Xtra-Gold Resources Corporation

Kibi Gold Project

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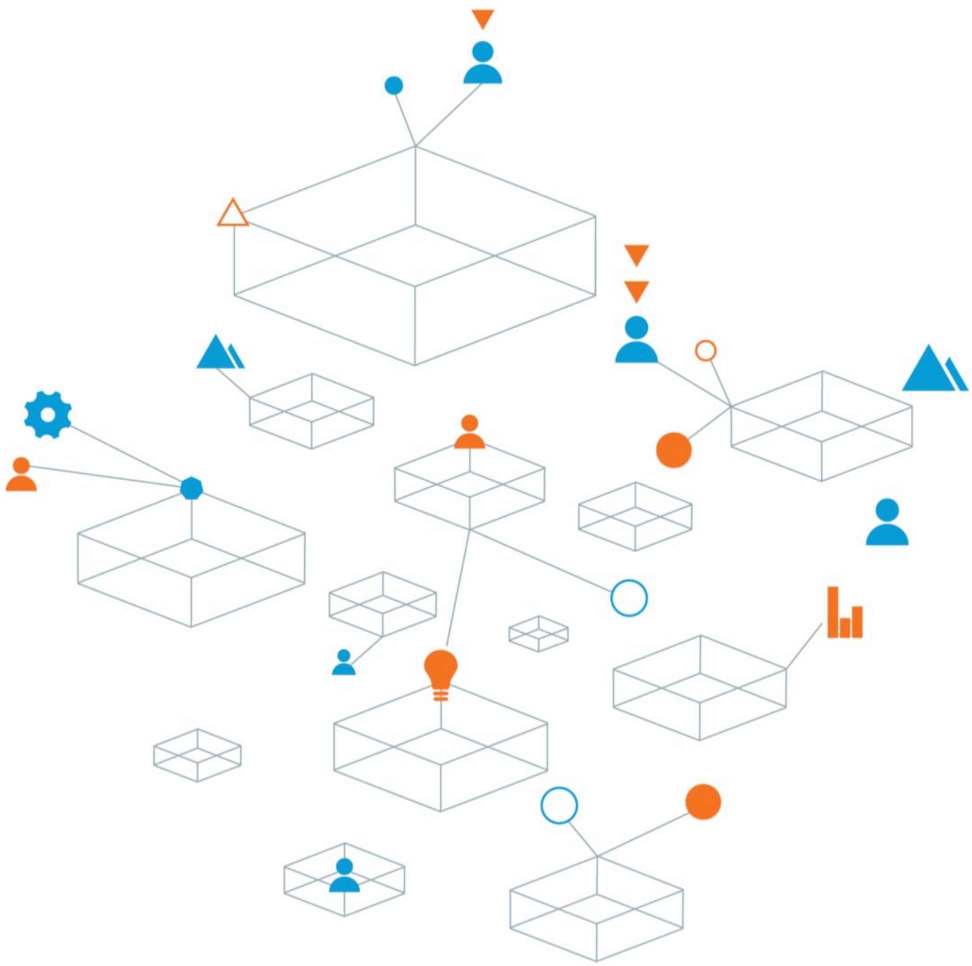

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Chris Fredericks

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1 SUMMARY

Tect Geological Consulting (Tect) and Pivot Mining Consultants (Pty) Limited (Pivot) were requested by Xtra-Gold Resources Corp. (Xtra-Gold) to prepare an Independent Technical Report consistent with the Canadian Securities Administrators National Instrument 43-101 and Form 43-101F1 for the Apapam Concession (LVB 5191/09). The Apapam Concession forms part of Xtra-Gold’s Kibi Gold Project in southern Ghana.

The purpose of this report is to publish an Independent Technical Report summarizing the geology, past exploration activities and Mineral Resource Estimate on the Kibi Gold Project. The updated mineral resource estimate encompasses an additional 158 diamond core boreholes (21,321.45 m) completed since the October 2012 maiden mineral resource estimate.

Through its subsidiary companies, Xtra-Gold holds three (3) concessions that are contiguous in the Kibi Gold Project, including the Apapam Mining Lease. The Apapam Concession is a granted mining lease, whereas the other two titles are currently applications that have been submitted to the Minerals Commission.

1.1 Project Area and Location

The Apapam Concession is located approximately 75 km north-northwest of the capital city of Accra, in the East Akim District of the Eastern Region of Ghana, on the eastern flank of the Atewa Range near the headwaters of the Birim River. The centre of the concession is situated at approximately 6° 09’ 30” West Longitude and 0° 34’ 15” North Latitude (WGS 84). The Kibi Project area covers 3,365 ha and is located at the northern extremity of the Kibi Winneba Greenstone Belt.

1.2 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The concession is located approximately 75 km north-northwest of Accra and can be accessed by two asphalted secondary highways. Ghana has a fairly good network of paved highways and roads. Within the Apapam Concession, numerous tracks and paths are available for easy access to most points.

The climate within the area is equatorial with relatively high humidity throughout the year. Rainfall is mainly confined to two periods, being high and unpredictable especially during the peak period which falls in May/June with a second peak in September/October. The dry season is generally from January to February. Temperatures ranges between 22°C and 35°C. Operations can be undertaken throughout the year.

The topography of the Apapam Concession is characterized by steeply sloping ridges and undulating mountain sides and hills due to the prominent, NNE-trending Atewa Range, which is approximately 50 km long and 10-15 km wide, that dominates the area. The range consists of steep-sided hills with fairly flat summits which represent the last remnants of the Cenozoic peneplain that once covered southern Ghana. The peneplain locally contains ancient bauxitic soils. The steep flanks feature a wide variety of high canopy tropical hardwoods typical of south-western Ghana, whereas the summit has a diverse flora, including extensive hanging vines. The range is the site of the country's largest Forest Reserve.

The infrastructure in the Kibi District is fairly well-developed. The town of Kibi is a major regional centre with a population of over 8,000. Kibi is connected to the national electricity supply network; hospital, postal and other community facilities are available. Extensive mining infrastructure is in place in all of the major gold-producing areas of Ghana.

1.3 History

Virtually all of the past gold mining activity that is locally evident has focused on alluvial gold occurrences found in the many river valleys throughout the area.

A London-based junior, Akim (1928) Ltd is known to have carried out some exploration and development work on the quartz vein at the Kibi Mine on the outskirts of the town of Kibi. It is likely that some of the other known vein occurrences in the area were explored but apparently with little economic success.

Exploration was undertaken by a number of companies in the latter part of the 20th century. Sun Gold Group were granted two concessions in the area, which were taken over by Shefford Resources of Toronto. Shefford did some initial work on the hard rock potential, including a Bankable Feasibility Study in 1989. After corporate restructuring, the mining leases were put into a new company, Goldenrae Mining Company, and Sikaman Gold Resources of Toronto amalgamated with Shefford. Sikaman then brought in a senior partner, the London-based ITM group who financed an alluvial operation which eventually closed down in 1993.

In the early 1990s, the EQ Resources group of Toronto also picked up a large concession (Apapam) on the eastern flank of the Atewa range, covering the drainage of the upper Birim River in the vicinity of the town of Kibi. EQ carried out a successful pitting program in cooperation with Goldenrae, with the intention of setting up a satellite production unit under Goldenrae management.

The remainder of the work was focused on the potential and profitability of other alluvial deposits.

Xtra-Gold Mining's interest in the Kibi Gold Project was previously via a prospecting licence granted by the Government of Ghana on March 29, 2004, covering a licensed area of 33.65 km^2. In May 2008, Xtra-Gold Mining applied to the Government of Ghana to convert the Kibi prospecting license to a mining lease, which was granted. The mining lease expired in December 2015 but all required documentation to extend the lease for 15 years from December 17, 2015 has been submitted to the Ghana Minerals Commission. As these extensions generally take years for the regulatory review to be completed, Xtra-Gold is not yet in receipt of the extension approval. However, until Xtra-Gold receives the extension documents, the old lease remains in force under the mineral laws. The extension is in accordance with the terms of application and payment of fees to the Minerals Commission of Ghana.

Xtra-Gold have been granted surface and mining rights by the Government of Ghana to work, develop and produce gold in and from the Apapam lease area (including the processing, storing and transportation of ore and materials).

In 2012 a maiden Mineral Resource was declared. This included the Big Bend, Double 19, East Dyke, Mushroom and South Ridge targets (Table 1.1).

Table 1.1: Kibi Project Mineral Resource 2012
Declared in terms of the guidelines of the CIM Standards

	Category	Tonnage (Mt)	Gold Grade (g/t)	Gold oz
Total	Indicated	3.38	2.56	277,000
	Inferred	2.35	1.94	147,000

1.4 Geological Setting

Xtra-Gold's Kibi Project is hosted within the Kibi Belt, which forms the northern continuation of the Paleoproterozoic Kibi-Winneba Greenstone Belt (KWB), located in south-western Ghana. The KWB is correlated, to the west, with the well-documented Ashanti, Asankrangwa and SefwiBiriman Fold Belts, which host to world-class gold mines and deposits. These include, but are not limited to, the Akyem Newmont, Obuasi Anglo Gold Ashanti, Tarkwa Goldfields and Ahafo Newmont Mines.

The Kibi Project targets are hosted in intensely-sheared and tightly-folded volcano-metasedimentary strata with interlayered felsic- to intermediate- to mafic-dykes and sills, regionally correlated with the Birimian Super Group and Tarkwa Group.

Targets are predominantly hosted within, or in the vicinity of, felsic- to intermediate (e.g. granite to granodiorite) dykes or sills, in contact with metasediments (e.g. phyllites or greywackes), that occupy sheared fold limbs or fold hinge zones. These structural sites are classic type-locations for intensified brittle-ductile deformation and concomitant hydrothermal fluid ingress, with eventual auriferous mineralization. Ongoing exploration is geared to identifying and delineating such sites on a licence to target scale.

1.5 Deposit Types and Mineralization

The Kibi project hosts primary gold mineralization of economic significance. Auriferous bodies discovered to date on the Apapam Concession by Xtra-Gold include: Big Bend, East Dyke, Mushroom, Road Cut, and South Ridge in Zone 2, Double 19 in Zone 3, and Gate House and Gold Mountain in Zone 1. Collectively, these eight auriferous bodies, lying within approximately 1.6 km of each other, are estimated to encompass an indicated mineral resource of 13,893,000 Mt grading 1.40 g/t gold for a contained 623,700 oz and an additional Inferred Mineral Resource of 5,694,000 Mt grading 0.96 g/t gold for a contained 180,700 oz.

These deposits can be classified as classic, structurally-controlled mesothermal/orogenic gold mineralization. Mineralization is primarily associated with quartz albite-carbonate-sulphide tensional vein stockworks developed in - or especially near - the margins of sills, dykes and possibly small plutons (stocks) of granodiorite, quartz diorite and tonalite bodies.

Generally, in comparison with other gold deposits in Ghana, the Kibi Project gold mineralization is characterized by auriferous quartz vein sets hosted in felsic to intermediate (Belt-type) granitoids that are geologically-analogous to other Granitoid-hosted gold deposits of Ghana, including Kinross Gold's Chirano and Newmont Mining's Subika deposits in the Sefwi belt.

From 2012 to present, exploration efforts were primarily focussed on the continued advancement of early-stage gold shoots and showings within the Zone 1 – Zone 3 maiden mineral resource footprint area.

1.6 Exploration and Drilling

1.6.1 2006 – 2007 Exploration Program

Two (2) separate work programs were conducted on the Apapam Concession during 2006-2007. The first work program was undertaken and managed by CME Consultants Inc. (CME), a Canada-based geological consultancy with over 15 years of project management experience in Ghana. The second program was undertaken and managed by Xtra-Gold personnel.

The Phase I exploration program was designed to test the Apapam Concession on a regional scale. The field work was implemented by CME from August 12 to September 23, 2006 and included:

- Concession-Wide Stream Sediment Sampling (88 Samples Collected From 44 Sites);
- Survey Grid Establishment (33.78 Line-Km);
- Soil Sampling (1,306 Samples);
- GPS Surveying (33.78 Line-Km);
- Rock Sampling (89 Samples); And
- Historical Adit and Bulldozer Cut Sampling (100 samples).

The Phase II exploration program consisted of a reconnaissance trenching program intermittently implemented by the Xtra-Gold exploration staff from February 2007 to December 2007. The trenching was carried out to test the depth extent of geochemical signatures from gold-in-soil anomalies, which were detected within the north-western portion of the concession during the Phase I work program. A total of 542 channel samples were collected from 21 trenches totalling 1,090 linear metres. In order to obtain an independent assessment of the 2007 Xtra-Gold trenching results, a NI 43-101-compliant data verification program was undertaken by CME in December 2007. This program involved the re-sampling of selected trenches which yielded exploration-significant gold mineralization intervals.

Gold mineralization on the Apapam Concession was found to occur in several different geological setting, including steeply-dipping and flat-lying quartz veins and alteration haloes proximal to the quartz veining.

1.6.2 2008 – 2010 Exploration Program

Exploration work on the Apapam Concession during the 2008-2010 reporting period was aimed at advancing the Kibi Project, which encompassed a 5.5 km long mineralized trend delineated from gold-in-soil anomalies, trenching, drilling and geophysical interpretation along the northwest margin of the Apapam Concession. This trend and extent are characterized by widespread gold occurrences of the granitoid hosted-type.

An extensive soil geochemistry survey, covering approximately 47 line-kilometres (1,827 samples), was implemented in early 2008 to further define the extensive gold-in-soil trend. Regolith development in most of the Kibi Project area is favourable for soil sampling. The generally steep topography along the flank of the Atewa Range has resulted in relatively thin colluvial (lateritic gravel) cover in the project area. As a result, gold-in-soil anomalies on steeper slopes and ridges probably reflect a good, although not exactly quantitative, measure of gold distribution in the underlying saprolite.

The entire Kibi Project grid was also covered by Induced Polarization (IP)/Resistivity (~ 64 km) and ground magnetometer (~79 km) surveys to help define the lithological and structural pattern of the mineralized trend, and to prioritize trench/drill targets. Although the widespread granitoid-hosted gold mineralization in Zone 2 is typically characterized by 1-3%, locally up to 5%, disseminated sulphides (pyrrhotite, pyrite, arsenopyrite), the known mineralization occurrences failed to produce a chargeability response. In Zone 3, a moderate chargeability (IP) / very high resistivity anomaly is spatially associated with an approximately 135 m wide, NE-trending, granitoid-hosted, structural corridor that appears to encompass at least five (5) distinct, gold-bearing, sheeted to stockworked vein zones. The south-western portion of the gold-in-soil trend is characterized by an approximately 3.5 km long, NE-trending, generally moderate to high chargeability/moderate to high resistivity anomaly lying along or proximate to the contact between the southern resistive domain and the central conductive corridor. This exhibits a spatial relationship with a geophysically-inferred, NE-trending, regional structural trend.

Exploration activities in 2008 included a manual trenching program with the excavation of 18 trenches totalling approximately 1,217 linear-metres, including: 4 trenches (302 m) on Zone 2; and 14 trenches (915 m) on Zone 3 of the 5.5 km long gold-in-soil trend. In addition, 67 mechanical (i.e. excavator) trenches totalling approximately 2,223 m were also excavated in conjunction with the 2008 and 2009 drilling programs. The trenches and trench sampling identified extensive, granitoid-hosted, auriferous quartz vein systems.

A total of 109 grab samples were collected by Xtra-Gold during prospecting and reconnaissance geology traverses that were primarily designed to follow-up on gold-in-soil anomalies. Where anomalous values were returned, the locations were subsequently tested by trenching and/or drilling.

As part of the ongoing exploration efforts, Xtra-Gold commissioned SRK Consulting (Canada) Inc. (SRK) to conduct a structural study of the Apapam Concession. The goal of the study was to investigate key exposures and available drill core to document and understand the structural controls on gold mineralization at the Kibi Project. SRK reviewed 14 diamond drill cores (Zone 1 and 2), as well as available trench exposures (Zone 2 and 3) on the Apapam concession from March 16 to 27, 2010. Due to diamond drilling density and accessible trenches, SRK's structural study focused largely on Zone 2 of the Kibi Project. SRK also reviewed Xtra-Gold's geological and structural mapping, at the time, for zones 1, 2 and 3 of the Kibi Project.

A petrographic study was also implemented in March 2010 to characterize the lithological units and ore mineralogy of the Kibi Project. Thirty-six (36) thin sections and nine (9) polished sections were studied by Professor K. Dzigbodi-Adjimah of the University of Mines and Technology, Tarkwa, Ghana. The findings of the structural and petrographic studies are incorporated in the structure and mineralization sections of the technical report, respectively.

A total of 68 boreholes totalling 7,716 m were drilled on the Apapam Concession, including 18 diamond core drill holes in 2008 (3,001 m), representing the first-ever drilling conducted in the Apapam concession area, and 50 reverse circulation (RC) drill holes in 2009 (4,715 m). This drilling focused on the Kibi Gold Project, and consisted of a > 5.5 km long mineralized trend delineated from gold-in-soil anomalies, trenching and geophysical interpretations along the northwest margin of the Apapam Concession, in turn characterized by widespread gold occurrences of the granitoid hosted-type.

1.6.3 2010 - 2012 Exploration Program

A VTEM survey was flown over the Kibi Gold Project by Geotech Airborne from December 2010 to February 2011. The survey measured ground elevation, radiometrics, magnetic field and electromagnetism (resistivity). Interpretation of the data resulted in an interpretive pseudo-geology map of the area. The different geophysical units may be correlated with various geological units. Two kinds of targets were defined: Resistive-type ((high-resistivity areas within interpreted conductive, graphitic shear zones and graphitic sedimentary units) and Granitoid-type (shear/fracture zones in basin-type granitoids). More detailed interpretation has highlighted the various faults around the project area.

From June 2011 to April 2012, 3,833 soil samples were collected every 25 m along lines 200 m apart in the south eastern part of the concession, as this had previously not been sampled.

One hundred and fifteen (115) rock grab samples were collected in conjunction with the 2011 – 2012 soil geochemical survey and follow-up prospecting of gold-in-soil anomalies.

Two hundred (200) trenches were excavated, at a number of prospects, in an effort to help define the extents and geological context of gold mineralisation. Due to the high relief in the area, some of the trenches were actually cleaned or cleared road cuttings on the sides of the hills. A total of 4,346 horizontal channel samples were taken and due to the prevalence of shallowly-dipping veins, 509 vertical channel samples were also taken where appropriate.

SRK Consulting (Canada) investigated the structural geology of the Kibi Gold Trend project – Zone 2 in November 2011. The work was focussed on Big Bend, wherein the structural controls on the mineralisation were proposed in their study.

SRK Consulting (Canada) also analysed the regional structural geology, regional aeromagnetics and the VTEM data. Areas of structural complexity representing prospective targets for further exploration in the Kibi area, were highlighted.

A total of 188 diamond core drill holes totalling 41,372 m was drilled on the Kibi Gold Project during the 2010 – 2012 exploration program, with most of the drilling,132 holes totalling 29,889 m (72%), targeting the Zone 2 – Zone 3 Mineral Resource auriferous bodies.

1.6.4 2012 - 2021 Exploration Programme

Further soil sampling was undertaken on the Cobra Creek (Zone 5) and Akwadum South (Zone 7) targets. A total of 10.7 line-kilometres of sampling on a 100 m x 25 m grid was undertaken with a total of 458 samples being collected.

Sampling of outcrop and float material was performed at Cobra Creek (Zone 5) and other locations on the Apapam Concession with a total of 910 samples being collected.

Trenching was undertaken from October 2018 – June 2021 on Zone 1 – Zone 2 – Zone 3 to supplement the drilling of the targets already recognised. Fifty-six (56) trenches (1,577.7 sample metres) were excavated on the majority of the targets that form part of the Mineral Resource estimate. An additional 38 trenches (1,170.8 sample metres) were also completed on an intermittent basis from September 2012 - March 2016 to delineate the Cobra Creek (Zone 5) auriferous shear system.

A total of approximately 15,000 m^2 of bedrock exposures were mechanically stripped and power-washed over the Cobra Creek target from 2012 – 2016 to permit systematic mapping and channel sampling of the auriferous shear system, with total of 1,312.26 m of saw-cut channel sampling and 71 m of chip-channel sampling completed on the stripped bedrock exposures.

A total of 118 auger holes with a cumulative meterage of 390.89 m were sunk at Akwadum South (Zone 7) during 2018 and 2019.

Sixty-two (62) scout pits were excavated manually to follow up on soil geochemistry and hand auger anomalies.

Ground geophysics was conducted at the Cobra Creek target, consisting of 32.2 line-kilometres of IP/Resistivity survey and 14.99 line-kilometres of magnetic survey.

A total of 212 diamond core drill holes, totalling 25,198.55 m, were drilled on the Kibi Gold Project during the 2012 – 2021 exploration program. With most of the drilling - 158 holes totalling 21,321.45 m (85%) - completed from February 2018 – June 2021 by Xtra-Gold’s in-house drilling crews on targets within the Zone 1 – Zone 2 – Zone 3 Mineral Resource estimate footprint area.

1.7 Sample Preparation, Analyses and Security

1.7.1 Drill Core samples

Drillcore obtained from diamond drilling is transferred directly from the core tube into wooden core boxes, marked with the drill hole number and depth information. In the case of saprolite material, the core is laid directly onto a strip of plastic wrap that is placed inside the box and then securely wrapped around the core to stabilize and prevent the dehydration of the saprolite.

At the Kwabeng exploration camp core shack, the core is laid out along an angle iron on a work bench and meticulously re-assembled piece-by-piece with the core aligned with the orientation marks at the bottom of each 3 m drill run. The core is then measured, core recovery and RQD information collected, and photographs of each individual box is taken. A company geologist subsequently conducts geological logging of the core and marks the sample intervals. The core is sampled over nominal 1 m intervals, with adjustments where necessary for mineralized structures or intervals.

The diamond drillcore is then saw-split lengthwise and half the core is immediately placed into a labelled plastic bag with a unique sample ticket stapled to the inside lip of the bag, and securely sealed by staples. The remaining half of core is returned to the core box and the box is stored in a secure facility.

1.7.2 Reverse Circulation (RC) Drill Samples

Reverse circulation drill samples are collected immediately at the drill hole site. The drill sample cuttings are collected in a cyclone over one (1) meter sample intervals, with the cyclone being purged after every 6 m drill run. The dry RC bulk chip sample (~ 25 to 30 kg) is then weighted and passed through a two-stage riffle splitter to produce a nominal 2 – 3 kg sample for assay, which is also weighed on site.

Drill cuttings from each sample interval are screened, washed and a quick log of the rock chips completed at the drill site by a company geologist, who notes, amongst other things, the sample quality/recovery, weathering profile, main lithologies, prominent alteration and the character of the mineralization (i.e. oxide versus sulphide).

1.7.3 Auger Sampling

Hand auger sampling is routinely utilized to test the geochemical signature of gold-in-soil anomalies at depth within the saprolite horizon, to better define trenching targets. Sampling is typically conducted at one (1) metre intervals with the material from the hole's first metre discarded to ensure the collection of in-situ material. Auger hole spacing is typically 25 m, with some 12.5 m in-filling. To avoid any contamination only dry samples are collected.

1.7.4 Chain of Custody

A typical chain of custody exists for all samples. Exploration samples, including soil, auger and trench samples, and Reverse Circulation (RC) drill samples are collected, numbered and bagged in the field and then transported from the field to the Kwabeng camp under Xtra-Gold's supervision. Upon arrival at camp, the samples and sample numbers are checked, and the samples are secured in rice sacks with a numbered security seal (i.e. nylon zap strap) for shipment to the laboratory. The diamond drill core is collected and transported to the camp's logging facility by Xtra-Gold's in-house drill personnel. All samples are kept in a locked facility at the camp. Samples are transported to the laboratory or collected by the laboratory on a weekly basis. A Tracking Record of all sample deliveries/pickups and pending analytical orders is kept by the Project Geologist, including: personnel in custody of samples; time of departure; laboratory drop-off site; status of security seals and assay turnaround time. Any discrepancies are noted by the laboratory who subsequently advise Xtra-Gold's management to this effect.

1.7.5 Analysis

Pre-2008 samples were analysed by SGS Laboratory Services in Tarkwa. Aqua Regia and fire assay methods were used to determine the gold concentration.

From 2008 – 2017, analyses were undertaken by ALS Chemex at their Kumasi Laboratory. All samples, including drillcore and RC chips, trench channel, hand auger, rock and soil samples, were typically analysed for gold only utilizing ALS Chemex's Au-AA24 method: Fire Assay Fusion with Atomic Absorption Spectroscopy (AAS) Finish.

Since 2017, the analysis has been undertaken by Intertek at their laboratory in Tarkwa. Typically, the analysis for gold uses method FA51/AA which is a lead collection fire assay (50 g aliquot) fusion method with an Atomic Absorption Spectroscopy finish (AAS).

1.7.6 Quality Control and Quality Assurance

Quality-Control Programmes have been implemented to ensure best-practice in the sampling and analysis of the diamond drill core, reverse circulation (RC) chip samples, saprolite trench and saw-cut channel samples, and soil samples, such that the data can be used to inform subsequent work and the progression of the project.

1.8 Data Verification

The following conclusions and recommendations are made:

- The operator is diligent in the use of the QA/QC programme and the recording of data for analysis. An important aspect is that an effective and dynamic QC programme is utilised to review data as it comes in from the laboratory, a practice currently being applied on site.
- The assessment of the blanks confirms that there is minimal contamination at the laboratory.
- The assays were undertaken utilising a 50 g aliquot for fire assay, whereas the CRMs generally utilised a 30 g aliquot. The expectation is that the larger aliquot should produce results that are better-grouped (improved precision) and more accurate.
- An excessive number of different CRMs have been used previously. It is recommended that fewer are used in the future. It is considered more practical to identify 2 to 5 different

CRMs to span the assay range of the expected grades i.e. 0.5 – 2 ppm. This will allow more control and conformation of the data, i.e. identification of sample swaps in particular.

- In the earlier programmes, numerous failures of the Xtra-Gold CRMs had been noted. Most of these were attributed to the misidentification of the CRMs. The laboratory CRMs demonstrate that the data can be considered to be accurate.
- The precision is tested by an analysis of duplicate data. The results of the duplicate analysis presented suggest that precision is an issue. This is probably truer for the higher grades and may be related the presence of coarser grains of gold.

It was concluded that the geochemical data used in the resource estimation is satisfactory, with variations most probably due to the nature and deportment of the gold and/or probably related to the presence of coarse gold in the deposits.

1.9 Mineral Processing and Metallurgical Testing

A Gold Deportment Study which assessed the mineralogical and metallurgical aspects of the gold mineralization in the Kibi Gold Project was completed in October 2011 by SGS South Africa (Pty) Ltd. for both sulphide and oxide composites. The results of the study were:

- Gold in the sulphide samples is highly amenable to cyanidation leaching with ~97% recoverable by means of direct cyanidation.
- The grading analysis on the sulphide sample indicated a very high upgrading of gold in the +106µm size fraction (~69%).
- The direct cyanidation and diagnostic leach indicates that the sulphide sample is highly amenable to cyanide leaching, with ~97% of the gold recovered from the head sample at a grind of 80%-75µm by direct cyanidation and ~96% for the gravity tailings at a grind of~50%-75µm.
- The gold in the composite oxide sample is also highly amenable to cyanidation, with ~97% of the gold recoverable by means of direct cyanidation. The grading analysis on the composite oxide sample indicated a very high upgrading of gold in the +106µm size fraction (~74%).
- The direct cyanidation and diagnostic leach tests indicated that the oxide sample is highly amenable to cyanide leaching, with ~98% of the gold recovered from the head sample at a grind of 80%-75µm and ~99% of the gold in the gravity tailings at a grind of 50%-75µm.

It was concluded that the simplest processing option would be to mill the material to ~80%-75µm followed by carbon-in-leach cyanidation.

1.10 Mineral Resource Estimate

The reported mineral resource is presented in Table 1.2.

Table 1.2: Mineral Resource Declaration - September 2021
Declared in terms of the CIM Standards
Cut-off: Au 0.5 g/t

	Tonnage (t)	**Density (t/m³)**	**Grade – Au (g/t)**	**Au (oz)**
Big Bend				
Measured	**-**	**-**	**-**	**-**
Indicated	6,472,000	2.78	1.48	307,400
M+I	**6,472,000**	**2.78**	**1.48**	**307,400**
Inferred	1,257,000	2.82	1.03	41,400
Double 19				
	Tonnage (t)	**Density (t/m³)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	1,584,000	2.62	1.38	70,400
M+I	**1,584,000**	**2.62**	**1.38**	**70,400**
Inferred	-	-	-	-
East Dyke				
	Tonnage (t)	**Density (t/m³)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	3,102,000	2.72	1.49	148,800
M+I	**3,102,000**	**2.72**	**1.49**	**148,800**
Inferred	1,128,000	2.84	1.19	43,300
Gate House and Gold Mountain				
	Tonnage (t)	**Density (t/m³)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	-	-	-	-
M+I	**-**	**-**	**-**	**-**
Inferred	2,366,000	2.76	0.79	65,200

Mushroom				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	505,000	2.64	1.37	22,300
M+I	**505,000**	**2.64**	**1.37**	**22,300**
Inferred	-	-	-	-
Road Cut				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	225,000	2.80	0.85	6,100
M+I	**225,000**	**2.80**	**0.85**	**6,100**
Inferred	-	-	-	-
South Ridge				
	Tonnage (t)	**Density (t/m3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	2,005,000	2.70	1.07	68,700
M+I	**2,005,000**	**2.70**	**1.07**	**68,700**
Inferred	943,000	2.82	1.02	30,800
Total				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	13,893,000	2.73	1.40	623,700
M+I	**13,893,000**	**2.73**	**1.40**	**623,700**
Inferred	5,694,000	2.80	0.96	180,700

1.11 Adjacent Properties

Although the Kibi area is blanketed by mining concessions, very little systematic exploration work for bedrock gold targets has been conducted in the Kibi Greenstone Belt. This reflects the fact that the Kibi area has traditionally been recognized as an alluvial gold district, and that the surrounding concessions have been held since the mid-1980s to early 1990s for their alluvial gold potential.

1.12 Other Relevant Data and Information

None.

1.13 Interpretation and Conclusions

The work undertaken has confirmed the presence of a number of auriferous bodies (i.e. Big Bend, East Dyke, Mushroom, Road Cut, South Ridge, Double 19, Gate House and Gold Mountain) within the concession, as well as providing a structural model that explains the paragenesis of the mineralized bodies (Sections 7 and 14.2). The geological continuity has been demonstrated and the relevant structural information has been utilised in the mineral resource estimate, as described in Sections 14.2 and 14.8.

The reported mineral resource is presented in Table 1.3.

Table 1.3: Mineral Resource Declaration - Kibi Gold Project - September 2021
Declared in terms of the CIM Standards
Cut-off: Au 0.5 g/t

	Tonnage (t)	Density (t/m^3)	Grade – Au (g/t)	Au (oz)
Measured	-	-	-	-
Indicated	13,893,000	2.73	1.40	623,700
M+I	**13,893,000**	**2.73**	**1.40**	**623,700**
Inferred	5,694,000	2.80	0.96	180,700

A substantial amount of work has been completed on the Cobra Creek prospect wherein various targets have also been identified.

1.14 Recommendations

Based on the results of the 2021 Mineral Resource Estimate (MRE) and exploration results on early-stage targets across the project area, Pivot and Tect recommend a two-phase exploration program to further advance the Kibi Gold Project.

Phase 1 is geared towards the further delineation of existing mineral resources and identification of additional resource bodies within the MRE footprint area, continued advancement of early-stage targets across the Kibi Gold Project, and property-scale target generation exploration work.

Phase 2, designed to support the continued advancement of the project, includes additional drilling to further define mineral resources, an updated MRE, completion of a Preliminary Economic Assessment (PEA), metallurgical test work, and collection of additional data to support future scoping studies.

A cost estimate for the recommended two-phase work program serves as a guideline. The estimated drilling expenditures are based on all-inclusive drilling costs, utilizing Xtra-Gold's in-house operated diamond core drill rigs. Total expenditures are estimated at USD 5,295,000, including: USD 3,570,000 for Phase 1 and USD 1,725,000 for Phase 2, with the implementation of Phase 2 being contingent upon the success of Phase 1.

2 INTRODUCTION

Xtra-Gold Resources Corp. (Xtra-Gold) commissioned Tect Geological Consulting (Tect) and Pivot Mining Consultants Ltd. (Pivot) to prepare an updated Mineral Resource Estimate for the Apapam Concession (LVB 5191/09). This Independent Technical Report (ITR) has been prepared in accordance with disclosure and reporting guidelines set forth in National Instrument 43-101 (NI 43-101) and companion Form 43-101F1 of the Canadian Securities Administrators' Standards of Disclosure for Mineral Projects. The Apapam Concession forms part of Xtra-Gold's Kibi Gold Project in southern Ghana.

2.1 Scope of the Report

The purpose of this report is to publish an Independent Technical Report summarizing the geology, past exploration activities and mineral resource estimate on the Kibi Gold Project. With the updated mineral resource estimate based on drilling completed since the October 2012 maiden mineral resource estimate.

2.2 Xtra-Gold Resources Corp.

Xtra-Gold's corporate offices are located at Village Road Shopping Plaza, Suite 2150, P.O. Box AP 59217, Nassau, Bahamas. Xtra-Gold is a public company listed on the Toronto Stock Exchange (TSX: XTG), with the company also trading on the over-the-counter equity market in the United States (OTCQB: XTGRF). Xtra-Gold is a junior exploration company focused on the advancement and development of its Kibi Gold Project in southern Ghana.

2.3 Principal Sources of Information

The data for the areas of gold mineralisation on the Kibi Gold Project and the geology of southern Ghana was obtained from Xtra-Gold. Tect and Pivot reviewed all of the available historical and current exploration work data and consider the data to be reliable.

The close-out date of the mineral resource database is July 30, 2021.

2.4 Participants, Qualifications, and Experience

The participants in the team consist of technical experts brought together by Tect and Pivot to estimate the Mineral Resources. These experts are Competent Persons as defined in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) guidelines. The participants in the review and their individual areas of responsibility are listed as follows:

Dr Corné Koegelenberg – Structural-Economic Geologist
Ph.D. Structural Geology and Tectonics
M.Sc. Magmatic Sulphide Petrology and Ni-Cu-PGE mineralization
MGSSA, MSEG, Pr.Sci.Nat.

Dr Koegelenberg has 8 years exploration and consulting experience and has worked on more than 21 projects with experience in mapping, deciphering and 3D modelling of structurally complex, low- and high-grade, fold-and-thrust belt metamorphic terranes. He specializes in dynamic and kinematic structural analysis of Au-ferrous quartz-carbonate vein systems, high-grade metamorphic shear-hosted Cu-Co mineralization systems, whilst also having an academic background in magmatic sulphide and Ni-Cu-PGE mineralization processes in mafic to ultramafic complexes. He has extensive experience in advanced Micromine and Leapfrog Geo 3D modelling of structural networks, lithotypes, alteration and mineralization, combined with lithological and structural interpretation of geophysical and LandSat/ASTER data sets.

Dr Ian Basson – Structural-Economic Geologist
Ph.D. Structural Geology
FGSSA, MSEG, AMSAIEG, Pr.Sci.Nat.

Dr Basson has 23 years of personal experience in 135 projects, 18 commodities and 38 deposit types throughout 23 African countries and the Middle East. He has performed consultant work on a total of 47 projects that address shear zone-hosted, vein-hosted, greenstone belt and Birimian gold mineralization in variably-metamorphosed terranes. This has included the interpretation and integration of geophysical surveys, field mapping, core logging, 3D geological modelling and reporting. He has published 32 peer-reviewed papers to date, excluding conference abstracts and presentations. In 2002, he founded Tect Geological Consulting, which specializes in the application of structural geology to exploration and mining projects and deposits at all stages of development. The focus of the company is to resolve complex structural environments and the way that they affect deposition, evaluation, mining and geohydrological modelling.

Ken Lomberg, Director (Geology and Resources), Pivot
B.Sc. (Hons) Geology, B.Com., M.Eng., FGSSA, Pr.Sci.Nat.
Project Management, Mineral Resources, Geological Interpretations, Site Visits, Report Preparation

Mr Lomberg has some 35 years' experience in the minerals industry (especially platinum and gold). He has been involved in exploration and mine geology and has experience in the technical development of mining projects from inception to full production. He is a respected professional with advanced capability, particularly in project management and Ore Reserve and Resource estimation as a result of his exposure to a wide range of mineral sector consulting assignments. Mr Lomberg has undertaken Mineral Resource and Reserve estimations and reviews for platinum, chromite, gold, copper, uranium and fluorite projects. He has assisted with the reviews or estimation of diamond and coal projects. He has assisted with or compiled Competent Persons Reports/NI 43-101 for various companies that have been listed on the TSX, JSE and AIM.

2.5 Independence

Neither Tect nor Pivot, or the key personnel contributing to the completed and reviewed work, has any interest (present or contingent) in Xtra-Gold Resource Corp. (Xtra-Gold) or its subsidiaries, its directors, senior management, advisers or the mineral properties reported on in this report. The proposed work, and any other work done by Tect and Pivot for Xtra-Gold, is strictly in return for professional fees. Payment for the work is not in any way dependent on the outcome of the work, nor on the success or otherwise of Xtra-Gold's own business dealings. There is no conflict of interest in Tect or Pivot in undertaking the assignment as contained in this document.

2.6 Site and Technical Visits

Dr Koegelenberg has undertaken two visits to the Kibi Project Area. Firstly, over the period 1 – 12 September 2019, and secondly, 29 November - 10 December 2020. The first visit was solely to conduct structural field mapping, review of selected drill core and 3D structural modelling relevant to Zone 5 (Cobra Creek). The second visit focussed on structural drill core reviews, structural field mapping and 3D structural and mineralization modelling of targets and prospects situated in Zones 1 – 4, which contain the mineral resources described in this report.

Mr Lomberg accompanied Tect geoscientists on the second visit, when several trenches, road cuts and drill hole collars were visited and evaluated in the field for mineralization style and appropriate trench and drill hole sampling methods. At site, the storage sheds and sampling areas were examined, as well as the data room and recent drill core.

