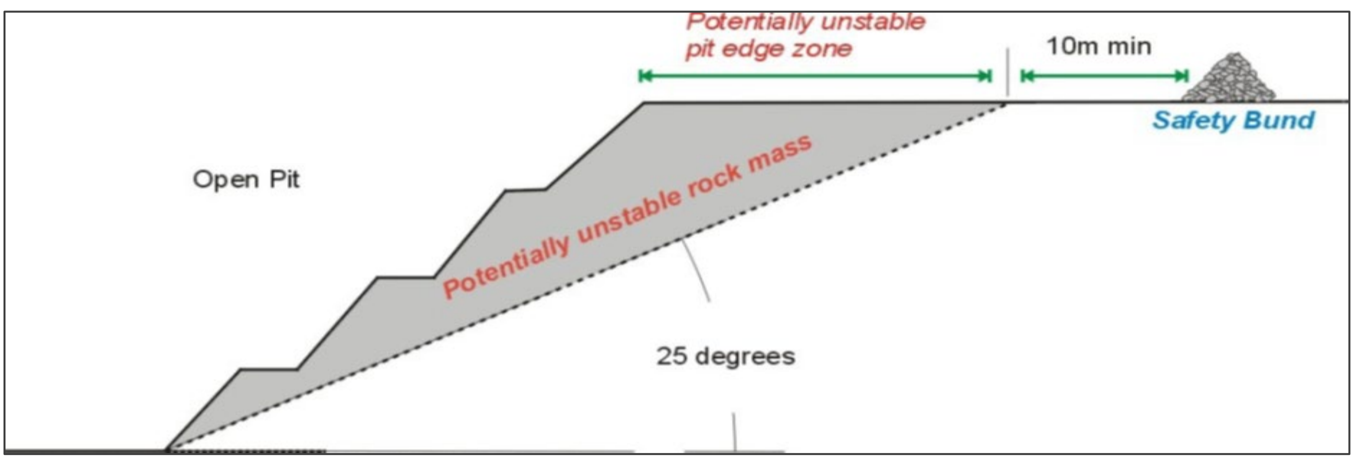
- The footprint of the IWF (approximately 57 ha) will be cleared of topsoil and sub-soil. The topsoil and sub-soil will be stockpiled for subsequent placement on the surface of the IWF during rehabilitation.
- An initial starter layer (approximately 2.0 m thick) of the IWF will be constructed across the entire footprint. It will consist of an outer circumference of benign waste rock around a core of co-mixed tailings and waste rock.
- Tailings and waste rock will be co-mixed on the surface of the IWF and then placed in 2.0 metre lifts until completion.
- Tailings placed in the IWF will have been passed through filter presses to recover process liquor and are anticipated to have a moisture content of around 15%. They will be transported to the IWF by truck from the process plant.
- The 2.0 metre lifts will be compacted using dedicated compaction equipment.
- The batter slopes of the IWF will nominally be ≤ 18^0, with the actual slope to be based on the erosion resistance properties of the available cover material.
- A vegetation growth supporting layer will be placed over the final surface of the IWF, it is anticipated that the stockpiled topsoil and sub-soil will be used for this layer.
- Rip-rap for erosion protection will be incorporated into the growth supporting layer.

Constructing the IWF in this manner will mean that at the completion of mining and process there is only a small portion of the final layer that will require completion, with all of the external slopes having been completed progressively during operations. It is expected that this small portion will be less than 15ha of the upper surface.

Open Pit

The objective is to ensure long term safety for the public and livestock. Once the open pit footprint has been established, an abandonment bund will be constructed around its entire perimeter, with the exception of the access ramp entry point. The bund will be constructed from competent benign waste rock. It will have the following minimum dimensions: 2 metres high with 1:1 slopes and 4 metres wide at its base. The bund will be constructed 10 metres beyond the pits zone of potential instability.

Figure 20-1: Open-Pit Safety Bund Construction



Processing Plant

Disposal of processing plant equipment will be through a combination of selling items that can be used at other operations or have high scrap value, and demolition. High value items are likely to include; the mill, crushing circuit, filter presses, electrowinning, pumps, electric motors, tank agitators and electrical control. Prior to this occurring the plant will be decommissioned, and all reagents removed, pipelines disconnected and flushed and electrical supplies de-energized. Stores of reagents will be run down and any remaining will either be sold on, neutralized on site, or taken for disposal at an approved hazardous waste receival point.

Once all the high value equipment has been removed the remainder of the plant will be demolished and disposed of as scrap. The main items requiring demolition will be leach and adsorption tanks, their supporting steel structures, pipework and cable trays. Demolition will be undertaken by a specialist contractor.

Upon completion of demolition all that will remain are the concrete footings, bunded concrete pads around the tanks and the concrete tank ring beams. These will be cleared of any trip hazards, pump sumps filled to surface, and the pad bunding broken at strategic locations to ensure the pad doesn't retain water.

As far as practicable underground cabling will be dug up. This is important as it removes the temptation for people to enter the site to collect it for salvage and sale. This is a common issue with closed sites and has safety risks and can jeopardise remediation works through uncontrolled entry to the site.

ROM Pad and Low-Grade Stockpile

The ROM Pad and low-grade stockpile area will, at the cessation of operations be scraped clean to ensure that no potentially contaminated material remains. Recovered material will either be processed through the plant or transported to the IWF for disposal. Once reclaiming of residual ore and contaminated material has been completed the area will be reshaped to form a free draining landform and the surface will be ripped/scarified then sown with low moisture requirement endemic native species.

General Site

Demountable (transportable) buildings will be sold at the end of operations and removed from site. Steel framed buildings will also be sold for removal from site, if this is unsuccessful, they will be demolished and removed as with other scrap metal. Roads and tracks will be assessed and those not required for ongoing site access will be rehabilitated.

It is possible that local authorities or other businesses may wish to acquire and maintain some infrastructure post closure (solar farm etc.). Should this occur future revisions of the closure strategy will be amended to reflect any changes.

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimates

Tetra Tech developed and prepared the Prefeasibility Study (PFS) capital cost estimate for the Project with input from Erdene Resource Development (ERD). According to the Association for the Advancement of Cost Engineer's (AACE), the capital cost estimate is considered a Class 4 estimate with an expected accuracy range of +/- 25%. The base currency of the estimate is in US dollars (USD). The following foreign currency exchange rates as shown in Table 21-1 were used, where applicable.

Table 21-1: Foreign Exchange Rates

Project Currency	Exchange Rates
MNT:USD	2645: 1
AUD:USD	1.47: 1
EUR:USD	0.90: 1
CAD:USD	1.32: 1

The total estimated initial capital cost for the design, construction, installation, and commissioning of the Project is US$39.9M. The capital cost estimate is based on contract mining during operating and was established using a hierarchical work breakdown structure (WBS). A summary breakdown of the initial capital cost is provided in Table 21-2.

Table 21-2: Capital Cost Summary

Area		Cost (US$ million)
Direct Costs		
2000	Mine	1.9
3000	Process Plant	12.1
4000	Project Services	2.2
5000	Project Infrastructure	3.9
6000	Permanent Accommodation	1.4
Direct Cost Subtotal		**21.7**
Indirect Costs		
7000	Site Establishment & Early Works	3.0
8000	Management, Engineering, EPCM Services	4.3
9000	Pre-Production Cost	10.9
Indirect Cost Subtotal		**18.2**
Total		**39.9**

Note: Rounding may cause some computational discrepancies

TETRA TECH

21.1.1 Exclusions

The following items are excluded from the capital cost estimate:

- Working or deferred capital (included in financial model)
- Financing costs
- Land acquisition
- Currency fluctuations
- Lost time due to severe weather conditions
- Lost time due to force majeure
- Additional costs for accelerated or decelerated deliveries of equipment, materials, or services resultant from a change in project schedule
- Additional months of warehouse inventories, other than those supplied in the estimate
- Any project sunk costs (studies, exploration programs, etc.)
- Mine reclamation costs (included in financial model)
- Mine closure costs (included in financial model)
- Escalation costs
- Major scope changes
- Cost of future study
- Community relations

21.1.2 Mining

There is no capital cost allocation for mining equipment and ancillary mining equipment. The estimate is based on contract mining and the cost of mining during operation is included in the financial model as part of the operating cost. The capital cost estimate includes the cost for essential mining infrastructure, utilities and haul road. A summary breakdown of the mining infrastructure is shown in Table 21-3.

Table 21-3: Mining Infrastructure

Sub Area		Cost (US$'000)
2305	Support Facilities - HV Workshop/Warehouse	966
2310	Support Facilities - Fuel Farm	36
2320	Support Facilities - Crib/Ablutions/Lockers	60
2340	Support Facilities - Anfo Facility/Magazine	203
2345	Support Facilities - Mining Offices	317
2355	Support Facilities – Coreshed	26
2450	Support Services – Power	66
2500	Mine Dewatering/Drainage	33
2610	Roads – Haul	184
Mining Infrastructure & Support Facilities Total		**1,891**

21.1.3 Processing and Site Infrastructure

All major mechanical costs were prepared based on quotations from vendors. Costs of platework and chutework were calculated based on material take-off and quotation from local contractor on a cost per ton basis. All equipment and bulk material costs are included as free carrier (FCA) or free board marine (FOB) manufacturer plants and are exclusive of spare parts, taxes, duties, freight, and packaging. These costs, if appropriate, are covered in the indirect cost section of the estimate.

Where appropriate, material quantities were developed from general arrangement drawings, process design criteria, process flow diagrams, and equipment lists. Electrical, instrumentation, piping, and HVAC are based on historical information from similar projects with price adjustment to account for the lower local Mongolian pricing.

Costs for the administration building, process plant, workshop and warehouse are based on pre-engineered steel framed structure complete with roofing, cladding, doors and architectural finishes. Reagent store, ice machine, crib and ablution costs are based on modular building. The assay laboratory cost is based on an all-in laboratory modular unit including building. Permanent camp cost including housekeeping, catering, all essential facilities and equipment is based on quotation provided by ERD. Table 21-4 shows a summary of the basis of process equipment, platework and chutework, and bulk materials.

Table 21-4: Basis of Process Equipment, Platework and Chutework, and Bulk Materials

Commodity	Estimate Basis
Plant and Equipment	
Major Equipment (>$100,000)	Budget price quotations based on specifications or data sheets from Chinese vendors
Minor Equipment (<$100,000)	Budget price quotations based on specifications or data sheets from Chinese vendors
Bulk Materials & Site Works	
Plant Site Preparation & Roads	Estimated on a cost/unit area based on a preliminary earthworks volume calculated from a 3D model (LAN desktop)
Concrete	Estimated on a cost/unit area based on historical data for similar buildings, and local cost quotations and feedback from ERD.
Architectural (incl. Ancillary Buildings)	

TETRA TECH

Commodity	Estimate Basis
Building Services	
Permanent Camp	Estimated based on budget quotation for a fully functionally equipped camp, including housekeeping and catering
Structural	Estimated based on percentages of mechanical equipment to structural cost from similar projects
Platework & Chutework	Calculated based on material take-off and budget price quotation
Electrical	Percentages of direct equipment costs, by area, based on the study equipment list and historical data from similar projects
Process Piping & Valves	
Instrumentation & Controls	

A blended labour rate of US$6.00/h was used throughout the estimate. The labour rate was developed based on recent local contractor's quotation provided by ERD. A productivity factor of 1.5 was applied to the standard base unit man-hours based on U.S. Gulf Coast used by Tetra Tech. These factors consider project specific conditions such as weather, crew skills and availability, living arrangements, craft/labour rotation shift work, plant type, working height, temperature, and work site conditions. The productivity factor has been validated against local contractor's quotation provided by ERD.

Project indirect costs, including construction indirects, spare parts, and freight and logistics, are calculated on a percentage basis based on Tetra Tech work experience and ERD feedback based on local experience. Allowances for initial fills are provided for grinding media, reagents, lubricants and fuel.

Engineering, procurement and construction management (EPCM) allowance is calculated based on 10% percent of process related or associated cost items. Commissioning and start-up, and vendor assistance allowances are calculated based on percentage basis of total mechanical equipment cost based on ERD's feedback and Tetra Tech work experience. An allowance of US$3.0M has been included for Owner's costs. The estimated contingency, which is the allowance for undefined items of work incurred within the defined scope of work, is covered by the estimate. Each discipline was allocated different contingency factors due to the varied risk level. The average contingency for the Project is 15% of the total direct and indirect costs.

21.1.4 Tailings Management, Detoxification and Handling Capital Cost Estimate

The initial tailings management, detoxification and handling capital costs include installation labour rates based on $6.00/h and productivity factor of 1.5. Installation manhours were based on Tetra Tech in-house information. The cost of process equipment was determined using material take-offs from process flow diagram, equipment list and preliminary design drawings. The capital cost summary is provided in Table 21-5.

Table 21-5: Capital Cost Summary of the Tails Management, Detoxification and Handling

Item Description	Material/ Equipment Total (US$000)	Labour Total (US$000)	Total (US$000)
Tails Thickening	252	36	288
Detoxification	111	15	126
Tailings Handling	1,273	162	1,434
Total Direct	**-**	**-**	**1,848**

21.2 Sustaining Capital Cost Estimates

Sustaining capital costs include all capital costs required from year one of the operation to sustain mining until the end of the planned LOM in 2027. Total sustaining costs of $1.21M have been estimated for the Bayan Khundii mine.

21.2.1 Mining

As described in Section 21.1.2 above, it is expected that mining will be undertaken by a contractor, and therefore sustaining capital for mobile equipment and major repair or replacement of equipment is not included in this estimate. Minor maintenance costs for equipment are included in the expected operating costs of the project and are described in detail in Section 16.6.

The initial capital cost for the proposed mining infrastructure is outlined previously in Section 21.1. Sustaining capital for buildings, utilities and haul roads has not been included due to the short life of mine, reducing the necessity for repair or replacement of buildings and infrastructure which have an estimated life of 20 years before major maintenance is required.

21.2.2 Processing

Sustaining capital included for the processing plant is calculated as 2.5% of the total initial capital cost from years two through five of the life of mine and will include the following:

- Replacement allowance for major equipment components including crushing and grinding equipment
- Leaching equipment and process related mobile equipment repair and replacement
- Site service and utility repair and replacement

21.3 Operating Cost Estimates

Operating costs are defined as the direct operating costs including mining, processing, tailings and waste rock storage, water treatment and G&A. Sustaining capital costs as described in Section 21.2 above are excluded from the operating cost estimate. All costs are reported in US dollars unless otherwise stated. The expected accuracy range of the operating cost estimate is +/- 25%.

The LOM average operating cost for the Project is estimated at US$71.93/t milled at the nominal process rate of 1,800 t/d or 600 kt/year. This operating cost is derived using total LOM operating costs divided by LOM milled tonnages and excludes pre-production mining costs. The cost distribution for each area of the proposed mining operation is summarized in Table 21-6 and Figure 21-1 below.

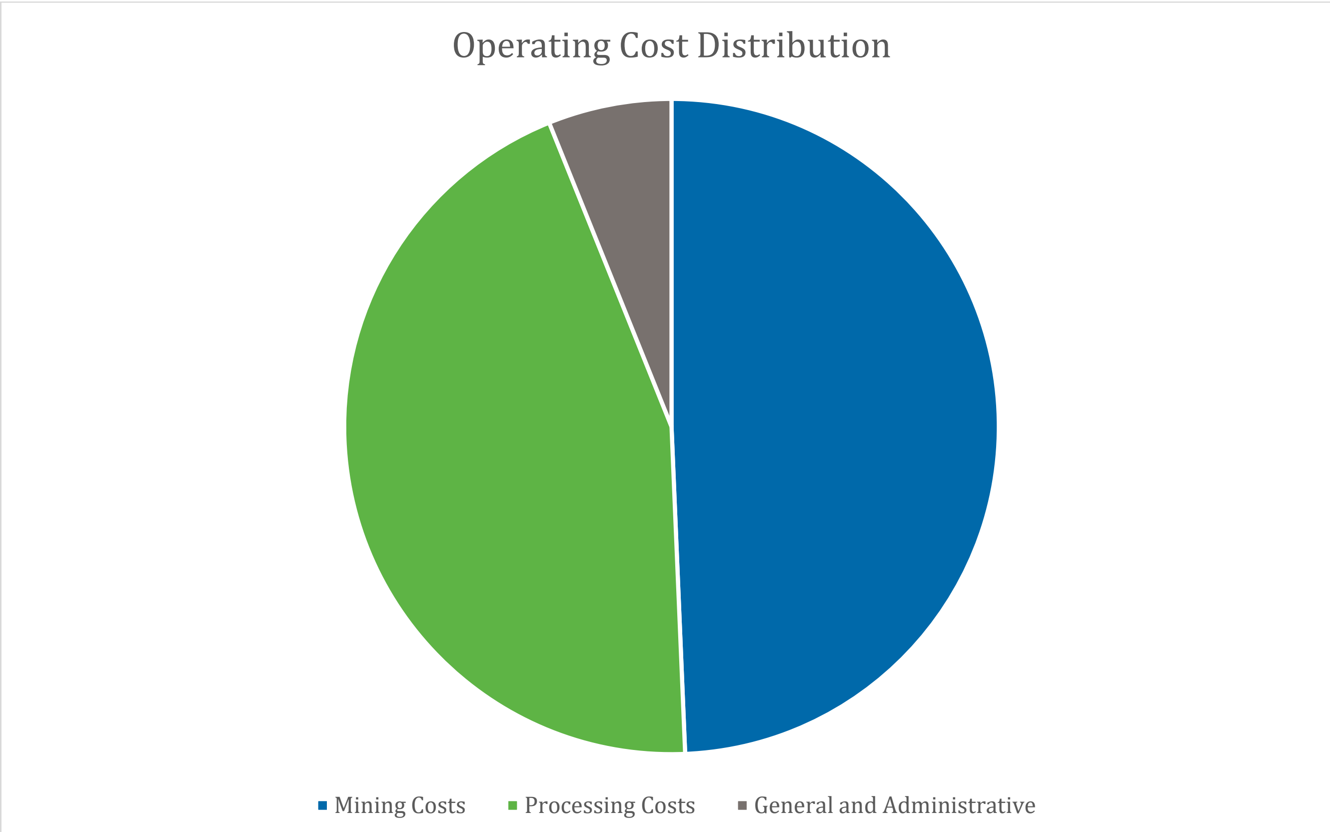
Table 21-6: Operating Cost Distribution by Operating Area at the Bayan Khundii Mine

Operating Cost Summary	Total Cost (LOM ‘000)	Cost $/t Milled (LOM Average)
Mining Costs	124.9	35.49
Processing Costs	112.8	32.06
General and Administrative Costs	15.4	4.39
Total Operating Cost	**253.1**	**71.93**

Note: Rounding may cause some computational discrepancies

Power will be supplied from the on-site power plant located to the southeast of the mill and processing facilities and is not expected to be sourced from the local grid. As described in Chapter 18; Section 18.4, the power plant will supply 6.6 kV power to the process plant and other mine infrastructure through a combination of solar and diesel power generation. Power costs will therefore indirectly comprise a portion of the fuel cost for both mining and processing activities, the detail of which can be found in Sections 21.3.1 and 21.3.2 below respectively.

Figure 21-1: Operating Cost Distribution Pie Chart



21.3.1 Mining

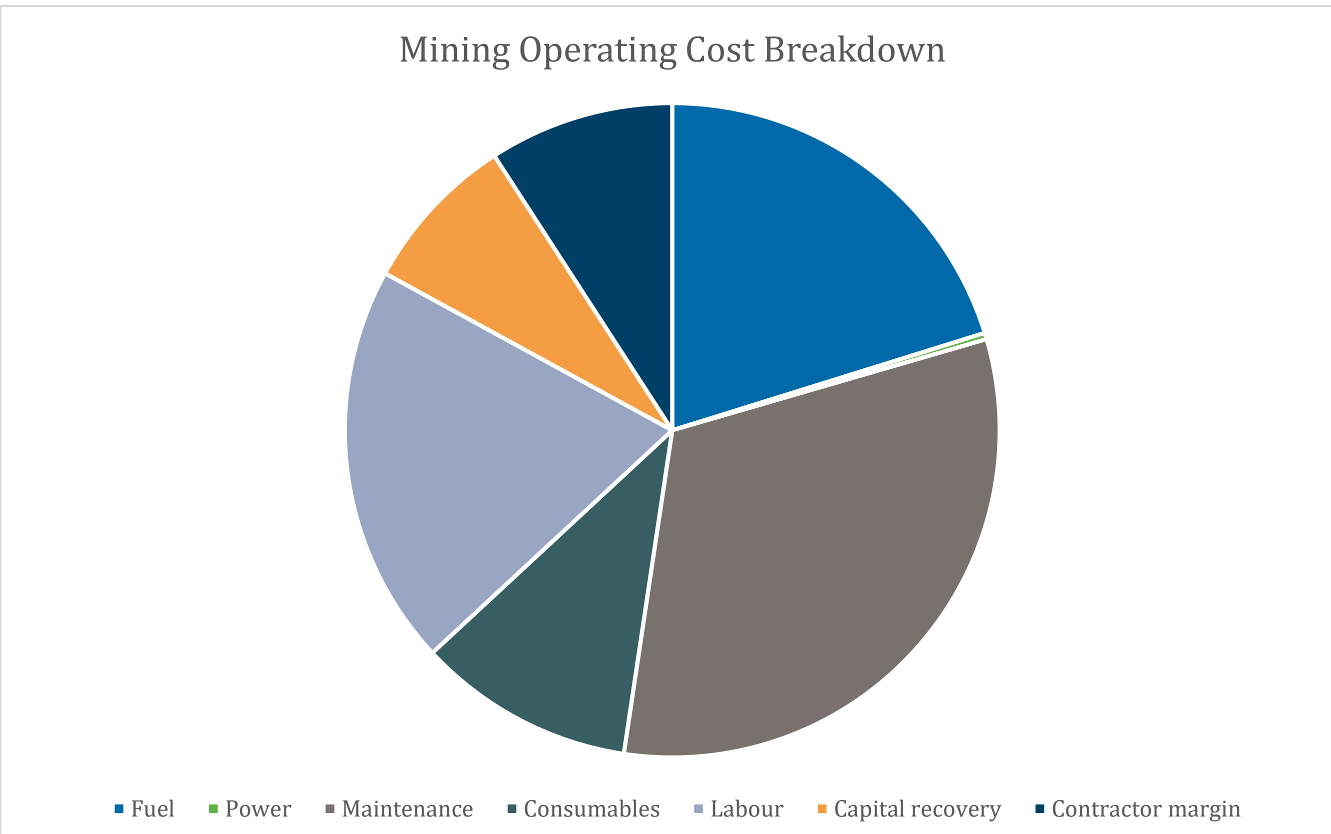
Open pit mining costs were estimated from the mining schedule and estimates for quantities of fuel, explosives, labour, machinery maintenance, consumables and management. Costs were added for capital recovery and contractor margin. Checks were done to ensure that the mining cost was adequate to cover mining expenses and for a potential mining contractor to make a reasonable return on investment.

Sources of cost information include a combination of supplier quotes, budgetary costs, readily accessible information and historical data from Tetra Tech's internal database. Labour costs have been estimated with currently available salary data provided by ERD and converted from the local currency, Mongolian Tugrik, to US Dollars using an exchange rate of MNT 2645: USD 1 as described in Table 21-1 in Section 21.1 above. These inputs have been used in conjunction with the mine schedule to build up the operating cost estimate for the proposed Bayan Khundii operation from first principles.

Table 21-7: Mining Cost Breakdown for Ore and Waste per Tonne Mined

Operating Cost Type	LOM cost US$ Millions	Average US$/tonne mined
Fuel	25.2	0.64
Power	0.3	0.01
Maintenance	39.8	1.01
Consumables	13.6	0.34
Labour	24.7	0.63
Capital recovery	9.9	0.25
Contractor margin	11.4	0.29
Total costs	**124.9**	**3.17**

Figure 21-2: Mining Operating Cost Breakdown



21.3.1.1 Core Mining Operations

The following primary open pit mine activity requirements are estimated from first principles:

- Production drill operating hours are based on hole size, pattern layout, bench height, expected material density and penetration rates of the drills. Blast design has been estimated with respect to ore and waste areas and does not include pre-splitting or flitch design at this stage.
- Explosive quantities were determined based on powder factor calculations for ore and waste holes and the estimated blast pattern layout. Estimates for initiation systems and blasting accessories are completed on a per-hole basis and labour costs for blasting are included separately for ore and waste drill and blast activities. Costs for explosives delivery and loading have been included and are sourced from vendor information and quotes. The model assumes a 50/50 split between ANFO and emulsion explosives.
- Truck and shovel hours are based on the operating capacities of each piece of equipment. Average loaded and unloaded speeds have been estimated for the trucks for both ramp and flat areas of the designed haul route and these profiles have been used in simulating representative cycle times including typical spot, load, dump and delay or queue times modelled using TALPAC™ software. These interval times are based on specifications for each type of equipment and truck/bucket loading times.
- In addition to the core equipment fleet of drills, excavators and trucks, auxiliary equipment has been included in the operating cost estimations. This auxiliary equipment includes dozers, graders, loaders, maintenance and service trucks, pumps and lights. Operating hours for each of the auxiliary equipment included have been estimated based on the average daily utilisation of the equipment.

21.3.1.2 Maintenance

Minor maintenance costs have been calculated as an hourly operating cost for each piece of equipment based on resource allocation. Hourly maintenance costs are based on the use of RPM XERAS™, supplier information and Tetra Tech's internal database. Major component repair or replacement has been scheduled into the operating cost model based on the average working hours each piece of equipment can complete before overhaul maintenance or replacement is required.

