NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia

Prepared for Allied Gold Corp and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation) by Datamine Australia Pty. Ltd. (Snowden Optiro)

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Table of Contents

Figures

Tables

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Such factors and assumptions underlying the forward-looking information in this Technical Report includes, but are not limited to: risks related to political and economic instability in Ethiopia; risks associated with community relationships; risks related to estimates of production, cash flows and costs; risks inherent to mining operations; shortages of critical supplies; the cost of non-compliance and compliance costs; volatility in the price of gold; risks related to compliance with environmental laws and liability for environmental contamination; the lack of availability of infrastructure in Ethiopia; security risks to Allied, its assets and its personnel; risks related to the ability to obtain, maintain or renew regulatory approvals, permits and licenses including renewing the development agreement with the government of Ethiopia on favourable terms; uncertainty with and changes to the tax regime in Ethiopia; imprecision of Mineral Reserve and Mineral Resource estimates; deficient or vulnerable title to concessions, easements and surface rights; inherent safety hazards and risk to the health and safety of employees and contractors; risks related to Allied’s workforce and its labour relations; key talent recruitment and retention of key personnel; the adequacy of insurance; uncertainty as to reclamation and decommissioning; the uncertainty regarding risks posed by climate change; the potential for litigation; and risks due to conflicts of interest.

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1 SUMMARY

This Technical Report was prepared in accordance with NI 43-101 for Allied Gold Corp (Allied) and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation) (Mondavi).

This Technical Report is to support the disclosure of Exploration Results, Mineral Resources and Mineral Reserves for the Kurmuk Gold Project (Kurmuk or the Property), a mineral exploration and development property located in Ethiopia, East Africa, and was authored by the following Qualified Persons:

- Messrs. Allan Earl, Michael Andrew, Gordon Cunningham and Peter Theron of Snowden Optiro, a business unit of Datamine Australia Pty Ltd. Snowden Optiro was responsible for the preparation of this Technical Report including the review of the geology, Mineral Resource estimates, Mineral Reserve estimates, mine planning, metallurgy, processing, infrastructure, costs and economic analysis.
- Mr. Steve Craig of Orelogy Consulting Pty Ltd (Orelogy). Orelogy was responsible for the preparation of the Mineral Reserve estimate and associated mining study and mining capital and operating costs.

The effective date of this Technical Report is 9 June 2023.

Unless otherwise specified, all units of currency are in United States dollars ($). All measurements are metric with the exception of troy ounces (oz).

1.1 Property description and ownership

The Kurmuk Property is in western Ethiopia, approximately 750 km west-northwest of the capital city of Addis Ababa and 65 km north-northwest of the town of Asosa. The Property is accessed via a sealed road that connects the border town of Kurmuk to Asosa, with highways linking to Addis Ababa and Djibouti port. Asosa is serviced by daily domestic flights from Addis Ababa. The border with Sudan is approximately 5 km due west of the proposed mine site.

The region has a sub-tropical climate, with a wet season extending from May to October. Average annual rainfall is 950 mm. The temperature ranges from 25°C to 42°C, with the highest temperatures recorded in March and April.

The Property area is within the East Sudanian Savanna ecoregion, a topographically rugged area with steep northeast trending ranges up to 1,500 m elevation and ephemeral streams in the valleys. The local population within the mine site area of influence is estimated at 9,500.

The Property is owned by Kurmuk Gold Mine PLC (KGM) in which Allied (through its subsidiary) has held a 64.46% equity interest since May 2017. Allied has an option to acquire an additional 5.54% interest in KGM by funding an amount of $2.9 million with respect to exploration and study work on the adjoining Ashashire deposit. The shareholder’s agreement requires that both partners finance the construction of the project and it has dilution mechanisms built in. Allied has already expended over the amount required to acquire additional equity bringing its stake to 70% and it is in the process of confirming this increased ownership.

Mining in Ethiopia is regulated by the Ministry of Mines and Petroleum (MoMP) under the Mining Operations Proclamation with six types of licences issued: reconnaissance, exploration, retention, artisanal, small scale mining and large scale mining licences. Kurmuk has a Large Scale Mining Licence which was granted on 30 September 2021 for 20 years over a 100.4 km^2 area covering the Dish Mountain and Ashashire deposits and proposed infrastructure. Allied also holds the Mestefinfin, Abetselo and Dul-Ashashire exploration licences that surround the large-scale mining licence, which are collectively 1,460.7 km^2 in area.

Allied and the Ethiopian Government entered into the Kurmuk Development Agreement on 30 September 2021 for an initial 20-year term, renewable for periods of 10 years. The Agreement sets the parameters for the economic framework of the planned development including regimes for customs, tax, royalty, federal and state government participation, and environmental and community development. Key details of these parameters include:

- Corporate income tax: 25%.
- Royalty: 5% for precious metals.
- Government participation: The Government shall acquire 7% equity participation with public road upgrades and installation of the 132 kV powerline from Asosa.
- Environmental Rehabilitation Fund: Funds are paid annually based on mine closure costs divided by the mine life.
- Community Development Fund: Distributes funds to the impacted communities based on 2% of annual net profit or operating costs, whichever is higher. During the construction phase, the required $0.17 million has been paid.

The Development Agreement requirements to retain tenure include:

- Progress construction by September 2023 which can be extended by two years. A further extension can be provided by the Ethiopian government in case of adverse market conditions.
- Prioritise Ethiopian procurement.
- Give preference to Ethiopian employment.

Allied advises that early construction works are progressing.

The Environmental Impact Assessments (EIA) have been approved for the proposed mining project and grid power connection. Secondary permits are required, including construction and clearing permits, and water use and explosives licences.

Allied is in the process of securing the surface rights through a compensation process with costs included in the capital cost estimate.

The potential for local and regional unrest may affect access to perform work on the Property and lead to critical supply chain interruptions. The risk is mitigated with six weeks' storage of supplies on site. Allied will continue engaging and working with local communities following the commitments of the EIA and best industry practices.

The majority of personnel will be sourced from the local communities with senior Ethiopian staff and expatriate staff typically travelling from Addis Ababa. Expatriate personnel will be used to train, mentor and transfer skills.

1.2 History

Gold mining activity in the general region is reported to date back to the ancient Egyptian empire.

The Dish Mountain exploration licence was acquired by Ariab Gold Mining and Investment Plc in May 2007 from the MoMP. The licence was transferred from Ariab Gold Mining Plc to ASCOM Mining Ethiopia Plc (AME) on 20 November 2008.

Trenching conducted in 2010 and subsequent reverse circulation (RC) drilling in 2011 confirmed the gold mineralized zones at Dish Mountain. After conducting a project review in late 2013, AME decided to advance the development of Dish Mountain to pre-feasibility study (PFS) status. This involved additional diamond and RC drilling.

In May 2017, Allied took control of AME and in September 2018 acquired the Ashashire exploration licence from the MoMP. The Ashashire licence, located 11 km south of Dish Mountain, was previously owned by Aurigin Resources Inc. (Aurigin), in joint venture with Gold Fields (2011–2014). Key exploration work completed to 2015 comprised extensive geochemical sampling of stream, soil and rock outcrops; mapping and trenching; airborne magnetics and radiometrics and approximately 5,000 m of diamond and RC drilling. Aurigin relinquished the licence in 2015.

Allied carried out a scoping study in April 2019 and a PFS in December 2019, which concluded that additional economic mineralization was required to justify project development at Dish Mountain.

Following the completion of the 2019 PFS, investigations at Ashashire progressed to the point where sufficient Mineral Resources had been identified to make it a viable addition to Dish Mountain. A further PFS was completed in 2021 (2021 PFS) to update the financials for the combined project. A feasibility study (FS) was completed in 2022 (2022 FS).

There has been no recent gold production within the Property. Allied is currently evaluating establishing commercial production.

1.3 Geological setting, mineralization and deposit types

The Property lies within the Neoproterozoic volcano-sedimentary Tulu Dimtu shear belt at the northern end of the East African Orogen. The north-trending belt in western Ethiopia is characterized by metasedimentary rocks interlayered with mafic to ultramafic volcanic and intrusive rocks, all metamorphosed to upper greenschist/amphibolite facies which resulted from amalgamation of the Gondwana cratons.

The Dish Mountain deposit is associated with four main rock groups: foliated mafic igneous rocks; intercalated foliated metasediments; deformed ultramafic rocks and post tectonic intrusives. The metasediments have relatively uncommon chemical sediments which act as useful marker horizons. The Dish Mountain deposit is interpreted as peripheral to a mafic dominant, bimodal, eruptive centre. Gold mineralization is related to late-stage, discordant extensional quartz > dolomite >> pyrite (+chlorite-tourmaline-gold) veins and adjacent dolomite-muscovite-pyrite alteration selvages with vein sets ranging from 1 m to 10 m in thickness. Three lode orientations are recognized: west-dipping, sub-vertical chert and flat-lying.

The Ashashire deposit, 11 km south of Dish Mountain, is in the same shear belt with a steep, southeast-dipping, mafic-dominated volcaniclastic footwall sequence, jasperoidal and chert horizons, numerous thin granite and tonalite intrusive rocks, and siliciclastic, sediment-dominated fine-grained psammites, pelites and psammo-pelites separated by mafic units, and a mafic-dominated hangingwall sequence comprising chloritic siltstone and basalt. Gold mineralization at Ashashire is related to the same events as Dish Mountain with two key controls being: competency contrast boundaries, with the mineralization hosted in zones typically associated with granitoid lenses and the margins of mafic bodies, and mineralized quartz veins developed sub-perpendicular to the steeply dipping lithological domains.

Mineralization at Ashashire is connected throughout the deposit, from Perch in the north, through centrally placed Gin Dish to the southern Scorpion, and extends to 300 m depth, the current limit of drilling. True thickness of the stacked ore lenses begins at Perch at 50 m, attains 100 m at Gin Dish and then reduces to 30 m at Scorpion; it is noted that barren country rock lies between the ore lenses in the stack.

1.4 Exploration

Several exploration opportunities have been identified around each deposit, and include:

- In-pit Inferred Mineral Resources: Due to the steep nature and difficult access of Dish Mountain, there remains about 165 koz of Inferred Resources within the designed pits which are informed by Measured and Indicated Resources only. Infill drilling is being undertaken to upgrade these Inferred Resources.
- Dish Mountain satellite deposits: These include John Dory and Seahorse, located approximately 2 km north of the proposed process plant where a 1.5 km extent of gold-in-soil anomalies have been mapped, trenched and drilled. Additional drilling and resource modelling is ongoing at the time of reporting. These deposits are in close proximity to the tailings storage facility (TSF). If the mineralization is shown to be economic, the waste could be used for downstream buttressing to reduce TSF sustaining costs.
- Tsenge: Located approximately 5 km southeast of the proposed process plant. A soil sampling program was completed in the 2021–2022 dry season, which has delineated six distinct gold-in-soil anomalies along strike from Ashashire.

- Dul Mountain: Situated 5 km south of Ashashire, Dul Mountain is a known historical prospect defined by gold-in-soil anomalism. Trenching has defined potentially economic widths and grades of mineralization.

1.5 Drilling

A total of 666 RC and diamond core drillholes (for 112,489 m) have been drilled at Dish Mountain since 2011. Drilling following the 2022 FS has focused on the satellite deposits to increase the Mineral Resource inventory and infill drilling to upgrade the Inferred Mineral Resources.

A total of 233 holes (for 46,246 m) have been drilled from 2019 to date at Ashashire with the later drilling optimized to better inform the geological model. Drilling following the 2022 FS has focused mainly on down-dip extensions of mineralization.

1.6 Sampling, analysis, and data verification

RC drillholes were sampled from 0.6 m to 1.2 m intervals. RC chip samples from the drill rig cyclone were split every metre using a 75:25 riffle splitter. Core recovery for fresh material and oxide material averaged 97–98%.

Drillhole collar surveys were by global positioning system (GPS) to the local WGS84 datum with magnetic north and Universal Transverse Mercator (UTM) corrections made using local topographic maps. Collar positions were subsequently verified by independent surveyors. A satellite topographic survey was conducted over the proposed pits, process plant, tailings dam, and water supply dams.

Downhole surveys measuring azimuth, inclination, magnetic field strength and dip were taken at 30 m intervals.

Drill core was geologically and structurally logged using data entry software and photographed at the core yard. Half-core samples were collected with remaining core stored in trays in the core shed along with RC chip trays. Sample pulps and rejects are stored in drums within sea containers on site.

Samples were sent to various certified laboratories over time using sealed containers, only opened during supervised customs inspection.

Earlier drill samples (2011–2012) were analyzed by AAS to 0.01 ppm Au detection from pulverized fire assay subsamples at ALS laboratory in Johannesburg. Later analysis (2015–2016) was conducted at ALS in Sweden using cyanide bottle roll leach that incorporated the Leachwell additive from samples prepared at the ALS sample preparation facility in Addis Ababa. Samples from the 2011–2015 drilling campaigns were not submitted to third party umpire laboratories.

Resource estimation by SRK in 2013 concluded the quality assurance/quality control (QAQC) measures were appropriate; however, later check programs by Allied using ALS Perth with Intertek Perth as an umpire laboratory were carried out to re-assay and generate a coherent fire assay database. The Intertek umpire analyses confirmed the re-assay values. Allied's 2018 and later drilling programs used ALS Perth for analysis by fire assay/atomic absorption spectrometry (AAS) detection and the standard QAQC procedure was to insert check samples at a 1:20 ratio (certified reference material (CRM), blanks, and duplicates). Since 2018, sample preparation has been undertaken by Allied at the Dish Mountain exploration camp. The laboratories used for sample analysis are independent of Allied.

Laboratory data has been stored in a database rebuilt by Allied to incorporate the original ALS assay results and QAQC checks for each batch. Collar, downhole survey, structural orientation and core recovery data has been migrated to a new Datashed database. The database has independently validated by Geobase Australia. The database is backed up daily with an offsite copy stored with a third party IT provider.

1.7 Mineral processing and metallurgical testing

Since 2018, Allied has carried out comprehensive metallurgical testwork programs on 44 Dish Mountain and 22 Ashashire variability samples taken from 64 drillholes. Fifty-four variability samples were generated and from these, 12 lithology composites (Dish and Ashashire primary and oxide for each of mafic, pelite, and chert or granite) and master composites of oxide and primary ore were produced. Approximately 20% of the tests were undertaken on oxide and transitional ore and the remaining 80% on fresh ore, similar to the distribution in the processing schedule.

Tests included ore breakage and abrasion characteristics, Bond Ball Mill Work Index, grind sensitivity and optimization, gravity recovery potential, leach time sensitivity, preg-robbing evaluation, carbon adsorption kinetics and cyanide detoxification.

Test results across both deposits concluded the ore was of medium hardness, low to moderate abrasion, and with an optimized 80% passing (P_{80}) grind of 75 µm, better than 50% gravity recovery, expected leach extraction of 90% to 94%, no-preg robbing characteristic and cyanide consumption up to 0.30 kg/t and lime consumption up to 3.9 kg/t. Mineralogy shows that the Ashashire fresh ore types have tellurides, which require high lime additions to realise 90% extraction.

The resultant gravity circuit design was based on 35% recovery. Tailings settlement and rheology studies indicated moderate settling rates with up to 56–66% densities being obtained and 60% pumping being practical. The testwork was used in the 2022 FS to estimate throughput, recovery and process plant design for the 4.4 Mt/a conventional carbon in leach (CIL) plant with a 91.9% recovery estimate over the life of mine.

1.8 Mineral Resource estimates

1.8.1 Dish Mountain

Handheld GPS outcrop-scale mapping was used to guide the three-dimensional (3D) model. Downhole assay, structural and geological data was assessed in the interpretation. Domains were constructed for the mineralized quartz vein zones in the deposit. The chert lodes were divided into domains based on their different orientations. The domains were intersected by a mostly thin generally north-trending, sub-vertical vein set. Mineralization at Black Dog has a synformal configuration, which is a revision of the 2021 PFS interpretation.

All drillhole data was flagged with the mineralization wireframes. Where overlapped, a hierarchy reflecting the interpreted order of emplacement was applied. Chert lodes were removed, followed by the flat lodes, and the west dipping Point and Dish North lodes. All other lodes were removed from the Vertical lodes where intersections occurred. The flagged samples were then composited downhole at a 1 m interval with half (0.5 m) or more of the sample required to create the composite. Statistical data from the domain populations were analyzed in Supervisor software. Histogram and probability plots were produced for 11 identified spatial domains to assess the occurrence of grade outliers.

Variography was undertaken on the domains to appropriately reflect the spatial correlation of the domained data. Kriging neighbourhood analysis (KNA) was carried out for each domain and the estimation orientation validated before the Mineral Resource estimate was undertaken. Based on this, a block size of 20 m x 20 m x 4 m (x, y, z) was selected. The model was rotated to an azimuth of 065° to align with the orientation of the deposit lithology.

Gold was interpolated into the Mineral Resource estimate using ordinary kriging (OK), based on the variography. Hard boundaries were used between mineralization domains. Vertically oriented domains were the first to be estimated, and where they shared a common volume with other domains, the vertical domains were overwritten.

Density was estimated by inverse distance weighting (IDW) by domain. Blocks not informed by drill data used an average value based on specific gravity (density) determinations. A total of 21,450 density determinations were completed using the weight in air/weight in water method.

Visual validation of composite grades vs block grades was undertaken. In addition, swath plots comparing the informing data against the block model on a sectional and plan basis were undertaken. Both the visual and swath plot validation confirmed that the block model grades match those of the informing data grade trends.

1.8.2 Ashashire

Three main areas define the Ashashire deposit: Gin Dish, Perch, and Scorpion. The mineralization model at Ashashire is one of nested steeply dipping lenses of mineralized quartz veins in extensional structural zones. Wireframes were constructed for the mineralized granite contacts at Perch and for the vein zones at Gin Dish and Scorpion. Orientation surfaces were constructed to separate the differing orientations at the point of flex of the wireframe sets. These surfaces were used to cut the mineralization wireframes and create three separate domains. Domain 1 is shallowly east-dipping, Domain 2 is steeply east-dipping, and Domain 3 is steeply west-dipping.

All the drillholes in the database were flagged where they intersected the mineralized wireframes. A composite length of 1 m was selected as appropriate as this was the dominant sample length. All samples were composited downhole using 1 m lengths with a requirement that half (0.5 m) or more of the sample be present to create the composite with lesser intervals discarded. Top cut analysis was completed for each of the three orientation domains using a combination of approaches.

Variography for the three orientation domains was completed using normal-score transformed data with the variogram models back-transformed prior to use. Variograms were exported into Surpac format for estimation. De-clustering of data and KNA was carried out on gold for each domain. A block size of 16 m x 16 m x 4 m (x, y, z) with a minimum sub-cell size of 2 m x 2 m x 1 m (x, y, z) was selected for the Ashashire Mineral Resource estimate. The block model was rotated to 020° to align the blocks with the main geological trend.

The model was estimated using OK with top cut composites utilizing a two-pass search strategy in Surpac. Grade estimation was undertaken on a parent cell size basis resulting in the same grade on parent and sub-cells. Hard boundaries were used between each mineralized wireframes as well as between orientation domains.

A total of 5,082 bulk density measurements were collected nominally every 5 m, primarily using the weight in air/weight in water immersion technique. Bulk density was estimated using an IDW to the power of two estimation method into rock type and oxidation domains. Where there was insufficient data to estimate density, an average density for the lithology and oxidation state was assigned.

The estimates were validated using visual inspection of the model against the input composites in cross section. Validation trend plots for each mineralized domain show good correlation. Trend plots show that the block model mean is smoother than the composite grade but follows the trend of the composites.

1.8.3 Kurmuk Mineral Resource estimates

Table 1.1 summarizes the Mineral Resource estimates for Dish Mountain and Ashashire at a 0.5 g/t Au cut-off grade within an $1,800 pit shell as of 31 December 2022 and is inclusive of Mineral Reserves.

Table 1.1 Kurmuk Mineral Resources as of 31 December 2022 at a 0.5 g/t Au cut-off (100% equity basis)

Area	Measured			Indicated			Total Measured and Indicated			Inferred		
	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz
Dish Mountain	6.76	1.60	348	19.58	1.65	1,043	26.4	1.64	1391	6.85	1.78	391
Ashashire	10.99	1.90	671	18.59	1.71	1,021	29.58	1.78	1,692	2.89	1.53	142
Total	**17.76**	**1.79**	**1,019**	**38.22**	**1.68**	**2,064**	**55.98**	**1.71**	**3,083**	**9.75**	**1.70**	**534**

Notes:

- *Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding.*
- *Mineral Resources are inclusive of Mineral Reserves.*
- *Mineral Resources are reported within a $1,800/oz optimum pit shell at a 0.5 g/t Au cut-off.*
- *Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.*

Kurmuk's Mineral Resources and Mineral Reserves were initially classified in the 2022 FS in accordance with the guidelines of the 2012 Edition of the Australasian Joint Ore Reserves Committee Code (JORC Code, 2012). The confidence categories assigned under the JORC Code, 2012 were reconciled to the confidence categories in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards). As the confidence category definitions are the same, no modifications to the confidence categories were required. Mineral Resources and Mineral Reserves in this Technical Report are reported in accordance with the 2014 CIM Definition Standards.

1.9 Mining and Mineral Reserve estimates

1.9.1 Mine design

The mine plan has been developed to feed a central 4.4 Mt/a process plant from the two open pit mining operations at Dish Mountain and Ashashire.

Pit optimization software was used to identify the optimal ultimate pit limits for Dish Mountain and Ashashire and used Measured and Indicated Resources only. Both the optimization and cash positive net present value (NPV) test used a gold price of $1,500/oz, a discount factor of 5% and allowed for mining, processing, general and administrative costs, social costs, taxes, royalties and refining charges and process recoveries ranging from 89.8% to 96.2% depending on rock type and oxidation state.

The Dish Mountain open pit is to be developed in three stages, whilst the Ashashire open pit will be mined in two stages. Both final pits will be about 350 m deep. Appropriate design criteria have been applied for both pit designs.

Proposed owner operated mine equipment includes 200-tonne excavators (Komatsu PC2000) and 90-tonne rigid trucks (Komatsu HD785-7) supported by an appropriate ancillary equipment fleet. Pit ramps and haul roads have been designed to suit the proposed equipment and the pit itself is designed for 9.0 m benches with 3.0 m flitches. The mine is planned to operate continuously for 348 days per annum.

The equipment selection and bench/flitch heights were selected to maintain dilution at acceptable levels and minimize ore loss. Dilution and ore loss is estimated to be 22% and 4% at Dish Mountain and 15% and 1% at Ashashire, respectively.

Drill and blast will be required for all material using emulsion bulk explosives in a semi-wet environment with quantities varied based upon rock hardness.

Grade control for the open pits will be undertaken with dedicated RC drill rigs with samples processed by an onsite laboratory.

Geotechnical investigations have been underway at Dish Mountain since 2015 and Ashashire since 2020. Design face heights are 9.0 m for oxides up to 18.0 m and 58° for fresh rock. The Qualified Person of this section considers the geotechnical work for Dish Mountain to be fair and reasonable whereas further geotechnical work for tactical planning is required at Ashashire, however, it is suitable for the life of mine (LOM) plan and reserve declaration.

Hydrogeological reviews for both Dish and Ashashire have indicated a limited groundwater inflows of <7 L/s and it is unlikely to affect mining that is primarily on a ridge and isolated from groundwater. In-pit water will be managed by in-pit dewatering sumps and boreholes and will have a negligible impact on pit wall stability. Ongoing hydrogeological investigations will continue as mining commences and will adapt as necessary.

The LOM production schedules estimate a total of approximately 330 Mt ore movement from 2024 to 2035. Details of the annual tonnages of ore, waste and gold metal are presented in Table 16.3. The schedules are limited by excavator capacity while maintaining a vertical advance below 12 benches per annum. Waste movement is relatively stable whereas ore movement fluctuates, and process plant feed needs to be supplemented from stockpiles from prior years.

1.9.2 Mineral Reserves

The Mineral Reserve, as outlined in Table 1.3:

- Reflects that portion of the Mineral Resource which can be economically extracted by open pit methods.
- Considers the modifying factors and other parameters including but not limited to the mining, metallurgical, social, environmental, statutory and financial aspects of the project.
- The Proven Mineral Reserve estimate is based on Measured Mineral Resources and the Probable Mineral Reserve is based on Indicated Mineral Resources.
- Includes an allowance for mining dilution at 1% ore loss and 16% dilution for Ashashire and 4% ore loss and 23% dilution for Dish Mountain.
- A base gold price of $1,500/oz for the pit optimization, with the selected pit shells using values of $1,350 (revenue factor 0.90) and $1,260/oz (revenue factor 0.84) for Dish Mountain and Ashashire, respectively.
- The cut-off grade used for Mineral Reserves reporting were informed by a $1,500/oz gold price and vary from 0.33 g/t to 0.53 g/t Au for different ore types due to differences in recoveries, costs for ore processing and ore haulage.

Table 1.2 Kurmuk Mineral Reserve as of 31 December 2022 (100% basis)

	Proven Mineral Reserves			Probable Mineral Reserves			Proven and Probable Mineral Reserves		
	Tonnes (kt)	Grade (Au g/t)	Content (koz)	Tonnes (kt)	Grade (Au g/t)	Content (koz)	Tonnes (kt)	Grade (Au g/t)	Content (koz)
Dish Mountain	6,727	1.38	299	20,032	1.37	879	26,759	1.37	1,179
Ashashire	10,390	1.83	613	15,610	1.61	810	26,000	1.70	1,423
Total	**17,117**	**1.66**	**912**	**35,642**	**1.47**	**1,689**	**52,759**	**1.53**	**2,601**

Note: Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding. Mineral Resources are reported inclusive of Mineral Reserves.

No material issues have been identified in regard to the modifying factors that would materially impede the progress of the Kurmuk Project or the conversion of Mineral Resources to Mineral Reserves.

1.10 Processing methods and infrastructure

1.10.1 Process plant design

The planned process plant has been designed to treat 5 Mt/a of softer oxide ore and 4 Mt/a of primary ore. The full processing schedule is presented in Table 16.3.

Kurmuk ore can be classed as free milling with high recoveries from oxide, transition and primary material and a high free gold content supporting the inclusion of gravity recovery within the flowsheet. The flowsheet will consist of primary crushing, two-stage milling with gravity recovery, primary leach followed by CIL with tailings thickened prior to cyanide detoxification to minimise cyanide consumption and costs of detoxification. Gravity concentrate will be intensively leached in a strong cyanide solution with electrowinning of gold. Loaded carbon will be acid washed, eluted and regenerated with gold being electrowon prior to smelting into doré. Thickened tailings will be disposed in a high-density polyethylene (HDPE) lined valley fill site.

1.10.2 Infrastructure

The HDPE lined TSF is planned as a valley impoundment with multi-zoned, earth-fill embankments. The TSF will have a total footprint area (including the basin area) of 97 ha for the Stage 1 TSF, and a final footprint of 274 ha. The total capacity of the TSF is 58 Mt of tailings with the flexibility of additional storage and further possible expansion. Both tailings and waste rock are non-acid forming and the current TSF mitigation and design measures are considered adequate.

Dam break assessments were undertaken to determine populations at risk. The assessment showed that the tailings solids would travel 3–4 km downstream and would not impact any downstream communities. The stability assessment shows suitable factors of safety have been included to meet Australian National Committee on Large Dams (ANCOLD) design standards.

Static testwork on 200 waste rock samples shows that acid generation from the waste rock should not be a significant risk and any minor acid generating rock would be placed within the centre of the waste rock dump. Kinetic leaching testwork on Dish Mountain samples have confirmed the low risk of metalloid leaching.

A 4.5 Mm^3 water storage dam (WSD) is fed from a 120 km^2 upstream catchment area which is located 7 km southwest of the process plant. The reservoir surface area will be 63 ha with a 36 m high embankment. The stability assessment shows suitable factors of safety have been included to meet ANCOLD and Canadian Dam Association design standards. In the unlikely event of failure, the dam break assessment shows that a downstream bridge and some houses in Horizab (a downstream community) may be impacted. The emergency spillway has been designed for a 1:10,000-year event.

Total connected power will be 27.7 MW with an average demand of 20.6 MW. Electrical grid power is to be supplied to the operation via a 72 km, 132 kV powerline with substations at Asosa and the Kurmuk mine. The Government will provide the grid connection to increase its equity stake in KGM from 5% to 7%, as defined in the Kurmuk Development Agreement. Power will be distributed on site via a network of 11 kV powerlines.

Process plant security will include a perimeter fence as well as a double fence around high security processing areas. The security manned gold room incorporates access control and monitoring.

The onsite analytical laboratory to be supplied by Allied to the laboratory operator is costed on an annual basis in the 2022 FS.

1.11 Permitting, environmental and social

The Environmental and Social Impact Assessment (ESIA) for the Dish and Ashashire mining areas was approved as part of the application for the large-scale mining licence granted on 30 September 2021, while the powerline corridor ESIA was approved in April 2022. The ESIAs were developed to meet Ethiopian legislative requirements and to align with international good practice.

Environmental and social requirements of the Large Scale Mining Licence include preferential employment and procurement practices, allocation for rehabilitation of environmental impacts, participation in community development and obtaining written consent including compensation for landowners. The capital and operating costs include allowances for these requirements.

Formal acquisition of land held by individuals or private organizations will be required along sections of the powerline corridor as well as compensating the affected administration for use of common communal land.

Other matters to be addressed prior to construction and operations include obtaining various approvals and permits associated with water use and discharge, working within watercourses, waste transport and discharge, establishment of emergency management systems, building works, import, transport and use of explosives and radioactive materials.

Environmental and social baseline studies have been undertaken in the mine infrastructure area and along the powerline corridor. The Property area lies within East Sudanian Savanna terrestrial ecoregion. The ecoregion is regarded as critically endangered due to agriculture and other activities, but the Property area does not overlap with any designated or formally protected areas. Habitats of high biodiversity sensitivity were identified within the mine infrastructure area and along the powerline corridor, and as a consequence the powerline corridor was realigned.

A survey of archaeological sites across the study area was undertaken and an appropriately qualified archaeologist has confirmed suitable measures to mitigate impacts on any sites of heritage significance.

The closest communities are approximately 8–10 km from the proposed Dish Mountain mine and process plant, 8 km from the proposed Ashashire mine and 3 km from the WSD. Approximately 9,500 people reside in the mine's area of influence and 24,000 in the powerline corridor area of influence. No physical relocation of communities is required for the operation and provision has been made for the compensation of individuals affected by economic displacement. Ethiopia does not recognize any indigenous populations; however, the Berta people are considered indigenous under international guidelines. Allied has committed to providing for social programs in the area, as indicated in the EIA and following best international practices.

1.12 Costs and economic analysis

Total LOM capital costs for the 12-year mine life are estimated at $717 million to a ±15% accuracy. The main components of the capital costs cover $499 million of pre-production costs for pre-stripping and development of the project, $191 million for sustaining capital for the replacement of mining equipment and TSF lifts, $27 million for mine closure, inclusive of $72 million for contingency. A breakdown of the cost by item is provided in Table 1.3.

Table 1.3 LOM capital cost estimate

Capital item	Unit	Total
Pre-strip	$M	40.17
Mining fleet	$M	52.59
Mining infrastructure	$M	15.39
Plant and infrastructure	$M	348.01
Contingency	$M	43.21
Subtotal – pre-production	**$M**	**499.36**
Mining	$M	78.05
General	$M	38.5
TSF raise	$M	49.41
Contingency	$M	24.89
Subtotal – sustaining	**$M**	**190.86**
Closure provision	$M	23.17
Contingency	$M	3.79
Subtotal – closure	**$M**	**26.96**
TOTAL FS CAPITAL	**$M**	**717.18**

Source: Allied, 2022 FS, December 2022

Total operating costs (Table 1.4) for the 12-year mine life is estimated at $1,828 million to a ±15% accuracy and is based on first principles costing of key elements.

Table 1.4 LOM operating cost estimate

Operating cost item	Unit	Total
Mining	$ M	918.28
Processing	$ M	489.93
G&A	$ M	183.57
Royalties	$ M	223.93
Selling	$ M	11.95
Total	**$ M**	**1,827.67**

Source: Allied, 2022 FS, December 2022

Mining costs represent 58% of the operating costs and are based on owner mining. The key mining costs are haulage at 23%, drilling and blasting at 37%, and personnel at 14%. If the long-term diesel price increases from $0.75/L to $1.00/L, the LOM operating cost would increase from $3.16/t rock to $3.42/t rock, inclusive of equipment purchase costs.

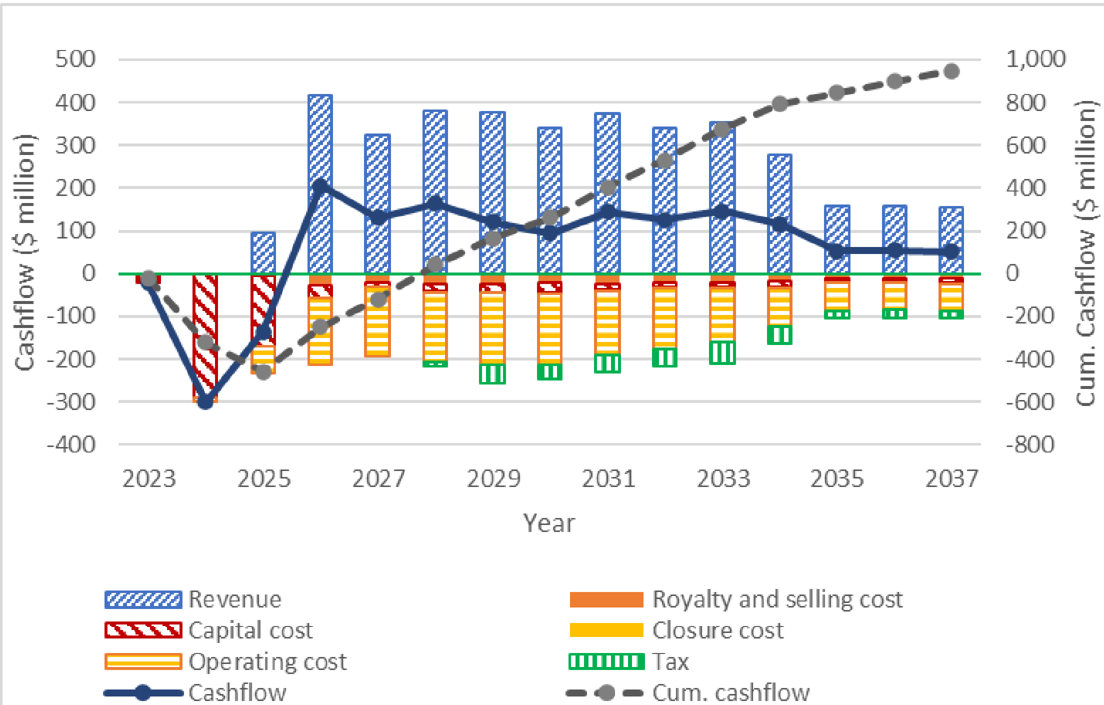
Processing costs represent 31% of the operating costs and average approximately $9.30/t processed over the LOM. The range of operating costs is $8.23/t for Dish Mountain oxide up to $10.20/t for harder ore from Ashashire. The fixed and variable process costs were applied, by ore type, in the processing schedule. It is acknowledged that processing costs at $9.30/t over the LOM benchmark is low due to the low power price ($0.04/kWh), low cyanide consumption (0.30 kg/t) and competitive labour costs.

Administration costs at $15.0 million per annum benchmark reasonably well with similar sized operations. Selling costs are based on $5/oz for doré transport and refining. Royalties are based on the Development Agreement and include 5% Government royalty based on net revenue and 2% community development royalty based on 2% from annual net profit or operating costs, whichever is the higher.

The economic evaluation of Kurmuk is based on the Mineral Reserve available over the LOM, coupled with the capital and operating costs, taxes and royalties as well as revenue factors, based on consensus gold price forecasts from 2022 to 2025 and a flat gold price of $1,568/oz from 2026 onwards. The annual cash flow forecast is shown in Figure 1.1.

The total post-tax free cash flow of the project (100%) was estimated at $948 million or $548 million on a NPV basis using a 5% (real) discount rate, with an internal rate of return (IRR) of 25%. The payback period for the Kurmuk Project is 34 months from commissioning in Q4 2025.

Figure 1.1 Kurmuk LOM cash flow summary



Source: Allied, 2022 FS, December 2022

A gold price sensitivity analysis showed a breakeven $NPV_{5\%}$ at a gold price of about $1,100/oz. Sensitivity of the project was tested to key value drivers; and in particular, gold price assumptions, grade, recovery rates and material cost inputs such as labour, drilling, haulage and fuel costs. As expected, gold price and grade represent the most significant drivers with a ±$200/oz change in gold price or a ±0.2 g/t Au change in grade resulting in a ±$200 million change to $NPV_{5\%}$. In a pessimistic operating environment where these and other factors such as drill, haul, labour and fuel costs as well as royalties are a downside case, the project still generates an $NPV_{5\%}$ of $113 million and IRR of 12%. Conversely, if all these factors are in the upside case, the project has an $NPV_{5\%}$ of $1,083 million and IRR of 49%.

The discount rate used in the 2022 FS financial model is 5%. The project's NPV at higher discount rates are shown in Table 1.5.

Table 1.5 Kurmuk 2022 FS – LOM discount rate sensitivity

Discount rate	Project NPV ($ M)
5.00%	548
7.50%	413
10.00%	306
12.50%	222

1.13 Other relevant data and information

1.13.1 Expanded plant study

An engineering study was carried out by Allied in Q1 2023, based on the Mineral Reserves and the 2022 FS mining schedule, which considers an increase of the average throughput from 4.4 Mt/a to 5.4 Mt/a (23%). The study shows that the higher throughput option would increase the capital costs by $30 million while increasing average production to 240,000 gold ounces over the LOM and delivering positive returns.

Additional technical studies are being advanced to incorporate this opportunity in the next stage of design. and increase its certainty. Mine design and mining schedules, metallurgical flow sheets and process plant designs will require additional detailed work and economic analysis and internal studies to ensure satisfactory operational conditions.

Allied advises that Front End Engineering and Design (FEED) is underway to progress to critical path activities including engineering and tendering of earthworks, long-lead items and construction camp. The FEED will also evaluate the opportunity of deploying the equipment purchased for the Sadiola Expansion Project to Kurmuk if the former project is deferred.

1.13.2 Infill drilling and exploration

Infill drilling is ongoing at the time of this Technical Report and is targeting the 165 koz of Inferred Mineral Resources reported in the 2022 FS designs in order to convert them into an Indicated Mineral Resource. Follow-up drilling at Ashashire indicates mineralization extensions at depth, which are also being assessed at the time of reporting.

There is no certainty that Inferred Mineral Resources will be able to be converted into Measured or Indicated Mineral Resources. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability; the estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant modifying factors.

The John Dory deposit, adjacent to the proposed TSF, has been drilled and assayed with Mineral Resource modelling and metallurgical testwork ongoing at the time of reporting. Should the John Dory deposit become economically viable in the future, the waste generated could be used for TSF buttressing and would reduce sustaining capital costs.

Exploration is progressing at the Tsenge deposit, 5 km east of the proposed process plant and along strike of the Ashashire deposit.

1.14 Conclusions and recommendations

The main exploration activities and key engineering studies have largely been completed for the Kurmuk development and are summarized below. Some initial site works have commenced.