3 RELIANCE ON OTHER EXPERTS

This report was prepared as a National Instrument 43-101 Technical Report, in accordance with Form 43-101F1, for Xtra-Gold, the issuer, by Tect Geological Consulting and Pivot Mining Consultants Pty Ltd. The quality of information and conclusions contained herein are consistent with the level of effort involved in Pivot's services and is based on:

- Information available, at the time of preparation, from Xtra-Gold.
- Third-party technical reports prepared by Government agencies, previous tenement holders and other consultants.
- Other relevant published and unpublished third-party information.

This report is intended to be used by Xtra-Gold, subject to the terms and conditions of its contract with Tect and Pivot. This contract permits Xtra-Gold to file this report as a Technical Report with Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, Standards of Disclosure for Mineral Projects. Any other use of this report by any third party is at that party's sole risk.

A final draft of this report was provided to Xtra-Gold, along with a written request to identify any material errors or omissions, prior to lodgement.

Neither Tect nor Pivot, nor the authors of this report, are qualified to provide extensive comment on legal facets associated with ownership and other rights pertaining to Xtra-Gold's mineral properties described in Section 4. Pivot did not see or carry out any legal due diligence confirming the legal title of Xtra-Gold to the properties.

Similarly, neither Tect nor Pivot nor the authors of this report are qualified to provide extensive comment on environmental issues associated with Xtra-Gold's mineral properties, as discussed in Section 4.

Tect and Pivot relied on Xtra-Gold for the information in respect of the Prospecting Permits and Environmental Permits.

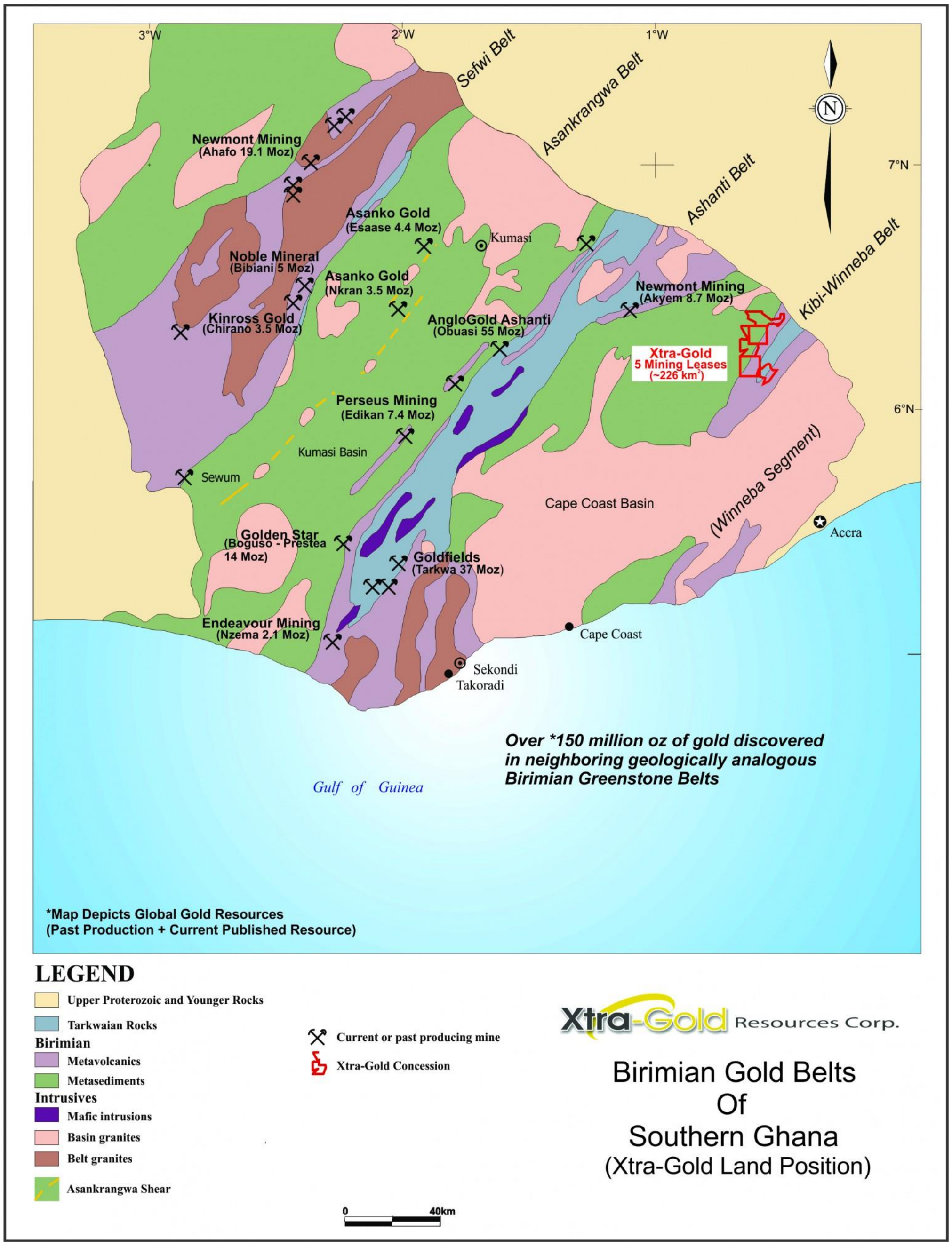
4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Description and Location

The Apapam Concession is located approximately 75 km north-northwest of Accra, in the East Akim District of the Eastern Region of Ghana, on the eastern flank of the Atewa Range near the headwaters of the Birim River (Figure 4.1). The centre of the concession is situated at approximately 6o 09' 30" West Longitude and 0o 34' 15" North Latitude (WGS 84). The Kibi Project area spans 3,365 ha and is located at the northern extremity of the Kibi Winneba Greenstone Belt (Figure 4.2).

Figure 4.1: Location of Xtra-Gold Concessions

Figure 4.2: Birimian Gold belts showing the location of the Kibi Project



4.2 Country Profile: Ghana

The Republic of Ghana (Ghana), formerly known as the Gold Coast, is located in West Africa on the Gulf of Guinea (Figure 4.1) and shares borders with Côte d'Ivoire (Ivory Coast) to the west, Togo to the east and Burkina Faso (formerly Upper Volta) to the north. To the south are the Gulf of Guinea and the Atlantic Ocean. Ghana has a total land area of approximately 239,533 km^2. Ghana’s capital city is Accra, which is located along the south-eastern coast.

Figure 4.3: Location of Ghana

The Republic of Ghana was formed from the merger of the British colony of the Gold Coast and the Togoland trust territory in 1957. Ghana endured a series of coups before Lt. Jerry Rawlings took power in 1981 and banned political parties. After approving a new constitution and restoring multiparty politics in 1992, Rawlings won presidential elections in 1992 and 1996 but was constitutionally prevented from running for a third term in 2000. John Kufuor of the opposition New Patriotic Party (NPP) succeeded him and was re-elected in 2004. John Atta Mills of the National Democratic Congress won the 2008 presidential election and took over as Head of State. Mills died in July 2012 and was constitutionally succeeded by his vice president, John Dramani

Mahama, who subsequently won the December 2012 presidential election. In 2016, Nana Addo Dankwa Akufo-Addo of the NPP defeated Mahama, marking the third time that Ghana's presidency has changed parties since the return to democracy.

After several peaceful transitions to power, the generally smooth elections and peaceful transfer of power in January 2017 has confirmed Ghana as one of Africa's most stable democratic states (The World Bank 2017).

4.2.1 Economy

Ghana has a market-based economy with relatively few policy barriers to trade and investment in comparison with other countries in the region. The country is endowed with economically viable mineral and petroleum natural resources. Ghana's economy was strengthened by a quarter century of relatively sound management, a competitive business environment, and sustained reductions in poverty levels, but in recent years has suffered the consequences of loose fiscal policy, high budget and current account deficits, and a depreciating currency.

Agriculture accounts for about 20% of GDP and employs more than half of the workforce, mainly small landholders. Gold, oil, and cocoa exports, and individual remittances, are major sources of foreign exchange. Expansion of Ghana's nascent oil industry has boosted economic growth, but the fall in oil prices since 2015 reduced by half Ghana's oil revenue. Production at Jubilee, Ghana's first commercial offshore oilfield, began in mid-December 2010. Production from two more fields, Ten and Sankofa, started in 2016 and 2017 respectively. The country's first gas processing plant at Atuabo is also producing natural gas from the Jubilee field, providing power to several of Ghana's thermal power plants.

As of 2018, key economic concerns facing the government include the lack of affordable electricity, lack of a solid domestic revenue base, and the high debt burden. The Akufo-Addo administration has made some progress by committing to fiscal consolidation, but much work is still to be done. Ghana signed a $920 million extended credit facility with the IMF in April 2015 to help it address its growing economic crisis. The IMF fiscal deposits require Ghana to reduce the deficit by cutting subsidies, decreasing the bloated public sector wage bill, strengthening revenue administration, boosting tax revenues, and improving the fiscal health of Ghana's banking sector. Priorities for the new administration include rescheduling some of Ghana's $31 billion debt, stimulating economic growth, reducing inflation, and stabilizing the currency. Prospects for new oil and gas production and follow through on tighter fiscal management are likely to help Ghana's economy in 2018.

According to the African Development Bank (https://www.afdb.org/en/countries/west-africa/ghana/ghana-economic-outlook), the COVID–19 pandemic has significantly curtailed Ghana's economic growth momentum. Real GDP growth was estimated to decelerate from 6.5% in 2019 to 1.7% in 2020 due to the slump in oil prices and weakened global economic activity. Nonetheless, growth is expected to be sustained by a recovery in construction and manufacturing sectors, combined with favourable gold and cocoa prices. Inflation is expected to reach 10% in 2020 from 8.7% in 2019 due to pandemic-related interruptions in supply chains and expansionary monetary policy aimed at mitigating the economic impacts of COVID–19. The fiscal deficit is expected to widen to 10.5% of GDP in 2020 from 4.8% in 2019 due to revenue shortfall from weak economic activity and unanticipated increased health expenditure. The current account deficit is expected to narrow to 2.5% of GDP in 2020 from 2.8% in 2019 because of reduced demand for imports. Foreign exchange reserves maintained the previous year's level of 4 months of import cover as of July 2021. The Ghanaian cedi (GH₵) currently valued at 0.17 USD, depreciated by 3.1% in 2020, compared with a 10% depreciation in 2019. Ghana remains at high risk of debt distress in the International Monetary Fund's 2019 Debt Sustainability Analysis because of solvency and liquidity risks. The public debt-to-GDP ratio reached 71% in September 2020 from 63% a year earlier. A banking sector reform, including recapitalization of banks and liquidation of insolvent financial institutions, has enhanced the overall resilience of the sector. Firm and household surveys reveal that during the partial lockdown, about 770,000 individuals experienced reduced wages, and 42,000 lost their jobs.

4.2.2 Infrastructure

Local infrastructure consists of 110,000 km of roads (14,000km tarred and 96,000 km untarred), 947km railways, seven paved airport runways.

4.2.3 Population

Ghana has a population of about 32.4 million (2021) consisting of a number of ethnic groups (Akan 47.5%, Mole-Dagbon 16.6%, Ewe 13.9%, Ga-Dangme 7.4%, Gurma 5.7%, Guan 3.7%, Grusi 2.5%, Mande 1.1%, other 1.4%) and speaking various local languages (Asante 16%, Ewe 14%, Fante 11.6%, Boron (Brong) 4.9%, Dagomba 4.4%, Dangme 4.2%, Dagarte (Dagaba) 3.9%, Kokomba 3.5%, Akyem 3.2%, Ga 3.1%, other 31.2%). English is the official language. Various religions are practiced:- Christian 71.2% (Pentecostal/Charismatic 28.3%, Protestant 18.4%, Catholic 13.1%, other 11.4%), Muslim 17.6%, traditional 5.2%, other 0.8%, none 5.2% (2010 est.). Some 76.6% of the population are considered literate (CIA World factbook).

4.2.4 Gold in Ghana

(Quoted from THE WORLD BANK June 2017 shifting Ghana's competitiveness into a higher gear Ghana economic update 40pp.)

For centuries, gold and Ghana have been synonymous. Hundreds of years before the Portuguese sailors first arrived (late 1400s) along the coast of West Africa in search of gold, large quantities of this treasured metal had been mined and transported across the Sahara to North Africa. This trade helped to establish and support major trading centres in the Sahel along the course of the Niger River and contributed much to the main trading ports along the southern coast of the Mediterranean Sea.

The arrival of the European traders led to increased gold production within the forest areas of southern Ghana and the area became known as the Gold Coast. It soon became one of the most important gold-producing areas in the world and eclipsed other major producing areas in present day western Mali (Bambuk) and northern Guinea (Boure), which had been the earliest sources in

West Africa that had fostered the development of several successive inland states/empires in the Sahel over a period of many centuries.

For a period of almost 400 years (1490s to late 1800s), European traders competed vigorously for gold brought to the many forts and trading posts strung out along the Gold Coast. Most unfortunately, the gold business was much diminished for almost 3 centuries by the diabolical slave trade and the coastal forts soon became way-stations for West Africans carted off to the New World where they were enslaved as plantation workers. This period was very disruptive to the gold trade, which recovered only in the early to mid-1800s, after slave trading was abolished in most countries and curtailed by the British navy who intercepted slave ships along the coast of West Africa.

In the late 1800s, when the emerging European powers were carving up their respective interests in Africa, Great Britain emerged the dominant European power along the Gold Coast and claimed it as a British colony in the mid-1870s. This marked the beginning of a new era in gold mining in the region as foreign companies were able to acquire gold concessions from local chiefs in very prospective areas in the interior of the country. By the beginning of the 20th century, modern gold operations began to emerge in many districts of southern Ghana.

During the colonial period, gold exploration and production waxed and waned according to economic conditions in the world economy. There was a huge but brief gold rush at the very beginning of the 20th century, which coincided with the Boer War in South Africa, and a much more sustained rush throughout the 1930s when gold production reached historical highs and world-class operations developed at the famous Ashanti mine in Obuasi and in the Tarkwa, Prestea, and Bibiani districts

After World War II and leading up to Ghana's independence in 1957, the gold production remained substantial and the mines were critical to the economy of the new nation. However, the rising costs of production at a time of a fixed gold price made many of the existing operations marginally profitable, except for the Ashanti mine whose traditionally very high grades kept it amongst the premier gold producers in the world. In the early 1960s, the Government of Ghana bought out several of the marginal producers and formed the State Gold Mining Corporation. This parastatal company achieved very good results in the 1960s and early 1970s but a sustained lack of capital investment in the existing operations led to a downward spiral in production throughout the 1970s and early 1980s. Furthermore, there had been little if any new exploration since the 1930s, so no new producers were on the horizon.

It was not until the mid-1980s that the downward trend was reversed as a result of the implementation of a broad Economic Recovery Programme, which included a significant focus on the mining sector. This resulted in updated laws and regulations as well as fiscal incentives to attract foreign capital to carry out exploration and the development of new producers or the upgrading of existing gold operations. These new policies were extremely successful and created the necessary 'enabling environment' that culminated in huge capital expenditures on exploration and development projects.

Dramatic increases in production were achieved and have been sustained for the past 20 years during which Ghana has been the largest gold producer in Africa and over the past few years the country has broken into the top ten world producers. Ghana's success has become a case history for many developing nations, especially with respect to stimulating exploration and mining.

During the latest exploration boom, much of the early interest naturally focused on previous producers and the implications of new treatment schemes to more effectively mine lower grade deposits at mines that had closed down. In addition, many of the older mines now had more reason to re-evaluate known resources on their extensive concessions and to bring in new ideas and ways to increase production. This was especially true at Obuasi where a new and enlightened management team undertook huge development schemes that greatly increased gold production from about 250,000 oz in the mid-1980s to almost 1 million ounces in the mid-1990s.

In addition, the Government's efforts to disassemble and privatize the exploration and mining assets of the State Gold Mining Corporation were finally successful in the early 1990s and subsequent developments have seen very impressive production increases. For example, in Tarkwa, the old underground operations were producing a very modest 20,000-40,000 oz/yr in the late 1980s through the mid-1990s but Goldfields started a very large low-grade open-pit operation in the late 1990s and saw production shoot up to over 300,000 oz by the end of the decade and for the past several years it has been the #1 producer in the country at over 600,000 oz/yr.

In addition, the Newmont group, which had inherited several prospects in the Ahafo area on the north side of the Sefwi Belt. discovered a world-class district that has very quickly become the third biggest producer in the country and keeps expanding production. Newmont is also now developing the very large Akyem deposit on the NE margin of the Ashanti Belt.

Ghana plans to maintain an 'enabling environment' for investment in the mining sector. This starts with a full commitment to good governance and the strengthening of democratic institutions that has gained the nation much favourable attention in recent times. It also includes modifying laws and regulations to improve the overseeing and administering of exploration and mining activities as well as establishing a fair and equitable distribution of the profits from mining in the country.

4.2.5 Overview of the Mineral Laws of Ghana

The Minerals and Mining Act, 2006 (Act 703) (the Mining Act) was enacted in 2006.

According to the Mining Act, all minerals are the property of the Republic of Ghana and are vested in the President in trust for the people of Ghana. Granting of the various mineral titles is done by the Minister responsible for mines on behalf of the President and on the recommendation of the Minerals Commission. Ghana is now using a cadastral system for new tenement applications where the country is divided into blocks that are 15 seconds of longitude by 15 seconds of latitude (approximately 21 hectares or 0.21 km^2 in area).

Table 4.1 summarises the characteristics and conditions for the various types of mineral titles as described in the Mining Act.

- A Reconnaissance Licence allows a holder exclusive right to conduct exploration activities not including drilling or excavation.
- A Prospecting Licence allows a holder to explore for minerals exclusive right to conduct exploration activities including drilling or excavation.
- A Mining Lease allows a holder to extract and process ore. Similarly, a small-scale mining lease also allows a holder to extract and process ore, including the use of mercury, but may only use explosives with the written permission of the Minister.

With mining leases, holders can hold up to 90% interest. The remaining 10% interest is held by the Government of Ghana. Pursuant to the Mining Act, the Government of Ghana acquires a 10% free carried interest in all mining leases by way of 10% share ownership in all Ghanaian corporations who hold mining leases.

Table 4.1: Characteristics of the Mineral Titles - Minerals and Mining Act, 2006 (Act 703).

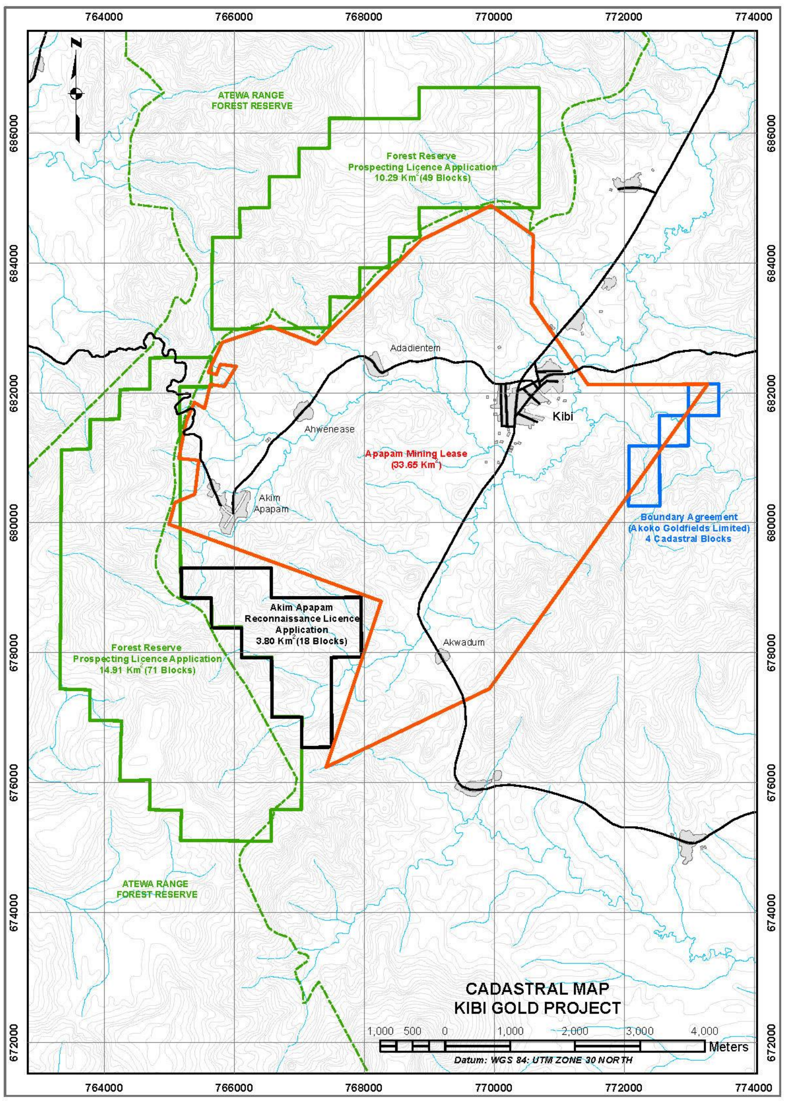
Type of mineral title	Reconnaissance Licence	Prospecting Licence	Mining Lease
Maximum area allowed (blocks)	5,000	750	300
Minimum area to be relinquished after initial term	-	50%	-
Initial term of mineral title (years)	1	2	30
Extendable for a further period (years) - 100% retained	1	1	30
Renewable for a further period (years) - 50% relinquishment		2	
Application forms (US$)	250	250	
Processing fee - applications & renewals (US$)	500	500	
Consideration fee - applications & renewals (US$)	15,000	20,000	100,000
Consideration fee - extension (US$)		15,000	
Ministerial consent to agreements (US$)	20,000	40,000	80,000

4.3 Mining Tenure

Through its subsidiary companies, Xtra-Gold has three titles in the Kibi Gold Project including the Apapam Mining Lease (Figure 4.1). The Apapam Concession is a granted mining lease, whereas the other two titles are currently applications that have been submitted to the Minerals Commission (Table 4.2).

Table 4.2: Mineral Tenements of the Kibi Gold Project						
Title Number	**Name**	**Type of Mineral Title**	**Area (km^2)**	**Date of Application**	**Date Granted**	**Expiry Date**
LVB 5191/09	Apapam	Mining Lease	33.65		18/12/2008	17/12/2015
RL5/44	Akim Apapam	Reconnaissance Licence Application	3.80	15/1/2008	Pending	N/A
PL5/260	Forest Reserve Prospecting Licence Application	Forest Reserve Prospecting Licence Application	25.49 (2 Blocks)	08/08/2018	Pending	N/A

Figure 4.4: Map showing the Three Properties of the Kibi Gold Project



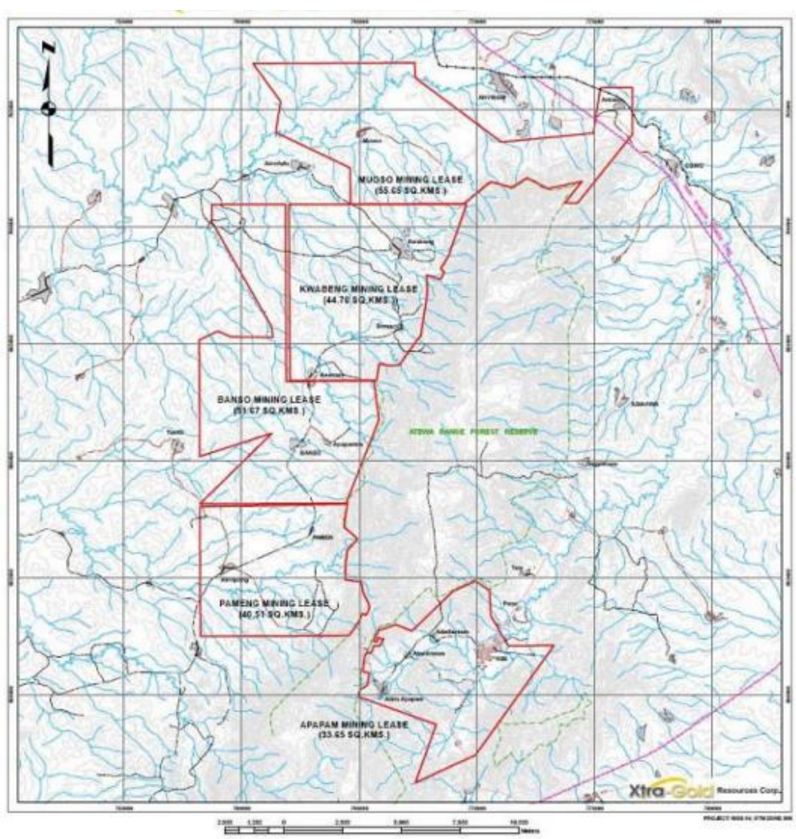
4.4 Licence Status

Xtra-Gold holds five (5) concessions in the Kibi Gold Belt (Figure 4.5), including the Apapam mining lease located on the eastern flank of the Atewa Range, and four (4) contiguous mining leases situated on the western side of the Atewa Range, for a total land position of approximately 226 km^2 (22,600 ha) (Table 4.3).

Table 4.3: Summary of Xtra-Golds Mining Leases

Title	Name Title	Area (km^2)	Date of Grant	Expiry Date	Date of Application for Renewal
Mining Leases					
LVB 5191/09	Apapam	33.65	Dec.18, 2008	Dec.17, 2015	June 17, 2015
LVD 1896A/2011	Muoso	55.65	Jan. 6, 2011	Jan. 5, 2024	N/A
LVD 1896/2011	Banso	51.67	Jan. 6, 2011	Jan. 5, 2025	N/A
LVB 2911/89	Kwabeng	44.76	July 26, 1989	July 26, 2019	Dec. 13, 2018
LVB 4815/89	Pameng	40.51	July 26, 1989	July 26, 2019	Dec. 13, 2018
		226.64			

Figure 4.5: Xtra-Gold Mining Leases Located in the Kibi Gold Belt

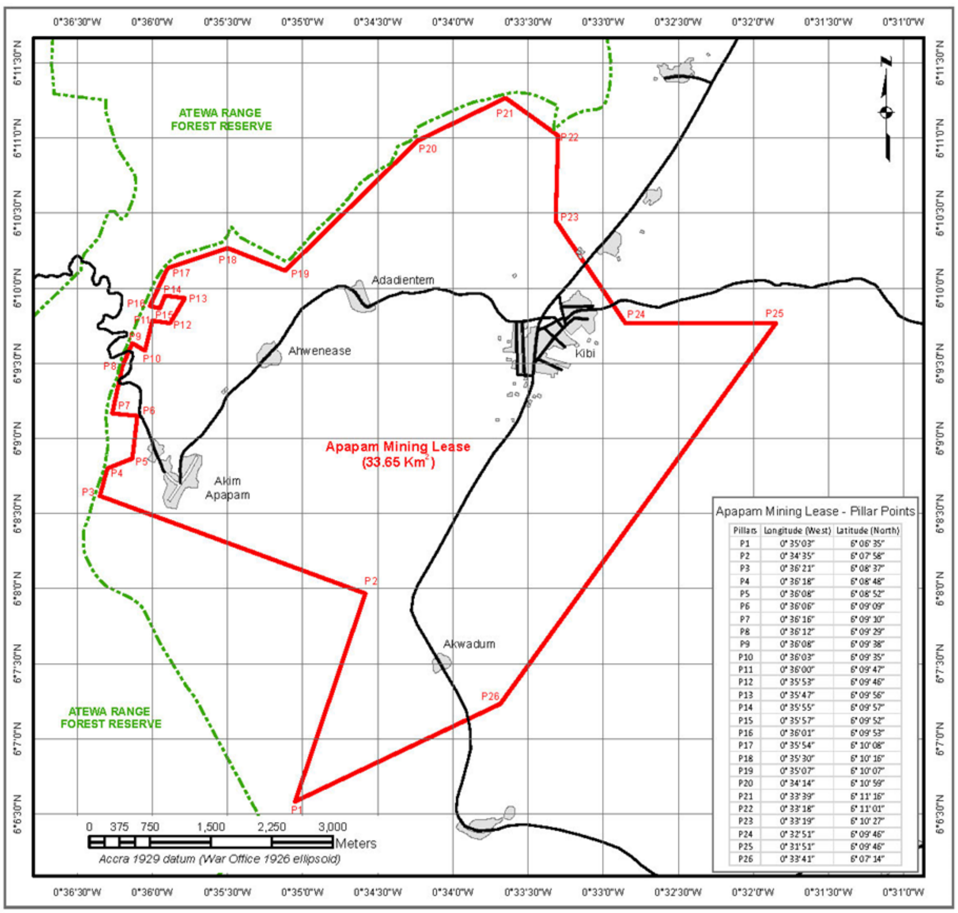


4.4.1 Apapam Mining Lease

The Apapam Mining Lease is stamped as No. LVB 5191/09 by the Lands Commission, registered as No. 24/2009 at the Land Registry, and has the File No. PL.5/142 at the Minerals Commission of Ghana.

The concession boundaries have not been legally surveyed but are described by Latitude and Longitude coordinates via decree, with the mining lease boundaries defined by a series of pillar points in Latitude and Longitude coordinates utilizing the local Accra 1929 datum based on the British War Office (1926) ellipsoid. The concession pillar points as described by the Minerals Commission are depicted / listed on Figure 4.6.

Figure 4.6: Apapam Mining Lease Boundary Pillar Points



Xtra-Gold Mining Limited, which is 90% owned and controlled by Xtra-Gold with the remaining 10% interest being held by the Government of Ghana, is the registered holder of the Apapam Mining Lease. Pursuant to the Mining Act, the Government of Ghana acquires a 10% free carried interest in all mining leases by way of 10% share ownership in all Ghanaian corporations who hold mining leases.

While the mining lease expires in 2015 it can be renewed for a further 30-year term, in accordance with the Mining Act, by Xtra-Gold Mining making application not less than six months prior to the expiry date.

All the required documentation to extend the lease for the Kibi Project for 15 years from December 17, 2015 has been submitted to the Ghana Minerals Commission. As these extensions generally take years for the regulatory review to be completed, Xtra-Gold is not yet in receipt of the extension approval. However, until Xtra-Gold receives the extension documents, the old lease remains in force under the mineral laws. The extension is in accordance with the terms of application and payment of fees to the Minerals Commission of Ghana (Mincom).

Pursuant to the terms and conditions of the Apapam Mining Lease, Xtra-Gold was granted surface and mining rights by the Government of Ghana to work, develop and produce gold in the mining lease area (including the processing, storing and transportation of ore and materials).

4.4.2 Apapam Mining Lease Boundary Agreement

After the grant of the Apapam Mining Lease, the Minerals Commission implemented the cadastral system as required under the Minerals and Mining (Licensing) Regulations 2012 (L.I. 2176). As a result of the implementation of the cadastral system it became necessary for the common boundary shared by the Apapam mining lease and the Akoko mining lease to be readjusted / modified to conform with the cadastral blocks created by the new cadastral system.

Xtra-Gold Mining Limited and Akoko Goldfields Limited subsequently entered into a mutual consent agreement on September 26, 2016, giving the authority to the Mineral Titles Division of the Minerals Commission to readjust / modify the common boundary between the Apappam and Akoko mining leases to conform to the cadastral system with relation to the four (4) cadastral blocks depicted on the Kibi Gold Project Cadastral Plan (Figure 4.4). The boundary agreement was filed with the Minerals Commission on November 1, 2016.

4.4.3 Akim Apapam Reconnaissance Licence Application

Xtra-Gold's land position in the Kibi Gold Project area also includes the Akim Apapam reconnaissance licence application, contiguous to the southwest extremity of the Apapam mining lease (Figure 4.4). The reconnaissance license application for this 3.80 km^2 ground parcel was submitted to the Minerals Commission on January 15, 2008, in the name of Xtra-Gold Exploration Limited. The application area was originally 7.0 km^2 but was reduced to its current 3.80 km^2 (18 cadastral blocks) by the Minerals Commission in 2015 to conform with the new cadastral system.

The application was approved by the Minerals Commission on January 18, 2019, but as at the date of this Report, the reconnaissance licence is still being processed by the Minerals Commission, and Xtra-Gold has yet to receive legal title to this ground. Xtra-Gold has conducted limited exploration work on the Akim Apapam application ground.

4.4.4 Forest Reserve Prospecting Licence Application

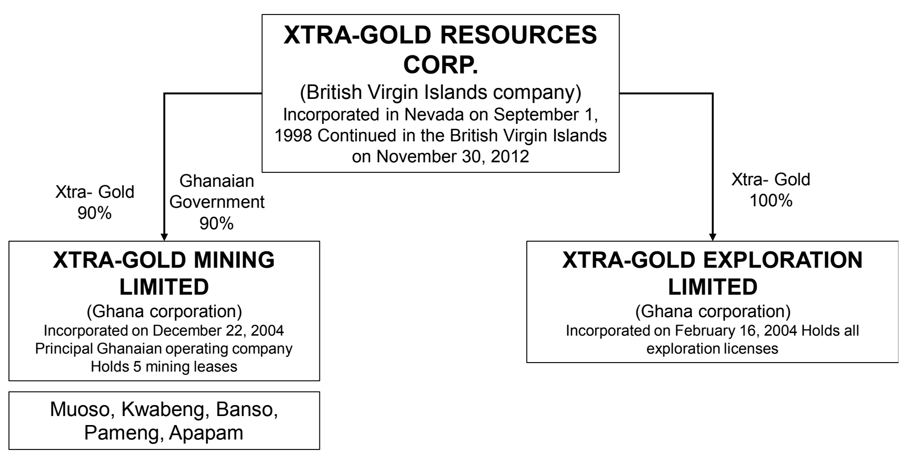
The Kibi Gold Project land position includes a Prospecting Licence Application to conduct mineral exploration activities within the fringes of the Atewa Range Forest Reserve bordering the Apapam mining lease and the Akim Apapam reconnaissance licence application (Forest Reserve Application) (Figure 4.4). The Forest Reserve Application, covering a total area of approximately 25.49 km^2, encompasses two blocks: a northern block of approximately 10.29 km^2 (49 cadastral units); and a western block of approximately 14.91 km^2 (71 cadastral units). With the approximately 450 m gap between the two blocks occupied by the Company's Pameng mining lease (Figure 4.5). The current Forest Reserve Application supersedes the November 13, 2009, Apapam mining lease extension application.

The application process for mineral rights within a Forest Reserve requires two separate permits: a Forest Entry Permit from the Forestry Commission; and a Prospecting Permit from the Minerals Commission. The application for the Forest Entry Permit was submitted on June 20, 2017, with the Forest Entry Permit granted by the Forestry Commission on October 17, 2018. The Prospecting Licence Application was submitted on August 8, 2018, and as at the date of this Report, the application is still being processed by the Minerals Commission.

4.5 Holdings Structure

The corporate holdings' structure is summarised in Figure 4.7.

Figure 4.7: Xtra-Gold Holdings Structure



4.6 Royalties and Agreements

With respect to the Apapam mining lease, Xtra-Gold are:

- Required to obtain an annual operating exploration permit ("operating permit") from the Inspectorate Division of Minerals Commission, which is currently a fee of GH¢5,000 (approximately US$833), to conduct prospecting activities on the concession.

- Upon the grant of the renewal/extension of the mining lease from the Minister of Lands and Natural Resources, Xtra-Gold will be required to pay the following:
  - Annual cadastral rate to Minerals Commission, currently at a maximum rate of US$1,000 per unit (21.24 hectares). Xtra-Gold has applied for 147 cadastral units for an estimated cost of US$147,000 per annum; and
  - Annual cadastral rate to Administrator of Stoole Lands, at a maximum rate of GH¢778 (approximately US$130) per unit, for an estimated cost of GH¢114,366 per annum.
- Committed to pay a royalty in each quarter to the Government of Ghana, through the Commissioner of Internal Revenue, based on the production for that quarter within 30 days from the quarter end as well as a royalty on all timber felled in accordance with existing legislation;
- Required to:
  - Commence commercial production of gold within two years from the issue date of the mining lease.
  - Conduct operations with due diligence, efficiency, safety and economy, in accordance with good commercial mining practices and in a proper and workmanlike manner, observing sound technical and engineering principles using appropriate modern and effective equipment, machinery, materials and methods and paying particular regard to the conservation of resources, reclamation of land and environmental protection generally and
  - Mine and extract ore in accordance with the preceding paragraph, utilizing methods which include dredging, quarrying, pitting, trenching, stoping and shaft sinking in the Apapam lease area.

Xtra-Gold are required to furnish to the government authorities of Ghana, comprising the Minister of Lands, Forestry and Mines, the Head of the Inspectorate Division of the Minerals Commission, the Chief Executive of the Minerals Commission and the Director of Ghana Geological Survey (government authorities), with technical records which include:

- A report in each quarter not later than 30 days after the quarter end to the government authorities in connection with quantities of gold won in that quarter, quantities sold, revenue received and royalties payable.
- A report half-yearly not later than 40 days after the half year end to the government authorities summarizing the results of operations during the half year and technical records, which report shall also contain a description of any geological or geophysical work carried out by the company in that half year and a plan upon a scale approved by the head of the inspectorate division of the minerals commission showing dredging areas and mine workings.
- A report in each financial year not later than 60 days after the end of the financial year summarizing the results of the operations in the lease area during that financial year and the technical records, which report shall further contain a description of the proposed

operations for the following year with an estimate of the production and revenue to be obtained.

- A report not later than three months after the expiration or termination of the Apapam mining lease, to the government authorities giving an account of the geology of the lease area including the stratigraphic and structural conditions and a geological map on scale prescribed in the mining regulations.
- A report not less than 21 days in advance of the proposed alteration, issuance or borrowing to the government authorities (except for the head of the inspectorate division of the minerals Commission and the Director of Ghana Geological Survey) of any proposed alteration to the applicable regulations.
- A report not less than 21 days in advance of the proposed alteration, issuance or borrowing to the government authorities (except for Head of the Inspectorate Division of the Minerals Commission and the Director of Ghana Geological Survey) on the particulars of any fresh share issuance or borrowings in excess of an amount equal to the stated capital of Xtra-Gold Mining.
- A copy of Xtra-Gold Mining's annual financial reports to the government authorities (except for the Head of the Inspectorate Division of the Minerals Commission and the Director of Ghana Geological Survey) including a balance sheet, profit and loss account and notes thereto certified by a qualified accountant, who is a member of the Ghana Institute of Chartered Accountants, not later than 180 days after the financial year end; and
- Such other reports and information in connection with the operations to the government authorities as they may reasonably require.