21.3.1.3 Labour

Labour costs have been estimated using a personnel build-up based on the total equipment fleet operators and maintenance staff, with administrative and supervisory positions calculated based on the relative scale of the operation. From the personnel list shown in Section 16.7 and allocated shift type described in Table 21-8 below, annual labour costs were derived including on-costs (burden) for site allowances and travel costs to and from site depending on the shift rotation for each specific position. Contract positions have been included for the core mobile equipment operators and maintenance staff.

Table 21-8: Shift Type Descriptions

Labour Shift Type	Daily Hours	On/Off Roster	Shifts/ Day	Personnel Included (General Allocation)
Day Admin	8	18/9	1	Admin Staff, Managerial Positions, Health & Safety
Day Work	12	18/9	1	Day Operators/Crew, Maintenance, IT, Supply Chain, Lab Workers, Power Station, Camp Managerial Staff
Shift Work	12	18/9	2	All Heavy Equipment/Vehicle Operators and Mechanics, Emergency Support, Camp Staff

21.3.2 Processing

A bottom-up approach was used to produce a Process Operating cost estimate to a +/- 25% level of accuracy, commensurate with the level of detail for a Pre-Feasibility Study or a Class 4 estimate (AACE). Budget quotations were used for cost areas that were expected to be large contributors to the overall process operating costs. The bases for each cost area are presented in the below table.

Table 21-9: Process Operating Cost Bases

Cost center	Estimate Basis
Labour	- Based on typical team compositions adjusted for size of plant and local information provided by Erdene. - Shift configurations used were same as mining.
Flights, messing and accommodation	- Budget quotations were obtained for flights, overland transport & messing.
Power	- Budget quotation for price of power was based on a Power Purchase Agreement. - Industry typical motor loads & efficiency factors were used for all small to medium sized drives. - Large power consumers such as the SAG & Ball Mills were calculated and checked from first principles.
Fuel	- Typical fuel consumptions (L/h) & utilizations were used for the expected fleet of mobile equipment. - The fuel price was based on similar operations.
Maintenance	- Factored off equipment supplied costs.
Reagents and Consumables	- Major Reagents: consumptions were based on first principles and test work. Prices were based on Chinese chemical supply quotations. - Minor Reagents (i.e. fluxes): consumptions were based on similar projects. - Consumable prices were based off indicative vendor estimates and budget quotations. - Consumable consumption rates were based on test work and empirical formulae.

A summary of the breakdown of costs is provided in Table 21-10 below and are presented in units US$ per tonne ore fed to the process plant.

Table 21-10: Processing Operating Cost Summary

Cost center	US$ / tonne
Labour	4.67
Transport/Accommodation	0.28
Power	13.38
Fuel	0.30
Maintenance	0.77
Reagents and Consumables	10.30
Contract/General	1.15
Total	**30.85**

Note: Processing operating cost summary includes G&A and figures are rounded for presentation purposes. These costs represent fixed processing costs and overall processing costs may be higher or lower related to the tonnage processed in a given year or over the life of mine.

The distribution of costs was not unexpected given the underlying bases, with Power, Reagents & consumables and Labour cost expenditures being the largest.

Operating cost attributed to Power was increased as the cost of power was based on a Power Purchase Agreement (PPA) quotation for a build, own and operate power plant solution. As such, the contractors' margin and repayment of capital increases this rate.

As the abrasiveness of the ore is higher than average, consumptions of mill grinding media and mill liner were elevated commensurately. The above estimate was prepared using the exchange rates detailed in Table 21-1.

21.3.3 General and Administrative Costs

General and administrative costs include off site local and international labour, as well as flights, messing and accommodation for staffing the operations. Delayed costs for purchase of operating camp infrastructure has also been included in general and administrative costs.

These costs total US$15.4M over life of mine, averaging US$1.5M per year or an average of US$4.39/t milled.

Note that general and administrative costs exclude management oversight of mining and processing, which are included in mining and processing costs.

21.4 Reclamation and Closure Costs

Reclamation and closure costs of US$1.31M have been estimated for the Bayan Khundii operations. In preparing this closure cost estimate the project has been broken down into the following cost areas:

- Supervision and management.
- Closure design planning.
- Demolition and asset disposal.
- Repairs and maintenance.
- Earthmoving (this has been broken down further into domains or disturbance types).

For the non-earthmoving components (except for demolition) percentages have been applied. The percentages are of the total earthmoving cost estimate. This approach is based on experience of actual costs from other closure projects.

The demolition cost is based on quotations reviewed for similar sized processing plants in Australia. No allowance has been made for salvage or scrap, this is in accordance with accounting standards. The breakdown of these costs is provided in Table 21-11 below.

Table 21-11 Estimated Reclamation and Closure Costs

Disturbance Group	Unit	Quantity	Unit Cost	Total
Medium level disturbed areas	ha	20	$450	$9,000
High level disturbed areas	ha	20	$4,100	$82,000
Haulroads & major roads	km	2	$7,650	$15,300
Access & minor roads	km	30	$200	$6,000
Open pit	m	3000	$30	$90,000
Integrated waste facility * 1	m^3	30,000	$4	$120,000
Revegetation	ha	100	$500	$50,000
Sub-total				**$375,000**
Supervision & management	%	15		$54,500
Repairs & maintenance	%	20		$74,000
Closure design & planning	%	5		$18,000
Demolition & asset disposal	LS	1	$800,000	$800,000
Total				**$1,320,000**

Note: rounding may cause some computational discrepancies
** IWF areas assumes progressive remediation leaving only a portion of the upper surface requiring installation of the cover system at completion and the cover is 2.0 m thick.*
[1] rounded up

For the supervision and management component of the cost estimate as much of the works are more of a civil nature rather than the normal bulk earthmoving typical of open cut operations there will be a requirement for high levels of control and supervision to ensure that specifications (QA/QC) are met throughout the closure process.

An amount of 15% of the total earthworks has been allowed for.

Closure planning and design costs were based on experience with similar sites. It has shown that preparation of detailed closure strategies to the level of implementation ready construction specifications and drawings costs approximately 5% of the total earthworks' costs. An amount of 5% of earthworks costs has been allowed for.

The demolition and asset disposal costs are provided as a lump sum and is based on experience with other projects and assumes that it is undertaken by a third-party contractor. It does not assume any credits for salvage or scrap value. It includes the following associated costs:

- Costs directly relating to sale and disposal of asset either by auction or direct sale.
- Processing plant clean-up and decontamination prior to sale and/or demolition.
- Management of the sale and/or demolition process including safety and security.

At this stage of the project (PFS) allowing for 20% of the overall cost of the closure to cover post decommissioning maintenance is appropriate. As the project is planning to progressively rehabilitate the IWF during operations it is likely that a portion of repairs and maintenance can be absorbed into ongoing works and this amount can be reduced. The repairs and maintenance allowance is only applied to earthworks.

To develop the earthmoving costs the site was been broken down into domains and then these domains grouped into four types. For each type a conceptual methodology was developed and unit rates for either m, m^2, m^3 or ha provided. The equipment used for the calculations are generic Caterpillar units.

The costings have been calculated using the most efficient/practical piece of equipment for each task.

A conceptual equipment fleet was developed to assign to each of the tasks. Erdene provided hire rates for earthmoving equipment in Mongolia, as well rates used by Tetra Tech were used. The fleet selected is indicative only and will ultimately be based on the fleet using for mining.

22.0 ECONOMIC ANALYSIS

22.1 Introduction

Tetra Tech prepared an economic evaluation of the Bayan Khundii project based on a pre-tax financial model created for this PFS study. For the 7-year total life-of-mine (including preproduction) and 3.52 M tonne Mineral Reserve, the following pre-tax financial parameters were estimated using the base case parameters (Table 22.1):

- 48.5% IRR
- 1.70-year payback period on US$39.9M initial capital expenditure
- US$124.5M NPV at a 5% discount rate

Subsequently, a post-tax financial model was created using the base case parameters (Table 22.1) resulting in the following financial parameters:

- 42.1% IRR
- 1.84-year payback period on US$39.9M initial capital expenditure
- US$96.9M NPV at a 5% discount rate

Sensitivity analyses and additional metal price scenarios were completed to assess the project economics, the detail of which can be found in Section 22.5 below.

22.2 Assumptions and Parameters

The economic model included in this PFS was based on the following key assumptions:

- The project will be 100% equity funded
- Mining will be undertaken by a contractor with owner management oversight
- A construction and commissioning phase of one year is expected prior to production
- Royalties included to Sandstorm Gold Limited and the Mongolian Government are fixed for the duration of the life of mine at 1% and 5% of total project revenue respectively
- Cost estimates included within the financial model are accurate to within +/- 25%

Table 22-1: Parameters Used in Pre and Post-Tax Financial Models

Parameter	Unit	Value
Gold Price	US/oz	1,300
MNT/US Exchange Rate	MNT:USD	2,703:1.00
Project Start	Date	01/01/2020
Production Start	Date	01/01/2021
Gold Payable	%	99.85
Transport Cost	US$/oz Au	3.00
Assays	US$/oz Au	1.00
Treatment/Refining Cost	US$/oz Au	2.00

22.3 Economic Analysis Results

The production schedule set out in Section 16.3.1, has been incorporated into the financial model to develop annual recovered metal production from tonnes processed, head grades and estimated recoveries. Revenues for gold produced are estimated based on the price shown in Table 22-1 above.

Operating costs for mining, processing, site services and G&A, waste rock and tailings storage and off-site charges were deducted from the revenue to derive the annual operating cash flow. From this operating cash flow, initial and sustaining capital, closure and reclamation costs were deducted to determine the net pre-tax cash flow. Initial capital as described in Chapter 21, Section 21.1, includes costs incurred prior to first production of doré or concentrate, including all pre-production mining costs and infrastructure development. Sustaining capital is included to cover expenditures for processing equipment repair and replacement.

Initial and sustaining capital costs included within the financial model total US$39.9M and US$1.2M respectively. Mine closure and reclamation costs of US$1.3M have been included for the final two years of the LOM.

Working capital is estimated as three months of total site operating costs at US$10.8M and is recovered throughout mine life with the bulk of working capital recovered during the second quarter of operations.

Table 22-2: Financial Results from the Bayan Khundii Economic Model

Financial results	Units	US$ Amount	$/tonne
Tonnes Milled	tonnes	3,520,452	
Gold Head Grade	g/t	3.73	
Dore production			
Gold Ounces Produced	‘000 oz	382	
Total Project Revenue	**Million US$**	**$494**	**$140**
Operating Costs	Million US$	$253	$72
Royalties	Million US$	$30	$8

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Financial results	Units	US$ Amount	$/tonne
Operating earnings	**Million US$**	**$211**	**$60**
Initial Capital Expenditure	Million US$	$40	$11
Sustaining Capital Expenditure and Other	Million US$	$3	$1
Pre-tax Cash Flow	Million US$	$169	
Taxes	Million US$	$36	
Post-tax Cash Flow	Million US$	$133	
Post-tax NPV at 5% Discount Rate	Million US$	$97	
IRR	%	42%	
Payback Period	Years	1.8	

22.4 Post-tax Scenario Analysis

Tetra Tech applied various metal prices to the financial model, to better understand the potential economics at current and forecast metal prices. Between June 2019 and the completion of the study in October 2019, the gold price rose from US$1,300/oz to $1,500/oz resulting in a US$48M spread of financial modelling results.

Table 22-3: Post-Tax Scenario Analysis Results

Price case	NPV 5% (US$ Million)	IRR
Base case prices (US$1300 per ounce)	$97.0	42%
Consensus economics (Varying prices averaging US$1264 per ounce, from June 2019)	$93.8	43%
3 Year trailing average ($US1284 per ounce)	$93.2	41%
Spot prices (US$1490 per ounce as at 15 October 2019)	$141.5	58%

22.5 Sensitivity Analysis

Tetra Tech investigated the sensitivity of the Bayan Khundii Project NPV and IRR to key project variables. Using the base case post-tax model as reference, the value of each of the key variables was studied when varied by +/- 30% in 10% increments. The sensitivity analyses were performed on the following project variables:

- Gold prices
- Capital costs
- Operating costs
- Mongolian to United States exchange rate

This analysis is presented graphically below in Figures 22-1 and 22-2 with respect to post-tax NPV and IRR values.

Both the project NPV and IRR are most sensitive to fluctuations in the gold price and operating costs.

The financial results are least sensitive to capital costs and exchange rate (MNT to USD).

Figure 22-1: Post-Tax NPV Sensitivity of Key Project Metrics

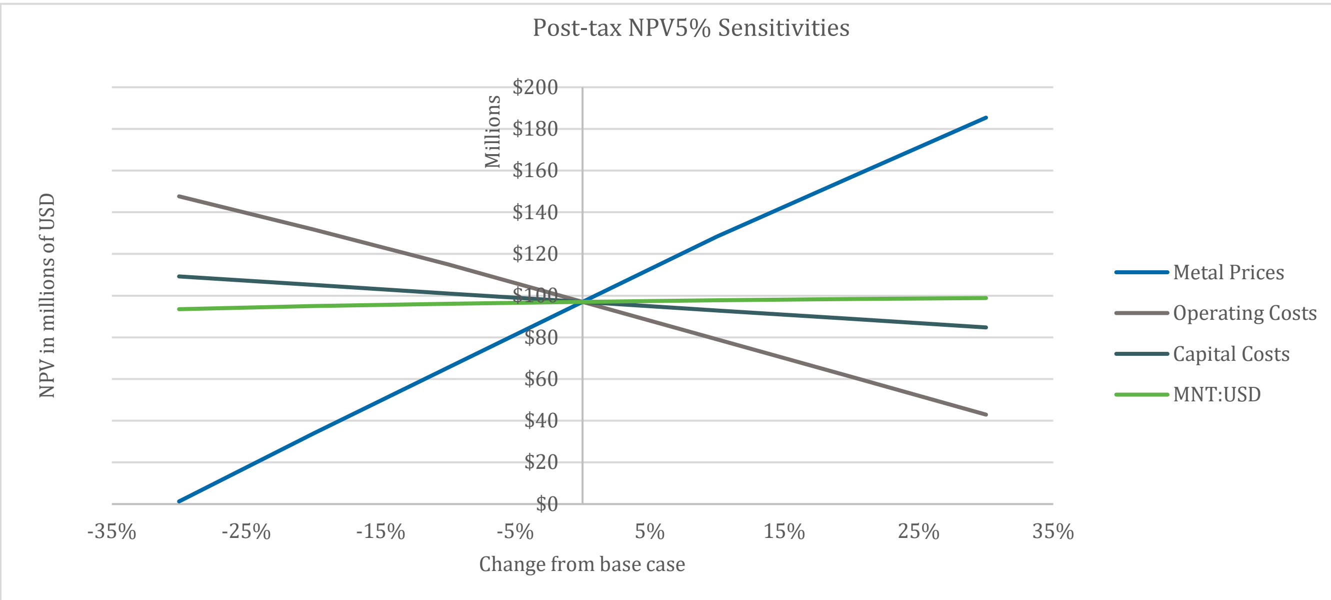
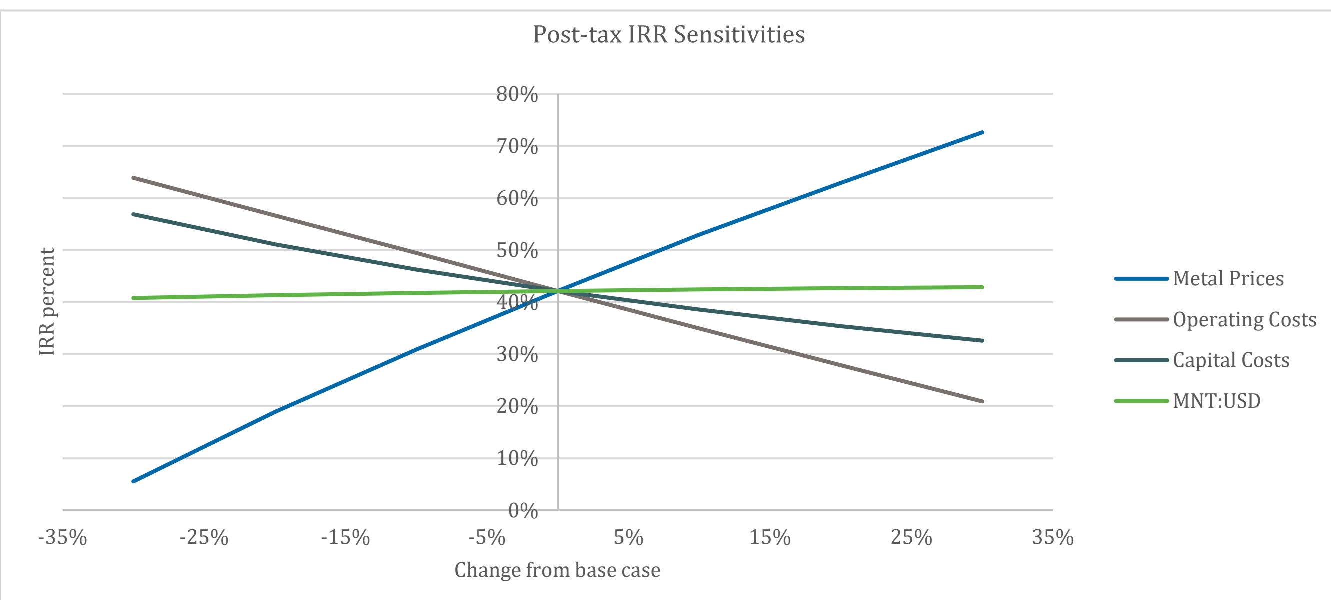


Figure 22-2: Post-Tax IRR Sensitivity of Key Project Metrics



The NPV was also estimated for varying discount rates, with Tetra Tech applying 5% as the base case. Table 22-4 shows the post-tax NPV at varying discount rates.

Table 22-4: Post-Tax NPV Estimates at Varying Discount Rates

Post-Tax NPV	Unit	Value
0%	000$	$133,040
5%	000$	$96,992
8%	000$	$82,782
10%	000$	$70,550

22.6 Royalties

Royalties for both Sandstorm Gold Royalties and the Mongolian Government have been included in the Bayan Khundii financial models. Both royalties are applicable to net revenue from gold sales. Details of the royalty terms are provided in Table 22-5 below:

Table 22-5: Royalty Terms for Bayan Khundii Project

Royalty	Amount	Duration	Total Expected Revenue (US$ Million)
Sandstorm Gold Royalties	1% Revenue	LOM	4.5
Mongolian Government	5% Revenue	LOM	24.7

22.7 Breakeven Analysis

Tetra Tech evaluated metal pricing, operating cost and capital costs that would result in an NPV at a 5% discount rate of zero. These evaluations were done independently and as such do not reflect the impact of variance of multiple input parameters. The pricing and cost resulting for zero NPV are:

1. Gold price of US$905/oz.
2. Total operating cost of US$109.87/t milled
3. Initial capital cost of US$143M.

22.8 Tax Modelling

Tetra Tech assisted Erdene with tax modelling for the prefeasibility study. The tax model was based on an Ernst and Young (2019) White paper on Mongolian taxes (https://www.ey.com/Publication/vwLUAssets/ey-mongolia-reforms-its-key-tax-legislation-en/$FILE/ey-mongolia-reforms-its-key-tax-legislation-en.pdf), alongside a report prepared by PWC Mongolia for the company in 2018. Tax modelling has been completed at the project level and does not evaluate the expatriation of profits to foreign owners.

Pre-tax cash flow was converted to Mongolian Tugrik to enable taxation modelling at the rate noted in Table 22-1.

The applicable taxation adjustments are discussed below.

22.8.1 Depreciation

For the purpose of estimating taxes for the project, Tetra Tech allocated initial capital costs to asset classes to which depreciation durations were applied. This is shown in Table 22-6.

Table 22-6: Depreciation Classes

Asset Class	US$ Millions	Asset Useful Life
Machinery and equipment	17.1	10
Building and construction	12.1	40
Computers, computer parts, software	0.2	3
Intangible asset with indefinite useful life	7.3	10
Not applicable (VAT/Taxes)	3.1	None
Total	39.9	N/A

The applicable depreciation was totaled for each year of operations and deducted from years with positive cash flows.

22.8.2 Losses Carried Forward

Once the estimated allowable depreciation was deducted from positive cash flows, an assessment to carry forward losses was completed. As per Ernst and Young, losses can be carried forward for a maximum of 4 years with a restriction on deduction of 50% of taxable profits in any tax year. Erdene estimated that US$10M in current losses would be transferable to the project for future deduction from taxable earnings.

A total of MNT126 billion (US$ 47M) of losses carried forward were applied to taxable income.

22.8.3 Taxable Income Assessment

The total taxable income for the Bayan Khundii project is estimated to be MNT 411 billion or US$ 152M. In accordance with Ernst and Young (2019) taxes were calculated as 10% of the first MNT 6 billion and 25% on the taxable income in excess of MNT 25 billion for each year with positive taxable income.

Net taxes were estimated at US$35.7M for the project life resulting in after tax cash flow of US$ 133M.

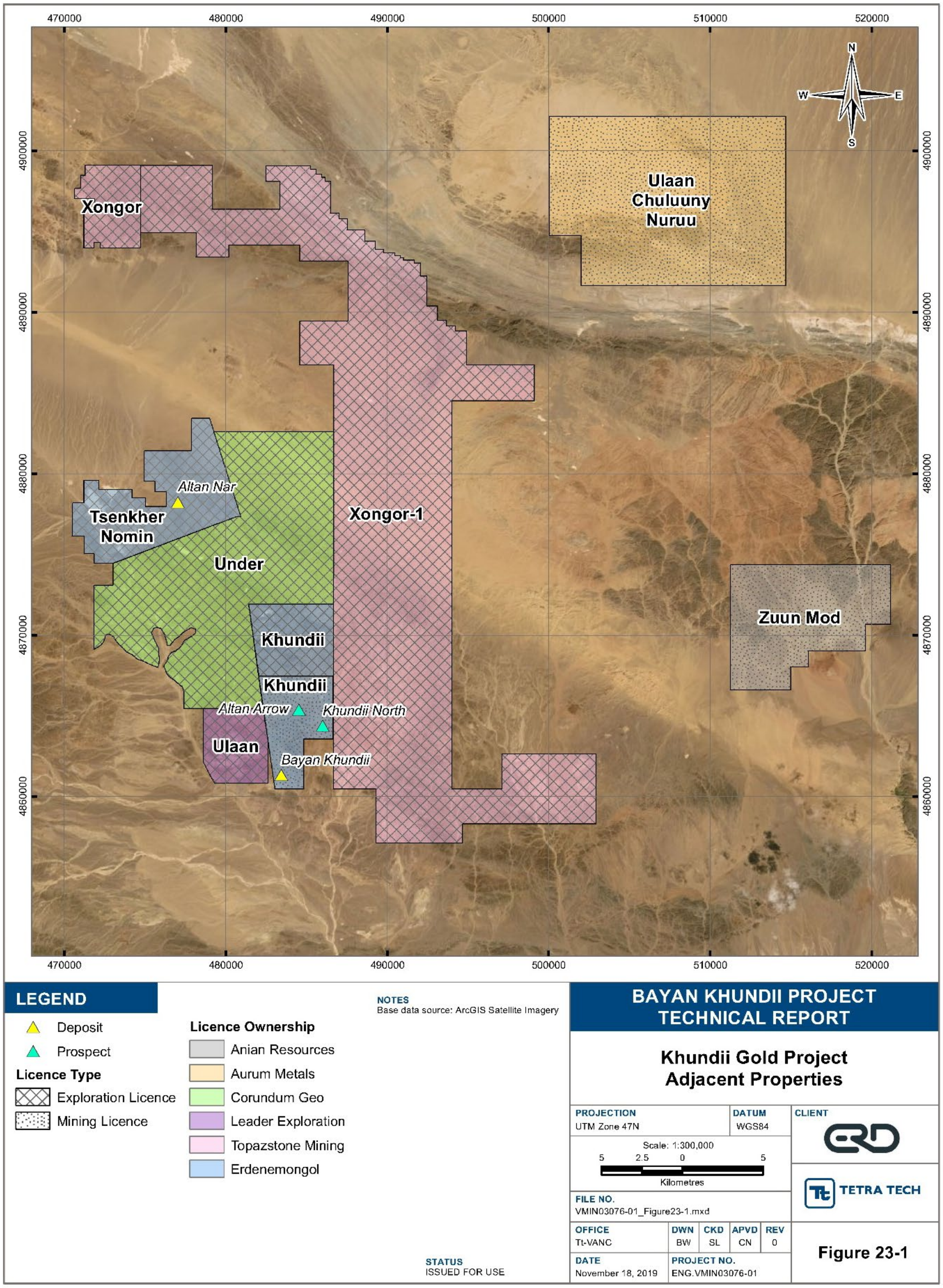
23.0 ADJACENT PROPERTIES

Located 40 kilometres to the east of the Property is Erdene's Zuun Mod porphyry molybdenum copper deposit, held by Anian Resources, a wholly owned subsidiary of Erdene. A technical report has previously been reported on this Property by Minarco Mine Consult titled "Erdene Resource Development Corp., Zuun Mod Porphyry Molybdenum Copper Project" dated June 30, 2011.

At a cut-of grade of 0.04% Mo the results of the Technical Report state a Mineral Resource Estimate for Zuun Mod with a Measured Resource of 40 Mt at 0.056% Mo and 0.064% Cu, an Indicated Resource of 178 Mt at 0.057% Mo and 0.07% Cu, and an Inferred Resource of 168 Mt at 0.052% Mo and 0.065% Cu, with an effective date of June 11, 2011. The QP has not visited the Property and has not verified the information in the referenced Technical Report, and the information contained is not necessarily indicative of the mineralization at Bayan Khundii. The location of Zuun Mod is shown below in Figure 23-1.