The 2022 FS concluded:

- A 12-year mine life based on currently defined 2,600 koz in Proven and Probable Mineral Reserves, producing 240,000 oz/a in the first five years.
- Conventional open pit mining using Komatsu PC2000 excavators and Komatsu HD785-7 trucks (or equivalent) to mine up to 44 Mt/a.
- Conventional process plant to treat 5.1 Mt/a of oxide and 4.2 Mt/a of harder fresh ore using jaw crushing, semi-autogenous grinding (SAG) and ball milling to 75 µm, gravity recovery, cyanide leaching, elution, electrowinning and smelting to produce gold doré.

- LOM recovery estimated at 92% based on 70 samples tested to date. Testwork has shown that Ashashire fresh ores have gold tellurides (calaverite) which requires 1.7 kg/t lime addition to achieve 90% recovery. Dish Mountain fresh ore will be blended with Ashashire fresh ore.
- Tailings are thickened to reduce cyanide consumption by 25% prior to cyanide detoxification and subsequent thickening to reduce water usage by 50%. The detoxified tailings are pumped to the TSF which is of downstream construction with an engineered liner and recovery of under-drainage and seepage.
- Infrastructure includes an accommodation camp for 900 people, a 12 km access road and a 4.5 Mm^3 water supply dam.
- The Ethiopian Government and Allied entered into a Development Agreement for the Kurmuk Gold Project on 30 September 2021 for an initial term of 20 years and renewable for periods of 10 years (Kurmuk Development Agreement). The Ethiopian Government will receive a 5% royalty and 7% equity stake by upgrading the road network and building the 132 kV powerline to connect the site to the national grid, which is 95% supplied by hydroelectric power.
- The 100 km^2 large-scale mining licence and environmental clearance certificate have been granted. Secondary permit approvals are in progress.
- The pre-production costs are estimated to be $500 million, inclusive of $40 million of mining pre-strip, $52 million for owner mining fleet and $348 million for process plant and infrastructure, inclusive of $43 million contingency, at an accuracy of ±15% accuracy.
- The all-in sustaining costs are estimated at $844/oz due to a low power price ($0.04/kWh), low diesel price ($0.75/L), and competitive labour force.
- Financial modelling shows an after-tax project NPV of $548 million at 5% discount rate with an IRR of 25%.

The 2022 FS has recommended the following priority work plan be undertaken during 2023, which is designed to enhance the value of the project:

- Investigate a nominal 20% plant throughput increase.
- Initiate discussions with Ethiopian and international earthworks contractors to reduce mining and earthworks costs. Alliance discussions should also be held with international mining contractors to reduce upfront and overall costs.
- Rationalise earthworks designs and infrastructure to reduce capital costs.
- Undertake an infill drilling program at Dish Mountain and Ashashire targeting the Inferred mineralization within the open pits.
- Test potential resource extensions at John Dory, Tsenge, and Dul Mountain.

2 INTRODUCTION

This Technical Report was prepared in accordance with the Canadian Securities Administrator's NI 43-101 for Allied Gold Corp (Allied) and Mondavi Ventures Ltd. (to be renamed Allied Gold Corporation) (Mondavi).

Upon completion of the RTO, Allied will be a Canadian-based gold producer with a portfolio of three operating gold mines, a development project and exploration properties in Africa, principally Mali, Côte d'Ivoire and Ethiopia.

This Technical Report is to support the disclosure of Exploration Results, Mineral Resources and Mineral Reserves for the Kurmuk Gold Project (Kurmuk or the Property), a mineral exploration and development property located in Ethiopia, East Africa, and was authored by the following Qualified Persons:

- Messrs. Allan Earl, Michael Andrew, Gordon Cunningham and Peter Theron of Snowden Optiro, a business unit of Datamine Australia Pty Ltd. Snowden Optiro was responsible for the preparation of this Technical Report including the review of the geology, Mineral Resource estimates, metallurgy, processing, infrastructure, costs and economic analysis, interpretation and conclusions, and recommendations.
- Mr Steve Craig of Orelogy Consulting Pty Ltd (Orelogy). Orelogy was responsible for the preparation of the Mineral Reserve estimate and associated mining study and mining capital and operating costs.

Messrs. Earl and Craig visited the site on 21st to 24th April 2022. The site visit included inspection of the historical samples stored in the core shed, geology, drilling and associated procedures, sample preparation and the topography of the future pits and major infrastructure.

All the Qualified Persons are eligible members in good standing of a recognized professional organization (RPO) within the mining industry and have at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that the Qualified Person is undertaking as disclosed in Table 2.1 at the time this Technical Report was prepared.

Table 2.1 Responsibilities of each Qualified Person

Qualified Person	Employer	Qualifications and affiliation	Details of site inspection	Responsibility
Mr Allan Earl	Snowden Optiro	*AWASM, FAusIMM*	4 days in April 2022	Project management and Snowden Optiro's Qualified Person responsible for this report. Items 1 – 6, 19, 21.2.3, 22, 23 – 26.
Mr Michael Andrew	Snowden Optiro	*BSc. (Geology), Grad.Dip. (Geostatistics), FAusIMM,*		Review of geology and Mineral Resources. Items 7–12, 14.
Mr Steve Craig	Orelogy	BSc. (Mining Engineering), FAusIMM	4 days in April 2022	Mining and Mineral Reserves, mining costs. Items 15, 16, 21.2.1.
Mr Gordon Cunningham	Snowden Optiro	*BEng. (Chemical), Pr.Eng (ECSA), FSAIMM*		Review of metallurgy, processing, costs, infrastructure Items 13, 17, 18.1, 18. 4 – 10, 21.1, 21.2.2.
Mr Peter Theron	Snowden Optiro	*BEng Civil, Pr.Eng. (ECSA), GDE (Hons), MSAIMM*		Review of environmental, permitting, TSF, waste dumps, water, and closure costs. Items 18.2 -3, 20, 21.1.3.

Unless otherwise stated, the information and data contained in this Technical Report or used in its preparation was provided by Allied. The Qualified Persons of this Technical Report reviewed information and documents provided by Allied via a virtual data room. The primary information source was the "Kurmuk Feasibility Study Report" dated December 2022 and appendices (2022 FS) which included internal company reports, technical reports, diagrams and maps, spreadsheets and correspondence prepared by Allied's external consultants.

The Kurmuk Mineral Resources and Mineral Reserves were initially classified using the 2012 Edition of the Australasian Joint Ore Reserves Committee Code (JORC Code, 2012). The confidence categories assigned under the JORC Code (2012) were reconciled to the confidence categories in the Canadian Institute of Mining and Metallurgy (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM Definition Standards, 2014). As the confidence category definitions are the same, no modifications to the confidence categories were required. Mineral Resources and Mineral Reserves in this Technical Report are reported in accordance with the CIM Definition Standards, 2014.

Further information was received from the Allied representatives listed in Table 2.2 via teleconference and email correspondence in response to queries submitted by Snowden Optiro.

Table 2.2 Allied information sources

Name	Position
Mr Matthew McInnes	Senior Vice President, Studies
Ms Neala Gillespie	Senior Vice President, HSE
Mr John Cooke	Vice President, Resources
Mr Phillip Schiemer	Resource Manager
Ms. Sarah Ross	Head of Legal (Operations)
Mr. Jordan Baechler	SVP Corporate Finance
Ms Louise Westgate	EIA Manager

The Qualified Persons listed in Table 2.1 are responsible for this Technical Report and declare that they have taken all reasonable care to ensure that the information contained in this report is, to the best of their knowledge, in accordance with the facts and contains no material omissions.

In preparing this report, the Qualified Persons have extensively relied on information collated by other parties. The Qualified Persons have critically examined this information, made their own enquiries, and applied their general mineral industry competence to conclude that the information presented in this Technical Report complies with the definitions and guidelines of the CIM.

The Qualified Persons believe that their opinions must be considered as a whole, and that selection of portions of the analysis or factors considered by them, without considering all factors and analyses together, could create a misleading view of the process underlying the opinions presented in this Technical Report. The preparation of a Technical Report is a complex process and does not lend itself to partial analysis or summary.

Except for the purposes legislated under applicable securities laws, any use of this Technical Report by any third party is at that party's sole risk.

A draft copy of this Technical Report was provided to Allied for review on omission and factual accuracy. The Qualified Persons who have authored this Technical Report do not disclaim responsibility for the contents of this report.

The effective date of this Technical Report is 9 June 2023. As at the effective date of this Technical Report, none of the Qualified Persons had an association with Allied or its individual employees, or any interest in the securities of Allied or any other interests that could reasonably be regarded as capable of affecting their ability to give an independent unbiased opinion in relation to Allied's assets.

Snowden Optiro and Orelogy will be paid a fee for the preparation by its Qualified Persons of this Technical Report based on a standard schedule of rates for professional services, plus any expenses incurred. This fee is not contingent on the outcome of the Technical Report, and neither Snowden Optiro, Orelogy nor the Qualified Persons will receive no other benefit for the preparation of this report.

Unless otherwise specified, all units of currency are in United States dollars ($). All measurements are metric with the exception of troy ounces (oz).

3 RELIANCE ON OTHER EXPERTS

The information, conclusions, opinions and estimates contained in this Technical Report are based on the following parameters:

- Information made available to the Qualified Persons by Allied as at the effective date of this Technical Report
- Assumptions, conditions and qualifications as set forth in this Technical Report.

The Qualified Persons have reviewed such information to verify it using their professional judgement and have no reasons to doubt its reliability and have determined it to be adequate for the purposes of this Technical Report. Except as specified below, the authors do not disclaim any responsibility for the information, conclusions and estimates contained in this Technical Report.

The Qualified Persons have not performed an independent verification of the land title and mineral tenure information, as summarized in Item 4 of this Technical Report, nor have they verified the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties, as summarized in Item 4 of this Technical Report. The Qualified Persons have relied on information provided by the legal department of Allied and disclosed in an independent legal assessment by Mesfin Tafesse and Associates dated 11 May 2023 in this regard. The mineral tenure information was also confirmed on the Ethiopian Mining Cadastre Portal of the Ministry of Mines and Petroleum[1].

The Qualified Persons have relied on the Allied personnel listed in Table 2.2 for guidance on applicable legal, political, environmental and tax matters from the proposed Kurmuk mining and processing operation, mine and country security, and other risks.

This Technical Report includes certain non-GAAP financial measures which the authors believe, together with measures determined in accordance with international financial reporting standards (IFRS), provide investors with an improved ability to evaluate the underlying performance of Allied. Non-GAAP financial measures do not have any standardized meaning prescribed under IFRS, and therefore they may not be comparable to similar measures employed by other companies. The data is intended to provide additional information and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. The non-GAAP financial measure included in this Technical Report include free cash flows and all-in sustaining costs.

[1] https://ethiopian.portal.miningcadastre.com/

4 PROPERTY DESCRIPTION AND LOCATION

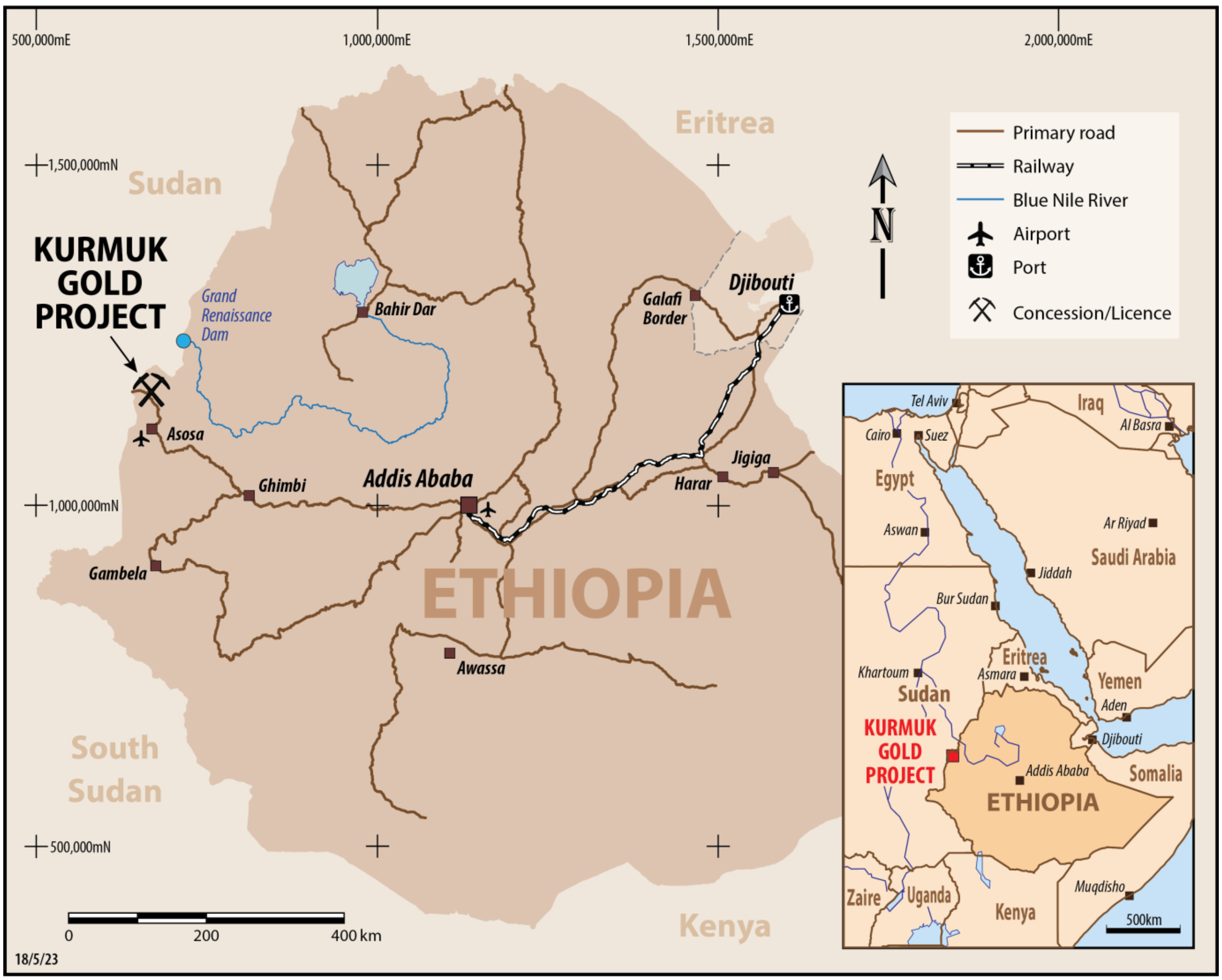
Kurmuk is a planned greenfields gold mine development in Ethiopia. Allied completed a PFS in December 2021 and a FS in December 2022 (2022 FS) based on a plan to open pit mine the Dish Mountain and Ashashire gold deposits and treat ore at an average rate of 4.4 Mt/a through a conventional CIL circuit to produce 2,390 koz of gold doré over a 12-year mine life.

Allied secured a mining licence, Development Agreement and environmental approvals for the planned development in Q4 2021. The commencement of construction is currently targeted for Q4 2023, with first gold produced scheduled for Q4 2025.

4.1 Location and area

The Property is situated in western Ethiopia, approximately 750 km east-northeast of the capital city of Addis Ababa and 65 km north-northwest of Asosa (10.0620° N, 34.5473° E), the regional administrative centre of Benishangul-Gumuz Regional State (Figure 4.1). The area of the Property is 1,561.1 km^2.

Figure 4.1 Location of Kurmuk Property



Source: Allied, 2022 FS, December 2022

4.2 Type of mineral tenure

4.2.1 Legal framework

The relevant legislative framework in the Federal Democratic Republic of Ethiopia in relation to the exploration of minerals includes the Mining Operations Proclamation 678/2010 (as amended) (Mining Proclamation), Income Tax Proclamation No.979/2016, Income Tax Regulation No. 410/2017, Mining Operation Regulation 423/2018 (as amended) and directives issued thereunder by the MoMP[2] and the Ministry of Finance.

Exploration and mining operations in Ethiopia are primarily regulated by the MoMP under the Mining Operations Proclamation No. 678/2010 dated 4 August 2010, as amended by Proclamation No. 816/2013 (collectively, the "Mining Proclamation") with six licence types issued:

- Reconnaissance licence
- Exploration licence
- Retention licence
- Artisanal mining licence
- Small scale mining licence
- Large scale mining licence.

An exploration licence allows the holder the exclusive right to search for any mineral within a specified area. The licence is initially issued for three years and can be renewed up to a maximum of 10 years in total. There is no set minimum expenditure requirement; however, the estimated expenditure must be proportionate with the work program approved by the MoMP. Upon each renewal, the licence holder is required to relinquish an area equal to or greater than 25% of the licensed area unless a resource is declared.

A large scale mining licence is issued to a mining operation with annual run-of-mine (ROM) ore production exceeding the maximum amount allowed under a small scale mining licence. The licence is initially issued for 20 years and needs to be renewed every 10 years thereafter.

4.2.2 Mining licences

The Large Scale Mining Licence no. MOM/LSML/1732/2021 registered in the name of Kurmuk Gold Mining PLC (KGM) covering the proposed Dish Mountain and Ashashire mining area was granted on 30 September 2021 for a term of 20 years. The licence has an extent of 100.4 km^2 and covers all the proposed infrastructure required for development of the project (Figure 4.2).

[2] www.mom.gov.et

Figure 4.2 Kurmuk Property mineral tenure

Source: Allied, 2022 FS, December 2022

4.2.3 Exploration licences

Three granted exploration licences with a total area of 1,460.7 km^2 surround the large-scale mining licence as detailed in Table 4.1 and shown in Figure 4.2.

Table 4.1 Kurmuk property exploration licences

Permit number	Type	Project area	Holding company	Area (km^2)	Grant date	Expiry date
MOM/EL/01867/2021	Exploration Licence	Mestefinfin	KGM	396.5	3 Sep 2021	3 Sep 2024
MOM/EL/01854/2021	Exploration Licence	Abetselo	KGM	298.8	3 Sep 2021	3 Sep 2024
MOM/EL/112-2018	Exploration Licence 112	Dul-Ashashire	KGM	765.4	26 Sep 2018	26 Sep 2023

Source: Allied pers comm.

4.3 Issuer's interest

The Property is owned by KGM in which Allied (through its subsidiary) has a 64.46% equity. KGM, formerly known as Ascom Mining Ethiopia PLC (AME), has been exploring the area since November 2008. In May 2017 Allied, through its subsidiary Allied Gold ET 2 Corp, entered into a shareholder's agreement with, among others, the former majority shareholder of AME. The shareholder's agreement was subsequently amended and restated in 2019 to, among other things, provide Allied (through its subsidiary) with an option to acquire an additional 5.54% interest in KGM by funding an amount of $2.9 million with respect to exploration and study work on the Ashashire deposit.

The shareholder's agreement requires that both partners finance the construction of the project and it has dilution mechanisms built in. Allied has already expended over the amount required to acquire additional equity bringing its stake to 70% and it is in the process of confirming this increased ownership.

4.4 Surface rights

The Ethiopian Government is the owner of rural land which is held by the owner under lease. The MoMP has the power to expropriate land for mine development purposes subject to the payment of appropriate compensation for the land and permanent improvements. For rural landholders, this is up to 10 times the annual income generated over the past five years.

Allied is in the process of securing the surface rights through a compensation process with costs included in the 2022 FS capital cost estimate.

4.5 Royalties, back-in rights, payments, agreements, encumbrances

The Ethiopian Government and Allied entered into a Development Agreement for Kurmuk on 30 September 2021 for an initial term of 20 years and renewable for periods of 10 years (the Kurmuk Development Agreement). The provisions of the Kurmuk Development Agreement provide Allied with:

- Fiscal and customs stability from any change in legislation or regulations that would result in a change in the financial parameters for the proposed mining operations.
- The ability to retain foreign currency abroad.
- Timely customs clearances.
- VAT recovery which can be offset against royalties or taxation.
- Customs duties exemptions for vehicles, spare parts, machinery, equipment and consumables.
- International arbitration in accordance with the UNCITRAL Arbitration Rules.
- Road upgrades by the Federal Government to enable timely and cost-effective delivery of the construction equipment and operations consumables.

The Kurmuk Development Agreement contains Allied's main obligations for the construction and operation of the Kurmuk gold project. With regard to:

- The timeline for construction and commercial production commencement, Article 5 of the Kurmuk Development Agreement requires production to commence within 2 years of the date of the Kurmuk Development Agreement (September 2021), unless extended in accordance with the terms of the Kurmuk Development Agreement. A first 2-year extension can be made by Allied in its discretion by notice to the government which should provide the reasons for the extension. Further extensions can be requested in case of adverse market conditions, subject to acceptance by the State.
- Local content, Article 7.8 of the Kurmuk Development Agreement requires Allied to give preference to Ethiopian goods and services, where they are readily available at a competitive price and are of a comparable quality to goods and services sourced outside Ethiopia.
- Employment, Article 7.5 of the Kurmuk Development Agreement requires Allied to give preference to the employment of Ethiopian nationals, provided that such nationals are available, competent and have the required qualifications and experience.

Allied advises that early construction works are progressing.

The following summarizes the key economic development parameters that will apply to Kurmuk:

- Corporate tax rate of 25%.
- Carry forward losses for 10 years.
- Royalty of 5% for precious metals.
- A 5% free-carry for the Federal Government.
- A 2% free-carry for the Benishangul Gumuz Regional State with the installation of the 132 kV powerline and substations at Asosa and Kurmuk.
- An Environmental Rehabilitation Fund requiring the Licensee to deposit funds annually into an escrow account. The funds are commensurate with the environmental impact assessment and are calculated by dividing the closure cost by the agreed licence period.
- A Community Development Fund established by the MoMP to distribute funds to the impacted communities:
  - The board of the Fund will comprise officials from MoMP, Kurmuk Woreda (similar to a shire), kebele (similar to a town) and a representative from Allied.
  - During the construction period, Allied will be required to contribute $0.17 million.
  - During the processing period, Allied will be required to contribute 2% from its annual net profit or operating costs, whichever is the higher.

4.6 Environmental liabilities

A preliminary estimate of the anticipated mine closure costs was developed by Kewan Bond Pty Ltd to cover future liabilities for disturbed areas, infrastructure and mine closure. The estimated cost for rehabilitation and closure is $27 million (as of 31 December 2022), including a 15% contingency. Allied will be required to deposit funds annually into an escrow account, with the total amount being divided by the agreed licence period to determine the annual payment required. The financial model makes provision for a $2.2 million annual payment from 2026 to 2038.

4.7 Permits

The EIAs have been approved for the proposed mining project and grid power connection. Secondary permits are required including construction and clearing permits, water use and explosives licence. Further details on the status of permitting are provided in Item 20.3.

4.8 Other significant factors and risks

The potential for local and regional unrest may affect access to perform work on the Property and lead to critical supply chain interruptions. The risk is mitigated with six weeks' storage of supplies on site. Allied will continue engaging and working with local communities following the commitments of the EIA and best industry practices.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Topography, elevation and vegetation

The Kurmuk area is topographically rugged, dominated by a series of northeast-trending ranges with steep relief and elevations ranging from 750 masl to 1,500 masl. Ephemeral streams occupy the open valley areas.

The Property area lies within the East Sudanian Savanna terrestrial ecoregion characterized by woody vegetation, with smaller areas of degraded habitat closer to villages. The licence areas do not overlap any designated or protected areas; however, habitats of high biodiversity sensitivity have been identified within the vicinity of mine related infrastructure and along the proposed powerline corridor, which have been taken in consideration in the design of the project.

5.2 Access

Access to the Property from Asosa is via a sealed road for about 100 km towards the border town of Kurmuk, and then by unsealed road for a further 10 km to the Dish Mountain project area. The border with Sudan is approximately 5 km due west of the site selected for the proposed process plant and mine infrastructure.

5.3 Proximity to population centres and transport

The population within the area of influence of the mine-related infrastructure and powerline corridor is estimated at 9,500 and 24,000 respectively. Local communities are largely reliant on surrounding natural resources, including farming, livestock production, harvesting of plants and gum, and artisanal gold mining. Asosa is serviced by daily domestic flights from Addis Ababa.

5.4 Climate and length of operating season

The region has a sub-tropical climate, with a wet season extending from May to October. Average annual rainfall is 950 mm. The temperature ranges from 25°C to 42°C, with the highest temperatures recorded in March and April. The open pit mine and process plant is scheduled to operate year-round with two 12-hour shifts per day, seven days per week with provisions for shutdowns and weather downtime. Further climatic details are provided in Item 20.

5.5 Infrastructure

The proposed infrastructure for the 2022 FS is discussed in Item 18. The proposed development area is fully contained within the mining licence area. There is access to adequate sources of power and water for the project. Allied has recruited an experienced Project Manager to work with Ethiopian contractors to increase their capacity and capability to participate in the tender processes for construction and operation of the project. There is a phased ramp-up of mine production to allow for fleet mobilization and recruitment and training of mining equipment operators.

The process plant will be located at Dish Mountain where there is adequate space for the tailings storage areas, waste dumps, water dams, accommodation and the processing plant and associated infrastructure. When the compensation process is completed within the mining licence, the surface rights will be sufficient to progress construction and subsequently sustain production.

5.6 Workforce

The majority of personnel will be sourced from the local communities with senior Ethiopian staff and expatriate staff typically travelling from Addis Ababa. Expatriate personnel will be used to train, mentor and transfer skills.

6 HISTORY

The Property is in a region known for its gold mining history dating back some 6,000 years and was a key source of gold to the ancient Egyptian empire. There has been no recent gold production within the Property. Allied is currently evaluating establishing commercial production.

6.1 Dish Mountain

The Dish Mountain exploration licence was acquired by Ariab Gold Mining and Investment Plc (Ariab) in May 2007 from MoMP. The licence was transferred from Ariab to AME on 20 November 2008.

In 2008, AME carried out regional stream sediment survey and prospecting programs which identified gold anomalies. Regional soil geochemistry, rock chip sampling and more detailed mapping was conducted in 2009.

Alteration in the Dish Mountain area was identified from the interpretation of ASTER satellite imagery and followed up by a detailed soil geochemistry program. Trenching conducted in 2010 and subsequent RC drilling in 2011 confirmed the gold mineralized zones at Dish Mountain.

After conducting a review in late 2013, AME decided to advance the development of Dish Mountain to PFS status. This involved additional diamond and RC drilling. AME subsequently completed several phases of drilling testing the depth and strike potential of the gold mineralization at Dish Mountain.

In May 2017, Allied took control of AME. Allied carried out a Scoping Study in April 2019 and a PFS in December 2019 which concluded that additional economic mineralization at Ashashire was required to justify project development.

Following the completion of the 2019 Dish Mountain PFS, investigations at Ashashire progressed to the point where sufficient resources had been identified to make it a viable addition to Dish Mountain. A PFS was completed in 2021 to update the financials for the combined project.

6.2 Ashashire

Golden Star Resources Limited Ethiopia was granted an 1,800 km^2 exploration licence over the Ashashire area in 1995. A total of 30 diamond drillholes was completed at the Dul, Menghe and Azale prospects with disappointing results, consistent with the results from previous drilling conducted by the Ethiopian Institute of Geological Surveys in 1994.

In 2007, Aberdeen International entered into a joint venture with Ethio-Gibe Canada Mining PLC to explore the area, which included the Menghe and Dul prospects. Avion Resources Corp. subsequently purchased Aberdeen International's rights in 2007. Satellite imagery interpretation, a magnetic and radiometric airborne survey, geological mapping and rock sampling was successful in identifying structural trends associated with known gold occurrences.

From 2011 to 2014, Aurigin Resources Inc. (Aurigin) in joint venture with Gold Fields outlined several high priority areas, which included the Ashashire, Dul and Menghe prospects. Aurigin acquired full ownership of the licence from Gold Fields in 2015 and focused its work on resource drilling at Ashashire. Exploration work completed included airborne magnetic and radiometric geophysical surveys, extensive stream, soil and rock geochemical surveys, mapping and trenching, and detailed structural mapping of priority targets at Ashashire. To complement this work, ~5,000 m of diamond and RC drilling was completed. The company subsequently ran out of funds and relinquished the ground.

Allied commenced diamond drilling at Ashashire in 2019. Several historical resource estimates have been reported on the Property and reflect the evolving geological understanding of the deposits using a range of estimation techniques. The quantum of these estimates are broadly in line with the current Mineral Resource estimate as disclosed in Item 14.

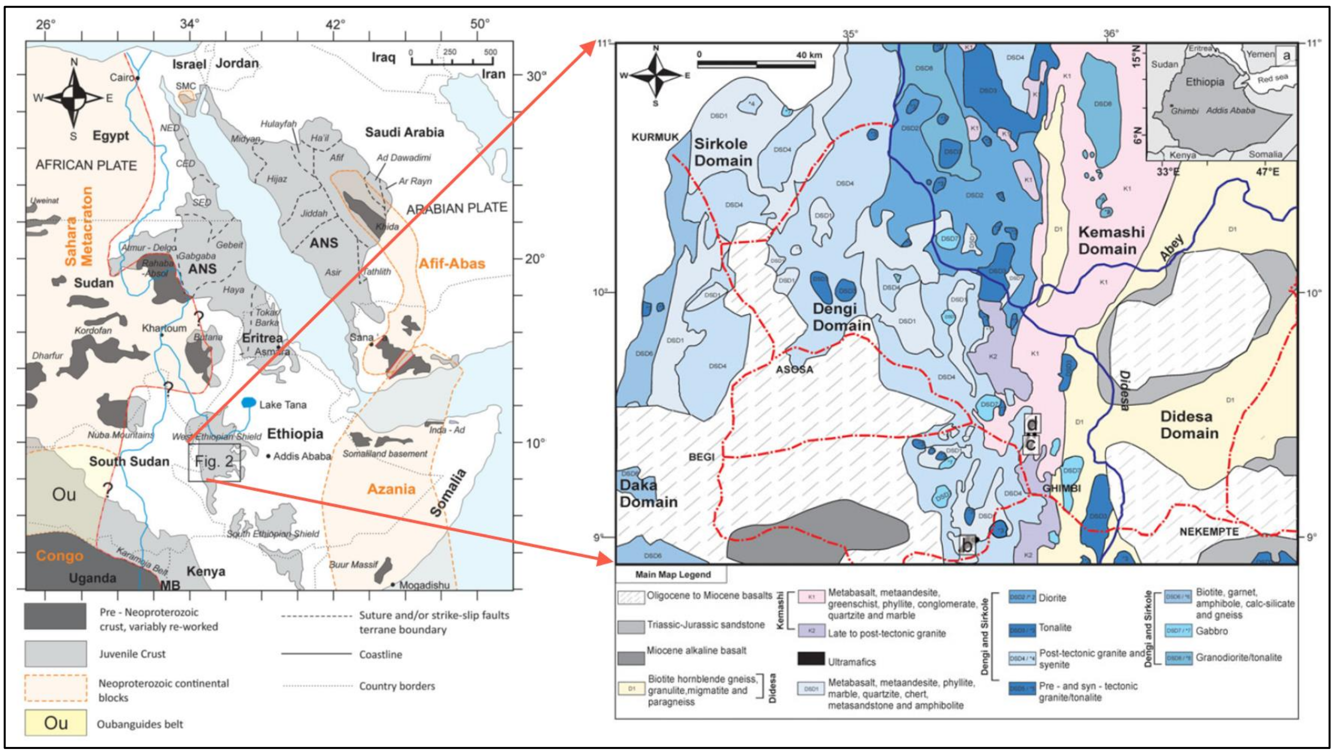
7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional geology

Kurmuk lies within the Neoproterozoic volcano-sedimentary Tulu Dimtu shear belt of the Arabian-Nubian Shield (ANS) at the northern end of the East African Orogen. The north-trending Tulu Dimtu belt in western Ethiopia is characterized by a sequence of metasedimentary rocks interlayered with mafic to ultramafic volcanic and intrusive rocks, all metamorphosed to upper greenschist/amphibolite facies which formed during amalgamation of the Gondwana cratons (Figure 7.1). Kurmuk lies within the western part of this belt.

Gold mining activity in the general region is reported to date back to the ancient Egyptian empire. Most of the gold deposits are structurally controlled, associated with major regional fault and fracture systems developed along the shear belt.

Figure 7.1 Location of the Kurmuk Property in the ANS



Source: M.L. Blades et al., 2017

7.2 Local geology and mineralization

7.2.1 Dish Mountain

The Dish Mountain gold deposit is situated within a northeast-trending volcano-sedimentary succession (Figure 7.2). Four main rock groups in order of abundance are recognized by Allied from mapping and drilling:

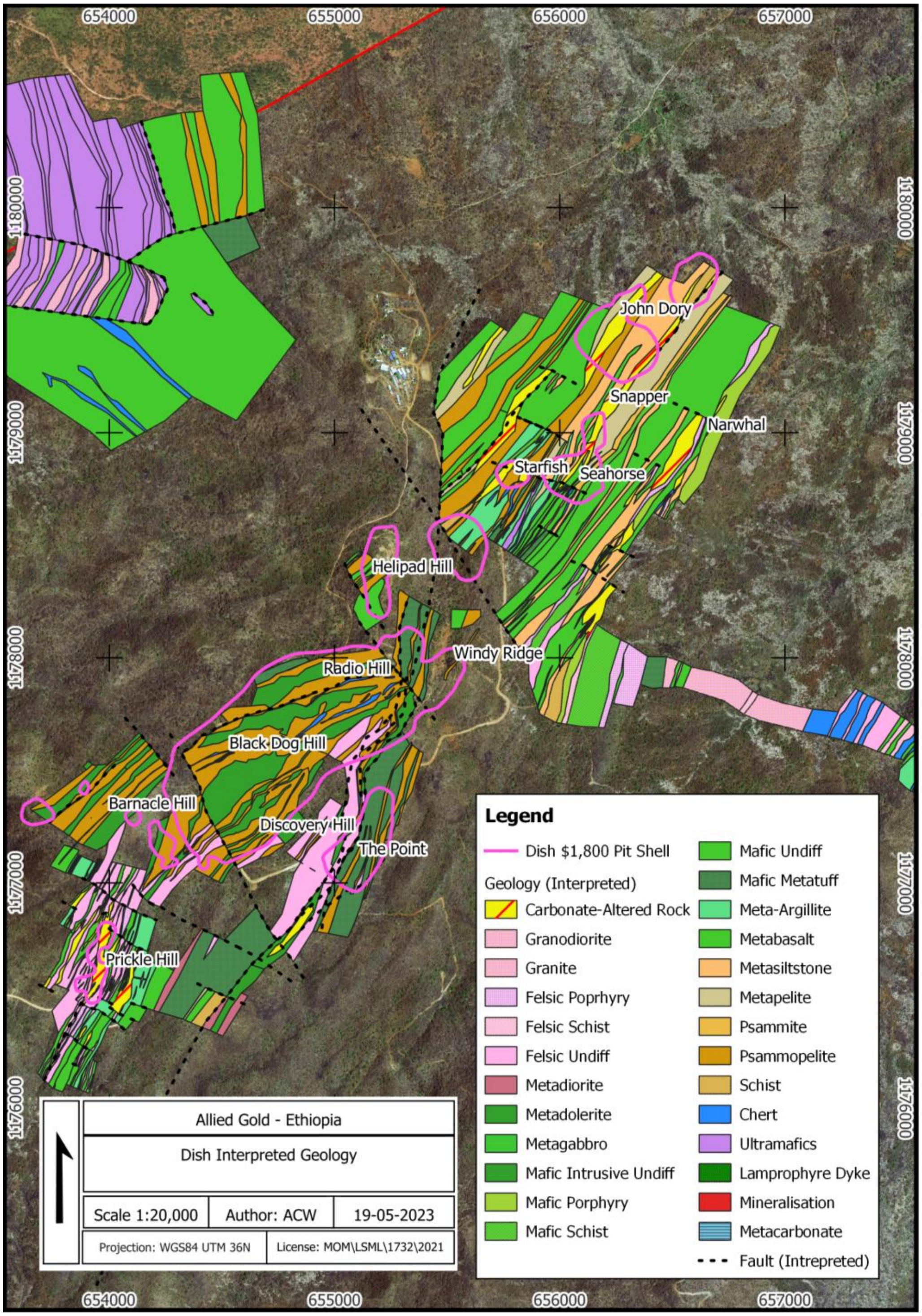
- Foliated mafic igneous rocks comprising meta-pyroclastics, lavas and intrusives that strike to the northeast and dip moderately to the northwest.
- Foliated metasediments intercalated with the meta-volcanic rocks comprising:
  - dominantly quartz–mica (+feldspar+chlorite) and variably carbonate-bearing siliclastic rocks dominated by pelites and phyllites, with lesser, psammo-pelite and psammites

- relatively uncommon chemical sediments, which are important marker horizons and range from silica-dominant to carbonate-dominant.

- Variably deformed ultramafic rocks.
- Syn to post tectonic intrusives ranging in composition from gabbro, diorite, tonalite to granite.

Most faults strike to the northeast, parallel or sub-parallel to the regional structural fabric.

Figure 7.2 Plan of interpreted geology – Dish Mountain



Source: Allied

The Dish Mountain gold deposit is interpreted as peripheral to a mafic dominant, bimodal, eruptive centre, which produced mainly tuff and ash pyroclastics with lesser lavas separated by periods of low energy sedimentation. The gold deposit forms a sigmoidal, lozenge shaped body in plan and is postulated to be hosted within accommodation features associated with a major northeast-trending thrust, informally named the Dish Mountain Fault.

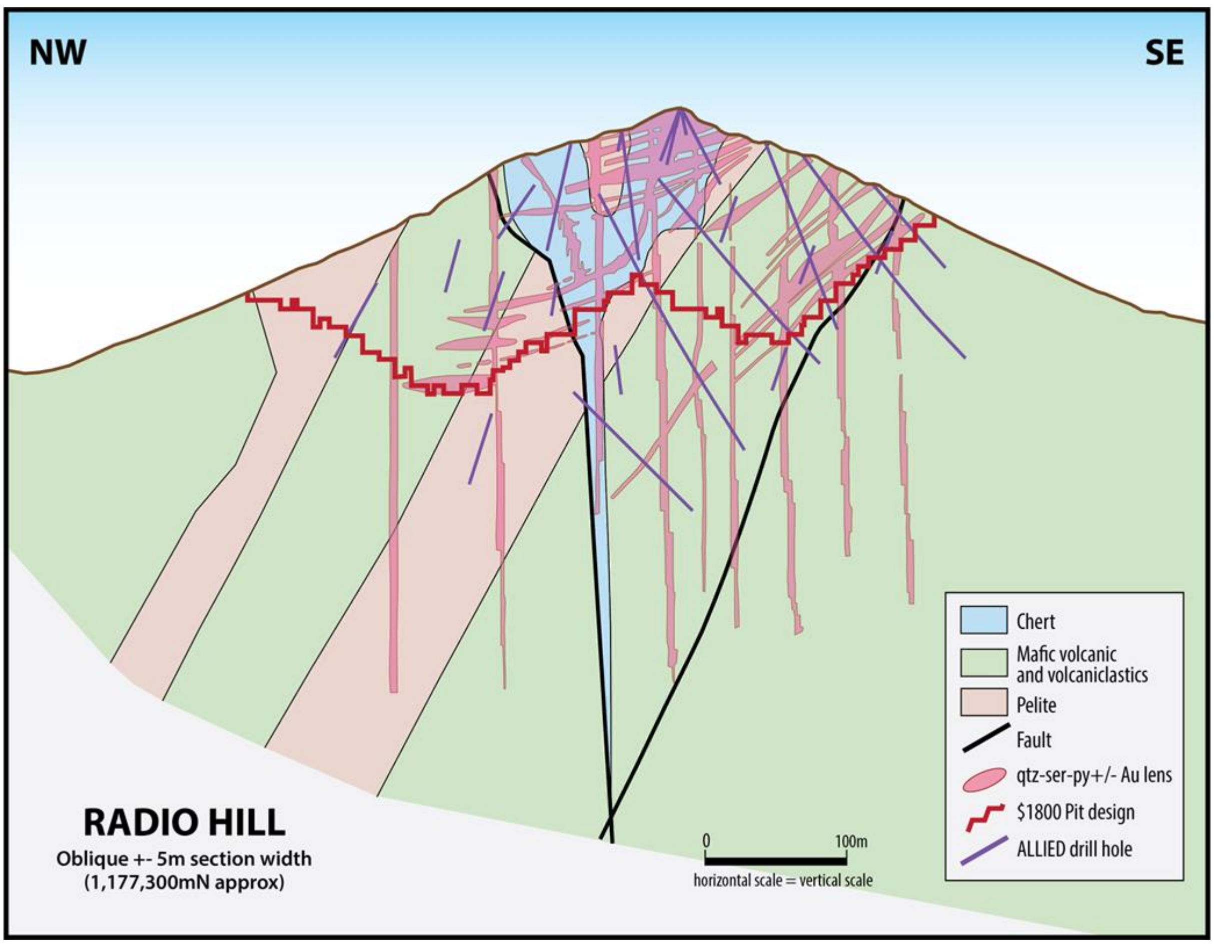
Gold mineralization is related to late-stage, discordant extensional quartz > dolomite >> pyrite (+chlorite-tourmaline-gold) veins and adjacent dolomite-muscovite-pyrite altered selvages within broad dolomite-muscovite alteration haloes which may be anomalous in gold. The vein sets typically range from 1 m to 10 m in thickness and form stacked arrays.