All gold production will be subject to a production royalty of the net smelter returns (NSR) payable to the Government of Ghana.

The Kibi Gold Project is not subject to any back-in rights, payments or other agreements and encumbrances.

4.7 Environmental Liabilities

All exploration activities in Ghana are subject to regulation by governmental agencies under various environmental laws. These laws address emissions into the air, discharges into water, management of waste, management of hazardous substances, protection of natural resources, antiquities and endangered species, and reclamation of lands disturbed by mining operations. Compliance with environmental laws and regulations may require significant capital outlays and may cause material changes or delays in intended activities.

An Environmental Permit for Mineral Exploration is required from the Environmental Protection Agency (EPA) to carry out prospecting activities on any type of mining licence in Ghana. Xtra-Gold was granted a two-year mineral exploration permit to conduct its exploration work on the Apapam Mining Lease which expired on May 9, 2021. An application for the renewal of the environmental permit was submitted to the EPA on May 10, 2021, and as at the date of this Report, the EPA has yet to issue a new environmental permit to cover the ongoing exploration activities on the concession. It is accepted practice in Ghana for a mining company to carry on with its exploration activities while awaiting for the EPA to process an application for an environmental permit. The granting of environmental permits by the EPA can take several months.

The project is not subject to any known environmental liabilities except as set forth below:

In accordance with the rules and regulations of the Environmental Protection Agency (EPA) of Ghana, the open trenches excavated by Xtra-Gold must be backfilled after mapping and sampling has been completed. Xtra-Gold has adopted a program of backfilling all excavations once mapped and sampled; however, some trenches have been preserved for ongoing exploration purposes and comparison with drilling. Drilling requires the construction of access roads and clearing of land for drill pads to accommodate the drill during operation. Xtra-Gold has adopted a policy of keeping the width of access roads and size of drill pads to a minimum to mitigate the impact on the vegetation. Also, drill cuttings are collected in sumps with the sumps backfilled after the completion of the drill hole.

In areas where there is a lawful surface holder or occupier, Xtra-Gold is required under the Mining Act to pay compensation when land is disturbed, in most cases this is related to the disturbance of crops during access road construction and trenching / drilling activities. Reasonable / fair crop compensation terms are always negotiated with the farm owners prior to the start of exploration work and Xtra-Gold has a good working relationship with the local communities.

Xtra-Gold is not responsible for small-scale artisanal and alluvial mining that has taken place across the project area.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Access

The concession is located approximately 75 km north-northwest of Accra and can be accessed by two asphalted secondary highways. Access to the Kibi Gold Project can be achieved by driving approximately 75 km northwest from Accra on the paved Accra-Kumasi Trunk Road which is the main national highway. A tarred road emanating from the Accra-Kumasi Trunk Road approximately 15 km northeast of Kibi dissects the north-central and south-eastern portions of the Kibi Gold Project, while the tarred road servicing the town of Apapam provides access to the south-western extremity of the project.

A network of foot paths and tracks link most of the communities within the concession areas and provide access to the areas where exploration and drilling have been taking place. Xtra-Gold constructed a number of roads and 4WD tracks to provide access to the drill sites.

5.2 Climate

The climate within the area is equatorial with relatively high humidity throughout the year. Rainfall is generally characterised by two periods, with high and unpredictable rain especially during the peak period which falls in May/June with a second peak in September/October. The rainfall per annum is some 2700 mm (Figure 5.1). The dry season is generally from January to February. Temperatures ranges between 22°C and 35°C (**Figure 5.2: Average Monthly Temperatures**Figure 5.2). Operations can be undertaken throughout the year.

Figure 5.1: Average Monthly Precipitation

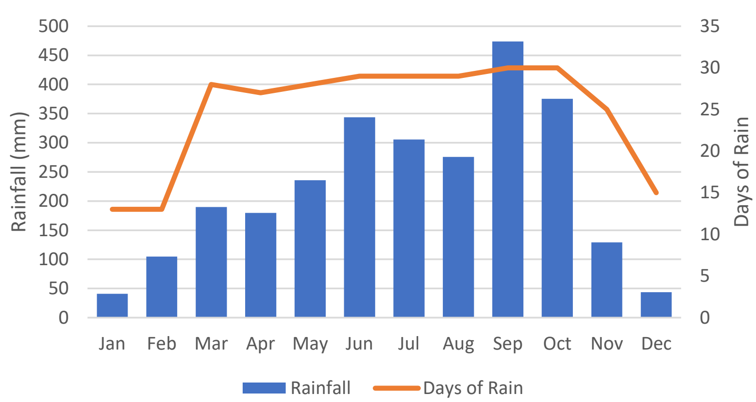
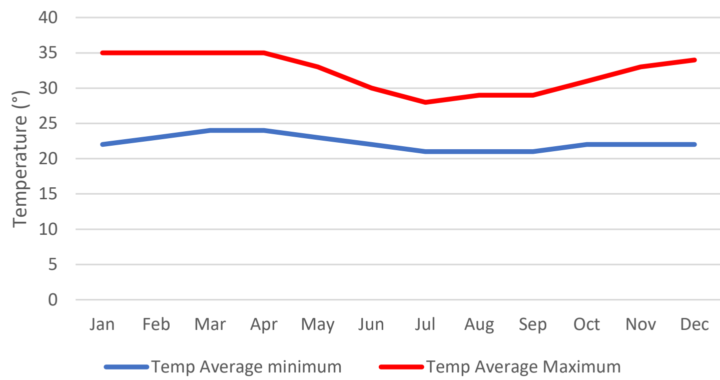


Figure 5.2: Average Monthly Temperatures



5.3 Physiography

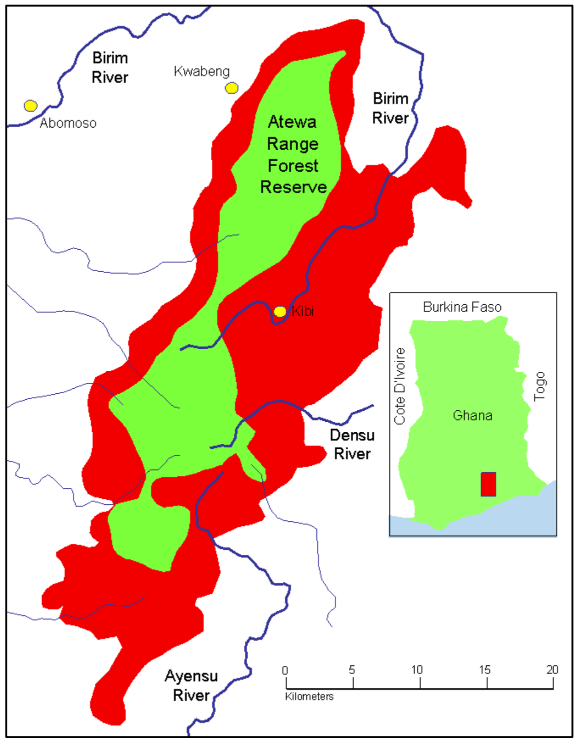
The topography of the Apapam Concession is characterized by steep sloping ridges and undulating mountain side hills due to the prominent, NNE trending Atewa Range that is about 50 km long and 10-15 km wide and dominates the area. The range consists of steep-sided hills with fairly flat summits as the last remains of the Cenozoic peneplain that once covered southern Ghana, and contains ancient bauxitic soils. The steep flanks feature a wide variety of high canopy tropical hardwoods typical of south-western Ghana whereas the summit has a diverse flora, including extensive hanging vines. The range is the site of an important forest reserve, and the source of the Birim River and its tributaries drain the area. The Birim River makes a long detour north and southwest around the Atewa range before joining the Pra River.

Relief in most parts of the Apapam Concession is quite modest (10-30 m) but changes abruptly at the base of the steep-sided flanks of the Atewa Range. The maximum elevation on the Range is about 780 m above mean sea level and stands well above the surrounding lowlands, which are at approximately 180-200 m above mean sea level.

A large area of the Atiwa range has been declared a Forest Reserve, including about 17,400 hectares of upland evergreen forest, rare for Ghana (Figure 5.3). The reserve is managed by the Forestry Commission of Ghana in collaboration with other stakeholders, key among them is the Okyeman Environment Foundation, which has restricted people from farming in the area and instead is trying to encourage eco-tourism. However, the reserve is under pressure from logging and hunting for bushmeat. It is also vulnerable to mining exploration activities since the reserve contains gold deposits as well as low-grade bauxite. The Apapam concession lies at the base and the lower flanks of the Atewa Range immediately adjacent to the boundary of the Forest Reserve.

The main vegetation of the area is basically moist deciduous forest which is characterized by thick canopy tall trees with a layer of shorter trees and evergreen shrubs in the undergrowth. The area is dominated by tropical hard wood species such as Odum, Wawa, Ofram, Asamfra, Mahogany, Teak, Bamboo and Okyenkyen. Tree crops such as cocoa, oil palm, coffee, mango and citrus are also found to be thriving well in the area.

Figure 5.3: Map showing the Location of Atewa Range Forest Reserve



Atewa Range (dark red area) with Forest Reserve (lighter green area)

5.4 Local Resources and Infrastructure

Ghana has a fairly good network of paved highways and roads. Within the Apapam Concession, numerous tracks and paths are available for easy access to most points.

Power is available in larger towns and cities. The electrical grid follows the main secondary roads and most of the major villages in the Kibi District have electrical power. When the national power grid is not available, generators are used for backup power.

The district has quite a large population that is well spread out in many towns (1,000-5,000 population) and villages; small farming hamlets occur throughout the area. The district capital is Kibi (also Kyebi), which is also the seat of the Paramount Chief, or Okyehene, of the Akim people. Kibi is a small city with considerable infrastructure (schools, hospital, police headquarters, etc.). The major towns (Asaaman, Apapam, Kibi and Anyinam) have limited centralized pipe-born water supplies with most of the towns depending on wells and drill holes as well as nearby streams.

Telephone communications are fairly stable and mobile cellular phones are typically used outside of centralized areas of Ghana. Communication are fairly easy due to the availability of the mobile communication network companies such as One Touch, Areeba and Tigo.

The infrastructure in the Kibi District is fairly well developed. The town of Kibi is a major regional centre with a population of over 8,000. Kibi is connected to the national electricity supply network, and hospital, postal and other community facilities are available. Extensive mining infrastructure is in place in all of the major gold producing areas of Ghana.

5.5 Land Use

The main land uses include secondary forest, subsistence and cash crop farming, and artisanal gold mining. Agriculture is the dominant economic activity of the area with about 60% of the labour population engaged in it (Atiwa District Assembly, 2012). The Birimian series forest ochrosol soil coupled with the moist deciduous forest vegetation enables the cultivation of crops and the rearing of livestock. Crops such as, plantain, cassava, maize, yam, cocoyam, oil palm cocoa and vegetables are cultivated in the districts.

6 HISTORY

6.1 Project History

The Kibi District is one of the oldest gold-producing districts in Ghana. Virtually all of the past gold mining activity has focused on alluvial gold deposits in the many river valleys throughout the Kibi area.

6.1.1 Historic Alluvial Mining

This section largely cites Rae *et al*. (2006).

Past gold mining activity was mainly focused on alluvial gold occurrences in many river valleys throughout the area. Long before Europeans arrived, the local villagers mined the area for generations using traditional pitting methods to penetrate through 2-3 m of barren overburden into the underlying gravels, which are often quite rich in coarse gold.

The area was mentioned in early historical accounts as being dangerous to wander from well-established trails because of the myriad of pits throughout the district. The Akim district was very much coveted by the Ashantis in their rise to become a regional power over 200 years ago, because of its known wealth in gold, and unsurprisingly it was one of their earliest conquests.

Direct European interest in the area started mainly in the frenzied but short-lived gold rush that started in 1898. The 1902 concession map of the Gold Coast shows many small to quite large concessions covering virtually the entire Atewa Range and adjacent areas with most of the area under the control of Goldfields of Eastern Akim. Many of the concessions were concentrated along major streams coming off the range where extensive artisanal mining was evident.

The most famous of these areas was known as Pusu, a small village at the base of the northeast flank of the range, approximately 5km due north of the village of Asiakwa. Junner (1935) reported that Europeans started alluvial mining operations in this area in 1903 and continued intermittently until 1930. The area was known for coarse nuggets of gold and recorded production from the companies during the 1920s was over 8600 oz from about 298,000 m^3 with a recovered grade about 0.5 g/m^3 in the nearby Birim River, dredging was attempted in 1904-1905, but this initiative was unsuccessful.

6.1.2 Artisanal Mining

In February 1990 Kibi Goldfields International Ltd, which shares a boundary on the eastern side of the Saaman concession, carried out a pitting program involving ten reconnaissance pits, under the instructions of Minproc Engineers, a consulting company. From October 2006, vigorous illegal small-scale gold mining ‘galamsey’ activity for hardrock mining was ongoing at Abompe, also near the area. Extensive workings, including very numerous pits and underground stopes, extend over their working area. These reveal the presence of mineralized sheared quartz veins hosted in phyllite.

The artisanal miners have identified some mineralized quartz veins and lodes in the Kibi district. As a result there is abundant evidence of small-scale mining activity i.e. the presence of shafts and pits.

6.1.3 Exploration

A London-based junior, Akim (1928), Ltd carried out some exploration and development work on the quartz vein at the Kibi Mine on the outskirts of the town of Kibi. It is likely that some of the other known vein occurrences in the area were also explored but apparently yielded little success.

When the exploration interest in Ghana picked up in the mid-1980s, properties in the area were applied for and granted to small Ghanaian companies, in some cases in partnership with foreign backers. Their interest was almost exclusively on alluvial gold. Two groups, Sun Gold International and Kibi Goldfields, acquired prospecting concessions on the north western and north eastern margins of the Atewa range.

The Sun Gold group of Chicago, USA was in partnership with the Akyem-Abuakwa Development Corporation and was granted two mining concessions (totalling 85 km^2) in 1987 at Kwabeng and Pameng on the NW margin of the Atewa hills. Sun Gold was unable to finance the project and Shefford Resources of Toronto entered the picture in late 1988.

Shefford performed an initial evaluation, which proved encouraging, and then went immediately ahead with a full test-pitting program to assess the resource potential. This was followed by Minproc Engineers of Perth, Australia who completed a Bankable Feasibility Study in 1989. The project was then completely restructured whereby the mining leases were put into a new company, Goldenrae Mining Company, and Sikaman Gold Resources of Toronto amalgamated with Shefford. Sikaman then brought in a senior partner, the London-based ITM Group, who had a great variety of business interest throughout Africa, including management of some alluvial diamond operations in Angola.

The ITM Group provided additional equity funding and assisted in arranging debt financing with Dutch and German banks. The project went into production on substantial alluvial resources at Kwabeng in late 1990 and, although the resource base was well-confirmed by subsequent mining, the project encountered a variety of technical and financial difficulties and it eventually had to be closed down in late-1993.

In the early 1990s, the EQ Resources group of Toronto also picked up a large concession (Apapam) on the eastern flank of the Atewa range, covering the drainage of the upper Birim River in the vicinity of the town of Kibi. EQ carried out a successful pitting program, in cooperation with Goldenrae, with the intention of setting up a satellite production unit under Goldenrae management; however the demise of Goldenrae left this project in limbo. The successors to Goldenrae were eventually able to secure this prospecting concession after it had lapsed.

In the late 1990s, a private Australian company (Sword Construction) briefly operated a small, skid-mounted alluvial plant close to Osino on the Kibi Goldfields concession. They carried out some bulk sampling, which apparently confirmed earlier grade estimates, but equitable financial arrangements could not be worked out with Kibi Goldfields and the work ceased.

Meanwhile, also in the early 1990s, the Kibi Goldfields group had brought in private financing by Canadian investors and commissioned a Pre-Feasibility Study by Minproc Engineers, which confirmed substantial alluvial resources close to Osino along a major tributary of the Birim River on the NE flank of the Atewa Range. Eventually a decision was made to purchase a dredge from Malaysia, which was transported to site, but funds ran short and the equipment remains unassembled on site.

There was another small alluvial operation (Narawa), which started up in the late 1990s, along the Birim River valley close to Osino. This also involved a small, skid-mounted plant but there are no details as to production levels, grades, etc. In any event, this was at a time when the price of gold was very low (less than 300 USD/oz) and the operation was short-lived.

Yet another group tried their luck, this time on the small concession held by the Asikam cooperative just north of Kibi. This project was taken over by Ashanti Goldfields who had inherited an alluvial gold plant through their takeover of the Midras Mining group that originally had alluvial prospects on the Ofin River, west of Obuasi. However, the Asikam concession had higher-grade resources, so a plant was set up close to the Birim River and mining started in the late 1990s. Midras produced 7,510 oz in 1998 but production dropped to 1,066 oz in 1999 and the operations ceased in that year. Again, it would seem that the low gold price was a major factor in the closing of this operation. It is also likely that gold production was too low to support an operation with the invariably high overheads associated with foreign management.

A local group, Bugudon Company Ltd, acquired a prospecting license in the early 1990s at the southern tip of the Atewa Range, in the general vicinity of Asamankese. This company formed a partnership with a Russian group with considerable experience in alluvial gold mining; they imported equipment from Russia and had apparently started some gold production, but this was not sustained and the project did not proceed. There seems to have been an acrimonious parting of the ways between the local and foreign partner.

In 2006, there was a small alluvial operation owned by Med Mining immediately south of the Pameng lease. This was a dry mining operation that has been operating for about two years. The project is said to be financed by a Turkish group and managed by Ghanaian personnel.

6.2 Ownership

Xtra-Gold Mining's interest in Kibi Gold Project was previously by way of a prospecting license granted by the Government of Ghana on March 29, 2004, covering a licensed area of 33.65 km^2. In May 2008, Xtra-Gold Mining applied to the Government of Ghana to convert the Kibi prospecting license to a mining lease.

When Xtra-Gold received parliamentary approval, the Government of Ghana granted and registered the Apapam mining lease to Xtra-Gold Mining on the following terms and conditions.

- The Apapam mining lease is dated December 18, 2008 and is owned and controlled by Xtra-Gold, as to a 90% interest; and is registered to a subsidiary of Xtra-Gold Mining.
- The remaining 10% free carried interest in Xtra-Gold Mining is held by the Government of Ghana.
- The Apapam mining lease had a seven-year term that expired on 17 December 2015.

All the required documentation to extend the lease for the Kibi Project for 15 years from December 17, 2015 has been submitted to the Ghana Minerals Commission. As these extensions generally take years for the regulatory review to be completed, Xtra-Gold is not yet in receipt of the extension approval. However, until Xtra-Gold receives the extension documents, the old lease remains in force under the mineral laws. The extension is in accordance with the terms of application and payment of fees to the Minerals Commission of Ghana.

Xtra-Gold have been granted surface and mining rights by the Government of Ghana to work, develop and produce gold in the Apapam lease area (including the processing, storing and transportation of ore and materials).

6.3 Exploration

6.3.1 Bedrock Gold Deposits

Before the exploration work conducted by Xtra-Gold, very little systematic exploration work for bedrock gold deposits had been conducted in the Kibi area since the 1930s.

Although the Atewa Range is best known for extensive alluvial occurrences, the area also hosts several quartz vein prospects, which have attracted some attention. Numerous gold reefs (i.e. veins) were reportedly discovered during the course of this early alluvial mining, with the most noteworthy of these lode gold prospects being located on and/or in close proximity to Xtra-Gold's land positions, including the Clearing Reef (Kibi Mine) and Hill Reef (Gold Mountain), lying at the north-central extremity of the Apapam Concession. Although these lode gold prospects were reportedly worked or subjected to underground development by London-based mining syndicates in the early 1900s, it is unclear if they ever reached commercial production as there is no known gold production data available.

Cogill (1904) refers to minor prospecting work carried out on a narrow NW-trending vein at Kibi and a shallow shaft that was sunk close to the town of Kwabeng on another vein. Geological traverses in the early 1900s revealed minor gold in coarse clastics, which were identified as probably being equivalent to the Kawere Conglomerate of the Tarkwa district (Junner, 1935), while gold was also reported to be in some of the laterite capping the range.

Very little systematic work has been done on identifying bedrock sources of gold in the district. In the mid-1990s, Ashanti Goldfields had a reconnaissance license covering much of the area. They completed an airborne geophysical survey (magnetics and radiometrics) but apparently did very little follow-up ground work. In view of the widespread occurrences of alluvial gold, in valleys, along with a greenstone belt setting that is analogous with other belts in Ghana, the systematic evaluation of the lode gold potential was justified.

On the northern outskirts of the town of Kibi is a small quartz vein occurrence (Kibi Mine), which was extensively explored in the 1920s (Annual Report of the Department of Mines, 1924, 1925). The work included a main shaft sunk to a depth of 48 m, with levels driven at depths of 20 m and 46 m (Junner, 1935). The targeted vein appears to contain fairly high but erratic values in gold. The gold is associated with pyrite, and the vein is generally quite narrow (usually from 10 to 100 cm wide) but has been traced for about 300m along strike.

Cogill (1904) reports work done on a large quartz vein in the immediate vicinity of the town of Kwabeng, on the northwestern flank of the Atewa Range, at the beginning of the 20th century. The exact location is not known but it is believed to be just north of town. At surface, the vein is quite massive and wide (up to about 7 or 8m) and several shafts were sunk to test its continuity and grade at depth. The vein strikes approximately ENE and dips 30-40° to the SE (Mining Yearbook, 1902-1903 for Kwaben Mines). The depth of the exploratory work was apparently at least 37 m, but specific details are lacking. The vein is apparently quite patchy in terms of gold values, with some sections assaying at >1oz/tonne, although overall grades were considerably lower. There were apparently plans to develop this into a small mine in 1903-04, but these plans were never realised and development work ceased a few years later. While carrying out alluvial prospecting in this area in the late 1980s, Goldenrae Mining stumbled across what is almost certainly the same vein, but all of the old shafts had collapsed. The nearby alluvial deposits show a slight increase in grade in this vicinity, no doubt because of their proximity to this vein.

6.3.2 Alluvial Gold Deposits

The early exploration work in this area by the Shefford/Sikaman team focused on carrying out extensive pitting to establish alluvial gold resources. These 1x1m pits on an initial 800 m x 100 m grid: where potential was found, a 200 m x 25 m grid was sampled. The pits were dug through 20-30 cm of the underlying weathered bedrock: some pits were up to 8 m depth but most were in the range 4-6 m with the overburden and gravel each being 2-3 m thick on average. Early testing indicated that the overburden was consistently barren so only the gravels were processed at the field site, using mainly small, portable units, which consisted mainly of a shaking screen with strong water spray and underlying sluice with an astro-turf bedding that captures most of the gold. Samples representing 50 cm intervals in the pits were processed and the volumes of each interval were carefully measured prior to processing.

The concentrates of heavy minerals from the astro-turf are taken to a central laboratory at the Kwabeng camp and subsequently panned carefully by an expert who can usually extract virtually all of the gold by hand. The gold is then weighed and placed in a glass vial for storage and future reference. In some cases, mercury has been introduced into concentrates with a substantial amount of fine-grained gold; the mercury is then burned off under a well-ventilated hood and the small ‘sponge’ of gold (± traces of Ag) left from the amalgam is then weighed and stored. In the vast majority of cases, the gold in the Kwabeng, Pameng, and Kibi areas is sufficiently coarse and the technicians are sufficiently adept at recovering the gold that mercury is rarely needed.

6.3.3 Historical Exploration of the Apapam Concession

The general Apapam Concession area was first systematically explored in the late 1980s by the West Africa Resource Development and Investment Group Plc (WARDIG) who held a large tract of land extending from Pawtroasi in the south-west to Sajumasi in the north-east, encompassing the present Apapam ML and the Akim Apapam reconnaissance license application areas. In 1987 to 1988, RTZ Consultants Limited (RTZ Consultants) undertook preliminary exploration activities primarily designed to evaluate the alluvial gold potential. The work undertaken included sampling of quartz veining in alluvial test pits and along roads, and a compilation of the historical data on the Kibi Mine (Clearing Reef) lode gold prospect for WARDIG.

A zone of quartz veining, characterized by isolated quartz stringers, lenses and a 1m wide vein system was also located along the Kibi-Apapam road (Birim Valley) during the 1987-1988 reconnaissance exploration program. A 32 m-long trench was excavated to further expose the vein system and 11 samples were collected from the more prominent quartz veins/lenses. This sampling yielded gold values that were less than detection limit and/or just above detection limit in the <0.01 g/t to 0.025 g/t range. This veining occurrence was located and sampled by Xtra-Gold in 2006, with seven (7) samples yielding similar gold values at the detection limit. Sampling of four (4) greywacke-hosted quartz vein occurrences intersected by test pits along the Birim Valley yielded gold grades of between <0.01 g/t to 0.52 g/t.

In the late 1980s, most of the major valleys extending to the summit of the Atewa Range were subjected to geological mapping and stream geochemistry as part of a lateritic gold reconnaissance program conducted jointly by Sikaman Gold Resources and BHP Minerals Ghana Inc. This work was undertaken under a special permit issued by Mincom.

In the mid-1990s, Ashanti Goldfields Company Limited (now AngloGold Ashanti Ltd.) held a reconnaissance license covering much of the area. They completed an airborne geophysical survey (magnetics and radiometrics) but apparently did very little follow-up work. In the late 1990s, Ashanti Goldfields set up an alluvial processing plant on the banks of the Birim River on the Midras Mining concession, located immediately north of the Apapam Concession.

6.4 Mineral Resource

During July to October 2012 SEMS Exploration undertook a mineral resource estimate for Zones 2 and 3 of the Kibi Gold Project. The estimate, based on all exploration drilling completed as of June 2012, is presented in Table 6.1. The mineral resource estimate was prepared in compliance with the Definitions and Guidelines of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM Standards). All work was carried out using Datamine™ software. Data were verified in accordance with standard QA/QC procedures.

The database consisted of 256 drill holes covering sampling Zones 1 to 4 of the Apapam Concession. Ninety percent (90%) of these drill holes occur in Zones 2 and 3. Within Zones 2 and 3, five separate mineralised bodies (Big Bend, Double 19, East Dyke, Mushroom, South Ridge) have been defined by 190 drill holes, of which 88% are diamond drill holes.

The five targets cover a combined strike length of 1.6 km, with separations between the mineral resource areas varying from almost contiguous to 200 m for four of the targets occurring in Zone 2 and the fifth target of Double 19 lying 500 m to the southwest in Zone 3.

The 2018 – 2019 South Ridge drilling data was outsourced to Goldspot Discoveries Inc. (Goldspot) of Montreal, Canada for integration into an updated 3D geological model of the Zone 2 – Zone 3 Mineral Resource footprint area. The new 3D geological model was completed by Goldspot in late July 2019, with detailed modelling geared towards the identification of prospective litho-structural gold settings to help guide upcoming resource expansion drilling efforts.

Table 6.1: Mineral Resource 2012
Declared in terms of the guidelines of the CIM Standards

	Category	Tonnage (Mt)	Gold Grade (g/t)	Gold oz
Big Bend	Indicated	2.73	2.44	213,000
	Inferred	0.51	1.60	27,000
Double 19	Indicated			
	Inferred	0.61	2.43	48,000
East Dyke	Indicated	0.65	3.03	64,000
	Inferred	0.08	4.37	11,000
Mushroom	Indicated			
	Inferred	0.25	2.32	18,000
South Ridge	Indicated			
	Inferred	0.90	1.48	43,000
Total	Indicated	3.38	2.56	277,000
	Inferred	2.35	1.94	147,000

6.5 Mineral Reserve

No Mineral Reserves have been declared.

6.6 Historical Production

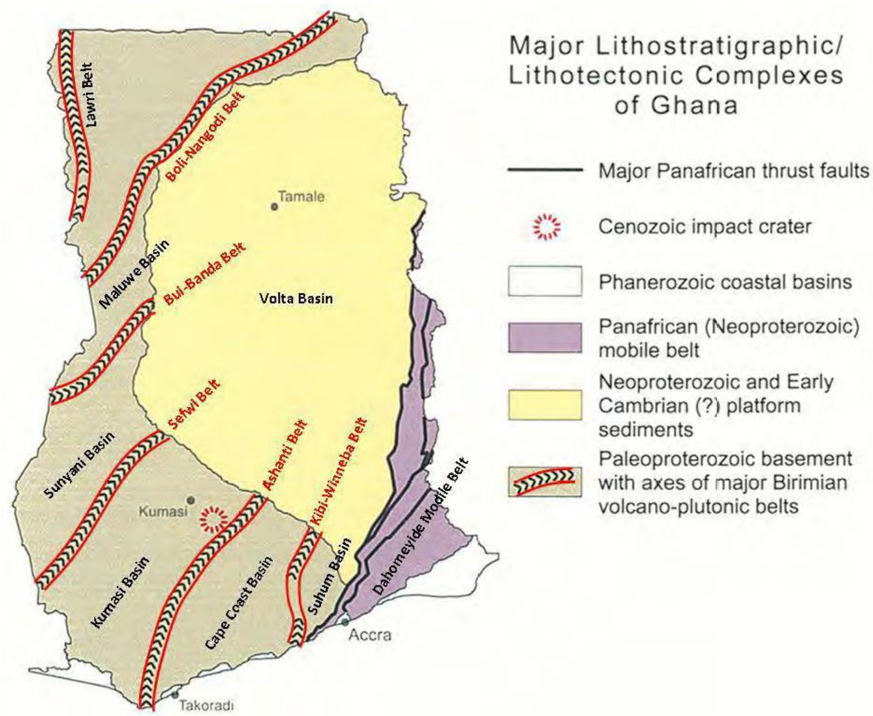
There has been no historical production.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geological Setting

Xtra-Gold's Kibi Project is hosted within the Kibi Belt, which forms the northern continuation of the Paleoproterozoic Greenstone Kibi-Winneba Belt (KWB), located in south-western Ghana. Ghana's geology is generally described as part of the Guinea Shield of West Africa. It is broadly divided into four major lithotectonic terranes or settings, *viz.* Phanerozoic Costal Basins, Pan-African Mobile Belts (Neoproterozoic), Neoproterozoic to Cambrian platform sediments and Paleoproterozoic basement complexes, including the KWB (Figure 7.1).

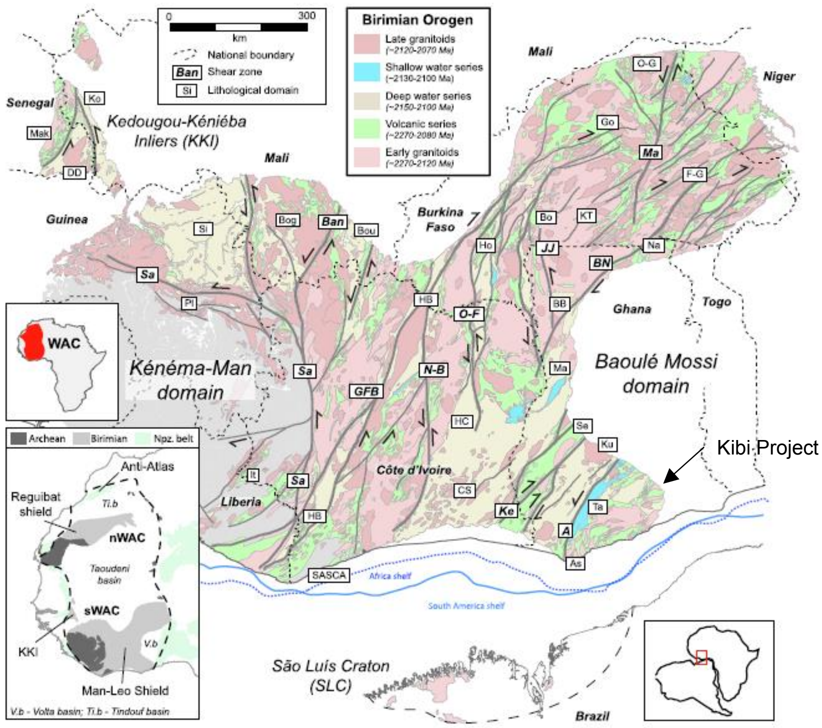
Figure 7.1: Simplified Geology and Major Lithotectonic Complexes of Ghana



(adapted from Geological Survey Department of Ghana – www.ghana-mining.org).

Paleoproterozoic Basement Complexes, on a regional-tectonic-scale, form part of the West African Craton (WAC) that is exposed as a series of inliers and shields located in the northern and southern sections of the craton, while the central portion is covered by largely Mesoproterozoic to Palaeozoic sedimentary cover sequences (Figure 7.2). The southern section of the West African Craton (sWAC) is assigned to the Man-Leo Shield, which comprises regional sequences of volcanic, volcanoclastic and silicilastic successions of the Birimian Supergroup, which were deposited in (sub-)basins immediately prior to and during the regional Eburnean Orogeny between ca. 2160 and 1960 Ma (Grenholm *et al*., 2019, and references therein) – also referred to as the Birimian Orogen of West Africa .

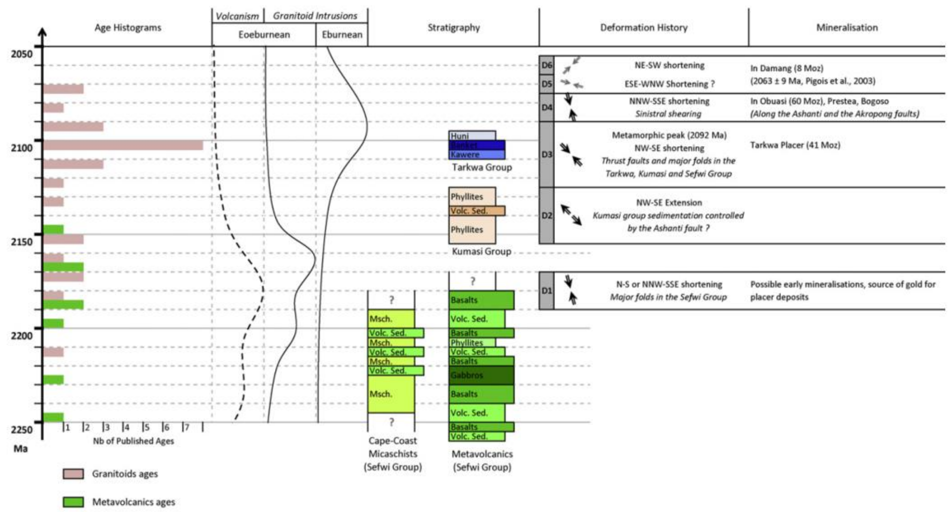
Figure 7.2: Geology of the Man-Leo Shield in the southern West African Craton



Geological map of the Man-Leo Shield in the southern West African Craton (sWAC), including Birimian crust in the Paleoproterozoic Baoule Mossi domain Kedougou-Kenieba Inliers (KKI), Sao Luis Craton (SLC), and Archean crust in the Kenema-Man domain. Location of SLC after Klein and Moura (2008). Inset show location of the Man-Leo Shield in the West African Craton (WAC). Modified after Milesi *et al*. (2004). As – Ashanti series; Ta – Tarkwaian series; Ku – Kumasi series; Se – Sefwi series; CS – Comoe-Sunyani series; Ma – Maluwe series; Na – Nangodi series; BB – Bole-Bulenga domain; La – Lawra series; Bo – Boromo series; KT – Kedougou-Tumu domain; Go – Goren series; OG – Oudalan-Gouroul domain; OF – Ouango-Fitini Shear zone; HC – Haute Comoe series; HB – Hana Lobo–Bandama–Banfora series; It – Ity-Toulepleu inlier; BB – Boundiali–Bagoe; Bo – Bogouni; Si – Siguiri series; Ko – Kofi series; DD – Diale-Dalema series; Ma – Mako series. After Grenholm, *et al.* (2019)

In Ghana, the KWB forms part of a series of north- to northeast-trending greenschist facies volcanoclastic to volcano-plutonic belts and sub-greenschist facies supracrustal basins, which are relics of the Birimian Orogen. These comprise, stratigraphically upwards, the Sefwi Group (ca. > 2174 Ma) and Kumasi Group (ca. 2154 - 2125 Ma), both assigned to the Birimian Supergroup and representing an early-tectonic pulse of volcanism and sedimentation. The Birimian Supergroup is, in turn, unconformably overlain by the Tarkwa Group (ca. 2107 – 2097 Ma) (also referred to as the Tarkwanian Supergroup), which represents a later tectonic pulse between 2115 and 2080 Ma. The entire sequence is host to contemporaneous voluminous early- (ca. 2270 - 2120 Ma) to late-tectonic granitoids (ca. 2120 - 2070 Ma) (Figure 7.3).

Figure 7.3: Simplified Stratigraphy of Ghana



The evolution of the regional Eburnean Orogeny (Perrouty *et al.*, 2012, and references therein; Figure 7.3) is described as transitional between two phases: firstly, an accretionary or converging plate-subduction phase (ca. > 2.16 Ga) (D_1) and secondly, an eventual plate-collision phase (D_3 – D_6) that peaked from 2.16 to 2.07 Ga. The accretionary phase is largely underpinned by the deposition and deformation of the Sefwi Group, which describes early supracrustal mafic to felsic volcanism and the deposition of coeval volcaniclastic and silicilastic sequences in an intra-volcanic arc setting, while lateral facies variations are attributed to the proximity of eruptive vents and distal marginal basins. In contrast, the overlying Kumasi Group comprises relatively deep water (low-energy deposition) phyllites and subordinate volcaniclastic sediments that reflect basinal extension or subsidence (D_3), localized within an overall converging plate-subduction setting (deep frontal- or back-arc basin setting?). The unconformably-overlying Tarkwa Group, in turn, comprises predominantly shallow water sediments, which represent final basin inversion, towards eventual plate collision (*viz.* D_3 – D_6).

The margins of the KWB, along with the Ashanti, Asankrangwa and Sefwi Belts to the west, are bound by regional-scale major faults, which have throughout the Eburnean Orogeny been subject to repeated reactivation. These major faults are inferred to have acted as thrusts during plate margin convergence, accretion and collision (D_1 – D_3), but were in turn, re-activated to accommodate increasing lateral tectonic escape during eventual plate margin collision and peak burial metamorphism (D_3 – D_4). This gave rise to increased oblique-strike-slip kinematics (sinistral-reverse) along major faults (*viz.* D_4). A subordinate, late-tectonic, sub-horizonal crenulation cleavage, cross-cutting earlier $D_{1\text{-}4}$ structural features, is tentatively attributed to late-tectonic loading (D_5), while reverse faults associated with late-stage mineralization from 2092 to 2063 Ma crosscut all earlier features ($D_{1\text{-}5}$) and are assigned to D_6.