No other adjacent properties exist with similar mineralization to provide comparative mineralization characteristics to the Khundii Property.

Figure 23-1: Adjacent Properties



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24.0 OTHER RELEVANT DATA

24.1 Introduction to Altan Nar Preliminary Economic Assessment

Tetra Tech was commissioned by Erdene Resource Development Corp (ERD) to complete an updated Preliminary Economic Assessment (PEA) for the Altan Nar deposit as part of the Khundii Gold Project (KGP) in Mongolia. Previous work was completed by RPM Global with a PEA released in February 2019.

Technical work completed by Tetra Tech pertains to an updated mine and infrastructure design, schedule and financial analysis of the Altan Nar property to an accuracy of +/- 30%. Tetra Tech relied upon geological and geotechnical data provided by ERD and previous technical work completed by RPM Global in the February 2019 PEA.

This PEA is preliminary in nature and contains the results of work completed based on inferred mineral resources which are considered too speculative geologically to enable categorization as reserves. There is no certainty that the proposed operations indicated in this PEA will be realised.

Mine design, cost estimation and processing work completed for this PEA is contingent on the establishment of the Bayan Khundii mine and infrastructure. It has been assumed that the Altan Nar property is designed as an addition to the existing operations at Bayan Khundii as opposed to a standalone operation and will utilise the Bayan Khundii processing plant, accommodation and infrastructure.

24.2 Mineral Processing and Metallurgical Testwork

Metallurgical testwork for this study is based on six test programs conducted between 2012 and 2019 at ALS Ammetc (Perth, Western Australia), Actlabs Asia LLC. (Mongolia), Blue Coast Research Ltd. (Parksville, BC) and SGS Canada Inc. (Burnaby, BC). These testwork programs are:

- ALS Ammtec conducted a gold deportment study in 2012 on a single sample from hole TND-19 collected from Discovery Zone South. The sample contained high concentrations of gold (17.9 g/t) and arsenic (8.7%) and today is not considered representative on the overall mineralization at Altan Nar.
- Actlabs Asia LLC. conducted a number of cyanidation tests on drill core samples from Discovery Zone North, Discovery Zone South, Union North, Union South and Riverside in 2013.
- Actlabs Asia LLC. conducted additional cyanidation tests on coarse assay rejects on samples from Discovery Zone North, Discovery Zone South and the Union North in 2015.
- Blue Coast Research Ltd. (BCR) conducted heavy liquid separation tests, gravity testwork, cyanidation, flotation and grindability testwork on larger composite samples from Discovery Zone North and Union North in 2015.
- Blue Coast Research Ltd. conducted cyanidation and flotation testwork on a larger composite sample from Discovery Zone South in 2018.
- SGS Canada Inc. conducted additional grindability testwork on composites from Altan Nar in 2019.

24.2.1 Gold Deportment Study

A gold deportment study was conducted in 2012 by ALS Ammtec in Perth, Western Australia. A single sample from hole TND-19 was used for this study. The sample contained high concentrations of gold (17.9 g/t) and arsenic (8.7%). Based on the current understanding of the deposit, this sample would not be considered representative of the overall mineralization at Altan Nar. The sample was subjected to five separate leaching and acid treatment procedures designed to characterize the various gold hosts.

Very little free, cyanide soluble gold was noted (3.7%) in this sample. The vast majority of the gold was associated with arsenopyrite (91.7%). Lesser amounts were associated with carbonates (1.7%), pyrite (1.2%) and silicates (1.8%). Gold recovery from this type of mineralization is expected to be low unless some form of oxidative pre-treatment (Pressure Oxidation or Biological Oxidation for example) is first applied to expose the gold associated with arsenopyrite.

24.2.2 Grindability Testing

Two rounds of grindability testing were conducted on Altan Nar material. The initial round of testing was completed in 2015 and consisted of a single Bond Rod Mill Work Index Test and a single Bond Ball Mill Work Index Test conducted on a blend of 50% Discovery Zone North (DZN) and 50% Union North (UN) material collected as part of the 2015 BCR test program. Results of the 2015 program are presented in the table below. This work suggests that the Altan Nar material is hard. No grindability testing has been performed on samples from Discovery Zone South (DZS) to date.

Table 24-1: Bond Rod Mill and Bond Ball Mill Work Index Test results on a 50:50 sample from Discovery Zone North and Union North

Test	Bond Work Index (kWh/tonne)
Bond Rod Mill Work Index Test	18.5
Bond Ball Mill Work Index Test	18.4

Additional grindability testwork was conducted in 2019 on two composites. AN-18-01 was collected from the Discovery Zone and AN-18-02 was made up of core from Union North. Both composites were comprised of ¼ HQ core. These composites were subjected to SMC tests and Abrasion index testing. Results are presented in the table below. These results suggest the Altan Nar material is moderately hard to hard. The Discovery Zone material was abrasive, while the Union North material was only moderately abrasive.

Table 24-2: SMC and Abrasion Index Test Results from Discovery Zone and Union North

Composite	Location	SMC (Axb)	Abrasion Index (Ai, g)
AN-18-01	Discovery Zone	42.0	0.495
AN-18-02	Union North	49.0	0.285

24.2.3 Cyanidation Testwork

Programs conducted at Actlabs Asia in 2013 and 2015 tested a number of core samples and coarse assays rejects and subjected them to cyanidation leach tests. Additionally, Blue Coast Research conducted a limited number of bottle roll tests on larger composites during the 2015 and 2018 programs. The composites used in the BCR programs were selected by Erdene personnel and are considered representative of the Discovery Zone North, Discovery Zone South and Union North zones of the deposit.

24.2.3.1 Actlabs Asia 2013 Testwork

Fourteen cyanidation tests were conducted on various samples that ranged in grade from 0.72 g/t to 11.2 g/t Au. Arsenic content of these composites ranged from a low of 62.5 ppm to a high of 6.5%. Samples were submitted as core and subsequently crushed to minus 2 mm before being ground to 95% passing 74 µm. The ground material was leached with cyanide for 48 hours, with kinetic samples being extracted after 24, 36 and 48 hours. Results are presented in Table 24-3.

Table 24-3: Actlabs Asia - 2013 Cyanidation Results

Location	Composite/Hold ID	Au Grade (g/t)	As (ppm)	24 hour Au Recovery (%)
Discovery Zone South	Comp-TND09-01	2.79	13125	28%
Discovery Zone South	Comp-TND09-02	8.90	65000	10%
Union South	Comp-TND29-03	6.97	135	97%
Discovery Zone South	Comp-TND35-04	2.47	17000	40%
Discovery Zone North	Comp-TND38-05	11.19	4370	43%
Discovery Zone North	Comp-TND40-06	8.94	1360	91%
Discovery Zone North	Comp-TND40-07	1.21	4363	79%
Discovery Zone South	Comp-TND41-08	2.07	1163	89%
Riverside	Comp-TND45-09	0.72	133	100%
Union North	Comp-TND46-10	5.43	2025	86%
Union North	Comp-TND46-11	2.18	715	75%
Discovery Zone North	Comp-TND50-12	2.24	63	100%
Discovery Zone North	Comp-TND50-13	2.95	80	85%
Discovery Zone North	Comp-TND58-14	4.59	185	89%
Average (As<1%)				**85%**
Average (As>1%)				**26%**

The results indicate that leach kinetics were reasonably quick with maximum gold recovery achieved after 24 hours in most cases. Higher gold recoveries were noted from samples with lower arsenic contents, suggesting that some of the gold in the arsenic enriched zones, primarily centered on Discovery Zone South, may be present as solid solution within the arsenopyrite crystal lattice.

24.2.3.2 Actlabs Asia 2015 Testwork

Twenty-one individual composites were collected from coarse assay rejects and submitted for bottle roll cyanidation tests. During each test approximately 400 grams of solids were added to a bottle at 50% solids. The material was subsequently leached with cyanide. Results are presented in Table 24-4.

These results suggest that gold recovery is again broadly influenced by arsenic content, with higher arsenic grades generally resulting in lower overall recoveries.

Table 24-4: Actlabs Asia – 2015 Cyanidation Results

Location	Composite/Hole ID	Au Grade (g/t)	As (ppm)	Au Recovery (%)
Discovery Zone North	DZN Comp 15-01	2.65	201	89
Discovery Zone North	DZN Comp 15-02	2.70	1792	68
Discovery Zone North	DZN Comp 15-03	1.73	4480	37
Discovery Zone North	DZN Comp 15-04	2.69	7505	51
Discovery Zone North	DZN Comp 15-05	3.58	3445	42
Discovery Zone North	DZN Comp 15-06	3.73	233	81
Discovery Zone North	DZN Comp 15-07	5.72	316	18
Discovery Zone North	DZN Comp 15-08	8.60	2920	37
Discovery Zone South	DZS Comp 15-09	2.14	598	18
Discovery Zone South	DZS Comp 15-10	2.58	3251	10
Discovery Zone South	DZS Comp 15-11	2.04	7875	15
Discovery Zone South	DZS Comp 15-12	2.23	12323	44
Discovery Zone South	DZS Comp 15-13	1.61	13020	19
Discovery Zone South	DZS Comp 15-14	3.43	24850	26
Discovery Zone South	DZS Comp 15-15	4.69	23730	33
Union North	UN Comp 15-16	4.09	328	75
Union North	UN Comp 15-17	3.50	468	77
Union North	UN Comp 15-18	4.41	1737	49
Union North	UN Comp 15-19	3.74	2128	50
Union North	UN Comp 15-20	1.91	4585	33
Union North	UN Comp 15-21	2.90	11170	22

24.2.3.3 Blue Coast Research Testwork (2015 and 2018)

Bottle roll cyanidation tests were conducted on master composites prepared during the BCR testwork in both 2015 and 2018. The master composites were selected by Erdene personal and are considered representative of the Discovery Zone North, Discovery Zone South and Union North areas of the deposit. The DZN and UN composites were subjected to a single cyanidation test. Each test was conducted as a 48-hour bottle roll. Sodium cyanide concentration was maintained at 1.0 g/L throughout the test and pH was maintained with lime between 10.5 and 11.0. Prior to each test the material was ground to a particle size of 80% passing 75 µm.

Table 24-5: Cyanidation Results (BCR Master Composites; 2015 Test Program)

Location	Composite ID	Au Grade (g/t)	As (ppm)	Au Recovery (%)
Discovery Zone North	DZN Comp	2.88	1500	88
Union North	UN Comp	3.56	3000	68

Leach testwork was conducted on a Discovery Zone South composite with a gold grade of 2.25 g/t and an arsenic content of 1.16%. This work evaluated the impact that finer grind sizes and higher cyanide concentrations had on overall gold recovery. Baseline conditions for each test were 40% solids and 48 hours of retention time. Grind size and cyanide concentration are noted in Table 24-6 below.

As indicated in Table 24-8, finer primary grinds had little impact on overall gold recovery, with gold extraction ranging between 38% and 43%. Higher cyanide consumption was observed in the initial fine grind test (p80 <20 µm), which raised concerns that leach performance may have been impacted by reduced cyanide availability. The test was repeated with an increased cyanide dosage (7.5 g/L), and increased retention time (72 h). This test resulted in slightly higher gold recovery (48%) but significantly higher overall cyanide consumption (23.8 kg/t). The excessive cyanide consumption coupled with the fine grind makes this a sub-optimal route to increase gold extraction.

Table 24-6: Whole Ore Leach Cyanidation Results (BCR Master Composites; 2018 Program)

Location	Composite ID	Primary Grind (p80, µm)	NaCN Concentration (g/L)	NaCN Consumption (kg/t)	Au Recovery (%)
Discovery Zone South	DZS Comp	74	1.00	2.25	38
Discovery Zone South	DZS Comp	60	1.00	2.63	40
Discovery Zone South	DZS Comp	36	1.00	2.55	40
Discovery Zone South	DZS Comp	<20	1.00	4.43	43
Discovery Zone South	DZS Comp	<20	7.50	23.8	48

The Discovery Zone South testwork indicates that gold recovery from higher arsenic areas in the deposit likely contains a refractory gold component, limiting recovery by conventional cyanidation alone. Additional variability work would be required to further delineate the extent of this refractory component. Flotation and/or oxidative pre-treatment may provide an additional route to optimizing gold recovery from high arsenic areas of the deposit and this should be considered during future testwork.

24.2.4 Gravity Testwork

A single gravity amenability test was conducted at Blue Coast Research on the Discovery Zone North composite. 2.0 kg of the DZN composite was ground in a laboratory rod mill at 60% solids to a nominal p80 of 75 µm prior to being fed to a laboratory scale Knelson concentrator. The resulting Knelson concentrate was then further upgraded over a shaking table (MAT Table). Results are presented in Table 24-7. Gold recovery to Knelson concentrate was moderate at 45% at a gold grade of 36.5 g/t. This was further upgraded over a shaking table to 398.8 g/t Au, albeit at a much lower gold recovery (5.8%). This result is unoptimized, however, it does highlight that a portion of the gold is recoverable through gravity techniques.

Table 24-7: DZN Composite Gravity Test Results

Product	Mass (%)	Au Grade (g/t)	Au Recovery (%)
MAT Tip	0.04	398.8	5.79
MAT Tails	3.49	32.2	39.37
Knelson Tails	96.47	1.63	54.85
Total	**100.00**	**2.86**	**100.00**
MAT Tip	0.04	398.8	5.79
Knelson Concentrate	3.53	36.5	45.15

24.2.5 Heavy Liquid Separation

A single amenability test was conducted to determine if a pre-concentration process could be employed to reject clean liberated gangue while maintaining metal values in a concentrated mass. A 2.1 kg subsample of minus ½ inch Discovery Zone North material was prepared as feed for the heavy liquid test. The sample was pre-screened at 850 µm to remove fines from the heavy liquid feed. A sample of sodium heteropolytungstate was prepared as the heavy liquid medium with a specific gravity of 2.85. Particles with a density greater than this will report to the sink fraction, while particles with a lighter density will report to the float fraction. Screen oversize (+850 µm) was added to the heavy liquid, mixed and allowed to settle for 15 minutes. The float and sink fractions were then recovered, filtered and washed and the process was repeated until the entire 2.1 kg was processed.

Floats, sinks and fines were then assayed for lead, zinc, gold and silver and a metallurgical balance was generated. Results are presented in Table 24-8. Results of the test were subpar with significant amounts of lead (25.5%), zinc (45.7%), gold (69.1%) and silver (47.5%) reporting to the float fraction. The large amount of base and especially precious metals lost to the floats would suggest that pre-concentration of the DZN material is not an appropriate process.

Table 24-8: Heavy Liquid Separation Test Results; Discovery Zone North Composite

Product	Mass	Grade				Recovery (%)			
	%	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Pb	Zn	Au	Ag
HLS Float	79.1	0.27	0.41	2.44	9	25.5	45.7	69.1	47.5
HLS Sink	8.7	4.59	2.78	7.40	55	48.4	34.5	23.1	33.3
Screen Undersize (Fines)	12.3	1.76	1.14	1.76	22	26.1	19.8	7.8	19.2
Calculated Head	100.0	0.82	0.70	2.79	14	100	100	100	100

24.2.6 Flotation Testwork

Blue Coast Research conducted flotation test programs on both Discovery Zone North and Discovery Zone South material. A limited flotation test program was conducted a composite from Union North, using the flowsheet developed for Discovery Zone North (DZN). Flotation conditions aimed to make separate lead and zinc concentrates. A bulk sulphide concentrate was floated after the zinc rougher to evaluate if the remaining pyrite and arsenopyrite could be recovered into a bulk concentrate of sufficient grade.

Flotation of the DZN composite was successful in that it produced separate lead and zinc concentrates of acceptable grades. A significant portion of the gold and silver reported to the lead concentrate.

Table 24-9: Discovery Zone North Cleaner Flotation Results (BCR Test F-8; 2015 Study)

Product	Weight	Assays, % or g/t					% Distribution				
Lead Cleaner 3 Concentrate	0.97	61.87	5.53	0.88	229.09	1028	74.39	7.79	5.58	74.67	64.01
Zinc Cleaner 3 Concentrate	0.84	5.78	50.28	0.13	20.18	242	6.02	61.33	0.69	5.70	13.08
Sulphide Rougher Concentrate	4.01	0.82	0.52	2.61	6.18	14	4.06	3.06	68.94	8.35	3.48

Union North and Discovery Zone South composites did not respond as favourably to a similar flowsheet. A single cleaner test was conducted on the Union North composite. Results from this test, presented in Table 24-10, show that lead and zinc concentrate grade and recovery were low, and additional optimization is required to improve the performance from this composite. A similar observation was noted from the Discovery Zone South composite (results presented in Table 24-11) with low lead and zinc recovery being noted to the final concentrates.

Table 24-10: Union North Cleaner Flotation Results (BCR Test F-12; 2015 Study)

Product	Weight	Assays, % or g/t					% Distribution				
Lead Cleaner 3 Concentrate	1.64	47.65	3.76	2.10	93.98	335	53.92	5.22	11.86	44.89	40.26
Zinc Cleaner 3 Concentrate	1.35	4.32	48.34	0.37	11.96	155	4.02	55.22	1.70	4.70	15.28
Sulphide Rougher Concentrate	7.26	0.79	0.38	2.17	11.36	22	3.98	2.37	54.43	24.11	11.48

Table 24-11: Discovery Zone South Cleaner Flotation Results (BCR Test F-10; 2018 Study)

Product	Weight	Assays, % or g/t						% Distribution					
Lead Cleaner 3 Concentrate	0.51	43.57	9.15	10.94	4.95	82.04	3096.75	46.05	4.72	1.06	2.60	18.80	36.74
Zinc Cleaner 3 Concentrate	0.92	5.35	50.65	5.92	1.32	14.39	731.00	10.15	46.83	1.03	1.24	5.91	15.56
Sulphide Rougher Concentrate	8.08	0.69	2.58	23.00	7.75	11.94	101.50	11.41	20.87	35.11	63.84	42.96	18.90

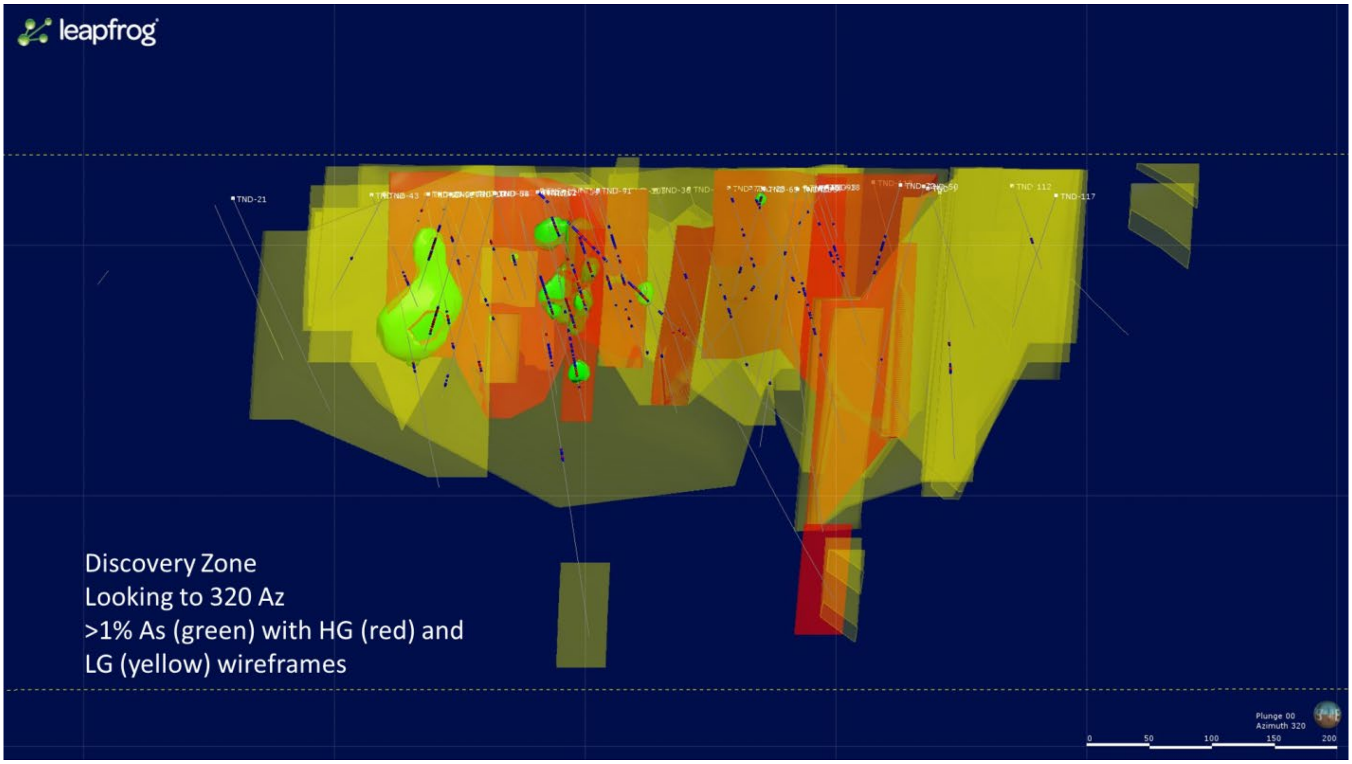
As the flotation response to date from Discovery Zone South and Union North has been suboptimal, flotation has been excluded from the flowsheet for the purposes of this study. This study will assume that Altan Nar material will be processed through a standard cyanidation circuit to recover gold and silver only. Future studies should continue to evaluate flotation options for Altan Nar as a potential method to improve the overall performance from the deposit.

24.2.7 Projected Gold Recovery

Gold recovery projections are based on a whole ore cyanidation process. Cyanidation recovery data from the Actlabs and BCR test programs has been included in this analysis.

Gold extraction from Altan Nar samples has been variable. A general relationship has been observed between the quantity of arsenic and the overall gold recovery. The lower recovery observed with higher arsenic content suggests that there is a portion of gold locked in solid solution within the arsenopyrite crystal lattice. Erdene has modelled the presence of arsenic within Altan Nar and has shown that the majority of the arsenic is contained in zones with an arsenic content in excess of 1%, centered in the Discovery Zone South area. These zones are highlighted as green areas within Figure 24-1.

Figure 24-1: Altan Nar Discovery Zone Wireframes; >1% As (green); High Grade (red); Low Grade (yellow)



As arsenic content increases there is a general trend of decreasing gold recovery. This relationship is highlighted in Figure 24-2. Geological modelling conducted by Erdene has shown that the high arsenic zone (defined as blocks with an arsenic content greater than 1%) is distinct and represents a total of 11% of the tonnage at Altan Nar. Given the low recovery associated with higher arsenic material it is proposed to selectively mine around these areas and exclude them from processing. Excluding this high arsenic material will reduce the average arsenic content of the remaining material to 0.16%.

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Figure 24-2: Altan Nar Gold Recovery as a function of Arsenic Content

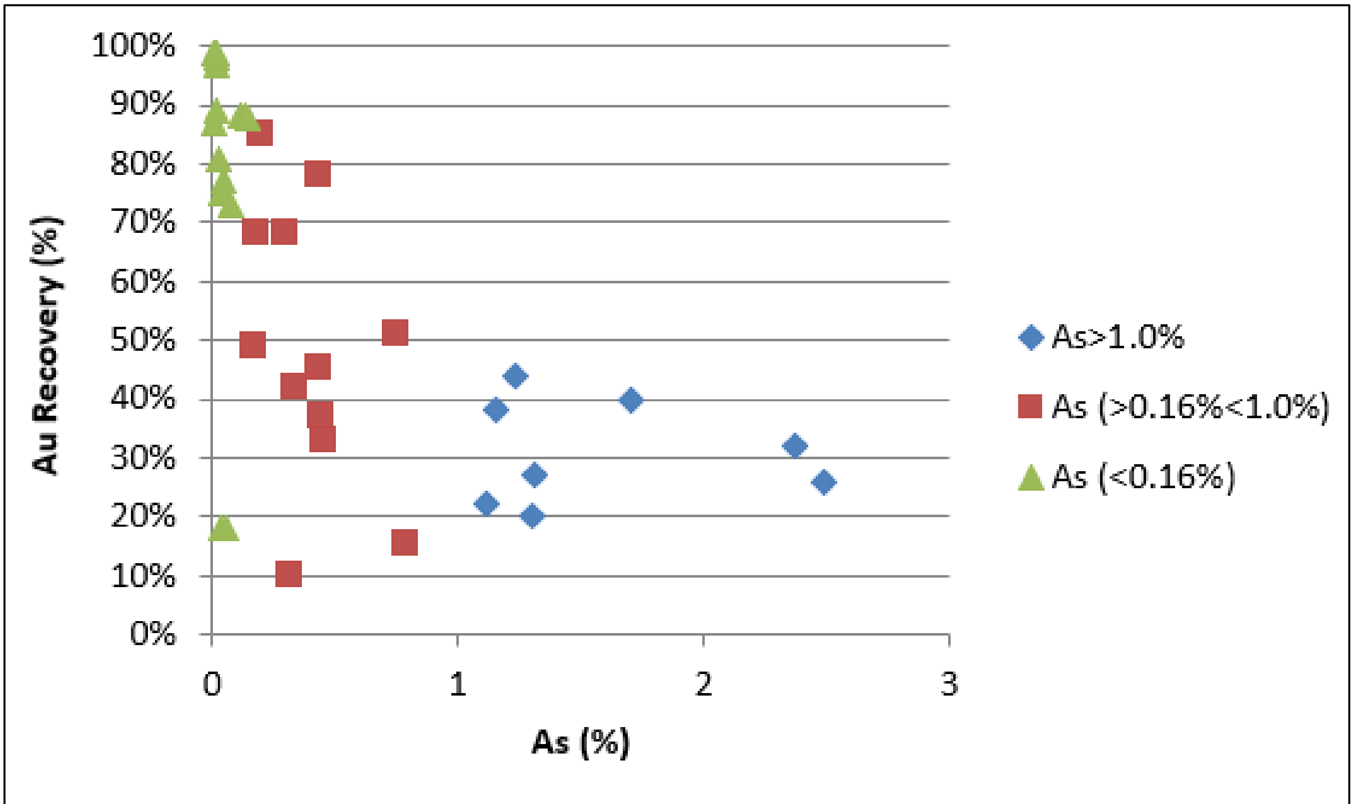


Table 24-12 summarizes the average gold recovery based on the arsenic content of the material from Altan Nar. All the cyanide leach data form the Actlabs and BCR test programs have been included in these calculations with the following exceptions:

- DZN Comp 15-07 (Actlabs 2015 Work)
- DZS Comp 15-09 (Actlabs 2015 Work)

These two composites both had arsenic concentrations of less than 0.16% but low gold recovery. DZN Comp 15-07 had higher copper grade (1972 ppm) and a low final bottle roll pH of 9.89, suggesting that the test may have been cyanide starved, in turn causing the poor recovery. DZS Comp 15-09 also had higher than average copper grades (1403 ppm) which may have been a factor in the lower recovery.