The three main mineralized lode orientations recognized are:

- West-dipping lodes located on the eastern side of Dish Mountain associated with the interpreted Dish Mountain Fault
- Sub-vertical chert lodes
- Flat-lying lodes (Figure 7.3).

The-flat lying and west-dipping lodes comprise quartz veins that individually are thin (2–5 cm) but are laterally extensive and as a result of the structural environment, occur as 5–10 m thick stacks of quartz veins with pelites between the veins. The chert bodies at Radio Hill are sub-vertical, massive banded silica and quartz that are 10 m wide and strike for several hundred metres; they are truncated by a fault half way along the Dish Mountain deposit.

Figure 7.3 Representative cross-section through Dish Mountain looking northeast



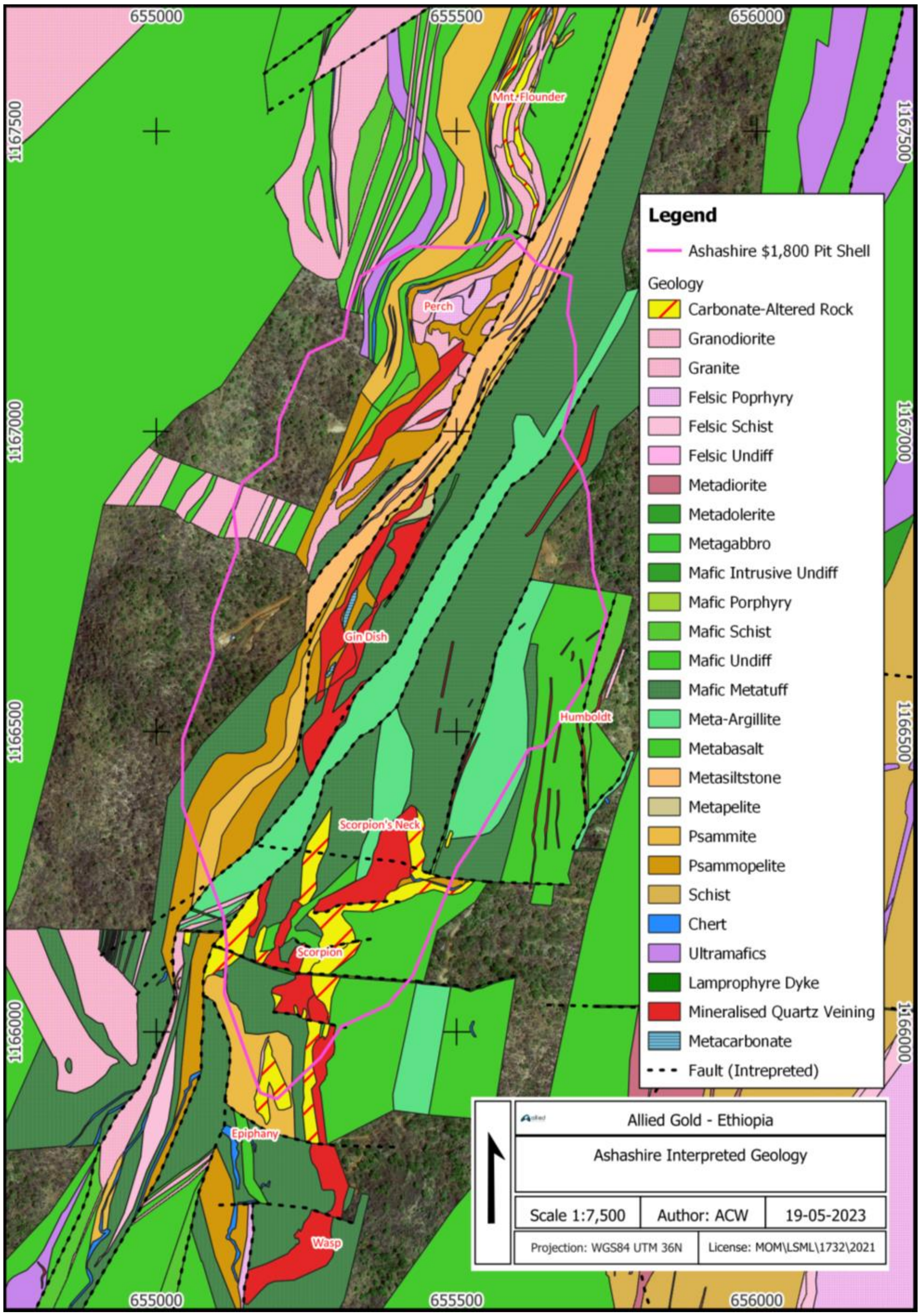
Source: Allied, 2022 FS, December 2022

7.2.2 Ashashire

The Ashashire deposit is located about 15 km south of Dish Mountain within the same northeast-trending volcano-sedimentary succession (Figure 7.4) comprising:

- A steep, southeast-dipping, mafic-dominated volcaniclastic footwall sequence with jasperoidal and chert horizons and numerous thin granite and tonalite intrusive rocks
- Siliciclastic sediment-dominated package comprising fine-grained psammites, pelites and psammo-pelites with minor carbonate sediments separated by mafic units
- A mafic-dominated hangingwall sequence that comprises chloritic siltstone and basalt.

Figure 7.4 Plan of interpreted geology – Ashashire



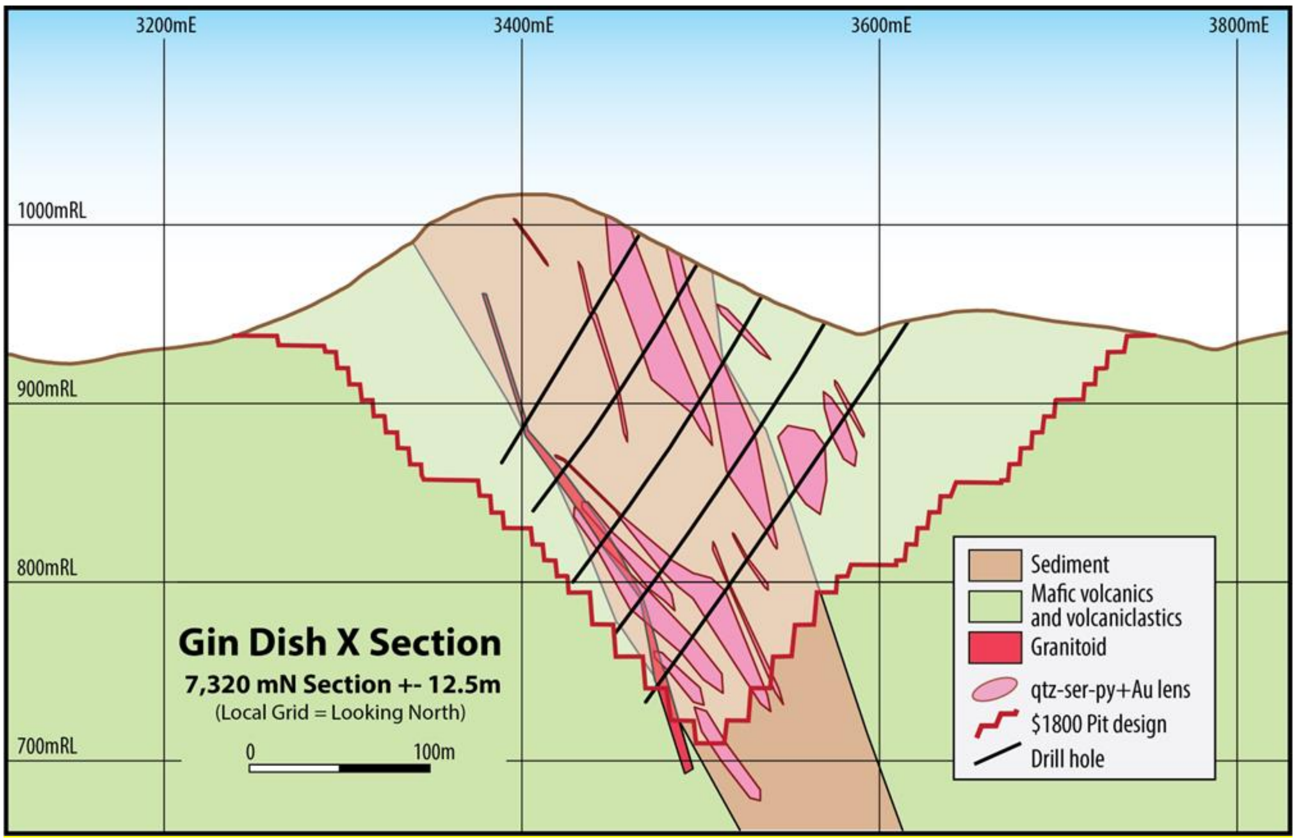
Source: Allied, 2022 FS, December 2022

The gold deposit forms a series of linear bodies along a ridge crests in plan. The gold mineralization is related to late-stage, discordant, quartz > dolomite >> pyrite (+chlorite-tourmaline-gold) veins and adjacent dolomite-muscovite-pyrite altered selvages within broad dolomite-muscovite alteration haloes which may be anomalous in gold.

The two key controls on the mineralization interpreted are:

- Competency contrast boundaries, with the mineralization hosted in zones typically associated with granitoid lenses and the margins of mafic bodies, adjacent to less competent schistose siliclastic rocks that typically dip steeply to the northwest
- Mineralized quartz veins developed sub-perpendicular to the steeply dipping lithological domains, with the dominant vein set dipping shallowly to the west-northwest (Figure 7.5).

Figure 7.5 Representative cross-section through Ashashire looking north (local coordinates)



Source: Allied, 2022 FS, December 2022

The Ashashire gold deposit is a late-stage structurally controlled sheeted-vein (some minor stockwork) gold system. The currently defined gold system is restricted to an 010° to 020° trending 2.5 km long x 200 m wide corridor of mineralization segmented by several major oblique sinistral shear zones. Individual lodes are hosted in a variety of rocks comprising lower greenschist facies mafic and sedimentary rocks and granite dykes. Three main mineralized zones have been identified (Perch, Gin Dish and Scorpion), separated from each other by regional north-northeast trending shear zones.

Gold mineralization has intense muscovite-dolomite-pyrite (±chlorite) alteration adjacent to mineralized veins and a proximal to distal intense carbonate alteration halo. At a local scale, lithological controls and faults are important in controlling formation of vein arrays, possibly grade (i.e. mafic rocks may be higher grade) and plunge of ore systems. Vein arrays are predominantly 20° to 45° west-northwest dipping (dip direction 290°) (Groves and Francis-Smith, 2020).

8 DEPOSIT TYPES

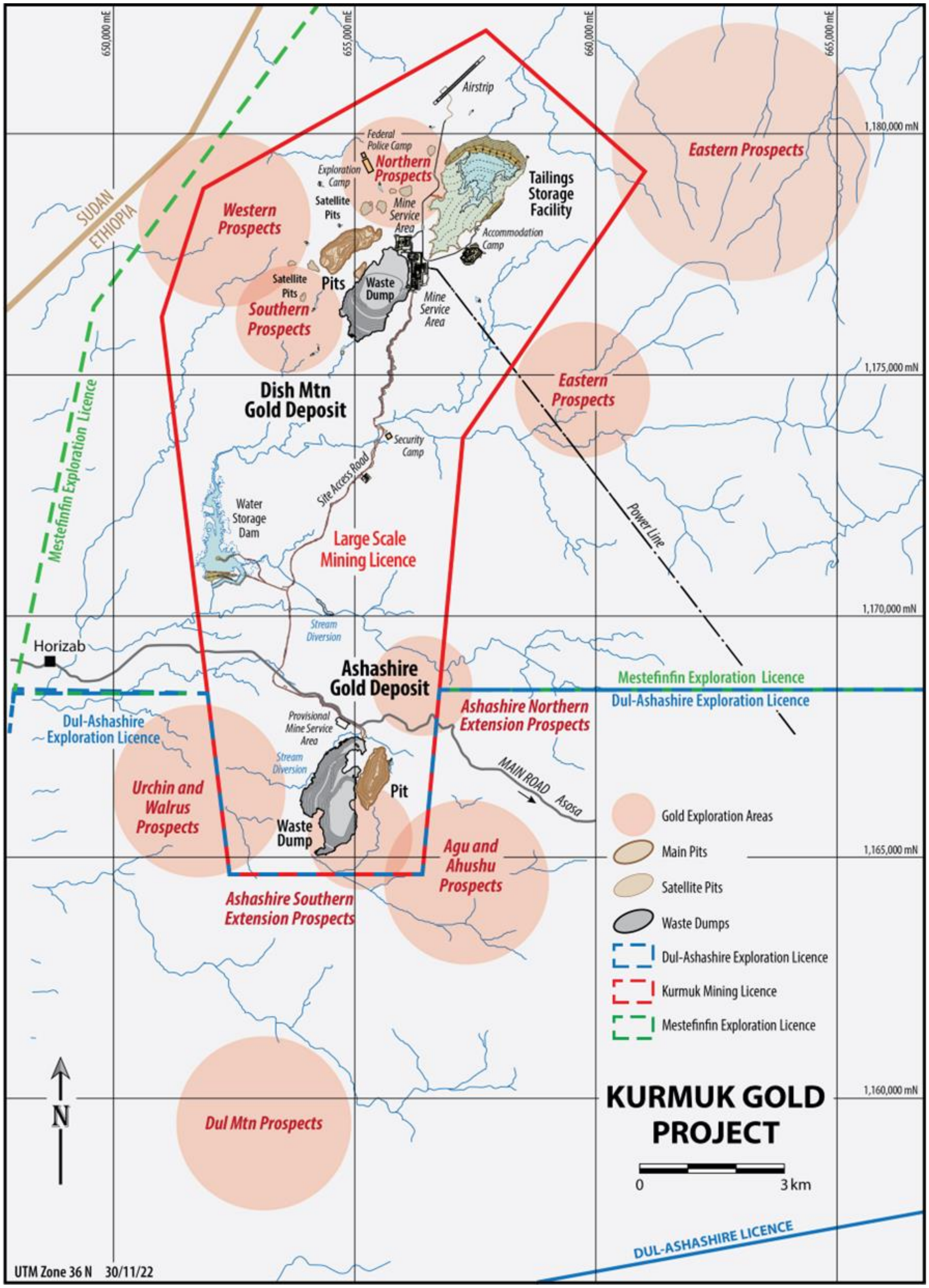
Mesothermal gold provinces are characteristically associated with regional structures along which allochthonous terranes have been accreted to continental margins or arcs. A recurring sequence of transpressive deformation, uplift, late kinematic mineralization, and maturation of magmas to high-K types is consistent with thermal re-equilibration of tectonically thickened crust. In this model, thermal re-equilibration of underplated and subducted (and/or obducted?) oceanic lithosphere and sediments in a transpressive regime, over time scales of 10–40 Ma, is interpreted as a necessary precursor to gold mineralization. Hydrothermal fluids are released along boundary faults and their splays during uplift: uniform temperature, low salinity and mole% CO_2 signify uniform source conditions, whereas variable O, C, Sr, and Pb isotopic composition of fluids reflects lithological complexity of the source regions and conduits.

On the basis of this model, it is suggested that mesothermal lode gold deposits are the product of crustal thickening (either over-plating or under-plating in the ANS environment) and deep, late metamorphism, rather than magmatic or metamorphic events in the supracrustal rocks. (Kerrich and Wyman, 1990).

9 EXPLORATION

There are a number of exploration opportunities identified around each mine area as shown in Figure 9.1.

Figure 9.1 Kurmuk exploration targets

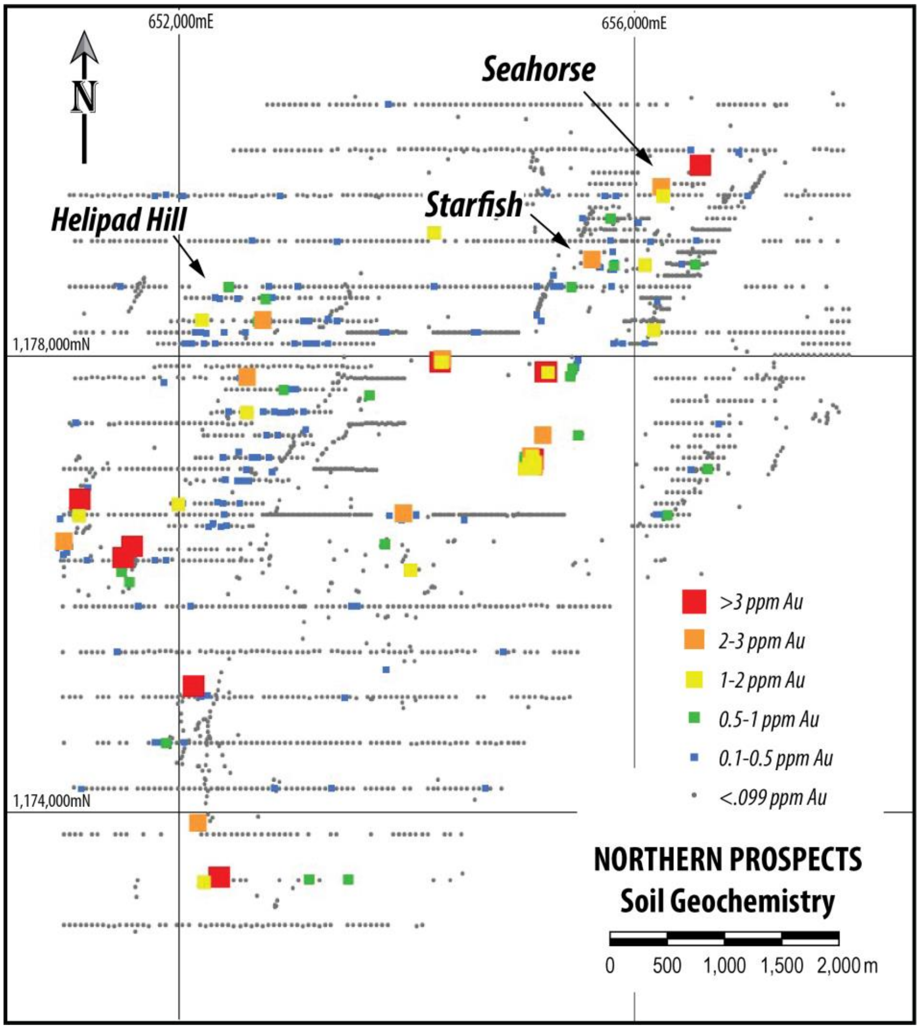


Source: Allied

At Dish Mountain, there are four main areas:

- Northern prospects containing the areas of Helipad Hill, Starfish, Seahorse, Snapper and John Dory which describe an approximate 1.5 km extent of gold-in-soil anomalies that have been mapped, trenched and drilled (Figure 9.2). Results are encouraging and recent mapping has better defined targets for follow-up drilling.

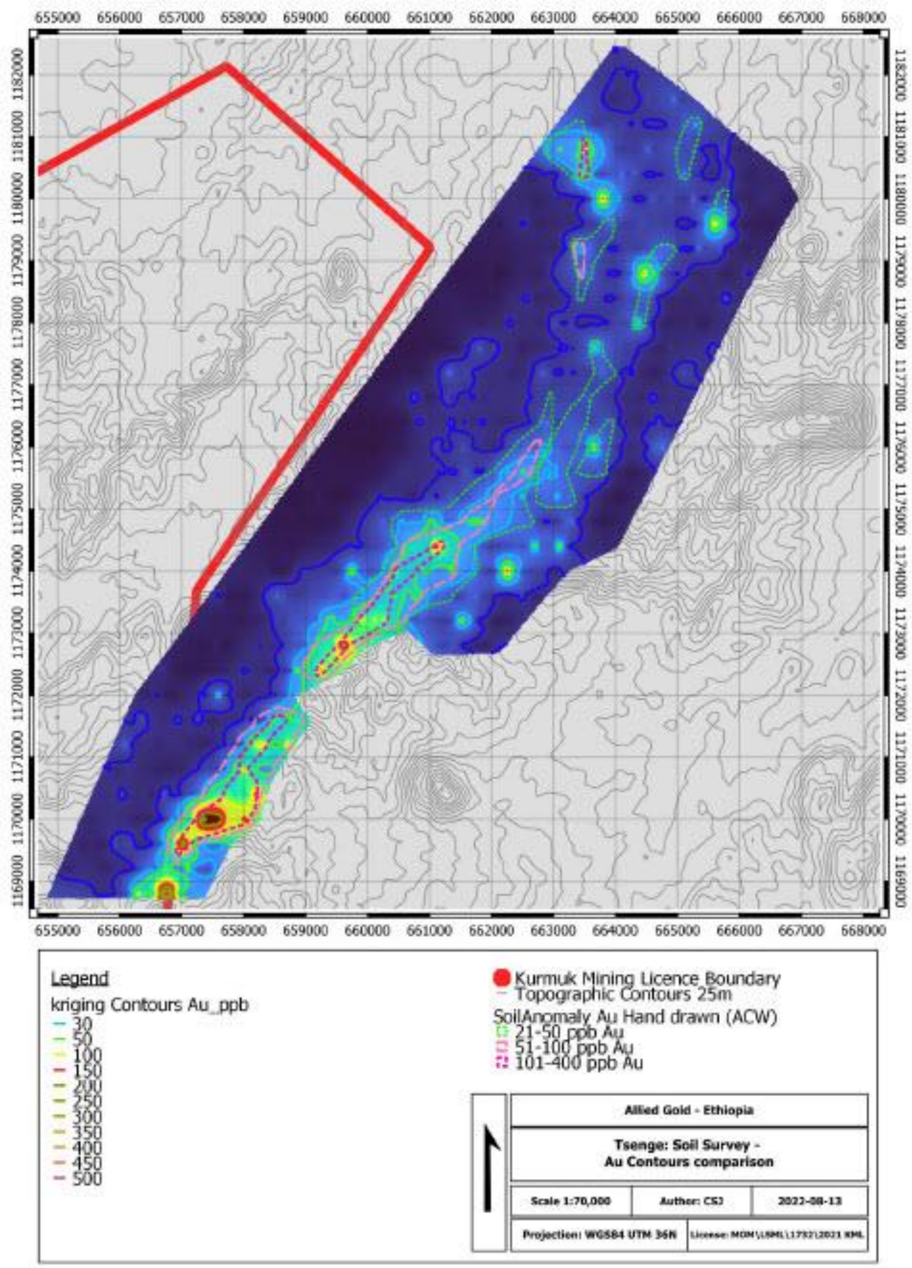
Figure 9.2 Northern prospects soil geochemistry



Source: Allied

- Southern prospects containing the Barnacle and Prickle Hill area extending 1 km to the south of the Dish Mountain deposit, defined by gold-in-soil anomalism and trenching. The results demonstrate potentially economic widths and grades of gold mineralization, which require infill drilling. Further exploration is underway at the time of reporting.
- Western prospects containing the areas of Swordfish, Squid and Stingray. This area comprises an arcuate 4 km long gold-in-soil anomaly that has been partially tested by trenching and a small number of RC drillholes. The trench and drillhole intersections demonstrate potentially economic widths of mineralization.
- Eastern prospects around Tsenge, situated in the eastern area approximately 5 km east of the proposed process plant site. This area has recently been the focus of a large-scale soil sampling program in the 2021 dry season, which has delineated six distinct gold-in-soil anomalies (Figure 9.3) associated with carbonate altered rock types and represents the along strike position from Ashashire which is 10–15 km to the southwest.

Figure 9.3 Eastern prospects soil geochemistry



Source: Allied

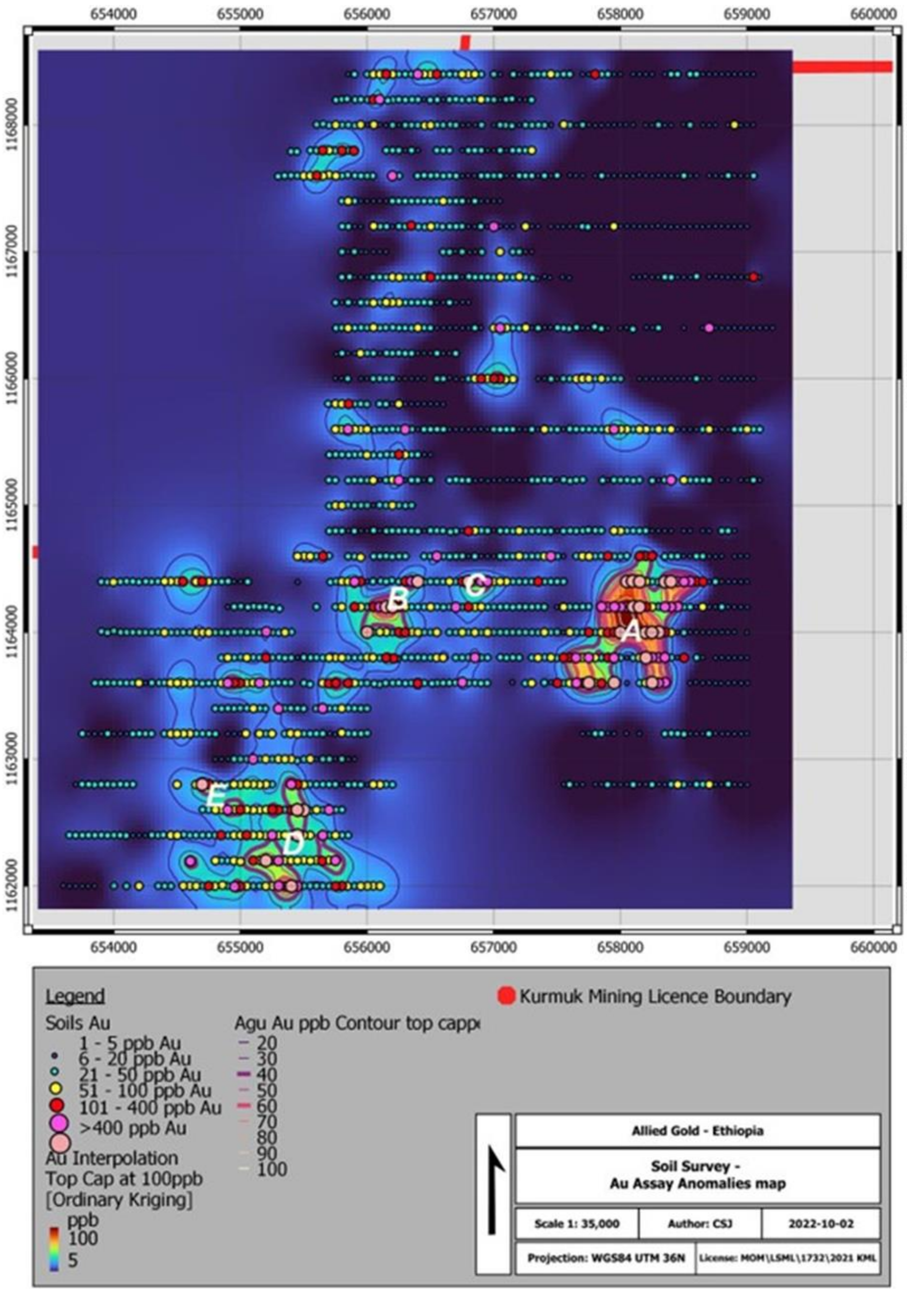
Stream sediment sampling, a ground electromagnetic geophysical survey, field mapping and preliminary drilling in the Abetselo block to the east of Dish Mountain identified exhalative sulphide mineralization (predominantly pyrite with trace copper and gold values) over a 400 m strike length.

At Ashashire, there are four areas identified (Figure 9.1):

- The northern and southern strike extension of Ashashire at present remain poorly tested by single drillholes along the along-strike extents of the host-rock sequence. Work to date has only found sub-economic mineralization underlying the known gold-in-soil anomalism.
- Agu and Ahushu prospects are situated 1–2 km to the east and southeast of the Ashashire deposit. Mapping was completed in the 2021 dry season and delineated areas of outcropping mineralization, which are being covered with a soil sampling grid to better define gold-in-soil anomalism to allow for

follow-up trenching and drilling (Figure 9.4). The strike extent continues to the south towards Dul village, and historic artisanal workings are visually obvious on the steep hillsides south of Ashashire.

Figure 9.4 Agu and Ahushu soil geochemistry



Source: Allied

- Urchin and Walrus prospects are situated 2.5 km to the west of Ashashire and are defined by gold-in-soil anomalism, which at Urchin has been tested with trenching the results of which are summarized in Table 9.1. Soil samples were initially collected over the crest of the hill, similar in appearance to the Ashashire ridge, to ensure the optimal location of trenches. Fire assay results of continuous channel samples identified narrow mineralized shears and defining drill targets for testing.

Table 9.1 Urchin trenching results

	Significant interval at 0.3 g/t Au cut-off			Significant interval at 0.5 g/t Au cut-off		
Trench ID	**From**	**To**	**Interval**	**From**	**To**	**Interval**
URTR02	146	149	3 m at 1.24 g/t Au	146	149	3 m at 1.24 g/t Au
URTR03	86	91	5 m at 3.55 g/t Au	87	90	3 m at 5.67 g/t Au
	94	97	3 m at 0.85 g/t Au	94	97	3 m at 0.85 g/t Au
URTR04	277	282	5 m at 1.99 g/t Au	277	281	4 m at 2.41 g/t Au
	288	289	1 m at 0.52 g/t Au	288	289	1 m at 0.52 g/t Au
	301	302	1 m at 0.35 g/t Au			
URTR05	107	112	5 m at 3.64 g/t Au	107	112	5 m at 3.64 g/t Au
URTR06	25	26	1 m at 0.4 g/t Au			
	30	32	2 m at 1.21 g/t Au	30	32	2 m at 1.21 g/t Au

Source: Allied

- Dul Mountain prospect situated 5 km south of Ashashire is a known historical prospect defined by artisanal mining and gold-in-soil anomalism, and was tested by trenching which intersected anomalous mineralization.

Allied plans to continue advancing these targets with the objective of increasing the Mineral Resource base.

10 DRILLING

10.1 Type and extent

10.1.1 Dish Mountain

RC drilling by KGM at Dish Mountain commenced in January 2011 testing the down dip and strike continuity of the gold mineralization identified from surface trenching. A total of 203 RC holes (for 22,240 m) were drilled, predominantly oriented sub-perpendicular to the geological strike (northwest-southeast azimuth). During 2012, KGM completed a HQ and NQ diameter diamond core drilling program of 87 holes (for 20,344 m) on the same azimuth.

A review of the geological data in 2014 indicated the previous drilling was oriented at an acute angle to the dip of the gold-bearing quartz vein sets. KGM recommenced drilling in 2015 oriented at a nominal southwest to west azimuth. A total of 25 RC holes (for 4,922 m) and 38 diamond drillholes inclusive of five geotechnical holes (for 10,842 m) were drilled during this phase. A further 16 diamond drillholes (for 5,542 m) were completed in 2016 with a southwest hole orientation.

Since May 2018, Allied has drilled a further three RC holes (for 304 m) and 243 diamond drillholes (for 41,219 m). Allied has added 13,527 assays to the database from 81 drillholes for the resource estimate.

A total of 666 holes (for 112,489 m) have been drilled at Dish Mountain since 2011 (Figure 10.1). A Hanjin 6,000 multi-purpose rig using 4-inch drill pipe and face sampling hammers undertook the work.

The key issue for resource definition drilling at Dish Mountain has been intersecting the quartz vein stacks. An azimuth that intersected the stratigraphy at right angles resulted in drillholes being parallel to the quartz veins, giving only sparse intercepts. With the drill rig rotated parallel to the stratigraphy (i.e. 065–245°), alteration and quartz vein stacks were intersected orthogonally resulting in significant gold intercepts considered close to true width.

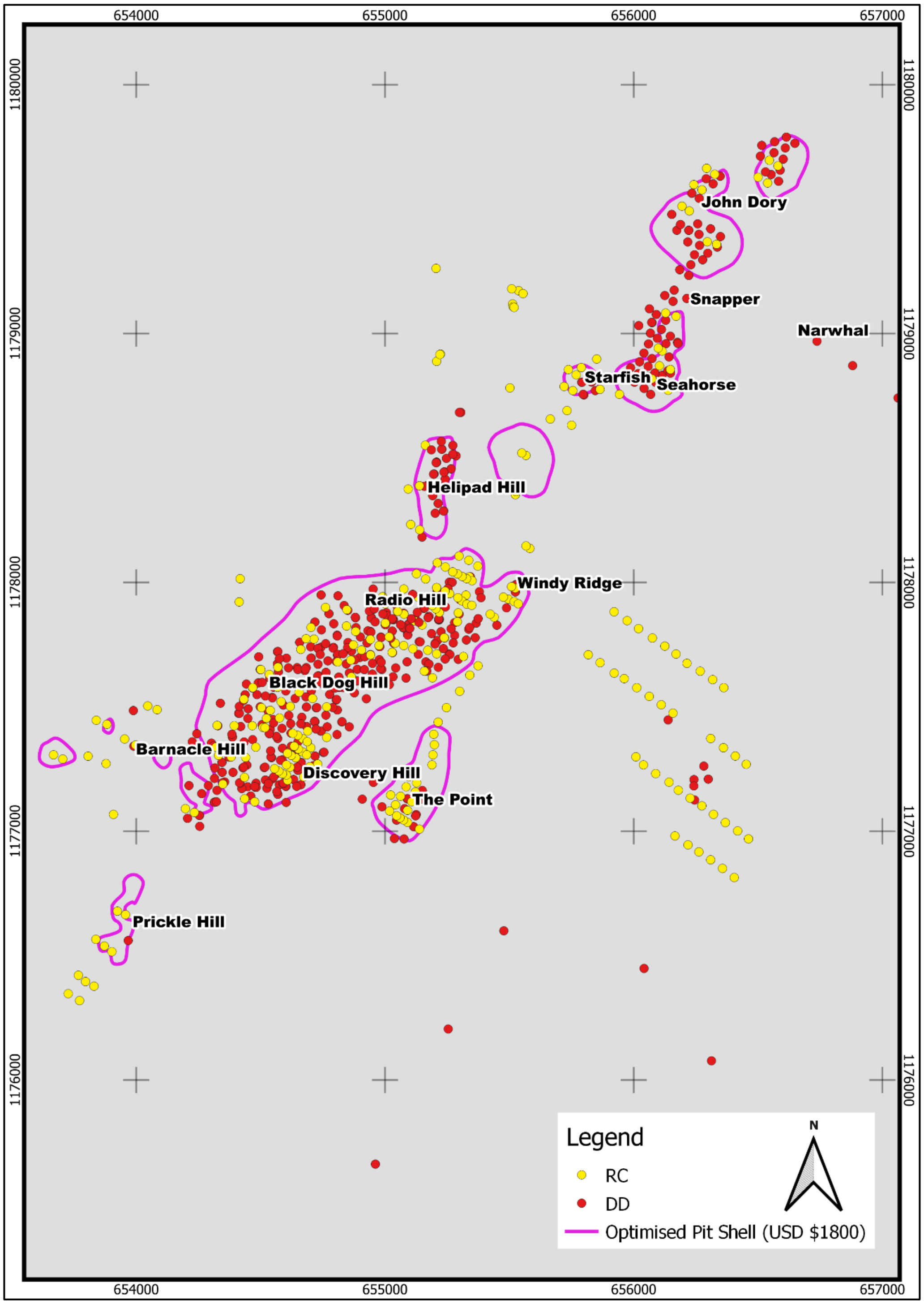
Optimizing the drilling orientation by area has resulted in an improved framework to assist in the generation of the Dish Mountain geological model. Drilling on sections oriented at a 065–245° azimuth is considered by Allied as the optimal orientation to best define the mineralization in the core of Dish Mountain, with most holes drilled towards the southwest (~245°) and select holes drilled to 065° to enable better definition of lithological boundaries.

On the eastern flank, where mineralization is driven in response to the west-dipping Dish Mountain Fault, a 125° azimuth was considered adequate but not optimal. The 125° azimuth was appropriate for the Black Dog Hill area, where quartz veins range in attitude from flat through to vertical.

Further drilling outside of the main Dish Mountain deposit is planned, to test for additional extensions to the immediate north and at other satellite prospects to the north and south along the Dish Mountain Fault.

A total of 28 RC and 15 diamond drillholes were completed by KGM in the Abetselo block to the east of Dish Mountain which identified exhalative sulphide mineralization (predominantly pyrite with trace copper and gold values) over a 400 m strike length.