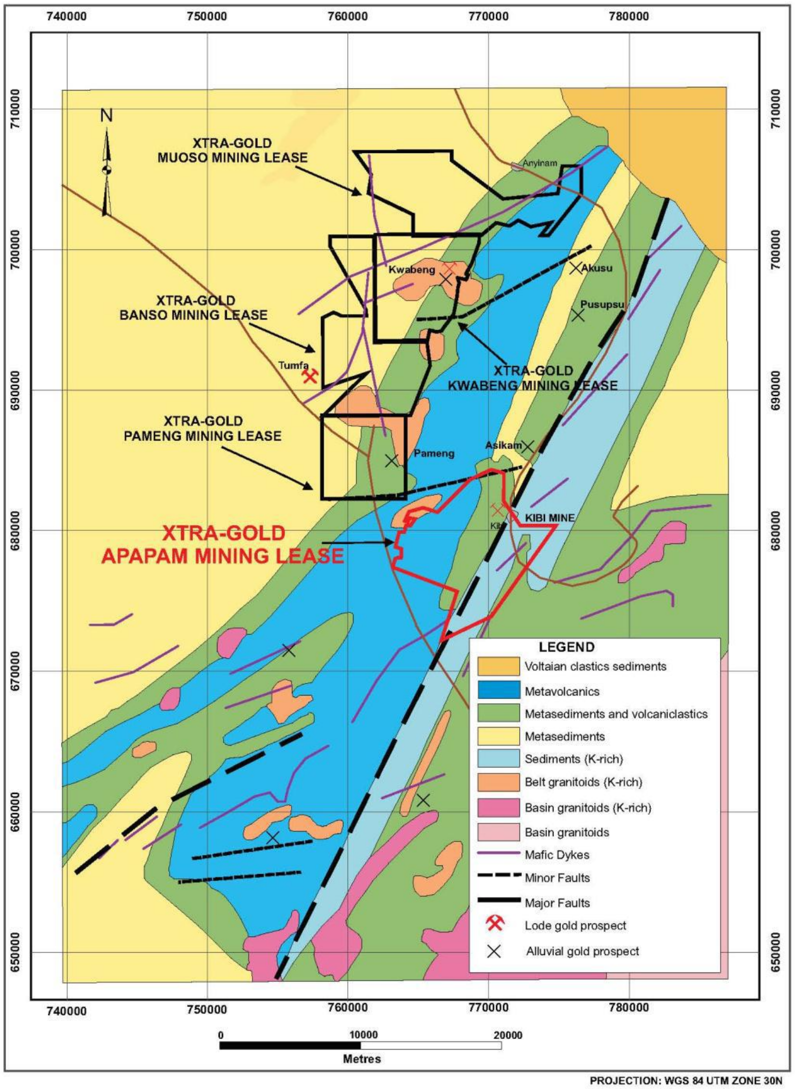
7.2 Geology of the Kibi Belt

The KWB is the easternmost of the Birimian Greenstone Belts in southern Ghana. It is located east of, and parallel to, the well-endowed and world-renowned Ashanti Gold Belt, which hosts many of Ghana's active producing gold mines. The north-east trending Kibi Belt (KB), *viz.* the northern continuation of the KWB, is approximately 60 km long and 20 km wide. Its southern limit is truncated by a large granitoid batholith, whereas its northern extent is overlain by younger, flat-lying sediments of the Pan-African Voltain Supergroup. Locally, the geology of the KB is poorly established, compared to the Ashanti Gold Belt, largely due to the poor exposures, limited government survey mapping and the lack of formal exploration activities. The general Kibi Project area geology is summarized from Griffis (1998) and Griffis *et al* (2002), and a Kibi Gold Belt Geological Map derived from regional geological survey traverses and airborne aeromagnetic and radiometric data interpretations (Figure 7.4).

The Kibi Project area is topographically dominated by the steep-sided Atewa Mountain Range, exhibiting a relief of approximately 500 m with the surrounding valleys. Its flat summits attain an elevation of approximately 780 m above sea level. The Atewa Mountain Range is underlain by northeast trending Birimian Supergroup sequences (*viz.* the Sefwi Group), including altered basalts and andesites (greenstones) interleaved with phyllites, meta-tuffs, epi-diorite, meta-greywacke and chert. The broad valleys are underlain by thicker sequences of metasediments (greywacke, argillite, and phyllite), which are more susceptible to weathering and erosion.

The northwestern extremity of the Atewa Mountain Range is the type-locality for Birimian metasediments and metavolcanics. Regional traverses and airborne geophysical data indicate the presence of extensive volcaniclastics with narrower bands of mafic flows and mafic sills. Numerous, small, radiometrically-inferred plutons appear to be emplaced within the belt, as well as several northeast-elongated bodies within the metasediments along the western margin of the belt. In general, granitoids associated with fold belts in southern Ghana are of dioritic to granodioritic (intermediate) composition, while granitoids in low-amplitude basins are more felsic and of granodioritic to granitic composition. Fold belt-associated granitoids are suggested to have been emplaced as early sub-volcanic plutonism between 2179 and 2136 Ma (Hirdes *et al*, 1992) (D_1); while more felsic granitoids are associated with peak burial metamorphism and plate margin collision (D_3 – D_6). The belt exhibits several north-northeast to northeast trending major and secondary structures/faults that are conspicuous from airborne geophysical data and topographic patterns.

Figure 7.4: Geology of the Kibi Belt



Source: Xtra-Gold (2012)

7.3 Geology of the Kibi Project

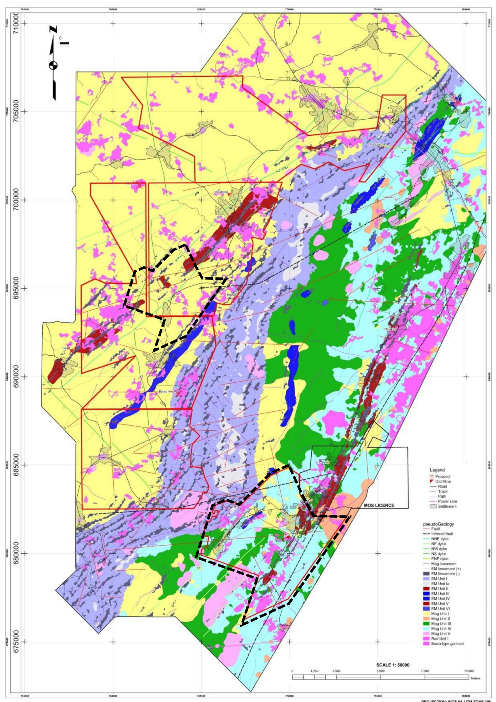
The knowledge and understanding of the geology of the Kibi Project area has been advanced significantly by Xtra-Gold's on-going exploration since 2006, which provides significant increases in mapping, trenching, drilling and soil geochemistry data in an otherwise poorly-explored region. Notable advances include, but are not limited to, interpretations of licence-scale (covering all of Xtra-Gold's concessions) airborne VTEM, aeromagnetic and radiometric surveys (Geotech Airborne, 2011; SRK Consulting, 2011 and Tect Geological Consulting, 2020) spanning across all of Xtra-Gold's concessions (Figure 7.5). Moreover, field-based structural and lithological excursions and high-resolution 3D implicit geological and structural modelling on a target-scale on the Apapam Concession, targeting specifically Kibi Project Zones 1 – 5 (SRK Consulting 2010 and 2011; Tect Geological Consulting, 2019, 2020a and 2020b), have been instrumental in ground-truthing geophysical interpretations and deciphering licence- to target-scale geological settings and structural geometries.

Detailed geological mapping, constrained to Zones 1 – 5 (Figure 7.6), located along the north-western (Zones 1 – 4) and north-eastern margin (Zones 5, *viz.* Cobra Creek) of the Apapam Concession, which includes all of Xtra-Gold's modelled targets (this report), comprises observations made from lateritic gravel cover, bedrock geology mapping, trench and road-cut exposures, in addition to drill hole observations. However, due to dense vegetation and the relative scarcity of surface exposures, coupled with relatively broad drill hole spacing, correlation of lithologies remains challenging and geophysical data must be relied upon.

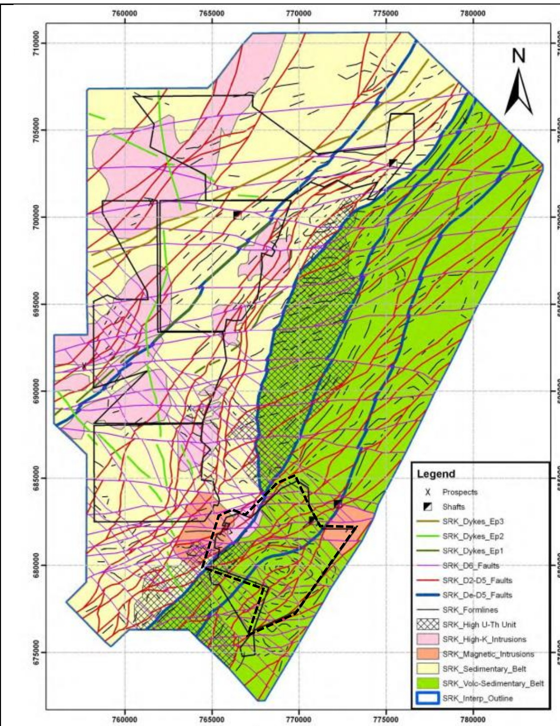
In general, lithological mapping, trenching and drilling indicate that Zones 1 – 4 are characterized by predominantly metasedimentary rocks interlayered with (saprolitic) granitoid to granodiorite and (saprolitic) mafic metavolcanic horizons (Figure 7.6). This metasediment-dominated sequence is at variance with historical geological maps (Figure 7.4), which depict a largely mafic metavolcanic sequence. Apart from regional correlations, these rocks are largely undifferentiated with respect to the Birimian Supergroup and overlaying Tarkwa Group, as well as associated intrusives.

Dominant metasediments are characterized by thinly-bedded, medium- to coarse-grained greywackes with siltstone intercalations, and phyllites that are often graphitic. Interlayered mafic to intermediate metavolcanic units (basalt/andesite) and/or mafic sills (dolerite/diorite?) are characterized by massive, medium-grained textures and typically range from 5 m – 30 m in thickness. Granitoid (granodiorite, quartz-diorite and tonalite) interlayers, previously interpreted as sills and/or dykes (offshoots from larger plutons?), are relatively thick, often > 40 m, and typically medium to coarse-grained.

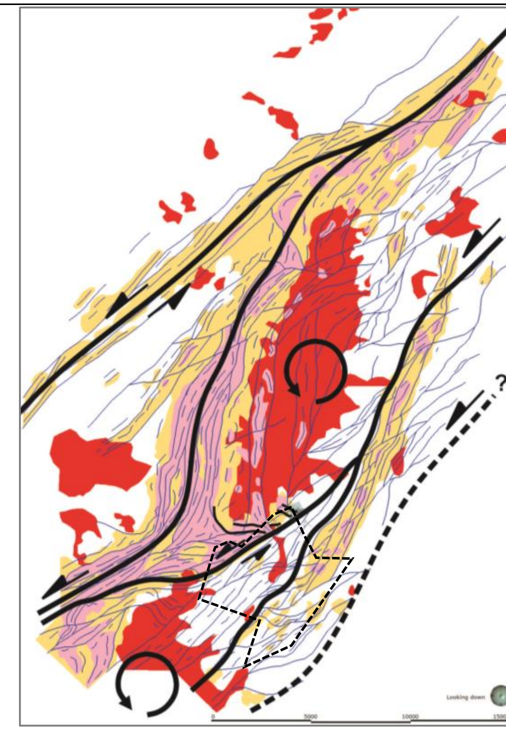
Figure 7.5: Regional Geophysical Interpretations



Geotech Airborne, 2011 (Proxy lithological map)

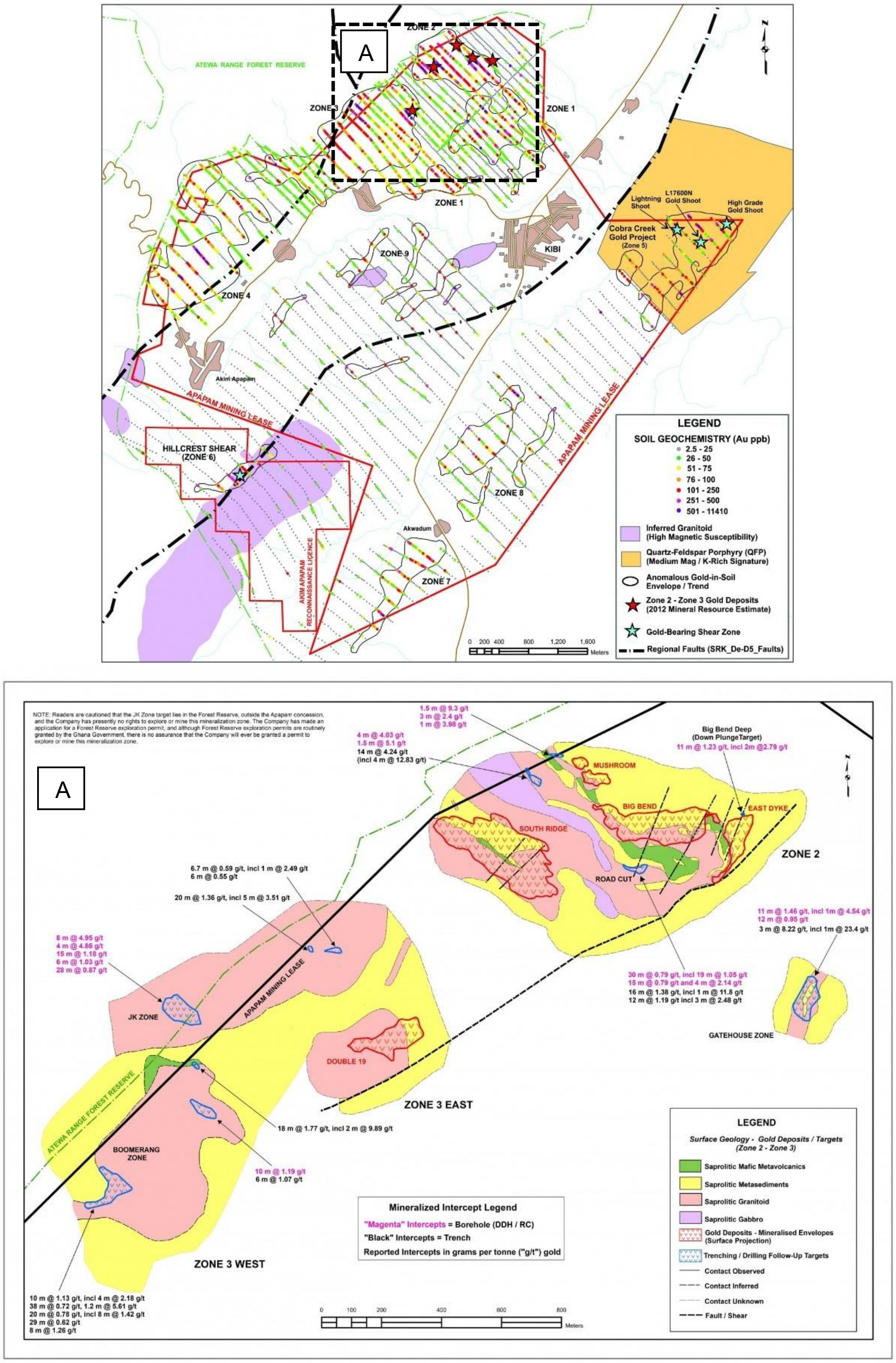


SRK Consulting 2011 (Proxy lithological map and structure)



Tect Geological Consulting, 2019 (Proxy EM and radiometric domains, structure from 1VD and RTP images and interpreted kinematics)

Figure 7.6: Detailed Geology of the Kibi Project



7.4 Structure – Overview

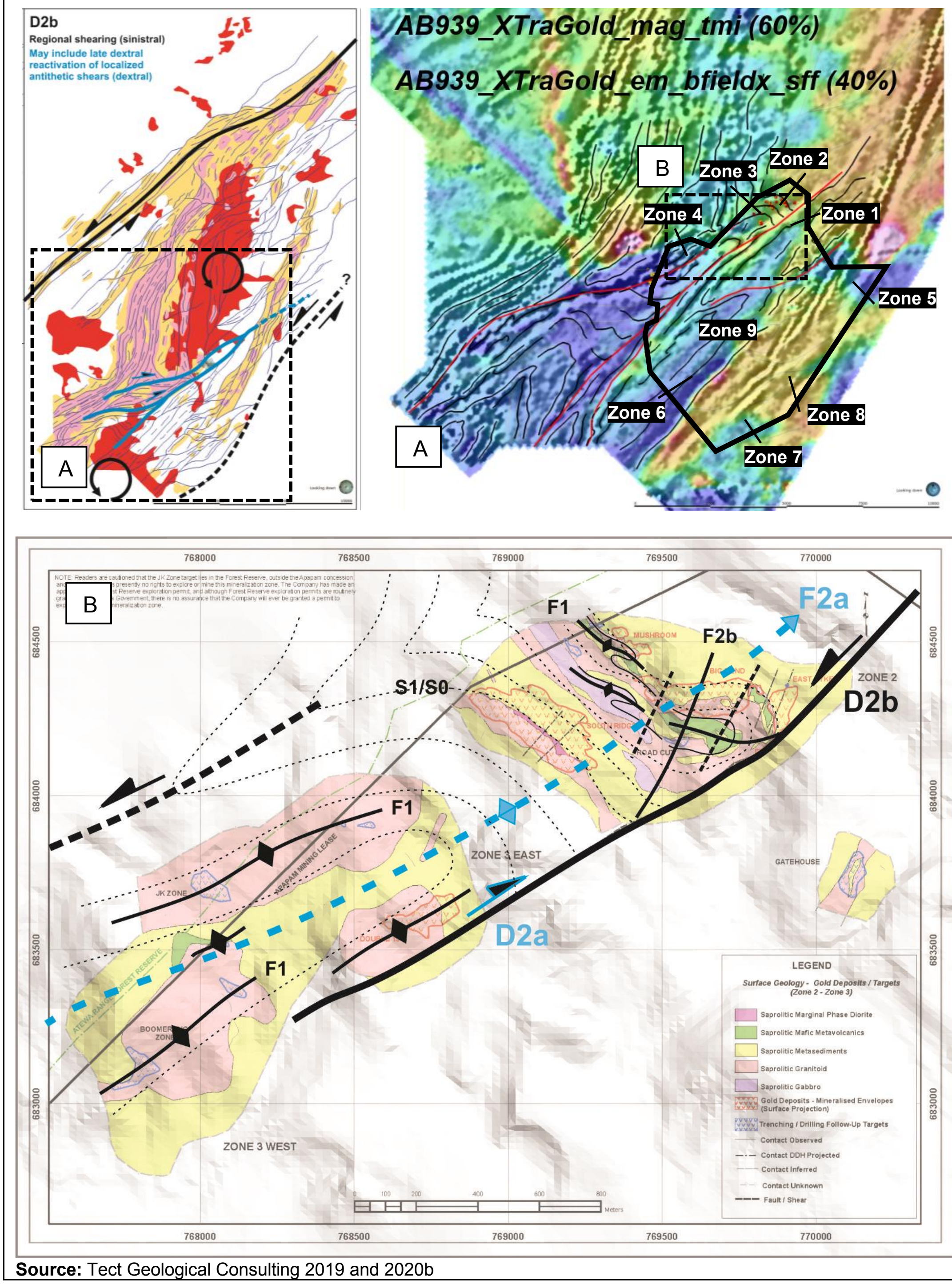
Undifferentiated metasedimentary and interlayered metavolcanics and granitoids are generally intensely deformed. A distinct $D_1(S_1)$ and $D_2(S_2)$ deformation event has been distinguished from aeromagnetic and radiometric datasets (e.g. SRK Consulting, 2012, Tect Geological Consulting 2019, 2020a and 2020b) and structural field observations. D_1- and D_2-associated feature recognition and the resolution of the regional-scale geophysical interpretations, down to a target- or outcrop-scale, is often difficult, although general trends are evident. Indeed, the complexity of folds (tight to isoclinal) and shears that define the target-scale structural settings of the Kibi Project area, often result in regional-scale and geophysically-interpreted shears/contacts/lineaments being misconstrued. A thus far consistent and robust structural inventory, with interpreted kinematics, has been established (Figure 7.7):

D_1 (S_1) - Bedding(S_0)-parallel foliation and associated F_1 isoclinal folds. Regional to licence-scale S_1 foliations may be assumed to be sub-parallel to lithological contacts, which otherwise provide sufficient contrast on geophysical surveys. Associated features, including F_1 isoclinal folds (*viz.* shear-folds) that show fold widths varying from centimetre-scale up to 200 m, are only observed on a target-scale. D_1 is consistently and readily correlated with the regionally-defined D_1, as described by Perrouty *et al*. (2012) (Section 7.1, Figure 7.3).

D_2 (S_2) - Regional- to licence-scale NNE- to NE-trending S_2 foliations are consistently observed and characterised as a pervasive and penetrative axial-planar cleavage to tight- to isoclinal F_2 folds. S_2 cleavages are particularly well-defined in metasediments, which are prone to preferential cleavage development, compared to more rheologically-competent, interlayered metavolcanics and intrusions. S_2 and associated F_2 folds locally transpose and refold S_1 and F_1 foliations and folds. Moreover, regional- to licence-scale shears, that otherwise constrain, internally-dissect, segment and locally-transpose relict D_1 domains defining the Kibi Belt, are assigned to D_2. In this context, D_2, may be compared/associated with regionally-defined D_{3-4} reverse-sinistral kinematics, as described by Perrouty *et al*. (2012) (Section 7.1, Figure 7.3).

Regionally-defined D_{5-6} structural features have not been observed (Section 7.1, Figure 7.3).

Figure 7.7: Structure of the Kibi Project



Source: Tect Geological Consulting 2019 and 2020b

7.5 Structure – Kibi Project Area

The structural location of the Kibi Project area, i.e. the Apapam Concession, within the Kibi Belt is depicted in Figure 7.7. The northwestern portion of the Kibi Project (Zones 2-4) occupies a local antithetic, dextrally-sheared domain (D_{2a}), within an overall sinistrally-sheared and transposed Kibi Belt (D_{2b}). The central to southeastern portion (Zones 1 and 5-9) occupy a predominantly sinistral domain, approximating the eastern margin of the Kibi Belt. The local D_{2a} antithetic kinematic behaviour is attributed to belt-scale asymmetrical boudinage of a relatively more competent metavolcanic sequence rimmed by less competent metasediments. Inter-boudin zones facilitate clockwise rotation of boudins in an overall, belt-wide sinistral shear setting or zone. D_{2a} local features are subject to gradual D_{2b} transposition and the reactivation of shears to eventual sinistral kinematics.

On a licence scale, Au mineralization in Zones 1-4, and arguably Zones 6 and 9, are situated on the limbs and hinges of tight to isoclinal F_2 folds, which have widths in the range of approximately 0.5 km and unknown - but probably extensive - amplitudes exceeding fold widths by 3-4 times (Figure 7.7). F_2 fold plunges are deceptive, considering that their limbs are largely shear-bounded and that folds may have been kinematically-rotated against D_2 shear planes/zones. Major D_2 shear zones are largely delineated by the interpretation of geophysical data and limited drill hole intersections, as well as major lithological or structural trend discontinuities (for example, the southeastern margins of Zones 2-4). More locally, on a target scale, well-defined mineralization zones (which are the subject of this mineral resource declaration), constrained to Zones 2-4, further occupy F_1 isoclinal fold hinges. Other major features include northeast-trending D_2 features

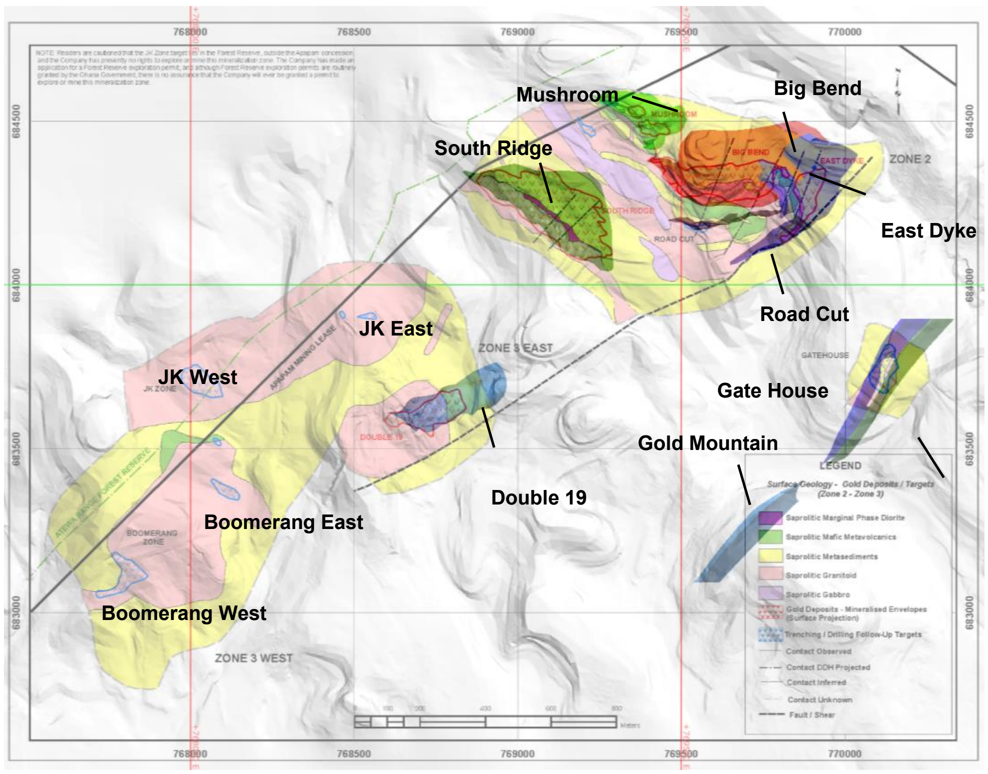
Relevant targets (the subject of this Mineral Resource declaration) are predominantly hosted in diorite, or mafic to intermediate metavolcanic layers or sills/dykes, which are juxtaposed against a metasedimentary contact. From these characteristics, several scales of structural control for auriferous mineralization may be ascertained for the Kibi Project:

- 1st-Order: Licence- to regional-scale F_{2a} and F_{2b} tight to isoclinal fold hinges.
- 2nd-Order: F_1 isoclinal fold anticlinal hinges that are parallel to D_1/S_1 foliation and S_0 bedding.
- Lithological contacts with a relatively high degree of competency contrast, e.g. diorite-metasediment or volcanic-metasediment contacts.
- Geochemically-favourable hosts, such as intermediate to mafic intrusive units.

7.6 Mineralization and Deposits

The Kibi Project is located on the Apapam concession and is thus far Xtra-Gold’s only material project, which hosts the maiden Zone 2 – Zone 3 Mineral Resource Estimate (October 26, 2012). This includes the Big Bend, East Dyke, South Ridge and Mushroom targets in Zone 2, and the Double 19 target in Zone 3 (Figure 7.8). Collectively, these five gold targets, lying within approximately 1.6 km of each, other have been estimated to encompass an indicated mineral resource of 3.38 million tonnes grading 2.56 g/t gold for 278,000 ounces of contained gold and an additional Inferred Mineral Resource of 2.35 million tonnes grading 1.94 g/t gold for 147,000 ounces of contained gold (@ base case 0.5 g/t cut-off). The Zone 2 – Zone 3 maiden Mineral Resource represented the first mineral resource generated on a lode gold project within the Kibi Gold Belt. It was filed in accordance with National Instrument 43-101 (NI 43-101) requirements. The Technical Report is entitled "Independent Technical Report, Apapam Concession, Kibi Project, Eastern Region, Ghana", prepared by SEMS Explorations and dated October 31, 2012, filed under the Company's profile on SEDAR at www.sedar.com.

Figure 7.8: Kibi Project Targets



Relevant gold mineralization is characterized by auriferous quartz-carbonate, tensional vein arrays or stockworks hosted in either granodiorite, diorite and mafic to intermediate metavolcanic layers or undifferentiated sills/dykes. This is geologically-analogous to other intrusive- or metavolcanic-hosted gold deposits of Ghana, including Golden Star's Wassa Mine in the Ashanti Belt, Kinross Gold's Chirano and Newmont Mining's Subika deposits in the Sefwi Belt. These tensional vein arrays are generated where the abovementioned competent host lithologies undergo preferential strain, leading to fracturing and auriferous mineralization. Such sites are typically localized along host-metasediment contacts that define sheared fold limbs, fold hinges or apparent flexures. Auriferous vein arrays are penetrative into metasediments, but with a very limited extent.

Hydrothermal alteration adjacent to quartz-carbonate veins is highly variable, but in heavily-veined (stockworks) granitoid the assemblage is characterized by moderate to strong quartz, carbonate, chlorite and sericite alteration. This is also associated with patchy to pervasive sulphidisation in the form of disseminated pyrrhotite, pyrite and arsenopyrite (+/- sphalerite). Variations in alteration intensity in granitoid hosts is reflected in gold grade, with higher intensity alteration leading to higher Au grades, particularly in pervasive stockworks.

Since the 2012 maiden Mineral Resource estimate, ongoing exploration has further delineated the Big Bend, East Dyke, South Ridge, Mushroom and Double 19 targets, and has also identified new targets, including Road Cut (Zone 2), Gate House (Zone 1) and Gold Mountain (Zone 1), which were at that time only subject to early-stage exploration (Figure 7.8). Currently, alongside the abovementioned targets, early-stage prospects include Boomerang West and East (Zone 3), JK West and East (Zone 3), Cobra Creek (Zone 5), Hillcrest Shear (Zone 6) and Akwadum (Zone 7).

The respective structural inventory of each target is summarized as below and in Section 14.2. The 3D structural and geological modelling of each target was undertaken in Leapfrog Geo™. The underlying reports are Tect Geological Consulting 2019 and 2020b and are shown in Figure 14.2.

7.6.1 Big Bend

- Big Bend target occupies an open F_{2a} anticlinal hinge zone, that plunges steeply (53º) towards 078º (078º/53º) (estimated from 3D model and triangle mesh orientations, in turn informed by structural analyses and drill hole intersections)(Figure 14.6). Big Bend's F_{2a} fold geometry was partially transposed by an apparent D_{2b} shear zone towards the east, thus kinematically-rotating the plunge direction more towards the NW (anticlockwise). Notably, the South Ridge target is considered a direct analogue, with a plunge of 033º-48, albeit less transposed by D_{2b} (see below).

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein geometries may be divided into three principal sets. The dominant vein set ranges between 259º/34º, 306º/49 and 289º/28º (contoured maxima from Reflex IQ-Logger, kenometer and field measurements, respectively), and largely occupies extensional or shear-extensional geometries with respect to a pervasive S_2 axial planar cleavage (133º/68º), confirmed by field mapping.

- Secondly, an equally intense vein set (040º/38º) is orientated sub-parallel to a S_1/S_0 bedding-parallel foliation (previously recorded on downhole logs as cleavage) of 046º/60º, confirmed chiefly by IQL measurements. Lastly, and perhaps with the most varied in orientation, is a vein set ranging between 236º/34º and 162º/26º striking sup-parallel to S_1/S_0 bedding-parallel foliations, albeit dipping at opposite and high angles. Both orientations are consistent with D_1/S_1 flexural slip during folding, either occupying extensional to extensional-shears, or S_1 (shear-) foliation-parallel geometries.

- It remains unclear which particular set of veins are predominantly mineralized, if not all of them. However, the context of the target-scale structural setting and the spatial distribution of mineralization along the F_{2a} fold hinge reasonably suggest that veins with a tensional relationship with S_2 axial planar cleavage are preferentially mineralized. This rationale is supported by the smaller Road Cut target, a direct analogue to the immediate south, wherein similar vein geometries are recorded.

- Veining is restricted to the diorite-volcanoclastic/metasediment contact and internally within diorite. Due to its relatively high competency, diorite is prone to fracture to a greater degree, compared to metavolcaniclastic units.

7.6.2 Double 19

- The Double 19 target occupies a tight to isoclinal F_1 anticlinal hinge zone. The fold plunge ranges between 067º-52º (derived from a fit to poles to measured bedding) and 084º-50º (modelled bedding)(Figure 14.6). This is broadly consistent with axial-planar cleavages of 118º/57º (field mapping) and 221º/48º (IQL).

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein geometries from field mapping and Reflex IQ-Logger measurements are conspicuous and show a dominant set with contoured maxima varying between 279º/42º and 309º/29º. This vein set largely occupies extensional or shear-extensional geometries with respect to a pervasive S_2 axial planar cleavage and shearing.

- Veining is restricted to the diorite-metavolcanoclastic/metasediment contact and internally within diorite. Due to its relatively high competency, diorite is more prone to fracture much more, compared to metavolcanoclastic units;

7.6.3 East Dyke

- East Dyke target occupies a closed to isoclinal F_1 anticlinal hinge zone, partly defined by an undifferentiated mafic sill or metavolcanic layer with variable lateral thickness (boudinage/pinch-and-swell). Mineralization is constrained to diorite-metavolcanoclastic and mafic sill-metavolcanoclastic contacts, which manifest in 3 sub-targets in the inner and outer arc of the F_1 anticline. The F_1 anticline plunges steeply towards 078º-63º (estimated from 3D model and triangle mesh orientations, in turn guided by the structural/kinematic analysis and drill hole intersections)(Figure 14.6). . Similarly to Big Bend, the initial F_1 fold geometry was partially transposed by a D_{2b} shear zone to the east, thus kinematically rotating the plunge direction towards the NW (anticlockwise);

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein geometries are difficult to gauge, due to limited data. The most reliable vein set, from mapping data, shows a contoured maxima of 281º/46º, and corresponds with extensional or shear-extensional vein geometries with respect to a pervasive S_2 axial planar cleavage (133º/68º), as derived from Big Bend mapping data. Other apparent vein sets or contoured maxima from drillcore logging range between 345º/27º and 230º/32º, which are determined to be partial representations/populations of the high-confidence mapping data.

- High-confidence mapping, *viz.* quartz vein geometries, should primarily be considered for estimation;

7.6.4 Gold Mountain and Gate House

- Gold Mountain and Gate House are the least-studied targets. Gate House comprises two inferred parallel shears hoisting auriferous quartz-carbonate veins, while Gold Mountain along strike to the south, comprising a single, similarly mineralized shear. Although with limited data, these apparent shears are interpreted to represent a single continuous shear zone;

- The shear zone strikes NE and records overall subvertical to steep SE dips (124º/84º)(Figure 14.6). . It is structurally located to the south-east of a major D_{2b} shear zone and a juxtaposed F_2 isoclinal fold with extremely attenuated and possibly sheared limbs. This suggests that the mineralized shear facilitates F_2 limb-parallel shearing;

- Auriferous mineralization is predominantly hosted by granitoids (granite) and subordinate diorite, undifferentiated mafic units and metasediments. It is inferred that shearing or shears straddle and dissect the more competent above-mentioned units that are otherwise more prone to fracturing, followed by fluid ingress and Au mineralization;

- More detail structural analysis is required to confirm shear zone kinematics, mineralized vein orientations and the overall depositional setting.

7.6.5 Mushroom

- The Mushroom target occupies a tight F_1 anticlinal hinge zone that plunges steeply at 063º-58º (estimated from 3D model and triangle mesh orientations)(Figure 14.6);

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein measurements are limited, but contoured maxima are 162º/26º and 302º/43 º. These orientations are consistent with pure extensional to extensional-shear fracture/veins geometries that dissect S_0/S_1 contacts at sub-normal angles;

- Veins are restricted to the diorite-metavolcanoclastic/metasediment contacts and internally within diorite. Due to its relatively high competency, diorite is prone to more fracturing, compared to metavolcanoclastic/metasediments units. Diorite is also a geochemically-favourable host due to its relatively high Fe-Mg content, which may cause precipitation of Au and pyrite/pyrrhotite (depending on metamorphic conditions).

7.6.6 Road Cut

- The Road Cut target occupies an open F_{2a} anticlinal hinge zone that plunges parallel to Big Bend, steeply towards 078º-53º(Figure 14.6). Downhole structural data is unfortunately limited for Road Cut, but it is structurally identical to Big Bend;

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein geometries from field mapping are conspicuous and show a dominant set at 306º/47º. This vein set largely occupies extensional or shear-extensional geometries with respect to a pervasive S_2 axial planar cleavage (111º/65º), confirmed by field mapping;

- Veining is restricted to the diorite-metavolcanoclastic/metasediment contact and internally within diorite. Due to its relatively high competency, diorite is prone to fracture much more, compared to metavolcanoclastic units.

7.6.7 South Ridge

- South Ridge occupies a more pristine open F_{2a} anticlinal hinge zone, with no apparent transposition by the D_{2b} shear zone that has affected Big Bend and East Dyke. The fold plunges at 033º-48º, which is broadly consistent with an S_2 (axial planar cleavage) contoured maxima of between 119º/61º (field mapping) and 095º/55º (IQL)(Figure 14.6). High resolution Reflex IQ-Logger readings are limited to only one drill hole, whilst field mapping data is spatially much more representative;

- Mineralization consists of tensional arrays of auriferous quartz-carbonate veins. Vein geometries from field mapping are conspicuous and show a dominant set at 282º/33º. This vein set largely occupies extensional or shear-extensional geometries with respect to a pervasive S_2 axial planar cleavage (119º/61º), confirmed by field mapping;

- Veining is restricted to the diorite-metavolcanoclastic/metasediment contact and internally within diorite. Due to its relatively high competency, diorite is prone to fracture much more, compared to metavolcanoclastic units.

Early-stage prospects with known auriferous mineralization intercepts, including Boomerang East and Boomerang West, and JK East and JK West, are structurally-analogous to the Double 19 target, albeit with some geometrical variability as would be expected, as F_1 isoclinal fold may be non-cylindrical and doubly-plunging. Similarly, the strike and down-dip extents of these prospects are potentially very similar to Double 19, gauged from the apparent scale of hosting F_1 fold structures.