Table 24-12: Average Altan Nar Gold Recovery based on Arsenic Content

As Grade	Au Recovery (%)
<0.16%	88%
>0.16%; <1%	48%
>1%	29%

Gold recovery of Altan Nar material with an arsenic content of less than 0.16% averages 88%, however it should be noted that lower recovery is expected as the arsenic content increases above 0.16%. Additional cyanidation testwork should be conducted during the prefeasibility study to optimize this performance. A substantial variability test program should be included to gain an additional confidence in gold recovery from samples with varying arsenic contents and geographic locations (i.e., Discovery Zone North and Discovery Zone South).

24.3 Mining Methods

Mining operations designed as part of this preliminary economic assessment focus on the Altan Nar (AN) open pit mines and surrounding infrastructure. The Altan Nar site is comprised of a series of seven open pit mines and a waste rock and tailings storage facility. The Altan Nar operation is designed to integrate with the existing Bayan Khundii mine to the south, and utilize the currently planned processing plant, maintenance workshop, warehouse, refuel facilities, contractor camp and explosive storage area.

A schedule based on an annualized 1,800 t/d mill feed rate has been developed for Altan Nar based on a conventional open-pit mine plan with material mined from the seven designed pits. The mine design and schedule are based on the Indicated and Inferred resources defined in Chapter 14. A life-of-mine schedule is provided in Section 24.4 below.

Mine planning work is based additionally on previous work included in the February 2019 PEA study conducted by RPM Global and updated with design criteria and cost estimations completed as part of the Bayan Khundii PFS study. Other information considered and used for mine planning and design include base economic parameters, metal prices, mining cost data derived from current Bayan Khundii estimates or Tetra Tech's internal database and projected metallurgical recoveries, processing costs and throughput rates.

24.3.1 Proposed Ore and Waste Mining

Tetra Tech proposes conventional open-pit truck and shovel methods for extraction at the Altan Nar deposit. The mineralization at Altan Nar sits close to surface and as such is amenable to open-pit mining methods. As the mineralization at Altan Nar is hosted within multiple orebodies separated by barren host rock, multiple smaller pits were proposed to target each orebody whilst reducing waste material mined. These relatively shallow deposits which can be targeted individually allow for greater flexibility and selectivity when mining, resulting in a higher recovery of the mineralized material with lower relative dilution and losses.

The properties of the rock mass at Altan Nar are expected to be mostly hard rock and as such, all material will be drilled and blasted. Some variation in material properties is expected due to the differing geological units present.

To control dilution and losses at AN, a selective mining method with smaller bench sizes and greater ore to waste boundary control is proposed. Both ore and waste areas are designed with 5m benches (with 0.5m subdrill). Ore zones are drilled with a 2.0 m x 2.4 m burden and spacing, and waste zones are drilled with a 4.0 m x 4.5 m burden and spacing.

Loading and hauling is expected to be completed with the same fleet of excavators and trucks selected for mining at Bayan Khundii. The efficiency, selectivity and maneuverability of the equipment is prioritized when choosing the equipment fleet. Details of the equipment fleet can be found in Section 24.5 below.

The Altan Nar operation is expected to have a life of just over four years, aiming to maintain the design capacity at the Bayan Khundii processing plant of 600 kt/year.

24.3.2 Pit Optimization Methodology

To determine the economic limit of surface mining for Altan Nar, Tetra Tech utilized GEOVIA's Whittle™ software, which is based on the industry standard Lerchs Grossmann pit optimization algorithm. Tetra Tech collaborated with Erdene to derive the key inputs for the pit optimization, including metal pricing, metal recoveries, and operating costs.

Optimization was based on the resource block model. Resource model included assay grades, densities, and rock types for mineralized zones. Metallurgical recovery for gold varies based on Arsenic content (Table 24-13).

Table 24-13: Recovery Parameters Used in Pit Optimization

As Grade Range (ppm)	Recovery Equation
0.00 - 1600	Au Rec (%) = 88
1600 – 10,000	Au Rec (%) = 48
10,000 and up	Au Rec (%) = 29
Ag Recovery	Ag Rec (%) = 62

Slope parameters are based on the available geotechnical information from the Preliminary Economic Assessment (PEA) report of February 2019 and are summarized in Table 24-14 below.

Table 24-14: Pit Design Parameters by Weathering Profile Domain

Domain	Parameter	Value
Fresh	Bench Face Angle	65 degrees
	Berm Width	6 m
	Bench Height	15 m / 5 m triple bench
	Inter-Ramp Angle	49 degrees
Oxidized	Bench Face Angle	65 degrees
	Berm Width	6 m
	Bench Height	15 m / 5 m triple bench
	Inter-Ramp Angle	45 degrees

Operating cost parameters are based on a three-year trailing average gold price of $1,267/oz. Operating costs for Altan Nar were derived from the pre-feasibility level average LOM operating costs estimated for the Bayan Khundii operation and adjusted for the increased transport costs for the Altan Nar ore to the Bayan Khundii processing plant.

Table 24-15 lists the remaining parameters used for the pit optimization.

Table 24-15: Pit Optimization Parameters

Items	Units	Value
Operating Costs		
Mining	$/ t	2.4
Transport Altan Nar to Bayan Khundii	$/t	0.8
Processing	$/ t	33.8
Mining Assumptions		
Mining Dilution	%	11
Mining Recovery	%	100
Metal Price		
Gold	$/ troy oz	1,267
Silver	$/ troy oz	16.66

24.3.3 Pit Optimization Results

Using the provided block model, pit slope angles, and pit optimization parameters, 86 pit shells were generated using GEOVIA Whittle™ software, corresponding to price factors ranging between 0.3 and 2.0. Pit optimizations were completed using the Indicated and Inferred for oxide and fresh Mineral Resources. No capital costs were considered when generating these pit values. The pit optimization results are provided in Table 24-16.

Table 24-16: Revenue Factors and Results from Pit Optimization

Pit	Revenue Factor	Rock Tonnes	Waste Tonnes	Ore Tonnes	Au g/t	Ag g/t	Contained Au oz	Strip Ratio
21	0.7	7,800,729	6,659,367	1,141,362	4.55	19.87	166,903	5.8
22	0.72	8,375,869	7,133,569	1,242,300	4.39	19.34	175,141	5.7
23	0.74	8,601,872	7,302,198	1,299,674	4.28	18.87	178,938	5.6
24	0.76	9,368,689	7,979,530	1,389,159	4.21	18.87	187,908	5.7
25	0.78	9,695,865	8,232,400	1,463,465	4.10	18.48	192,676	5.6
26	0.8	10,362,822	8,819,506	1,543,316	4.00	18.01	198,257	5.7
27	0.82	10,671,696	9,074,853	1,596,843	3.94	17.84	202,186	5.7
28	0.84	10,882,970	9,235,664	1,647,306	3.88	17.62	205,366	5.6
29	0.86	11,241,792	9,526,936	1,714,856	3.80	17.25	209,420	5.6
30	0.88	12,247,228	10,427,947	1,819,281	3.73	17.17	218,190	5.7
31	0.9	12,558,723	10,684,606	1,874,117	3.68	17.09	221,826	5.7
32	0.92	12,880,391	10,944,151	1,936,240	3.62	16.82	225,587	5.7
33	0.94	13,145,183	11,153,607	1,991,576	3.57	16.64	228,487	5.6
34	0.96	13,473,825	11,431,475	2,042,350	3.53	16.59	231,817	5.6
35	0.98	13,706,228	11,612,040	2,094,188	3.49	16.44	234,738	5.5
36	**1**	**13,888,528**	**11,765,216**	**2,123,312**	**3.47**	**16.40**	**236,542**	**5.5**
37	1.02	14,510,384	12,321,888	2,188,496	3.43	16.40	241,510	5.6

Pit	Revenue Factor	Rock Tonnes	Waste Tonnes	Ore Tonnes	Au g/t	Ag g/t	Contained Au oz	Strip Ratio
38	1.04	14,709,717	12,465,329	2,244,388	3.38	16.19	243,896	5.6
39	1.06	15,080,800	12,783,142	2,297,658	3.34	16.11	247,026	5.6
40	1.08	15,189,531	12,860,030	2,329,501	3.32	16.06	248,622	5.5
41	1.1	15,292,809	12,924,041	2,368,768	3.29	15.93	250,178	5.5
42	1.12	15,533,385	13,113,123	2,420,262	3.25	15.83	252,854	5.4
43	1.14	15,941,638	13,456,760	2,484,878	3.21	15.70	256,225	5.4
44	1.16	16,480,763	13,929,910	2,550,853	3.17	15.67	260,297	5.5
45	1.18	17,250,596	14,603,543	2,647,053	3.12	15.61	265,841	5.5
46	1.2	17,524,455	14,823,263	2,701,192	3.09	15.51	268,534	5.5
47	1.22	18,459,777	15,674,182	2,785,595	3.06	15.44	274,104	5.6
48	1.24	18,680,300	15,847,234	2,833,066	3.03	15.31	276,061	5.6
49	1.26	19,124,383	16,222,350	2,902,033	2.99	15.23	279,385	5.6
50	1.28	19,336,201	16,359,229	2,976,972	2.95	15.14	282,158	5.5
51	1.3	19,419,417	16,398,540	3,020,877	2.92	15.10	283,727	5.4
52	1.32	20,166,383	17,066,145	3,100,238	2.88	14.94	287,423	5.5
53	1.34	20,815,050	17,638,466	3,176,584	2.85	14.85	291,028	5.6
54	1.36	20,976,015	17,757,340	3,218,675	2.83	14.75	292,525	5.5
55	1.38	21,990,687	18,689,406	3,301,281	2.80	14.71	297,708	5.7
56	1.4	22,219,015	18,858,855	3,360,160	2.77	14.57	299,518	5.6
57	1.42	25,525,584	21,921,604	3,603,980	2.69	14.19	311,785	6.1
58	1.44	25,699,696	22,045,970	3,653,726	2.67	14.13	313,562	6.0
59	1.46	28,182,615	24,273,719	3,908,896	2.62	14.38	329,781	6.2
60	1.48	28,394,592	24,440,490	3,954,102	2.61	14.30	331,281	6.2
61	1.5	28,904,156	24,874,265	4,029,891	2.58	14.15	334,016	6.2
62	1.52	29,094,654	24,998,781	4,095,873	2.55	14.04	336,390	6.1
63	1.54	29,692,350	25,522,439	4,169,911	2.53	13.98	339,561	6.1
64	1.56	29,813,914	25,589,801	4,224,113	2.51	13.88	341,042	6.1
65	1.58	30,859,428	26,540,709	4,318,719	2.49	13.77	345,236	6.2

The optimization results show the size of the pit is sensitive to the variation in metal prices. As the price increases, a significant amount of marginal mineralization inside the pit converts to mineable ore as the cut-off grade decreases.

Pit sizes and pit values vary with changes in ore/waste tonnage. The highlighted area in Figure 24-4 below shows the range where there is a little variation in pit value. The range is from pit 30 with RF of 0.9 to pit 40 with RF of 1.08. Pits within this range were analyzed further for SR and NPV values in order to select the final pit.

Figure 24-3: Tonnage and Grade by Revenue Factor Pit Shell

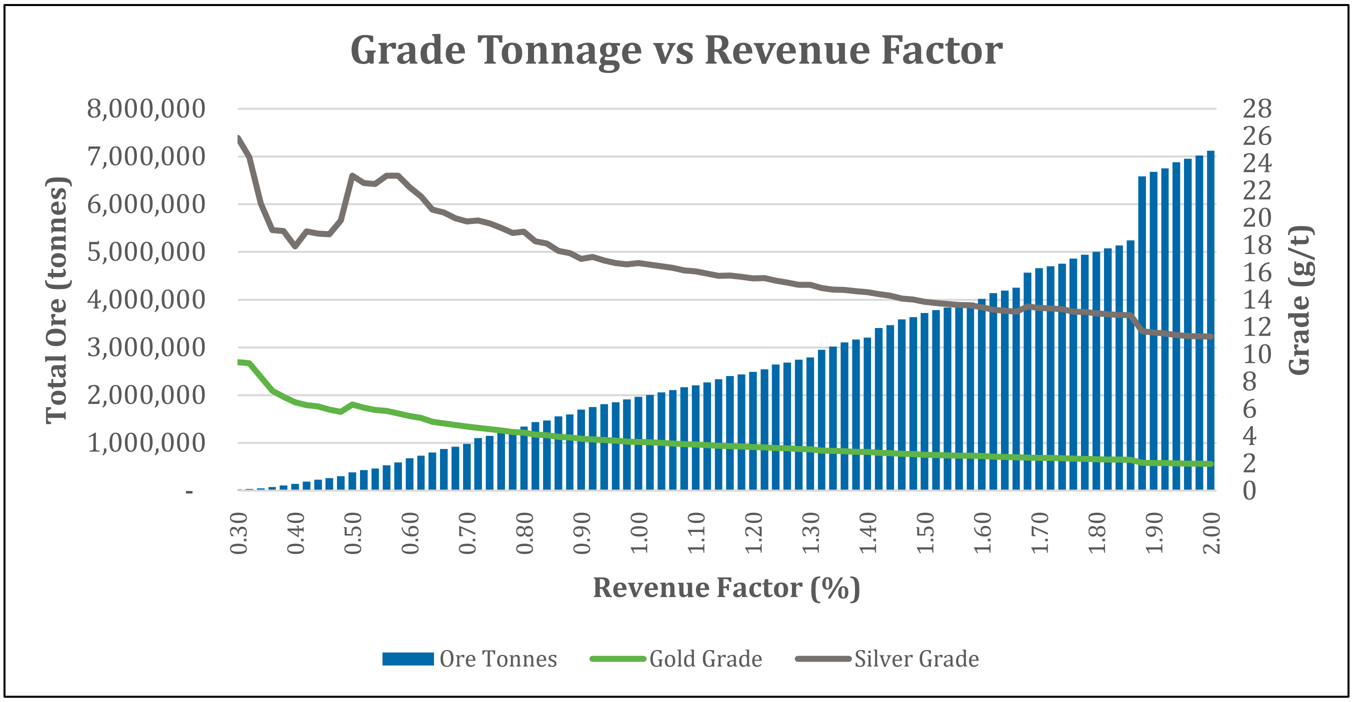
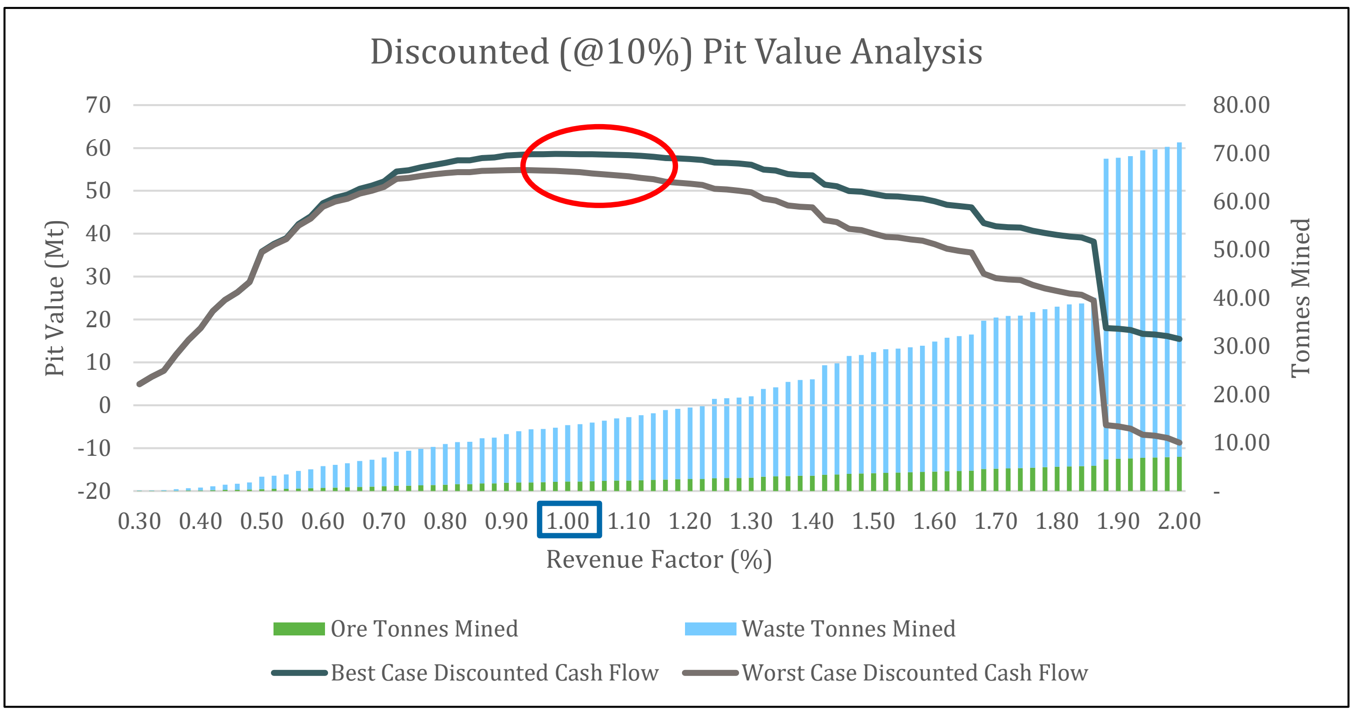


Figure 24-4: Discounted Cash Flow Analysis by Revenue Factor Pit Shell



Since pits with revenue factor in the range of 0.9 to 1.08 are very close in NPV value, the pit with lowest SR (in this case Pit 35) was selected as the final pit for further detailed design and production scheduling.

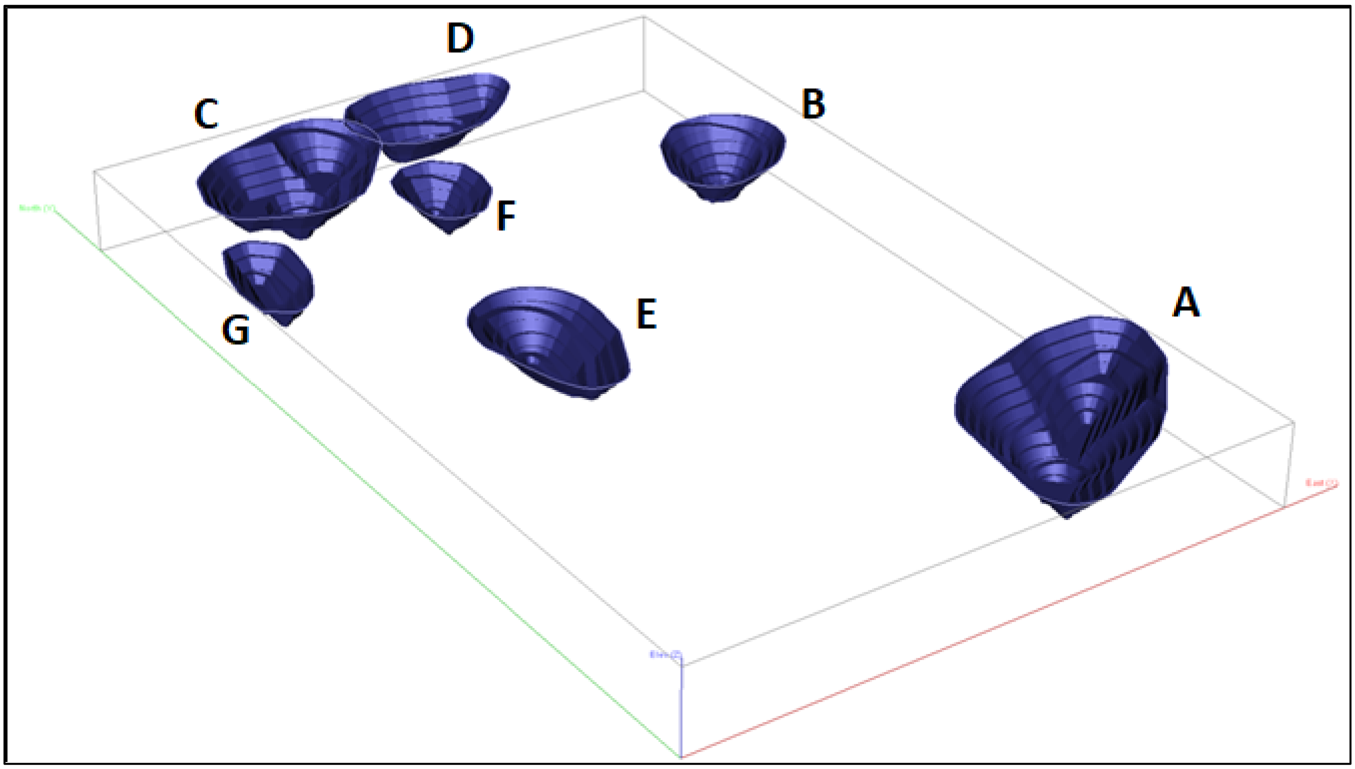
24.3.4 Ultimate Pit Design

The final pit was designed based on the geotechnical parameters provided in Table 24-14. Table 24-17 below lists the material tonnages and grades for each pit at the Altan Nar site.

Table 24-17: Tonnes and Grade by Pit

Pit	Tonnes (Total)	Tonnes (Ore)	Tonnes (Waste)	Ore Grade (Gold, grams per tonne)	Ore Grade (Silver, grams per tonne)
A	6,761,872	776,193	5,985,679	3.60	23.74
B	2,047,511	208,256	1,839,255	3.37	11.46
C	3,110,308	492,808	2,617,500	3.44	14.23
D	1,739,850	191,270	1,548,580	2.39	6.44
E	1,257,877	101,727	1,156,150	4.91	14.29
F	417,018	18,861	398,157	4.10	2.47
G	204,452	24,895	179,557	2.09	13.41
Total	15,538,888	1,814,010	13,724,878	-	-

Figure 24-5: Final Pit Shells for Pits A – G at Altan Nar Site, Oblique View, Looking Northeast



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24.4 Mine Scheduling

To generate the LOM schedule for the Altan Nar pit, Whittle™ was used to develop a strategic mine schedule focused on maximizing NPV. The LOM schedule was then optimized in MineSched™ to produce a practical mine schedule, that met all scheduling constraints. Since the Altan Nar deposit is being evaluated at a PEA level, Indicated and Inferred Resources were included in the schedule.

The key objective in the Altan Nar schedule was to meet the milling capacity constraints and deliver the highest value ore to the processing plant. Blocks were categorized as: Ore or Waste. Ore blocks are defined as having a gold grade greater than 1.13 g/t and were either Indicated or Inferred Resources. This value of 1.13 g/t was reached during pit optimization as the result of Whittle's cut-off grade calculation. Ore blocks were sent to the processing plant or stockpile while Waste blocks were sent to the dump. Similar to the Bayan Khundii LOM schedule, other constraints included a maximum vertical advancement of 60 m/year, a balanced production schedule, and the use of a stockpile to maximize the grade to the plant.

Mining is planned to take place over 5 years after the Bayan Khundii Pit slows its production rate. The production rate at Altan Nar is 4 Mt per year for the first three years, dropping to 3.5 Mt in the fourth year where the pits are nearly finished.

The Altan Nar mining area features 7 pits inclusive of two pushbacks all mined in 5 m benches. The current mine schedule has the majority of the Bayan Khundii equipment moving to Altan Nar near the end of the Bayan Khundii mine life, to allow for a full year of scheduled pre-stripping and stockpiling that is expected to happen when the Bayan Khundii pit production rate is slowing. Mining will take place 365 days a year and no allowance has been made for weather, labour action, nor any other unscheduled shutdowns. Table 24-18 shows the Altan Nar LOM schedule and Table 24-19 shows the annual tonnes mined by pit. Total ore to the processing plant is 1.8 Mt at an average head grade of 3.46 g/tonne.