Figure 10.1 Drillhole coverage at Dish Mountain

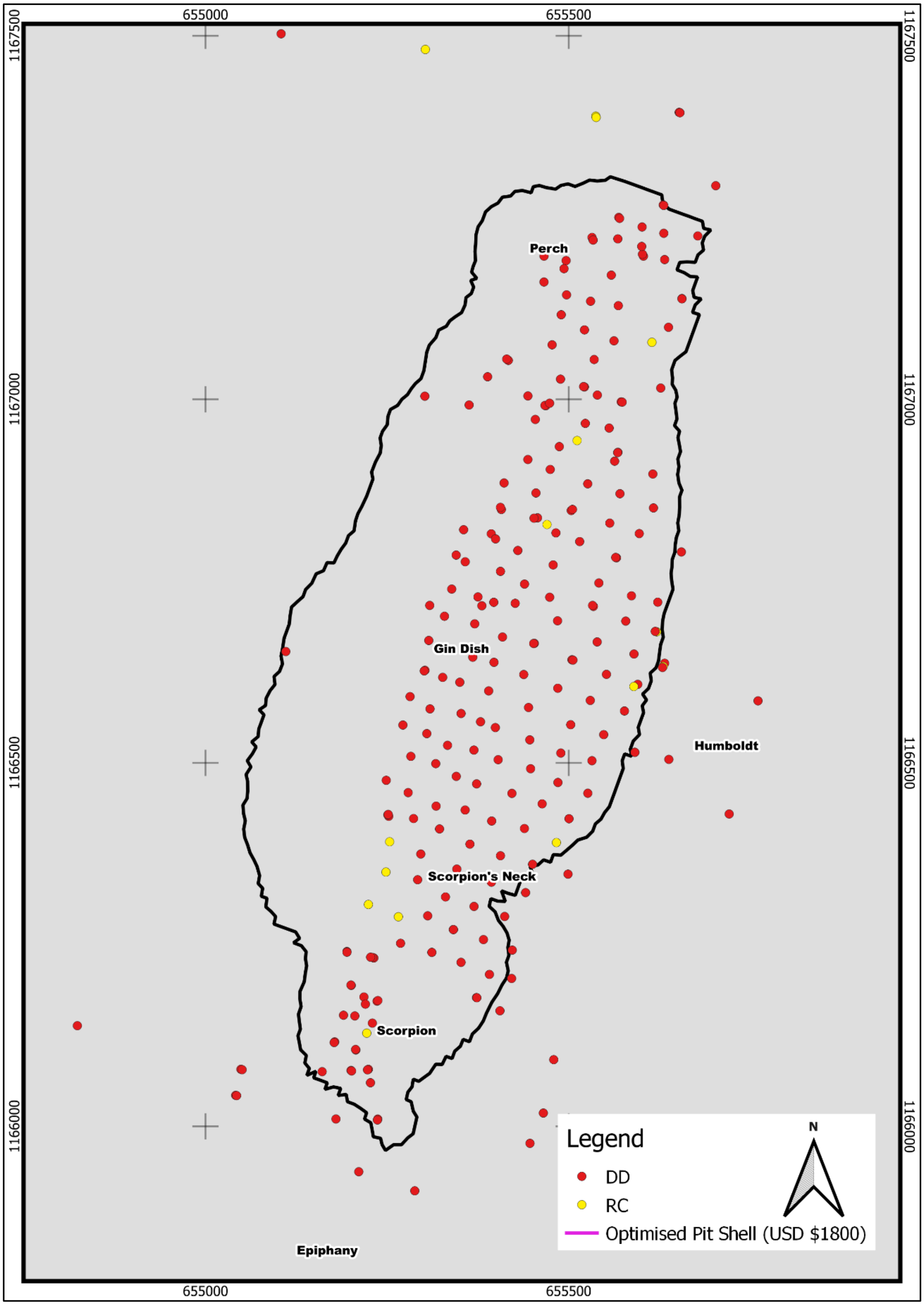


Source: Allied, 2022 FS, December 2022

10.1.2 Ashashire

Aurigin previously drilled 18 diamond holes (for 2,788 m) and six RC holes (for 609 m) at the Ashashire deposit. Allied commenced diamond drilling at Ashashire in 2019 and has since completed 228 holes for 40,892 m. The core holes were drilled mostly with a PQ collar, and HQ once in competent rock. A total of 233 holes (for 46,246 m) have been drilled to date at Ashashire (Figure 10.2). Only bores for drilling water were drilled by RC methods.

Figure 10.2 Drillhole coverage at Ashashire



Source: Allied, 2022 FS, December 2022

The Ashashire diamond holes were mostly drilled on a 290–310° azimuth with select holes drilled on a 100–110° azimuth, depending on safe working conditions on the steep hill slopes. Company-owned Hanjin diamond drill rigs were used for the resource drill out.

Allied has yet to carry out a review of the exploration potential of the remainder of the deposit area.

10.2 Procedures

10.2.1 Surveying

Collars

Drillhole collars were initially surveyed by handheld GPS using a UTM Zone 36 North projection, WGS84 datum. Corrections were made for the difference between magnetic north and UTM grid north based on correction data given on local topographical maps.

In 2011, 13 topographic control points were marked out on Dish Mountain by survey contractor, Geo Tools Trading and Service PLC, Ethiopia (now known as Terravision) using PROMARK3 Magellan/Thales GPS receivers. Surveying of drillhole collars was conducted by the same contractor using a Sokkia Set 3030RK Total Station Theodolite. The old and new drill collar positions were subsequently verified by independent surveyors Nile Precision Surveys using differential GPS. Initial drill collars were placed at Ashashire by handheld GPS and surveyed subsequent to drilling using a differential GPS by Nile Precision Surveys.

In June 2015, a satellite topographical survey was conducted over a 160 km^2 area that covered the proposed open pits at Dish Mountain and Ashashire, the process plant, tailings dam and water supply dam areas.

Downhole

Downhole surveying was carried out by the drilling contractor on diamond drillholes using a Reflex Ezi-Trac instrument. Readings were taken at 30 m intervals with the instrument positioned 3 m ahead of the drill string to avoid magnetic interference. The path of the holes was surveyed to measure azimuth, inclination, magnetic field strength and dip.

Allied has also resurveyed the earlier RC holes using the Reflex Ezi-Trac instrument.

10.2.2 Sampling

The 2011–2012 diamond and RC drillholes were sampled from the top to bottom of the hole in 1.0 m intervals regardless of lithological or mineralization boundaries. Sampling protocols were changed for the 2015–2016 diamond drilling program based on geological boundaries with intervals varying between 0.6 m and 1.2 m. Select intervals of obviously barren material were left unsampled.

Post-2018, diamond holes were sampled as sawn half core on a nominal 1.0 m interval or, if a geological contact was intersected, the sample size could vary between 0.6 m to 1.2 m, but not smaller than this length as it would be incorporated into the adjacent sample.

RC chip samples were collected from the drill rig cyclone every metre and split into representative portions using a 75:25 Jones riffle splitter. The cyclone was cleaned regularly, at least between holes when sample product was dry. The riffle splitter was blown clear of the preceding sample using compressed air and brushes. Drillholes were terminated if a 3 m interval remained moist.

Drill core recoveries were reported as very good for the sulphide material to good for the oxide material with an average core recovery of 97–98%. No recovery data was recorded for any of the earlier RC drilling but given the lack of voids in the ground, a comparable recovery rate was anticipated.

10.2.3 Logging and security

Drill core orientation and mark-up is completed at the drill site. Except in highly weathered/broken intervals, orientation marks were obtained at nominal 3 m intervals. The 2011–2012 diamond drill program used the spear method, and the later program used the Imdex Reflex ACT III RD method.

Following geological and structural logging using Logchief data entry software and photographing at the Dish Mountain exploration camp core yard, half-core samples of the mineralized intervals are collected, and the remaining core trays stacked on concrete pads in the core shed.

The earlier holes are predominantly stored in wooden core boxes with Allied's drill core mostly in plastic and metal core trays.

The residual RC chip trays are stored in the core shed. Pulp and coarse reject samples are preserved in drums and sea containers onsite.

10.2.4 Data management

Allied has rebuilt the Dish Mountain database by obtaining all original ALS certified assay reports from the 2011–2012 and 2015–2016 drilling campaigns with QAQC checks completed on each batch. Ashashire data was entered directly into a clean Datashed SQL database from the initiation of drill programs by Allied. Data imported from the analytical laboratories for the Allied drillholes is handled through Datashed software.

The collar, downhole survey, structural orientation and core recovery data were migrated into a new Datashed database. Drill collar positions were verified by independent surveyors, Nile Precision Surveys. The downhole survey data was validated as part of a downhole re-survey program of holes for which data were missing. Core recovery data from the 2011–2012 drilling was assessed and considered fit for purpose by SRK as part of its 2013 resource estimate and supported by Allied's re-logging of the core. The same protocols were followed for the Ashashire database.

Geological data was generated from the re-logging of pre-2016 Dish Mountain diamond core. Post-2018 geological logging was validated by core photos. RC drill chips were also re-logged.

A Microsoft Access export of the Datashed database was also validated in 2018 by Geobase Australia. This audit identified some sample overlaps, historical lithology coding errors and RC holes lacking downhole survey data. The downhole survey Issues were rectified, with Allied utilising a diamond rig to re-enter historical holes to survey them.

Rock Solid Data was engaged to provide periodic external data audits of Allied's processes and data, with the initial audit being undertaken in November 2020. Rock Solid Data noted that the integrity of the data is sound with all downhole records having a corresponding collar record and depths that do not exceed the collar end-of-hole depth. Survey dips and azimuths are within valid ranges and all sample identifiers (sample ID) are unique, preventing potential misallocation of assays. The hole IDs are unique and most of the holes (>97%) have coordinates and downhole surveys. The collar survey method is captured for 98% of the holes and the downhole survey method is captured for 98% of the priority survey records.

A fault was noted with in the historical data collation, in that not all metres were assayed or logged, thus leaving gaps in the records. As is best practice, in its own drilling, Allied samples all metres and documents the geology and assay results for each metre drilled. Additionally, Allied re-logged all historical drillholes and assayed samples where data was missing. The database is backed up daily and a copy stored off-site at a third-party IT provider.

11 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 Sample preparation and analysis

The laboratories used for sample analysis are independent of Allied. Since 2018, sample preparation has been undertaken by Allied at the Dish Mountain exploration camp.

11.1.1 Dish Mountain

All the 2011–2012 drill samples were dispatched to the certified ALS Johannesburg laboratory for sample preparation and gold analysis. Sample preparation comprised crushing drill core and RC product through a jaw crusher to 3 mm diameter chips, splitting through a 50:50 riffle splitter to provide a 500–800 g subsample for pulverising in an Essa LM2 from which a 100 g sample was obtained for fire assay (AAS finish to a 0.01 ppm Au detection limit using a 30 g charge). A multi-element suite (35 elements) was analyzed by four-acid digest and assayed by inductively coupled plasma-optical emission spectroscopy (ICP-OES).

Analysis of the 2015–2016 drilling samples was undertaken using a cyanide bottle roll leach that incorporated the Leachwell additive in 500 g charges (Leachwell). The sample preparation for these analyses was undertaken at the new ALS sample preparation facility in Addis Ababa (ISO9001 certification), where a jaw crusher reduced the sample to -3 mm. This was riffle split and a 1 kg subsample was pulverized to 75 µm in a LM2 mill to generate a 500 g subsample. The samples were dispatched for Leachwell analysis at ALS Piteå, Sweden (ISO9001 certification). A leach tail sample was collected for any sample that returned a value above a nominated cut-off and sent to ALS Loughrea, Ireland (ISO9001 certification) for fire assay (30 g charge with an AAS finish). This cut-off commenced at 1 ppm Au but was raised to 10 ppm Au after several rounds of results suggested the threshold was overly conservative.

Half core from Allied's post-2018 drilling was crushed at Allied's purpose-built sample preparation facility in the Dish Mountain field camp. The sample pathway used a Boyd jaw crusher to give a 2–3 mm product which passed through the integrated rotary sample divider to generate a 1.8 kg subsample which was pulverized in an LM5 mill to P85 75 µm. A 120 g subsample was dispatched to ALS Perth (ISO9001 certification), for fire assay (50 g charge with an AAS finish to a 0.01 ppm Au detection limit).

11.1.2 Ashashire

The mainly PQ/HQ diameter half core samples collected from the diamond holes drilled by Allied at Ashashire followed the same sample analytical and QAQC procedures as the post-2018 drilling at Dish Mountain.

11.2 Quality control/quality assurance procedures

11.2.1 Dish Mountain

For the 2011–2012 drill samples, CRMs, duplicates and blanks were inserted appropriately in the sample stream at a nominal 1:20 ratio to monitor laboratory performance.

No samples from the 2011–2015 drilling campaigns were submitted to third-party umpire laboratories for check analysis due to budget restrictions.

SRK's 2013 resource estimate included an assessment of the 2011–2012 gold assay data and concluded that the QAQC measures were appropriate but because there appeared to be only fair to poor correspondence of coarse and pulp duplicates, SRK recommended that umpire assays be undertaken as a priority to ensure that ALS Johannesburg was not at fault.

Allied also conducted a QAQC evaluation of the 2011–2012 fire assay and 2015–2016 Leachwell cyanide bottle roll leach results and concluded that the assay QAQC protocols had the appropriate number of CRMs, blanks, and duplicates; however, the absence of an umpire laboratory and the lack of re-assays of batches that failed the QAQC rules was not best practice.

Allied also completed two check programs on the 2015–2016 Leachwell samples using residues stored at the ALS Addis Ababa sample preparation facility by fire assay (50 g charge with AAS finish) at ALS Perth as the primary laboratory and Intertek Perth as the umpire laboratory. All Leachwell-defined mineralized intercepts (i.e. all samples >0.17 ppm Au plus barren samples internal to a mineralized intercept) were re-assayed to generate a coherent fire assay database. Whilst no specific outcome was sought, a total assay that matched the analytical method of the rest of the database was considered better than a significant suite of samples that were partial extractions.

Residues from the 2011–2012 drilling were also recovered from ALS Johannesburg and re-assayed by fire assay with a 50 g charge. The results compared favourably to the original 30 g assays. The Intertek umpire analysis confirmed the re-assay values.

The standard QAQC procedure for Allied's post-2018 drilling was to insert check samples at a 1:20 ratio (CRM, blanks and duplicates) for analysis at ALS Perth with 5–10% of samples plus CRMs from each batch sent to Intertek Perth for check assaying by fire assay with an ICP finish. Results were corroborative, with slightly elevated values evident from Intertek ICP analysis.

The current resource assay database comprises the fire assay results from all drilling campaigns and all samples >0.17 ppm Leachwell Au from the 2015–2016 drilling campaign. The Leachwell assays with <0.17 ppm Au outside any of mineralized intercept are also included in the database. Allied's Qualified Persons considered that the performance of the CRM and blank samples supported that the data was fit for purpose.

11.2.2 Ashashire

A technical audit review by Cube Consulting (Cube) in February 2021 reported the QAQC procedures as acceptable. In the opinion of Cube, there were some perceived issues:

- The use of 8–12 CRMs for each reporting period, while encouraging, is too many. The use of around four CRMs is the more standard practice.
- There is a good spread from the minimum and maximum values; however, for some reporting periods, several CRMs with very similar expected values were submitted (e.g. reporting period ending 4 January 2021 had CRMs with expected values of 0.309 g/t, 0.338 g/t and 0.34 g/t Au). This may hinder the identification of misallocated CRMs.
- The core duplicates show either no bias or a bias towards the original. The reasons for this are unknown. Selection of more samples within mineralized intervals is recommended.

Allied advised that the reason for the number of CRMs used was because preferred suppliers (Geostats and OREAS in Australia) did not have sufficient volume of a given matrix-matched standard to ensure future availability, hence the three CRMs at 0.30–0.34 g/t Au.

11.3 Security

All samples from the 2011–2012 drilling were placed in locked galvanized trunks (40 kg each) and driven to Addis Ababa accompanied by a company employee. Application for international dispatch was made to MoMP and the Customs Authority, who inspected the shipment(s). The samples were subsequently transferred to DHL or TNT couriers in sealed cardboard cartons and consigned to ALS Johannesburg.

For the 2015–2016 drilling program, this procedure was changed to using plastic ties and flagging tape on polyweave bags in place of locked trunks with the staff-escorted batches delivered to the ALS preparation facility in Addis Ababa where they were signed over, rather than sent intact to Johannesburg.

More recently, samples were placed in sealed and labelled polyweave bags and transported by truck in steel cages to Allied's office in Addis Ababa accompanied by a company employee with the relevant documentation. At the Addis Ababa office, company personnel palletise and shrink-wrap the samples into consignments for airfreighting. The consignments were then inspected by MoMP and Customs Authority representatives in the presence of Allied. Typically, this involves one or several consignments being opened to check the contents. Once export approval is received, the samples are re-sealed and delivered to Emirates who fly the samples to Perth. At Perth, the Australian Quarantine and Inspection Service checks the paperwork and arranges dispatch of the samples to ALS Perth.

11.4 Qualified Person's opinion

Since Allied's involvement in Kurmuk, the Company sought to remove third party sample preparation by operating its own sample preparation facility at Dish Mountain. QAQC samples are inserted during the preparation process. Not only does this provide oversight of the process, but it allows more cost-effective freight to a reputable analytical facility (ALS, Perth) that is easily accessed for audits. Furthermore, umpire analyses could be equally easily arranged with another laboratory in Perth (Intertek).

Sample pulps travel escorted by staff from site to Addis Ababa, where they are shrink-wrapped to pallets post-government inspection and handed in person to DHL or Emirates freight carriers to Perth. After review of the accompanying paperwork by quarantine officials, the samples are delivered to ALS for analysis by fire assay on 50 g charges. On receipt of the assay results, Allied personnel nominate which 8% of the samples and CRMs will be sent to Intertek for umpire check analysis.

The Qualified Person believes that the process developed and used by Allied is appropriate, and the assay results are fit for the intended purpose of Mineral Resource estimation.

12 DATA VERIFICATION

12.1 Data management

The SQL back end of the Datashed software was a wholly new database populated with geological data verified by Allied geologists and assay data direct from historical ALS Johannesburg archives. Newly generated data from exploration programs was entered to the database by dedicated personnel who alone have write access. Two audits of the database have been undertaken by an external third-party database management company, Rock Solid Data, which highlighted minor failings – interval overlap, missing geology logs and assay gaps – which the database personnel work to repair. The Qualified Person did not independently verify the database but ran standard checks when importing the data, which did not identify any material issues.

12.2 Survey

The original third-party survey work was undertaken by Geo Tools Trading and Service Plc (now Terravision) of Addis Ababa, which was adequate except for some survey stations being mounted on loose boulders rather than fixed on immovable bedrock. A new contract was let with Nile Precision Surveys to repair such deficiencies, construct a local digital terrain model for the drill grid, and collect the relative levels and accurate collar and trench coordinates across all drill sites. Mr Earl did not independently validate any drillhole collars during his site visit.

12.3 Drilling and sampling

During the site visit, drilling and sampling was observed at Ashashire. Mr Earl considers that the observed activities are in line with industry standard practices.

Diamond drilling across the Property was initially conducted by two contract drill companies, both of which produced good core recoveries for the HQ collar and NQ core. Allied obtained its own diamond drill rigs, which were staffed by drillers through General Exploration Drilling Ltd. Allied chose to drill collars in PQ diameter and the balance of the holes in HQ diameter to give more representative samples. All holes were surveyed downhole each 30 m and at the collar. Historical holes were re-entered using a diamond drill rig to clear hole collapses so that all RC and DD holes were available for the Mineral Resource estimate. All drill core was oriented. From this point, the core underwent industry standard management to deliver all geological and assay data to the database.

12.4 Sample analysis

The process of sample freight to the ALS laboratory, sorting of sample pulps and entry into the analytical process was verified by Allied. The flowsheet to undertake fire assay with an AAS finish was followed through the laboratory to judge organization and capabilities of ALS. The ALS laboratory at Malaga Perth is a competent and well respected facility, and was chosen by Allied as the primary laboratory because of this reputation. Any QAQC fails identified during data validation were shared with the laboratory to ensure prompt rectification of any issue.

The complete assay pathway at the Intertek facility was reviewed for its suitability. It was not possible to find another laboratory in Perth at the time that used an AAS finish post-fire assay, so Allied accepted an ICP-OES finish from Intertek.

No third-party independent audit has been conducted at either laboratory on behalf of Allied. The Qualified Person reviewed the QAQC data supplied by Allied and did not identify any material issues with the data.

12.5 Qualified Person's opinion on the adequacy of the data

The Qualified Person is of the opinion that the quality and adequacy of the drilling, sample handling and analysis is such that the data are considered fit for the purpose of Mineral Resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Metallurgical testwork

Two historical sets of metallurgical and comminution testwork were conducted on Dish Mountain samples in 2012 and 2015. Three additional testwork programs were undertaken in 2018, 2020 and 2021 in support of the 2022 FS. The 2018 work focused on the Dish Mountain mineralization while the 2020–2021 work was expanded to include additional Dish Mountain samples and Ashashire mineralization.

Since 2018, 44 Dish Mountain and 22 Ashashire variability samples have been evaluated. The 2022 FS process design was based upon the results of the 2020–2021 testwork with consideration of results from the past testwork.

13.2 Sample selection

The 2018 sample selection process focused on three different ore types within the primary and oxide domains of the Dish Mountain mineralization. The oxide zone represents a relatively small proportion of the deposit with both oxide and transition zones at 20% of the ore, with the remaining 80% classified as primary (fresh) ore. Nineteen variability samples were produced and from these, six lithology composites (primary and oxide for each of mafic, pelite and chert) and master composites of oxide and primary were generated.

The 2020–2021 sample selection process focused on ore types within the primary and oxide domains of both the Dish Mountain and Ashashire mineralization. The Dish Mountain sample selection focused on providing more variability samples with particular emphasis on the more abundant ore types of pelite and mafic primary. Twenty-nine variability composites samples and three lithology composites (oxide, pelite primary and mafic primary) were produced.

The sample selection since 2018 is summarized in Table 13.1 with a sample per mining inventory identified, indicating that most ore types are adequately represented.

Table 13.1 Kurmuk samples evaluated

Ore type	No. of samples	2022 FS inventory (Mt)	Samples per Mt
Dish oxide	9	4.5	2.02
Dish chert fresh	5	3.5	1.42
Dish mafic fresh	12	5.2	2.3
Dish pelite fresh	14	7.7	1.82
Dish waste	4	5.9	0.68
Subtotal – Dish Mountain	**44**	**26.8**	**1.64**
Ashashire oxide	6	3.0	2.03
Ashashire granite fresh	2	2.1	0.93
Ashashire mafic fresh	4	10.4	0.38
Ashashire pelite fresh	8	7.6	1.05
Ashashire waste	2	2.9	0.7
Subtotal – Ashashire	**22**	**26.0**	**0.85**
TOTAL – Kurmuk	**66**	**52.8**	**1.25**

Source: Kurmuk FS, December 2022

Allied advised that more testwork for the Ashashire primary ore and John Dory is being undertaken at the time of reporting.

13.3 Testwork program

The metallurgical testwork completed during these evaluations of the variability samples and the composites included:

- Comminution testwork for JKTech Axb results, Bond Crushing Work Index, Bond Ball Mill Work Index (BBWi) and Abrasion Index (Ai)
- Grind sensitivity and optimization testwork
- Gravity recovery sensitivity testwork
- Leach time sensitivity testwork
- Reagent addition optimization
- Oxygen uptake evaluation
- Preg-robbing evaluation
- Carbon adsorption kinetics
- Viscosity testwork
- Thickening testwork
- Cyanide detoxification evaluation.

The results of the testwork program showed that the following metallurgical parameters are appropriate for the ore zones:

- Dish Mountain:
  - Specific gravity of oxide is 2.37 and fresh ranged from 2.71 to 2.89.
  - BBWi indicated a medium hardness ore with a range from 11.5 kWh/t (oxide) to 14.7 kWh/t (fresh chert).
  - Ai values from 0.10 to 0.49 showing low to moderate abrasion.
  - Grind optimization for oxide and fresh ore confirmed P_{80} 75 µm is appropriate although finer grinding did result in improved recovery, but not economically attractive.
  - Gravity recovery testwork indicated >50% recovery; however, plant design is based on 35% recovery.
  - Leach residence time of 24 hours is appropriate for oxide and 36 hours for fresh as proposed for Ashashire.
  - Leach pH of 10.5 is adequate.
  - Oxygen addition is expected to increase recovery by 0.8%.
  - Leach extraction of >94% can be expected from the oxide ore.
  - Preg-robbing is not indicated but the CIL route is selected.
  - Viscosity testwork indicated that the mafic and pelite samples had relatively high viscosity at high densities which will impact slurry pumping.
  - Thickening testwork indicated acceptable underflow density (56% to 66% solids) at a moderate settling rate can be achieved but some samples were cloudy requiring a coagulant.
  - Carbon adsorption tests showed typical kinetic response.
  - Cyanide consumption of between 0.07 kg/t and 0.21 kg/t can be expected with lime consumptions of 0.3–1.2 kg/t.
  - Detoxification using the air/SO_2 process successfully reduced the weak acid dissociable cyanide (CN_{WAD}) to below 5 mg/L.

- Ashashire:
  - Specific gravity of oxide is 2.45 and fresh ranged from 2.73 to 2.87.
  - BBWi indicated a medium hardness ore with a range from 12.6 to 14.8 kWh/t.
  - Ai values from 0.11 to 0.21 showing low abrasion.
  - Grind optimization for oxide and fresh ore confirmed P_{80} 75 µm is appropriate although finer grinding did result in improved recovery, but not economically attractive.
  - Gravity recovery can be expected to be high at >35% with the design based upon 35%.
  - Leach residence time of 24 hours is selected for oxide and 36 hours for fresh due to improved recovery.
  - Leach pH of 11.8 is required to reduce telluride passivation in the leach in fresh ore.
  - Oxygen addition will increase recovery by up to 4.2%.
  - Leach extraction of >90% can be expected.
  - Preg-robbing is not indicated but the CIL route is selected.
  - Viscosity testwork indicated that there should be no pumping issues with Ashashire ores.
  - Thickening testwork indicated high underflow density (63% to 68% solids) at a moderate settling rate can be achieved.
  - Carbon adsorption tests are to be confirmed but have been assumed to be typical.
  - Cyanide consumption of between 0.07 kg/t and 0.21 kg/t can be expected with lime consumptions of 1.3 kg/t to 1.8 kg/t due to the elevated pH requirement from tellurides in the fresh ore.

The results from the four testwork programs are detailed and generally support the overall design parameters for the composite samples as well as the variability samples.

13.4 Process selection

The testwork conducted in the numerous evaluation campaigns has shown that conventional gold processing techniques will result in high gold recovery from the Dish Mountain and Ashashire deposits, although Ashashire recoveries will be lower than Dish Mountain.

13.5 Recoveries

Based upon the testwork results, the Dish Mountain recoveries are estimated to be 96.2% for oxide ore and 93.9% for primary ore at the average head grade of 1.37 g/t Au, based on the following relationships developed from the testwork:

- Dish Mountain oxide:
  - Weak correlations on Dish Mountain oxide ore were realized for gold extraction vs head grade and tails grade vs head grade. The average gold extraction of 97.7% was derated to 96.2% to account of fine carbon and solution losses.
- Dish Mountain fresh:
  - Recovery (%) = (1 - ((0.0347 x gold head grade (g/t Au) + 0.0157) + 0.02) / gold head grade (g/t Au)) x 100.
  - This recovery equation is supported by a strong relationship between head grade and residue value and includes a provision for fine carbon and solution losses during operations.
  - The recovery is marginally higher than predicted during the PFS due to the extended leach time (24 hours increased to 36 hours).

The Ashashire recoveries are estimated to be 94.1% for oxide ore and 89.9% for primary ore at the average head grade of 1.7 g/t Au, based on the following relationship developed from the testwork:

- Ashashire oxide:
  - Weak correlations on Ashashire oxides were realized for gold extraction vs head grade and tails grade vs head grade. The average gold extraction of 95.3% was derated to 94.1% to account of fine carbon and solution losses.
- Ashashire fresh:
  - Recovery (%) = (1 - ((0.0486 x gold head grade (g/t Au) + 0.0674) + 0.02) / gold head grade (g/t Au)) x 100.
  - This recovery equation is supported by a relationship between head grade and residue value and includes a provision for fine carbon and solution losses during operations.
  - The recovery is marginally higher than predicted during the PFS due to the extended leach time (24 hours increased to 36 hours).

13.6 Throughput

Table 13.2 summarizes the mill throughput by ore type based on 2022 FS mill modelling, which estimates that the mill throughput will average 4.36 Mt/a over the LOM.

Table 13.2 Mill throughput by ore type

Ore type	Inventory (Mt)	Inventory (%)	Mill throughput (Mt/a)
Dish oxide and transition	5.7	10.8	5.26
Dish – chert fresh	4.5	8.5	4.06
Dish – pelite fresh	9.9	18.7	4.46
Dish – mafic fresh	6.7	12.7	4.31
Ashashire – oxide and transition	3.3	6.3	4.75
Ashashire – granite fresh	2.4	4.6	4.34
Ashashire – pelite fresh	8.5	16.2	3.74
Ashashire – mafic fresh	11.7	22.2	4.34
Total	**52.8**	**100.0**	**4.36**

Source: Kurmuk FS, December 2022

The Qualified Person considers that adequate testwork has been conducted to be confident that the process plant performance parameters have been appropriately estimated for design purposes. The recovery profile estimates for the two deposits and the different lithologies have been adequately investigated and has accounted for the presence of tellurides in the Ashashire deposit.

14 MINERAL RESOURCE ESTIMATES

Table 14.1 summarizes the Kurmuk Mineral Resource estimates as of 31 December 2022. The Mineral Resource is reported at a 0.5 g/t Au cut-off grade within an $1,800/oz optimized pit shell. Mineral Resources are reported inclusive of Mineral Reserves.

Table 14.1 Kurmuk Property Mineral Resources as of 31 December 2022 at a 0.5 g/t Au cut-off (100% basis)

Area	Measured			Indicated			Total Measured and Indicated			Inferred		
	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz
Dish Mountain	6.76	1.60	348	19.58	1.65	1,043	26.4	1.64	1391	6.85	1.78	391
Ashashire	10.99	1.90	671	18.59	1.71	1,021	29.58	1.78	1,692	2.89	1.53	142
Total	**17.76**	**1.79**	**1,019**	**38.22**	**1.68**	**2,064**	**55.98**	**1.71**	**3,083**	**9,75**	**1.70**	**534**

Notes:
Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding.
Mineral Resources are inclusive of Mineral Reserves.
Mineral Resources are reported within a $1,800/oz optimum pit at a 0.5 g/t Au cut-off.
Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
Source: Allied December 2022 Group Resources and Reserves

The information in this Technical Report that relates to the Kurmuk Mineral Resource estimation is based on information compiled by Mr John Cooke and Mr Phillip Schiemer. Mr Cooke is a Fellow of the Australian Institute of Geoscientists (AIG) and Mr Schiemer is a Member of the AIG. Mr Cooke is employed by Allied, through Chiron Exploration Pty Ltd and Mr Schiemer is a consultant to Allied.

Messrs Cooke and Schiemer have sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which they undertook to qualify as Qualified Persons as defined in the CIM guidelines. Messrs Cooke and Schiemer consent to the inclusion in this Technical Report of the matters based on this information in the form and context in which it appears.

The Qualified Person responsible for Item 14 (Mr Andrew) has carried out independent checks, has critically examined this information, made his own enquiries, and applied his general mineral industry competence to conclude that the information is adequate for the purposes of this Technical Report and complies with the definitions and guidelines of the CIM.

Kurmuk's Mineral Resources and Mineral Reserves were initially classified in the 2022 FS in accordance with the guidelines of the JORC Code (2012). The confidence categories assigned under the JORC Code (2012) were reconciled to the confidence categories in the CIM Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards). As the confidence category definitions are the same, no modifications to the confidence categories were required. Mineral Resources and Mineral Reserves in this Technical Report are reported in accordance with the 2014 CIM Definition Standards.

14.1 Dish Mountain

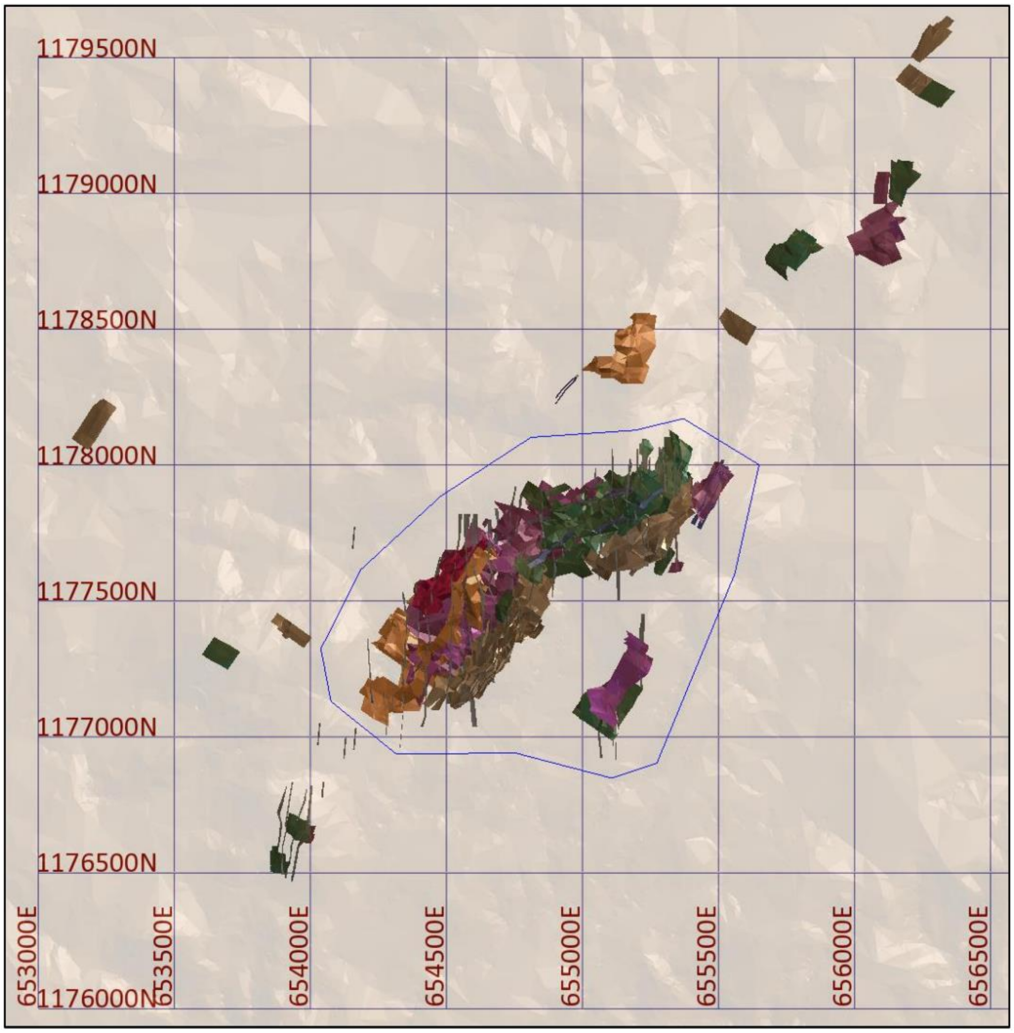
14.1.1 Geological model and mineralization interpretation

A mineralization model for the Dish Mountain deposit was generated in 2013 based on inadequate drill coverage, and as such was deemed indicative of the potential contained within this new discovery. In 2016, with additional drill coverage, a model was developed based on lithologies and quartz veins that dipped westerly into a major sub-vertical shear zone along the spine of Radio Hill chert unit. The drillhole data that led to this model were drilled on a 125° azimuth, and it was not until the end of 2015 that the importance of drilling orthogonal to the stratigraphy would realize optimal intersections of the quartz vein packages.

Increased density of drilling enabled development of the August 2019 interpretation except in the southern portion of the main mineralized area (known as Black Dog after a geographical feature in the area) and the outcropping chert on Radio Hill, where the interpretation was revised following infill mapping and drilling. A new interpretation based on previous iterations but developed with the new drilling and mapping data has incorporated the smaller deposits along strike to the east-northeast.

Detailed outcrop scale mapping over the deposit area using handheld GPS for locations and mapped outcrops were used to guide the 3D model. Downhole assay and structural data (vein orientation, vein types and quantities) and geological data (lithologies, contact orientations and alteration) were closely assessed in the interpretation. Figure 14.1 presents the mineralized envelopes used as the basis of the Dish Mountain Mineral Resource estimate.

Figure 14.1 Representative view of Dish Mountain mineralization



Source: Allied, 2022 FS December 2022

Domains were constructed for the mineralized quartz vein zones in the deposit. The chert lodes were divided into three domains based on their different orientations. Other domains included:

- The essentially flat vein sets that are spatially associated with the chert lodes but also exist in other parts of the deposit.
- The synformal vein sets in the south at Black Dog (Figure 10.1) based on mapping completed during the 2020 dry season. The interpretation at Black Dog now explains several features seen on the surface that had not been properly accounted for in previous interpretations.

- The west-dipping (foliation parallel) vein sets on the eastern side of Radio Hill (Figure 10.1), and in the far north and south of the deposit. This domain has been split into a shallow-dipping domain and a steep-dipping domain.

No unconstrained material outside of the mineralized envelopes was included in the Mineral Resource estimate.

14.1.2 Exploratory data analysis

Compositing

All drillhole data in the database was flagged with the mineralized wireframes. Where the wireframes overlapped, a hierarchy reflecting the interpreted order of emplacement was applied. Thus, the Chert lodes were removed initially after being flagged, followed by the Flat lodes, and the west-dipping Point and Dish North lodes. All other lodes were removed from the Vertical lodes where intersections occurred.

The flagged samples were then composited downhole. The interval used was 1 m, with a requirement that half or more of the sample is present to create the composite. Secondary intervals smaller than the half criteria were discarded and not used in the estimate.

Top cuts

After discarding all composites of less than 0.5 m length, statistical data from the domain populations were analyzed in Supervisor software. Log histograms and log probability plots were produced for each of the 11 spatial domains to assess the occurrence of grade outliers. The breakdown of the probability plot trace was assessed initially, followed by the coefficient of variation (CV) and the 99th percentile. Each population was capped such that the CV approached or was less than 1.6.

14.1.3 Variography

Variography was undertaken on the 11 mineralized domains using the composited data. The criteria for domaining reflected changes in dip and orientation of the mineralized envelopes.

14.1.4 Kriging neighbourhood analysis

KNA was carried out for each domain and the estimation orientation validated before the Mineral Resource estimate was undertaken. A process of iteration to find the best results was worked through. The block size was determined from the drill spacing, with holes in multiple directions but dominantly on sections at 40 m x 40 m and down to 20 m x 40 m. Based on this, a block size of 20 m x 20 m x 4 m (x, y, z) was selected together with the minimum and maximum number of samples for each domain. Minimum samples were different for each domain. The Qualified Person notes that minimum samples of two or three for the first pass is low and suggests it should be increased, but is not considered material to the Mineral Resource estimate.

A dynamic search strategy was adopted with three passes used: the first pass being the range of the variogram, the second pass twice the range and the third pass three times the range. Three samples were used as a minimum number of samples for passes two and three. A third pass was utilized using the estimation parameters from Supervisor but into a smaller blocks size of 10 m x 10 m x 2 m This was within the 40 m by 40 m drilling volume.

The Qualified Person recommends optimizing the block size and estimation parameters for the areas covered by drilling within the 40 m x 40 m drill space volume for the next iteration of the Mineral Resource estimate. The issue is not material to the Mineral Resource estimate.

14.1.5 Block modelling

The block size for the Dish Mountain block model was 20 m x 20 m x 4 m (x, y, z) except where a 10 m x 10 m x 2 m block size was used with a minimum sub-cell size of 2.5 m x 2.5 m x 0.5 m (x, y, z). The model was rotated to an azimuth of 065° to align it with the orientation of the deposit lithology.

14.1.6 Grade estimation

Gold was interpolated into the Mineral Resource estimate using OK, based on the variography and search strategy previously described. Hard boundaries were used between mineralization domains. Estimation of the grades in any one domain had to be kept from falsely influencing any other. Wireframes from the Vertical lodes were the first to be estimated, and those volumes where the Verticals were overlapped by other lodes were then estimated as within those lodes, so the Vertical portion was overwritten.

Density was estimated by IDW on a lithology and oxidation state basis using a spherical search ellipse with a range of 100 m. If a block was not informed by drill data, an average value was used based on specific gravity determinations.

14.1.7 Density

A total of 23,099 bulk density determinations were completed on drill core by KGM using the Archimedes Principle. The method of measuring density uses a hydrostatic balance. A piece of drill core is weighed in air and then weighed when fully immersed in water. The weights are inserted into the formula: density = weight of core in air / (weight of core in air - weight of core in water).

Data were collected for all rock types, mineralization types and grade ranges on half-core samples initially at 1 m intervals (Table 14.2).