8 DEPOSIT TYPES

8.1 Hydrothermal Gold Deposits of Ghana

The deposit types being targeted at the Apapam Concession consist of mesothermal or orogenic gold mineralization of the granitoid-hosted type and classic Ashanti-style sediment-hosted shear zones, which are likely to be linked with a major northeast-trending D_{3-4} (after Perrouty *et al*., 2012, and references therein; Figure 7.3) major fault along the eastern flank of the Atewa Range. At present, the predominantly diorite-hosted type accounts for the majority of the identified gold occurrences of potentially economic significance on the concession and is consequently the current focus of Xtra-Gold's exploration efforts. However, soil geochemistry, prospecting and geophysical data interpretation and historical auriferous quartz vein showings indicate that the concession is also prospective for Ashanti-style shear zone gold mineralization.

8.1.1 Shear-Hosted Gold Deposits of Ghana

Characteristics of the Ashanti-style shear zone hosted gold deposits are described as follows by Naas (2008). Mineralization associated with major D_{3-4} faults (after Perrouty *et al*., 2012, and references therein) or major belt bounding faults was the target for both local prospectors and foreign exploration companies, moreover due to the presence of coarse-grained visible gold. Deposits of this type in Ghana include Obuasi, Prestea, Bogosu, Konongo and Bibiani. There are several commonly-observed associations with this mineralization environment:

- Located on, or close to, the lithological contact between greenstones and metasediments.
- Spatially related to deep-seated, high-angle wrench faults, which have a strike extent exceeding 100 km. Cross-cutting northwest-southeast trending faults have also exerted an influence on the location of gold remobilized from the main zones.
- Native gold is hosted by quartz veins, which may possess an en-echelon character. Grade-width characteristics persist virtually unchanged to depths exceeding one (1) km. The veins broadly parallel the regional foliation but in detail are seen to cross-cut this foliation.
- Disseminated sulphides in the wall rock are common.
- Several generations of quartz veining are common and gold is seemingly associated with the final phase.
- Mineralization is spatially-associated with graphitic phyllites and manganiferous metasediments.
- Mineralogy is simple, with a strong positive correlation between gold and arsenopyrite. Accessory minerals include pyrite, chalcopyrite, pyrrhotite, and bornite.
- Strong silicification is common, accompanied by sericite and carbonate alteration. Tourmaline may also be present.
- Granitoids may or may not be spatially associated with mineralization.

8.1.2 Granitoid-Hosted Gold Deposits of Ghana

Over 20 significant gold occurrences hosted by Belt and Basin-type granitoids are known in Ghana, with a number of these constituting significant deposits. The structural setting and mineralization style for Belt and Basin granitoid-hosted gold deposits are very similar in nature to the Ashanti-style, and probably just represent varying structural and host rock settings. These deposits represent a subtype of the orogenic gold deposits of the Ghanaian Birimian terrane. Belt-type intrusion-hosted gold deposits include Newmont Mining's Subika deposit, the largest deposit of the Ahafo Mine project and Kinross's Chirano deposits, both in the Sefwi Belt; and Golden Star Resources' Hwini-Butre deposit at the southern extremity of the Ashanti Belt. Basin-type granitoid hosted gold deposits include Perseus Mining's cluster of deposits at the Central Ashanti Gold Project and AngloGold-Ashanti's Anyankyerim and Nhyiaso deposits to the west of Obuasi, along the western flank of the Ashanti Belt.

As opposed to the typical lode gold deposits of the Ashanti, Prestea and Bibiani districts, which were (re-)discovered by Europeans during the gold rush of the late 1800s, all of the aforementioned granitoid-hosted gold deposits have been discovered since 1990. Tectonically, the host intrusive bodies lie within or proximate to reactivated regional structures and have deformed in a brittle >>> ductile fashion. In terms of lithology, the Belt-type granitoids are most commonly of diorite to granodiorite composition, and the Basin-type granitoids of granodiorite to granite composition. Enhanced brittle deformation of granitoids, internally and along contacts, of granitoids, appear to have served as preferential conduits for fluid flow (due to their relatively high competency compared to their metasedimentary hosts). The emplacement of granitoid-hosted mineralization is considered contemporaneous with the main mineralizing episode that resulted in the more prevalent Ashanti-type Birimian metasediment/metavolcanic shear hosted deposits of Ghana (Figure 7.2). The mineralization typically consists of quartz vein stockworks and pervasive alteration zones developed in brittle structures in the granitoids. The ore mineral assemblage is mainly composed of pyrite, pyrrhotite and arsenopyrite, with minor chalcopyrite, sphalerite and rutile. Hydrothermal alteration minerals are dominated by quartz, sericite (muscovite), sulphides (mainly pyrite, pyrrhotite, and arsenopyrite) and carbonates. Gold tends to be closely associated with the sulphides in both quartz veining and alteration zones.

8.2 Gold Deposits of the Kibi District

Primary gold mineralization of potentially economic significance discovered to date on the Apapam Concession by Xtra-Gold (Sections 7.5 and 7.6.) consists predominantly of mesothermal/orogenic gold mineralization of the granitoid-hosted type. The gold is associated with quartz-albite-carbonate-sulphide stockwork or tensional veining developed in - or especially near - the margins of sills, dykes and possibly small plutons (stocks) of granodiorite, quartz diorite and tonalite bodies. Possible primary shear zone-hosted gold mineralization (e.g. Zones 1, 6-8 and 9) does occur within the concession, but these are still subject to the relatively early stages of exploration.

9 EXPLORATION

9.1 2006 – 2007 Exploration Program

Two (2) separate work programs were conducted on the Apapam Concession during 2006-2007. The first work program was undertaken and managed by CME Consultants Inc. (CME), a Canada-based geological consultancy with over 15 years of project management experience in Ghana. The second program was undertaken and managed by Xtra-Gold personnel.

The Phase I exploration program was designed to test the Apapam Concession on a regional scale. The field work was implemented by CME from August 12 to September 23, 2006 and included:

- Concession-wide stream sediment sampling (88 samples collected from 44 sites);
- Survey grid establishment (33.78 line-km);
- Soil sampling (1,306 samples);
- GPS surveying (33.78 line-km);
- Rock sampling (89 samples); and
- Historical adit and bulldozer cut sampling (100 samples).

The Phase II exploration program consisted of a reconnaissance trenching program intermittently implemented by the Xtra-Gold exploration staff from February 2007 to December 2007. The trenching was carried out to test the geochemical signature at depth of the gold-in-soil anomalies detected within the north-western portion of the concession during the Phase I work program. A total of 542 channel samples were collected from 21 trenches totalling 1,090 linear metres. In order to obtain an independent assessment of the 2007 Xtra-Gold trenching results, a NI43-101 compliant data verification program was undertaken by CME in December 2007. The program involved the re-sampling of selected trenches which yielded exploration-significant gold mineralization intervals.

9.1.1 Phase I Exploration Program (2006)

Stream Sediment Sampling

A total of 88 samples were collected at 44 samples sites from two (2) major streams and their respective tributaries. These included 44 silt samples for geochemical analysis (Bulk Leach Extractable Gold - BLEG) and 44 pan concentrate samples for visual gold grain counts.

Stream sampling returned gold-in-silt values of up to 710 ppb located at the western extremity of the concession. Values greater than the threshold value (mean + 2 standard deviations) of 144 ppb are considered to be anomalous. Five (5) samples yielded values greater than the threshold value. Gold grain counts of the pan concentrates showed visible gold grains in 36 of the 44 samples ranging from two (2) small grains per sample up to 16 flakes. Grain sizes varied from flour to over 3 mm.

The stream sediment anomalies are divided into two (2) zones as follows:

- Zone A (Adansu Anomaly) consists of a 1.5 km stretch from Line 158+00N westwards at an average width of 1.0 km along the north western boundary of the concession; and
- Zone B (Kokorabo Anomaly) is 3.0 km long by 2.0 km in width sector covering the area between the south-western boundary of the concession and the floodplains of the Birim and Krensen rivers.

Soil Geochemical Sampling

A total of 1,306 soil samples were collected from 30.58 line-kilometres of cross-lines established within the Kibi North and Kibi South survey grids. Grid location was based on testing historical mineral occurrences located on and around Kibi Mountain (Kibi North Grid) and promising silt samples results from creeks southeast of Kibi (Kibi South Grid). Line spacing was at 100 m intervals within the Kibi Mountain area of the North Grid and 400 m elsewhere within the gridded areas. Soil samples were collected at a depth of 60 cm at 25 m intervals along the SE-NW trending grid lines. Soil samples were analysed by Fire Assay and reported in parts per billion (ppb).

The geochemical soil survey conducted on the Apapam Concession produced several interesting gold-in-soil anomalies. A geochemical trend of 050° to 060° (NE-SW) conforms to the regional geological trend. The highest gold value from the 1,306 samples was 1,413 ppb, located at L166+00N/60+25E. A total of 105 samples produced gold-in-soil values greater than a threshold value (mean plus two (2) standard deviations), of 98 ppb gold.

Rock and Historical Adit Sampling

A total of 89 rock samples were collected during stream sediment and soil sampling traversing. In addition, three (3) historical adits ranging from 7 m to 85 m in length and a bedrock face exposed along a bulldozer cut, located on and in the vicinity of Kibi Mountain, were also sampled during the Apapam Phase I exploration program. A total of 77 samples were collected from the three adits and 23 samples from the bulldozer cut face.

Seven (7) out of the 89 rock samples returned values greater than the threshold value of 82 ppb gold. The highest gold value recorded is 1.01 g/t, with the remaining anomalous values falling in the 140 ppb to 970 ppb gold range. No significant gold values were returned from the Adit 1 and Adit 3 sampling, but the six (6) samples collected from Adit 2 yielded economically-significant values between 710 ppb and 6.36 g/t gold from chip and channel samples.

Rock (float) and adit sampling has also confirmed that a potential for lode gold mineralization exists on the Apapam Concession, especially in the vicinity of Kibi Mountain. Three (3) of the anomalous rock samples are located at the base of Kibi Mountain (1.01 g/t Au, 255 ppb Au and 385 ppb Au) and a float sample (510 ppb Au) is located within the Area 4 gold-in-soil anomaly, thus confirming mineralization within the vicinity. Results returned from rock samples indicated that float of fractured and limonitic rock can be a useful tool for future prospecting programs.

9.1.2 Phase II Exploration Program (2007)

A total of 21 reconnaissance trenches ranging from 2 m to 224 m in length were excavated by Xtra-Gold personnel during the 2007 Phase II exploration program. A total of 542 channel samples (2 m) were collected from the 21 trenches, totalling 1,090 linear metres. Trenches were manually excavated by pick-axes and shovels to a typical width of 1 m and an average depth of 3 m, with some sections of the trenches reaching 4 m in depth. Trenching typically extended down to the saprolite horizon, but locally the saprolite could not be reached due to safety concerns. Sampling consisted of a continuous channel sample collected from a channel excavated along the trench floor. Prior to sampling, the floor of the trench was cleaned of any loose material and an approximately 10 cm wide by 2-3 cm deep channel excavated along the centreline of the base of the trench.

The bulk of the trenching efforts, including eight (8) trenches totalling 834 linear metres (approx. 75%), focused on testing the Area 1, 2 and 3 gold-in-soil anomalies detected during the 2006 Phase I work program. Eight (8) trenches totalling 144 m were excavated to test the subsurface in an area of extensive Ashanti-style pits, discovered by prospecting, in what is now the north-central portion of the Zone 3 gold-in-soil anomaly. An additional five (5) trenches totalling 112 m were excavated to test the subsurface in areas of mineralized rock floats. Four (4) out of the 21 trenches yielded length-weighted average grade intervals greater than the arbitrarily set exploration-significant threshold of 1.0 g/t gold.

In order to obtain an independent assessment of the 2007 Xtra-Gold trenching results, a NI43-101-compliant data verification program was undertaken by CME in December 2007. The program involved the re-sampling of selected trenches which yielded exploration-significant gold mineralization intervals. The trenching program results noted hereunder correspond to the results returned by the independent CME data verification program. The CME re-sampling included 116 channel samples totalling 115.41 linear metres. Sampling consisted of a horizontal channel cut along the sidewall of the trench, approximately 0.2 m above the trench floor. Sampling was typically established at one (1) metre intervals, with sample lengths locally adjusted to accommodate geological features. Forty-six (46) out of the 116 channel samples collected by CME returned values greater than 1.0 g/t gold. The reported mineralized intercepts represent trench lengths and are not necessarily indicative of the true width of the mineralization.

Gold mineralization on the Apapam Concession was found to occur in several different geological settings, including steeply-dipping and flat-lying quartz veins and alteration haloes proximal to the quartz veining. The presence of shallow-dipping (*viz.* flat-lying) veins may produce an exaggeration in both the width and grade of the mineralization. This is estimated to represent a true width of 3 to 4 m due to the flat-lying nature of the quartz veins. Determination of true widths within trenches can be difficult, as not all of the geological features are properly exposed.

Trenching was found to be an effective way to test gold-in-soil anomalies on the Apapam Concession. The following best practices sampling techniques were recommended for future trenching programs:

(1) Channel samples should be taken from the side wall of the trench and not from the floor of the trench in order to mitigate contamination issues and eliminate sampling bias when sampling exposed, shallow-dipping quartz veins;

(2) Sampling must be constrained by alteration, structure and lithology;

(3) If two (2) metre sampling widths are to be used for budget reasons, detailed sampling of anomalous areas must be undertaken as follow-up.

9.2 2008 – 2010 Exploration Program

Exploration work on the Apapam Concession during the 2008-2010 reporting period was aimed at advancing the Kibi Project which consists of a >5.5 km long mineralized trend delineated from gold-in-soil anomalies, trenching, drilling and geophysical interpretations along the northwest margin of the Apapam Concession, characterized by widespread gold occurrences of the granitoid hosted-type.

An extensive soil geochemistry survey, covering approximately 47 line-kilometres (1,827 samples), was implemented in early 2008 to further define the extensive gold-in-soil trend. The entire K grid was also covered by IP/Resistivity (~ 64 km) and ground magnetometer (~79 km) surveys to help define the lithological and structural pattern of the mineralized trend and to prioritize trench/drill targets.

Exploration activities in 2008 also included a manual trenching program encompassing 18 trenches totalling approximately 1,217 linear-metres, including: 4 trenches (302 m) on Zone 2; and 14 trenches (915 m) on Zone 3 of the 5.5 km long gold-in-soil trend. In addition, 67 excavator-dug trenches totalling approximately 2,223 m were also excavated in conjunction with the 2008 and 2009 drilling programs.

As part of the ongoing exploration efforts, Xtra-Gold commissioned SRK Consulting (Canada) Inc. (SRK) to conduct a structural study of the Apapam Concession. The goal of the study was to investigate key exposures and available drillcore to document and understand the structural controls on gold mineralization at the Kibi Project. SRK reviewed 14 diamond core holes (Zone 1 and 2) as well as available trench exposures (Zone 2 and 3) on the Apapam concession from March 16 to 27, 2010. Due to diamond drilling density and accessible trenches, SRK's structural study focused largely on Zone 2 of the Kibi Project. SRK, at the time, also reviewed Xtra-Gold's geological and structural mapping for zones 1, 2 and 3 of the Kibi Project.

A petrographic study was also implemented in March 2010 to characterize the lithological units and ore mineralogy of the Kibi Project. A total of 36 thin sections and nine (9) polished sections were studied by Professor K. Dzigbodi-Adjimah of the University of Mines and Technology, Tarkwa, Ghana. The findings of the structural and petrographic studies are incorporated in the structure (Section 7.4) and mineralization (Section 7.6) of the technical report, respectively.

9.2.1 Soil Geochemistry

In early 2008, the Kibi Project grid was expanded to provide control for follow-up soil sampling and geophysical surveys. A total of 54.45 line-kilometres of crosslines (sample lines) and 2.1 km of baselines were established. The expanded grid now covers the entire north-western portion of the concession with a total of 78.8 line-kilometres of SE-trending crosslines extending along a 6.1 km baseline.

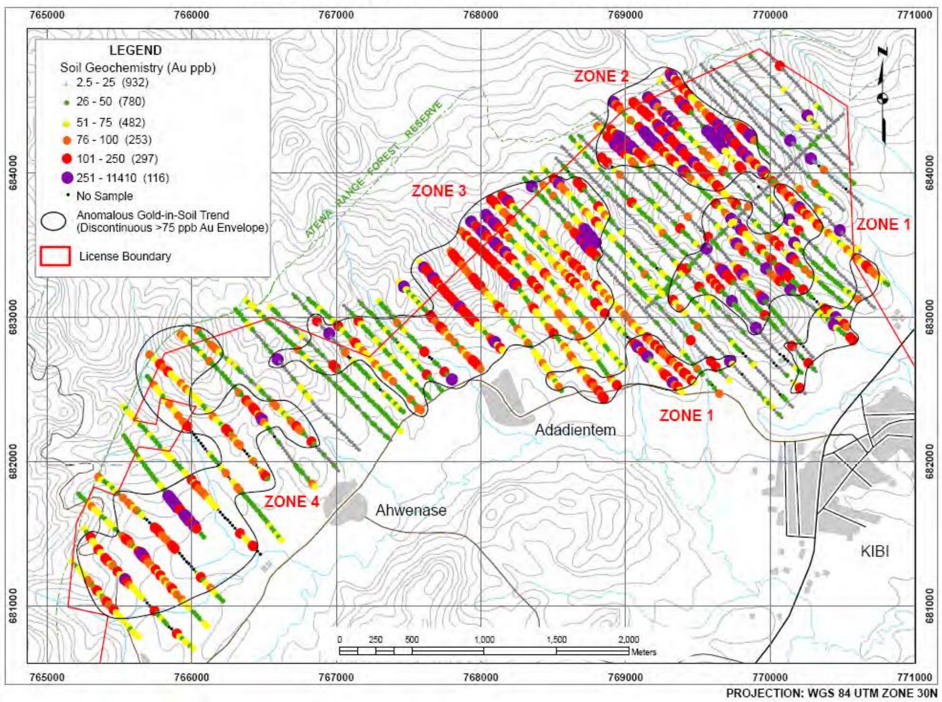
An extensive soil geochemistry survey was undertaken to provide detailed (100 m) soil sampling coverage of the gold-in-soil anomalies yielded by the Phase I (2006) work program and the bedrock gold occurrences identified in the 2007 trenching, and for reconnaissance (200 m) soil sampling to follow up on anomalous gold-in-silt samples identified in streams at the south-western extremity of property during the 2006 regional exploration program. A total of 1,827 soil samples were collected at 25 m station spacing along 46.975 line-kilometres of cross lines. Including the Phase I (2006) work program, a total of 2,859 soil samples have been collected on the Kibi Project.

Regolith development in most of the Kibi Project area is favourable for soil sampling. The generally steep topography along the flank of the Atewa Range has resulted in relatively thin colluvial (lateritic gravel) cover in the project area. As a result, gold-in-soil anomalies on steeper slopes and ridges probably reflect a good, although not exactly quantitative, measure of gold distribution in the underlying saprolite. Similarly, soil sampling has been primarily completed across areas of stronger, positive, topographic relief where alluvial gold deposits are unlikely to have developed. On very steep slopes, the anomalies show some asymmetry due to down-slope dispersion; however the core of these anomalies are not significantly displaced downhill from the source. This close reflection, saprolitic bedrock gold distribution associated with gold-in-soil anomalies developed on steep slopes is demonstrated by trench TAD019, located at the south-eastern extremity of the Zone 3 gold-in-soil anomaly. This returned a channel sample intercept of 4.93 g/t gold over a 45 m trench-length, including 10.12 g/t gold over 12 m, from a 75 m long, 620 ppb to 2,280 ppb deposit gold-in-soil anomaly. In areas exhibiting less relief and more extensive development of laterite, the resulting geochemical patterns tend to be characterized by much broader dispersion haloes that produced gold-in-soil anomalies reaching 200 m or more in width.

The anomalous threshold for the soil sample results was arbitrarily set at 75 ppb gold, based on past exploration experience by Xtra-Gold in the Kibi Greenstone Belt. A total of 666 (23%) out of the 2,859 soil samples returned gold values greater than the 75 ppb anomalous threshold, including: 253 (9%) samples from 76 ppb to 100 ppb gold; 297 (10%) samples from 101 ppb to 250 ppb gold; and 116 (4%) samples above 251 ppb gold (11,410 ppb Au maximum). The expanded soil survey outlined an approximately 5.5 km long, NE-trending, anomalous gold-in-soil trend (Figure 9.1). The typically NE-trending clusters are defined by discontinuous/patchy, > 75 ppb gold, anomalous gold-in-soil envelopes ranging from 50 m to 250 m by 900 m to 250 m – 1,200 m by 2,500 m in area.

The gold-in-soil anomalies are considered to be significant, based on the fact that, in Ghana, soil geochemistry values greater than 50 ppb gold is normally considered to be anomalous (Griffis, 2002). For instance, in the Obuasi gold camp, AngloGold-Ashanti reportedly follows up all soil anomalies greater than 50 ppb gold with trenching or drilling. At the Ahafo mine project, gold-in-soil anomalies in the 100 ppb to 200 ppb range led to multimillion ounce gold discoveries (Griffis, 2002).

Figure 9.1: Soil Geochemistry Survey



The best indication that the anomalous gold-in-soil trend may be considered to be significant is that the trenching and/or drilling of soil anomalies has yielded notable saprolitic bedrock gold intercepts in three (3) of the main four (4) anomalous gold-in-soil clusters/envelopes (i.e. Zone 2, Zone 3, Zone 1); with five (5) zones of granitoid-hosted gold mineralization having been discovered to date within the approximately 1,200 m by 500 m to 800 m, Zone 2 gold-in-soil anomaly. The Zone 4 gold-in-soil anomaly has yet to be tested by trenching/drilling but its spatial association with a prominent, linear, high chargeability/low resistivity IP anomaly, and the eluvial/colluvial gravel-characterized northern portion of the historical alluvial gold resource Block B, renders the area prospective for shear-hosted gold mineralization.

9.2.2 Ground Geophysics

The entire 5.5 km length of the Kibi Project anomalous gold-in-soil trend was covered by pole-dipole IP/Resistivity and Magnetometer surveys to help define the lithological and structural pattern of the mineralized trend and prioritized trench/drill targets. The geophysical surveys were implemented in August to September 2008 by Sagax Afrique of Ouagadougou, Burkina Faso.

The approximately 64 line-kilometre IP/Resistivity (Time Domain) survey, covering the entire extent of the Kibi gold-in-soil trend at 200 m spacing, with some 100 m detailed sections centred on known gold showings (38 survey lines), conducted using a Pole- Dipole Array with a dipole length of 50 m and dipole separations of n = 1 to 6. This survey design was selected to yield an approximate depth of investigation of about 175 to 200 m at n = 6. The ground magnetometer survey covered the entire Kibi Project soil geochemical grid, totalling approximately 79 line-kilometres at 12.5 m station readings.

The IP/Resistivity survey identified 2 main resistive domains (Figure 9.2a) exhibiting a close spatial relationship with the main four (4) gold-in-soil anomalies of the Kibi Project (Zone 1 to 4); the resistive terrain is interpreted to reflect the widespread granitoids and/or carbonate-silica alteration associated with the known gold mineralization. A total of 36 chargeable anomaly axes have been identified (A1 to A36 on Figure 9.2b), including 24 interpreted as priority anomalies; with the majority of these anomalies yet to be field-tested. The survey outlined a prominent NE-trending, high chargeability, typically high conductivity (i.e. low resistivity) central corridor that possibly reflects a regional graphite-bearing shear zone. The continuity of the central anomalous chargeability corridor is intermittently dissected by inferred, NW-trending structures; with some exhibiting anomalous geophysical and soil geochemical signatures. The northeast extremity of the anomalous chargeability corridor is associated with a nonmagnetic domain (Mag Low), possibly reflecting alteration-related magnetite destruction of the host-rock.

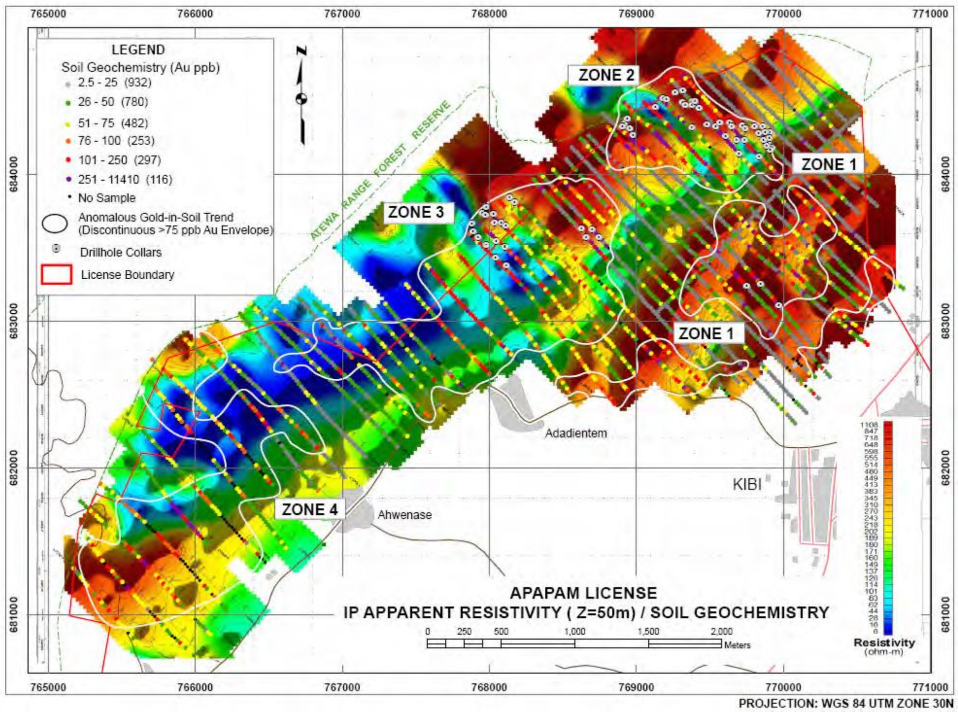
Although the widespread granitoid-hosted gold mineralization in Zone 2 is typically characterized by 1-3% (locally up to 5%), disseminated sulphides (pyrrhotite, pyrite, arsenopyrite), the known mineralization occurrences failed to produce a chargeability response. The entire extent of Zone 2 is characterized by a resistive to strongly resistive signature, but individual granitoid bodies are not discernible on the resistivity map. A narrow shear zone exhibiting low grade gold values associated with quartz-carbonate veining and developed within graphitic phyllites in the eastern portion of Zone 2, is spatially associated with a NE-trending, moderate chargeability/moderate resistivity anomaly (i.e. A48). Trenching and drilling observations indicate that the broad, highly chargeable/highly conductive, NE-trending anomaly lying at the southeast extremity of Zone 2 reflects a graphitic metasedimentary rock sequence (i.e. A1).

The Trench TAD001 to TAD004 granitoid-hosted gold zone located within the northcentral portion of the Zone 3 gold-in-soil anomaly is spatially associated with an approximately 800 m long IP chargeability anomaly exhibiting a spatial relationship with a geophysically-inferred, NE-trending, regional structural trend. Limited scout RC drilling along the north-eastern, moderate chargeability/very high resistivity portion (200 m) of the IP anomaly outlined an approximately

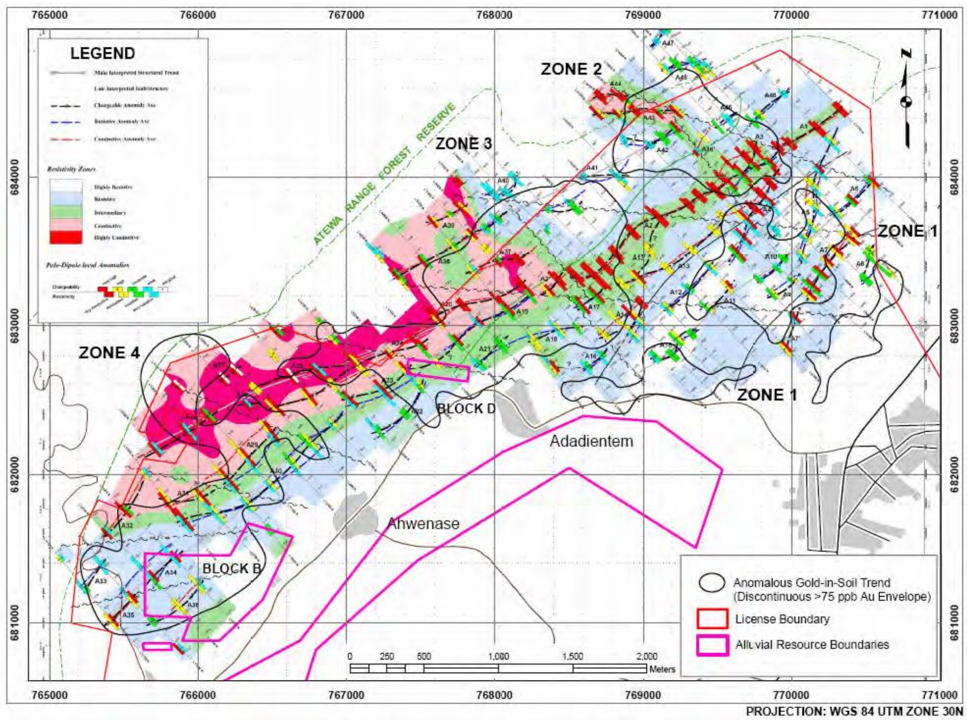
135 m wide, NE-trending, granitoid hosted, structural corridor appearing to encompass at least five (5) distinct, gold-bearing, sheeted to stock-worked vein zones.

Figure 9.2: Ground Geophysics Surveys

a) Apparent Resistivity (z = 50 m)/Soil Geochemistry



b) IP/Resistivity Interpretation - Compilation



Trench TKB003 excavated on the Zone 1 gold-in-soil anomaly exposed a system of foliation-parallel quartz-carbonate-pyrite (+/- arsenopyrite) veins hosted by shear zones developed within a tightly-folded metasedimentary rock sequence that is spatially associated with a high chargeability/low resistivity IP anomaly lying along a geophysically-inferred, NE-trending, regional structural trend. Scout drilling of this zone yielded intermittent, exploration-significant, anomalous gold values over a 60 m core length, including individual intercepts of 1.43 g/t gold over 13.5 m, 1.04 g/t gold over 6 m and 1.02 g/t gold over 8 m. An excavation on a gold-in-soil anomaly that is spatially associated with the southern margin of the same chargeability anomaly, returned a channel sample intercept of 2.51 g/t gold over a 4 m trench length.

The south-western portion of the gold-in-soil trend is characterized by an approximately 3.5 km long, NE-trending, generally moderate to high chargeability/moderate to high resistivity anomaly lying along or proximate to the contact between the southern resistive domain and the central conductive corridor. This exhibits a spatial relationship with a geophysically-inferred, NE-trending, regional structural trend.

The south-western segment of the chargeable/resistive anomaly exhibits a spatial association with the Zone 4 gold-in-soil anomaly and with the northern portion of alluvial gold resource Block B, which according to historical alluvial exploration work, consists of eluvial/colluvial gravels rather than alluvial gravels (*sensu stricto*). Eluvial/colluvial gravels consist of residual material derived by in-situ rock weathering or weathering plus gravitational/slump movements, and loose rock/soil material deposited by gravity at the base of a steep slope. The north-eastern extremity of the chargeable/resistive response exhibits a spatial association with the southwestern portion of the Zone 3 gold-in-soil anomaly. The central portion of the anomaly is not, for the most part, characterized by an anomalous gold-in-soil signature, which could reflect extensive alluvium/colluvium cover at the base of the Atewa Range, although prospecting efforts have identified an extensive gold anomalous float train that is spatially associated with this section of the IP/Resistivity anomaly.

9.2.3 Prospecting

A total of 109 grab samples have been collected by Xtra-Gold during prospecting and reconnaissance geology traverses primarily designed to follow-up on gold-in-soil anomalies. Sampling included 44 rock floats and 65 in-situ samples consisting of saprolitic or saprock (weakly oxidized) bedrock material; with bedrock samples typically collected along road cuts and from historic workings. Eighteen (18) out of the 109 samples returned below-detection limit gold values (<0.01 g/t); 63 samples yielded between 0.01 - 0.10 g/t gold; 20 samples yielded between 0.1-1.0 g/t gold; and eight (8) samples returned between 1.0 - 7.5 g/t gold. A fair portion of the 28 anomalous grab samples (> 0.1 g/t Au) were collected from areas that were subsequently tested by trenching and/or drilling.

Prospecting identified an extensive gold-anomalous float train, exhibiting minimum dimensions of 550 m x 325 m, along the south-western margin of the Kibi Project grid area. The float train is spatially associated with the northern flank, of the central portion, of an approximately 3.5 km long, NE-trending, moderate to high chargeability/moderate to high resistivity anomaly associated with a geophysically-inferred, NE-trending, regional structural trend. A total of 14 rock samples were collected from the float train, with seven (7) samples yielding anomalous values ranging from 0.16 g/t to 3.49 g/t gold; but including a 7.5 g/t gold value. Mineralized floats are sub-angular to sub-rounded, average 0.15 to 0.75 m in diameter (2.5 m max.), generally consisting of strongly-silicified metasedimentary rock (possibly siltstone) crosscut by sheeted to stock-worked quartz stringers with disseminated limonitic boxworks appearing to be after pyrite.

9.2.4 Trenching

Reconnaissance trenching designed to test the geochemical signature at depth of the approximately 5.5 km long gold-in-soil trend continued in 2008 with the implementation of a manual (i.e. hand-dug) trenching program encompassing 18 trenches totalling approximately 1,217 linear-metres, including 4 trenches (302 m) on Zone 2 (TKB006-009) and 14 trenches (915 m) on Zone 3 (TAD008-021). In addition, 67 mechanical (i.e. excavator) trenches totalling approximately 2,223 linear metres were also excavated in conjunction with the 2008 and 2009 drilling programs, including 58 trenches (1,931 m) on Zone 2; 7 trenches (193 m) on Zone 3 and 2 trenches (99 m) on Zone 1 of the Kibi Project; with this trenching primarily designed to help map/trace the granitoid bodies hosting the gold mineralization.

The reconnaissance trenches designed to test the subsurface signature of the gold-in-soil anomalies were sampled in their entirety, with a total of 629 channel samples collected. Only a small percentage (12%) of the mechanical trenches were sampled as this trenching was predominantly designed to guide the drilling, by mapping the contacts of the host granitoid bodies and, to a lesser degree, tracing known mineralized vein zones. Only eight (8) out of the 67 granitoid mapping trenches were subjected to sampling, either in their entirety or partially, for a total of 132 channel samples (205 m). Xtra-Gold then adopted the practice of completely sampling all trenches regardless of trenching purpose or target.

Manual (pick-axe and shovel) and mechanical (excavator) trenches are typically excavated to widths of 1 m and 1.5 m, respectively, and an average depth of 3 m, with some sections of trenches reaching 4 to 5 m in depth. Trenching typically extends down to the saprolite horizon, or locally to saprock, but often the saprolite cannot be reached due to safety concerns. The entire length of the trench is subjected to systematic geological mapping and channel sampling, with wooden pegs stuck to the side of the trench at 2 m intervals. Prior to sampling the wall of the trench is cleaned of any loose material to avoid contamination.

Samples consist of continuous, horizontal channels excavated along the bottom sidewall of the trench (~ 0.10 m above floor) with an emphasis on constant sample volume over the length of the sample interval. Saprolite/rock chips are collected on a clean plastic sheet laid on the trench floor and immediately placed into a labelled plastic sample bag containing a unique sample ticket stapled to the inside lip of the bag, and then securely sealed by staples.

Figure 9.3 depicts channel sampling of a trench on the Apapam Concession. Samples are typically 2 m in length; with 1 m, to locally 0.5 m, samples being utilized in areas of geological interest and/or to delineate specific lithological/structural features. Any economically-significant mineralized intersection that is yielded by 2 m sampling is re-sampled at 1 m intervals (this procedure was implemented in 2010 sampling programs). The sample intervals (i.e. sample numbers) are marked on aluminium tags stapled to wooden pegs stuck to the sidewall of the trench. Samples are collected by a trained field assistant under the supervision of a company geologist. Road cut and drill pad face samples are collected using the same general methodology as the trench channel samples.

First-pass exploration trenches are located by tying-in the trench start and end points to the DGPS surveyed grid stations, or by handheld GPS readings if no grid is present, and azimuth and slope information is collected by compass/inclinometer. Typically, any trenching in hilly terrain (> 10° slope) is excavated by utilizing step-like benches in order to maintain horizontal sampling intervals. Since January 2010, trenches yielding significant mineralization and/or forming part of a detailed trenching program have been surveyed by utilizing combined DGPS and Total Station-defined control points. The survey crew also systematically record azimuth and slope measurements.

Figure 9.3: Channel Sampling in Trench at Apapam Concession

Zone 2 Trenching

A total of 62 trenches (7 m to 136 m) totalling 2,233 linear-metres were excavated on the approximately 1,200 m by 500 m to 800 m, SE-trending, Zone 2 gold-in-soil anomaly during 2008-2009, including four (4) hand-dug, reconnaissance trenches (302 m) and 58 mechanized, granitoid mapping/tracing trenches (1,931 m). For these reasons, only five (5) out of the 58 mechanized trenches were sampled.

Out of the four (4) reconnaissance trenches, only trench TKB006, located in the north-central portion of the Zone 2 gold-in-soil anomaly, yielded a significant mineralized intercept. Trench TKB006, targeting a 120 ppb to 385 ppb gold-in-soil anomaly, returned a mineralized intercept of 1.46 g/t gold over 36 m, including 2.20 g/t gold over 17 m, from an extensive, granitoid-hosted, quartz vein system. Four (4) out of the five (5) mechanized trenches subjected to sampling returned significant mineralized intercepts. Trench TKB010, designed to trace the mineralization intersected in scout drill hole KBD08008, at the north-western extremity of the Zone 2 gold-in-soil anomaly, returned a mineralized intercept of 1.29 g/t gold over 42 m, including 2.26 g/t gold over 13m, from an extensive system of NE- to NW-trending quartz-carbonate veining developed along the margin of a (meta)tonalitic intrusive body. For comparison purposes, RC drill hole KBRC09068, designed to undercut trench TKB010, yielded a mineralized intercept of 76 m grading 1.62 g/t gold, including 20 m grading 3.36 g/t gold.