Table 24-18: Altan Nar LOM Operating Schedule

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Total/Weighted Average
Material Mined (tonnes)	3,999,665	4,010,624	3,999,666	3,527,432	1,501	15,538,888
Strip Ratio	10.2	8.6	7.9	5.0	11.3	8.01
Plant Feed (tonnes)	-	601,338	599,695	599,695	13,281	1,814,009
Plant Feed from Pits (tonnes)	-	417,554	448,933	590,110	123	1,456,720
Plant Feed from Stockpile (tonnes)	-	183,784	150,762	9,585	13,159	357,290
Gold Grade to the Plant (grams/tonne)	-	3.90	3.11	3.35	4.46	3.46
Gold to Plant (ounces)	-	75,437	59,950	64,535	1,902	201,825
End-of-Year Stockpile Tonnes Balance	357,290	173,506	22,744	13,159	-	-

Figure 24-6: Annual Tonnes Mined over Altan Nar LOM

Figure 24-7: Annual Ore Feed to the Plant over Altan Nar LOM

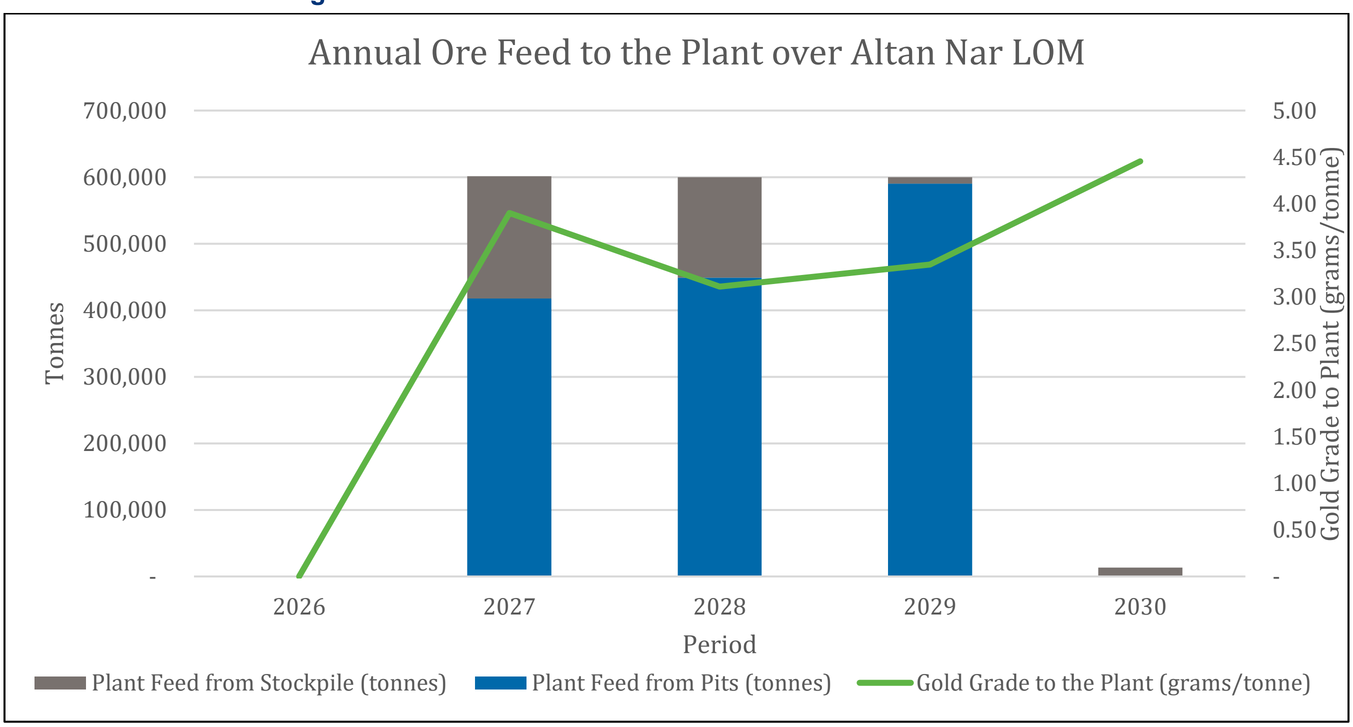


Figure 24-8: End-of-Year Stockpile Balance for Altan Nar LOM

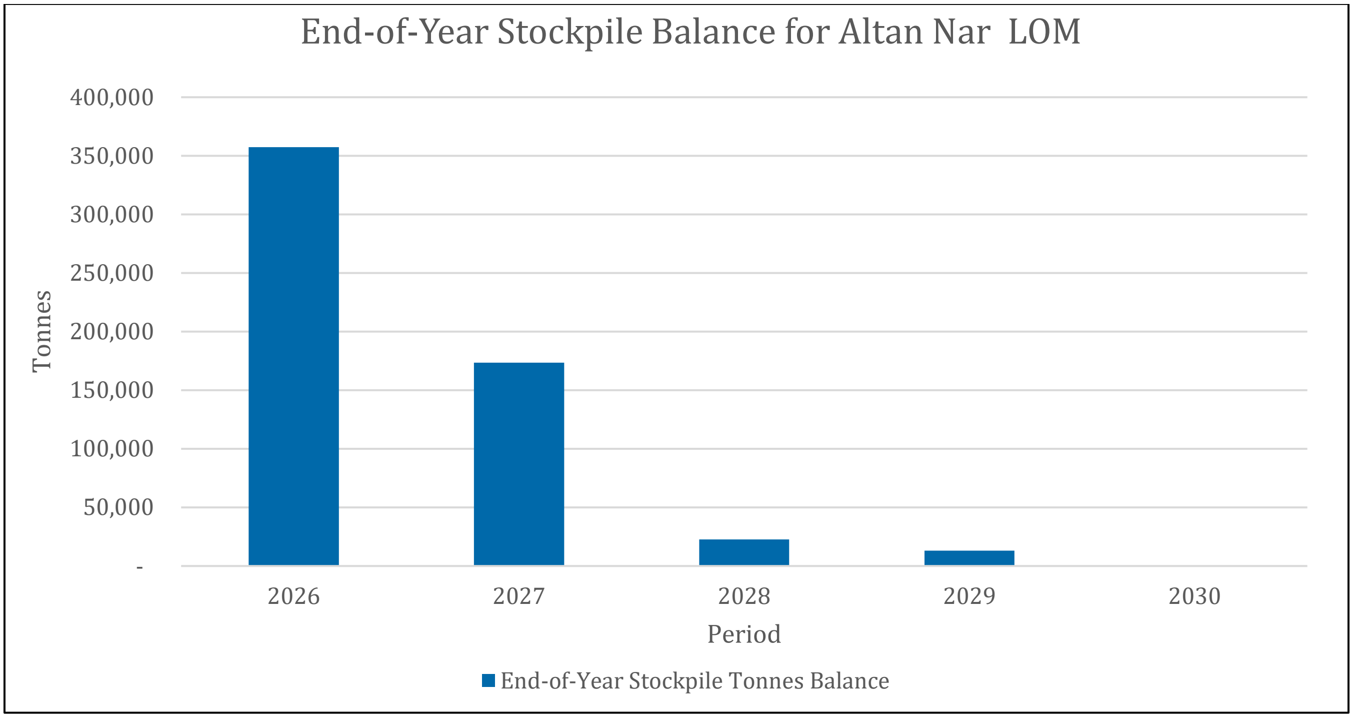


Table 24-19: Annual Mined Tonnages by Pit

Pit	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Pit A (Pushback)	1,454,272	360,693				1,814,965
Pit A		1,006,374	941,614	2,997,418	1,501	4,946,907
Pit B		1,739,671	307,840			2,047,511
Pit C (Pushback)	606,853					606,853
Pit C	680,663	903,887	730,059	188,846		2,503,455
Pit D			1,398,681	341,169		1,739,850
Pit E	1,257,877					1,257,877
Pit F			417,018			417,018
Pit G			204,452			204,452

Figure 24-9: Annual Tonnes Mined by Pit over Altan Nar LOM

24.5 Mining Equipment

Equipment selection for the Altan Nar site is based on the currently recommended fleet for use at Bayan Khundii. The equipment selected for Bayan Khundii also is amenable for the Altan Nar deposit. Equipment selection was sized to support detailed ore mining and bulk mining required for waste stripping. The ore truck selected, CAT 740B, excels in hauling material over rough terrains, which will ensure availability of the fleet transporting ore from Altan Nar to Bayan Khundii.

A reduction in the total equipment required occurs due to the shorter life of mine and lower annual waste mined compared to the proposed Bayan Khundii operations.

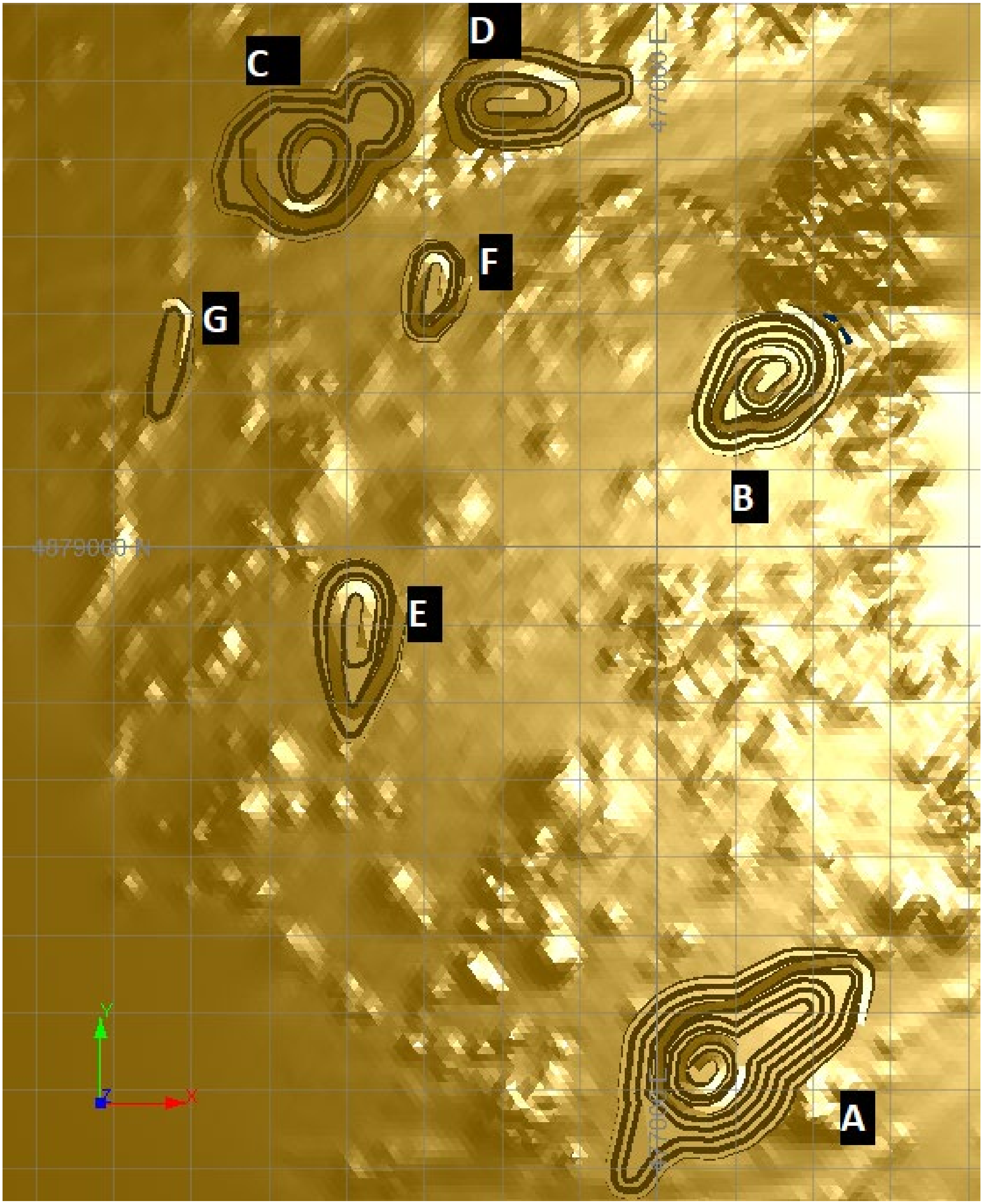
A summary of the equipment fleet selected is presented in Table 24-20 below.

Table 24-20: Altan Nar Equipment Selection

Core Equipment	Equipment Model	Equipment Class	Total Required
Ore Drill	PowerROC D60	110-178 mm hole diameter	1
Waste Drill	FlexiRoc D60	110-178 mm hole diameter	2
Ore Loader	CAT 349F	311 kW	1
Waste Loader	CAT 6015B	606 kW	2
Ore Truck	CAT 740B	365 kW	3
Waste Truck	CAT 773D	509 kW	3
Waste Dozer	CAT D9	310 kW	1

Auxiliary Equipment	Equipment Model	Equipment Class	Total Required
Wheel Loader	CAT 988K	310 kW	2
Grader	CAT 14M3	178 kW	1
Vibratory Compactor	CAT CS74B	129 kW	1
Water Truck	CAT 773WT	-	1
Support Loader (Mill Rehandle)	CAT 966K	-	1
Fuel and Lube Truck	-	-	1
Low Bed Truck	-	-	1
Pickups	-	-	1
Forklift	-	-	1
Maintenance Truck	-	-	2

Figure 24-10: Plan View of Altan Nar Open Pit Mines



24.5.1 Work Force

The workforce build-up for the Altan Nar project is based firstly on the core equipment requirements stated in Section 24.5 above, with supervisory and support roles added relative to the scale of the project. A summary of the peak personnel requirements is presented in Table 24-21 below.

As it is anticipated that mining activities will be undertaken by a contractor, the majority of technical staff, equipment operators and maintenance crews will be contracted in. Managerial positions and geology technical staff will be permanent positions. Further detail on labour costs can be found in Section 24.10.

Table 24-21: Workforce Requirements at Altan Nar

Peak Permanent Staff	
Mining Staff	
Mining Manager	1
Senior Mining Engineer	1
Junior Mining Engineer	3
Mine Planning Engineer	1
Senior Surveyor	1
Mine Surveyor	2
Geology Staff	
Chief Geologist	1
Senior Grade Control Geologist	1
Senior Exploration Geologist	1
Geologist	1
Field Technician	1
Core Shed Technician	1

Peak Contract Staff	
Supervision/Admin	
Mine Area Supervisor	3
Drill and Blast Supervisor	1
Drill and Blast Technician	5
Field Technician	3
Administration Clerk	1
Maintenance	
Maintenance Superintendent	1
Maintenance Foreman	3
Heavy Vehicle Mechanic	12
Store Person	3
Administration Clerk	1
Service, Fuel, and Lube	3
Maintenance Planner	1
Core Equipment Operators	
Ore Drill	3
Waste Drilling	3
Ore Loader	3
Waste Loader	6
Ore Truck	9
Waste Truck	9
Waste Dozer	6
Auxiliary Equipment Operators	
Grader	3
Vibratory Compactor	3
Water Truck	3
Support Loader (Mill Rehandle)	3
Fuel and Lube Truck	3

24.6 Recovery Methods

24.6.1 Introduction

The processing of Altan Nar ore poses additional challenges over that of Bayan Khundii ore, these being predominantly high silver, high arsenic and a different mineralization (high Sulphur). However, it is expected that the method of recovery of gold and silver from this ore won't change to any significant extent from how gold is recovered from Bayan Khundii ore.

This section describes the method of recovery for an a Altan Nar plant feed. As much of the recovery methodology for Altan Nar is the same as Bayan Khundii, only the differences are discussed.

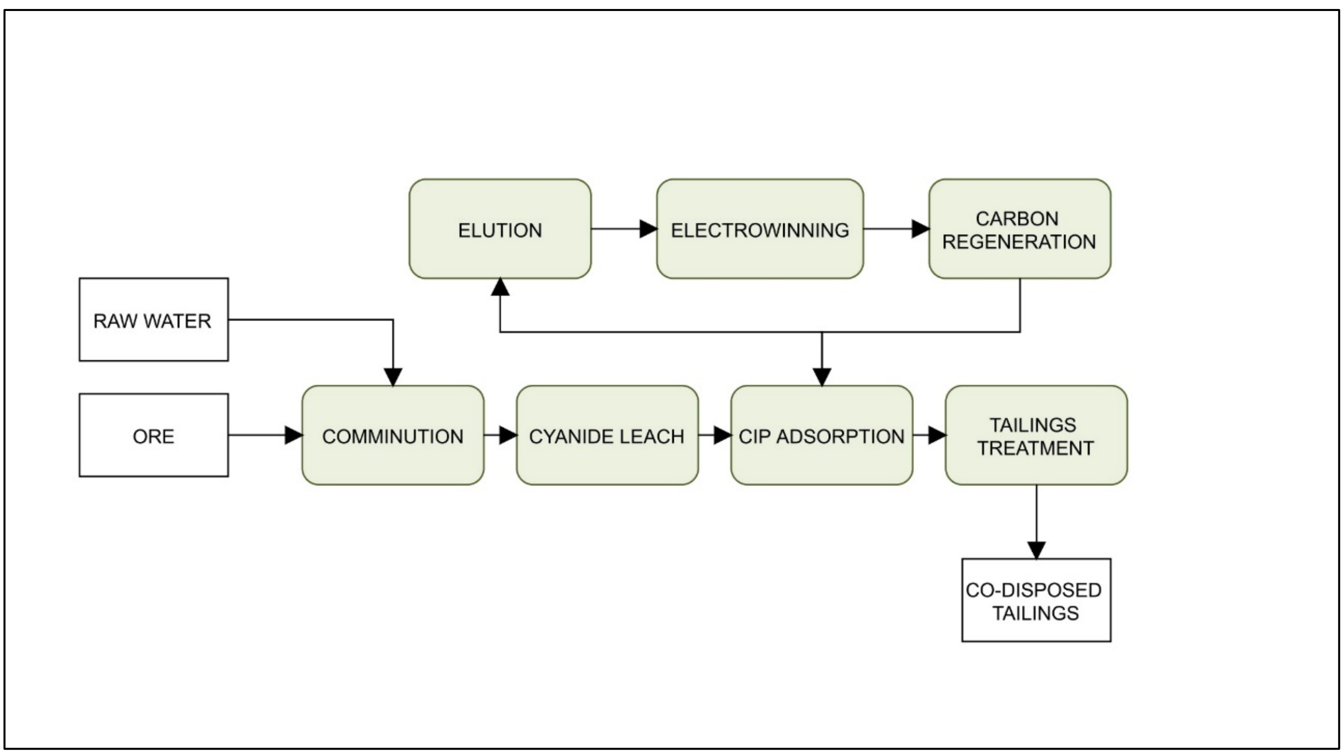
24.6.2 AN Process Description and Recovery Methods

24.6.2.1 Overall Process Flow

The overall Block Flow Diagram for the processing of Altan Nar ore has not changed from that of Bayan Khundii, however it is repeated below for ease of reference. It is expected that gold and silver will be recovered from Altan Nar ore via conventional cyanidation and Carbon-in-pulp (CIP) with plant tailings being co-disposed with Altan Nar mine waste.

The philosophy adopted during the development of the Bayan Khundii PFS was to not preclude the processing of Altan Nar i.e. by leaving space for expansion where required or by ensuring capital equipment can accept Altan Nar feed. The latter was only allowed if the Altan Nar feed characteristics relevant to the equipment in question did not depart significantly to that of Bayan Khundii.

Figure 24-11: Overall Process Flow Diagram – Unchanged from processing of Bayan Khundii ore



24.6.2.2 Flotation

Inclusion of a floatation circuit was investigated for the processing of Altan Nar ore. This flowsheet would produce multiple product and tailing streams:

- Lead Concentrate
- Zinc Concentrate
- Tail stream (high arsenic)
- Tail stream (low arsenic)

A trade-off investigation was undertaken that indicated Flotation should not be pursued. A summary of the findings and further points in support of this decision is provided below.

- Indicative payback period of up to 4 years.
- Gold and Silver reported primarily to the Lead and Zinc concentrate streams and would therefore be sold as credits on a Lead/Zinc product. The Payability terms of this concentrate means that the Gold and Silver will not realize their full revenue value. Revenue from Gold and Silver that is sold as Doré is likely to be greater than the combined revenue generated from Lead/Gold/Silver and Zinc/Gold/Silver concentrate sales. Placing the Flotation step after CIP was also included in this assessment with it being decided against due to a high capital cost against expected revenue of Lead/Zinc only concentrates.
- Complexity of plant operation increases markedly with the inclusion of multiple product streams and their associated handling.

24.6.2.3 Comminution

The SAG and Ball Milling circuits, as described in Chapter 17, were designed to accept Altan Nar feed. The test work for Altan Nar ore reported slightly higher Ball and Rod work indices than Bayan Khundii ore (Bond Ball Work Index BK: 16.1 kWh/t, AN: 18.4 kWh/t) and so the higher indices were used to size the mills for the plant. As the increase was in the order of 6% and the safety margin of comminution circuits is larger than this, to allow for variability of the ore it was found that the same installed power was calculated for both the Altan Nar and Bayan Khundii plants.

24.6.2.4 Leach and Gold Recovery

Changing to the Altan Nar feed will have the greatest impact on the Leach and Gold Recovery areas of the process plant. Test work has shown that Altan Nar ore contains higher sulphides and silver than Bayan Khundii Ore. As a result, processing Altan Nar ore will likely lead to increased cyanide consumption and operating cost. Cyanide preparation and dosing capacity will therefore need to have increased capacity.

The higher silver content of the Altan Nar ore will significantly increase the demand for adsorption sites on the activated carbon, thereby decreasing the time it takes for the carbon to be fully loaded. As a result, during periods of high silver (>~ 20g/t), two carbon elutions per day will be required. While this is not a favorable mode of operation, it is expected that these periods will be intermittent but achievable in a 24-hour period with a fully optimized elution circuit.

These process flowsheet changes will predominantly affect the operating cost of plant when processing Altan Nar ore, as described in Chapter 21.

The main difference in required plant for the two ores will be due to the increased silver present in Altan Nar ore and the effect on the capacity of EW cells and associated equipment such as rectifiers. These will need to be increased to approximately three times the Bayan Khundii size, to allow for the additional load. The additional capacity required can be roughly correlated to two times the difference between carbon loadings g Au only/t carbon and g Ag + Au/t carbon.

24.6.2.5 Tailings Handling

The handling of tailings produced from processing Altan Nar ore is not expected to change from that currently proposed for Bayan Khundii. The process is reiterated below for clarity:

1) Tailings are passed through a Thickener to:
    a. Recover cyanide into the process
    b. Reduce the amount of WAD cyanide which must be detoxified
2) Tailings are then filtered and stacked, for backloading to Altan Nar's IWF.

The Altan Nar tailings contain elevated arsenic when compared to the Bayan Khundii ore. No separate processing will be required to isolate the Arsenic as all of the plant's tailings will be impounded within Altan Nar's IWF.

24.7 Project Infrastructure

The majority of Infrastructure for Bayan Khundii will be re-used should Altan Nar be mined. This infrastructure is predominately located close to the Bayan Khundii open pit and the Integrated Waste Facility, with the exception of the Accommodation Village which is sited approximately 6 km north of the Bayan Khundii pit and 12 km South East of Altan Nar's pits.

Minor additions to infrastructure will be required should the Altan Nar operation be started, including:

- Security and fencing for Altan Nar mine site
- Potential satellite office and portable ablutions
- Increased Gold Room footprint
- Haul road upgrade.

A description of the additional required infrastructure is shown in the following section

24.7.1 Site Layouts

The Site Plan for Altan Nar and the overall site plan are presented below.

The Altan Nar mine site is located North North East (NNE) of Bayan Khundii and falls within the Tsenker Nomin license area. The site consists of seven proposed pits (Shown in green below in Figure 24-12) and an Integrated Waste Facility (IWF) containing both Altan Nar plant and mine waste.