Table 14.2 Summary of average density values

Rock type	Chert		Mafic		Pelite		Psammite		Felsic	
	Density	% samples	Density	% samples	Density	% samples	Density	% samples	Density	% samples
Oxide	2.36	0.4%	2.13	0.5%	1.93	0.5%	2.66	0.3%	2.11	0.1%
Transition	2.52	7.3%	2.55	10.3%	2.53	4.4%	2.55	7.4%	2.65	2.2%
Fresh	2.76	92.2%	2.84	89.2%	2.8	95.1%	2.82	92.3%	2.73	97.7%
Total samples	3,313		9,454		6,368		3,182		1,506	
% Total samples	14%		40%		27%		13%		6%	

Source: Allied 2022 FS, December 2022

Mafic and pelite rock types contribute 67% of the density determinations, with fresh samples dominant (>92.6%) for all rock types. For all rock types, oxide samples contributed less than 0.5% of the determinations with transition contributing between 2.1% and 9.7%. No oxide determinations were possible for the psammite and felsic rock types and pelite was used as the default in these cases.

14.1.8 Model validation

Visual validation of composite grades vs block grades by section through the model was undertaken. In addition, swath plots comparing the informing data against the block model on a sectional and plan basis were undertaken. Both the visual and swath plots validation confirmed that the block model grades match those of the informing data grade trends.

14.1.9 Classification

Measured and Indicated Resources were classified as blocks that are within the high-confidence wireframe. This was created around blocks within areas of well-drilled material (i.e. inside the 40 m x 40 m wireframe). Internal volumes of low confidence material were created where it was not possible to create a shape. To be classified as Measured, that block must also be estimated in the first pass, have used a minimum of two holes in the estimate, a high minimum number of samples and have a slope of regression greater than 80%. Indicated Resources were classified based on the same criteria above; however, with a slope of regression greater than 60% and not within the low-confidence volume. Inferred Resources were classified by material informed in the second pass of the estimation and material not inside the high-confidence wireframe. Inferred classification was also assigned to material within the several internal, low-confidence wireframes.

14.1.10 Mineral Resource estimate

The Dish Mountain Mineral Resource estimate (Table 14.1) is reported within a pit shell optimized at a gold price of $1,800/oz utilising mining and processing costs, geotechnical parameters and gold recoveries from the 2022 FS to allow for the requirement of reasonable prospects of economic extraction to be met. Refer to Item 15 for the parameters used for the pit optimization and cut-off grade determination.

14.1.11 Independent reviews

As part of Allied's internal procedures, the December 2022 Mineral Resource was independently verified by John Nolan of Resolve Mining who commented: "*The Dish Mountain Mineral Resource Estimate is suitable for economic studies and mine planning purposes. Overall, it is conservative in grade estimate and reporting, representing upside opportunity with tweaking of estimate parameters, cut-off grade and RPEEE metal price.*"

The Qualified Person considers that the Mineral Resource estimate is suitable for use in technical studies (such as a FS) as a global resource. To the best of the Qualified Person's knowledge, there are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact the eventual extraction of the Mineral Resource.

14.2 Ashashire

14.2.1 Geological model and mineralization interpretation

The geology at Ashashire is reasonably well understood, with the model developed from detailed mapping supported by extensive structural drillhole logging. The mineralized lodes strike north-northeast to south-southwest. The structural pressure shadows relate to felsic intrusives and local extensional lineations due to the transpositional thrusting regime in the area.

The interpretation has been largely predictive by the infill drilling that has occurred since the January 2021 resource estimate. Adjustments to the interpretation have largely been editing and extension of lode wireframes to suit the increasing data and knowledge of the deposit.

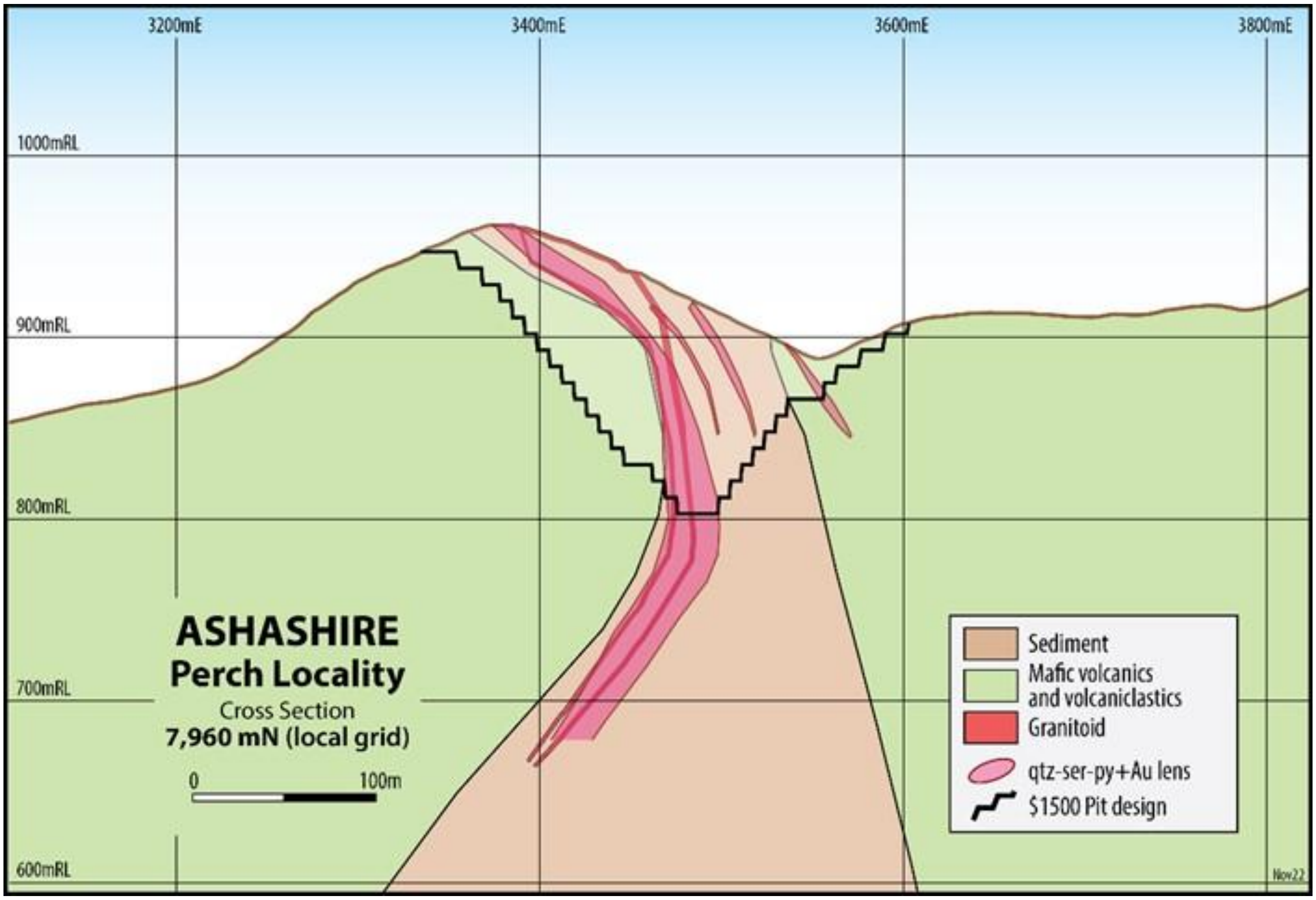
The three main zones at the Ashashire deposit are Gin Dish, Perch, and Scorpion. Perch is characterized by the dominance of the lode associated with the granite intrusion, whereas the Gin Dish and Scorpion zones are more closely associated with the central sediment package (Figure 10.2).

The mineralization model at Ashashire is one of steeply dipping lenses of mineralized quartz veins in extensional structural zones, where the veins occur in nests but dominantly dip perpendicularly to the dip of the lens. As at Dish Mountain, mineralization is dominantly in the veins themselves and to lesser extent in the wall rock alteration halo of those veins.

Wireframes were constructed for the mineralized granite contacts at Perch and for vein zones at Gin Dish and Scorpion, which are interpreted to be stacked packages of sub-horizontal veins in steeply dipping structurally controlled envelopes.

The granite contact at Perch is curved by the structural regime at the time of emplacement with the lodes extending along the granite contact (Figure 14.2). Several holes have been drilled down-dip through this portion of lode and demonstrate the patchy nature of the mineralization in detail within the lode lens.

Figure 14.2 Section 7960 N (local grid) at Perch



Source: Allied, 2022 FS December 2022

Gin Dish (Figure 7.5) lies in a tensional space between two separate thrust rams, with the lodes changing orientation at extremities in a sigmoidal lozenge arrangement. Scorpion is on very steep terrain, making drilling in the correct orientation difficult. Infill drilling had demonstrated the mineralization in this southern area is consistent with the Gin Dish lodes in the centre.

The Qualified Person (Mr Andrew) notes that much of the drilling at Scorpion is in the same orientation as the mineralization. This is due to the steepness of the terrain and Allied not previously being able to access a platform to drill perpendicular to the mineralization. This issue is being addressed by deploying a man-portable drill rig to site, giving a more appropriate orientation for future drilling at Scorpion. This issue is not considered material to the Mineral Resource estimate.

Surfaces were constructed to separate the differing orientations at the point of flex of the wireframe sets. These surfaces were used to cut the mineralization wireframes to create three separate domains. Domain 1 is shallowly east dipping, Domain 2 is steeply east dipping, and Domain 3 is steeply west dipping.

14.2.2 Exploratory data analysis

Compositing

The drillholes in the database were flagged where they intersected the mineralized wireframes. A composite length of 1.0 m was selected as appropriate as this was the dominant sample length. Trench, channel and RC holes were sampled on 1.0 m intervals, with diamond core sampled at 1.0 m lengths except when honouring geological boundaries. Drillhole data was composited downhole using 1.0 m lengths on a “best fit” basis with a requirement that half (0.5 m) or more of the sample be present to create the composite. Intervals less than the restriction were discarded.

Top cuts

Top cut analysis was completed for each of the three orientation domains using a combination of approaches including examination of grade distributions (histograms and log probability plots), domain statistics and population disintegration.

14.2.3 Variography

Variography for each of the orientation domains was completed in Supervisor software using normal-score transformed data with the variogram models back-transformed prior to use. The downhole variogram was used to define the nugget value of the modelled variogram and the spatial variograms modelled using two spherical structures. Variograms were exported into Surpac format for estimation.

14.2.4 Kriging neighbourhood analysis

De-clustering of sample data and KNA was carried out on gold for each domain to determine an appropriate block size and number of informing samples for the estimation. A block size of 16 m x 16 m x 4 m (x, y, z) with a minimum sub-cell size of 2 m x 2 m x 1 m (x, y, z) was selected for Ashashire.

14.2.5 Block modelling

A block model was created in Surpac and a block size of 16 m x 15 m x 4 m selected, based on drill spacing and KNA. The block model was rotated to 020° to align the blocks with the main geological trend. This corresponds to the 110° local grid and is the orientation of the sectional interpretation.

14.2.6 Grade estimation

The model was estimated using OK with top cut composites utilizing a two-pass search strategy in Surpac software. Grade estimation was undertaken on a parent cell size basis, therefore all sub-cells within the same parent cell and domain received the same grade. Two search passes with an increase in the search distance and decrease in the minimum number of samples was used. The initial search distance was at the variogram range for each domain and the second search pass was two times the distance of the first search. For all domains, the minimum number of samples decreased to three for the second pass. Blocks that did not estimate were assigned a grade of 0 g/t Au. The Qualified Person recommends the maximum samples per drillhole be reduced from 10 to between two and four to ensure that blocks are not informed by a single drillhole. This is not material to the Mineral Resource estimate.

Hard boundaries were used between each mineralized wireframes as well as between orientation domains. For the next iteration of the estimate, consideration should be given to the reduction of the maximum number of samples per drillhole from 10 so that blocks are not informed by a single drillhole. This is not considered to be a material issue to the current estimate.

14.2.7 Density

Bulk density measurements were collected every 10 m, primarily using the weight in air/weight in water immersion technique. The bulk density dataset comprises 3,902 records for fresh rock, 991 records for transitional and 460 records for oxidized material. The data was analyzed by rock type (mafic, sediment and Perch granite felsic intrusive) and by oxidation state. Bulk density was estimated using an IDW to the power of two estimation method into rock type and oxidation domains. A spherical search ellipse with a range of 100 m was utilized with the minimum number of samples of three and maximum number of samples of 15. Where there was insufficient data to estimate density, the average density for the lithology and oxidation state was assigned to the model (Table 14.3).

Table 14.3 Ashashire average density values by rock type and oxidation state

Rock type	Felsic	Mafic	Sedimentary
Oxide	2.26	2.03	1.72
Transitional	2.36	2.28	2.15
Fresh	2.74	2.85	2.82

Source: Allied, 2022 FS December 2022

14.2.8 Model validation

The estimates were validated using visual inspection of the model against the input composites in cross section. Validation trend plots in easting, northing and elevation dimensions for each mineralized domain have been reviewed by the Qualified Person. The model and composite grades show good correlation.

Validation trend plots for all mineralized domains show that the block model mean is smoother than the composite grade but follows the trend of the composites. If anything, the estimated grade may be a little low in the highest density of data. This indicates the model is slightly conservative but is a good representation of the mineralized system.

14.2.9 Classification

A classification wireframe was constructed around blocks with high estimate confidence using the conditional bias slope (CBS) with a minimum requirement of 60%. The blocks within this wireframe also need to have been estimated in the first pass with a high minimum number of samples and a minimum of two drillholes. This was the basis for an Indicated Resource. For blocks to be coded as a Measured Resource, the CBS has a minimum requirement of 80%. Inferred Resources comprise mineralization outside the class wireframe but estimated in the first pass.

14.2.10 Mineral Resource estimate

The Ashashire Mineral Resource (Table 14.1) has been reported within a pit shell optimized at a gold price of $1,800/oz utilizing mining and processing costs, geotechnical parameters and gold recoveries from the 2022 FS to allow for the requirement of reasonable prospects of economic extraction to be met. Refer to Item 15 for the parameters used for the pit optimization and cut-off grade determination.

14.2.11 Independent reviews

As part of Allied's internal procedures, the 2022 Mineral Resource modelling outcomes have been independently verified by John Nolan of Resolve Mining who commented: "*The Ashashire Gold Project Mineral Resource Estimate is suitable for economic studies and mine planning purposes. Overall, it is slightly conservative in grade estimate due to the aggressive top cuts, RPEEE (reasonable prospects for eventual economic extraction), the gold price applied and possible exclusion of additional mineralization, which represent upside opportunities*".

The Qualified Person did not identify any material flaws and considers the Ashashire Mineral Resource estimate to be reasonable and suitable for use in the technical studies as a global resource.

To the best of the Qualified Person's knowledge, there are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that could materially impact the eventual extraction of the Mineral Resource.

15 MINERAL RESERVE ESTIMATES

The mining component of the 2022 FS was completed by Orelogy in November 2022 to support a mine plan to feed a central 4.4 Mt/a process plant from two open pit mining operations at Dish Mountain and Ashashire. The 2022 FS reported the mining of a total Proved and Probable Mineral Reserve of 52.8 Mt at 1.53 g/t Au containing 2,601 koz at a stripping ratio of 5.3:1 (waste tonnes:ore tonnes) over an 11-year mining period (including a one year pre-production period).

15.1 Key assumptions and parameters

15.1.1 Ore loss and dilution modifying factors

Dish Mountain

The mineralization zones for Dish Mountain are geometrically complex with multiple dipping, vertical and horizontal zones with different widths and rock strengths. Skin dilution and vertical dilution were modelled to address the geological complexity at Dish Mountain.

The Mineral Resource model was re-blocked to a size of 10 m x 10 m x 3 m (east x north x height). The re-blocking process introduces dilution and ore loss with additional dilution skin added by applying an in-house dilution script. Overall, the Dish Mountain ore loss and dilution in the optimization process and Mineral Reserve estimate was 4% and 23%, respectively.

Ashashire

Ashashire is less geologically complex, and dilution was modelled by applying skin dilution. The Ashashire Mineral Resource block model was re-blocked to 8 m x 16 m x 3 m (east x north x height) which introduced an average ore loss of 1% and dilution of 16% into the optimization process and Mineral Reserve estimate.

The Qualified Person (Mr Craig) notes that the ore loss and mining dilution assumptions used to estimate the Mineral Reserve are reasonable but that actual ore loss will be dependent on several factors within the control of Allied such as grade control, drill and blast practices, load and haul discipline and the results of reconciliation with plant outcomes. These factors will be addressed during operations. Some upside potential may exist with improved dilution control during production, which could result in a higher ROM grade.

15.1.2 Pit optimization and cut-off grades

The Whittle 4X open pit optimization software was used to identify the best economic open pit shell to be used for detailed mine planning. Whittle 4X is an internationally recognized open pit optimization tool. Whittle produces 3D shapes, or “shells”, that generates a range of values for the optimization input parameters and a range of gold prices (or revenue factors) applied. The value of these shells is then analyzed to select the shell used for the ultimate open pit design and any internal staging.

The Dish Mountain and Ashashire optimizations used Measured and Indicated Mineral Resources only. A mining model was developed from the resource model adjusted for expected ore loss and dilution. Pit optimization input parameters for Dish Mountain and Ashashire are summarized in Table 15.1 and Table 15.2, respectively.

Table 15.1 Dish Mountain pit optimization input parameters

Parameter	Unit	Oxide/ Transition	Chert Fresh	Mafic Fresh	Pelite Fresh
Cut-off grade	g/t Au	0.34	0.44	0.41	0.39
Process recovery (average)	%	96.2	93.8	93.8	93.8
Mill throughput	Mt/a	5.3	4.1	4.3	4.5
Mining fixed costs	$/t ore	2.06	2.68	2.52	2.44
Processing fixed costs	$/t ore	3.09	4.01	3.74	3.65
Processing variable cost	$/t ore	4.99	6.03	5.43	4.99
Sustaining capital (TSF)	$/t ore	1.50	1.50	1.50	1.50
G&A	$/t ore	3.33	4.32	4.06	3.93
Refining cost	$/oz	5.00	5.00	5.00	5.00
Gold price	$/oz	1,500	1,500	1,500	1,500
Royalty	%	6.0	6.0	6.0	6.0
Discount rate	%	5.0	5.0	5.0	5.0
Overall slope angles	°	34-36	40-52		
Variable mining costs (L&H, D&B)	$/t ore	L&H, D&B costs vary by bench, area and oxidation state. LOM average approximately $15.00/t ore for all rock types.			

Source: Kurmuk FS, December 2022

Table 15.2 Ashashire optimization input parameters

Parameter	Unit	Oxide/ Transition	Granite Fresh	Mafic Fresh	Pelite Fresh
Cut-off grade	g/t Au	0.48	0.53	0.52	0.57
Process recovery (average)	%	94.1	89.9	89.8	89.8
Mill throughput	Mt/a	4.8	4.3	4.3	3.7
Mining fixed costs	$/t ore	2.28	2.50	2.50	2.91
Ore haulage	$/t ore	3.96	3.96	3.96	3.96
Processing fixed costs	$/t ore	3.43	3.76	3.75	4.31
Processing variable cost	$/t ore	5.50	5.64	5.51	5.86
Sustaining capital (TSF)	$/t ore	1.50	1.50	1.50	1.50
Site G&A	$/t ore	3.68	4.04	4.03	4.69
Refining cost	$/oz	5.00	5.00	5.00	5.00
Gold price	$/oz	1,500	1,500	1,500	1,500
Royalty	%	6.0	6.0	6.0	6.0
Discount rate	%	5.0	5.0	5.0	5.0
Overall slope angle	°	36-40	39-55		
Variable mining costs (L&H, D&B)	$/t ore	L&H, D&B costs vary by bench, area and oxidation state. LOM average approximately $15.00/t ore for all rock types.			

Source: Kurmuk FS, December 2022

The wall slope parameter used for the open pit optimization process was provided by Allied's geotechnical manager in consultation with independent geotechnical consultants George, Orr and Associates.

Cut-off grades vary by ore type and location due to variations in costs for ore processing, site costs, ore haulage, recovery and royalty assumptions. The Dish Mountain cut-off grade ranges from 0.34 g/t to 0.44 g/t Au while the Ashashire cut-off grade ranges from 0.48 g/t to 0.57 g/t Au.

Cut-off grades are higher at Ashashire due to the 15 km of ore haulage and lower processing recoveries. The cut-off grades were calculated in the Whittle 4X software by rock type and mine area and account for the processing and ore haulage costs, dilution, process recoveries and a $1,500/oz gold price (after deduction for royalties and selling costs).

15.1.3 Optimization results and shell selection

Sensitivity analysis was undertaken to test the impact of changes to key inputs (such as mining costs, processing costs, gold price and plant recovery) on key outcomes (ore tonnes, best case discounted cash flow and total rock). The results show that both pit shells are relatively insensitive to reductions in costs and slightly more sensitive to increased costs; however, value is very sensitive to changes in gold price and plant recovery.

The shells at an equivalent gold price of $1,350 (revenue factor 0.90) and $1,260/oz (revenue factor 0.84) for Dish Mountain and Ashashire respectively were selected for pit designs. The margin between the equivalent gold price and the $1,500/oz gold price provides a design buffer should there be a drop in the gold price.

Using a lower value pit shell reduces the size of the selected shells by about 10% with a minimal (~2%) reduction in discounted cash flow, while providing some resilience against a possible reduction in market gold price.

15.2 Mine design criteria

Pits, waste dumps and haul roads were designed for the LOM. The roads were designed to accommodate a 90-tonne rigid dump truck (Komatsu HD785-7 truck) with widths of 25 m for dual lane and 15 m for single lane roads. Pit ramps and haul roads have a maximum gradient of 10%.

The Dish Mountain open pit is developed in three stages, while the Ashashire open pit is mined in two stages to balance the amount of waste stripping in the early years whilst maintaining a continuous supply of ore.

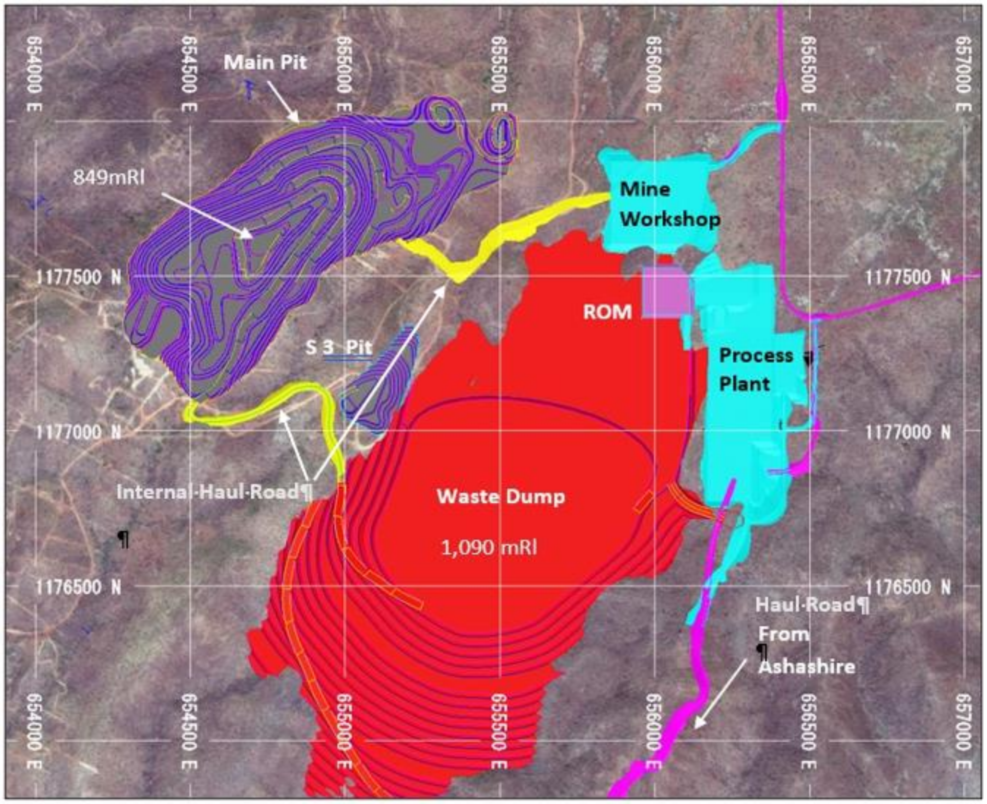
The Dish Mountain final pit is about 1,250 m long x 500 m wide x 340 m deep (Figure 15.1). Fresh material is present 20–30 m below the surface. Haul ramps exit to the southern and eastern end of the pit to allow access to the ROM pad and waste dump. A dual-lane ramp is maintained for all except the lower 20 m of the pit. The general site layout for Dish Mountain is shown in Figure 15.1.

The Dish Mountain mine workshop area has heavy vehicle workshops, oil laboratory, fuel storage and dispensing, tyre change facilities, washdown bay, light vehicle workshop, component workshop, offices and a lunchroom.

The Ashashire final pit is about 1,300 m long x 500 m wide x 360 m deep. Three hills along the length of the pit will require a significant amount of pioneering mining work in preparation for full-scale operations. All ramps exit on the western wall to provide access to the waste dump and ore stockpile area.

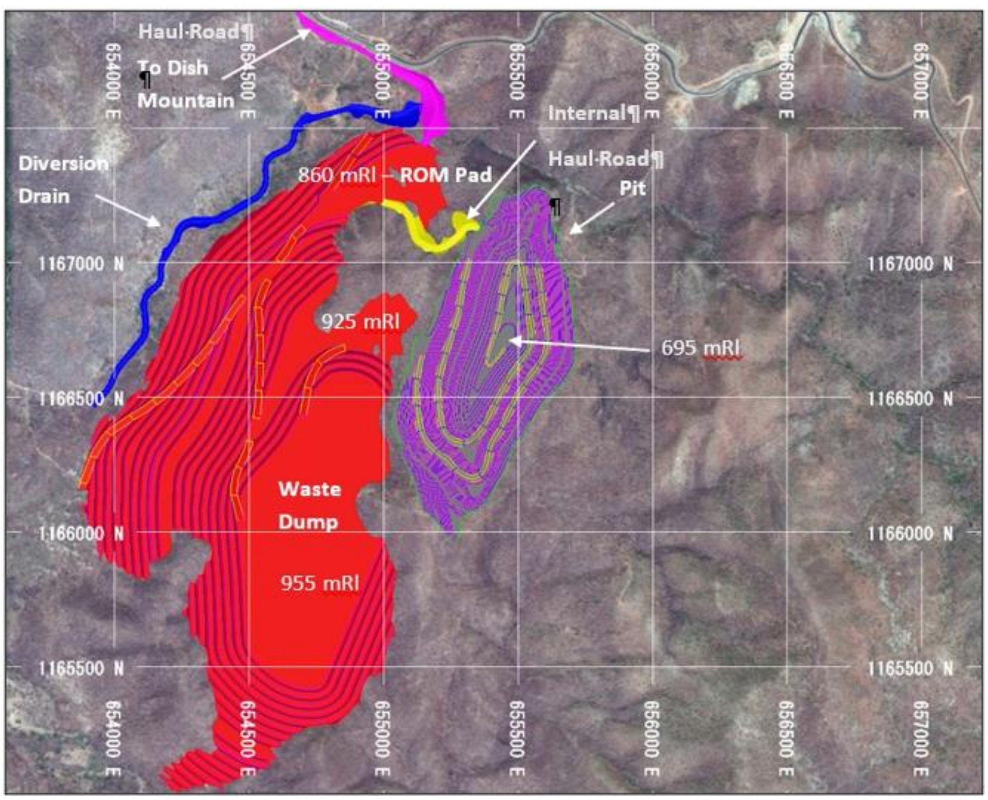
The Ashashire mine workshop area, which is located to the northwest of the ROM pad, has heavy vehicle workshops, fuel storage and dispensing, tyre change facilities, washdown bay, component workshop, offices and a lunchroom. The general site layout for Ashashire is shown in Figure 15.2.

Figure 15.1 General site layout – Dish Mountain open pit and infrastructure



Source: Kurmuk FS, December 2022

Figure 15.2 General site layout – Ashashire open pit, waste dump and ROM pad



Source: Kurmuk FS, December 2022

15.3 Mineral Reserve

The Kurmuk Mineral Reserve as of 31 December 2022 is summarized in Table 15.3 and is derived from the LOM designs and schedule supported by the 2022 FS following incorporation of modifying factors to the Measured and Indicated Mineral Resource model. Inferred Mineral Resources are treated as waste.

Applicable modifying factors and assessment criteria have been considered. A gold price of $1,500/oz was used for the LOM plan and Mineral Reserve estimate.

Table 15.3 Kurmuk Mineral Reserve as of 31 December 2022 (100% basis)

Classification	Tonnes (Mt)	Grade (g/t Au)	Gold (koz)
Proven			
Dish Mountain	6.7	1.38	299
Ashashire	10.4	1.83	613
Total Proven	**17.12**	**1.66**	**912**
Probable			
Dish Mountain	20.0	1.37	879
Ashashire	15.6	1.61	810
Total Probable	**35.6**	**1.47**	**1,689**
Total Proven and Probable	**52.8**	**1.53**	**2,601**

Note: Data is reported to significant figures to reflect appropriate precision and may not sum precisely due to rounding
Source: Kurmuk FS, December 2022

The information in this Technical Report that relates to the Kurmuk Mineral Reserve estimate is based on information compiled by Mr Steve Craig and fairly represents this information. Mr Craig is a Fellow of the Australasian Institute of Mining and Metallurgy and is an employee of Orelogy. Mr Craig has sufficient experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking to qualify as a Qualified Person as defined in NI 43-101.

Open pit mining models were developed for each deposit with dilution averaging 23% for Dish Mountain and 16% for Ashashire and an average ore loss of 4% for Dish Mountain and 1% for Ashashire.

The geotechnical work conducted at Dish Mountain and Ashashire is sufficient to support the reporting of Mineral Reserves.

For the Mineral Reserve statement, a “cash flow positive” test was carried out on the LOM plan (refer to Item 16.5) using a gold price of $1,500/oz and a 5% discount rate, resulting in an overall positive NPV as disclosed in Item 22.

Other modifying factors included:

- A base gold price of $1,500/oz for the pit optimization, with the selected pit shells using values of $1,350 (revenue factor 0.90) and $1,260/oz (revenue factor 0.84) for Dish Mountain and Ashashire, respectively.
- Metallurgical and processing: Plant recoveries are estimated from testwork results for oxide ore and for primary ore.
- Infrastructure: Infrastructure aspects for Dish Mountain and Ashashire have been conducted to a feasibility level and support the declaration of a Mineral Reserve. The project requires a 132 kV powerline from the existing Asosa substation to the proposed substation adjacent to the proposed process plant being built by the Ethiopian Government.
- Economic and marketing: A flat forward gold price of $1,500/oz was used for the cut–off grade calculations within the designed pit shells, LOM plan and Mineral Reserve estimate, which is marginally lower than the long-term consensus gold price used in the economic evaluation.

- Cut-off grades vary by ore type and location due to variations in costs for ore processing, site costs, ore haulage, recovery and royalty assumptions. The Dish Mountain cut-off grade ranges from 0.34 g/t to 0.44 g/t Au while the Ashashire cut-off grade ranges from 0.48 g/t to 0.57 g/t Au.
- Legal: Mesfin Tafesse and Associates confirmed that the large-scale mining licence and associated Development Agreement have been obtained.
- Environmental: Allied intends compliance with Ethiopian legislation and alignment with good international practice in its approach to environmental management. The ESIA for the Dish Mountain and Ashashire mining areas was approved as part of the application for the large-scale mining licence in Q3 2021. The powerline corridor ESIA was approved in Q2 2022.
- Social: Key social matters have been identified in the 2022 FS and are being addressed. Allied intends full compliance with Ethiopian legislation and alignment with international good practice. The planned operation will not require relocation of any communities. No other material social issues have been identified that would impede the progress of the Kurmuk gold operation.

No material issues have been identified by the Qualified Person regarding the modifying factors that would materially impede the progress at Kurmuk or the conversion of Mineral Resources to Mineral Reserves.

16 MINING METHODS

16.1 Mining method and equipment selection

The Dish Mountain and Ashashire orebodies are located near surface and conventional open pit mining has been adopted as the preferred mining method. There is sufficient space adjacent to the open pits to construct waste dumps and other mining infrastructure. The Dish Mountain and Ashashire site layouts are shown in Figure 18.1.

Open pit mining will utilise a main fleet of 200-tonne excavators (Komatsu PC2000-11R) and 90-tonne rigid dump trucks (Komatsu HD785-7), production drills (Epiroc D65), supported by an appropriate ancillary fleet. This equipment matches the scale of the operation and the mining environment which will be mined in predominantly fresh rock.

Ancillary equipment will support the mining operations, including:

- Tracked and wheel dozers for floor control and waste dump tip-head management.
- Graders for road maintenance.
- Front-end loaders for ROM stockpile re-handle and general site maintenance.
- Water trucks for dust suppression.
- Trailer pumps for dewatering within the open pits.
- A transport unit for moving excavators between sites.

Allied has purchased a fleet of smaller excavators and articulated dump trucks to progress early onsite, non-production civil works, which will then be utilized for pioneering works at each open pit. Elements of this fleet (i.e. the smaller excavator) will also be used for minor works including batter clean-up and ancillary works.

The 2022 FS is based on the open pit mining fleet being owned, operated and maintained by Allied. Major equipment productivity and operating hour calculations are based on factors such as bucket size and fill factor, tramming time, spotting and truck size. Operating hours for ancillary equipment, such as dozers, graders and water carts are based on set percentages of the excavator and load hours they are working to support. Efficiency factors are applied to productivity estimates to account for the lack of mining operations and maintenance experience in Ethiopia.

The mining fleet requirements were developed based on estimates of effective equipment operating hours, taking into account mechanical availability (planned and breakdown), standby (fuelling, inspections) and operating delays (shift change, blasting delays, inter-bench movements) to arrive at average hours per annum. There will be a maximum of 35 Komatsu HD785-7 trucks, five Komatsu PC2000-11R excavators and 12 Epiroc D65 drills, plus the ancillary fleet.

Ashashire ore will be hauled at a rate of about 3.0 Mt/a using a fleet of 45-tonne road trucks from the Ashashire ROM stockpile via a purpose-built haulage road to the process plant located adjacent to Dish Mountain.

The mine will operate with two 12-hour shifts per day, seven days per week with provision for public holidays, shutdowns and weather downtime. The planned work roster is typical of many open pit mining operations in Africa.

A bench height of 9 m with 3 m flitches, mined in four passes was selected for both sites with direct tipping representing 70% of the crusher feed.

The drill and blast design is based on standard industry practice. Drill and blast will be carried out on 9 m high benches at Dish Mountain and Ashashire. Overall distances between berms will be 18 m with pre-split drilling in fresh rock. It is assumed in the 2022 FS that all material will require drill and blast.

This blast hole size allows for good fragmentation and acceptable levels of drilling accuracy. Bulk explosive consumption is based on a powder factor of 0.6 kg/bcm in oxide, 0.7 kg/bcm in transition and 0.8 kg/bcm in fresh rock. It is anticipated that mining will take place in a semi-wet environment, so the use of emulsion is assumed. Explosive accessories (boosters, detonators, surface delays and detonator cord) are allocated to each blasthole.

Grade control for the open pits will be based on sampling using dedicated contractor operated RC drill rigs on a 5 m x 10 m grid drilled every two benches (10 m), with holes at a 60º declination and a hole length of 21 m. Assaying of the samples (1 m per sample) will take place at the onsite laboratory.

The equipment selection, equipment numbers and size are appropriate for this size of mining operation. The mine equipment, equipment operating parameters, and bench configuration are typical for operations of this size and are commonly applied in Africa. The drill and blast provisions are appropriate for the rock type and scale of mining being undertaken at Kurmuk.

16.2 Mining personnel

The maximum mining personnel headcount is shown in Table 16.1. Senior Ethiopian and expatriate personnel will work a six weeks on/three weeks off roster. Shift workers will work a three-panel roster working two weeks on/one week off, on a 12-hour day and night shift basis to provide 24-hour work coverage.

Table 16.1 Mining personnel headcount

Classification	Maximum head count
Mine management	2
Technical services	48
Operations management	66
Maintenance management	37
Maintenance personnel	98
Operations personnel	292
Total	**543**

Source: Allied 2022 FS, December 2022

16.3 Geotechnical considerations

Slope design parameters and design domains for Dish Mountain and Ashashire were determined by Allied's geotechnical manager (Mr Matthew Tonkins) and George, Orr and Associates. Geotechnical investigations were conducted on Dish Mountain from 2017 to 2021 and from 2020 to 2021 at Ashashire. Overall slope angles for the Dish Mountain Ashashire pit walls are summarized in Table 16.2.

Table 16.2 Slope design parameters overall slope angles – Dish Mountain

Unit	OSA range
Dish Mountain	
Oxide	34
Transition	36
Fresh	40–51
Ashashire	
Oxide	36
Transition	40
Fresh <800 mRL	39–55
Fresh >800 mRL	42–54

Source: Allied 2022 FS, December 2022

The Qualified Person (Mr Craig) considers that the geotechnical evaluation and recommended slope design parameters for Dish Mountain and Ashashire enable the development of a LOM plan and declaration of a Mineral Reserve.

The impact of flattening the slope angles by 5° was tested in the 2022 FS. The ore reduced by 0.4 Mt (1.5%), recovered gold reduced by 20 koz and the average discounted cash flow reduced by $38 million (-5%).

Further investigations are planned to validate the Ashashire slope designs prior to the progression of mining to final pit limits. The recommended work includes outcrop mapping to test continuity of complex structures not evident in core logging, geotechnical logging of resource definition drillholes, further groundwater investigations to verify assumed slope design parameters and 3D modelling to determine the impact of northwest-striking faults with associated poor ground conditions. The latter investigations may dictate the need for additional geotechnical drilling.

16.4 Hydrogeological considerations

The hydrogeological review for Dish Mountain was conducted by Knight Piésold. A groundwater inflow of about 2 L/s and a pit wall runoff from rainfall events estimated at 40–60 L/s on hydrogeological modelling shows that groundwater is typically isolated from the surface and should not adversely affect mining.

Groundwater is predicted to have a negligible impact on pit wall stability with in-pit water being handled by dewatering sumps, dewatering boreholes in the south of the pit, as well as horizontal depressurization holes if required. A network of groundwater monitoring bores fitted with vibrating wire piezometers will be installed to confirm that groundwater pressures are within the range assumed in the geotechnical analysis.

Current provisions assume that the in-pit water at Ashashire can be handled in the same manner as for Dish Mountain with dewatering sumps, dewatering boreholes if found to be effective, as well as depressurization holes if required.

The hydrogeological work conducted for Ashashire also highlighted minor groundwater flows are anticipated.

The mine designs include provision for the diversion of surface water channels, with a stream located north of the proposed Ashashire pit diverted around the western side of the waste dump and downstream of the pit.

Ongoing hydrogeological work will continue as part of operations to help mitigate any potential groundwater risk to the mining design and production.

16.5 Life of mine production schedule

16.5.1 Production schedule

The annualized LOM production schedule (Table 16.3) is based on meeting the planned processing rate of 4.4 Mt/a while considering the mining constraint of about 44 Mt/a of material that can be moved based on using five medium-sized excavators.