Trenches TKB014E and TKB014F, targeting a gold-in-soil anomaly spatially associated with a quartz float train, lying approximately 225 m west-northwest of the trench TKB006 gold occurrence, exposed an auriferous, granitoid-hosted, quartz-carbonate vein network. Two trenches, positioned end-to-end on the same soil geochemical anomaly line, both returned significant channel sample intercepts separated by an approximately 20.5 m distance, including

8.49 g/t gold over a 5 m trench-length, including 2 m grading 14.85 g/t gold, in trench TKB014E and 6.86 g/t gold over an 8 m trench-length, including 1 m grading 22.4 g/t gold, in trench TKB014F.

Zone 3 Trenching

A total of 14 manually-excavated reconnaissance trenches (15 m to 154 m) totalling 915 linear-metres (TAD008 to TAD021) were completed on the approximately 2,500 m by 250 m to 1,200 m, NE-trending, Zone 3 gold-in-soil anomaly in 2008. Mineralized intercepts reported below are trench-lengths and the true width of mineralization is unknown at this time (see Table 2 for significant Zone 3 trench results).

Five (5) out of the 14 trenches, designed to test the geochemical signature at depth of gold-in-soil anomalies, exposed altered granitoid bodies exhibiting variable amounts of quartz-carbonate veining. The Zone 3 reconnaissance trenching yielded two (2) significant granitoid-hosted mineralization intercepts (TAD019, TAD016), with the remaining three (3) altered/veined granitoid occurrences yielding lower grade but exploration-significant, anomalous gold values.

Extensive, strongly-indurated, lateritic clays and gravels prevented the proper testing of some gold-in-soil anomalies due to the saprolite horizon not being reachable at many localities in the hand-dug trenches. Mechanized trenching and/or RAB drilling is recommended to further test the geochemical signature of the Zone 3 gold-in-soil anomalies at depth within the saprolite horizon.

9.2.5 Structural Study

SRK Consulting (Canada) Inc (SRK) conducted a structural study in an attempt to understand the structural controls on gold mineralization at the Kibi Gold Project. SRK reviewed 14 diamond drill holes (Zone 1 and 2) as well as available trench exposures (Zone 2 and 3). The following observations were made:

- Overall, N- to NE-trending shear zones occur throughout the Apapam concession. preferentially developed along the margins of quartz-diorite intrusions;
- Gold mainly occurs in gently to moderately NW-dipping, quartz-albite-carbonate vein stockworks bounded by NE-trending, steeply-dipping faults within quartz-diorite intrusions;
- Low-grade gold mineralization is associated with quartz-carbonate veins in narrow (graphitic) shear zones that occur in tightly-folded metasedimentary sequences;
- Hydrothermal alteration typically consists of quartz, carbonate, chlorite and sericite where auriferous quartz veins occur within quartz-diorite intrusions;
- Vein geometries and rare kinematic indicators suggest a reverse sense of shear associated with vein and shear zone development;
- The 3D geometry of quartz-diorite intrusions and the auriferous portions were poorly constrained at the time of this structural study.

9.2.6 Petrographic Study

A petrographic study was also implemented to characterize the lithological units and ore mineralogy and alteration of the Kibi Gold Project. A total of 36 thin sections and nine (9) polished sections were studied by Professor K. Dzigbodi-Adjimah of the University of Mines and Technology, Tarkwa, Ghana. The observations made include:

- Identification of the altered granitoid as quartz-dioritic to granodioritic in composition;
- Identifying three generations of pyrite with the gold being associated with the last sulphide forming event;
- Observing that the gold often occurs as inclusions within pyrite, pyrrhotite and arsenopyrite which suggests that the sulphides are not refractory.

9.3 2010 -2012 Exploration Program

9.3.1 Geophysics

VTEM Survey

A VTEM survey was flown over the Kibi Gold Project by Geotech Airborne from December 2010 to February 2011. The survey measured ground elevation, radiometrics, magnetic field and electromagnetism (resistivity). Interpretation of the data resulted in an interpretive pseudo-geology map of the area (Figure 9.4). The different geophysical units can be correlated with various geological units.

Target areas were defined in the report for further ground exploration (Figure 9.5). Two kinds of targets were defined:

- Resistive type: following the silicification model for gold mineralisation, areas of low conductance/susceptibility occur within the interpreted conductive graphitic shear zones and the interpreted conductive graphitic sediment units.
- Granitoids-type: shear/fracture zones in basin-type granitoids are known to exhibit sub-economic to economic gold mineralisation in the survey area. As such, targets have been defined where interpreted fractures intersect the interpreted basin-type granitoids.

In the Apapam Concession 1, resistive-type (100) and 4 granitoid-type (20, 21, 22, and 24) targets were proposed (Figure 9.5). According to Geotech Airborne, targets 100 and 21 are priority 1 targets, target 20 is a priority 2 target, and targets 22 and 24 are priority 3 targets.

Following on from the work by Geotech Airborne, Xtra-Gold geologists have performed more detailed processing to highlight the various faults around the project area in the VTEM data (Figure 9.6).

Figure 9.4: Pseudo-Geology Map Derived from the Interpretation by Geotech Airborne

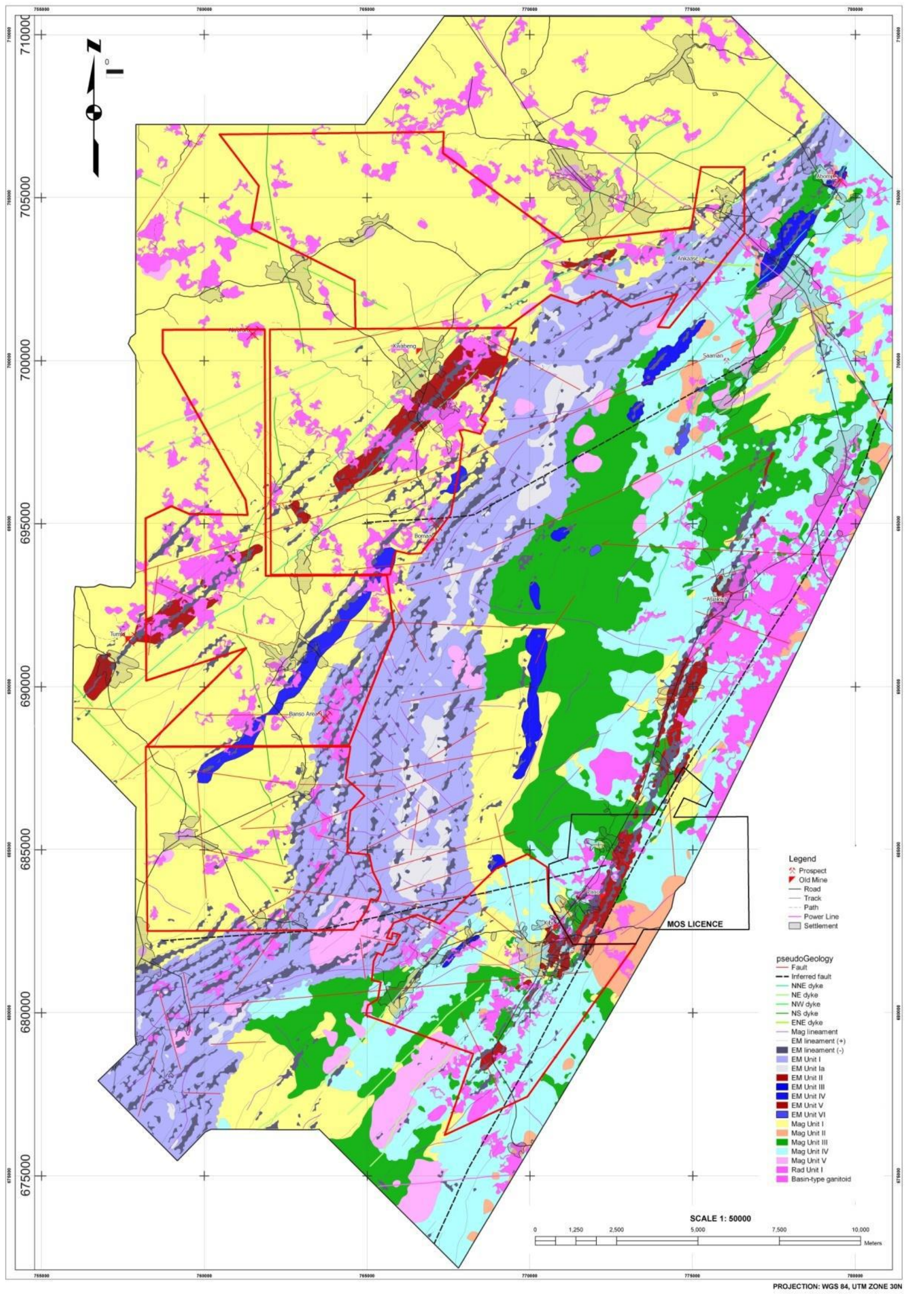
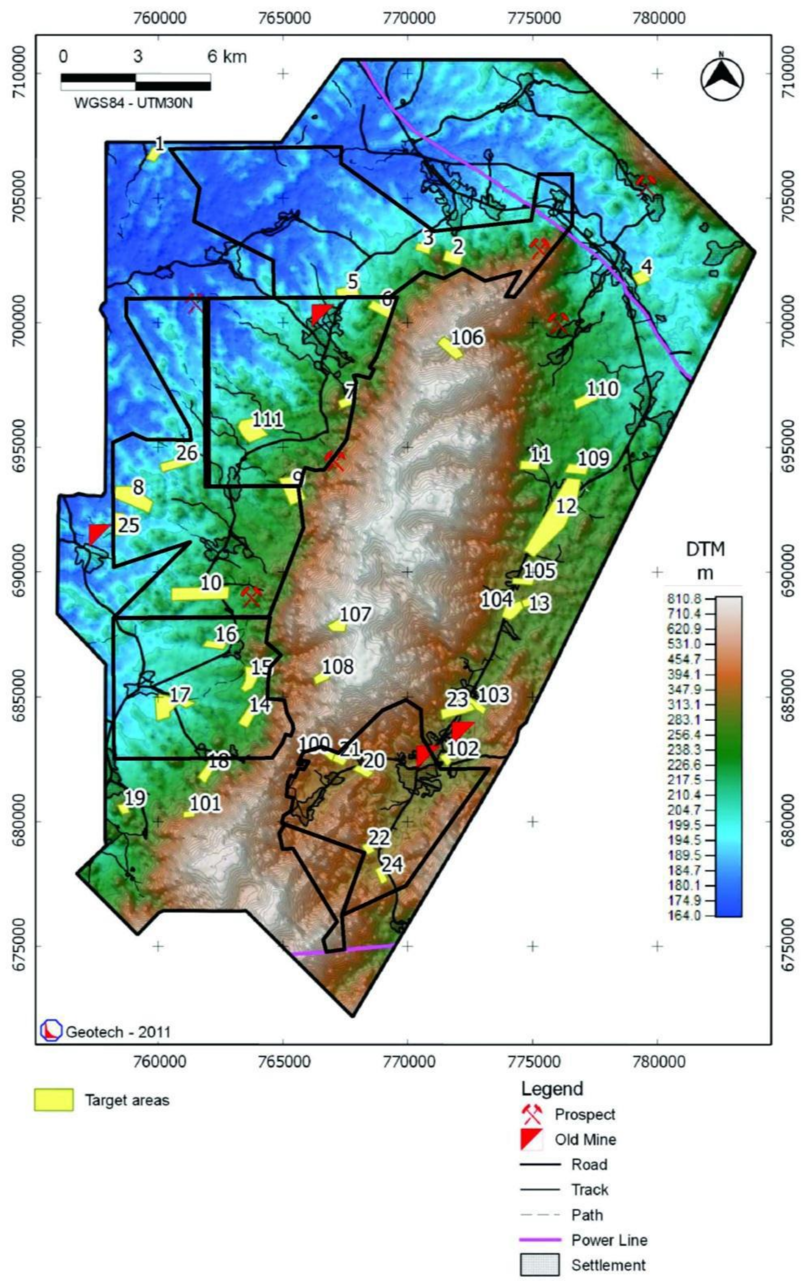
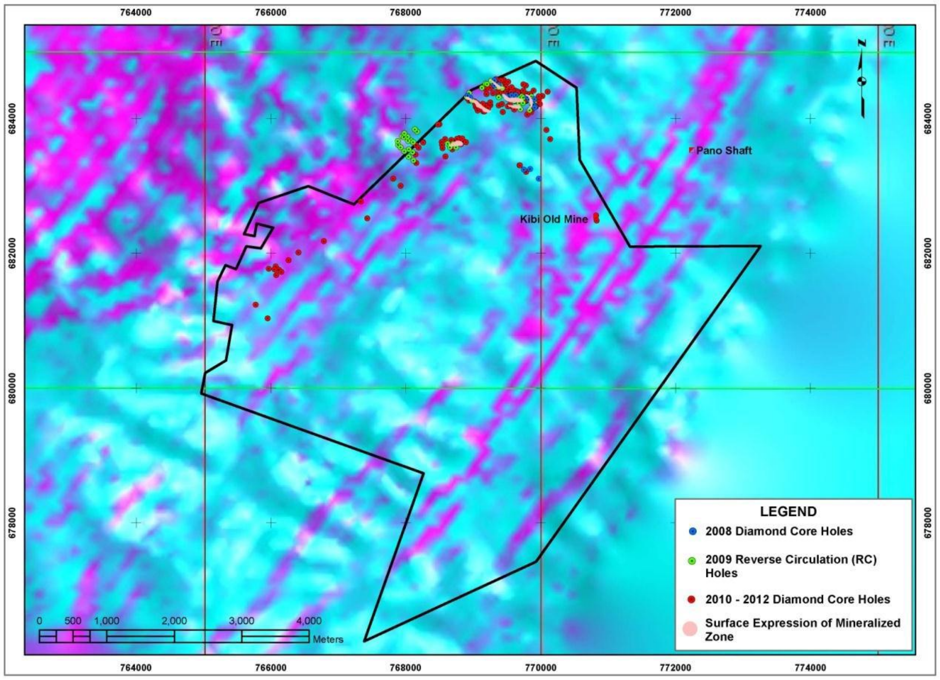


Figure 9.5: Proposed Targets based on the Interpretation the VTEM survey



Targets with numbers <30 are granitoid type targets, and those with numbers >99 are resistive type targets

Figure 9.6: VTEM Image showing NE-SW Conductor interpreted as a Graphitic Shear Zone



9.3.2 Geochemistry

Soil Sampling

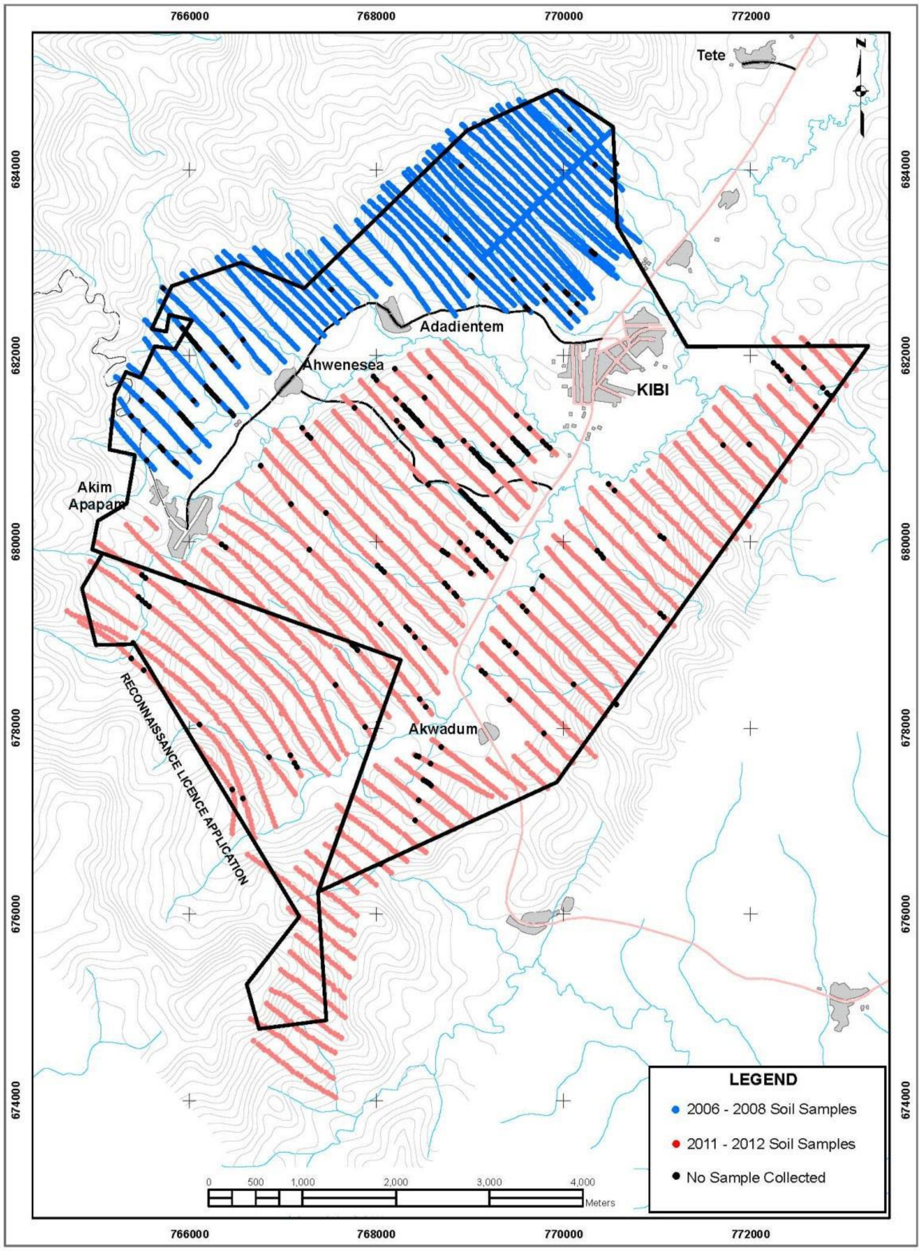
From June 2011 to April 2012, 3,833 soil samples were collected by Xtra-Gold to complete the soil sampling program over the Apapam Concession (Figure 9.7). Previously, only the north-western part of the concession had been covered by soil sampling. The samples were collected every 25 m along lines 200 m apart. Of the 3,833 samples collected, 2,747 were submitted to the laboratory for analysis.

As per program design, every second sample (50m stations) was initially submitted for gold analysis (1,859 samples), with the held-back samples subsequently analysed, where required, to delineate/bracket anomalous gold-in-soil anomalies. Based on gold results, an additional 888 infill (25 m station) samples were selected for analysis to further define the anomalous gold-in-soil trends.

Soil samples are collected from 20 cm to 30 cm diameter, hand-dug pits at a nominal depth of 75 cm using the local digging tool called “soso”. Approximately 2.5 kg of material is collected into labelled plastic bags with unique sample tickets stapled to the inside lip of the bag, and securely sealed by staples. To avoid any contamination, only dry samples are collected. Field logging includes sample depth, landscape, slope direction, land use, soil type/characteristics, residual/erosional/depositional environment and regolith type.

Float and outcrop grab samples (115 samples) were collected to assist with delineation of potential mineralisation.

Figure 9.7: Locations of 2006 -2008 Soil Sampling (blue) and 2010 -2012 Sampling Sites (red)



Rock Chip Sampling

One hundred and fifteen (115) rock grab samples have also been collected from outcrops and from floats and then analysed for gold. Tock sampling was conducted in conjunction with the 2011-2012 soil geochemical survey and follow-up prospecting of gold-in-soil anomalies. Out of the 115 grab samples collected, six (6) returned gold grades between 0.19 g/t and 12.35 g/t; and the remaining 109 yielded below or slightly above detection-limit gold values. Sampling of felsic intrusive outcrops returned highs of 1.5 g/t and 12.35 g/t gold, and a quartz float yielded 11.0 g/t gold.

9.3.3 Trenching

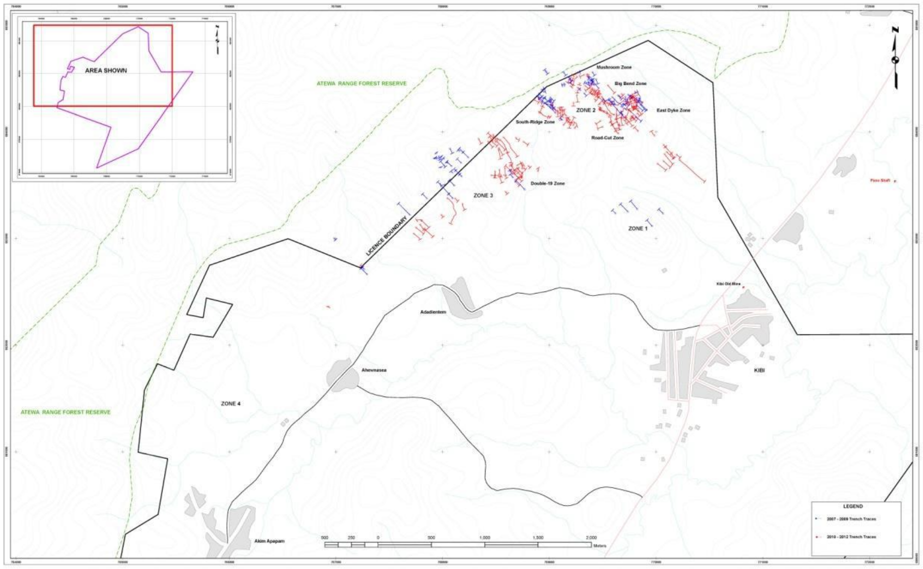
Trenching was undertaken from July 2010-August 2012 to supplement the drilling of the targets already recognised. Trenches were excavated on the majority of the targets that form part of the mineral resource estimate (Table 9.1).

Table 9.1: Summary of Trenching (2010 - 2012)

July 2010 to August 2012	No. of Trenches	Metres	No. of Channel Samples	Sample Metres	Vertical Sample Sections	Metres	No. of Vertical Channel Samples	Sample Metres
Big Bend	24	863	673	783	28	68	68	68
East Dyke	12	436	336	398	38	85	84	85
Mushroom	5	94	41	41	0	0	0	0
South Ridge	26	1,106	847	977	33	81	81	81
Double 19	26	1,173	786	1,036	78	162	154	162
Other Targets	107	6,021	4,346	4,971	202	514	509	514
Total	**200**	**9,693**	**7,029**	**8,206**	**379**	**910**	**896**	**910**

Trenching was undertaken to help define the extents and geological context of gold mineralisation (Figure 9.8). Due to the high relief in the area, some of the trenches are actually cleaned road cuttings on the sides of hills. Of the 200 trenches that were dug, 198 of them were dug using an excavator, while the remaining two were dug by hand. Depths of the trenches varied widely from a metre to 5 m depending on relief and steepness of slopes on hill sides. Widths of the trenches average 1.5 m. A total of 4,346 horizontal channel samples were taken and, because of the prevalence of shallowly dipping veins, 509 vertical channel samples were also taken where appropriate. Where the 2 m samples yield anomalous results, 1 m samples were re-taken from the interval. The vertical sample sections were usually spaced 2.5 m apart. The total number of samples sent to the laboratory for analysis was 7,925. Typical QA/QC protocols were observed.

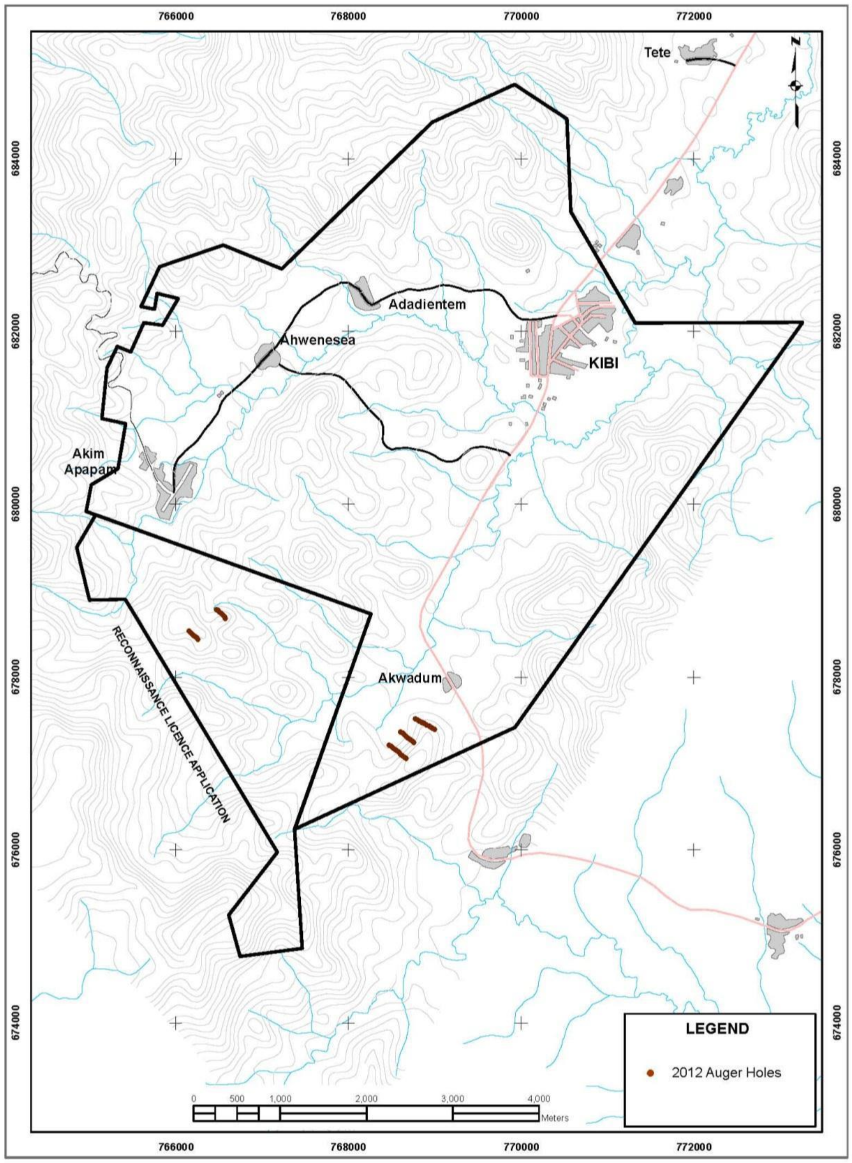
Figure 9.8: Trench Locations of pre-2010 Trenches (Blue) and 2010-2012 Trenches (Red).



9.3.4 Hand-Augering

At Akwadum South 44 auger holes were sunk for a total of 237 m with 147 samples being collect and assayed (Figure 9.9). These holes were drilled to test a gold-in-soil anomaly.

Figure 9.9: Location of the Hand Auger Sampling Sites (2010 -2012)



9.3.5 Structural Analysis of Zone 2

SRK Consulting (Canada) investigated the structural geology of the Kibi Gold Trend project – Zone 2 in November 2011. They examined a number of trenches and drill holes from the Big Bend zone and South zone. SRK concluded that:

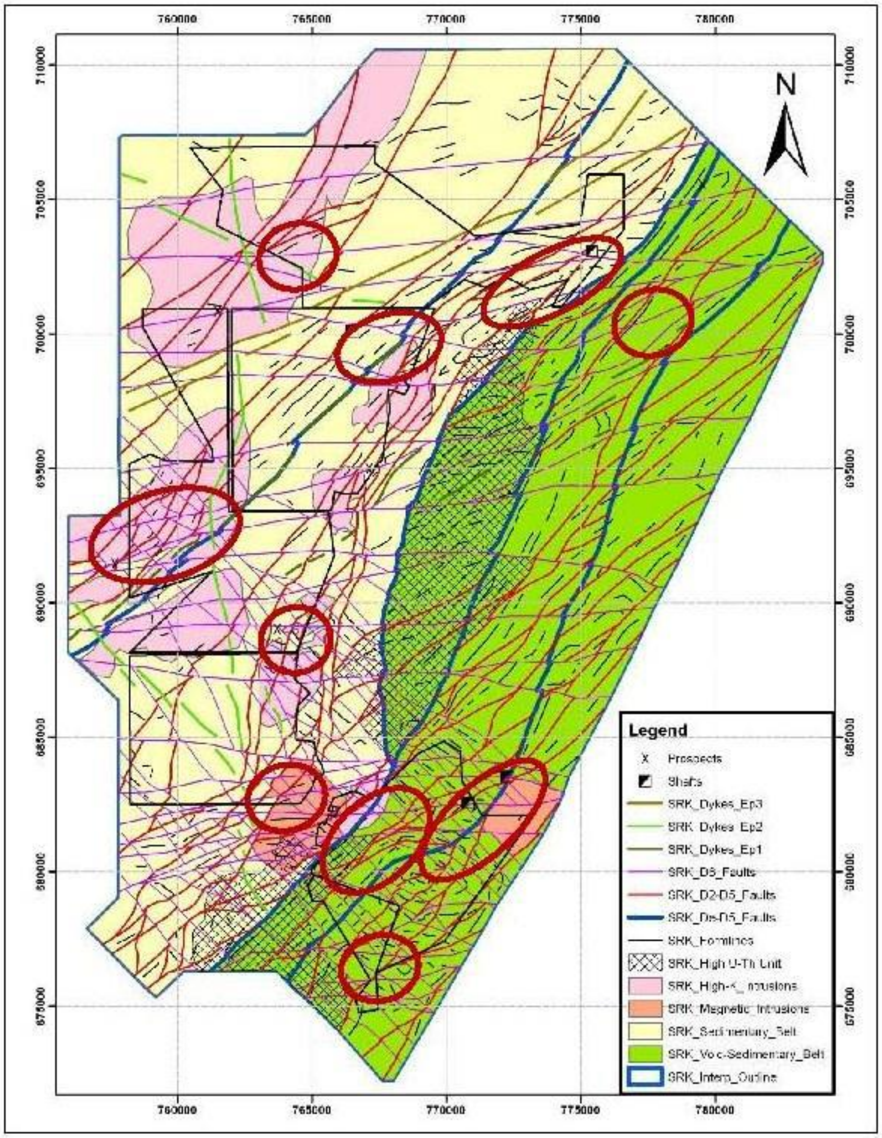
- The distribution of gold mineralization in the Big Bend Zone is controlled by two NNE-trending shear zones that bound the auriferous zone in a quartz diorite;
- Auriferous quartz veins in the Big Bend Zone comprise:
  - Shear and extensional veins related to the development of NNE-trending shear zones; and
  - Stockwork veins in a particular portion of the quartz diorite;
- Auriferous quartz veins in and around the shear zone have two dominant orientations (measured from drillcore):
  - Steeply-dipping to the ESE (average 024°/78°); and
  - Gently-dipping to the SE (average 035°/12°).
- Auriferous quartz veins in non-to weakly-foliated diorite in the Big Bend Zone form vein stockworks. Auriferous quartz veins within the quartz diorite (outside of shear zones) have two dominant orientations:
  - Gently-dipping to the NNW (average 240°/15°); and
  - Moderately-dipping to the NW (average 215°/45°);
- According to SRK, vein geometry, rare kinematic indicators and steeply plunging mineral lineations imply that deformation associated with gold mineralization in the Big Bend Zone resulted from a protracted episode of dominantly reverse SE-over-NW with minor sinistral movement; and
- In the South Zone, steeply-dipping auriferous laminated and breccia veins occur, in addition to the dominant gently dipping (<15°) extensional veins;
- The controls on gold mineralization at the South Zone and other zones are not well understood and require further oriented core drilling followed by structural geology investigations.

9.3.6 Regional Interpretation

SRK Consulting (Canada) analysed the regional structural geology and interpreted the aeromagnetic data for the Kibi Gold Project in December 2011. They interpreted regional aeromagnetics and the VTEM data were geologically interpreted over the area (Figure 9.10). Selected areas of structural complexity, which are of interest for exploration in the Kibi area, were highlighted, with three of the targets overlapping the Apapam Concession on the following criteria:

- Bends along fault corridors that acted as dilational jogs during sinistral strike-slip deformation;
- Areas of intersection between anastomosing NE-SW trending faults, or where these faults cross-cut intrusions;
- Areas of intersection between major NE-SW trending fault corridors and E-W trending faults; and
- The presence of intrusions at or near any of the above faults.

Figure 9.10: Regional Geological Interpretation



SRK targets, based on their regional interpretation, shown by red ellipses.

9.4 2012 - 2021 Exploration Programme

The exploration programme during the 2012 – 2021 period consisted of ongoing compilation of geological data, soil geochemical sampling and scout trenching to identify and/or further advance grassroots targets. This was accompanied by drilling to extend mineralization and to prepare an updated mineral resource estimate.

Exploration activities were primarily geared towards the continued advancement of early-stage gold shoots/showings within the Zone 2 ‐ Zone 3 maiden Mineral Resource footprint area.

Activities from 2013 – 2016 focussed on preliminary work on the Cobra Creek Target (Zone 5), including trenching and outcrop stripping/channel sampling and a scout drilling program.

Exploration activities from 2018-2021 targeted resource expansion opportunities within the Zone 2 – Zone 3 maiden Mineral Resource footprint area. The drilling / trenching program was designed to follow up on early-stage gold shoots/showings discovered by previous drilling/trenching efforts (2008-2012), to test down-plunge extensions and/or fold limbs of existing resource bodies and to test prospective litho-structural gold settings identified by recently-completed 3D geological modelling.

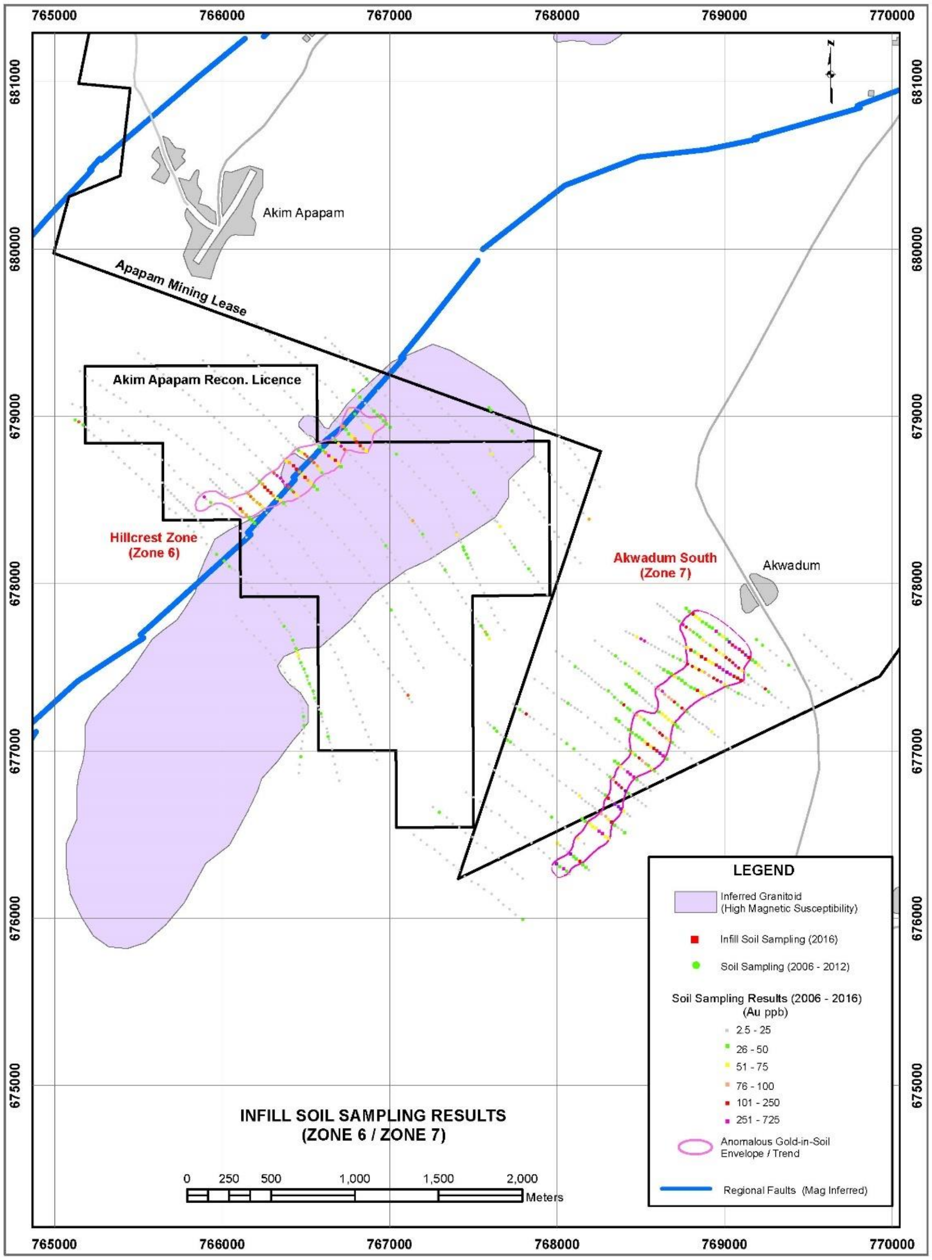
9.4.1 Soil Sampling

Further infill soil sampling was undertaken on the Cobra Creek (Zone 5) and on Akwadum South (Zone 7) targets. The sampling was undertaken to provide more detailed 100 m line-spacing coverage of previously identified gold-in-soil anomalies (i.e., infilling of 2012 sampling at 200 m line-spacing). Soil sampling methodology consisted of the collection of approximately 2.5 kg of regolith material from hand-dug pits at depths of 50 to 60 cm with normal diameters not exceeding 30 cm using the soso digging tool.

A total of 10.71 line-kilometres of soil sampling was completed, including 7.03 line-kilometres at Cobra Creek and 3.68 line-kilometres at Akwadum South. A total of 458 samples were collected at 25 m stations along the NW-SE grid lines (Cobra Creek – 310 and Akwadum – 148). The infill soil sampling permitted the delineation of an approximately 1,700 m long by 100 m – 200 m wide anomalous gold-in-soil trend at Akwadum South (Zone 7) (Figure 9.11). The southwest extremity (500 m) of the anomaly extends on Third-Party ground (i.e., 1,200 m on Apapam mining lease) and the anomaly remains open at the northeast extremity with the soil coverage being interrupted by the hamlet of Akwadum.