Figure 24-12: Altan Nar Overall site plan (Top Left). Details Altan Nar Site and Bayan Khundii Infrastructure that will be re-used (Extract from Tetra Tech Drawing No. 226093-DM-001)

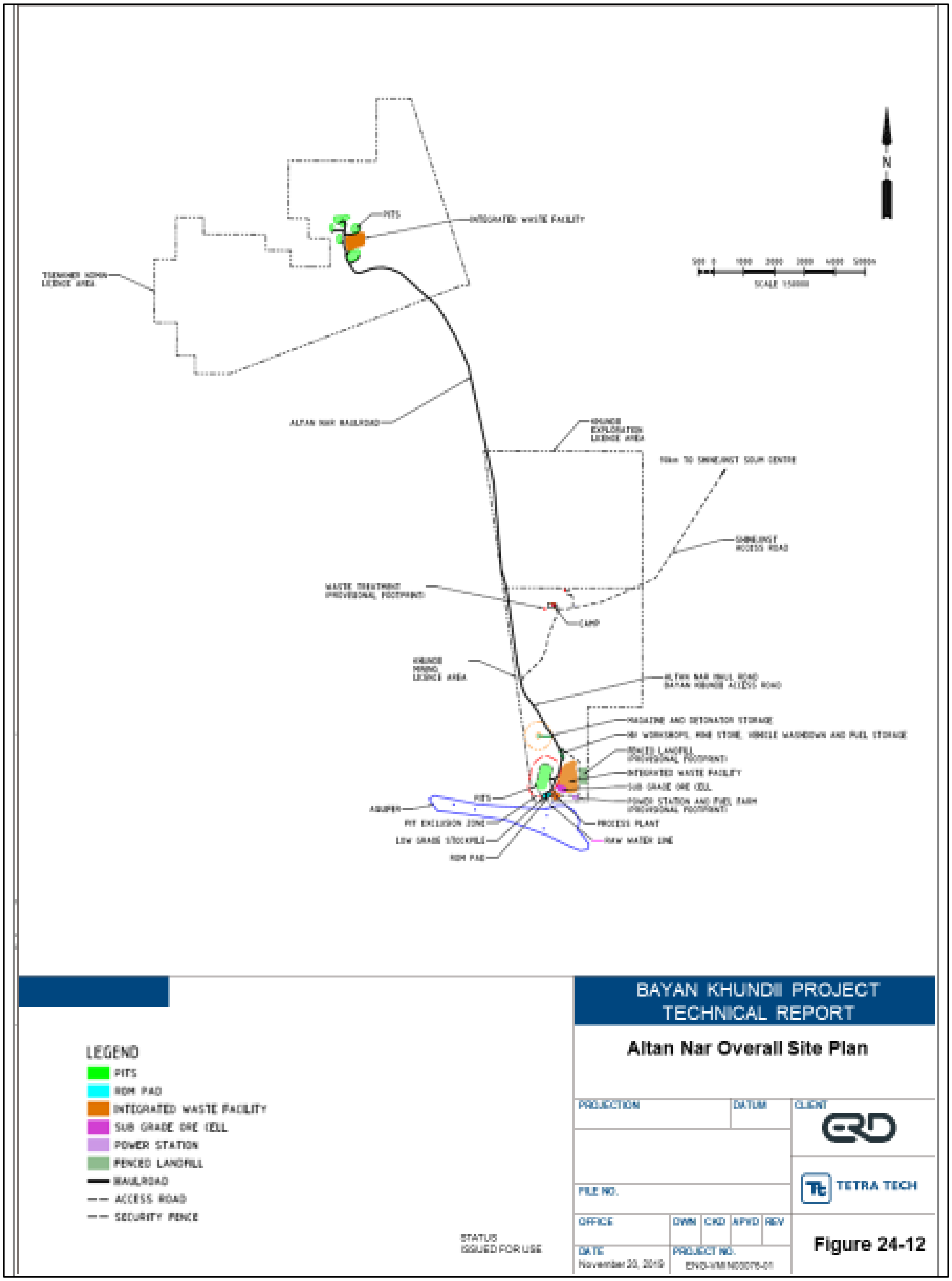


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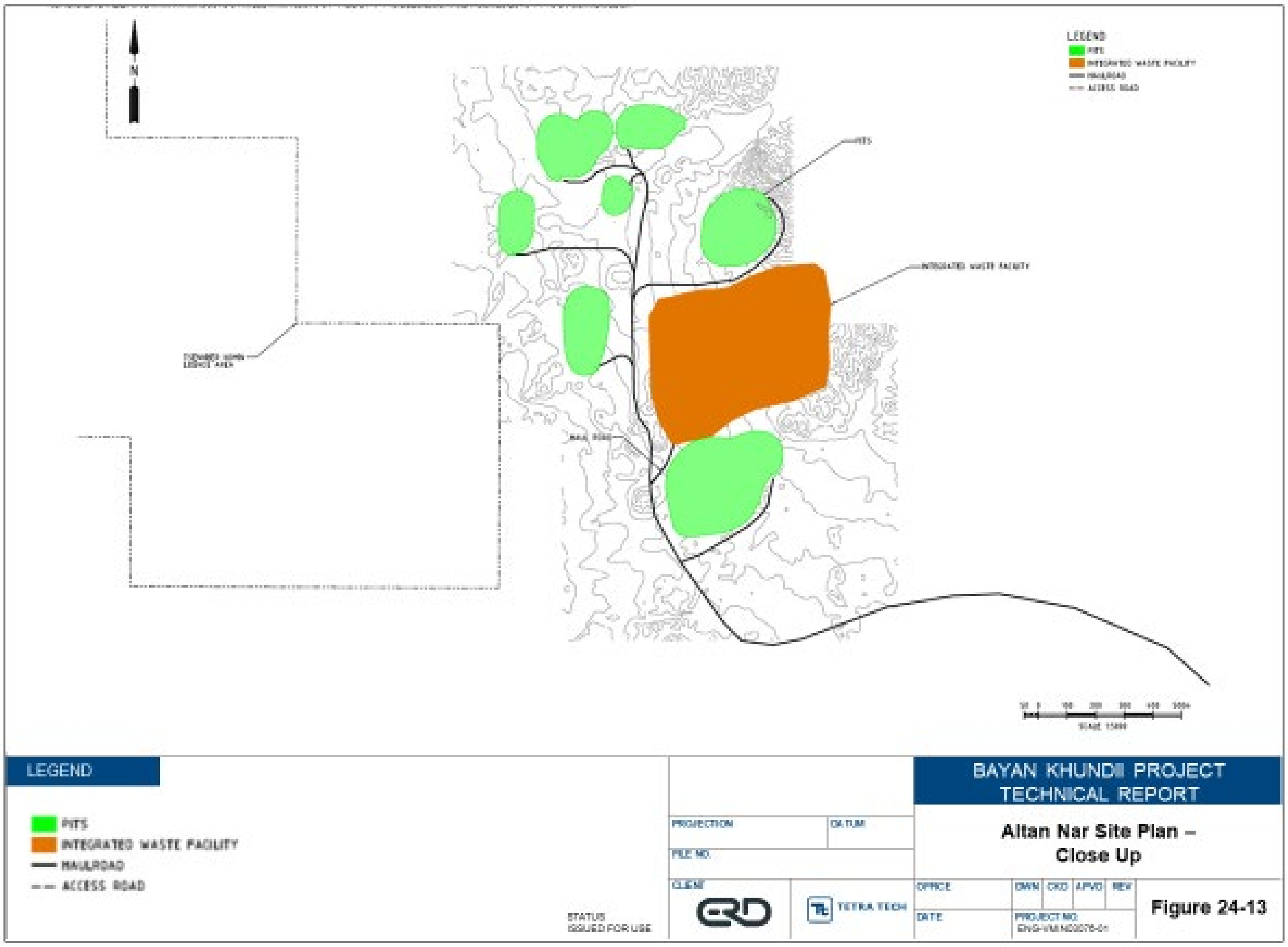
Figure 24-13: Altan Nar Site Plan – Close Up (Extract from Tetra Tech Drawing No. 226093-DM-006)



24.7.2 Site Roads – Site Access and Haul Roads

Site access will be via the same access roads used for Bayan Khundii to and from Shinejinst. This road runs to the accommodation village and is approximately 90km in length. It is approximately an additional 12km from the village to reach Altan Nar's mine site.

Access roads to Altan Nar for Light Vehicle traffic (LV) will follow the same route as Altan Nar Haul roads and so no dedicated LV access roads are required.

Haul roads for Altan Nar have changed only marginally from the previous iteration of the PEA, with minor adjustments being made and resulting from revisions to pit shells and the change to a common waste facility where Altan Nar tailings and Altan Nar mine waste will be co-disposed (Integrated Waste Facility or IWF).

In addition to the new Altan Nar haul road (i.e. from Bayan Khundii access road to Altan Nar mine site), the access road between the AN-Accommodation Village intersection and Bayan Khundii haul roads will also need to be upgraded to allow for Altan Nar Haul Truck traffic.

24.7.3 Power Supply, Distribution and Fuel

As Altan Nar will utilize much of Bayan Khundii's infrastructure, no significant change to permanent facilities will be required to generate site power and store fuel. It is expected that the power station will have to supply additional power to the electrowinning circuit given its requirement to recover silver, however the fuel farm and Heavy Vehicle refuel is not expected to change. Any power requirement resulting from the Altan Nar transportable office (located at the Altan Nar site) will be supplied by local generating sets.

24.7.4 Water Supply and Distribution

Water Supply and distribution infrastructure is not expected to require marked change from what is currently proposed for Bayan Khundii. Maintenance of haul roads to Altan Nar and other parts of the mine site that require water will be achieved with the use of water trucks.

24.7.5 Site Buildings

Bayan Khundii Site buildings including both mining and process plant related buildings will be used for Altan Nar mining and processing operations. Therefore, no additional infrastructure is required in this area, with the exception of a small satellite transportable office located near the Altan Nar mining operation. This will be used as a close-proximity office to support mining operations locally and used as required. However, it is expected that the majority of office work will be accomplished using the office facilities near Bayan Khundii.

Buildings located at the process plant will remain for Altan Nar. An increase in area will be required for the Gold Room to allow for an increase in capacity to the Electrowinning circuit. Provision has been included in the Bayan Khundii process plant layout to accommodate this expansion.

24.7.6 Accommodation and messing

Labor requirements for Altan Nar will likely be similar to Bayan Khundii and the accommodation village that is currently proposed for Bayan Khundii will be used for the Altan Nar operation. Therefore, no additional infrastructure is required in this area.

Accommodation and messing for Bayan Khundii is discussed in Section 18.7.

24.7.7 Waste Infrastructure

24.7.7.1 Integrated Waste Facility

Tailings produced from processing the Altan Nar ore will be transported from the Bayan Khundii processing plant and co-mixed with waste rock in a single above-ground IWF. This is consistent with the strategy adopted for Bayan Khundii and will represent the most efficient use of materials and minimise the overall footprint.

The IWF will be constructed consistent with the design adopted for Bayan Khundii. The IWF design adopted will allow for, at the completion of mining and process, there only being a small portion of the final layer that will require completion, with all of the external slopes having been completed progressively as it was built.

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24.7.7.2 Other Waste Infrastructure

It is expected that infrastructure relating to waste management will not change from what is proposed for Bayan Khundii. Portable toilet facilities will be available at Altan Nar's mine site. A service vehicle will be regularly empty and transport the blackwater back to Bayan Khundii for treatment. Waste infrastructure for Bayan Khundii is discussed in Section 18.8.

24.8 Market Studies and Contracts

24.8.1 Marketing Studies

Gold is a commodity that is freely traded on the world market and for which there is a steady demand from numerous buyers. It is also possible to sell gold for delivery at a fixed price at a future date (forward sale). There are a number of refiners in the world whose bars are accepted as "good delivery" through associations like the London Bullion Market Association (LBMA).

In Mongolia, the Government of Mongolia supports the purchase of gold Doré through Mongolbank, the central bank. Sales of gold to the Mongolbank have a fixed, discounted royalty, currently set at 5 percent under the Gold-2 Program. Mongolbank gold purchases are transacted according to the daily spot price on the London Metals Exchange. Exports of gold from Mongolia are subject to a graduated royalty scheme, ranging between 5 and 10 percent.

As a freely-traded commodity with clear framework for sales domestically in Mongolia, no marketing studies were considered necessary for the Bayan Khundii PFS or Altan Nar PEA.

24.8.2 Metal Selling Price

The selling prices used in the Bayan Khundii PFS and Altan Nar PEA were US$1,300/oz for gold and US$17.50/oz for silver. No value has been assigned to either the lead or zinc in the Altan Nar deposit because the base case capital and operating assumptions do not provide for the creation of any saleable lead or zinc.

The gold and silver selling prices are based on the three-year trailing average prices for each metal, for the period ending October 1, 2019. Given the variability and uncertainty surrounding future gold price, gold prices from $1,200 to $1,500 were considered in sensitivity analysis.

Tetra Tech considers this approach reasonable for the purposes of the Bayan Khundii PFS and Altan Nar PEA.

24.8.3 Sales Contract

No sales contract is required for the sale of doré to the Mongolbank. At the time of study, at least four points of sale for doré had been identified. In the closest provincial centre (Bayankhongor aimag centre) to the Project, Mongolbank operates a point of sale. Additionally, at least two commercial banks (Khan Bank and Golomt Bank) purchase doré at Mongolbank rates in Bayankhongor aimag centre. In Ulaanbaatar, the Mongolbank also purchases doré. For the purposes of this study, the point of sale of Project doré is assumed to be Bayankhongor aimag centre, due to its proximity to the Project site.

The Company is responsible for transportation, insurance, laboratory, and other charges associated with delivering the doré to the point of sale. For the purposes of this study, these charges have been calculated directly using budgetary quotations provided by licensed services providers in Mongolia.

No precious metals refinery currently operates in Mongolia. Refinement of doré purchased by Mongolbank is managed directly by Mongolbank.

Alternatively, the doré may be exported and sold internationally. Due to the increased royalty for precious metals export, export sale is not as economically viable as direct sales to Mongolbank.

24.9 Environmental Studies, Permitting and Social or Community Impact

24.9.1 Environmental Assessment Process

Mongolia's environmental assessment process for mining projects involves the following two steps:

i. General Environmental Impact Assessment (GEIA)
ii. Detailed Environmental Impact Assessment (DEIA), included Baseline Research and an Environmental Management Plan (EMP)

24.9.1.1 General Environmental Impact Assessment

The General Environmental Impact Assessment (GEIA) of a Project is a preliminary screening based on the nature, scale, and location of the Project. The GEIA is carried out by the Ministry of Environment and Tourism as part of the mining license application process. Ordinarily, the GEIA is conducted to determine whether a Detailed Environmental Impact Assessment is required for the Project.

24.9.1.2 Detailed Environmental Impact Assessment and Environmental Management Plan

The Detailed Environmental Impact Assessment acts as the official assessment of potential environmental and social impacts of a given Project, including the Project's Baseline Research and initial Environmental Management Plan.

The Environmental and Social (E&S) Baseline Research examines the existing context within which the Project is planned. The resulting description draws upon secondary data from government sources as well as primary information. The E&S Baseline makes up part of the registration of mineral deposits in Mongolia and is documented in full technical detail in the Detailed Environmental Impact Assessment.

The DEIA and EMP cover environmental and community or social impacts. A DEIA is obligatory for all mining projects in Mongolia and must be carried out by a Mongolian entity with professional certification for DEIA services granted by the government. The DEIA of a given project must be filed within 12 months of issuance of the mining license. The DEIA methodology is prescribed by the government and covers the potential impacts of a given project. During the DEIA, consultation with the local government at the soum (sub-province) level is required, covering potential impacts and proposed management plans.

24.9.2 Environmental Permits

24.9.2.1 Detailed Environmental Impact Assessment

The DEIA approved by the Ministry of Environment and Tourism of Mongolia acts as the Project's statutory environmental assessment and the basis for issuing operating permissions for the Project.

24.9.2.2 Local Cooperation Agreement

Pursuant to Article 42 of the Law on Minerals of Mongolia, minerals license holders are required to enter into a Local Cooperation Agreement with the local government of the jurisdiction within which a given minerals license is located. In 2016, the Government of Mongolia approved model Local Cooperation Agreements for minerals license holders that commit companies to undertake environmental management in the course of operations and encourage public information sharing about the license holder's activities locally.

24.9.2.3 Land and Water Use

Land use permissions are required for the mine and its facilities and associated infrastructure and are issued by the soum government authorities. Water use permission is based on the availability of surface and sub-surface resources and is issued by local, regional, or national authorities, depending on the required annual consumption.

24.9.2.4 Annual Environmental Management Plan and Report

License holders are required to earn approval of Environmental Management Plans for operations planned in a given year. Performance is reported annually to the government.

24.9.2.5 Other

Additional permitting may be required for chemicals and/or explosives handling, use, and storage, depending on the nature of the mining operations and mineral processing of a given project.

24.9.3 Baseline Studies

From 2016 to 2018, Erdene engaged Eco Trade LLC – a Mongolian certified DEIA consultant – to complete the Environmental and Social Baseline Research for the Project, in accordance with Mongolian rules and regulations. In 2019, a consortium, including Eco Trade LLC, Sustainability East Asia LLC, and Ramboll LLC, completed additional baseline studies for the Project.

24.9.4 Environment

The Project is in the northern part of the Altai Southern Gobi Desert region. The regional landscape is characterised by Gobi low hills which exhibit porous, rough surfaces. These hills have typically been eroded by water, temperature and wind, to create gullies that can be affected by erosion between hills, small dry channels, and the flat steppe existing between low hills. The central part of the Project area is flat in terms of land surface. The southern part of the license area where mineral exploration work has been conducted is composed of knolls with an elevation between 1,250 to 1,300 m.

24.9.4.1 Surface water quality, hydrology, hydrogeology

Groundwater is proposed to be provided from a borefield within the Khuren Tsav and Bosgyn Sair basins, which will provide the raw water supply for the Project, located approximately 20 km to the south of the Altan Nar deposit and 3 km to the south of the Bayan Khundii processing plant. The Project Site, Khuren Tsav and Bosgyn Sair aquifers lie within the arid climate of the continental Gobi Desert region. There are no permanent surface water sources, outside of the brief flow events in the ephemeral watercourses following a significant rainfall. The amount of rainfall required to generate surface flows will depend on the intensity of the rainfall, duration, slope and surface runoff capacity.

As these surface flows are short-lived and unpredictable, the flows are of limited use to the local population and wildlife (other than their importance for the recharge of shallow aquifers). The climatic records of the region indicate that an average year would include between two and five rainfall events resulting in surface water flows. Analysis of climate data has identified that approximately 70% to 80% of surface water flow events occur during the months of July and August.

Shallow groundwater has traditionally been the main source of water for the herders and their animals and where shallow enough, can also be exploited by larger wildlife. This shallow groundwater also locally supports small stands of groundwater dependent vegetation.

Baseline surveys of water and soil quality have shown elevated heavy metal concentration in drainages and herder wells. Arsenic, molybdenum and copper were all detected at levels above the relevant standards, particularly in areas near ore bodies. The levels are naturally occurring, and this should be considered in subsequent analysis of water and soil heavy metal content.

24.9.4.2 Erosion

Soils in the region are significantly eroded from prevailing strong winds. There is a lack of soil structure on the Project site, including low humous content and very low moisture retention capacity. Other than areas of isolated mineral exploration activity and unimproved dirt roads, the occasional herder shelters and the effects of grazing are evident (primarily camels and goats). However, the land has not been significantly degraded by human settlement or technical operations.

24.9.4.3 Climate

The Project area is subject to the extreme climate of the continental-Gobi-desert region, and to four seasons much like the other territories of Mongolia. Orographic conditions and local micro wind affect the air current formation and creates a dry and drier micro region where precipitation and humidity are relatively low, with hot summers and cold winters. Cloudiness, precipitation and snow cover are generally low. Absolute low temperature reaches -37.4°C and absolute high temperature reaches 44.9°C. Annual mean temperature is around 0.7°C. The region has mean annual precipitation of 105 mm.

Although precipitation is generally low in this region, there is a 1 in 50 year chance that the maximum amount of 50 to 60 mm precipitation could fall within a single day, creating flooding, cloudburst and lightning to occur. In summer, rain falls in 15 to 20 days, lightning occurs in 5 to 10 days and they last for about 35 hours totally.

Frequency of the dominating wind direction is 28.7% from northeast, 25.1% from west and 16.9% from northwest. The prevailing wind direction varies seasonally. Depending on the wind force, 10 to 15 days of blizzard occurs and 28 to 30 days of dust storm blows per year of which most of them occur in windy spring months of March to May. When wind reaches the speed of 6 m/s, dust and soil becomes mobile, and when it reaches 10 m/s, dust storm intensifies. In this region, wind with a speed of more than 10 m/s blows for 35-40 days per annum.

24.9.4.4 Dust and Air Quality

The locality surrounding the Project Site is subject to seasonal strong winds and short-term dust storm events during the spring season. The area is characterised by naturally elevated ambient particulate concentrations generated by wind erosion processes on desert soils.

Short monitoring campaigns were completed measuring particulate matter (PM10 and PM2.5) in the vicinity of the Project during 2016 and 2019, and for sulfur dioxide (SO2) and nitrogen dioxide (NO2) in 2019. From the available data, all 24-hour periods were below the relevant Mongolian Air Quality Guidelines (MNS 4585:2007), International Final Corporation (IFC) Environmental Air Emissions and Ambient Air Quality Guidelines (2007) and EU Directives 2008/50/EU.

The nearest permanent settlements to the KGP site are Shinejinst and Bayan-Undur, located 70 km northeast and 80 km to the north, respectively. The Project are is located on sparsely populated region (i.e. <0.8 per person per square km) as of 2018. No permanent human settlement near the KGP site, however, nomadic pastoral activity occurs in the region. There are known seasonal herder camp sites approximately 10 km to east of the project. These herder camps are not continuously inhabited and lack any permanent facilities.

The nearest sensitive receptor to the Project is the KGP workers accommodation camp, located within the Project boundary about 15 km south from the mine site at Altan Nar. It is expected that workers from the mine will reside in this location.

24.9.4.5 Noise

The Project site is located in a greenfield area, 70-80 kms from the nearest towns, with no permanent anthropogenic noise sources identified. Limited drilling activities during spring to autumn and the temporary exploration camp are the only observed man-made noise sources currently. Apart from these, wind is the main natural noise source at the Project site. The baseline noise levels are under the threshold levels recommended by Mongolian national and International standards. Due to the remoteness of the Project site from any industrial development and human settlements, it is believed that the vibration level is within a natural range.

No permanent summer or winter herder camps within a distance where people or livestock will be detrimentally affected by noise or vibration from the KGP have been identified. Shinejinst and Bayan-Undur soum residents will not be impacted by the increased noise levels by the KGP due to the large distance (i.e. 70 km) between the mine site and the soums. Potential sensitive receptors that may be negatively impacted by an increase in ambient noise and vibration levels during the construction and operation of the Project are the mine site workers at the Project site and herder families temporarily camping close to the mine site.

24.9.4.6 Vegetation

Vegetation within the Project area was surveyed in 2016, 2017 and 2019 to record a variety of parameters including species composition, abundance and conservation status. Plant samples taken during the surveys were compared with the key references on Mongolian flora together with the Mongolian Red List of Plants (2012), Mongolian Law on Natural Plants (1995), and the IUCN Red List to identify rare, very rare or otherwise conservation significant taxa.

According to the geographical zonation of wildlife in Mongolia, the Khundii Gold Project area is situated within the Gobi Altai Mountain range zone. Similar to other southern Gobi regions in Mongolia, flora species diversity in this region is ‘generally poor’ (i.e., relative low numbers of species), with some Central Asian endemic plants. Diversity and abundance of vegetation species in the region is highly dependent on seasonal precipitation levels and distribution.

24.9.4.7 Fauna

The fauna of the Project area was surveyed during the summer of 2016, 2017 and again in 2019. The fauna of the Gobi region is diverse, with many widespread species typical of the Central Asian and Near Eastern deserts. The low human population density and high degree of isolation of the southern Gobi region of Mongolia has resulted in the survival of many threatened species that are much rarer in neighbouring countries, making the South-West Gobi a region of interest for fauna conservation. The KGP is situated between the Great Gobi Strictly Protected Area Part A (to the south to west) and Gobi Gurvan Saikhan National Park (to the east), thus the Project area could be an important corridor area linking the protected areas for wildlife movement.

24.9.4.8 Social

The Project is located within the territories of Shinejinst and Bayan-Undur soums of Bayankhongor aimag in southwestern Mongolia. The direct Project area does not contain any permanent structures and is occasionally populated by mobile herders during the spring and autumn, depending on local weather conditions.

Researchers from The Department of Anthropology and Archaeology, School of Sciences of the National University of Mongolia conducted surveying of the Project area in 2016. This survey was done in the places with potential to host ancient tomb or ritual establishments, in and around mountains, and near vegetation. As a result of this survey, no artifacts related to ancient tombs or other human activities were identified in the suspected places.

The primary economic activity of the two soums is animal husbandry, with the majority of household income derived from the sale of raw cashmere wool. The two closest settlements are located approximately 90-100 km north of the Project, each hosting approximately 200 households. Basic goods and services are available in the town centres, including fuel, household items, and national grid electricity. Without centralized water distribution or waste water treatment and disposal, fresh water is distributed by truck from water wells in the settlements. Permanent job opportunities in the soums are limited and mostly involved in the provision of government and public services.

24.9.5 Consultation

Erdene consults with stakeholders in the course of its business, including both statutory and voluntary.

24.9.5.1 Statutory Consultations

Mongolian law requires consultation with local stakeholders during the DEIA process. The Project proponent must provide information about the Project’s potential impacts and management plans to the public in a manner which is accessible for the residents of the soum (sub-province) within which the Project is located. Certification of local consultation is supplied by the local government. The Local Cooperation Agreement provides an additional pledge for ongoing consultation with local stakeholders over the course of the Project life cycle.

24.9.5.2 Company Stakeholder Engagement Policy

In addition to the DEIA process, Erdene engages with stakeholders on an ongoing basis. All material information regarding the company’s performance is translated into Mongolian within approximately 48 hours of disclosure and made available on the websites of Erdene and the Mongolian stock exchange. The company maintains a grievance handling mechanism for both internal and external stakeholders at its field sites and Ulaanbaatar office, and provides training for company personnel on how to implement the mechanism. Additionally, Erdene shares the results of its local environmental monitoring programs during fieldwork periods.

24.9.5.3 Environmental Management

The Project Overarching Environmental and Social Management Plan (ESMP) is the key tool through which the commitments to mitigation, management and monitoring measures are expected to be implemented, many of which will be defined through the Project’s ESIA process. The Overarching ESMP will comprise a framework document and a suite of topic-specific management plans that will cover the construction and operations phases of the Project.

The Overarching and topic specific ESMPs will be living documents and will be reviewed periodically (and updated, as necessary) to ensure that they reflect the requirements applicable to the Project and its activities.

24.9.5.4 Dust Management

With the introduction of motor vehicle traffic and mining operations, ambient dust levels may potentially increase locally. Although there are no permanent residents at the Project site, seasonal residents may be concerned about the potential effects of elevated dust levels on human and animal health and well-being. Appropriate control and management options shall be developed for the Project and implemented as part of the Management Plans, like those in place at other industrial mines elsewhere in Mongolia's Gobi region.

24.9.6 Geochemical Characterization

The waste produced from the mining and processing of the Altan Nar deposit poses additional challenges over that of Bayan Khundii, these being predominantly high silver, high arsenic and a different mineralization (high Sulphur). As such, waste rock and tailings will be stored within a purpose-built integrated waste facility. This is consistent with the strategy adopted for Bayan Khundii and will represent the most efficient use of materials and minimise the overall footprint, while ensure waste containment.

Further geochemical characterization of the waste lithologies which will be mined should be undertaken to better define potential contaminants of concern and identify potential sources of clean construction material.

24.9.7 Water Management

The Project process plant has been designed to optimize water recovery through the thickening and filtration of tailings. It is expected that a groundwater monitoring program will be implemented to identify potential impacts to existing herder water supplies, if any. The ongoing analysis of water quality in groundwater wells within the Project area is likely to be a consideration to address potential perceptions of mine impacts to water quality. Construction related impacts to surface and groundwater are expected to be of low significance and are proposed to be managed using Good International Industry Practice and will be defined in the Project design documentation and the relevant Management Plans. These practices include the use of surface water drainage design and erosion control techniques.