Table 16.3 Annualized LOM mining and processing production schedule

Item	Unit	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
TOTAL																
Total tonnes	**Mt**	**330.70**	**1.60**	**18.95**	**41.44**	**43.87**	**42.87**	**43.87**	**43.86**	**35.11**	**30.90**	**23.04**	**5.21**	**-**	**-**	**-**
Waste tonnes	**Mt**	**277.92**	**1.18**	**15.42**	**36.62**	**37.40**	**36.52**	**38.58**	**39.10**	**29.26**	**23.71**	**16.16**	**3.97**	**-**	**-**	**-**
Ore tonnes	**Mt**	**52.78**	**0.42**	**3.53**	**4.82**	**6.46**	**6.35**	**5.29**	**4.76**	**5.85**	**7.18**	**6.88**	**1.24**	**-**	**-**	**-**
Grade	**g/t Au**	**1.53**	**1.63**	**1.62**	**1.45**	**1.44**	**1.68**	**1.55**	**1.49**	**1.58**	**1.46**	**1.52**	**1.70**	**-**	**-**	**-**
Strip ratio	**wt:ot**	**5.3**	**2.8**	**4.4**	**7.6**	**5.8**	**5.8**	**7.3**	**8.2**	**5.0**	**3.3**	**2.3**	**3.2**			
Dish Mountain																
Total tonnes	Mt	174.49	-	7.04	17.40	17.54	22.99	26.32	26.30	17.56	17.61	16.62	5.11	-	-	-
Waste tonnes	Mt	147.71	-	5.20	14.30	15.35	20.57	24.10	22.97	14.55	14.07	12.67	3.91	-	-	-
Ore tonnes	Mt	26.78	-	1.84	3.09	2.19	2.41	2.21	3.34	3.01	3.53	3.94	1.20	-	-	-
Grade	g/t Au	1.37	-	1.36	1.39	1.33	1.59	1.32	1.34	1.32	1.25	1.35	1.70	-	-	-
Strip ratio	wt:ot	5.5		2.8	4.6	7.0	8.5	10.9	6.9	4.8	4.0	3.2	3.2			
Ashashire																
Total tonnes	Mt	156.21	1.60	11.90	24.04	26.32	19.88	17.55	17.56	17.55	13.29	6.42	0.10	-	-	-
Waste tonnes	Mt	130.21	1.18	10.22	22.32	22.05	15.94	14.48	16.14	14.71	9.64	3.49	0.06	-	-	-
Ore tonnes	Mt	26.00	0.42	1.69	1.72	4.27	3.94	3.07	1.42	2.84	3.65	2.93	0.04	-	-	-
Grade	g/t Au	1.70	1.63	1.90	1.56	1.49	1.74	1.71	1.85	1.87	1.66	1.74	1.68	-	-	-
Strip ratio	wt:ot	5.0	2.8	6.0	13.0	5.2	4.0	4.7	11.4	5.2	2.6	1.2	1.5			
Processing																
Ore processed	Mt	52.78	-	0.95	4.76	4.18	4.15	4.21	4.31	4.34	4.12	4.17	4.43	4.54	4.55	4.07
Grade	g/t Au	1.53	-	2.19	1.85	1.68	1.98	1.93	1.69	1.86	1.82	1.84	1.34	0.75	0.75	0.84
Contained gold	Moz	2.60	-	0.07	0.28	0.23	0.26	0.26	0.23	0.26	0.24	0.25	0.19	0.11	0.11	0.11
Recovered gold	Moz	2.39	-	0.06	0.27	0.21	0.24	0.24	0.22	0.24	0.22	0.23	0.18	0.10	0.10	0.10
Recovery	%	91.9	-	86.1	94.1	91.5	92.1	92.1	92.9	91.9	90.5	91.1	93.3	91.6	91.5	90.1

Source: Kurmuk FS, December 2022

A detailed schedule was generated in monthly periods for the first two years and quarterly periods onwards underpinned by:

- Mining activities starting with:
  - Stripping and clearing of pit and waste dump areas
  - Pioneering efforts at both Ashashire and Dish Mountain to establish productive benches
  - Waste for haul road and ROM pad construction
  - A pre-strip of 13 Mt in the first 12 months.
- Equipment productivity assumptions including:
  - Load and haul fleet added every six months with ramp-up to full production over 28 months
  - Production capability ramp up for each fleet over six months as provision is made for training of unskilled operators
  - Excavator productivity at 1,780 t/h (or 2.25 Mt/a equivalent) after five months.

The LOM production schedule supports a stable fleet size with a total material movement limit of about 44 Mt/a (8.8 Mt/a per excavator), while maintaining vertical advance rates of less than 72 m per annum (eight benches per annum) in each mining stage.

The five excavator load and haul fleet results in over excavation enabling higher grade ore (>1.0 g/t Au) to be preferentially processed with lower grade ore (<1.0 g/t Au and above the variable cut-off grades in Table 15.1 and Table 15.2) being stockpiled and blended or fed as required over the mine life.

Ore from the Ashashire pit is mined almost immediately and is stockpiled during the pre-strip period, after which it is hauled to the process plant at Dish Mountain. Ashashire ore production is maximized in the early years to ensure higher grade ore is processed early in the schedule. A steady ore haulage rate of about 3 Mt/a is maintained from Ashashire to Dish Mountain whenever possible. Waste is mined with a steep ramp up over 2024 and 2025 and maintained at approximately 37–39 Mt/a for 2026 to 2030.

Ore production ramp-up is in accordance with process plant requirements (plant startup in October 2025; full production in January 2026) and reaches a sustained 5.0–7.0 Mt/a over the period 2026 to 2033. Ore production is only 1.2 Mt in 2034 and is supplemented by ore stockpiles created in previous years. Low-grade stockpiles are depleted in 2037.

From 2032 onwards, the mining intensity is reduced at both Ashashire and Dish Mountain with a marked reduction total movement as the ore zones have been exposed.

Excavator allocation through the staged pit development is as follows:

- One excavator commences Ashashire mining in 2024.
- Ashashire production ramps up with three excavators at full production by the end of 2026.
- Towards the end of 2027, the pre-strip of Ashashire Stage 2 commences.
- At the end of 2027, the third excavator from Ashashire is transferred to Dish Mountain.
- Stage 1 pioneering works commence at Dish Mountain during Q1 of 2025.
- Two excavators achieve full production at Dish Mountain in Q2 of 2026.
- In Q1 of 2028, the third excavator from Ashashire assists with the Stage 1 mining at Dish Mountain.
- During Q2 of 2029, the third excavator commences the pioneering works for Stage 2 at Dish Mountain to the south of Stage 1.
- Dish Mountain Stage 3 is mined during 2031.
- In-pit production activities are completed in 2034.

16.5.2 ROM stockpile management

The ROM operating strategy is based upon maintaining a stockpile of suitable high-grade feed ore at the process plant adjacent to the primary crusher at Dish Mountain. ROM stockpile capacity is planned to be about 250 kt or equivalent to about three weeks of plant feed. The production schedule and operating cost provisions are based upon 70% of the plant feed being direct tipped.

The ROM stockpile at Ashashire enables all ore to be stockpiled before road haulage to the processing facility. Metallurgical testwork has indicated that Ashashire fresh ore can be processed with Dish Mountain fresh ore types but not with oxide ore types. Combined, the Dish Mountain and Ashashire fresh ore types comprise 83% of the total ore feed up to 2026 and 90% of the total ore feed from 2027.

The schedule provides for all low-grade ore (<1.0 g/t Au) to be stockpiled at areas located adjacent to the Dish Mountain ROM pad. The low-grade stockpiles reach a maximum build of about 15 Mt at 0.86 g/t Au in 2034 and provide backup feed in the event of disruptions to the flow of sufficient high-grade ore from the pits.

The LOM production schedule has been developed utilising Maptek Evolution scheduling software incorporating block-by-block based schedule development which acknowledges the set objectives and constraints of the operation.

17 RECOVERY METHODS

The process plant design was developed by Lycopodium, using the metallurgical testwork managed by Allied and Lycopodium. The process selected for the recovery of gold is a conventional CIL circuit consisting of crushing, grinding, cyanidation, followed by electrowinning and smelting to produce gold doré. Plant tailings are thickened for cyanide recovery, detoxified and again thickened (as a water conservation measure) prior to disposal to a lined TSF located downstream of the process plant.

Figure 17.1 indicates the basic plant flowsheet which includes the following main areas:

- Primary crushing
- Crushed ore storage and reclaim
- SAG/Ball Mill (SAB) combination and cyclone classification
- Gravity concentration: intensive cyanide leaching of concentrate and electrowinning
- Leach reactor – 1 x 5,000 m^3
- CIL leaching – 6 x 5,000 m^3
- Elution circuit (14-tonne capacity), electrowinning, and gold smelting
- Cyanide recovery thickening – 32 m diameter high-rate
- Cyanide detoxification
- Tailings thickening – 32 m diameter high-rate
- Reagent mixing, storage and distribution
- Process, raw and potable water distribution
- Oxygen plant – 10 t/d
- Air supply services.

The cyanide recovery thickener may be delayed as it is expected that the cyanide detoxification circuit will not need to be regularly operated to meet CN_{WAD} 50 ppm in the decant pond.

The proposed process plant design is based on a robust metallurgical flowsheet designed using equipment that is well proven. The key criteria for equipment selection are the suitability for duty and the expected mine life of the operation while not compromising process performance, reliability and ease of maintenance. Duty-standby pumps have been included, including cyclone feed and tailings pumps.

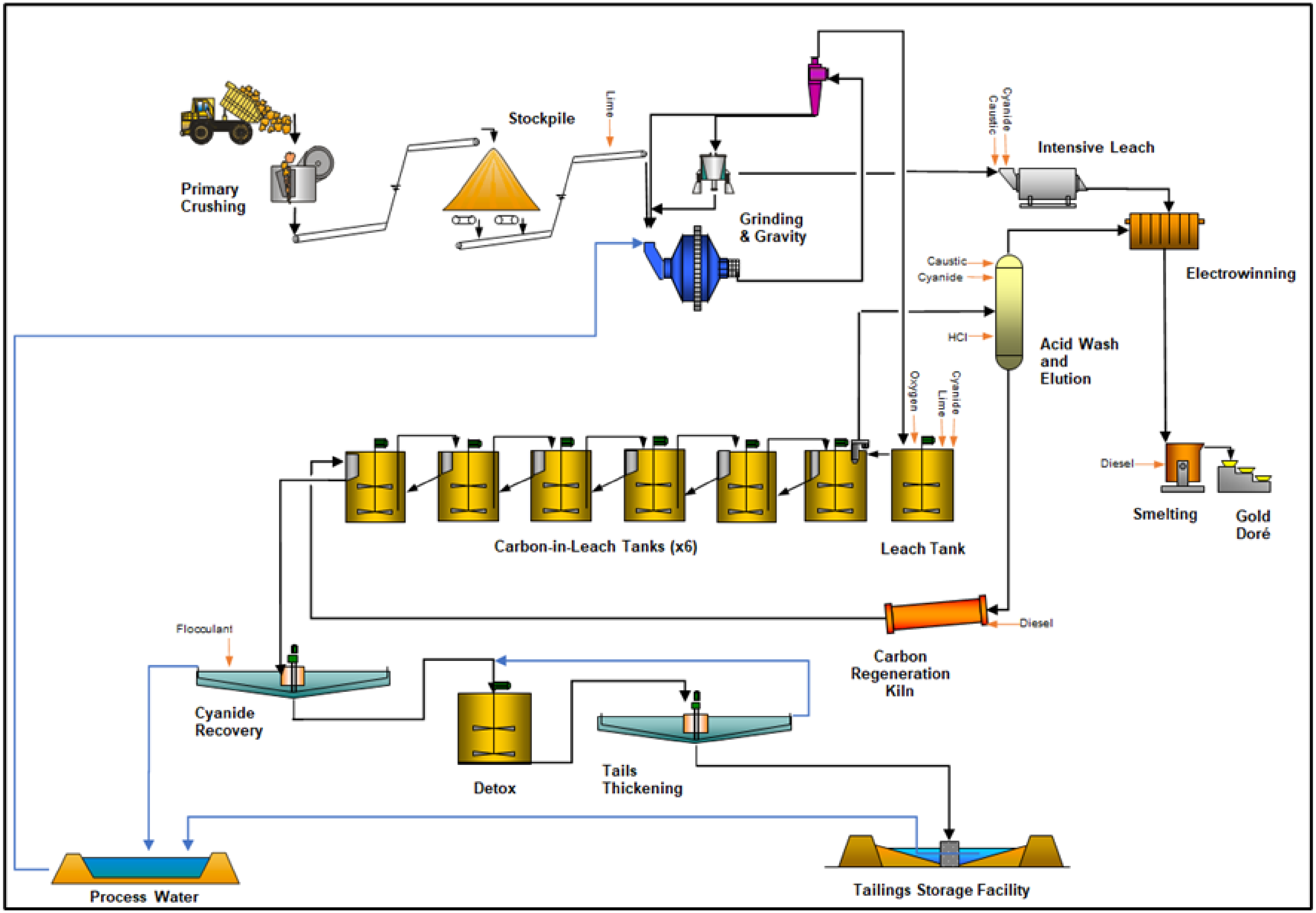
Adequately detailed process flow diagrams, process design criteria and operational philosophy documentation has been prepared in support of the metallurgical testwork for the design of the gold plant.

17.1 Gold lock-up and inventory

A typical gold plant which is being operated optimally will have a gold inventory associated with slurry stored in vessels, carbon inventory and within the mills. Kurmuk has a high gravity gold content in the ores and as such, increased lock-up in the milling plant would be expected. However, as there is a gravity recovery circuit in place, the total gold inventory is reduced to the equivalent of between 6 days and 10 days of production. This inventory will vary depending upon head grade and carbon management. It is not lost but is delayed production and will be released when the mine eventually ceases production.

Lycopodium provided an estimate of gold inventory of 3,700 oz for inclusion into the financial model, which has been removed from the first production period and recovered at the end of the mine life. This represents six days of delayed production (at 250 koz/a) acknowledged in the financial model.

Figure 17.1 Simplified plant flowsheet



Source: Kurmuk FS, December 2022

17.2 Gold plant security

As the gold plant will be located close to an international border, security of the facility is critical. It is proposed that the gold plant will have three levels of security with appropriate fencing:

- A perimeter fence with gate house to regulate entry to the administration building and plant warehouse.
- A double fence separated by about 10 m around the high security areas including the crushing, milling, and leach circuits with the elution plant and associated facilities. A clean-dirty change house is provided for all workers entering the process plant area.
- The high-risk gold room is to be separately secured with additional access control, clean-dirty change house, motion sensors, closed-circuit television with monitoring, plus security personnel.

17.3 Analytical laboratory

There is only limited reference to the analytical laboratory in the 2022 FS documentation with a proposal received from an internationally recognized contractor for the equipping of the laboratory, including fire assay, wet chem, metallurgical laboratory, sample preparation and storage with an AAS room and a bullion room plus ablutions, lunchroom and offices. Approximately 8,000 mining and grade control samples will be analyzed per month, with 421 solids, 518 solutions and 113 carbon samples from the plant and 104 environmental samples.

The equipping cost at $1.4 million has been incorporated into the capital schedule with the building cost making a total of $2.7 million. The operating cost is estimated to be $1.64 million per annum, based upon a budgetary proposal. The contractor staffing for the laboratory is included in this proposal and will be 22 persons. The cost per sample is $14.23 each, incorporating 66% fixed charges.

The laboratory building is to be supplied free by Allied to the contractor whilst the facility will be equipped and operated by the contractor.

17.4 Throughput and gold production

The process plant design has been developed based on a throughput of 5 Mt/a of oxide ore and 4 Mt/a of fresh ore. Oxide ore will make up 100% of the feed in Year 1 reducing to 58% in Year 2 and then to less than 10% for the following years, increasing to about 30% when low-grade stockpiles are processed at the end of the mine life.

Ashashire is the higher-grade deposit (1.37 g/t Au vs 1.70 g/t Au), albeit the recoveries are lower than Dish Mountain (90.3% vs 93.9%). Oxide and transition ores have an increased gold recovery compared with the fresh ores. The overall project head grade is 1.53 g/t Au with an overall recovery of 92.0% based on the Ashashire oxide and transition material having a recovery of 95.0%, irrespective of grade.

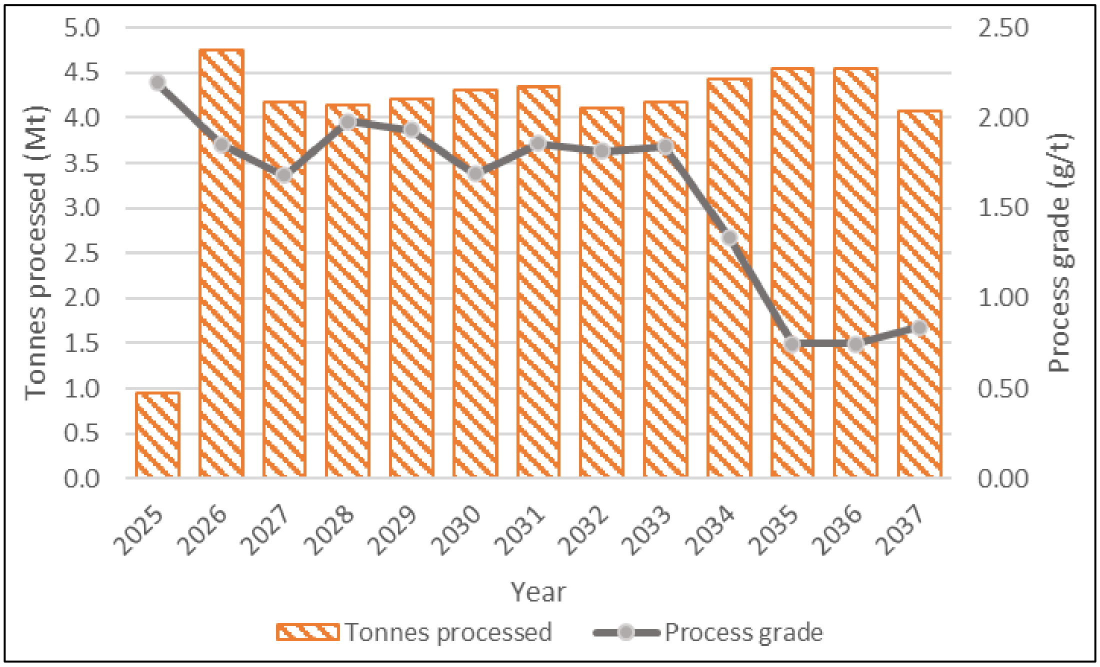
The processing schedule depicted in Table 16.3 is based upon the mining schedule from Ashashire and Dish Mountain with the highest grade from the stockpile being treated initially and recoveries based upon the formulae detailed in Item 13.

Gold production is anticipated to peak at almost 250,000 oz/a with an average of 200,000 oz/a. The production profile in Table 16.3 excludes the approximately 3,700 oz of inventory which is locked up in the plant for normal operations. This will result in the first year's production being 4% lower than and has been acknowledged within the financial model. The gold will be recovered at mine closure.

An assessment was undertaken by Orway Mineral Consultants of the expected throughput through the milling circuit treating oxide ore at the same target grind size of P80 75 µm. It is indicated that a throughput of up to 5 Mt/a could be processed through the SAG/Ball circuit for the oxides and 4 Mt/a for the Ashashire fresh ores, with 7.5 MW drives on both mills. The throughputs by ore type estimated by Orway Mineral Consultants in Table 13.2, and used by Orelogy to develop the processing schedule, shows that the milling rate will range from 3.74 Mt/a for Ashashire pelite fresh to 5.26 Mt/a for Dish Mountain oxide ore. It should be noted that treating oxide ore at 5 Mt/a will result in reduced residence time in the CIL circuit, from 37 hours to 25 hours.

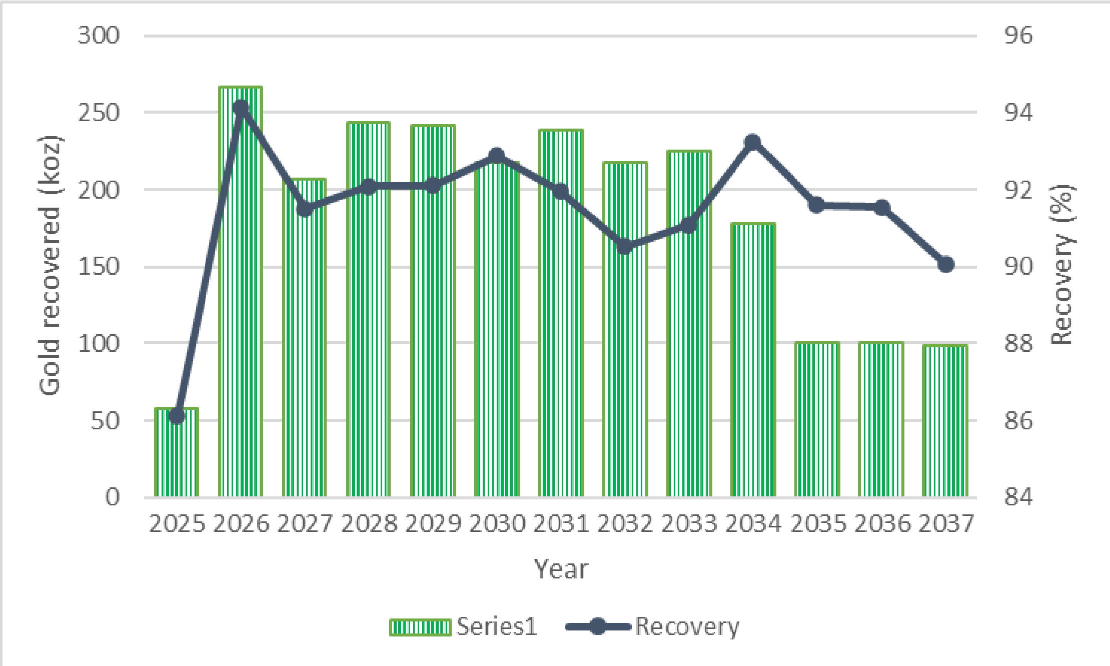
Mining is scheduled to begin in Q2 2024 with stockpiling of Ashashire ore until plant commissioning in Q4 2025. Dish Mountain ore mining is scheduled to commence in Q1 2025 and stockpiled. It is forecast that there will be an ore stockpile of almost 2.9 Mt prior to the commencement of milling and will increase to 16.3 Mt in 2033 and decrease during the final four years whilst the low-grade stockpile is consumed. Figure 17.2 shows the annual processing schedule for Kurmuk.

Figure 17.2 Kurmuk annual processing schedule



Source: Kurmuk FS, December 2022

Figure 17.3 Annual gold recovered and gold recovery



Source: Kurmuk FS, December 2022

17.5 Energy, water and process consumables

17.5.1 Energy

Power supply is discussed at Item 18.4. Power demand for the operation is estimated at an average of 21.4 MW for mine services, processing and the accommodation village. A maximum demand is calculated at 28.9 MW, with the largest single loads being the SAG and ball mill.

17.5.2 Water

The process plant water balance developed by Lycopodium shows that 1.71 Mm^3/a is typically required when treating fresh ore (83% of the Mineral Reserves) peaking at 2.87 Mm^3/a when treating oxide ore, inclusive of 40 m^3/h for dust suppression.

A site water balance, based on the operating hourly water demand for the future steady-state operation and seasonality, was established by Knight Piésold to size the water supply dam, which is discussed in Item 18.6.

17.5.3 Reagents and consumables

Table 17.1 summarizes the consumption of reagents and consumables in the future plant based on metallurgical testwork.

Table 17.1 Consumption of key reagents and consumables (kg/t)

Reagents & consumables	Dish Mountain				Ashashire			
	Oxide-Transition	Chert	Pelite	Mafic	Oxide-Transition	Granite	Pelite	Mafic
Lime	1.02	0.31	0.48	1.46	2.86	1.24	1.70	1.81
Sodium cyanide	0.36	0.25	0.25	0.27	0.29	0.25	0.25	0.29
SMBS	0.2	0.19	0.19	0.19	0.2	0.18	0.17	0.23
Copper sulphate	0.1	0.13	0.13	0.13	0.1	0.13	0.13	0.13
Carbon	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
SAG mill balls	0.18	0.4	0.22	0.33	0.25	0.36	0.4	0.32
Ball mill balls	0.51	0.92	0.49	0.46	0.47	0.66	0.54	0.48

Source: Allied, 2022 FS, December 2022

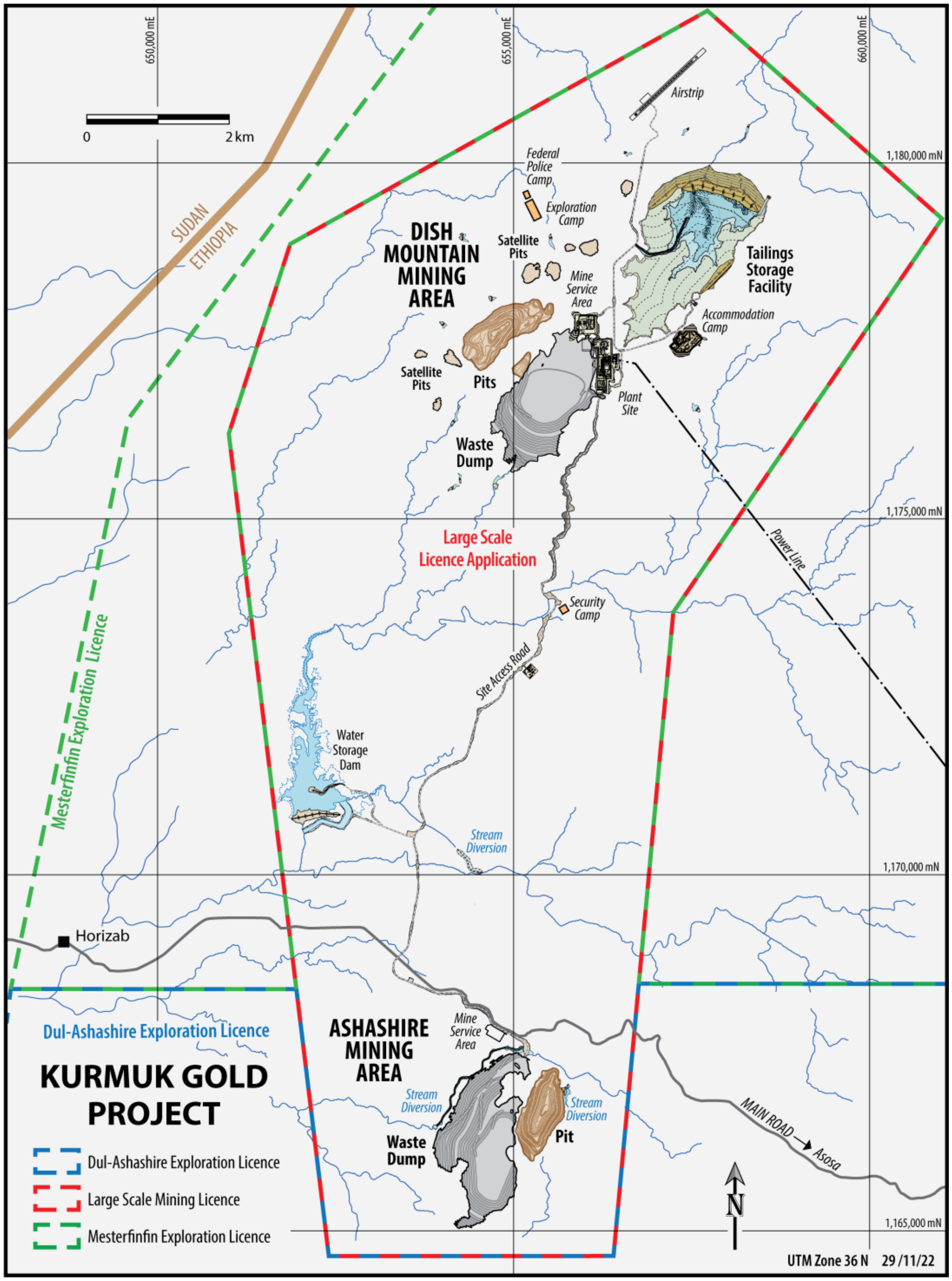
17.6 Product quality

The doré to be produced at Kurmuk is likely to contain between 90% and 95% gold with silver plus minor quantities of base metals. It is assumed that the doré will be shipped to Rand Refinery in South Africa, but this decision may be reviewed during future studies or project execution.

18 PROJECT INFRASTRUCTURE

The relative positions of the Dish Mountain and Ashashire mining areas are shown in Figure 18.1. The top of the Dish Mountain deposit, known as Radio Hill, has an elevation of 1,250 masl. Ashashire is expected to be mined between 950 masl and 1,040 masl. Other noteworthy areas are the road delineation (red line to main operating and dedicated areas), the incoming powerline (black line from the southeast), the existing main road/regional public highway (solid black line) north of the Ashashire mining area, and the proximity to the border with Sudan to the west and northwest.

Figure 18.1 Dish Mountain and Ashashire site layout



Source: Allied, 2022 FS, December 2022

18.1 Process plant layout

The process plant is located adjacent to the Dish Mountain waste dump on top of a ridge in order to minimise earthworks and haul distances from the Dish Mountain pit exit. There is a suitable TSF site close to the Dish Mountain plant. In addition, the process plant infrastructure is about 10 km from the closest population centres, reducing security and social risks. Allied also considered it safer to haul ore up from Ashashire, and not down.

The site geotechnical investigation shows relatively low plant foundation settlements are expected with compressible soils observed to shallow depths of 2.5 m to 3.0 m, overlying weathered rock layers and deep groundwater tables.

18.2 Tailings storage facility

Knight Piésold was commissioned by Allied to undertake the design for the TSF in the 2022 FS. In lieu of Ethiopian design guidelines, the 2019 ANCOLD Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure (2019 ANCOLD Guidelines) were used for the design of the Kurmuk TSF.

A site selection study was undertaken by Knight Piésold that entailed the review and assessment of three candidate sites (Knight Piésold, 2019) which were shortlisted from the six locations investigated by SRK in 2017 and 2018. A detailed geotechnical investigation was completed in the 2022 FS, which comprised core drilling and standard penetration tests, test pit excavation, laboratory and in-situ testing.

Physical testing was undertaken on tailings samples originating from Dish Mountain and Ashashire. The samples were tested at 60% solids by weight, representative of the expected tailings stream.

Testwork results indicate that the expected release of supernatant water is between 25% and 35% of the water in the slurry, with seepage into the underdrainage system expected to be between 5% and 10% of water in the slurry. Although laboratory results indicate typically expected settled densities ranging from 1.2 t/m^3 to 1.6 t/m^3, an overall final dry density of 1.35 t/m^3 is expected, which is considered acceptable. Lower densities are expected for the oxide material. The achievable dry densities are dependent on climatic conditions, the deposition plan and execution thereof.

Both the tailings and waste rock were found to be largely non-acid forming (NAF) due to the presence of significant acid neutralising capacity. Decant from the TSF is anticipated to be of neutral to alkaline pH, but of poor water quality due to the presence of cyanide, sulphate and soluble metals and metalloids (copper, mercury, iron, molybdenum and zinc). The current TSF mitigation and design measures are considered adequate (e.g. basin liner system, underdrainage system, leakage collection and recovery system) to reduce seepage to groundwater resources. A composite cover system may be required on closure.

The Kurmuk TSF is planned as a valley impoundment with multi-zoned, earth-fill embankments (Figure 18.1). The facility will have a total footprint area (including the basin area) of approximately 97 ha for the Stage 1 TSF, and a final footprint of 274 ha. The total capacity of the TSF is 58 Mt of tailings with the flexibility of additional storage with further possible expansion.

A number of seepage control and underdrainage collection measures have been integrated into the design of the TSF. These measures allow for higher quantities of return water and increased settled tailings density and ultimately leading to improved TSF stability.

The TSF has been designed with sufficient capacity to contain the design criteria storm events and rainfall sequences (average recurrence interval of 100 years). Under normal operating conditions, with the TSF managed in accordance with standard operating procedures, no discharge from the TSF is expected. In the event of storm depth that exceeds that of the design criteria storm depths, an engineered spillway has been designed to discharge supernatant and storm water and protect the integrity of the TSF embankments.

The decommissioned TSF surface will be shaped to shed water. To ensure free draining of the closure surface, a closure spillway will be constructed by excavating a channel from the lowest point of the final tailings beach (in the central southern valley), through the southern ridgeline to discharge into the adjoining catchment to the south of the TSF. The closure spillway will allow conveyance of probable maximum precipitation storm events without any attenuation on the TSF.

Tailings deposition will occur from the TSF embankment and saddle dam. The method of deposition will comprise sub-aerial deposition via multiple spigots along the deposition areas. This should promote maximum removal of water from the tailings and increase the settled density of the tailings.

The stability assessment shows suitable factors of safety have been included to meet ANCOLD design standards. Seepage modelling for the TSF will be undertaken during the next design phase, with input from the geotechnical investigation.

A dam break assessment was completed for the Kurmuk TSF in accordance with the requirements of the ANCOLD (2019) and GISTM (2020) guidelines:

- The assessment showed that the tailings solids would travel 3–4 km downstream and would not impact downstream communities.
- The Severity Level would be “Major”, primarily due to the business impact and reputation to the company due to extreme discontent resulting in an ANCOLD dam failure consequence category of “High C”. The GISTM consequence classification would be “High”, due to the potential loss of life and the economic and environmental consequences of a solids breach.

18.3 Waste rock dumps

The planned waste dumps are located east of the Dish Mountain open pit and west of the Ashashire open pit as shown in Figure 18.1.

The topography surrounding the waste dump areas is undulating and rugged with many gorges which can be expected to act as water channels during the wet season. Knight Piésold reviewed the waste dump designs and recommended several measures to ensure dump stability. These included the removal of soft, organic or saturated cohesive soils from the dump footprints, adequate basal drainage, creation of alternate drainage channels and toe erosion protection with coarse waste being placed around the perimeter and ongoing stability monitoring. Catchment of waste dump runoff may be required for sediment control. At Ashashire, numerous artisanal shafts with depths to 6 m are located south of the proposed waste dump. These need to be identified and backfilled before waste dump construction.

Waste dump construction is based upon 37° face angles, 10.0 m lifts and berm widths of 19.5 m. These parameters enable the creation of a continuous 17° slope on the final landform.

18.4 Power supply

Ethiopian Electric Power (EEP) is responsible for the management of the National Interconnected Transmission System in Ethiopia. Clause 18.6 of the Development Agreement states that the Ethiopian Government is responsible for building the high voltage power supply.

Power demand for the operation is estimated at an average of 21.4 MW for mine services, processing and the accommodation village. A maximum demand is calculated at 28.9 MW, with the largest single loads from the SAG and ball mill.

Allied engaged ECG Engineering (ECG) for the design of the power supply system. During 2022, ECG in conjunction with EEP confirmed the following scope of work:

- Extending the 132 kV busbar at Asosa Substation, installing a 132 kV line feeder bay and line protection at the Asosa Substation.

- Construction of 72 km of 132 kV single circuit lattice tower transmission line to the mine site. The powerline route was selected based on engineering and environmental surveys carried out since 2019. Engineering surveys were updated in 2021 to confirm the powerline route before submission of the EIA.
- The Kurmuk Substation will consist of a 132 kV single busbar system, a 132 kV line bay, one dedicated 132 kV transformer feeder bay for the mine distribution, a 15 MVar switched capacitor bank consisting of at least two stages, two 132/11.5 kV 25/33 MVA transformers, 11 kV feeders to the process plant and associated infrastructure including control room, fire protection and communication systems.
- EEP's tariff metering is on the primary side of the transformer and change of ownership at the same point. Allied is responsible for the supply and ownership of the mine's 132/11.5 kV transformers.

Power distribution at 11 kV includes 4.5 km to supply the existing exploration camp, with spur lines to the Dish Mountain mine service area (MSA), the main accommodation camp and to the decant water pumps at the TSF. The southern 11 kV powerline runs parallel to the site access road to the intersection with the regional highway, with spur lines to the security camp, the water supply dam and to the Ashashire MSA. The total length of these lines is 14.2 km.

Electricity supply through three 1 MW diesel-power generators (inclusive of a backup unit) is designed as the backup power source from the 11 kV distribution board.

18.5 Fuel storage

Two bulk 1,000 m^3 storage tanks at the Dish Mountain MSA and two 1,000 m^3 storage tanks at the Ashashire MSA have been included to provide five weeks onsite storage of fuel and lubricant.

18.6 Water supply

18.6.1 Water storage dam

The water storage dam (WSD) is located southwest of the process plant (Figure 18.1), with a surface area of 63 ha when at full supply level. The total upstream catchment area from which the WSD will receive runoff is 120 km^2, which includes the adjoining catchment area from the diversion channel.

A shortfall of process water is expected to occur under dry and average climatic conditions, which the WSD is required to provide for. A water balance indicates that construction of the WSD must be commissioned prior to the wet season in May 2024 to ensure sustained water supply for production start in the dry season.

Water will be pumped from the WSD to a modular filtration plant to the process plant at an elevation of 1,050 masl. Two vendor-package potable water treatment plants will operate to produce treated water.

Stability assessments show that the designed WSD embankment has adequate factors of safety in accordance with ANCOLD Guidelines (2019) and Canadian Dam Association Dam Safety Guidelines (2013).

Dam Breach Assessment was undertaken on the WSD based on ANCOLD (2019), to review the persons at risk, business risk and the potential environmental impact in the unlikely event of a dam failure. The ANCOLD Dam Failure Consequence Category is "High B" and was used to inform the design, in particular the overflow spillway which was designed for a 1:10,000-year event.

18.6.2 Potable water supply

Potable water will be supplied from three potable water plants, one located at the process plant, one located at the camp and one at the Ashashire MSA. The reverse osmosis systems are rated to supply at 6 m^3/h.

18.6.3 Effluent treatment

There are three sewage treatment plants planned, one at the process plant, one at the camp and one at Ashashire MSA. The containerized treatment plant will process daily sewage from the main camp site. Effluent will discharge to a leach drain system.

18.7 Site access and security

The existing site access road will be used for initial construction and project development activities. A new site access road is required from Q1 2025 to transport the haul truck trays to Dish Mountain and the mills to the process plant.

The future 12.3 km site access road connects the Dish Mountain area to the Ashashire mining area, crossing Highway 40. The road consists of two 5.5 m width running lanes, for a total formation width of 11 m, to accommodate 45-tonne trucks (Astra Euro 3) hauling ore from Ashashire to the Dish Mountain process plant as well as light vehicles, buses and delivery trucks. From the central processing area, the roads extend to the accommodation camp, TSF and airfield. The existing site access road will be used for the delivery of construction equipment, accommodation camp and mining pioneering equipment.

Site security will include fencing of the perimeter and main project areas. The entire Mining Licence perimeter will be fenced to delineate the Property. General and critical areas will be surveyed by drones. A security gatehouse at the intersection with the regional public highway will be established. Security personnel will control access to the Kurmuk operation's sites and manage traffic to minimize interactions between heavy and light vehicles.

18.8 Accommodation and medical facilities

Permanent accommodation will be constructed on site to accommodate 798 personnel in the main camp and 178 personnel in the separate security camp which provides 976 beds in total, which is lower than the peak manning of 925 in 2030 during the operational phase. The capital cost estimate includes costs for contractors to provide their own accommodation. Bunk beds will be provided in the permanent accommodation during the construction phase to reduce capital costs. To further reduce capital costs and installation, all permanent buildings will be constructed using a "modular disassembled container" methodology. All modules have the same basic container frame and interchangeable panels for walls. This provides significant flexibility in both size and shape and can be reconfigured later if required.