The Akwadum South gold-in-soil trend is defined by an envelope of discontinuous/patchy, typically greater-than 50 ppb, gold-in-soil values, with the anomalous threshold arbitrarily set at 50 ppb gold based on past exploration experience by Xtra-Gold in the Kibi Greenstone Belt. Out of the 152 samples within the anomalous trend, including both 2012 and 2016 sampling, 114 samples yielded gold values (75%) greater than the 50 ppb anomalous threshold, including: 58 samples from 51 ppb to 100 ppb gold; 49 samples from 101 ppb to 300 ppb gold; and seven (7) samples above 300 ppb gold (725 ppb maximum).

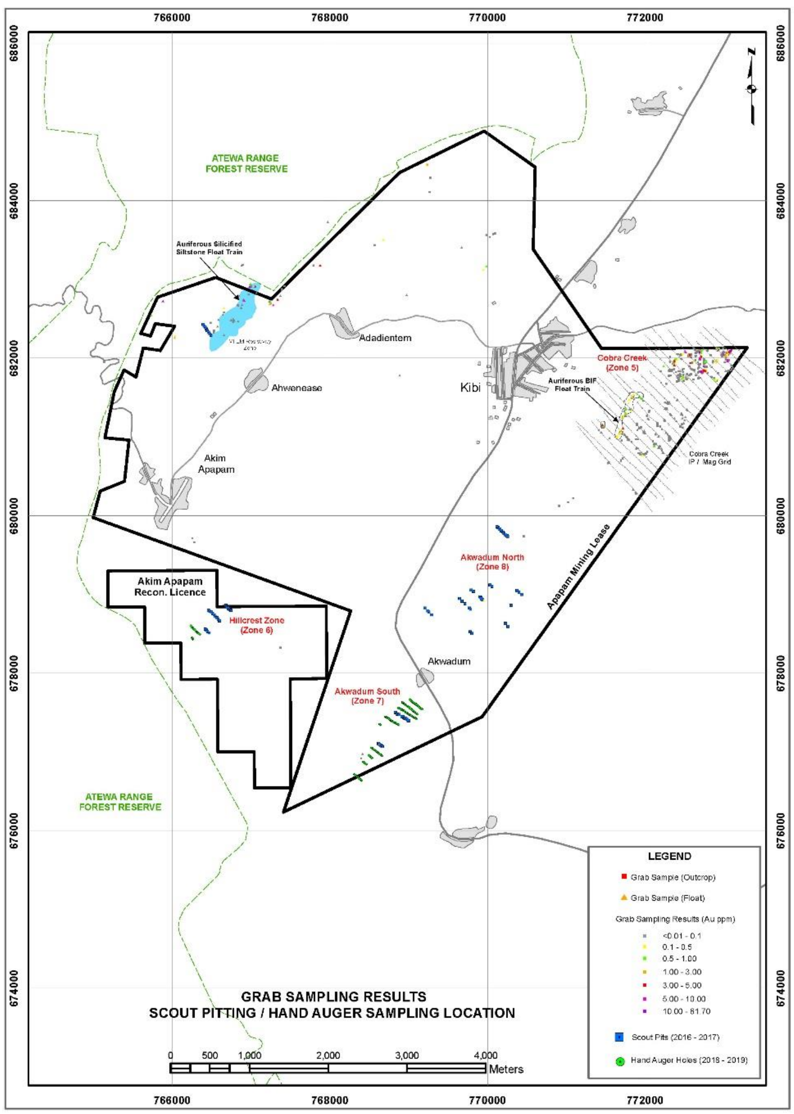
Figure 9.11: Results of Infill Soil Sampling (2016)



9.4.2 Grab Sampling

Sampling of outcrop and float material was performed at Cobra Creek (Zone 5) and other locations on the Apapam concession. A total of 910 grab samples were collected (Cobra Creek – 794 and 116 – other locations) as part of prospecting efforts geared towards the testing of quartz-bearing structures and the ground proofing of geophysical anomalies (Figure 9.12). Note that grab samples are selective in nature and may not be necessarily representative of the mineralization present on the concession.

Figure 9.12: Location of Grab Samples, Scout Pitting and Auger drilling (2012 -2021)



At the Cobra Creek (Zone 5) prospect, systematic outcrop / rock float grab sampling helped delineate an approximately 550 m wide, NE-trending, multi-structure braided shear zone system traced over an approximately 850 m strike length (Figure 9.14). With the quartz feldspar porphyry (QFP) hosted mineralized corridor encompassing at least 9 auriferous shear zones ranging from approximately 1 m to 25 m in apparent width. Of the 794 grab samples collected on Zone 5: 167 samples yielded less than 0.01 g/t gold; 330 samples yielded gold values from 0.01 g/t to 0.1 g/t; 158 samples between 0.1 g/t and 1.0 g/t gold; 76 samples between 1.0 g/t and 5.0 g/t gold, 55 samples from 5.0 g/t to 20 g/t gold, and 8 samples returned values above 20 g/t gold, including a maximum value of 61.7 g/t gold.

Further Zone 5 prospecting yielded an approximately 650 m long, auriferous banded iron formation (BIF), rock float train spatially associated with a series of coincident high chargeability (IP) / weak – moderate resistivity anomalies and patchy to intermittent anomalous gold-in-soil values in the 50 ppb to 225 ppb range (Figure 9.17). The mineralized hematite BIF material is characterized by quartz stockworks, strong patchy to pervasive silica alteration, and pyritization. Of the 57 BIF samples collected: 6 samples yielded less than 0.01 g/t gold; 22 samples returned gold values from 0.01 g/t to 0.1 g/t; 28 samples between 0.1 g/t and 1.0 g/t gold; and 1 sample returned a maximum value of 2.18 g/t gold. In situ source of auriferous BIF material yet to be established by trenching / drilling.

Prospecting efforts in Zone 4 further defined an auriferous silicified / pyritized siltstone rock float field originally discovered in 2006. The mineralized siltstone floats are spatially associated with a NE-trending VTEM high resistivity anomaly situated along the same F1 isoclinal fold hinge as the JK West and JK East prospects (Figure 9.12, Figure 7.7, Figure 7.8). Of the 45 silicified siltstone samples collected to date: 3 samples yielded less than 0.01 g/t gold; 20 samples returned gold values from 0.01 g/t to 0.1 g/t; 13 samples between 0.1 g/t and 1.0 g/t gold; and 9 samples returned values above 1 g/t gold, including a maximum value of 11.3 g/t gold. In situ source of auriferous siltstone material yet to be established by trenching / drilling.

9.4.3 Trenching

Trenching was undertaken from October 2018 – June 2021 on Zone 1 – Zone 2 – Zone 3 to supplement the drilling of the targets already recognised. Trenches were excavated on most of the targets that form part of the present mineral resource estimate (Figure 9.13). Trenching was also conducted intermittently from September 2012 - March 2016 to delineate the Cobra Creek (Zone 5) auriferous shear system.

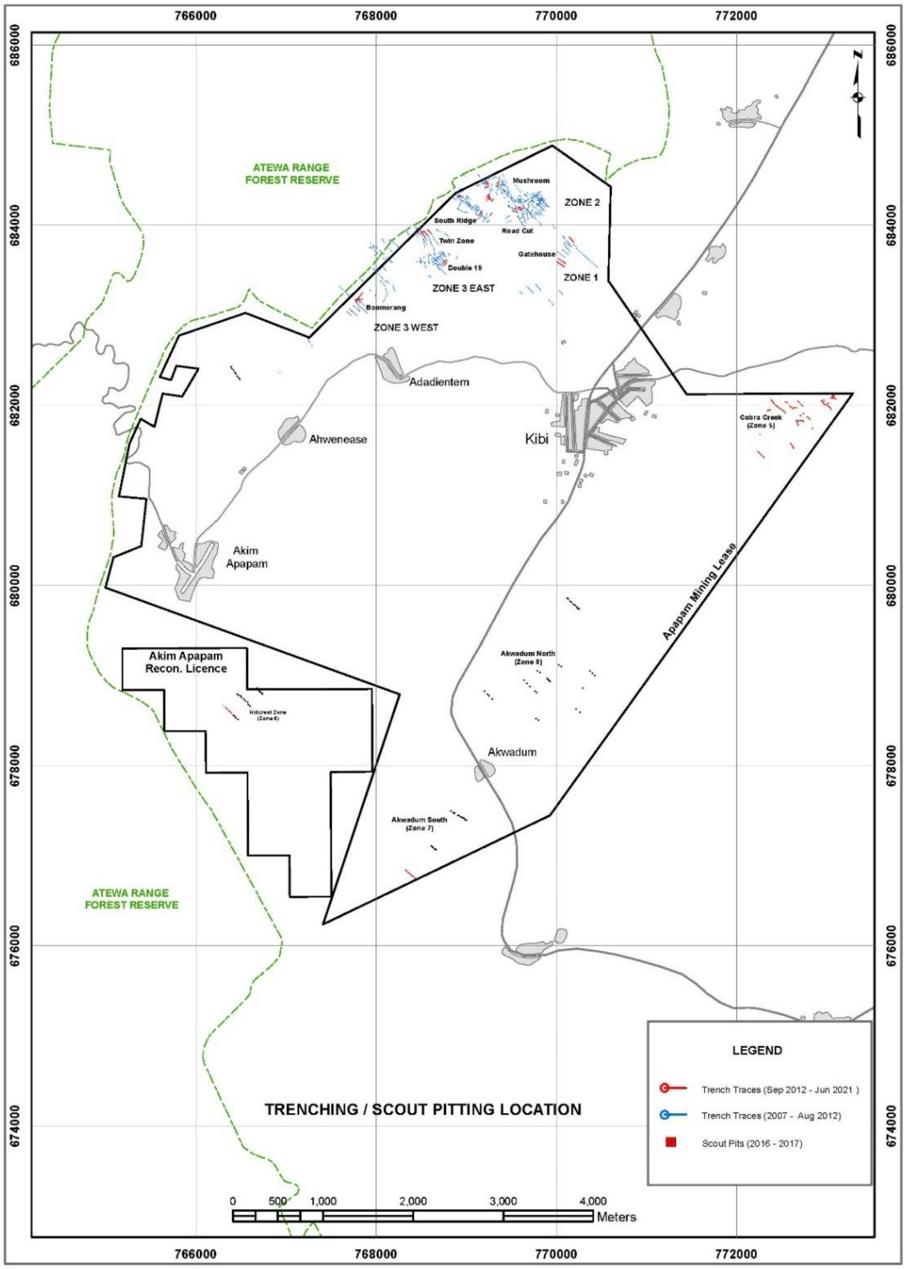
Table 9.2: Summary of Trenches Excavated			
Oct 2018 - Jun 2021	**No of Trenches**	**Trench Metres**	**Sampled Metres**
South Ridge	8	276	
Double 19	5	126	
Road Cut	8	201.1	
Mushroom	2	57.4	
Gate House	5	300.6	
Boomerang West	13	305.2	
JK East	10	260.8	
Other Targets	5	142.8	
Total Trenching	**56**	**1669.9 m**	**1577.7 m**
Cobra Creek (Zone 5)	38	1194.3	1170.8 m
Sept 2012 - Mar 2016	**No of Trenches**	**Trench Metres**	**Sampled Metres**
Akwadum South (Zone 7) 2017	1	154.5	154.5 m
Apapam Total Trenching	**95**	**3018.7 m**	**2903.0 m**

Due to the high relief in the area, road cuts exposing saprolitic bedrock on hillsides are also categorize as trenches, and subject to the same surveying / sampling procedures described below for trenching. For differentiation purposes, the road cuts have the letters RS as part of the labelling prefix (i.e. Road Sampling).

The trenches were mechanically excavated with a width of 1.5 m and an average depth of 3 m, with some sections of trenches reaching 4 to 5 m in depth. Trenching typically extends down to the saprolite horizon, or locally to saprock, but often the saprolite cannot be reached due to safety concerns. The entire length of the trench is subjected to systematic geological mapping and channel sampling, with wooden pegs stuck to the side of the trench at 2 m intervals. Prior to sampling, the wall of the trench is cleaned of any loose material to avoid contamination.

Samples consist of continuous channels excavated along the bottom sidewall of the trench (~ 0.20 m above the floor) with emphasis on constant sample volume over the length of the sample interval. Samples are typically 2 m in length; with 1 m, to locally 0.5 m, samples being utilized in areas of geological interest and/or to delineate specific lithological/structural features. In addition to horizontal channel sampling, trenches where shallow-dipping quartz veining and/or shearing was observed were also subjected to vertical channel sampling at typically 2.5 m section spacing.

Figure 9.13: Location of Excavated Trenches (2012 -2021)



Saprolite/rock chips are collected on a clean plastic sheet laid on the trench floor and immediately placed into a labelled plastic sample bag containing a unique sample ticket stapled to the inside lip of the bag, and securely sealed by staples. The sample intervals (i.e. sample numbers) are marked on aluminium tags stapled to wooden pegs stuck to the sidewall of the trench. Samples are collected by a trained field assistant under the supervision of a company geologist.

Trenches are surveyed as three-dimensional features to permit 3D-plotting, with the trench data collected in standard drill database tables (i.e. collar, survey, geology, assays, structure). Along the Zone 1 – Zone 4 corridor and at Cobra Creek (Zone 5), trench collar coordinates (i.e. zero mark of channel sample string) are established by Total Station survey using DGPS-established control pillars, by the company's in-house surveyor. For trenching on early-stage projects with no established control pillars, the trench collars are surveyed-in utilizing handheld GPS established reference points (i.e., backsight & foresight).

The trace of the channel sample string is surveyed by Total Station from the collar to the end point, with azimuth and slope measurements collected at inflection points. The sample intervals are established to match the inflection points along the trace of the sample line. With the sample intervals (i.e., from and to measurements) representing slope measurements along the channel sampling line and not horizontally corrected distances.

Ninety-five (95) trenches totalling 3,018.7 m were completed on the Kibi Gold Project during the 2012 – 2021 exploration program. Significant trench results are summarized in Table 9.3 and depicts the location of the trenches on the Apapam concession.

The reported trench results meet the following criteria: 4 m minimum length and minimum 0.3 g/t average grade over the interval or a minimum metal factor (grade x length) of 10 m-g/t if interval falls below the minimum 4 m criteria. In addition, mineralized intercepts are constrained with a 0.25 g/t gold minimum cut-off grade at top and bottom of intercept, with no upper cut-off applied, and maximum of five (5) consecutive samples of internal dilution (less than 0.25 g/t gold). Reported trench results correspond to trench-lengths in metres. The orientation / geometry of the mineralization is not fully understood in the saprolitic trench exposures resulting in unknown true thickness.

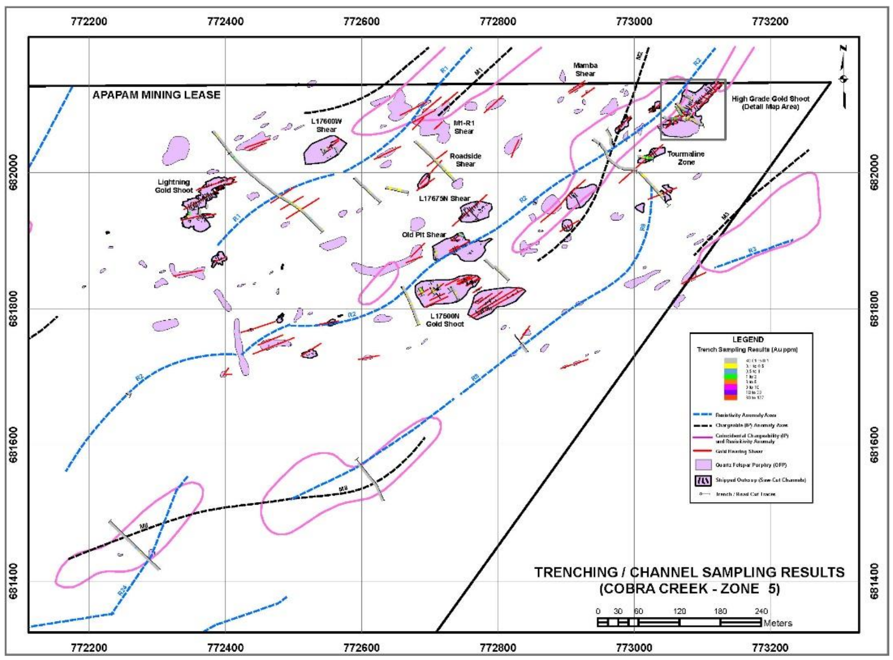
Table 9.3: Significant Trench Results (2012 – 2021)				
Trench ID	**From (m)**	**To (m)**	**Trench-Length (m)**	**Au (g/t)**
South Ridge				
KBRS045	25.5	33.0	7.5	1.47
KBRS047	7.3	12.0	4.7	4.32
including	9	10	1	15.02
Double 19				
TAD044	0	7.2	7.2	1.85
including	2	3.2	1.2	4.18
TAD045	2.5	22.5	20.0	4.83
including	14.0	19.5	5.5	9.60
TAD046	1.0	5.5	4.5	0.87
Road Cut				
TKB131	48.0	49.5	1.5	15.85
TKB141	20.0	26.3	6.3	2.15
Mushroom				
TKB143	9.0	30.4	21.4	0.90
including	17.4	24.4	7.0	1.86
Gate House				
TKB144	22	35	13.0	0.33
TKB147	31.5	43.5	12.0	0.74
including	37.5	39.5	2.0	2.30
TKB148	19.0	24.4	5.4	1.18
Boomerang West				
TAH015	1.5	18.0	16.5	1.64
including	4.5	13.5	9.0	2.35
TAH016	25.5	36.0	10.5	1.93
TAH023	18.0	31.0	13.0	0.5
JK East				
TAD050	16.0	34.0	18.0	0.52
ADRS018	9.0	25.0	16.0	0.67
including	17.0	18.0	1.0	2.33
Cobra Creek (Zone 5)				
TCK001	9.5	30.0	20.5	7.26
including	22.5	29.0	6.5	12.26
TCK002	20.3	27.0	6.7	32.32
including	23	25	2.0	82.22
TCK003	4.0	12.0	8.0	1.45
including	4.0	5.0	1.0	4.65
TCK005	2.0	18.0	16.0	1.17
including	17.0	18.0	1.0	6.15
TCK006	44.9	53.0	8.1	0.38
TCK008	61.0	73.0	12.0	0.31
TCK013	3.0	5.0	2.0	14.98
TCK017	0.0	9.1	9.1	0.42
CCRS001	8.0	20.5	12.5	1.28
including	14.7	15.2	0.5	6.98
CCRS002	4.0	8.0	4.0	2.29
CCRS003	3.5	9.5	6.0	5.96
including	7.0	9.5	2.5	13.00
CCRS005-A	0.0	2.4	2.4	6.25
including	1.5	2.4	0.9	10.10
CCRS009	0.0	4.0	4.0	1.67
Akwadum South (Zone 7)				
TAKS001A	18.0	43.25	25.25	0.35
including	26.7	33.15	6.45	0.77
TAKS001A	92.3	93.75	1.45	16.37

At the Cobra Creek (Zone 5) prospect, systematic trenching helped delineate an approximately 550 m wide, NE-trending, multi-structure braided shear zone system traced over an approximately 850 m strike length. With the QFP hosted mineralized corridor encompassing at least nine auriferous shear zones ranging from approximately 1 m to 25 m in apparent width (Figure 9.14). Trenching was also utilized to test IP/Resistivity anomalies and to identify prospective areas for outcrop stripping and channel sampling.

At the Gate House target, trenching extended the gold mineralization approximately 150 m to the southwest, as well as confirmed the two, parallel zone geometry of the mineralized system, and helped further delineate the host granitoid body (Figure 9.15).

Figure 9.14: Cobra Creek (Zone 5) Trenching / Channel Sampling Results (2012 – 2016)

A) Cobra Creek Shear System



B) High Grade Shoot – Inset Map

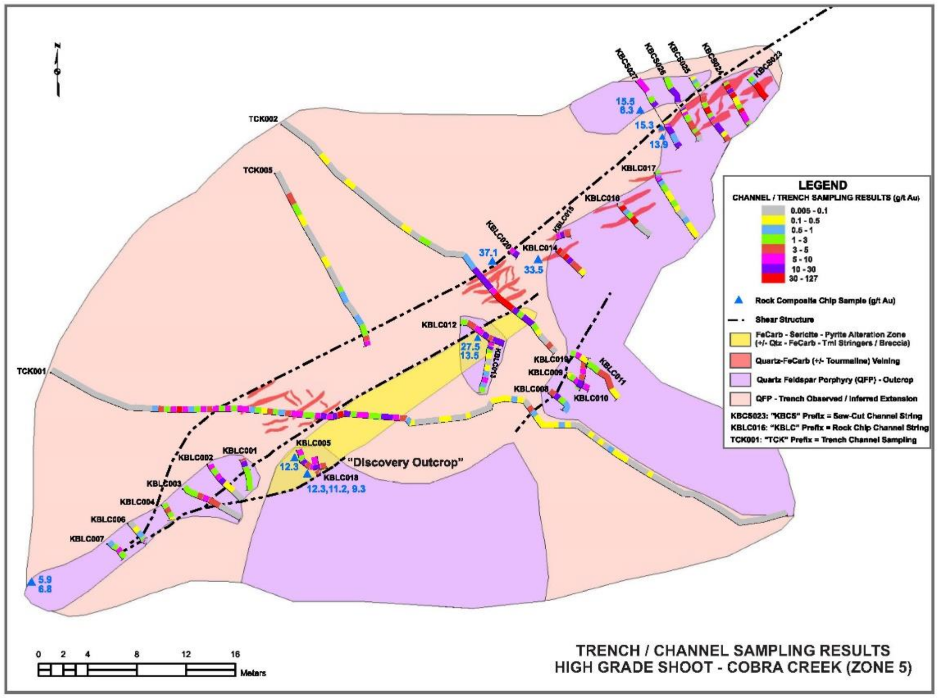
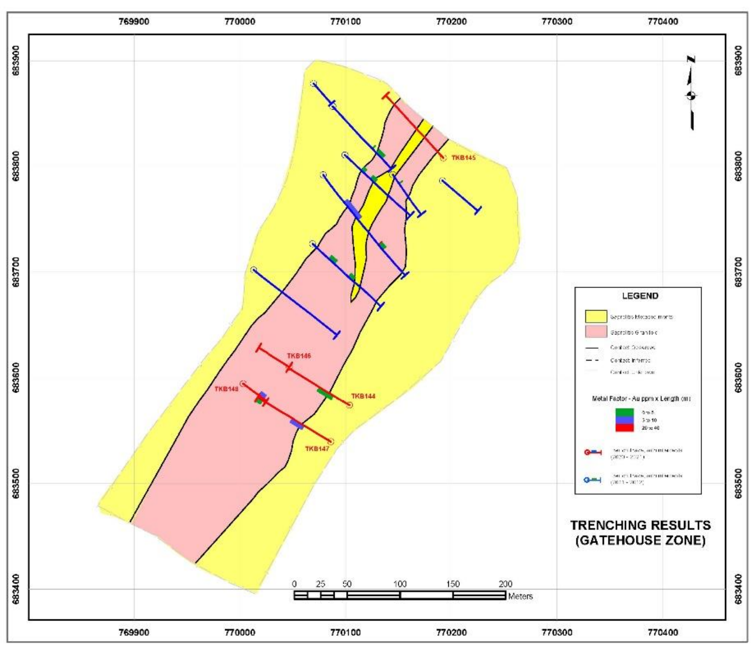


Figure 9.15: Results of Trenching at Gate House Target (2020 – 2021)



9.4.4 Outcrop Stripping and Channel Sampling

The QFP body hosting the gold mineralization at the Cobra Creek (Zone 5) prospect is characterized by an abnormally strong resistance to weathering, with the QFP forming un-oxidized (fresh) rock outcrops in otherwise deeply laterized terrane.

A total of approximately 15,000 m^2 of bedrock exposures were mechanically stripped and power washed at the Cobra Creek project from 2012 – 2016 to permit systematic mapping and channel sampling of the auriferous shear system (Figure 9.13). A total of 24 stripped bedrock exposures, ranging from approximately 20 m^2 to 2,800 m^2, were excavated across an approximately 850 m x 375 m extent of the host QFP body.

A total of 1,312.26 m of saw-cut channel sampling and 71 m of chip-channel sampling was completed on the stripped bedrock exposures (Figure 9.13). Individual rock channel samples range from 0.3 m to 2 m in length (0.7 m average length), with sample arrays ranging from single channel samples to continuous channel sample strings from 1.4 m to 37.6 m in length.

The saw-cut channel sampling involved the cutting of two continuous, parallel cuts approximately 3 cm – 5 cm apart to a typical depth of 5 cm – 7 cm utilizing a mechanical diamond blade saw. With the sample split between the two saw cuts with a chisel. The chip-channel samples involved the collection of contiguous rock chips along an approximate straight line forming an approximately 5 cm wide x 0.5 cm – 2 cm deep channel; with sample depth depending on oxidation degree of rock.

The extremities of individual samples are marked with short cross-cuts, and the sample measurements (i.e. from and to) and channel sample string identification numbers, hand-painted on the rock surface with durable exterior paint. For differentiation purposes, the saw-cut channel string identification numbers have the KBSC prefix (i.e. Kibi Project – Saw-Cut Channel) and the chip-channel string identification numbers have the KBLC prefix (i.e. Kibi Project – Linear Chip-Channel).

Channel sample strings are surveyed as three-dimensional features to permit 3D-plotting, with the sampling data collected in standard drill database tables (i.e. collar, survey, geology, assays, structure). Channel sample string collar coordinates (i.e. zero mark of channel string) are established by Total Station survey using DGPS-established control pillars, by the company's in-house surveyor.

The trace of the channel sample string is surveyed by Total Station from the collar to the end point, with azimuth and slope measurements collected at inflection points. The sample intervals are established to match the inflection points along the trace of the sample string. With the sample intervals (i.e. from and to measurements) representing slope measurements along the channel sampling string and not horizontally corrected distances.

Of the total 2,046 channel samples collected: 105 samples yielded less than 0.01 g/t gold; 777 samples returned gold values from 0.01 g/t to 0.1 g/t; 614 samples between 0.1 g/t and 1.0 g/t gold; 357 samples between 1.0 g/t and 5.0 g/t gold; 98 samples between 5.0 g/t and 10.0 g/t gold;

68 samples between 10.0 g/t and 25.0 g/t gold; 22 samples between 25.0 g/t and 50.0 g/t gold; and 5 samples above 5.0 g/t gold (121.0 g/t maximum).

Significant channel sampling results are summarized in Table 9.4. The reported channel samples results meet the following criteria: 1 m minimum length and minimum metal factor (grade x length) of 15 m-g/t. Reported channel sample results correspond to channel-lengths in metres. Due to irregular bedrock surface, the channel sample results represent sample intersection lengths irrespective of mineralization topography and may not represent true width of mineralization.

Table 9.4: Cobra Creek: Significant Channel Sampling Results

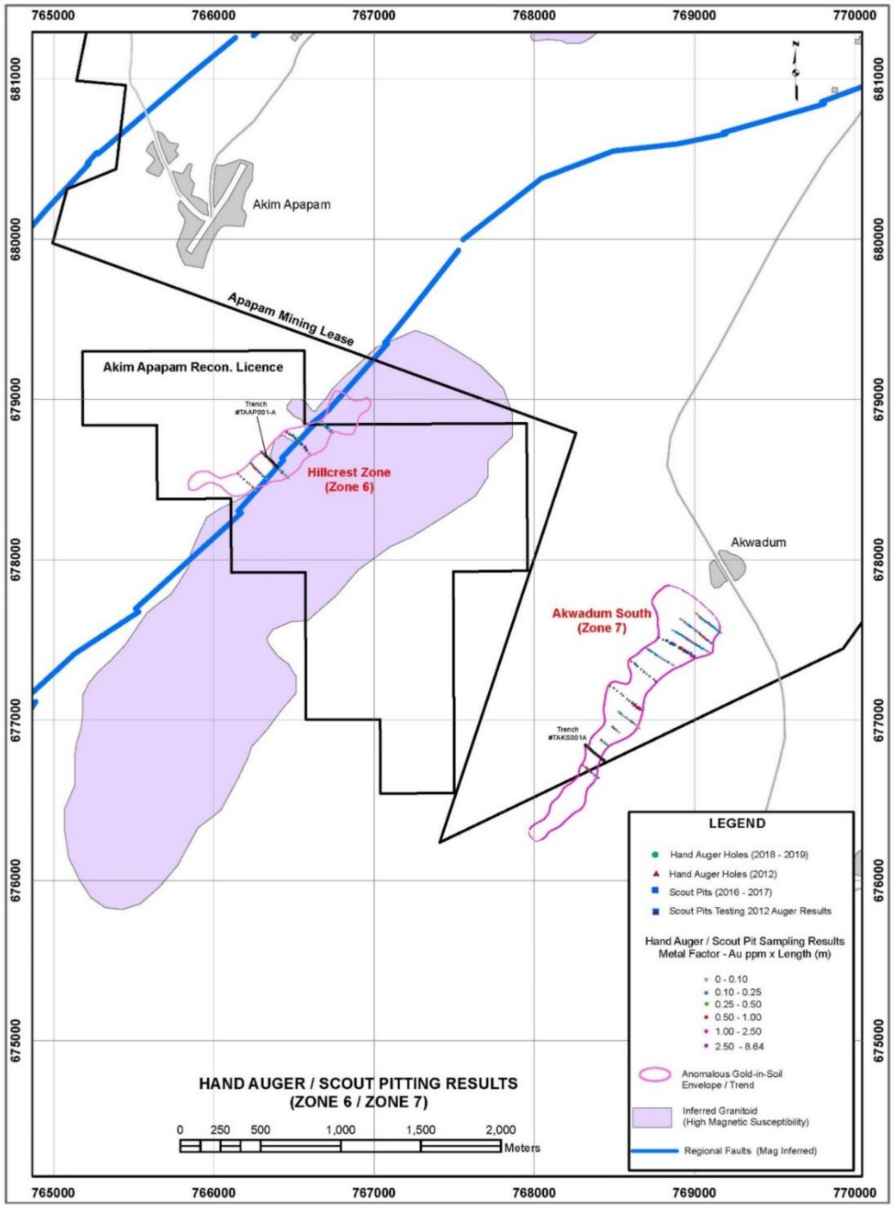
Trench ID	From (m)	To (m)	Channel-Length (m)	Au (g/t)
High Grade Shoot				
KBCS023	0.0	2.4	2.4	33.21
KBCS024	0.2	4.5	4.3	15.13
KBCS025	0.0	4.9	4.9	8.68
KBCS026	0.0	7.0	7.0	6.31
KBCS027	0.0	9.0	9.0	6.74
KBCS023-2	1.72	9.65	7.93	4.10
KBCS023-11	0.0	3.95	3.95	3.91
KBCS023-12	0.0	4.3	4.3	12.00
KBCS023-45	2.9	6.8	3.9	12.61
KBCS023-46	2.0	7.0	5.0	23.62
including	6.1	7.0	0.9	67.90
KBCS023-47	4.12	8.7	4.58	20.48
including	5.9	7.8	1.9	35.47
KBCS023-48	3.0	7.55	4.55	15.11
KBLC010	0.0	4.0	4.0	8.9
KBLC012	0.0	4.0	4.0	7.69
KBLC014	0.0	3.0	3.0	16.14
KBLC016	0.7	3.0	2.3	40.6
KBLC018	0.0	2.2	2.2	8.72
KBLC020	0.0	1.0	1.0	18.05
High Grade Shoot - West				
KBCS092-3	0.35	3.72	3.37	10.26
KBCS092-4	0.0	3.15	3.15	13.17
including	0.0	0.95	0.95	31.50
KBCS092-5	0.0	1.1	1.1	19.35
Tourmaline Zone				
KBCS019	0.0	7.4	7.4	2.25
KBCS028B	0.0	7.6	7.6	3.13
L17600N Shoot				
KBCS080-2	0.0	1.5	1.5	10.47
KBCS080-5	0.0	1.6	1.6	11.14
KBCS080-9	0.6	4.5	3.9	5.90
KBCS080-18	0.0	1.1	1.1	14.77
KBCS080-28	1.4	6.5	5.1	5.88
KBCS080-33	5.2	12.0	6.8	3.12
KBCS080-35	0.5	3.5	3.0	6.39
Old Pit				
KBCS077-11	0.0	3.8	3.8	6.84
KBCS077-26	0.9	5.2	4.3	13.89
L17600W Shear				
KBCS078-5	2.2	5.8	3.6	15.40
Lightning Shoot				
KBCS085-57	0.0	5.6	5.6	3.30
KBCS085-61	0.0	2.0	2.0	27.89
KBCS085-67	0.0	1.1	1.1	44.00
KBCS085-68	0.0	1.2	1.2	12.6
KBCS085-74	2.0	4.28	2.28	8.10
KBCS085-99	2.27	6.35	4.08	5.06
Main Shear - SW				
KBCS090-10	0.0	3.85	3.85	4.62
KBCS090-V4	0.0	1.07	1.07	23.60

9.4.5 Hand-Augering

A hand auger sampling program encompassing a total of 118 holes with a cumulative meterage of 390.89 m was implemented at Akwadum South (Zone 7) during 2018 and 2019 (Figure 9.16). The auger sampling was designed to test the subsurface signature of the gold-in-soil anomaly to identify follow up scout pitting and/or trenching targets. The sampling was carried out with a locally fabricated cutting tool made from a used drill rod with a bevelled cutting edge. The cylindrical sample barrel was driven into the ground to recover the sample at 1m intervals. Auger holes were sunk at 12.5 m spacing and typically to a depth of 3 m – 5 m (down to saprolite).

Of the 288 samples collected from the auger holes: 65 samples yielded less than 0.01 g/t gold; 150 samples returned gold values from 0.01 g/t to 0.1 g/t; 70 samples between 0.1 g/t and 1.0 g/t gold; and 3 samples above 1.0 g/t gold (4.68 g/t maximum). The auger sampling helped delineate the in situ, saprolitic bedrock, signature of the northeast extremity (250 m) of the Akwadum South gold-in-soil trend. With five consecutive auger holes covering a 50 m distance along Line 11900 N (i.e. 12.5 m spacing) yielding metal factors (grade x length) ranging from 0.26 – 1.81 m-g/t.

Figure 9.16: Location and Results of Hand Auger and Scout Pitting



9.4.6 Scout Pitting

Exploration efforts included 62 scout pits designed to follow up on soil geochemistry and hand auger anomalies, and to help define the litho-structural setting of grassroots targets (Table 9.5 and Figure 9.16). The manually excavated pits were normally 2m long x 1m wide x 1.5m - 5m deep (down to saprolite). In addition to horizontal channel sampling, pits where shallow-dipping quartz veining and/or shearing was observed were also subjected to vertical channel sampling.

Table 9.5: Summary of Scout Pitting (2016 - 2017)

Scout Pitting	No. of Pits	Vertical Metres	Horizontal Metres
Zone 4 (2016)	8	19.35	15.75
Akwadum North (Zone 8)	35	81.72	73.98
Akwadum South (Zone 7) 2017	19	60.65	38.56
Apapam Total Pitting:	**62**	**161.72**	**128.29**

Of the total 233 samples collected from the pits: 52 samples yielded less than 0.01 g/t gold; 110 samples returned gold values from 0.01 g/t to 0.1 g/t; 64 samples between 0.1 g/t and 1.0 g/t gold; and 7 samples above 1.0 g/t gold (4.41 g/t and 27.37 g/t maximum values).

At Akwadum South (Zone 7), the scout pitting successfully confirmed the anomalous hand hander sampling results. With five consecutive pits covering a 50 m distance along Line 11300 N (i.e. 12.5 m spacing) yielding metal factors (grade x length) ranging from 0.69 – 4.85 m-g/t; and six of seven pits over a 75 m distance on Line 11700 N returning metals factors ranging from 0.51 – 1.96 m-g/t. The pitting also permitted the delineation of the volcaniclastic rock unit hosting the gold mineralization.

9.4.7 Ground Geophysics

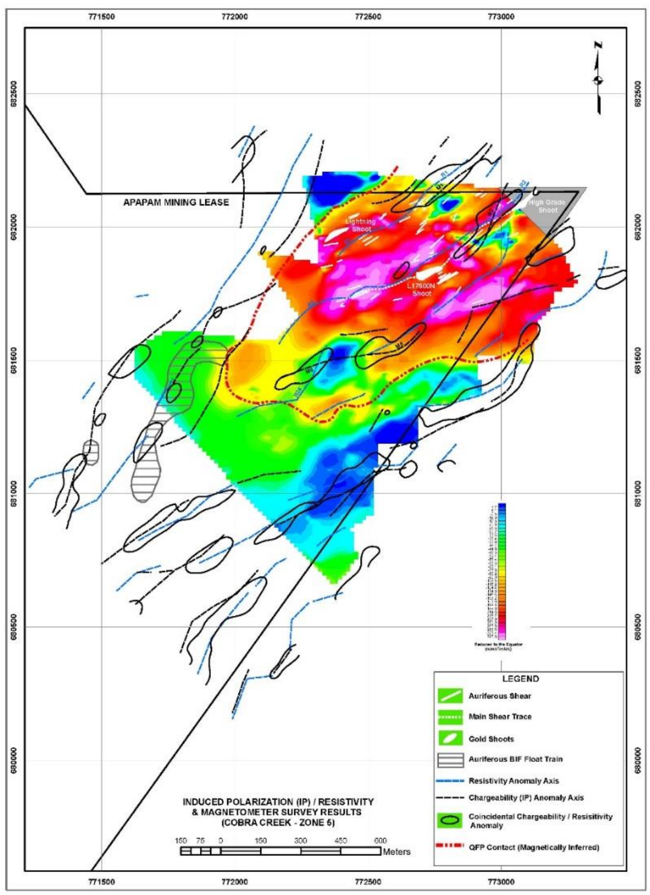
Ground geophysics was conducted at Cobra Creek in 2013 (Figure 9.17). The work consisted of 32.2 line-kilometres of IP/Resistivity survey and 14.99 line-kilometres of magnetic survey. The IP/Resistivity survey utilised a Pole-Dipole Array with a dipole length of 50 m and dipole separations of n = 1 to 10, and was undertaken by Sagax Afrique S.A. The magnetic survey was conducted by Xtra-Gold utilising a single Model G-856AX portable proton magnetometer. Magnetic readings were collected at 5 m stations along 100 m spaced grid lines with diurnal drift in the Earth’s magnetic field corrected via repeated sampling at a specific location during the survey.