24.9.8 Infrastructure Requirements

Noise attenuation will be provided to meet the relevant Project and Mongolian Standards for occupational health and safety requirements.

A key aim for the Project is to minimise waste and ensure that every effort is made to recover and recycle waste on-site through design and the strict application of the relevant environmental management plans.

An issue specific Traffic Management Plan (TMP) is expected to be prepared to document a range of strategies, responsibilities, monitoring and outcomes required. This TMP will be especially important in relation to the proposed AN-Bayan Khundii process plant haul road.

24.9.9 Social and Community Impacts and Benefits

The Project is committed to prioritising the employment of local residents from Shinejinst and Bayan-Undur soums, as well as from the wider Bayankhongor aimag. Building on existing Company policy, local recruitment and training will be articulated in the Human Resources Management Plan. Community development activities that foster local skills development will be supported through the Community Development Management Plan, including for example, continuation of Erdene's existing scholarship programme.

The Project will result in increased revenues accruing to the national and local budgets through various fees, taxes, and royalties, Project payments of which will be disclosed by the Company through for example, annual reporting requirements, in addition to dedicated communications with local government about public investment.

Ongoing monitoring of pasture use through fit-for-purpose consultation with the herders in the Project area will be conducted to understand changes / impacts to land use (if any). All off-road driving by any KGP Project-related vehicle will be prohibited unless in an emergency situation. Erdene's Grievance Mechanism will be refreshed and adapted to the construction, operation and closure needs of the Project.

A Chance Finds Procedure, building on Erdene's work stoppage policy and designed to ensure the safety, integrity and proper handling of any previously undocumented objects of cultural or historical significance (including archaeological assets and paleontological features), will also be implemented as part of the Project.

24.9.10 Mine Closure Plans

The overall vision of closure for the Altan Nar site is to have all evidence of the operation removed, with the exception of the seven final voids and the Integrated Waste Facility (IWF). The remainder of the areas impacted by the operation will be returned to their pre-operation form and revegetated.

Tailings and waste rock produced by the seven pits in the Altan Nar project will be placed in a single IWF similar to that planned for the Bayan Khundii project. Constructing a single IWF minimizes loss of land and optimizes use of resources including material to construct a cover over the IWF.

The selection of this conceptual design including the final batter slope has been developed based on both the closure objectives and the expected properties of the material being used to construct the outer layers of the IWF.

24.10 Capital and Operating Cost Estimation

Tetra Tech prepared capital (CAPEX) and operating cost (OPEX) estimates for the Altan Nar PEA according to the Association for Advancement of Cost Engineers (AACE). Capital and operating cost data in this section is completed to AACE Class 5 standards, with expected accuracy range of +/- 30%. All costs are in United States Dollars unless otherwise specified. Foreign currency exchange rates used where applicable are summarised in Table 24-22 below.

Table 24-22: Foreign Exchange Rates

Project Currency	Exchange Rates
MNT:USD	2645: 1
AUD:USD	1.47: 1
EUR:USD	0.90: 1
CAD:USD	1.32: 1

All capital and operating cost estimates stated in this section have been based on the equivalent estimates completed for the Bayan Khundii PFS study. These updated costs have been scaled and adjusted for Altan Nar inclusive of modifying factors specific to the Altan Nar property.

24.10.1 Capital Cost Estimate

Capital cost estimates for Altan Nar are based on additional infrastructure, upgrades or repair required to establish the Altan Nar site to complement operations at Bayan Khundii towards the end of the initial life of mine. Capital cost estimates do not include provision for a second processing plant or camp, and existing equipment maintenance infrastructure and haul roads at Bayan Khundii are expected to be utilized. Total initial CAPEX for Altan Nar is expected at US$2.2M. A summary of the expected CAPEX costs for the Altan Nar site is provided in Table 24-23 below.

Table 24-23: Capital Cost Summary for Altan Nar

Area		Cost (US$ million)
Direct Costs		
2000	Mine (Haul Roads)	1.30
3000	Process Plant	0.05
Direct Cost Subtotal		**1.35**
Indirect Costs		
7000	Site Establishment & Early Works	0.29
8000	Management, Engineering, EPCM Services	0.005
9000	Pre-Production Cost	0.54
Indirect Cost Subtotal		**0.84**
Total		**2.20**

Note: Rounding may cause some computational discrepancies

Construction of the haul road network between the Altan Nar mine site and the existing Bayan Khundii processing plant composes the largest portion of expected direct costs in this case. Capital costs for mining equipment have not been included in the estimate as a contractor mining scenario is expected for the Altan Nar mine, consistent with the approach adopted for Bayan Khundii. Mine costs are limited to essential mining infrastructure, utilities and haul roads. The main haul road between the two mine sites is estimated at 21.0 km in length and will be installed as a permanent road capable of withstanding heavy vehicle traffic. Additional costs have been allocated for desorption and goldroom facilities at the processing plant, however, major upgrades or changes to the processing plant to accommodate Altan Nar ore are not expected.

Indirect costs include facilities for construction during site establishment and early works phases and EPCM services for any additional changes to existing equipment or infrastructure required. Pre-production costs including labour, commissioning expenses and freight and logistics are included with indirect costs, alongside taxes and duties and contingency provision.

24.10.1.1 Exclusions from Capital Cost Estimate

- Working or deferred capital
- Financing costs
- Land acquisition
- Currency fluctuations

- Lost time due to severe weather conditions
- Lost time due to force majeure
- Additional costs for accelerated or decelerated deliveries of equipment, materials, or services resultant from a change in project schedule
- Any project sunk costs (studies, exploration programs, etc.)
- Mine reclamation costs (included in financial model)
- Mine closure costs (included in financial model)
- Escalation costs
- Major scope changes
- Cost of future study
- Community relations

24.10.1.2 Sustaining Capital Cost Estimate

Sustaining capital estimates have not been included in the Altan Nar cost estimate and economic analysis at this stage.

24.10.2 Operating Cost Estimate

Operating costs are defined as direct operating costs, including mining, processing, tailings and waste rock storage, water treatment and G&A. Costs are reported in US dollars unless otherwise stated. The expected accuracy range of the operating cost estimate is +/- 30%.

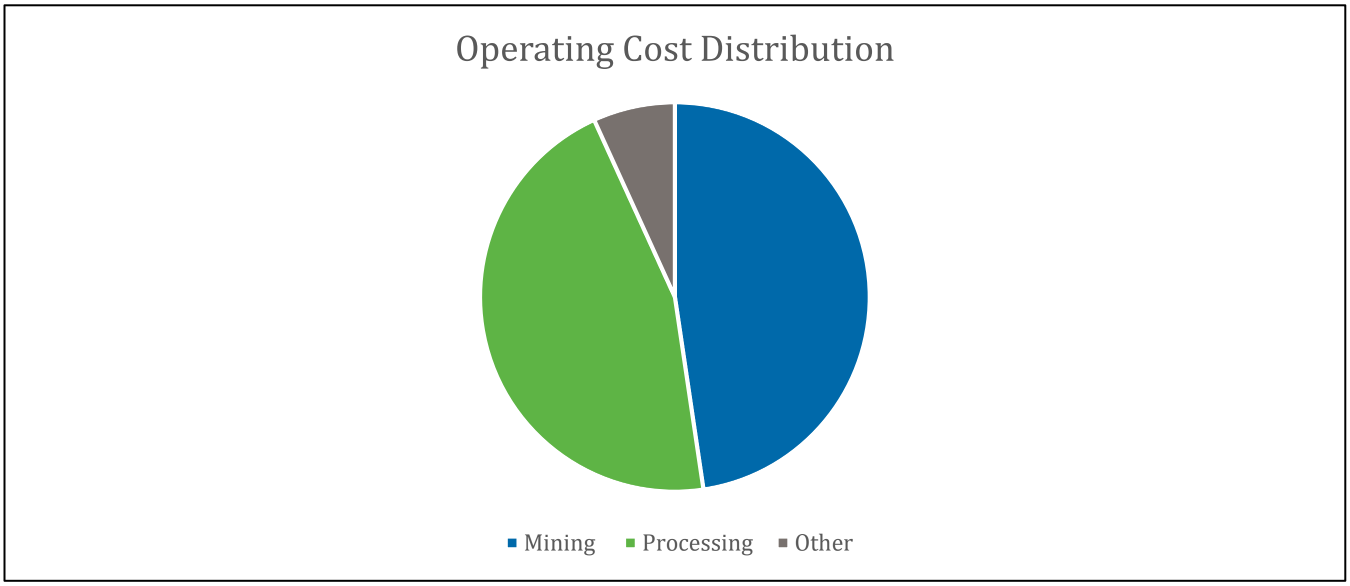
The LOM average operating cost for the Project is estimated at US$68/t milled at the nominal process rate of 1,800t/d or 600kt/year. This operating cost is derived using total LOM operating costs divided by LOM milled tonnages and excludes pre-production mining costs. The cost distribution for each area of the proposed mining operation is summarized in Table 24-24 and Figure 24-14 below.

Power will be supplied from the on-site power plant located to the southeast of the mill and processing facilities and is not expected to be sourced from the local grid. The power plant will supply 6.6 kV power to the process plant and other mine infrastructure through a combination of solar and diesel power generation. Fuel costs will therefore indirectly comprise a portion of the power cost for both mining and processing activities.

Table 24-24: Operating Cost Distribution by Operating Area at Altan Nar Mine

Operating Cost Summary	Total Cost (LOM Million)	Cost $/t Milled (LOM Average)
Mining Costs	58.5	32.25
Processing Costs	55.9	30.82
General and Administrative Costs	8.4	4.60
Total Operating Cost	**122.8**	**67.67**

Figure 24-14: Operating Cost Distribution Pie Chart



24.10.2.1 Mining Operating Costs

Open pit mining costs were estimated from the mining schedule and estimates for quantities of fuel, explosives, labour, machinery maintenance and consumables costs which are based on the initial build up for the Bayan Khundii operations. Additional costs were included for capital recovery and contractor margin. Arbitrary cost information was sourced from supplier quotes and equipment specifications, historical data from Tetra Tech's internal database and currently estimated costs for the Bayan Khundii project.

Labour costs are estimated from currently available salary data provided by ERD and converted from the local currency, Mongolian Tughrik, to US Dollars using an exchange rate of MNT 2645: USD 1 as described in Table 24-22 in Section 24.9 above.

Table 24-25: Mining Operating Cost Breakdown per Tonne Mined

Operating Cost Type	LOM cost US$ Millions	Average US$/tonne mined
Fuel	12.6	0.79
Power	0.75	0.05
Maintenance	22.34	1.41
Consumables	5.26	0.33
Labor	12.56	0.79
Capital recovery	2.18	0.13
Total costs	**55.69**	**3.50**

Note: rounding may cause some computational discrepancies

Core mining operations including drilling and blasting, loading and hauling and auxiliary equipment costs have been built up from first principles. Production drill operating hours are estimated from blast design parameters and equipment specifications for both ore and waste areas. Explosive quantities are determined based on powder factor calculations with initiation systems and blasting accessories included on a per-hole basis. Costs for explosives delivery and loading are included from vendor information.

Truck and shovel hours are based on the operating capacities of each piece of equipment, average speeds for ramp and flat areas of the haul cycle and spot, load and dump times from equipment specifications. Auxiliary equipment has been included based on estimated operating hours from average daily utilization. Maintenance costs have been calculated as an hourly operating cost for each piece of equipment based on the use of RPM XERAS™, supplier information and Tetra Tech’s internal database.

Labor costs have been estimated using a personnel build-up based on the total equipment fleet operators and maintenance staff, with administrative and supervisory positions added based on the scale of the operation. Annual labor costs were derived using on-costs (burden) for site allowances and travel costs to and from site depending on the shift rotation for each position (Table 24-26 below). Contract positions have been included for equipment operators and maintenance staff.

Table 24-26: Shift Type Descriptions

Labour Shift Type	Daily Hours	On/Off Roster	Shifts/ Day	Personnel Included (General Allocation)
Day Admin	12	18/9	1	Admin Staff, Managerial Positions, Health & Safety
Day Work	12	18/9	1	Day Operators/Crew, Maintenance, IT, Supply Chain, Lab Workers, Power Station, Camp Managerial Staff
Shift Work	12	18/9	2	All Heavy Equipment/Vehicle Operators and Mechanics, Emergency Support, Camp Staff

24.10.2.2 Processing Operating Costs

The process operating costs for processing of Altan Nar ore are not expected to significantly vary from that estimated for Bayan Khundii.

However, additional power will be required by the electrowinning circuit, to treat the additional silver contained in the ore. To account for this, as well as any increases to reagents for treating the additional silver, an increase to the

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process operating costs of US$60k/year was allowed to process ore from Altan Nar, in addition to Bayan Khundii's operating costs.

Multiple vendors were solicited to provide estimates for the additional power required for electrowinning in a high-silver scenario and these were used to estimate the additional cost.

Costs that are expected to remain the same to the estimate for Bayan Khundii include General & Administrative costs, Process Plant labor, process plant general costs, plant maintenance, most of the reagents and those smaller cost areas not specifically mentioned above.

It should be noted that 92% of the Bayan Khundii Processing Operating Costs is associated with labor, reagents and power. By confirming the changes to these three categories and noting that the other categories are largely unchanged, the required accuracy for the Altan Nar Processing Operating Costs has been met.

Discussion on the estimate of Bayan Khundii's operating cost estimate can be found in Section 21.3.2.

24.10.2.3 Other Costs

Other costs include general fixed expenses and overhead costs including off site local and international labor, as well as flights, messing and accommodation for staffing the operations. These costs total US$8.35M over life of mine, averaging US$2.0M per year or an average of US$4.60/t milled.

Note that general and administrative costs exclude management oversight of mining and processing, which are included in mining and processing costs.

24.10.3 Reclamation and Closure Costs

Reclamation and closure capital costs have not been included in the Altan Nar cost estimation at this stage.

24.11 Economic Analysis

24.11.1 Introduction

Tetra Tech prepared an economic evaluation of the Altan Nar project based on a pre-tax financial model created for this PEA study. Financial modelling for the Altan Nar PEA has been completed as a marginal analysis, assuming the use of processing infrastructure at Bayan Khundii. Standalone financial modelling of Altan Nar resources has not been undertaken. For the 4-year total life-of-mine, the following pre-tax financial parameters were estimated using the base case parameters (Table 24-27 below):

- 110.1% IRR
- 0.99-year payback period on US$2.5M initial capital expenditure
- US$30.5M NPV at a 5% discount rate

Subsequently, a post-tax financial model was created using the base case parameters (Table 24-28) resulting in the following financial parameters:

- 42.1% IRR
- 1.07-year payback period on US$2.5M initial capital expenditure
- US$24.1M NPV at a 5% discount rate

Sensitivity analyses and additional metal price scenarios were completed to assess the project economics, the detail of which can be found in Section 24.10.4 below.

24.11.2 Assumptions and Parameters

The economic model included in this PFS was based on the following key assumptions:

- Infrastructure from the Bayan Khundii mine, including the processing plant, accommodation village and other support facilities will be used in the operation of Altan Nar
- The project will be 100% equity funded
- Mining will be undertaken by a contractor with owner management oversight
- Royalties included to Sandstorm Gold Limited and the Mongolian Government are fixed for the duration of the life of mine at 1% and 5% of total project revenue respectively
- Cost estimates included within the financial model are accurate to within +/- 30%

Table 24-27: Parameters Used in Pre and Post-Tax Financial Models

Parameter	Unit	Value
Gold Price	US/oz	1,300
MNT/US Exchange Rate	MNT:USD	2,703:1.00
Gold Payable	%	99.85
Transport Cost	US$/oz Au	3.00
Assays	US$/oz Au	1.00
Insurance	US$/oz Au	0.40
Treatment/Refining Cost	US$/oz Au	2.00

24.11.3 Economic Analysis Results

The production schedule set out in Section 24.4, has been incorporated into the financial model to develop annual recovered metal production from tonnes processed, head grades and estimated recoveries. Revenues for gold produced are estimated based on the price shown in Table 24-27 above.

Operating costs for mining, processing, site services and G&A, waste rock and tailings storage and off-site charges were deducted from the revenue to derive the annual operating cash flow. From this operating cash flow, initial capital, closure and reclamation costs were deducted to determine the net pre-tax cash flow. Initial capital as described in Chapter 21, Section 21.1, includes costs incurred prior to first production of doré or concentrate, including all pre-production mining costs and infrastructure development.

Initial capital costs included within the financial model total US$2.5M. Mine closure and reclamation costs of US$0.3M have been included for the final year of the LOM. Working capital is estimated as one month of total site operating costs at US$1.4M and is recovered throughout the mine life with the bulk of working capital recovered during the second quarter of operations.

Table 24-28: Financial Results from Altan Nar Economic Model

Financial results	Units	Value	$/tonne
Mining			
Tonnes Milled	‘000 tonnes	1,814	
Gold Head Grade	g/t	3.46	
Silver Head Grade	g/t	17.03	
Doré production			
Gold Ounces Produced	‘000 oz	136	
Silver Ounces Produced	‘000 oz	616	
Total Project Revenue	**Million US$**	**$186**	**$102**
Operating Costs	Million US$	$123	$68
Royalties	Million US$	$11	$6
Operating earnings	**Million US$**	**$52**	**$29**
Initial Capital Expenditure	Million US$	$3	$1.4
Pre-tax Cash Flow	Million US$	$49	
Taxes	Million US$	$10	
Post-tax Cash Flow	Million US$	$39	
Post-tax NPV at 5% Discount Rate	Million US$	$24	
IRR	%	92%	
Payback Period	Years	1.07	

24.11.4 Sensitivity Analysis

Tetra Tech investigated the sensitivity of the Altan Nar Project NPV and IRR to key project variables. Using the base case post-tax model as reference, the value of each of the key variables was studied when varied by +/- 30% in 10% increments. The sensitivity analyses were performed on the following project variables:

- Gold prices

- Capital costs
- Operating costs

This analysis is presented graphically in Figures 24-15 and 24-16 with respect to post-tax NPV and IRR values. Both the project NPV and IRR are most sensitive to fluctuations in the gold price and operating costs.

Figure 24-15: Post-Tax NPV5% Sensitivity Analysis

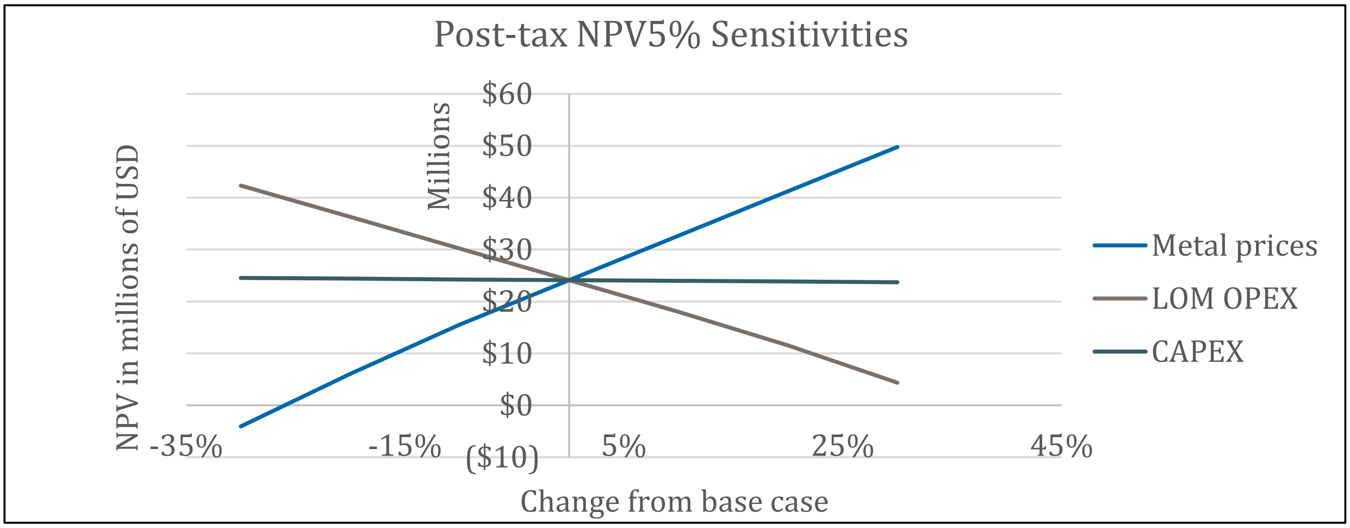
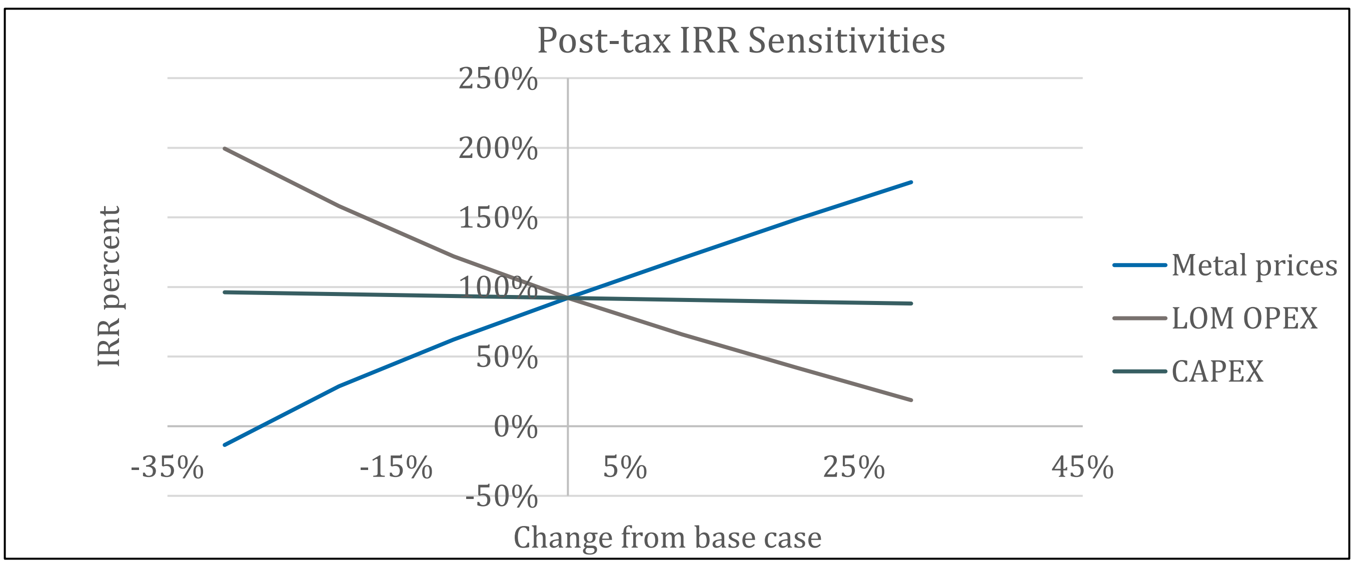


Figure 24-16: Post-Tax IRR Sensitivity Analysis



The NPV was also estimated for varying discount rates, with Tetra Tech applying 5% as the base case. Table 24-29 shows the post-tax NPV at varying discount rates.

Table 24-29: Post-Tax NPV Estimates at Varying Discount Rates

Post-Tax NPV	Unit	Value (US$)
0%	000$	$38,977
5%	000$	$24,118
8%	000$	$19,101
10%	000$	$15,189

24.11.5 Royalties

Royalties for both Sandstorm Gold Royalties and the Mongolian Government have been included in the Altan Nar financial model. Both royalties are applicable to net revenue from gold sales. Details of the royalty terms are provided in Table 24-30 below:

Table 24-30: Royalty Terms for Altan Nar Project

Royalty	Amount	Duration	Total Expected Revenue (US$ Million)
Sandstorm Gold Royalties	1% Revenue	LOM	1.9
Mongolian Government	5% Revenue	LOM	9.3

24.11.6 Breakeven Analysis

Tetra Tech evaluated metal pricing, operating cost and capital costs that would result in an NPV at a 5% discount rate of zero. These evaluations were done independently and as such do not reflect the impact of variance of multiple input parameters. The pricing and cost resulting for zero NPV are:

1. Gold price of US$960/oz
2. Total operating cost of US$92.27/t milled
3. Initial capital cost of US$41.49M

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25.0 INTERPRETATIONS AND CONCLUSIONS

25.1 Bayan Khundii Prefeasibility Study

25.1.1 Geology and Mineral Resources

Mineralization at Bayan Khundii consists of gold ± silver in massive-saccharoidal, laminar and comb-textured quartz± hematite veins within parallel northwest-southeast trending, moderately-dipping (~45°) zones that range in width from 4 to 149 m. These zones typically consist of narrower higher-grade mineralization surrounded by broader lower grade mineralization. Intense alteration that overprints all Devonian tuffaceous rocks at Bayan Khundii, including the outcropping Southwest and Northeast Prospects where virtually all primary minerals have been variably replaced by quartz and illite. Bayan Khundii is characterized as a low sulphidation epithermal gold deposit.

The mineralization at Bayan Khundii is exposed at surface in the southern portions of the deposit (Striker Zone) but constrained stratigraphically to the north (Midfield and Midfield North) by a package of Jurassic sediments (primarily conglomerates and sandstones) which unconformably overlay the mineralized tuff and contain localized intercalated basalt flows. At depth, mineralization is further constrained by a granitoid body.

The resource was estimated using three interpolation methods: nearest neighbor, inverse distance squared, and ordinary kriging. The results of the ordinary kriging method were used for the resource tabulation.