A clinic for emergency response facility is included. Injury cases requiring extended or more intense medical treatment will be transported to specialist medical facilities in Addis Ababa via the onsite airstrip. The mine will not be providing primary health care in competition with the local doctors.

18.9 Support infrastructure and auxiliary facilities

Support infrastructure will include administration buildings and offices, electrical switch rooms, a control room, change rooms, mining and process plant workshops, a laboratory, a clinic, an airstrip and a private custom (inland) port with a line weighbridge and an accommodation village.

Most buildings will be prefabricated modular and transportable units placed on paved platforms. Minimum fall and drainage channels will be positioned to collect stormwater and channel it away from buildings. A converted shipping container will be used for offices during the construction phase.

All mine, process plant and administration communications will be performed over radio-based options for the management offices, the mine site and process plant, security and emergency. The site is currently connected to the global communications network via a Geostationary Earth Orbit satellite link rated at 2 Mb/s up and down. This system connects to the main server located in the exploration administration building and provides data and phone connections using Voice over Internet Protocol (VOIP). The existing system will be used during project establishment. From Q3 2023 a Medium Earth Orbit satellite service is proposed which is capable of a link rated at 50 Mb/s.

Sterilization drilling has been completed for the accommodation camp, process plant and Dish Mountain MSA, TSF and Dish Mountain waste rock dump. Allied advises that sterilization drilling for the Ashashire waste rock dump is planned for 2023.

18.10 Logistics

The airfield will be located 4.5 km from the process plant for medivac and bullion dispatch. The airstrip was modelled for the static and dynamic loading of a Cessna Model 208 Caravan aircraft. The airfield is designed for daytime only use.

Security for the transport of the gold doré will be a combined responsibility between the Kurmuk site security and the Ethiopian Federal Police. The gold doré will be flown to Addis Ababa airport and loaded onto commercial aircraft to the destination airport.

Specialized personnel are anticipated to work on a cycle of six weeks on/three weeks off as fly-in/fly-out. These personnel will be transported to and from the mine and Asosa Airport. The airport can accommodate Boeing 767 aircraft. Ethiopian Airlines has daily (domestic) flights between Addis Ababa and Asosa. The route between the town of Asosa and the Kurmuk site is an asphalt road of approximately 100 km.

The import of equipment will take place from the Djibouti Container and Multi-Purpose Terminal at the Port of Djibouti in the neighbouring Republic of Djibouti. The Port of Djibouti also contains sufficient open and covered storage and consolidation of cargo, in the event of delays.

The route to site via Addis Ababa is approximately 1,600 km. Some diversions are required for large loads within Ethiopia to avoid low road clearances, flooding, low electrical cables, encroaching vegetation and border post remediation. It is assumed that necessary road maintenance and upgrades will be honoured by the Government of Ethiopia as per the Development Agreement. The one-way road durations, including stops at custom check points and rest periods is on average 17 days. This duration can increase to 30 days when priority imports such as aid cargo and fertiliser occur during the annual import peaks in May and June. Rail from Djibouti to Addis Ababa is proposed for the peak periods.

19 MARKET STUDIES AND CONTRACTS

Kurmuk will produce gold doré comprising approximately 80% to 90% gold. Testwork indicates that any impurities in the bars will be non-deleterious and will not adversely affect production. The doré is readily marketable on an “ex-works” or “delivered” basis to several refineries and off-takers internationally.

The refiner is typically responsible for producing gold and silver bars that satisfy the London Bullion Market Association (LBMA) good-delivery standards. To satisfy these standards, the refiner must typically comply with LBMA regulations and operating practices. If the refiner under contract fails to meet these standards, a new refinery can be engaged in a reasonable time frame. Allied will not take physical delivery of the refined gold and silver bars.

Gold was one of the best performing major assets of 2020–2021 driven by a combination of high risk compounded by the COVID-19 pandemic, low interest rates and positive price momentum. By early August 2021, the LBMA Gold Price PM reached a historical high of $2,067/oz. During H2 2022, the gold price decreased to $1,650/oz due to a strengthening US dollar but has since recovered to over $1,900/oz during Q1 2023, as shown in Figure 19.1.

Figure 19.1 Five-year gold spot gold price

Source: S&P Capital IQ

The Kurmuk Mineral Reserve estimate is based on a long-term gold price of $1,500/oz and the 2022 FS economic analysis is based on a long-term gold price of $1,568/oz based on consensus estimates published by J.P. Morgan. The assumption represents the lower of the three-year trailing average price of $1,650/oz, the current spot and 2023 long-term consensus gold price of $1,686/oz.

The 2022 FS is based on owner mining with capital costs included for purchase of the mining fleet. Discussions are ongoing with mining contractors to evaluate the opportunity of contract mining to reduce capital costs. The catering and laboratory operating costs are based on budgetary proposals received during the 2022 FS with further discussions required.

As engineering definition progresses in 2023 negotiation will be carried out with experienced engineering contractors to construct the project. The 2022 FS is based on a conventional Engineering, Procurement and Construction Management (EPCM) execution for construction.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Results of environmental studies

Kurmuk lies within the immense East Sudanian Savanna terrestrial ecoregion, which stretches through eastern Sudan, Eritrea, the low-lying parts of western Ethiopia and south through southern Sudan into north-western Uganda and marginally into the Democratic Republic of Congo around Lake Albert. The Property area does not overlap with any designated or formally protected areas.

Extensive environmental and social baseline studies were undertaken to characterize the conditions at the various sites:

- Unimodal rainfall pattern, with the wet season running from May to October. There is a general trend of higher rainfall in the east.
- Largely ephemeral streams, with relatively low proportions of rainfall converting to streamflow.
- Generally good air quality in the Property area, except for particulate matter which regularly exceeds guideline values particularly during the dry season (burning and natural dust levels).
- Existing noise levels within the communities exceed the Ethiopian night-time guideline value.
- Habitats of high biodiversity sensitivity identified within the mine infrastructure area and along the powerline corridor.
- Smaller areas of degraded habitat exist closer to the villages.

Biodiversity surveys conducted across the mining licence area and surrounds found the following:

- In total, 43 terrestrial mammals were identified around the mine area, of which two are of conservation concern (the lion and lesser kudu).
- Over 300 bird species were identified, of which 11 (all large-bodied birds of prey and scavenger species) are of conservation concern, including three near endemic species and five regionally endemic species.
- A breeding and roosting colony of the critically endangered Rüppell's Vulture (*Gyps rueppelli*) is located on two inselbergs/mountains. The powerline route was adjusted to avoid this and other sensitive areas. New species were recorded in the Property area but were found to be widespread outside the area.
- The Property area may also represent part of a secondary flyway for many bird species during their autumn passage, most notably birds of prey and warbler taxa, including Willow Warbler (*Phylloscopus trochilus*), Marsh Warbler (*Acrocephalus palustris*) and Thrush Nightingale (*Luscinia luscinia*) (all Least Concern in terms of International Union for Conservation of Nature (IUCN) protection status).

The groundwater regime is likely to be controlled by faulting and shearing, and the permeability and storage of the bedrock is likely to be low with poor yields. Locally, seasonal recharge from rainfall and ephemeral streams are expected to contribute to the groundwater system. Shallow alluvial aquifers associated with streambeds may also provide a source of water into the underlying bedrock system. The level of connectivity of fresh bedrock with the overlying soil and weathered bedrock zone is considered highly variable across the mining licence area.

20.2 Waste and tailings disposal, site monitoring, and water management

20.2.1 Geochemical characterization of the waste rock

Existing geochemical results have been incorporated into the design of mine waste facilities (waste rock dumps and TSF) and water management infrastructure. Geochemical testwork has confirmed a low risk of acid generation and metal leaching.

Dish Mountain

Geochemical characterization of the waste rock at Dish Mountain included an assessment or earlier work undertaken in 2018 (SRK) and 2019 (Intertek Genalysis, Perth) plus additional work by Knight Piésold, which included acid base accounting (ABA) screening (total sulphur, total carbon and acid neutralising capacity) as well as the determination of multi-element contents and distilled water extract.

Based on the test results to date, all samples are considered to be NAF, very low to low total sulphur content and high levels of acid neutralization capacity (ANC). Accordingly, there are no specific controls required to manage acid drainage in the management of waste rock at Dish Mountain.

Multi-element analysis indicates that the samples have very low levels of element enrichment. The distilled water extract testing indicated that all samples met the reference mining release/surface water quality values for metals and metalloids, although pH was commonly out of compliance due to elevated pH (i.e. alkaline). The humidity cells results indicate that excess contact water from the waste dumps could be directly released after appropriate sediment control and ongoing water quality monitoring.

During 2021, Knight Piésold undertook similar tests on 100 samples for ABA and multi-element screening with a further 49 samples subjected to distilled water extract testing.

Generally, the results for total sulphur content were very low to low (NAF) with only three samples recording total sulphur of more than 0.3%, which is the limit often adopted for preliminary screening and identification of potentially acid forming (PAF) material. All results showed a high level of ANC due to the significant proportion of carbonate in the waste rock and strong alkalinity. Accordingly, the development of acid drainage from placement of a limited amount of PAF waste is considered unlikely. However, due to few higher sulphur results encountered, sampling and ABA screening is recommended during the ongoing exploration and production stages of the operation.

Ashashire

The results of multi-element analysis for Ashashire were similar to those for Dish Mountain indicating that the samples had very low levels of element enrichment. Accordingly, runoff and seepage flows from the Ashashire waste dump was considered suitable for release via sediment control structures, depending upon the regional pH regime and results of ongoing water quality monitoring.

Based on the multi-element results, a basic cover system of benign waste and growth medium will be utilized in rehabilitation of the Dish Mountain and Ashashire waste dumps.

Allied reports that any minor quantities of potentially acid forming materials will be placed centrally within the waste dumps with a cover system of benign waste and a growth medium use to rehabilitate the waste rock landform on closure.

Sterilization drilling of the proposed infrastructure sites, including waste dumps, process plant and TSF, remains to be undertaken. Seepage modelling for the waste rock dumps will also be undertaken during the next design phase with provision for controlled capture of runoff.

The waste rock geochemical studies have adequately identified the appropriate strategies for waste dump design including provisions for the management and safe discharge of contact water.

20.2.2 Water management

The WSD is designed to store sufficient water to sustain the operation and to typically overflow each wet season. In the main Kutaworke River channel, the annual average runoff volume is expected to reduce by approximately 3%. The potential magnitude of this impact is unknown, as the presence of the WSD will also provide low flow seepage throughout the year. The impact on recharge of the alluvial aquifer will be monitored through the construction and operation phases.

The TSF and WSD are located 12 km and 20 km upstream of the Sudan-Ethiopia border, respectively. Modelling has been undertaken to evaluate the potential for transboundary impacts associated with these facilities under normal conditions and the unlikely event of catastrophic failure. Under normal operating conditions, the reduction in transboundary flow because of the WSD is expected to be minimal. Modelling of catastrophic failure of the TSF shows the potential solids inundation extent would not reach the Sudan border or any downstream villages.

Further details on the plans for waste disposal and water management are disclosed in Item 18.

20.3 Approvals and permitting

Two EIA processes, producing two ESIAs were conducted for the project in accordance with the provisions of the EIA Proclamation No. 299/2002; one for the mine-related infrastructure and the other for the powerline corridor. The ESIAs were approved with Environmental Clearance Certificates received in September 2021 and April 2022, respectively.

The ESIA report and subsequent EIA licence is required to accompany the application for a mining licence in terms of the Mining Operations Proclamation No. 679/2010 (as amended) and the application for a transmission licence in terms of the Electricity Proclamation No. 810/2013. With the approval of the mine related ESIA, the mining licence was granted in September 2021.

Some of the key features of the approvals include:

- Allocation of funds for rehabilitation of environmental impacts. A conceptual closure plan has been submitted with the ESIA. Allied has made provision for this in the financial model.
- Preferential employment of Ethiopian nationals and preferential procurement of goods and services from Ethiopia. Allied has made provision for training of the workforce in the capital and operating cost estimates; operating cost estimates for the 4 Mt/a project indicate that >$25 million per annum is sourced from within Ethiopia.
- Participation in community development activities for people within the Property area, including allocation of funds for these activities. Allied has made provision for this in the financial model.
- Written consent from owners or occupants of the land to use the land, including compensation for the use of the land.

The permits and authorizations listed in Table 20.1 have been approved for Kurmuk.

Table 20.1 Existing approvals

Reference number	Detail	Approval date	Expiry date
N/A	Development Agreement	30 Sep 2021	29 Sep 2041
MOM/LSML/1732/2021	Mining Licence for Kurmuk Gold Project	30 Sep 2021	29 Sep 2041
9/11/5300/14	Environmental Clearance Certificate for implementation of the Kurmuk Gold Project	10 Nov 2021	N/A
9/11/8082/14	Environmental Clearance Certificate for implementation of the Kurmuk-Asosa transmission line	4 Apr 2022	N/A
9/11/3565/13	Environmental Clearance Certificate for implementation of exploration activities in the Mestefinfin area	24 Aug 2021	N/A
9/11/3566/13	Environmental Clearance Certificate for implementation of exploration activities in the Abetselo area	24 Aug 2021	N/A

In terms of Proclamation 1161/2019 (Expropriation of Land Holdings and Payment of Compensation), formal acquisition of land held by individuals or private organizations will be required along sections of the powerline corridor as well as compensating Woreda administrations for use of communal common land.

The following regulatory permits/approvals are required to be in place, prior to construction and operation:

- Water Resources Management Proclamation No. 197/2000. Permits are required for water use, discharge to water resources and works within a watercourse.
- Research and Conservation of Cultural Heritage Proclamation No. 209/2000. Written approval needs to be obtained for the removal of any cultural heritage.
- The Proclamation also requires the preparation of an emergency response system and implementation of an internal environmental monitoring system. An emergency response system has been committed to in the ESIA and Environmental and Social Management Plan.
- Environmental Pollution Control Proclamation No. 300/2002. Permits are required for the management of certain types of wastes, including effluent. Solid Waste Management Proclamation No. 513/2007. Permits are required for the collection, transportation, use or disposal of solid waste. A waste management plan has been committed to in the ESIA and Environmental and Social Management Plan.
- Ethiopian Building Proclamation No. 624/2009. Approvals are required for building construction works, which applies to the construction of on-site offices and other buildings, as well as the buildings within the accommodation camp.
- National Intelligence and Security Service Re-establishment Proclamation No. 804/2013. Permits are required to import, use and dispose of explosives.
- Radiation and Nuclear Protection Proclamation No. 1025/2017. Approvals are required to import, transport, export or dispose of a radiation source.

20.4 Social and community related requirements

20.4.1 Archaeology and cultural heritage

The two main categories of archaeological sites across the study area include village ruins/structures and burial markers. Numerous village ruins/structures, represented by standing stones, are located within the Property as the area was previously inhabited by the Fadish (a clan of the Berta ethnic group). Burial sites/markers include common graves (Islamic graves) and those belonging to village elders or religious fathers.

Within the study area for the mine-related infrastructure, 72 village ruins/structures (including artefacts such as hand mills, querns) and 21 burial sites/markers were identified. Within the study area for the powerline corridor, six village ruins/structures and 22 burial sites/markers were identified. These are mostly considered to have heritage significance. Surveys have confirmed a more widespread distribution of these sites beyond the project footprint. An appropriately qualified archaeologist has confirmed suitable measures to mitigate impacts on these sites.

20.4.2 Community

The closest communities to the Dish Mountain deposit are Horizab (Kutaworke), Ambenzibene, Besher and Kurmuk, approximately 8–10 km from the proposed pit and process plant, and 3 km west-southwest of the WSD. The closest communities to the Ashashire deposit are Ashashire (4 km southwest of the proposed pit), Agobele and Famats'ere, approximately 7–8 km east of the Ashashire deposit. Approximately 9,800 people reside within the area of influence of the mine-related infrastructure.

The ethnic composition of the Asosa area is dominated by the Berta (60%), Amhara (25%) and Oromo (11%). The main ethnic group of the Kurmuk area is Berta.

The powerline corridor passes through 17 kebeles (smallest community unit), including Dilashe and Agobele, making up approximately 24,000 people residing within the area of influence of the powerline corridor.

No physical relocation of communities is required for the operation; however, a recent engineering survey for the revised powerline route to avoid areas of environmental sensitivity has identified 10 building structures that may need to be relocated. Provision has been made for the compensation of individuals affected by economic displacement. A Resettlement Policy Framework is a component of the approved ESIA to address areas of economic displacement. Resettlement planning activities will commence following receipt of the EIA licence, with the preparation of a Resettlement Action Plan.

Communities in the mine and powerline area are characterized by mixed livelihoods largely reliant on the surrounding natural resources, including farming, livestock production, harvesting of plants and gum, and artisanal gold mining. The project-affected kebeles can be considered vulnerable, due to widespread poverty, dependence on natural resources, low levels of education and restricted access to basic infrastructure and services.

20.4.3 International good practice

The ESIA was developed to meet Ethiopian legislative requirements and to align with international good practice. Ethiopia does not recognise any indigenous populations; however, a substantial proportion of the population within the project-affected kebeles are Berta who, under international guidelines, are considered indigenous.

Allied has a framework health, safety, environment and community (HSEC) management system in place that was developed in accordance with international good practice, underpinned by corporate policies including a Code of Conduct, HSEC Policy, Recruitment Policy and Human Rights Policy. Allied advises that the management system and policies will be applied to Kurmuk, to incorporate requirements of permits/licences as well as impact mitigation and management measures identified during the EIA process.

A Stakeholder Engagement Plan has been compiled for the project and documents the strategy for its current project-related engagements (during and beyond the EIA process). Two Community Liaison Officers have been involved in ongoing engagement and are supported by senior management. The Stakeholder Engagement Plan includes a grievance mechanism.

20.5 Closure requirements and costs

A preliminary estimate of the anticipated mine closure costs was developed by Kewan Bond Pty Ltd to cover future liabilities for disturbed areas, infrastructure and mine closure. The estimated cost for rehabilitation and closure is $27 million (as of 31 December 2022), including a 15% contingency. Allied will be required to deposit funds annually into an escrow account, with the total amount being divided by the agreed licence period to determine the annual payment required. The financial model makes provision for a $2.2 million annual payment from 2026 to 2037.

20.6 Other key challenges and mitigation

- Habitats of high biodiversity sensitivity: Biodiversity surveys confirmed that while some of the previously recorded taxa (frog, dung beetles and a scorpion) may be new species (or subspecies) they are also widespread outside the Property area. Biodiversity surveys were undertaken in the Ashashire area in 2020 and 2022. Work is ongoing to export tissue samples for genetic sequencing.
- Ethnic tensions: The ethnic composition of the Asosa zone is dominated by the Berta; however, within the Asosa Woreda the Amba kebeles are dominated by the Amhara. Scoping stakeholder engagement activities exposed underlying ethnic tensions between the Asosa Woreda and Amba kebeles in relation to access to project-related benefits. Given the increasing inter-ethnic tensions within Ethiopia generally, KGM arranged targeted meetings with officials and engagement with stakeholders. As the operation progresses, it will be important to clearly demonstrate there is fair access to project benefits across the wider ethnic groups.
- Economic displacement: Most households have a diverse portfolio of livelihood activities reliant on the surrounding natural resources (i.e. agriculture, artisanal mining, gum collection, wood for energy, construction etc.). Within the mining licence, access will be limited to the infrastructure zones; beyond that existing subsistence-based activities can largely continue within the licence area. A land acquisition and compensation process will be initiated in 2023, with a livelihood restoration program to be implemented.
- Expectations for direct employment and community development: Local communities have high expectations in terms of the level of employment and community development that will result from the operation. The mine will proactively engage with stakeholders on an ongoing basis to manage expectations.
- Sites of archaeological significance: Several sites of archaeological significance are within the current footprint of the mine-related infrastructure; however, further surveys across the wider area have confirmed a more widespread distribution of these sites beyond the operation’s footprint. An archaeologist has confirmed appropriate measures.
- Air quality and noise: Existing dust and noise at nearby sensitive receptors exceeds guideline levels. An appropriate monitoring program is required pre-implementation to enable the identification of mine-related contributions to dust and noise levels.

21 CAPITAL AND OPERATING COSTS

Kurmuk is currently at a feasibility level stage of assessment. The 2022 FS considered only Proven and Probable Mineral Reserves with Inferred Resources treated as waste. The base date of the capital cost and operating estimates is the second quarter of calendar year 2022 (Q2 2022). Pre-production capital costs (September 2023 to September 2025) are summarized annually in Table 21.3 and Table 21.4.

21.1 Capital costs

Capital costs (capex) total $717.18 million, comprising pre-production capital of $499.36 million, sustaining capital of $190.86 million and closure costs of $26.96 million. Capital costs include a contingency of $71.89 million (equivalent to 11% of capital costs).

The mining fleet costs were sourced from a local supplier who provides mining equipment to the region. The major mining equipment items comprise Komatsu trucks and excavators and Epiroc drills. Capital purchase costs also include initial financing costs, including assignment fees, legal fees, and other related costs. The majority of the major equipment items (trucks/excavators) will not be replaced; however, other pieces of equipment such as drills, dozers and graders will be replaced during the mine life. A residual equipment value has not been applied as part of the cost estimate.

General arrangement drawings and 3D models were produced with sufficient detail to permit the assessment of the engineering quantities for the process plant and infrastructure. Unit rates were established for bulk commodities, materials and labour that were based on budgetary tenders received from international contractors. Capital equipment pricing was based on project specific budget quotation requests for major equipment and database pricing for the balance. Approximately 87% of the plant and infrastructure pricing was derived from budgetary pricing.

The capital expenditure estimate for mining is reported to be estimated at an accuracy of ±15%.

21.1.1 Pre-production capital

The pre-production period is 25 months from September 2023 to September 2025.

Pre-stripping costs total $40.17 million for 13.0 Mt to uncover sufficient ore to sustain the process plant when it commences operation. Pre-stripping costs were developed as part of the mining schedule using first principles owner mining costs.

The initial cost for the mining fleet is $52.59 million for the heavy fleet purchases and ancillary mining equipment. Pre-production mining infrastructure ($15.39 million) includes earthworks for laydown areas, workshops and other support facilities for the mining fleet.

The pre-production capital cost for the gold plant and infrastructure is $348.01 million and was developed in detail by Lycopodium and other consultants. The capital cost includes the following items:

- Process plant and infrastructure ($247.88 million)
- Site access road ($26.17 million)
- Airstrip ($2.28 million)
- Water supply dam ($16.31 million)
- TSF including the initial starter embankment construction, tailings pipeline and the decant system and annual embankment raises ($25.18 million)
- Permanent accommodation upgrades ($19.86 million)
- Pre-production general and administration ($10.32 million).

There is a pre-production contingency provision of $43.21 million. The accuracy of the Lycopodium estimate is stated as being ±15%. The capital cost estimate has been analyzed using Monte Carlo simulation which demonstrated that the estimated expenditure has an 80% confidence level. The analysis indicates that the contingency provision will be spent. The use of Monte Carlo simulation to assist in estimating contingency is considered best practice.

21.1.2 Sustaining capital

The sustaining capital period is from October 2025 to 2037. An additional $78.05 million of sustaining capital is required to purchase trucks and loaders as the pits deepen and the stripping ratio increases, and to replace ancillary equipment.

From 2026 to 2036, there is a $3.5 million annual sustaining cost allowance for the process plant and infrastructure. A further $49.4 million is provided for TSF raises and closure. There is a total contingency of $24.90 million allowed for between 2025 and 2027.

21.1.3 Mine closure

The mine closure cost, including contingency, is $27 million as discussed in Item 20.5.

21.2 Operating costs

The LOM operating costs (opex) are summarized annually in Table 21.4 and are expressed in real, un-escalated United States dollars ($). It is noted that the pre-strip costs of $40.17 million will be capitalized and are included in both Table 21.3 and Table 21.4.

21.2.1 Mining

The mining operating cost estimates assumes an owner mining strategy with Allied undertaking all mining activities, including mine management, technical services, mine operations, maintenance and supervisory functions.

The mine cost model is based upon the mine schedule and a first principles costing of the key inputs and is reported at a feasibility study level of accuracy (±15%). Total mining operating costs are estimated at $918.3 million. Unit costs are: $4.47/t ore mined; $2.46/t waste mined; $2.78/t of total material mined, or $3.16/t of total material mined including mine capital.

The mining operating costs are based on:

- Loading, hauling and support equipment costs utilising first principle productivity calculations.
- Drilling and blasting costs derived by utilising costs from a local supplier and applying explosive powder factors and associated blast hole patterns from the consultant's database.
- Allowance for clearing and stripping based on first principle calculations.
- Labour costs including fixed overheads of the Management and Technical Services group plus a core operations and maintenance team and a variable component for operators and maintenance personnel based on equipment hours and working arrangements. There is a maximum mining head count of 543 in 2028 and 2029.
- Ancillary fleet costs and fixed costs for general and office consumables.
- A fuel cost of $0.75/L.

A summary of the unit operating costs by activity over the LOM is shown in Table 21.1.

Table 21.1 Mining unit operating costs summary

Activity	LOM average cost ($/t mined)
Loading	0.13
Hauling	0.62
Support	0.19
Grade control	0.02
Drilling	0.50
Blasting	0.53
Clearing/roads/rehabilitation	0.03
Personnel	0.40
Overheads	0.14
Dewatering	0.01
Ore rehandle	0.05
Ore haulage	0.15
Total mining	**2.78**

Source: Allied, LOMP, 2022

The overall unit rates benchmark reasonably well with experience of operations utilising similar sized equipment in Africa.

21.2.2 Processing

The LOM operating cost for the process plant is estimated at $489.9 million, equivalent to a LOM average cost of approximately $9.30/t milled. About 40% of the process cost is fixed and the balance is a variable cost.

The operating costs were developed in detail by Lycopodium and used power requirements and reagent consumptions for the different deposits and associated lithologies, with the average cost being a tonnes-weighted average from each lithology and deposit. Process costs were then applied, by rock type, in Orelogy's processing schedule.

The range of operating costs is $8.23/t for Dish Mountain oxide up to $10.20/t for harder ore from Ashashire, averaging $9.34/t processed over the LOM.

The unit power cost used in the 2022 FS is $0.04/kWh (inclusive of fixed charges) due to hydropower generation. The average power consumption for the process plant is approximately 20.2 MWh (including milling).

The summary of the unit operating costs for the average of the different sources of material for the plant are presented in Table 21.2.

Table 21.2 Kurmuk processing plant unit operating costs

Cost centre	LOM average ($/t processed)
Power	1.55
Operating consumables	4.76
Maintenance materials	1.32
Laboratory	0.38
Process and maintenance labour	1.33
Total processing	**9.34**

Source: Allied, LOMP, 2022

The labour provision is 137 persons for the management, supervision, operations and maintenance of the process plant and laboratory.

21.2.3 General and administration

Total general and administration (G&A) costs are $15 million per annum ($3.48/t processed) and cover all key administrative aspects.

The Government royalty was determined at 5% of revenue from the Development Agreement framework. Royalties are deducted from taxable income.

The Community Development Fund is 2% on net profit or operating cost expenditures from the Development Agreement framework.

Marketing and selling costs are $5/oz, which includes the cost of transport and refining costs of the recovered gold at the Rand Refinery in South Africa.

Table 21.3 Kurmuk 2022 FS capital costs

Capex item	Unit	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Pre-strip	$M	**40.17**		10.42	29.75												
Mining fleet	$M	**52.59**	3.12	24.49	24.98												
Mining infrastructure	$M	**15.39**	2.31	13.08													
Plant and infrastructure	$M	**348.01**	14.28	223.05	110.68												
Contingency	$M	**43.21**	1.73	28.74	12.75												
Subtotal – pre-production	**$M**	**499.36**	**21.44**	**299.77**	**178.15**												
Sustaining																	
Mining	$M	**78.05**			17.03	18.31	1.12	7.71	9.84	12.36	5.28	1.28		5.11			
General	$M	**38.5**				3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
TSF Raise	$M	**49.41**				4.19	3.38	3.46	3.43	3.13	3.27	3.45	3.7	3.48	3.63	3.79	10.5
Contingency	$M	**24.89**			2.56	3.9	1.2	2.2	2.52	2.85	1.81	1.23	1.08	1.81	1.07	1.09	1.57
Subtotal – sustaining	**$M**	**190.86**			**19.59**	**29.9**	**9.21**	**16.88**	**19.29**	**21.84**	**13.86**	**9.46**	**8.28**	**13.9**	**8.2**	**8.38**	**12.07**
Closure																	
Closure provision	$M	**23.17**				1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
Contingency	$M	**3.79**				0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Subtotal – closure	**$M**	**26.96**	**0**	**0**	**0**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**	**2.25**
TOTAL – FS CAPITAL	**$M**	**717.18**	**21.44**	**299.77**	**197.74**	**32.15**	**11.46**	**19.13**	**21.54**	**24.09**	**16.11**	**11.71**	**10.53**	**16.15**	**10.45**	**10.63**	**14.32**

Table 21.4 Kurmuk FS operating costs

Opex item	Unit	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Mining	$M	**918.28**		10.42	47.59	97.41	107.10	108.17	113.53	112.35	93.85	89.79	74.51	34.49	11.68	8.93	8.47
Processing	$M	**489.93**			9.29	41.73	39.99	40.08	40.21	40.45	40.02	39.30	39.20	39.61	40.23	40.33	39.49
G&A	$M	**183.57**			3.78	14.98	14.98	15.02	14.98	14.98	14.98	15.02	14.98	14.98	14.98	15.02	14.93
Royalties	$M	**223.93**			5.28	24.46	19.21	22.78	22.77	20.84	22.27	20.44	20.77	16.75	9.46	9.33	9.20
Selling	$M	**11.95**			0.29	1.33	1.03	1.22	1.21	1.09	1.19	1.09	1.13	0.89	0.50	0.50	0.49
Total	**$M**	**1,827.67**		**10.42**	**66.22**	**179.92**	**182.30**	**187.26**	**192.70**	**189.71**	**172.30**	**165.64**	**150.57**	**106.72**	**76.84**	**74.11**	**72.59**

22 ECONOMIC ANALYSIS

22.1 Basis of analysis

The Kurmuk 2022 FS financial model (the Financial Model) summarizes the annualized LOM plan with inputs derived from detailed mine planning, monthly schedules, capital costs and operating costs. The model aligns to the key inputs as described in this Technical Report that underpin the overall project plan and is based on Proven and Probable Mineral Reserves only.

The Financial Model was valued on a discounted cash flow (DCF) approach.

22.1.1 Macro-economics and project fundamentals

The Financial Model is based in real US$ terms. The model excluded any funding, debt, transaction or shareholder costs and thus represents the standalone, ungeared operational value of the proposed Kurmuk operation on a 100% equity basis. There is a 7% minority shareholding in the Property required by the Ethiopian Government, but distributions made to shareholders are only made from positive free cash flows.

While certain costs such as local labour are likely to be priced in local currency (the Ethiopian Birr), it is recognized that most costs will be US dollar denominated or linked.

A discount rate of 5% was applied to the Financial Model. The base date of cost input assumptions in the Financial Model is Q2 2022. Mining pre-stripping commences Q2 2024 and gold production starts in Q4 2025.

A long-term gold price of $1,500/oz gold price was used for the Mineral Reserve estimate. Allied's economic analysis was based on a $1,675/oz gold price in 2025 and a long term forecast of $1,568 /oz from consensus estimates published by J.P. Morgan as summarized in Table 22.1.

Table 22.1 Allied gold price forecast

Unit	2025	2026+
$/oz (real)	1,675	1,568

The gold inventory lockup within the process plant at the start of production has been estimated at 3,700 oz and is accounted for in the Financial Model.

22.1.2 Taxes, royalties and selling costs

Cash flows have been calculated using a 25% Ethiopian corporate tax rate. Standard deductions, including opex, royalties, selling costs as well as capital costs have been included. Capital expenditure depreciation has been split between a fixed period depreciation of six years for sustaining capital costs and units of production depreciation for all other capital costs. Based on the cash flow profile and using the gold price assumptions, cash flows become taxable from around Q2 2028 onwards.

There is a 5% Government royalty and a Community Development Fund contribution equivalent to 2% of net profit or operating costs.

Only the gold content of the doré has been valued. Approximately 90% to 95% of the doré is gold and 5% to 10% of doré content is silver. Silver has not been included in the revenue for Kurmuk. Selling costs are equivalent to $5.00/oz.

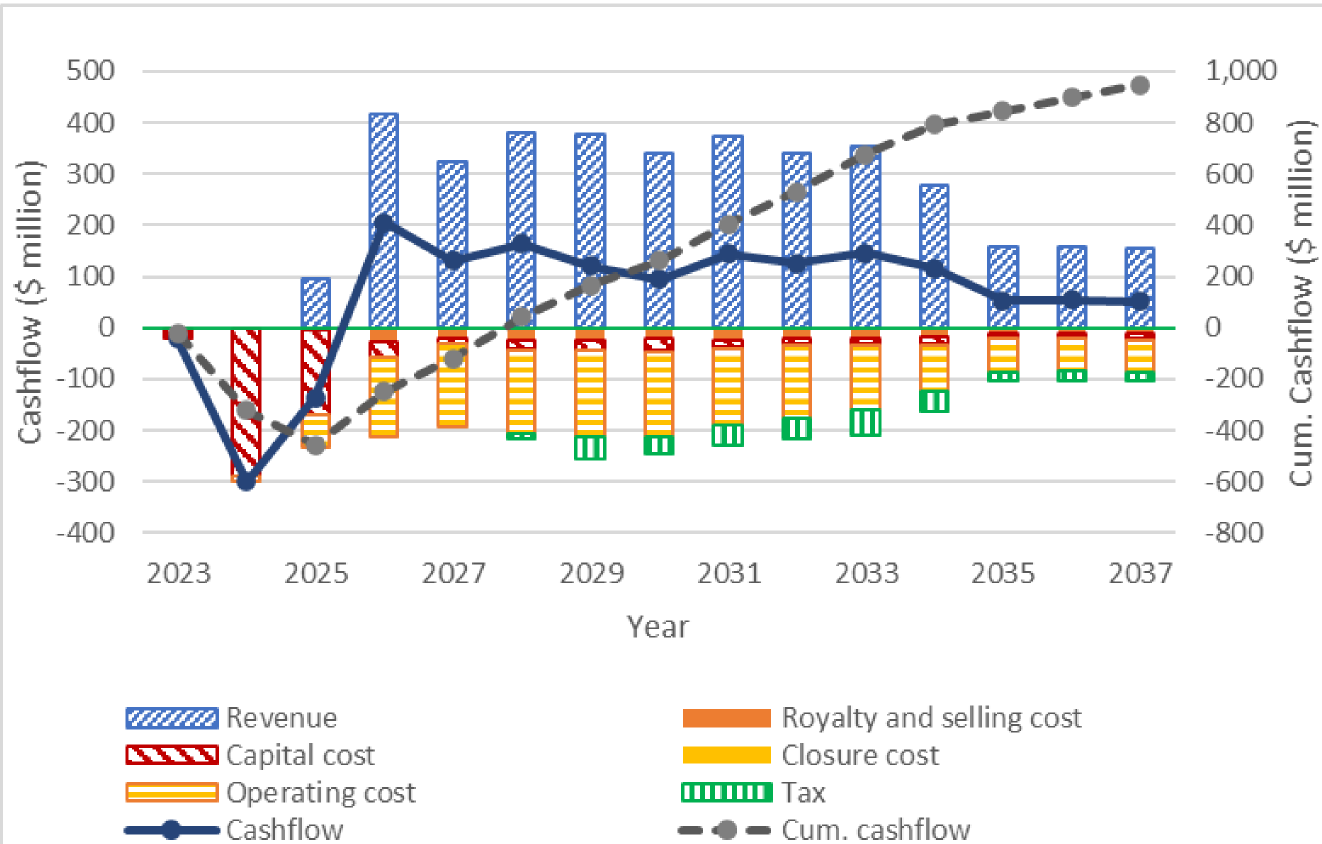
22.2 Cash flow analysis

The Financial Model provides a detailed LOM plan with inputs derived from detailed mine planning and mine costings. The models aligned to the key mining and processing metrics as described in Item 16.5. The capital and operating cost inputs used for this economic analysis are summarized in Item 21.

Figure 22.1 and Table 22.2 presents a summary of the annual cash flows for the 2022 FS economic analysis. The first capital expenditure is in September 2023. Following the initial investment period, which results in a maximum negative cash flow of $500 million in Q4 2025, payback is achieved in Q3 2028.

Based on the 2022 FS capital and operating costs, the total post-tax free cash flow of the project (100%) was estimated at $948 million or $548 million on a NPV basis using a 5% discount rate (real), with an IRR of 25%. The payback period for the Kurmuk Project is 34 months from commissioning in Q4 2025.

Figure 22.1 Kurmuk LOM cash flow summary



Source: Allied, 2022 FS, December 2022

Table 22.2 Kurmuk 2022 FS LOM financial model

Item	Unit	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034–2037
Processing														
Ore processed	Mt	**52.78**			0.95	4.76	4.18	4.15	4.21	4.31	4.34	4.12	4.17	17.59
Grade	g/t	**1.53**			2.19	1.85	1.68	1.98	1.93	1.69	1.86	1.82	1.84	0.92
Contained gold	Moz	**2.60**			0.07	0.28	0.23	0.26	0.26	0.23	0.26	0.24	0.25	518.57
Recovered gold	Moz	**2.39**			0.06	0.27	0.21	0.24	0.24	0.22	0.24	0.22	0.23	476.43
Recovery	%	**91.9**			86.1	94.1	91.5	92.1	92.1	92.9	91.9	90.5	91.1	91.9%
Gold price	$/oz	**1,571***			1,675	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1568.00
(+) Revenue	$ M	**3,754.83**			96.52	418.01	323.90	381.28	378.35	341.28	374.13	341.17	353.15	747.05
(-) Royalties	$ M	**223.93**			5.28	24.46	19.21	22.78	22.77	20.84	22.27	20.44	20.77	44.74
(-) Mining opex	$ M	**918.28**		10.42	47.59	97.41	107.10	108.17	113.53	112.35	93.85	89.79	74.51	63.57
(-) Processing opex	$ M	**489.93**			9.29	41.73	39.99	40.08	40.21	40.45	40.02	39.30	39.20	159.67
(-) G&A opex	$ M	**183.57**			3.78	14.98	14.98	15.02	14.98	14.98	14.98	15.02	14.98	59.90
(-) Selling costs	$ M	**11.95**			0.29	1.33	1.03	1.22	1.21	1.09	1.19	1.09	1.13	2.38
(-) Pre-production capex	$ M	**456.49**	21.14	289.44	145.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(-) Sustaining capex	$ M	**190.86**			19.59	29.90	9.21	16.88	19.29	21.84	13.86	9.46	8.28	42.56
(-) Closure cost	$ M	**26.96**				2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	8.99
(-) Taxation	$ M	**304.41**						10.75	42.49	32.37	42.24	38.46	47.09	91.01
(=) Net cash flow	$ M	**948.44**	-21.14	-299.85	-135.21	205.95	130.14	164.15	121.63	95.11	143.49	125.36	144.96	274.24
Discounted cash flow (5%)	$ M	**548.24**	-20.25	-276.61	-121.70	173.16	104.49	125.81	88.75	65.81	95.10	78.73	86.83	148.29

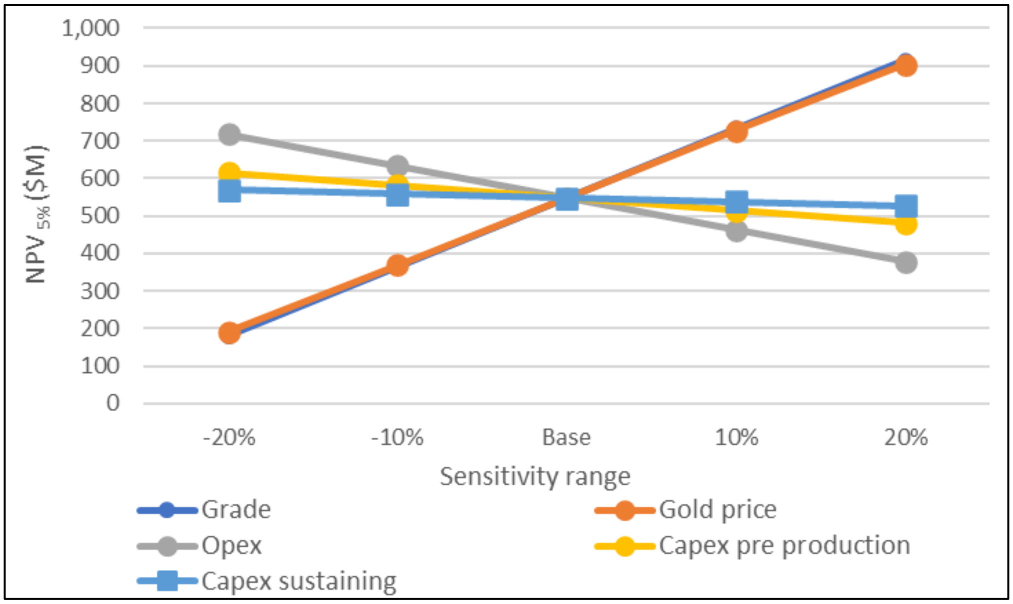
**Average gold price.*

Source: Allied, 2022 FS, December 2022

22.3 Sensitivity analysis

Sensitivity analysis for Kurmuk considered a collective of key drivers to arrive at discrete "Upside" and "Downside" value impacts. The most significant and material drivers for the project are not generally within the control of Allied but influenced by markets and geology. These include gold grade and gold price. The other key value drivers relate to operating costs (opex) and capital costs (capex) which are more controllable aspects of the project and the $NPV_{5\%}$ sensitivity. The ±20% and ±10% sensitivities of the project to discrete changes to these key value drivers are shown in Figure 22.2.