At a cut-off grade of 0.55 g/t Au, Bayan Khundii has been estimated with a Measured Resource of 1.41 Mt at an average grade 3.77 g/t Au, an estimated Indicated Resource of 3.71 Mt at an average grade of 2.93 g/t Au, and an estimated Inferred Resource of 0.868 Mt at an average grade of 3.68 g/t Au.

25.1.2 Metallurgical Test Work

The metallurgical testwork has confirmed the parameters for the major aspects of the design of the processing plant. Some minor aspects have not been tested to date; however, these have been confirmed to have a negligible effect on the CAPEX and OPEX of the processing plant and therefore do not alter the outcomes of the financial model.

The tests on the effect of grind size versus gold recovery allowed the grinding circuit to be optimized in the financial model.

The grinding parameters of the ore were confirmed as 17.1 BWi, 17.8 RWi and SMC of 37.5. The variability, to the extent tested at this initial stage, does not appear to be large. The bulk of the CAPEX and OPEX of the comminution circuit are confirmed through these numbers.

The effect of leach residence time showed benefit up to 36 hours. However, there was little benefit beyond this period.

The gold recovery via a gravity circuit is not expected to be viable as the gold is fine and late liberating and so very fine grinding is required. Even then, leach only achieves the same gold recovery as a combination of gravity and leach recovery. The effect of cyanide concentration, lead nitrate addition and additional oxygen show little to no change in the gold recovery within the leach circuit.

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25.1.3 Mineral Reserve Estimate

Estimations of Mineral Reserves for the Bayan Khundii deposit are based on Measured and Indicated Resources and meet the definitions of Proven and Probable Mineral Reserves as stated by NI 43-101 and defined by the CIM standards on Mineral Resources and Reserves Definitions and Guidelines (2014). The Mineral Reserve estimates are based on a mine plan and pit design developed using modifying parameters including metal price, metal recovery based on performance of the processing plant, and operating cost estimates. The Proven and Probable Reserves are inclusive of the of Mineral Resource and based on a three-year moving average gold price of $1,267/oz.

Geotechnical investigations were conducted to assess the expected rock quality at Bayan Khundii. Characterization of structural domains was completed for slope stability and pit design considerations. Overall slope angles and bench parameters were provided from the geotechnical analysis as inputs to the pit optimization study.

Mining costs of $2.50/tonne, milling costs of $16.46/tonne and general and administrative costs of $6.58/tonne have been used to estimate the reserves along with the gold price stated above.

Proven and Probable Reserves total 3.5 Mt of ore, with an estimated contained 422k oz of gold.

25.1.4 Mining Methods

Following completion of the open pit optimization study and in order to maximize recovery of ore and minimize waste stripping and haulage costs, Tetra Tech designed a pit with final dimensions of about 850 m x 400 m to a depth of 145 m.

Tetra Tech developed a detailed production schedule incorporating two pushback phased mining stages and the ultimate design pit. The production schedule will take place over six years inclusive of a one-year commissioning ramp up for the processing plant until nameplate capacity is achieved. Over the LOM, the pit will produce 3.5 Mt of mineralized material and 35.8Mt of waste rock. The LOM average gold grade is 3.7 g/t. The LOM stripping ratio is 11.7:1. The production schedule will provide process plant feed at a nominal rate of 600Kt/year.

Mining will be undertaken using conventional open pit drill/blast and load/haul using trucks and shovels. Bench height for the ultimate pit has been set to a 15 m height based on 5 m benches stacked in a triple bench configuration. Two-lane mine roads will be a minimum of 21 m and single roads at the bottom of the pit will be 10 m wide. All ore will be transported to a primary crusher in 38 t rear-dump haul trucks and waste will be transported in 60 t rear dump haul trucks. Primary ore loading will be by 9 t capacity diesel hydraulic shovels, primary waste loading by one 13t capacity diesel hydraulic shovel.

The mine equipment selected is appropriate for the Mineral Reserves defined. Mining equipment was selected for detailed ore mining and bulk waste mining.

Mining (waste rock) and processing waste (tailings) will be contained within an Integrated Waste Facility (IWF) as a single above ground structure. The IWF will consist of a core of co-mixed tailings and waste rock encapsulated with an environmentally benign and durable erosion-resistant cover system.

25.1.5 Recovery Methods

The processing plant has been designed based on the results of the metallurgical test work. The grind size versus recovery was investigated and determined that the final grind size should be 60-micron. This necessitated the use of a crusher / SAG / Ball mill configuration. Two crushers in a duty / standby configuration were shown to result in a lower CAPEX than a single crusher plus stockpile and recovery system. The final circuit has an expected utilization of 92% and will provide a constant feed size to the leach circuit.

The leach circuit has been designed for a 36-hour residence time, with five tanks in series to optimize between enough tanks to minimize short circuiting and a manageable operational height for the building.

A conventional CIP circuit was chosen, and eight tanks were chosen to provide a manageable operational height for the building.

A conventional AARL or pressure Zadra circuit is expected in the gold room, depending on vendor pricing.

The processing plant has been designed within buildings to provide year-round accessibility by maintenance and operational personnel.

The tailings requirement of co-disposal has been implemented using four pressure filters in parallel. This is based on the cycle times of the filters in order to decouple their batch operation from the continuous operation of the rest of the plant. Infrastructure.

25.1.6 Environmental and Closure Planning

The overall vision of closure for the Bayan Khundii site is to have all evidence of the operation removed, except for the final void and the Integrated Waste Facility (IWF). The remainder of the areas impacted by the operation will be returned to their pre-operation form and revegetated. To achieve this Erdene evaluated a range of possible mine waste management options.

Based on the geochemical properties of Bayan Khundii and its surrounding environment as well as industry best practices, Erdene selected its preferred approach of integrated waste management – whereby detoxified, filtered tailings are dry stacked and co-mixed within layers of waste rock in a single landform (Integrated Waste Facility).

The IWF represents application of Best Available Technology to the management and long-term containment of tailings and waste rock. Constructing an IWF to contain the tailings and waste rock from Bayan Khundii provides the following benefits:

- Less alienation of land through not needing to construct separate tailings and waste rock storages.
- Reduced environmental impact risk through placing co-mixed and dewatered tailings and waste rock in a single structure compared with constructing a dedicated tailings impoundment using conventional slurry deposition.
- Substantially reduced permeability of the structure when compared with a conventional waste rock dump, reducing the potential for contaminated leachate to be generated and discharged.
- Reduced demand for water for the process plant as greater recovery of process liquor reducing water consumption requirements.
- Reduced time to complete closure of the site at the completion of operations due to the construction method used for the IWF facilitating progressive rehabilitation. Constructing the IWF in this manner means that at the completion of mining and processing only a small portion of the final layer will require completion, with all the external slopes having been completed progressively over the operating period.

The objectives of this approach are to minimise the potential for adverse environmental impacts (during operations and post-closure), optimise the footprint occupied by these waste streams, reduce operational costs, enable progressive rehabilitation and significantly reduce post-closure maintenance and monitoring requirements and long-term risk.

25.1.7 Capital and Operating Costs

The capital and operating cost estimates for the Bayan Khundii project are considered Class 4 estimates with an expected accuracy range of +/- 25%. The base currency of the estimates is US dollars (USD).

The capital cost estimate for mining is based on contract mining and thus no capital cost was allocated for mining equipment and ancillary mining equipment. The capital cost includes the cost for essential mining infrastructure, utilities and haul roads. The total estimated initial capital costs for Bayan Khundii is US $39.9 M.

Sustaining capital cost estimates for the processing plant and associated facilities is calculated as 2.5% of the total initial capital costs from years two through five of the life of mine and includes provision for replacement or repair of major processing equipment components, site service and utility repair and replacement and process-related mobile equipment repair and replacement.

The LOM average operating cost for Bayan Khundii is estimated at US $71.93/t milled at the processing rate of 600 kt/year.

25.1.8 Economic Analysis

An economic evaluation of the Bayan Khundii operation was undertaken based on a pre-tax financial model created for this PFS study. The estimates included within the financial model are estimated within +/- 25% accuracy. For the seven-year total life-of-mine (including pre-production development) and 3.52 Mt Mineral Reserve, the following pre-tax financial parameters were calculated:

- 48.5% IRR
- 1.70-year payback period on US$39.9M initial capital expenditure
- US$124.5M NPV at a 5% discount rate

Subsequently, a post-tax financial model was created resulting in the following financial parameters:

- 42.1% IRR
- 1.84-year payback period on US$39.9M.

Sensitivity analyses were carried out on the post-tax financial model NPV and IRR results with respect to key project variables including gold prices, LOM capital and operating costs and the Mongolian to United States exchange rate. Both the project NPV and IRR are most sensitive to fluctuations in the gold price and operating costs and least sensitive to capital costs and the exchange rate. Tetra Tech confirmed that there were no periods of negative cash flow following project start-up and that overall project economics are favorable at the three-year moving average gold price of $1,267/oz used in the economic analyses.

25.1.9 Opportunities

25.1.9.1 Geological and Mineral Resources

Additional mineralization opportunity for Bayan Khundii exists to the north-east, south-west and east of the currently modeled deposit. Moreover, within the currently modeled deposit, additional opportunity exists by continuing to target and expand upon the continuity of the high grade (>2 g/t) gold lodes. Should market prices warrant a change in cut-off grade additional potential may by realized through the incorporation of the currently below cut-off grade gold bearing material which forms a “mineralization halo” around the higher-grade lodes.

25.1.9.2 Mining

The Striker West portion of the Bayan Khundii orebody remains an opportunity for the project following initial desktop viability studies. A preliminary economic assessment can be undertaken to determine the potential for inclusion in the Bayan Khundii project life of mine plan as a smaller underground mine.

25.1.10 Risks

25.1.10.1 General

The mining assets are subject to certain inherent risks, which applies to some degree to all participants of the international mining industry. These risks are summarised as follows:

- Fluctuations in gold price – Risk of pricing regression of gold and/or US$ will increase the potential impact on the project profitability. Sensitivity analyses conducted during the economic analysis of the project confirmed that the NPV and IRR of the project are both most sensitive to changes in the gold price.
- Logistics - The Project is remotely located, and the control of the logistics and their cost implications will be fundamental in maintaining reasonable operating costs. Especially the import of essential commodities such as project equipment, diesel fuel, HFO, explosives materials, plant reagents and consumables.
- Capital Expenditure - Capital expenditure predictions are based on budget quotes. CAPEX has been shown to be less sensitive than other issues with respect to project economics.
- Operating Expenditure - Operating expenditure predictions are based on budget quotes. Although thoroughly pre-determined using up-to-date assessment techniques, sensitivities on OPEX indicate that the project economics will remain robust even with a 10% change.

25.1.10.2 Geological and Mineral Resource

Bayan Khundii exhibits a moderate degree of structural complexity. While the deposits benefits from a high drill density (locally drilled at a 20 m x 20 m x 20 m spacing), the potential exists that a degree of variation may be encountered between the modeled ore shoots and the actual mineralization. For regions benefiting from close spaced drilling, and a high level of supporting sample data within broad high-grade ore shoots, Tetra Tech does not envisage any material changes in their geometry. However, in areas of more broad spaced drilling, or narrower (2-5 m wide) high grade ore shoots, potential variation in the geometries could exists. Consequently, the resource categorization is reflected in these regions.

25.1.10.3 Mining

Mineral Reserve Calculations – Mineral Reserve estimates are imprecise and depend partially on statistical inference drawn from drilling and other data, which may prove to be unreliable. The volume and grade of Reserves mined and processed, and the recovery rates may not be the same as currently anticipated, and a decline in the market price of gold may render Mineral Reserves containing relatively lower grades of mineralisation uneconomic and may in certain circumstances ultimately lead to a restatement of reserves.

Hydrogeology, geotechnics and groundwater conditions - final definition of the final excavated slope angles and has been assessed with consideration of in-situ groundwater conditions. The current prefeasibility study has been developed under the assumption that the pit can be de-watered prior to mining.

25.1.10.4 Processing

The process plant has been designed based on the results of the test work performed to date. Cyanide leach is the predominant method of gold recovery for non-refractive ores for ore bodies all over the world. The outstanding processing risks are therefore:

- Variability – If the final ore body varies significantly from the current test work, the plant's ability to process the ore and recover the gold is expected to change. Some variability testing has been performed and more is anticipated. The ore is also expected to be blended on the ROM to minimize short term fluctuations.
- Grind size – The accuracy of the mill parameters will significantly affect the risk of the comminution circuits ability to deliver the required grind size.

25.1.10.5 Environmental and Closure

The existing elevated concentrations of metals with the sediments of ephemeral stream beds and in the groundwater requires assessment. This will allow for the differentiation of pre-existing impacts with any potential mining related impacts.

The air quality impact assessment was based on the use of diesel fuel to power the generators for electricity. The air quality impact assessment will need to be updated, as well as the GHG emissions assessment.

Potential for dust generation during mining and operation of the IWF will need to be managed. There will need to be a focus on potential dust generation from the co-mixed material due to the fine nature of the tailings.

Integrated Waste Facility – The availability of sufficient volumes of construction material with suitable physical and geochemical properties to construct the cover system for the IWF will need to be confirmed. Shear and compressive strength characteristics should be assessed for foundation stability and bearing capacity. Load Index testing must be conducted for more detailed rock strength information.

Modelling of the hydrological conditions of the final void post-mining will need to be undertaken to determine whether a pit lake will form, and if so, the likely water quality. Acquisition of this information will allow for a closure strategy for the final void to be selected.

25.2 Altan Nar Preliminary Economic Assessment

25.2.1 Geology and Mineral Resources

The geology on the Tsenkher Nomin license consists of a package of predominantly andesite flows (referred to as 'Sequence A') dominate the eastern part of the license area. These volcanic rocks have pronounced NW-SE trending linear features that are evident on satellite images. These rocks are interpreted to be a steeply dipping volcanic sequence that was intruded by sub-parallel, NW-trending granite porphyry and fine-grained granite intrusions interpreted to be sills, or possibly laccoliths. Widespread development of hornfels textures was noted in the andesite rocks, presumably resulting from contact metamorphism related to the large granite sills or laccoliths.

The geology of the central and western portion of the Tsenkher Nomin license area consists mostly of a sequence of volcanic flows and tuffaceous rocks of andesite composition (referred to as 'Sequence B'), with subordinate rhyolite, rhyodacite, andesite tuff, and green-coloured andesite. Drilling indicates these volcanic units strike to the northwest and dip at approximately 20-30˚ to the northeast. The Altan Nar deposit is hosted in the Sequence B volcanic units and consists of gold, silver, zinc, and lead within subvertically dipping epithermal quartz veins. Altan Nar is characterized as an intermediate sulphidation epithermal polymetallic gold deposit.

Altan Nar Mineral Resource has been estimated with Indicated Resource of 5.0 Mt at 2.0 g/t Au and Inferred Resource of 3.4 Mt at 1.7 g/t Au. The Altan Nar project Mineral Resources were reported in the NI 43-101 Report titled "NI 43-101 Technical Report for the Preliminary Economic Assessment of the Khundii Gold Project" dated February 4, 2019.

25.2.2 Metallurgical Testwork and Recovery Methods

The additional feed of Altan Nar ore to the plant is not expected to require significant changes to the Bayan Khundii processing plant.

The ore appears to be slightly harder however, this is within the accuracy of the study and the next sensible motor sizing of both mills and so no changes are expected to be required for the comminution circuit.

Flotation was tested however, it is expected that as a significant portion of the gold reports as credits in the lead and zinc concentrate, the revenue gained by selling the concentrates will retract from the revenue from Dore sales. The flotation circuit was dismissed as value reducing, rather than value adding.

Leach times and flows are expected to be similar and so no changes to the leach or CIP sizing is expected.

The additional silver in the Altan Nar ore will compete for sites on the carbon and so the carbon is expected to be moved through the CIP & elution circuits at twice the rate as with a Bayan Khundii only feed.

The largest change that the Altan Nar ore is expected to provide is in the EW circuit of the gold room. Here, the EW circuit is expected to be increased to twice per day and three times the size for Bayan Khundii. The Bayan Khundii gold room has been designed in a manner “not to preclude” the addition of these extra cells at a later date.

25.2.3 Mining Methods

The Altan Nar deposit has the potential to be developed as a profitable open pit mine in conjunction with the existing processing facility at the Bayan Khundii Operation. The open pit mine will utilize a conventional truck-and-excavator fleet. The Project’s LOM is approximately four years including one year of pre-stripping activity. Over the LOM, the pit will produce 1.8Mt of mineralized material and 13.7 Mt of waste rock. The LOM average gold grade is 3.46 g/t.

The management of tailings and waste rock by co-mixing them within a single integrated waste facility provides the optimum long-term solution to storage and containment of these materials, whilst minimising alienation of land.

25.2.4 Opportunities

At Altan Nar, mineralization is open north and south of the currently defined Mineral Resource where several medium to high grade intersections occur. Mineralization is open along strike and down-dip at all prospects and extensional drilling of the main zones may delineate continuations of the known mineralization, some of which may be high grade.

25.2.5 Risks

Altan Nar exhibits a moderate degree of structural complexity. The mineral resource block model is defined by drilling on a 50 m x 50 m drill spacing with some areas with 25 m x 25 m, therefore there is potential for tonnage and overall geometry variations between modelled and actual mineralization. RPM does not envisage any material variations in the closer spaced drilling areas (25 m spacing), however variation could potentially occur in the areas of greater than 50 m spacing, as a result these areas are classified as Inferred.

26.0 RECOMMENDATIONS

26.1 Bayan Khundii Prefeasibility Study

26.1.1 Geology and Mineral Resources

To potentially expand the current resource base at Bayan Khundii, optional additional drilling can be undertaken with a specific focus on expanding and infilling the mineralization at Striker West, along with infill drilling at Striker, Midfield, and Midfield North in order to gain further confidence in the high-grade mineralization present. Further exploration style drilling could also be undertaken in the north-east and south-west of the currently modeled gold mineralization, along with step out style extensional drilling to the east of Bayan Khundii. As infill drilling is conducted, drill hole assay and lithology results should be compared against the geological and resource model in order to quantify any variation in expected and realized geology and gold grades which were intersected.

As drilling continues, and the project continues to progress towards the mining phase, ongoing detailed studies can continue which will allow the monitoring of the variability of gold grades. The twinning of 3-5 holes should be considered to test the short-range variation in gold grades. This twinning will further test the confidence and continuity of the narrower high-grade gold zones which are currently modeled. Plotting of fire assay vs screen metallics gold assay results should be continuously conducted. This will help to determine not only the scale of variability in gold grades but also, if applicable, at what grades the variability effect is most prevalent.

It’s further recommended that Erdene insert both a higher-grade gold standard and lower grade gold standard into their data QA/QC protocols in order to better reflect the gold grades encountered at Bayan Khundii. A more suitable low gold standard of approximately 0.5 g/t Au would be beneficial, along with the insertion of the occasional higher-grade standard of approximately 50 g/t Au should also be considered.

Upon the conclusion of the additional drilling, the 3D geological and resource model should be updated in order to incorporate this data.

26.1.2 Mining

A dedicated geotechnical site investigation is recommended for the feasibility study to collect additional detailed geotechnical and hydrogeological information. The site investigation should consist of oriented, triple-tubed diamond drilling with associated geotechnical logging, hydrogeological packer testing, installation of vibrating wire piezometers, and laboratory strength testing of core samples. It is important that drillholes are oriented in various directions to minimize the directional bias that currently exists in the data set and should target large-scale structures to better understand their influence on the pit design. Special attention should be paid to the orientation of bedding in the northern wall where additional stabilization measures may be required. The data to be used to update the engineering geological model and characterization of the rock masses. Detailed slope stability analyses should be conducted to optimize pit slope design criteria.

Tetra Tech recommends a detailed dilution study, encompassing investigation into parameters controlling both internal and external dilution. Remodelling of the Mineral Resource model on a bench by bench basis with a smaller block size and selective mining unit is recommended to further define areas of ore and waste within the orebody to aid internal dilution control. Following this, ore control with respect to pit and blast design is recommended to efficiently recover material from smaller bench sizes and blasted areas to aid in efficient material recovery whilst maintaining the selectivity of the mining method. A more compact blast design and bench design which incorporates flitches (multiple excavation passes) is recommended with this study. This holistic approach to dilution modelling and control has the potential to allow refinement of the life of mine plan and schedule with respect to processing higher-grade areas of the orebody without increasing the overall quantity of waste material mined. In addition, complementing the dilution study, the efficiency and selectivity of the selected equipment can be reviewed with respect to the pit and blast design aspects of the dilution study. Potentially reducing the number or size of equipment required whilst maintaining the mining rate and improving selectivity of the equipment can reduce the overall cost of the operation and improve the project NPV.

Greater detail in scheduling the removal and stockpiling of waste types (Non-Metal Leaching, Metal Leaching) is necessary to maintain the correct mixture and delivery timing of waste materials in the IWF. This report neither considers the long nor the short-term impacts of the mining schedule on the IWF waste rock inputs to prevent undesirable metal leaching or potential acid generation. Further understanding how and when material will be co-mixed in the IWF is a directly related area of recommended future work.

A desktop study related to how to access and mine the Striker West mineralisation, likely through an underground portal, in the latter years of the mine life is recommended. Striker West represents a significant opportunity to improve the economic qualities of the project such as total recovered gold and mine life. Desktop studies to understand the project timing, mining equipment purchases, mining method, mine schedule, and how to incorporate additional plant and IWF inputs are necessary to realise the potential value of Striker West.

26.1.3 Metallurgical Testing

The following items are recommended for study as part of future phases of testwork:

- Conduct additional grindability testing including the following:
  - JK Drop Weight test on a sample of material from the Bayan Khundii deposit
  - Crusher Work Index test on a sample of material from the deposit
  - Variability SMC tests covering each main area of the deposit at varying depths
  - Variability Bond Ball Work Index tests covering each main area of the deposit at varying depths
- Expand the metallurgical database by conducting additional variability testwork on samples from across the deposit, specifically within the 1 g/t to 5 g/t Au range.
- Conduct carbon adsorption testwork (adsorption isotherms, carbon triple contact test) to determine carbon loading parameters for design of CIP circuits.
- Conductcyanide leaching and carbon adsorption testwork at a variety of densities to understand the options for optimising the equipment sizing in these areas.
- Complete dewatering testwork to determine thickener parameters (i.e., final tails).
- Conduct a cyanide detox testwork program to determine reagent demands and retention time requirements to meet cyanide limits for tailings disposal.

26.1.4 Recommended Further Study

The recommendations detailed above for Bayan Khundii are considered optional and are designed to aid in further constraining the resource and improving mine economics through optimizing the recovery circuit, reducing potential dilution and improving equipment selectivity. It is recommended that the Bayan Khundii project proceed to feasibility level engineering studies, independent of the outcome of each of the studies listed below in Table 26-1.

Table 26-1: Estimated Budget for Recommended Further Study for Bayan Khundii

Task	Cost (CAD)
Drilling: In-fill, Twinning, and Extensional - 7,500m	$1,500,000
Update of Geological and Resource Model	$35,000
Dilution Modelling and Detailed Blast Design	$25,000
Full Geotechnical Review	$110,000
Underground Study and Design	$80,000
Equipment Selection Review	$8,000
Bayan Khundii Metallurgical Testing	$130,000

26.2 Altan Nar Preliminary Economic Assessment

26.2.1 Geology and Mineral Resources

Approximately 30% of the Altan Nar Project has been classified as Inferred Mineral Resource. It's recommended that additional drilling occur to increase confidence in the existing Inferred Mineral Resource, focusing on the highest-grade portions as well as additional extensional exploration drilling in the Discovery Zone and Union North areas of the deposit.

It is recommended that Erdene continue recording density measurements, ensuring that measurements cover a variety of Fe grades to further refine the regression equation. Erdene should undertake a bulk density program using the remaining Altan Nar core. This should include up to 200 samples focusing on a range of grades (low to high) with each sample having a density determination as well as assays for Au, Pb, Zn and S.

26.2.2 Mining

- The Project should proceed to the prefeasibility level. A detailed mining production schedule and design should be developed with detailed mining activities to understand the potential constraints and cost reduction opportunities.
- As the pit optimization and scheduling results are highly dependent on the geotechnical parameters, more detailed geotechnical studies and/or fieldwork should be conducted to better define the appropriate pit slope angles and design parameters for the pit, stockpile, and waste dump
- Geochemical characterization of the waste lithologies which will be mined should be undertaken to better define potential contaminants of concern and identify potential sources of clean construction material.
- Mine closure planning should be progressed to allow for the optimisation of the current closure strategy. The focus of which will be on the optimisation of the IWF design.

26.2.3 Metallurgical Testwork

The following testwork is recommended to be included as part of a prefeasibility study program:

- Additional grindability testing to ensure that the understanding of the existing Bayan Khundii plant's ability to process the Altan Nar ore is well understood and including the following:
  - JK Drop Weight Test
  - Abrasion Index Tests
  - Variability Bond Ball Work Index Tests
- Optimization of cyanidation conditions for high arsenic zones and lower arsenic zones
- Variability cyanidation tests from samples that include a range of arsenic contents and gold grades
- Further refinement of flotation conditions from high arsenic and low arsenic zones to determine if a flotation process could be implemented to add value through improved metal recovery and generation of additional by-products.

26.2.4 Recommended Further Study

Further studies listed for the advancement of the Altan Nar project are considered optional, with each of the studies recommended independent of each other and independent of the decision to proceed to a prefeasibility level.

Table 26-2: Estimated Budget for Recommended Further Study for Altan Nar

Task	Cost (CAD)
Drilling: In-fill, Exploration - 2,500m	$500,000
Update of Geological and Resource Model	$35,000
Geotechnical Review	$100,000
Waste Rock Characterization	$30,000
Mine Closure Planning	$15,000
AN Metallurgical Testing	$100,000

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