Figure 22.2 Kurmuk 2022 FS LOM $NPV_{5\%}$ sensitivity



Source: Allied, 2022 FS, December 2022

The outcome of the sensitivity analysis demonstrated that, as expected, gold price and grade represent the most significant drivers of value and risk relating to the project. However, in considering a relatively pessimistic operating environment where all key revenue drivers are collectively in a -10% downside scenario and key cost drivers increase by +10%, it is likely that Kurmuk could still generate positive cash flow, maintaining a marginally positive NPV of $69 million and IRR of 8%.

Conversely, should price (e.g. gold maintaining a value of greater than $1,800/oz (real)), there is upside potential of a total project $NPV_{5\%}$ and IRR of about $816 million and 32%, respectively.

The project shows a breakeven $NPV_{5\%}$ at a long-term gold price of about $1,000/oz. However, there are several other key factors that would impact the project, including changes in operating costs, recoveries, plant performance, capital costs as well as possible changes in the timing of the start-up/commissioning of the project that would impact value. The discount rate used in the Financial Model is 5%. The NPV of the Project at higher discount rates is shown in Table 22.3.

Table 22.3 Kurmuk 2022 FS – LOM discount rate sensitivity

Discount rate	Project NPV ($ M)
5.0%	548
7.5%	413
10.0%	306
12.5%	222

23 ADJACENT PROPERTIES

A search of the Ethiopian MoMP Cadastre identified four companies that hold exploration licences along the projected extensions of the Property. These licences are held by Sina Brothers Mining Works Plc (to the north of Dish Mountain), Empier Mining Plc (to the north and east from Abetselo), Bureka Gold Mining Plc (to the south of the Abetselo trend), and Melka Melka (south from Ashashire and Dul Mountain). No public domain technical information was located by the Qualified Person in relation to these licences.

24 OTHER RELEVANT DATA AND INFORMATION

24.1 Process plant expansion

During Q1 2023, Allied carried out engineering cost studies to evaluate upgrading the central process plant at Dish Mountain from 4.4 Mt/a to 5.4 Mt/a (a 23% increase) given the availability of stockpiled ore through the LOM and Allied's exploration strategy for the asset.

Key features of the 2023 Dish Mountain expansion studies include:

- Analysis of the 2022 FS showed that approximately 60% of the capital costs are largely fixed including the airstrip, site access road, security facilities, high voltage power supply, accommodation camps and mobile equipment.
- The 2022 FS mining and production schedule, based on Proven and Probable Mineral Reserves only, was modified to provide for a 25% production increase by depleting the low-grade stockpiles faster. The mining production schedule did not require modification and the pre-production mining costs ($108 million for pre-strip, mining equipment and mining infrastructure) are not impacted.
- Lycopodium carried out an assessment of the impact to the plant's key equipment (crusher, mills, leach tanks, elution, oxygen plant, thickeners) for a 25% expansion. The priced mechanical equipment list was updated with factored costs where appropriate.
- Knight Piésold prepared updated water balances to confirm that sufficient water supply is available to support the expansion. Capital costs for the WSD are expected to increase by 10%, partly offset by reduced excavation requirements for the spillway.
- The TSF starter costs were increased to maintain a 14-month initial life for the starter embankment.

Capital costs for the process plant expansion were estimated based upon detailed factoring of 2022 FS pre-production costs as summarized in Table 24.1. The timing of pre-production and capital costs were updated for inclusion in the Financial Model.

Table 24.1 Estimated initial capital cost for plant upgrade option compared with 2022 FS cost

Main area	Unit	2022 FS cost	Plant upgrade option
Mining	$M	**108.2**	**108.2**
Plant and infrastructure	$M	**348.0**	**366.2**
Contingency	$M	43.2	55.3
Total pre-production capital	$M	**499.4**	**529.6**

Source: Allied, Kurmuk Processing Options Assessment, December 2022

Sustaining capital costs for the process plant expansion were updated as summarized in Table 24.2. The mining costs recalculated by Orelogy were reduced for less mining fleet replacements necessary due to the shorter LOM. General sustaining costs were increased from $3.5 million to $5.0 million per annum (expanded case only). A more frequent TSF lift schedule was included in the sustaining capital costs to reflect the shorter mine life.

Table 24.2 Plant upgrade option sustaining capital cost compared with 2022 FS cost

Main area	Unit	2022 FS cost	Plant upgrade option
Mining equipment	$M	78.0	73.5
General	$M	38.5	48.8
TSF lifts	$M	49.4	49.4
Closure	$M	25.3	25.3
Contingency	$M	28.7	29.5
Total – Sustaining capex	$M	**191.2**	**197.0**

Source: Allied, Kurmuk Processing Options Assessment, December 2022

Operating costs were updated and are summarized in Table 24.3:

- Mining was largely unchanged; however, there was some reduction in the quantity of ore being rehandled
- The 2022 FS process plant fixed and variable operating cost estimate was updated for each ore type including power usage, operating consumables, maintenance costs, laboratory assays, and processing and maintenance labour
- G&A costs are fixed and therefore will reduce due to the shorter mine life.

The operating costs were incorporated into the integrated mining and processing schedule for inclusion in the upgrade option Financial Model.

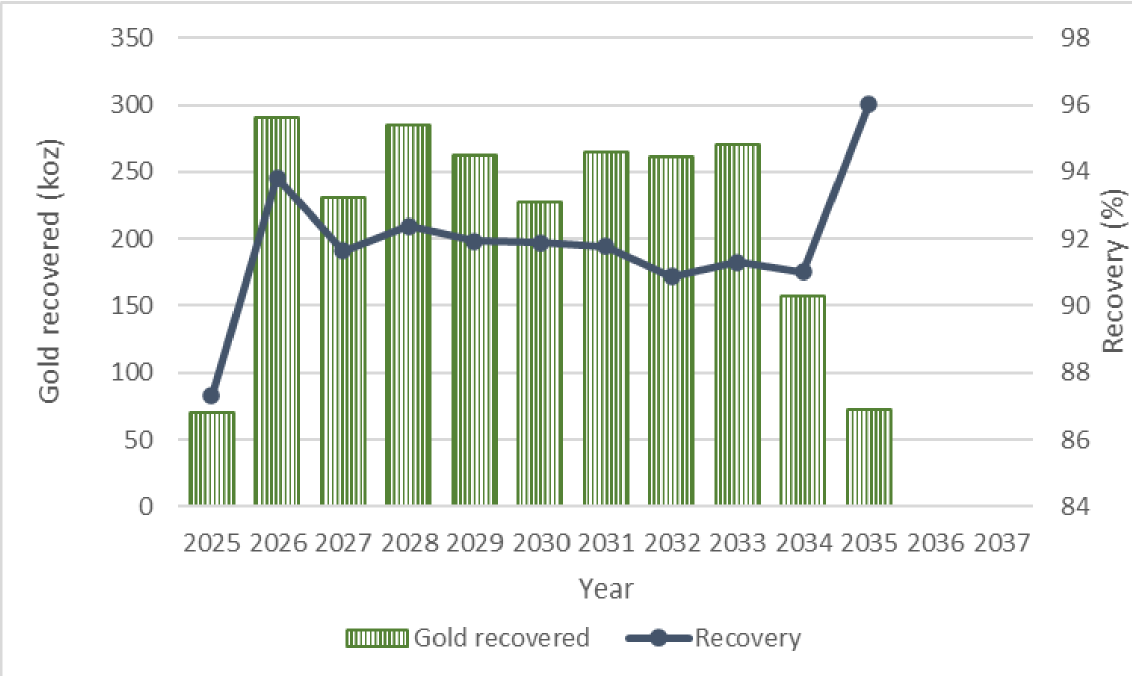
Table 24.3 Plant upgrade option operating costs

Main area	Unit	Plant upgrade option
Mining unit opex	$/t milled	17.11
Processing unit opex	$/t milled	8.69
G&A opex	$/t milled	2.79
Total unit opex	**$/t milled**	**28.59**

Source: Allied, Kurmuk Processing Options Assessment, December 2022

As shown in Figure 24.1, the production would increase to about 260,000 oz/a for 2026 to 2033 and average about 240,000 oz/a for the 10 year mine life.

Figure 24.1 Plant expansion option annual processing schedule



Source: Allied, Kurmuk Processing Options Assessment, December 2022

The plant expansion study demonstrated that increasing the average throughput from 4.4 Mt/a to 5.4 Mt/a (a 23% increase) could increase capital costs by $30 million while increasing average gold production to about 240,000 oz per year.

The expansion option study is conceptual in nature and additional technical studies are being advanced to incorporate this opportunity in the next stage of design and increase the certainty that the throughput increase will be realized. Mine design and mining schedules, metallurgical flow sheets and process plant designs will require additional detailed work and economic analysis and internal studies to ensure satisfactory operational conditions.

24.2 Available purchased equipment

Should Allied elect to defer the Expansion Project at its Sadiola Property in Mali, the pre-purchased equipment is available to be deployed to Kurmuk to fast track the development schedule and reduce the funding costs for Kurmuk by up to $30 million. Allied advises that the suitability of the purchased equipment in Table 24.4 is being reviewed at the time of reporting, as part of the FEED package.

Table 24.4 Purchased equipment being evaluated

Equipment	Model	Status
Apron feeders	1 x Metso AF5-72MN-22-125 HP 3 x Metso AF5-72MN-20-75 HP	Purchased, stored in USA
Ball mill	FLS, 26 ft diameter x 43 ft, twin pinion, 2 x 9 MW VFD drives	Purchased, stored in USA
Gravity concentrators	Falcon SB5200 (2 available)	Purchased, stored in Canada
Pre-leach thickener	FLS 40 m diameter, hi-density	Purchased, stored in South Africa
CIL leach tanks	8 x 16 m diameter x 18.4 m H; 3,500 m^3 live volume, w/ LHX-13C Hayward Gordon agitators 110 kW, launders	Stored in Canada

Source: Allied

24.3 In-pit Inferred Resources

The 2022 FS pit designs were developed based on Measured and Indicated Mineral Resources only and contain 200 koz of Inferred Mineral Resources, with 165 koz within the Dish Mountain pit. For clarity, the 2022 FS treated the Inferred Mineral Resources within the designed pits as waste. A sensitivity analysis was completed to include in-pit Inferred Mineral Resources into the processing schedule, showing the potential to improve the project if conversion is achieved. About 10,000 m of infill drilling is now being undertaken at Dish Mountain to target areas of Inferred Mineral Resources.

There is no certainty that Inferred Mineral Resources will be able to be converted into Measured or Indicated Mineral Resources. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability; the estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant modifying factors.

25 INTERPRETATION AND CONCLUSIONS

25.1 Conclusions

The main exploration activities and key engineering studies have largely been completed for the planned Kurmuk development and the results are summarized in the 2022 FS. Some initial site works have commenced.

Key findings from the 2022 FS include:

- A 12-year mine life based on currently defined 2,600 koz in Proven and Probable Mineral Reserves, producing 240,000 oz/a in the first five years.
- Conventional open pit mining using Komatsu PC2000 excavators and Komatsu HD785-7 trucks (or equivalent) to mine up to 44 Mt/a.
- Conventional process plant to treat 5.1 Mt/a of oxide and 4.2 Mt/a of harder fresh ore using jaw crushing, SAG and ball milling to 75 µm, gravity recovery, cyanide leaching, elution, electrowinning and smelting to produce gold doré.
- LOM recovery estimated at 92% based on 70 samples tested to date. Testwork has shown that Ashashire fresh ores have gold tellurides (calaverite) which require 1.7 kg/t lime addition to achieve 90% recovery. Dish Mountain fresh ore will be blended with Ashashire fresh ore.
- Tailings are thickened to reduce cyanide consumption by 25% prior to cyanide detoxification and subsequent thickening to reduce water usage by 50%. The detoxified tailings are pumped to the TSF which is of downstream construction with an engineered liner and recovery of under-drainage and seepage.
- Infrastructure includes an accommodation camp for 900 people, a 12 km access road and a 4.5 Mm^3 water supply dam.
- The Ethiopian Government and Allied entered into a Development Agreement for the Kurmuk Gold Project on 30 September 2021 for an initial term of 20 years and renewable for periods of 10 years (Kurmuk Development Agreement). The Ethiopian Government will receive a 5% royalty and 7% equity stake by upgrading the road network and building the 132 kV powerline to connect the site to the national grid, which is 95% supplied by hydroelectric power.
- The 100 km^2 large-scale mining licence and environmental clearance certificate have been granted. Secondary permit approvals are in progress.
- The pre-production costs are estimated to be $500 million, inclusive of $40 million of mining pre-strip, $52 million for owner mining fleet and $348 million for process plant and infrastructure, inclusive of $43 million contingency, at an accuracy of ±15% accuracy.
- The all-in sustaining costs are estimated at $844/oz due to low power price ($0.04/kWh), low diesel price ($0.75/L) and competitive labour force.
- Financial modelling shows an after-tax project NPV of $548 million at a 5% discount rate with an IRR of 25%.

25.2 Risk assessment

The 2022 FS consolidated risk register shows a total of eight high risks to the project, after mitigation:

- Traffic accidents: Up to 3 Mt/a of Ashashire ore will be transported in 45-tonne rigid frame trucks 12 km on a private site access road which will also be used for light vehicles, buses and delivery trucks. Risk mitigation includes the road design incorporating 2 m high safety bund, road cut into topography to provide a constant slope with minimal curves, truck passing bays, rest stops and brake testing areas and training of operators with speed restrictions on trucks with fatigue management system, no mobile phones allowed, vehicle cameras to monitor driver behaviour, access control onto the site access road with visitors to be escorted and a security manned pedestrian crossing.

- Geotechnical: Pit slope stabilities in Dish Mountain and Ashashire pits may be compromised by potential localized failures in slopes resulting in a high-risk rating. Additional geotechnical drilling and investigation was undertaken in 2021. During operations radar monitoring of the walls will be used to provide early warning of potential failures.
- Local and regional unrest: To reduce the potential for community unrest and disruption to construction and operations Allied has included $2.4 million in the capital cost estimate for compensation and local infrastructure upgrades. The Dish Mountain pit and process plant are located 10 km from the closest town with six weeks of supplies provisioned to continue operations if local or regional unrest is encountered. Other mitigation includes ongoing community engagement to manage expectations, the development agreement involves local, state and federal stakeholders and setting up a community development fund.
- Artisanal miners: A significant number of local people earn money from artisanal mining and this includes some areas surrounding Dish Mountain and Ashashire. Allied is working with the local and federal authorities to reduce the presence of artisanal miners within Allied's Mining Licence and to develop alternate livelihoods. Community development, compensation, fencing and a security presence have been included in capital and operating cost estimates.
- TSF embankment failure: The TSF site was selected to minimise the impact in the unlikely event of a TSF embankment failure. Risk mitigation included a dam break assessment, which confirmed that solid breach flow would not reach the Sudan border or any downstream villages, the design incorporating downstream construction and an engineering overflow system in case of rainfall greater than 1:1,000-year event. Allied's tailings management framework is aligned to the United Nations Global Industry Standard on Tailings Management which includes engaging independent consultants to regularly audit the operation of the TSF and the future mining of nearby satellite deposits to provide a larger downstream buttress.
- WSD drowning: There is a risk of people and/or fauna drowning in the WSD. The risk has been mitigated with the use of security guards, life rings, training and fencing.
- Delay in power supply: The Ethiopian Government will build the 72 km, 132 kV powerline to earn 2% of the project equity. To minimize the likelihood of power supply delays, construction progress will be monitored closely by Allied to ensure the powerline is available to enable commissioning to be completed on time.
- Capacity and capability of Ethiopian contractors: Allied is committed to maximising local content where feasible. Although there is significant construction in the country, the Ethiopian mining industry is still developing and there is a lack of specific mining experienced contractors. Allied has recruited an experienced Project Manager to work with Ethiopian contractors to increase the capacity and capability of local contractors to participate in the construction and operation of the project. Allied may elect to self-perform certain activities with the assistance of a proven EPCM contractor.

26 RECOMMENDATIONS

The main exploration activities and key engineering studies have largely been completed for the planned Kurmuk development which is summarized in this Technical Report. Some initial site works have commenced.

The 2022 FS recommended the following priority work plan, which is designed to enhance the value of the project, be undertaken during 2023:

- Continue developing the plant expansion study to enhance project value for a modest capital expenditure.
- Discussions with Ethiopian and international earthworks contractors to reduce mining and earthworks costs. Alliance discussions will also be held with international mining contractors to reduce upfront and overall costs.
- Rationalization of earthworks designs to reduce capital costs.
- Rationalization of infrastructure to reduce capital costs.
- Undertake an infill drilling program at the Dish Mountain and Ashashire targeting the Inferred mineralization within the open pits.
- Test potential resource extensions at John Dory, Senghe and Dul Mountain with the objective of materially increasing mine life and supporting the plant expansion study.

Allied advises that the Front End Engineering and Design (FEED) study is progressing to increase the definition of the project and critical path activities, including execution strategies.

Allied's approved 2023 budget includes exploration ($6 million), early works ($7 million) and FEED ($7 million), with the aim of project construction progressing in Q4 2023.

In the Qualified Person's opinion, the priority work plan identified in the 2022 FS is reasonable. The Qualified Person also recommends the following additional work programs to optimize leach conditions in the process plant:

- Further investigate the telluride associations in each of the three main Ashashire fresh lithologies.
- Identify a suitable X-ray fluorescence (XRF) detectable element that is closely associated with calaverite which will be highly beneficial in optimizing the cyanidation performance of the Ashashire fresh ore types.
- Carry out additional metallurgical testwork on Ashashire mafic ore types to increase the distribution closer to one sample per million tonnes of ore.

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28 GLOSSARY, ABBREVIATIONS AND UNITS

28.1 Glossary

Term	Explanation
adsorption	Adsorption is a process that occurs when a gas or liquid solute accumulates on the surface of a solid or a liquid (adsorbent), forming a molecular or atomic film (adsorbate).
amphibolite	A granular metamorphic rock consisting mainly of hornblende and plagioclase.
amphibolite facies	Moderate to high temperature and low pressure regional metamorphic facies. Characterized by the presence of amphibole.
antimony	Antimony is a chemical element with the symbol Sb (from Latin: stibium) and atomic number 51. A lustrous grey metalloid, it is found in nature mainly as the sulphide mineral stibnite (Sb_2S_3).
arenite	A sedimentary rock consisting primarily of sand size particles.
batter	The incline section of the wall in an open pit mine is called the 'batter', an excavator digs to a 'batter angle' to achieve a dig wall to the design batter angle
bench	A bench may be defined as a ledge that forms a single level of operation above which mineral or waste materials are mined back to a bench face. The mineral or waste is removed in successive layers, each of which is a bench.
breccia	Fractured or broken rocks, cemented or formed into a solid layer.
brecciated	Converted into or resembling a breccia.
brecciated siltstone	A siltstone containing small fragments of breccia.
brecciation	Converted into or resembling a breccia.
carbonate	A class of sedimentary rocks composed primarily of carbonate minerals. The two major types are limestone and dolomite.
carbonate rock	A sedimentary rock generally formed in shallow marine conditions which is characterized by the presence of varying amounts of calcium carbonate or magnesium carbonate. Coral reefs and/or marine creatures may contribute to the constituents in the rock.
Carboniferous	A geological period comprising rocks aged between 345 and 280 million years before the present day.
chlorite	A group of mostly green minerals of varying composition often found as alteration products of ferromagnesian minerals.
comminution	Reduction in the particle size of crushed rock in a process plant.
composite	A sample comprised of a number of smaller samples.
craton	An old stable portion of the earth’s crust, generally of Archaean age.
cyanidation	A metallurgical technique for extracting gold by converting the gold to a water soluble complex. It is the most commonly used process for gold extraction. One common process for the recovery of the solubilized gold from the solution is carbon in leach.
Datamine	A software package used to create 3D geological models.
diorite	A speckled, coarse-grained igneous rock consisting essentially of plagioclase, feldspar, and hornblende or other mafic minerals.
dolomite	A carbonate rock consisting of calcium magnesium carbonate.
electrowinning	Electrowinning, also called electroextraction, is the electrodeposition of metals from their ores that have been put in solution via a process commonly referred to as leaching.
elution	In analytical and organic chemistry, elution is the process of extracting one material from another by washing with a solvent.
feldspar	An important group of rock-forming minerals which make approximately 60% of the Earth's crust. Feldspars crystallize from magma in both intrusive and extrusive rocks.
felsic	Silicate minerals, magmas, and rocks which are enriched in the lighter elements such as silica, oxygen, aluminium, sodium, and potassium.

Term	Explanation
ferricrete	Ferricrete is a hard, erosion-resistant layer of sedimentary rock, usually conglomerate or breccia, that has been cemented into a duricrust by iron oxides.
flotation	A metallurgical concentration method whereby bubbles of air are used to separate crushed sulphide particles from waste rock of a different density or different physical characteristics.
footwall	The underlying side of a fault, orebody or mine workings.
fragmentation	The process or state of breaking or being broken into fragments.
geology	Geology is a science which is concerned with the solid Earth, the rocks of which it is composed, and the processes by which they change over time.
granite	A coarse grained intrusive felsic igneous rock.
granite-gneiss	Metamorphosed igneous rocks or their equivalent.
graphite	A mineralized form of carbon.
graphitic	Pertaining to rocks containing graphite. Graphite is carbon derived from carbonaceous material of organic origin. Common in metamorphic rocks such as gneisses, marbles, and schists.
greenschist facies	Assemblage of minerals formed during regional metamorphism. The rocks of the greenschist facies form under the lowest temperatures (300–450°C) and pressure (1–4 kilobars) conditions usually produced regional metamorphism.
hangingwall	The overlying side of a fault, orebody or mine workings.
hydrogeology	The branch of geology concerned with water occurring underground or on the surface of the Earth.
hydrology	The branch of science concerned with the properties of the earth's water, and especially its movement in relation to land.
intrusion	The action or process of forcing a body of igneous rock between or through existing formations, without reaching the surface.
intrusive rock	Intrusive rock, also called plutonic rock is an igneous rock formed when magma is forced into older rocks at depths within the Earth's crust, which then slowly solidifies. It may later be exposed at the surface by erosion. Examples include granite, gabbro, diorite and dunite.
leach or leaching	The action of a chemical on a mineral or substance where the substance becomes soluble is removed from the host material.
lithological	The study of the general physical characteristics of rocks.
lithology	The study and description of rocks, including their mineral composition and texture.
mafic igneous rocks	Silicate minerals, magmas, and volcanic and intrusive igneous rocks that have relatively high concentrations of the heavier and darker minerals.
magma	Hot molten or semi-fluid rock below which originates from within the Earth's crust from which igneous rock is formed on cooling. When magma cools and solidifies beneath the Earth's surface, it forms what are known as intrusive rocks. When it reaches the Earth's surface, it flows out as lava and forms extrusive (or volcanic) rocks.
mesothermal	A hydrothermal mineral deposit formed at considerable depth.
metamorphism or metamorphic	Alteration of the minerals, texture and composition of a rock caused by exposure to heat, pressure and chemical actions.
mineralization (mineralized)	The process by which a mineral or minerals are introduced into a rock, resulting in a valuable deposit.
mineralogy or mineralogical	The study of minerals: formation, occurrence, properties, composition and classification.
Neoproterozoic	The Neoproterozoic Era is the unit of geologic time from 1 billion to 541 million years ago
ore	Mineralized material which is economically mineable at the time of extraction and processing.
ore zone/orebody	Zone of mineralized material.
oxidation, oxidized	The addition of oxygen to the metal ion, generally as a result of weathering.
oxide	A binary compound of oxygen with another element or group.
Paleoproterozoic	The first of the three subdivisions (eras) of the Proterozoic occurring between 2500 Ma and 1600 Ma (million years ago).

Term	Explanation
pelitic	Pertaining to or derived from pelite (mudstone).
piezometers	A device used to measure liquid pressure in a system by measuring the height to which a column of the liquid rises against gravity, or a device which measures the pressure (more precisely, the piezometric head) of groundwater at a specific point.
prospect	Search for mineral deposits, especially by drilling and excavation.
pyrite	Iron disulphide, (FeS_2).
pyrrhotite	An iron sulphide mineral (FeS).
reconciliation	Measured assessment of the forecast and review of its correctness.
rheology	Rheology is the study of flow and deformation of materials under applied forces.
savannah	A grassy plain in tropical and subtropical regions, with few trees.
silicates	Minerals consisting of silica combined with metal oxides, forming a major component of the rocks of the Earth's crust.
siltstone	A type of sedimentary rock where the individual particles are predominantly between <0.05 mm in size.
sinistral	Refers to the horizontal component of movement of blocks on either side of a fault or the sense of movement within a shear zone.
spectrometry	An instrumental method for identifying the chemical constitution of a substance by means of the separation of gaseous ions according to their differing mass and charge. — called also mass spectroscopy.
spectroscopy	Spectroscopy is the study of the interaction between matter and electromagnetic radiation.
stibnite	Stibnite, sometimes called antimonite, is a sulphide mineral with the formula Sb2S3. This soft grey material crystallizes in an orthorhombic space group. It is the most important source for the metalloid antimony.
stockpile	A stockpile is a pile or temporary storage location used during mining operations for storing large quantities of material.
strike	Geological measurement – the direction of bearing of bedding or structure in the horizontal plane.
sulphate	A sulphate is a salt of sulphuric acid, containing the anion $SO4_{2-}$ or the divalent group —OSO2O.
sulphide	Economic minerals comprising a metal (such as lead, iron, zinc) and sulphur.
supernatant	The supernatant is the clear liquid that lies above the solid residue after centrifugation, precipitation, crystallization or settling.
Supervisor	A geostatistical software package used for geospatially analysing data.
Surpac	A software package used to create 3D geological models.
tails/tailings	The residue from a mineral processing plant, generally pulverized waste rock.
topography	Topography is the study and description of the physical features of an area, for example its hills, valleys, or rivers, or the representation of these features on maps.
variography	Definition of the three-dimensional grade continuity of drillhole samples by estimating and modelling the relationship between grade similarity and distance in every direction and at every sample spacing.
wireframe	A surface or 3D volume formed by linking points together to form triangles. Wireframes are used in the construction of block models.

28.2 Abbreviations and units

Abbreviation	Description
$	United States dollars
°	degree(s)
°C	degree(s) Celsius
%	percent
µm	micrometre or micron
3D	three-dimensional
a	annum
AAS	atomic absorption spectrometry
ABA	Acid Base Accounting
Ai	Abrasion Index
AIG	Australian Institute of Geoscientists
Allied	Allied Gold Corp
AME	ASCOM Mining Ethiopia Plc
ANC	acid neutralization capacity
ANCOLD	Australian National Committee on Large Dams
ANS	Arabian-Nubian Shield
Au	gold
Aurigin	Aurigin Resources Inc.
BBWi	Bond Ball Mill Work Index
bcm	bank cubic metre(s)
CBS	conditional bias slope
CIL	carbon-in-leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CN_{WAD}	weak acid dissociable cyanide
CRM	certified reference material
Cube	Cube Consulting
CV	coefficient of variation
CY	calendar year
ECG	ECG Engineering
EEP	Ethiopian Electric Power
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
FEED	front-end engineering and design
FS	feasibility study
FY	financial year
G&A	general and administration
g, g/t	gram(s), grams per tonne
GPS	global positioning system
ha	hectare(s)
h	hour(s)
HDPE	high-density polyethylene
HSEC	health, safety, environment and community

Abbreviation	Description
ICP-OES	inductively coupled plasma-optical emission spectroscopy
IDW	inverse distance weighting
IRR	internal rate of return
IUCN	International Union for Conservation of Nature
JORC Code	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition)
kg, kg/bcm, kg/t	kilogram(s), kilograms per bank cubic metre, kilograms per tonne
KGM	Kurmuk Gold Mine PLC
km, km^2	kilometres, square kilometres
KNA	kriging neighbourhood analysis
koz, koz/a	thousand ounces, thousand ounces per annum
kt, kt/a	thousand tonnes, thousand tonnes per annum
kV	kilovolts
kW	kilowatts
kWh, kWh/t	kilowatt hours, kilowatt hours per tonne
L, L/s	litre(s), litres per second
LBMA	London Bullion Market Association
LOM	life of mine
M	million(s) or Mega
m, m^2, m^3	metre(s), square metres, cubic metres
masl	metres above sea level
mg/L	milligrams per litre
ML	million litres
mm	millimetres
Mm^3	million cubic metres
MoMP	(Ethiopian) Ministry of Mines and Petroleum
Moz	million ounce(s)
MPa	megapascal(s) (million Pascals)
MSA	mine service area
Mt, Mt/a	million tonnes, million tonnes per annum
MVA	megavolt ampere (million volt-ampere)
MW	megawatt (million watts)
NAF	non-acid forming
NI 43-101	(Canadian Securities Administrator's) National Instrument 43-101
NPV	net present value
OK	ordinary kriging
Orelogy	Orelogy Consulting Pty Ltd
oz, oz/a	troy ounce(s), troy ounces per annum
PAF	potentially acid forming
PEA	preliminary economic assessment
PFS	prefeasibility study
ppm	parts per million
QAQC	quality assurance/quality control

Abbreviation	Description
RC	reverse circulation
ROM	run of mine
RPEEE	reasonable prospects of eventual economic extraction
RPO	recognized professional organization
SAG	semi autogenous grinding
SAB	SAG/ball mill
t, t/a, t/h, t/m^3	tonne(s), tonnes per annum, tonnes per hour, tonnes per cubic metre
TSF	tailings storage facility
UTM	Universal Transverse Mercator
WSD	water storage dam
wt:ot	waste tonnes to ore tonnes
XRF	X-ray fluorescence

29 Certificates

CERTIFICATE of QUALIFIED PERSON

I, Allan Earl, Executive Consultant of Snowden Optiro, Level 19/140 St Georges Terrace, Perth Western Australia, do hereby certify that:

a) I am the co-author of the technical report titled **NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia** and dated effective 9 June 2023 (the 'Technical Report') prepared for Allied Gold Corp and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation).

b) I graduated with an Associateship in Mining Engineering from the Western Australian School of Mines in 1977.

c) I am a Fellow of the AusIMM, with membership number 110247.

d) I have worked as a mining engineer continuously for 45 years since graduation. I have been involved as a mining and resource evaluation consultant for over 20 years, and work has included: scoping studies, prefeasibility studies, feasibility studies; and, reserve estimation for open pit and underground gold mines for at least five years of these years.

e) I have read the definition of 'qualified person' set out in National Instrument 43-101 ('the Instrument') and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

f) I made a current visit to the Kurmuk project on 21 to 24 April 2022.

g) I am responsible for the preparation of Items 1 – 6, 19, 21.2.3, 22, 23 – 26 of the Technical Report.

h) I am independent of the issuers as defined in section 1.5 of the Instrument.

i) I have had prior involvement with the property that is the subject of the Technical Report having reviewed the 2021 Kurmuk Project prefeasibility study.

j) I have read the Instrument and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

k) As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth WA this 9 June 2023

"Signed"

Allan Earl AWASM, FAusIMM

Executive Consultant

CERTIFICATE of QUALIFIED PERSON

I, Steve Craig, Principal Mining Consultant of Orelogy Consulting Pty Ltd, Level 1/19 Colin St West Perth, Perth Western Australia, do hereby certify that:

a) I am the co-author of the technical report titled **NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia** and dated effective 9 June 2023 (the 'Technical Report') prepared for Allied Gold Corp and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation).

b) I graduated from the South Australian Institute of Technology with a B. Eng. In Mining Engineering in 1987.

c) I am a Fellow in good standing with the Australian Institute of Mining and Metallurgy – Membership No. 112346.

d) I have worked as a mining engineer in a variety of roles for the past 35 years. Since 1995, I have worked in a consulting basis to operations around the world and have acted as founder and CEO for Orelogy Consulting Pty Ltd since 2005 where we have completed almost 1,000 planning assignments around the world.

e) I have read the definition of 'qualified person' set out in National Instrument 43-101 ('the Instrument') and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

f) I made a current visit to the Kurmuk Project on 21 to 24 April 2022.

g) I am responsible for the preparation of Items 15, 16 and 21.2.1 of the Technical Report.

h) I am independent of the issuers as defined in section 1.5 of the Instrument.

i) I have had prior involvement with the property that is the subject of the Technical Report having reviewed the 2021 Kurmuk Project prefeasibility study.

j) I have read the Instrument and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

k) As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Perth WA this 9 June 2023

"Signed"

Steve Craig B. Eng. Mining Engineer, Fellow AUSIMM

CEO Orelogy

CERTIFICATE of QUALIFIED PERSON

I, Peter Jonathan Theron, Director and Principal Consultant of Prime Resources (Pty)Ltd, The Workshop, 70-7th Avenue, Parktown North, Johannesburg, South Africa, do hereby certify that:

a) I am the co-author of the technical report titled **NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia** and dated effective 9 June 2023 (the 'Technical Report') prepared for Allied Gold Corp and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation).

b) I graduated from the University of Pretoria with a B. Eng. (Civil) in 1985 and from the Witwatersrand University with a Graduate Diploma in Engineering (GDE) in 1995.

c) I am a member in good standing of the Engineering Council of South Africa and am registered as a Professional Engineer – Registration No. 950329. I am a Member in good standing of the South African Institute of Mining and Metallurgy – Membership No. 703496.

d) I have worked as a civil and environmental engineer continuously since graduation from university in 1986. My relevant experience for the purpose of the Technical Report is over 35 years of consulting in the field of tailings design, waste management and environmental studies;

e) I have read the definition of 'qualified person' set out in National Instrument 43-101 ('the Instrument') and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

f) I have not visited the Kurmuk Project.

g) I am responsible for the preparation of Items 18.2 -3, 20, 21.1.3 of the Technical Report.

h) I am independent of the issuers as defined in section 1.5 of the Instrument.

i) I have had prior involvement with the property that is the subject of the Technical Report having reviewed the 2021 Kurmuk Project prefeasibility study.

j) I have read the Instrument and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

k) As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Hermanus, South Africa this 9 June 2023

"Signed"

Peter J Theron B. Eng. (Civil), GDE, Pr. Eng. (ECSA), MSAIMM

Associate Principal Consultant

CERTIFICATE of QUALIFIED PERSON

I, Michael Andrew, Executive Consultant of Snowden Optiro, Level 19/140 St Georges Terrace, Perth Western Australia, do hereby certify that:

a) I am the co-author of the technical report titled **NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia** and dated 9 June 2023 (the 'Technical Report') prepared for Allied Gold Corp and Mondavi Ventures Ltd (to be renamed Allied Gold Corporation).

b) I graduated with a BSc. (Geology), Australian National University, 1982; Graduate Diploma (Geostatistics), Edith Cowan University, 2005.

c) I am a Fellow of the AusIMM with membership number 111172.

d) I have worked as a geologist with over 30 years of technical and operational experience in the mining industry working in roles in exploration and mining throughout Australia and overseas. I have specific experience in geostatistical resource estimation, optimization of resources, grade control and risk assessment, technical audits, due diligence studies and mine valuation studies, technical training and mentoring with significant exposure to gold deposits within Australia and overseas.

e) I have read the definition of 'qualified person' set out in National Instrument 43-101 ('the Instrument') and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

f) I have not made a site visit to the Kurmuk Project.

g) I am responsible for the preparation of Items 7 – 12 and Item 14 of the Technical Report.

h) I am independent of the issuers as defined in section 1.5 of the Instrument.

i) I have had prior involvement with the property that is the subject of the Technical Report having reviewed the 2021 Kurmuk Project prefeasibility study.

j) I have read the Instrument and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

k) As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Sydney NSW this 9 June 2023

"Signed"

Michael Andrew

Executive Consultant

CERTIFICATE of QUALIFIED PERSON

I, Gordon Cunningham, Associate Principal Consultant of Snowden Optiro, Level 19/140 St Georges Terrace, Perth Western Australia, do hereby certify that:

l) I am the co-author of the technical report titled **NI 43-101 Technical Report for the Kurmuk Gold Project, Ethiopia** and dated effective 9 June 2023 (the 'Technical Report') prepared for Allied Gold Corp for Mondavi Ventures Ltd (to be renamed Allied Gold Corporation).

m) I graduated from the University of Queensland with a B. Eng. (Chemical) in 1975.

n) I am a member in good standing of the Engineering Council of South Africa and am registered as a Professional Engineer – Registration No. 920082. I am a Fellow in good standing of the South African Institute of Mining and Metallurgy – Membership No. 19584.

o) I have worked as a metallurgist in production for more than 20 years since my graduation. I have worked as a corporate Consulting Metallurgist for 5 years, an independent metallurgical consultant for 2 years and for Turnberry Projects for 21 years as a Project and Principal Engineer and Director, primarily associated with mining and metallurgy projects.

p) I have read the definition of 'qualified person' set out in National Instrument 43-101 ('the Instrument') and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements of a 'qualified person' for the purposes of the Instrument.

q) I have not made a site visit to the Kurmuk Project.

r) I am responsible for the preparation of Items 13, 17, 18.1, 18. 4 – 10, 21.1, 21.2.2 of the Technical Report.

s) I am independent of the issuers as defined in section 1.5 of the Instrument.

t) I have had prior involvement with the property that is the subject of the Technical Report having reviewed the 2021 Kurmuk Project prefeasibility study.

u) I have read the Instrument and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

v) As of the effective date of this Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated at Hilton South Africa this 9 June 2023

"Signed"

Gordon Cunningham

Executive Consultant