Auriferous shear zones at Cobra Creek exhibit a strong spatial association with two prominent ENE-NE high resistivity trends that appear to reflect broad zones of strong iron-carbonate (± silica) alteration, with gold mineralization traced over an approximately 850 m distance along the approximately 1,100 m long R2 resistivity trend (i.e. Main Shear structure). Resistivity trends spatially-associated with the auriferous shear system appear to be abutting against and/or bending into an inferred NNE-trending second order fault defined by a high chargeability / weak-moderate resistivity domain occupying the western margin of the survey grid.

Consistent with the shear system orientation, the host QFP body exhibits a strong ENE-NE magnetic fabric exemplified by a series of low magnetic susceptibility trends separated by discontinuous, lozenge-shaped, higher susceptibility domains. The auriferous shear structures, as well as the associated resistivity trends, tend to be spatially associated with areas of low magnetic intensity and/or along the margins of the higher susceptibility domains. With the low magnetic susceptibility trends apparently attributable to magnetite-destructive shearing and alteration processes.

A deep-rooted (>225 m), moderate IP chargeability anomaly (M2) is spatially associated with the high-grade gold shoot and tourmaline zone at the NE extremity of the prominent main shear structure resistivity trend (R2). The approximately 350 m long, NE-trending, coincident chargeability/resistivity anomaly appears to exhibit a steep northwesterly dip and moderate SW plunge; with the upper margin of the chargeable body lying at a vertical depth of approximately 125 m. The deeper M2 chargeability target remains untested but drill testing of the adjacent M3 chargeability anomaly, appearing to represent the up-dip, near surface expression of the M2 anomaly, intersected a proto-mylonite zone exhibiting barren pyrite mineralization.

Figure 9.17: Results of the Induced Polarization and Magnetometer Ground Surveys



9.4.8 Structural Study

Tect Geological Consulting has undertaken a structural re-interpretation of regional VTEM and radiometric geophysical data across all of Xtra-Gold's concessions (Tect Geological Consulting, 2020a; Figure 7.5), a preliminary structural mapping and 3D modelling study of Zone 5 (Cobra Creek Prospect, Figure 7.6, Tect Geological Consulting 2019) and a comprehensive structural mapping and 3D modelling exercise for Zones 1-4 (Tect Geological Consulting 2020b). A summary of the relevant findings is presented in Chapter 7, with the omission of Zone 5 (Cobra Creek), which does not form part of the present resource update/declaration.

Recent work has been consolidated to provide guidance to the exploration activities for the Cobra Creek Deposit, as this prospect hosts significant Au anomalies (Tect Geological Consulting 2019) (Figure 9.18). Preliminary findings by Tect Geological Consulting have suggested the following:

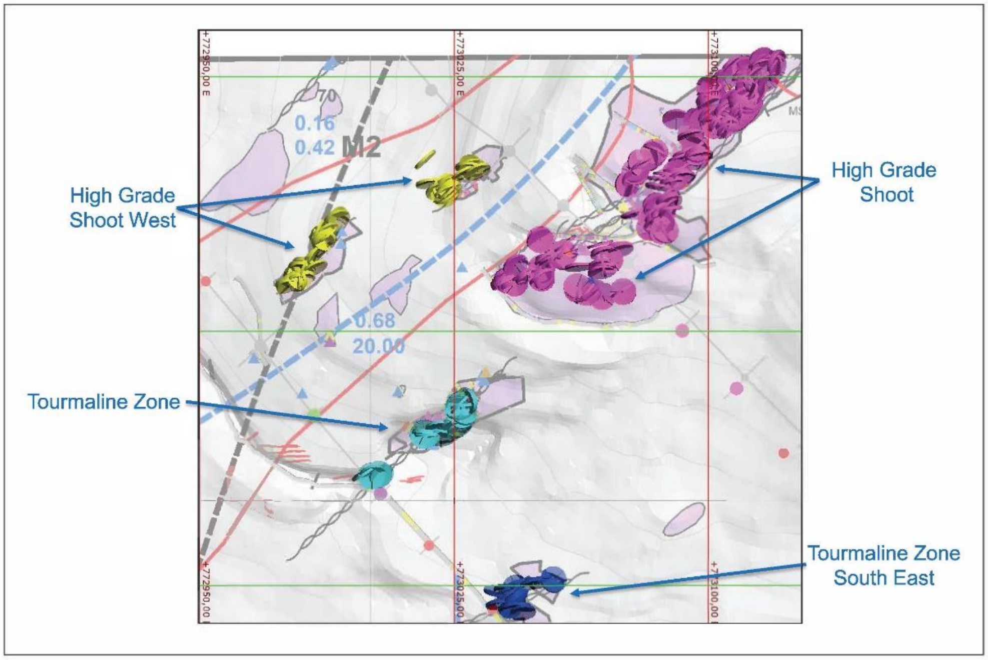
Structural Data Analysis and Interpretation

- Locally, S_1 (gneiss) and S_{2m} (mylonite) trends within the hosting quartz feldspar porphyry (QFP) body are consistent with fabric trends interpreted from IP-Res and ground-based magnetics survey datasets, and overall the D_2 structural evolution described for the Kibi Project (see Chapter 7.5);
- On an outcrop scale, individual S_{2m} shears exhibit an anastomosing geometry that, in part, envelope lenses of relict QFP, thereby creating low-strain shadows associated with lozenges. S_{2m} records distinct reverse (i.e. SW-up), left-lateral kinematic (i.e. oblique) movement, that is consistent with regionally-interpreted NNE-trending D_2 structure (see Chapter 7.5).
- Auriferous veins consist of fault-fill/shear, extension and hybrid extensional-shear veins of varying proportions of quartz-carbonate±tourmaline, which were cotemporaneous with the development of S_{2m}. Mineralization occurs in close association with late-stage Ser-Cb-Po-Py (±Chl) alteration and as native/visible gold;
- Syn-deformational (S_{2m}) hydrothermal fluid flow, veining and auriferous mineralization occurred within a sub horizontal to shallow-dipping stress field, with a principle shortening axis trending NW to NNW;

Preliminary Model of Controls on Mineralization and Guide to Exploration

- Syn-deformational (S_{2m}) fault-fill/Shear, extension and hybrid extensional-shear veins exhibit directional brittle fracturing, interconnectivity and directional permeability, leading to the development of stockwork geometries representative of echelon arrays (planes). Along these planes, stockworks have a preferred directional (linear) permeability or shoot geometry along very shallow (<20°) to sub-horizontal plunges towards the SW (236°-228°).
- Work was undertaken to characterize the extent and geometry of the host QFP intrusion within the volcano-sedimentary Kibi Belt, in turn to establish QFP (sheared) contacts and possible strain shadows or dilational zones (jogs/bends), which would be highly favourable sites for more continuous and enhanced Au mineralization;

Figure 9.18: Structural Mapping of the Cobra Creek Target



9.5 Akim Apapam Reconnaissance License Application

Exploration efforts on the Akim Apapam Reconnaissance License Application, including infill soil sampling, trench rehabilitation / deepening, scout pitting and hand auger sampling, were geared towards the further definition of the Hillcrest (Zone 6) target. An approximately 1,200 m long by 100 m – 200 m wide anomalous gold-in-soil trend spatially associated with a prospective litho-structural setting consisting of an inferred NE-trending regional fault bounding an apparent Belt-type granitoid (i.e. high magnetic susceptibility body) at the intersection with a series of SE-trending linking faults.

A total of 2.25 line-kilometres of infill soil sampling was completed in 2016 to provide tighter coverage of the gold-in-soil anomaly at 100 m line spacing (i.e. infilling of 2012 sampling at 200 m line spacing). A total of 97 soil samples were collected at 25 m stations along the NW-SE grid lines (Figure 9.19). The Hillcrest gold-in-soil trend is defined by an envelope of discontinuous/patchy, typically greater than 50 ppb, gold-in-soil values; with the anomalous threshold arbitrarily set at 50 ppb gold based on past exploration experience by Xtra-Gold in the Kibi Greenstone Belt. Out of the 80 samples within the anomalous trend, including both 2012 and 2016 sampling, 58 samples (72%) yielded gold values greater than the 50 ppb anomalous threshold, including: 29 samples from 51 ppb to 100 ppb gold; 23 samples from 101 ppb to 300 ppb gold; and 6 samples above 300 ppb gold (493 ppb maximum).

A 108.6 m section of an existing 2012 trench was manually rehabilitated / deepened in 2017 to provide continuous saprolitic bedrock exposure for detailed mapping / sampling of the Hillcrest shear structure (Figure 9.20). Of the 98 samples were collected from the deepened #TAAP001-A trench: 54 samples yielded gold values from 0.01 g/t – 0.1 g/t, 30 samples between 0.1 g/t to 1.0 g/t gold; 9 samples from 1.0 g/t to 5.0 g/t gold; and 5 samples above 5.0 g/t gold (10.7 g/t maximum). Trench #TAAP001-A delineated an approximately 45 m wide structural zone encompassing a series (7) of parallel, SE-dipping (30° – 40°), auriferous shears ranging from approximately 0.5 m to 4 m in trench-length (Figure 9.21). Channel sampling of the iron carbonate-amphibole-quartz schist seams returned mineralized intercepts ranging from 0.5 m grading 0.35 g/t gold to a high of 5.0 m grading 3.27 g/t gold. Note that the above auriferous intercepts represent trench-lengths with true widths estimated to be 50% - 60% of the reported intervals.

Additional 2017 work on the Hillcrest target included the excavation of 21 scout pits totalling 66.3 vertical metres and 40.7 horizontal metres (Figure 9.20). The pitting was designed to follow up on soil geochemistry and/or hand auger anomalies, and to help define the mineralization zone's litho-structural setting. Of the 42 samples collected from the pits: 15 samples yielded less than 0.01 g/t gold; 17 samples returned gold values from 0.01 g/t to 0.1 g/t; 7 samples between 0.1 g/t and 1.0 g/t gold; and 3 samples returned maximum values of 1.81 g/t, 3.88 g/t, and 5.0 g/t gold respectively. Scout pitting efforts successfully traced the Hillcrest shear structure approximately 200 m northeast of trench #TAAP001-A. With iron carbonate-amphibole-quartz schist seams in pits #PKB062 and #PKB063, located 25 m apart, returning 5.0 g/t gold and 1.81 g/t gold over 1.0 m and 1.1 m trench-lengths respectively.

A hand auger sampling programme encompassing 17 holes totalling 66.1 m was implemented on the Hillcrest zone in 2019 (Figure 9.20). The auger sampling was designed to test the subsurface signature of gold-in-soil anomalies to identify follow up scout pitting and/or trenching targets. Of the 51 samples collected from the auger holes: 13 samples yielded less than 0.01 g/t gold; 18 samples returned gold values from 0.01 g/t to 0.1 g/t; 18 samples between 0.1 g/t and 0.35 g/t gold; and 2 samples returned maximum values of 0.9 g/t gold and 1.02 g/t gold. The auger sampling appears to have delineated the apparent southwest strike extension of the Hillcrest shear structure, approximately 100 m southwest of trench #TAAP001-A. With five consecutive auger holes covering a 50 m distance (i.e. 12.5 m spacing) yielding metal factors (grade x length) ranging from 0.45 – 2.1 m-g/t.

Figure 9.19: Location and Results of Soil Sampling for Akim Apapam Reconnaissance Licence

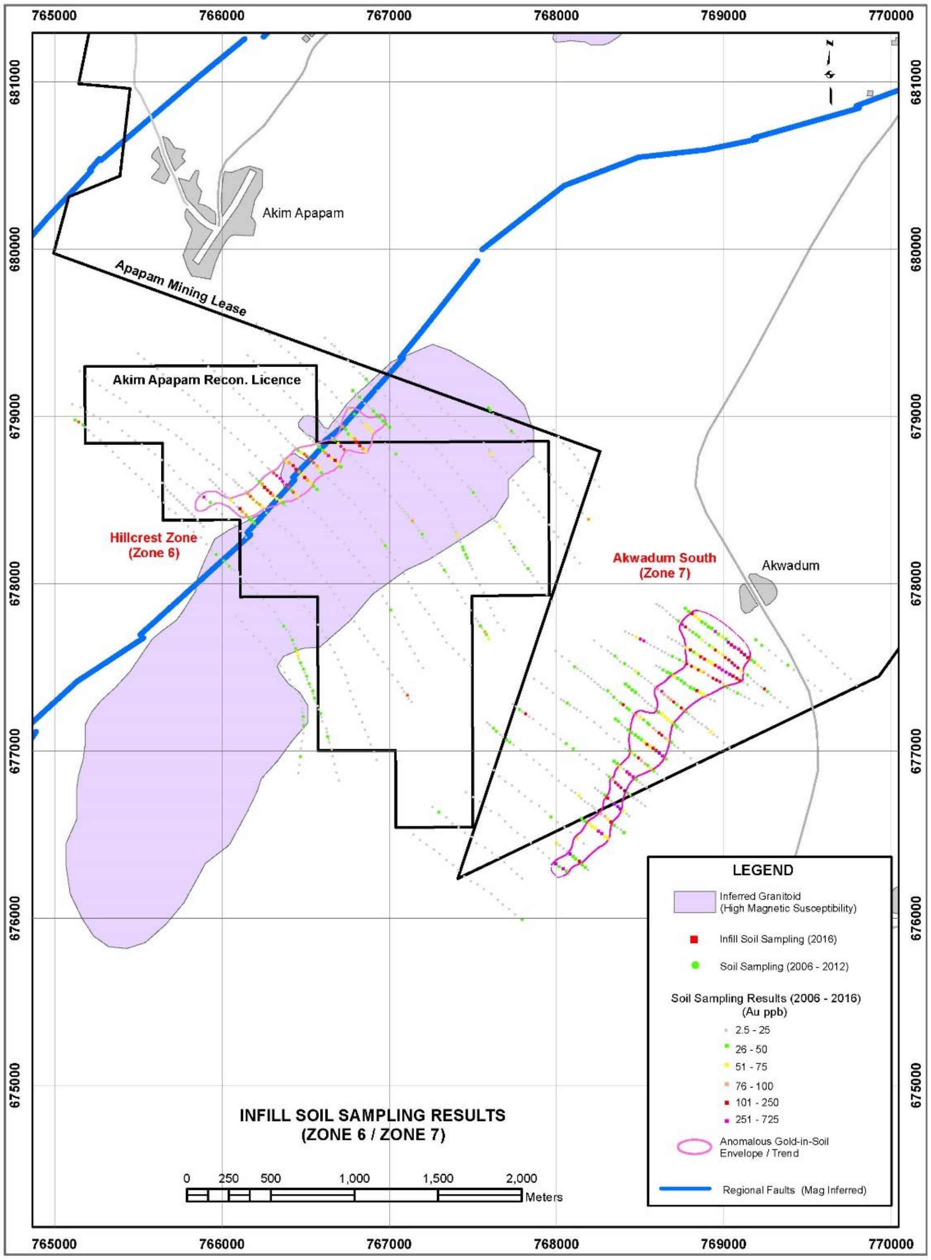


Figure 9.20: Location and Results of Hand Auger and Scout Pitting for Akim Apapam Reconnaissance Licence

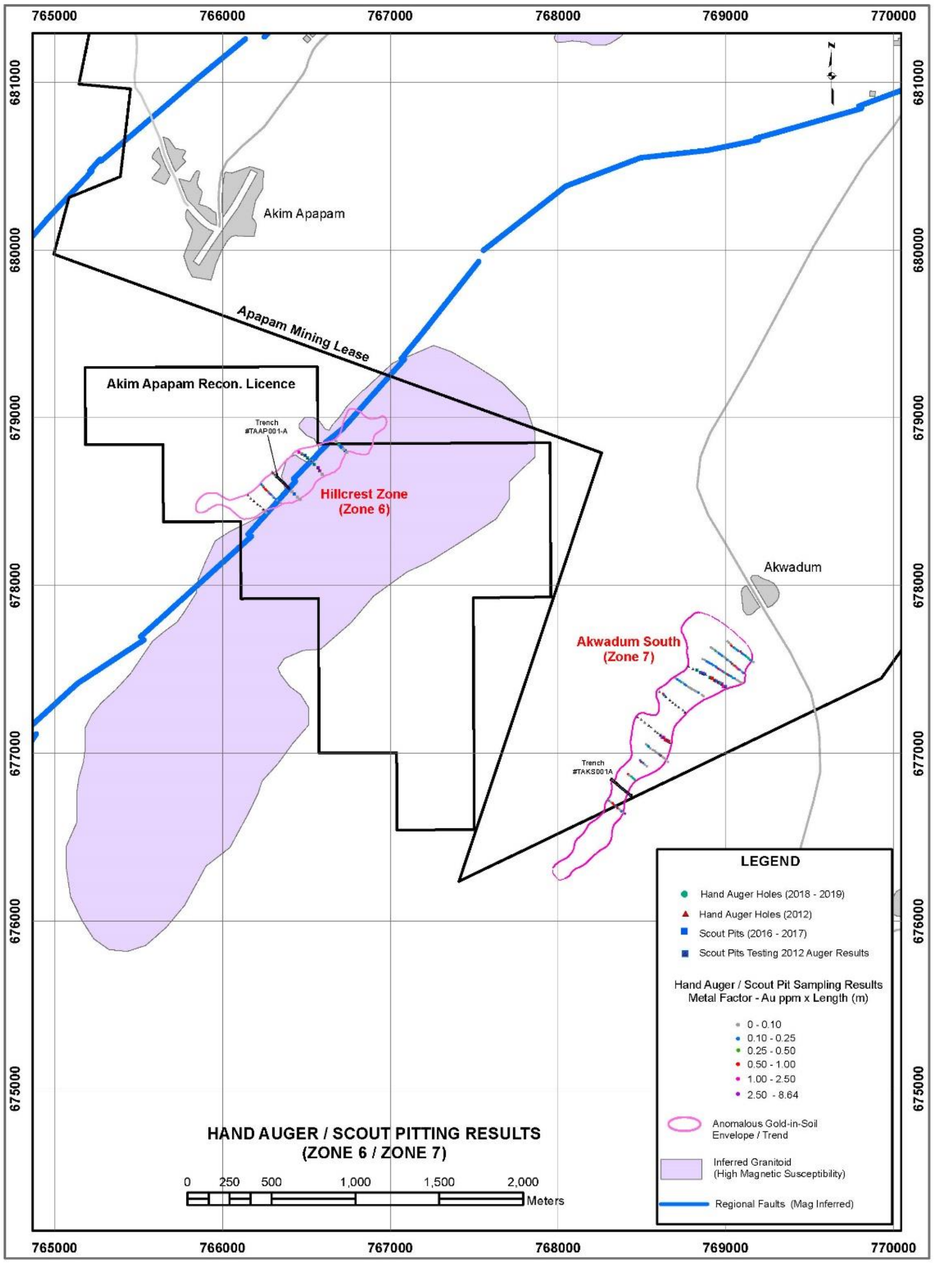
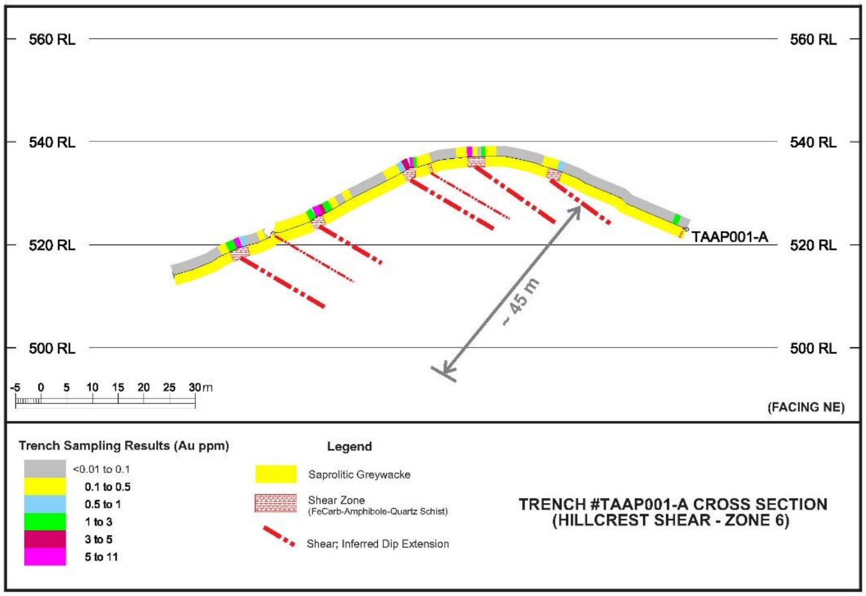


Figure 9.21: Trench #TAAP001-A Schematic Cross Section



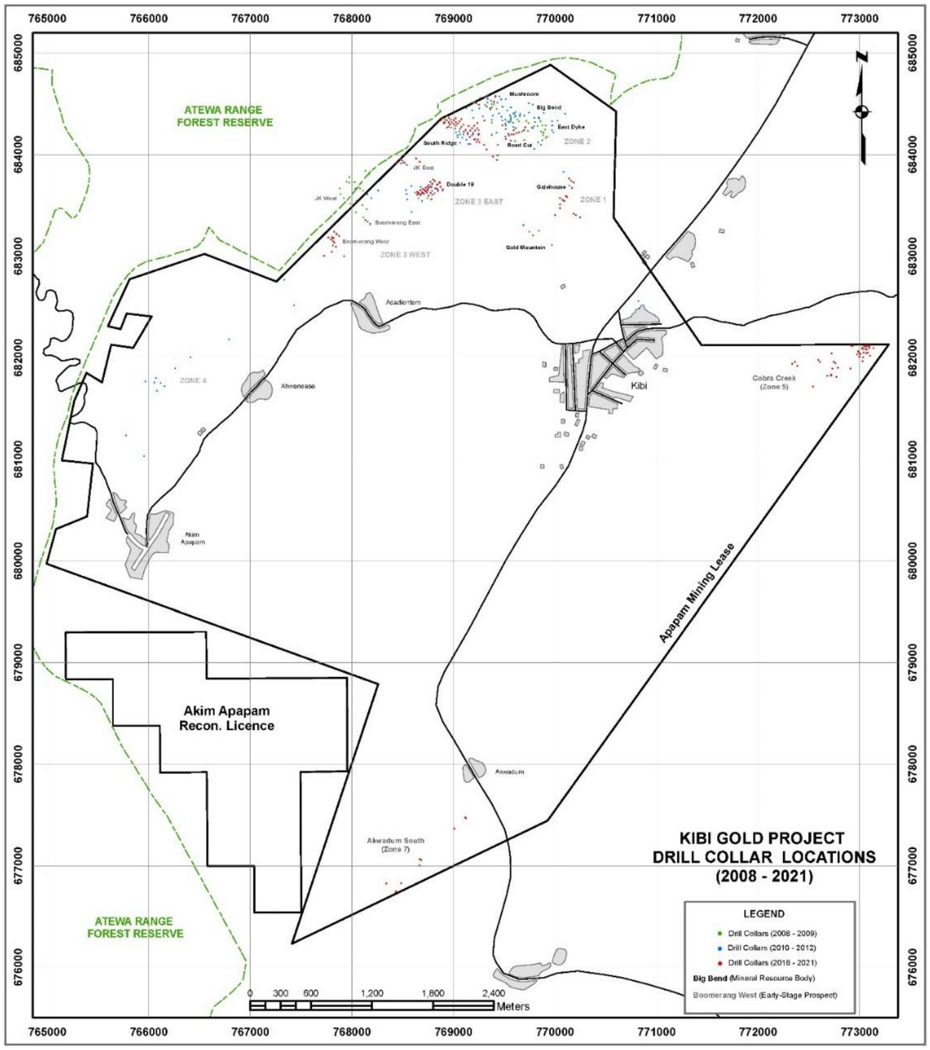
10 DRILLING

Significant drilling has been completed on the Kibi Gold Project. The drilling activity is summarised in Table 10.1 and the location of the drill hole collars are depicted on Figure 10.1.

Table 10.1: Summary of Drilling

Year	Reverse Circulation		Diamond Drill		Total	
	No. of Drill holes	Meterage	No. of Drill holes	Meterage	No. of Drill holes	Meterage
2008		-	18	3,001.00	18	3,001.00
2009	50	4,715.00		-	50	4,715.00
2010		-	36	6,458.12	36	6,458.12
2011		-	81	21,878.32	81	21,878.32
2012		-	71	13,035.40	71	13,035.40
2016			43	2,639.3	43	2,639.3
2018		-	26	3,413.60	26	3,413.60
2019		-	33	3,604.8	33	3,604.8
2020		-	74	9,615.45	74	9,615.45
2021			36	5,925.4	36	5,925.4
Total	**50**	**4,715.00**	**418**	**69,571.39**	**468**	**74,286.39**

Figure 10.1: Location of Drill hole Collars (2008 – 2021)



10.1 Drilling Campaigns

10.2 2008 – 2010 Exploration Program

The first drilling campaign on the Apapam Concession area was conducted by Xtra-Gold in 2008. The Xtra-Gold drilling focused on the Kibi Gold Project consisting of a > 5.5 km long mineralized trend delineated from gold-in-soil anomalies, trenching, and geophysical interpretations along the northwest margin of the Apapam Concession; and characterized by widespread gold occurrences of the granitoid hosted-type.

A total of 68 drill holes totalling 7,716 linear metres were drilled on the Apapam Concession, including 18 diamond core drill holes in 2008 (3,001 m) and 50 reverse circulation (RC) drill holes in 2009 (4,715 m). The diamond drilling and RC drilling was conducted by Burwash Drilling and

Boart Longyear, respectively. The drill holes targeted the Zones 1, 2, and 3 gold-in-soil anomalies.

Diamond drill core was HQ size (63.5 mm diameter) in upper oxidized material (regolith) and NQ2 size (50.6 mm diameter) in the lower fresh rock portion of the hole. RC drilling was typically conducted with a 5 ¾ inch diameter bit; but reduction to 5 ½ inch or 5 ¼ inch diameter bits was on occasion required due to rock hardness and/or increasing hole depth. Core from five (5) of the 18 diamond drill holes was oriented utilizing the Ezy-Mark core orientation device.

All drill collar locations were surveyed-in by a professional surveyor utilizing a combination of DGPS-established benchmarks and theodolite surveying; and all drill casing (PVC) secured by a cement base.

All drill holes (except for 3 drill holes) were downhole surveyed (azimuth/inclination) at nominal 30 m interval utilizing an electronic single shot survey instrument. Diamond drill and RC holes were surveyed with the Flexit and Reflex EZ-Shot tools, respectively. Out of the 68 drill holes, two (2) diamond drill holes were only subjected to dip surveys using the acid etch method due to electronic survey tool technical difficulties, and one (1) short RC hole (62 m) was not subjected to any type of downhole survey due to ground collapse.

10.3 2010 – 2012 Exploration Program

A total of 188 holes were drilled for 41,372 m of drilling (Table 10.2). From this, 33,961 samples were taken from 39,088 m of core. Core size used was HQ diameter (63.5 mm) in upper oxidized material (regolith) and NQ2 diameter (50.6 mm) in the lower fresh rock portion of the hole.

Table 10.2: Summary of Diamond Drilling (2010 - 2012)

July 25, 2010 to May 28, 2012	Drill holes	Metres	No. Samples	Sample Metres
Big Bend	44	12,569	10,344	11,628
East Dyke	18	4,489	3,124	3,804
Mushroom	18	3,254	2,759	3,200
South Ridge	24	4,652	4,445	4,586
Double 19	28	4,925	4,092	4,690
Other Targets	56	11,483	9,197	11,180
Total	**188**	**41,372**	**33,961**	**39,088**

Core recoveries recorded were generally very good with an average core recovery in the upper regolith (saprolite/transition zone) of 88.7%, and in the fresh rock of 99.6%. Drill core is stored in wooden trays that are stacked in storage sheds. The core was logged, and various structural measurements were taken where possible. Half-core sampling of drill core was undertaken. One half of the core was sent to the laboratory and the other half was retained in the core tray for reference. Samples are usually 1 m in length.

10.4 2012 – 2021 Exploration Program

A total of 212 diamond core drill holes totalling 25,198.55 m was drilled on the Kibi Gold Project during the 2012 – 2021 reporting period. With most of the drilling,158 holes totalling 21,321.45 m (85%), completed from February 2018 – June 2021 on targets within the Zone 1 – Zone 2 – Zone 3 Mineral Resource estimate footprint area (Table 10.3). Samples were taken from 21,742 m of core. Core size used was HQ diameter (63.5 mm) in upper oxidized material (regolith) and NQ2 diameter (50.6 mm) in the lower fresh rock portion of the hole. Drilling was undertaken by Xtra-Gold's in-house drilling team utilizing Atlas Copco Christensen CS1000 and Odyssey ODR100 drill rigs.

A detailed review and investigation of structural readings from drill core, trench and outcrops was also undertaken by Tect Geological Consulting (Tect Geological Consulting, 2020b). The body of work was aided by the use of digital mapping devices for field mapping and a Reflex IQ-Logger to obtain more precise and dense structural datasets. These datasets where integrated with 3D Geological/Target Modelling (Chapter 14.2), exploration drill hole targeting and downstream resource estimation (Chapter 14.8 – 14.10).

Table 10.3: Summary of Drilling (2012 - 2021)

Feb 2018 - Jun 2021	Drill holes	Drill Metres	Sample Metres
South Ridge	45	5629.1	
Double 19	40	6,400.95	
Road Cut	18	2446	
Mushroom	5	731	
Gate House	16	2,122.5	
Boomerang	17	2,196.7	
JK East	8	986.7	
Other Targets	9	808.5	
Total Drilling:	**158**	**21,321.45 m**	**17,907.67**
Cobra Creek (Zone 5) Jun - Aug 2016	43	2639.3	2,599.4
Akwadum South (Zone 7) May - Sep 2019	11	1,237.8	1,236.3
Apapam Total Drilling:	**212**	**25,198.55 m**	**21,743.37**

10.4.1 Cobra Creek (Zone 5) / Akwadum South (Zone 7) Scout Drilling Campaigns

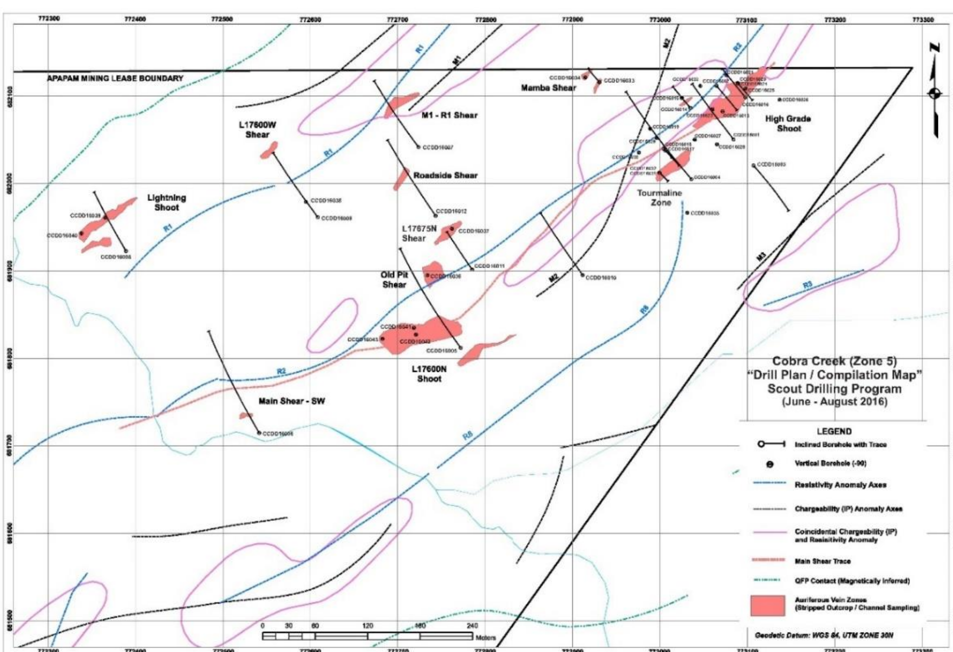
Drilling activities during the 2012 – 2021 exploration program also included scout drilling campaigns on the Cobra Creek (Zone 5) and Akwadum South (Zone 7) targets located at the northeastern and southwestern extremities of the Apapam concession respectively (Figure 10.1). These early-stage targets, exhibiting distinct litho-structural settings, fall outside the footprint area of the present Zone 1 – Zone 2 – Zone 3 mineral resource estimate.

A 43 drill hole (2,639.3 m) Phase I diamond core drill program was implemented from early June to late August 2016 on the Cobra Creek (Zone 5) target; an approximately 550 m wide, NE-trending, quartz-feldspar porphyry ("QFP") hosted, multi-structure braided shear zone system traced by trenching / outcrop stripping over an approximately 850 m strike length. With the drilling testing an approximately 700 m x 200 m – 300 m segment of the Cobra Creek auriferous structural corridor, down to a maximum vertical depth of approximately 175 m (Figure 10.2).

The Cobra Creek drill program included: 12 scout drill holes ranging from 56 m to 220 m in length (1,576 m) designed to test auriferous shear targets identified by extensive outcrop stripping / channel sampling efforts and priority Induced Polarization ("IP") / Resistivity anomalies spatially associated with auriferous shears; and 31 short, predominantly vertical (-90°) drill holes ranging from 16 m to 63 m in length (1,063 m) designed to better target / dissect flat-lying to shallow dipping gold-bearing extensional veining arrays and/or shallow plunging auriferous shoots.

A scout drilling program was undertaken on the Akwadum South (Zone 7) target located at the southwestern extremity of the Apapam concession from late May to mid-September 2019 (Figure 9.16). A total of 11 diamond core drill holes (1,237.8 metres) ranging from 51.6 m -190 m in length were completed by the company's in-house drilling crew. The scout drilling traced anomalous gold mineralization over an approximately 1,000 m strike-length, and to a vertical depth exceeding 100 m, along a NE-trending volcaniclastic rock package exhibiting widespread silica-sericite-pyrite alteration with associated quartz veining.

Figure 10.2: Drill / Compilation Plan - Cobra Creek (Zone 5)



Significant drill results for the Cobra Creek (Zone 5) and Akwadum South (Zone 7) targets are summarized in Table 10.4. The reported drill results meet the following criteria: 1 m minimum length and minimum metal factor (grade x length) of 3 m-g/t with minimum 0.3 g/t average grade over the interval or a minimum metal factor of 5 m-g/t if interval falls below the minimum 1 m criteria. In addition, mineralized intercepts are constrained with a 0.25 g/t gold minimum cut-off grade at top and bottom of intercept, with no upper cut-off applied, and maximum of five (5) consecutive samples of internal dilution (less than 0.25 g/t gold). Reported drill results correspond to core-lengths in metres. The orientation / geometry of the mineralization is not fully understood at this time resulting in unknown true thickness.

Table 10.4: Significant Drill Results - Cobra Creek (Zone 5) / Akwadum South (Zone 7)

Hole ID	From (m)	To (m)	Core-Length (m)	Au (g/t)
Cobra Creek (Zone 5)				
CCDD16002	3.0	4.5	1.5	19.50
CCDD16004	31.7	32.3	0.6	8.05
CCDD16004	45.6	52.2	6.6	1.00
CCDD16005	128.6	129.5	0.9	6.31
CCDD16009	28.4	30.7	2.3	2.68
CCDD16010	115.0	115.6	0.6	9.95
CCDD16012	110.0	141.0	31.0	0.36
including	122.4	123.3	0.9	2.40
CCDD16013	0.0	5.5	5.5	6.57
including	2.5	4.5	2.0	11.70
CCDD16015	1.0	6.2	5.2	9.51
including	4.6	5.7	1.1	37.95
CCDD16016	4.5	7.2	2.7	3.00
including	4.5	5.0	0.5	8.08
CCDD16016	19.6	34.4	14.8	1.43
including	28.2	30.2	2.0	4.39
CCDD16018	30.0	31.5	1.5	3.54
CCDD16020	7.1	11.6	4.5	10.90
including	10.0	10.6	0.6	57.08
CCDD16021	24.5	26.8	2.3	2.41
CCDD16022	1.5	3.0	1.5	48.10
CCDD16022	12.0	13.2	1.2	7.27
CCDD16023	4.0	9.3	5.3	4.46
CCDD16024	10.4	18.0	7.6	2.09
including	14.2	14.8	0.6	7.67
CCDD16024	27.6	28.3	0.7	58.73
CCDD16025	0.5	8.5	8.0	2.93
including	1.1	2.0	0.9	9.61
CCDD16037	18.0	22.0	4.0	1.15
CCDD16039	0.0	4.0	4.0	1.57
CCDD16042	3.0	4.5	1.5	3.10
Akwadum South (Zone 7)				
AKDD19002	35.5	52.7	17.2	0.37
AKDD19002	71.8	72.8	1.0	4.19
AKDD19002	79.0	80.0	1.0	3.25
AKDD19004	71.0	74.0	3.0	1.3
AKDD19006	28.0	53.0	25.0	0.47
including	51.2	52.0	0.8	2.98
AKDD19007	62.0	73.5	11.5	0.62
including	63.7	64.5	1.8	1.45
AKDD19008	50.5	52.0	1.5	4.05
AKDD19011	42.0	54.5	12.5	0.37

10.5 Drilling Quality

10.5.1 Diamond Drill Core

Diamond drill core is HQ diameter (63.5 mm) in upper oxidized material (regolith) and NQ2 diameter (50.6 mm) in the lower fresh rock portion of the hole.

All drill collar locations are surveyed-in by the company's in-house surveyor utilizing a combination of DGPS-established benchmarks and Total Station surveying; and completed holes are identified by a drill casing (PVC) secured by a cement base with an inscribed collar number.

Topographical control for the drill collars, including the digital terrain model (DTM) employed in the present MRE, is based on a satellite topography survey (i.e. photogrammetry) conducted in 2012 by PhotoSat of Vancouver, Canada (1 m bare earth survey grid).

Directional surveys (azimuth/inclination) are conducted at 30 m downhole intervals as the drill hole is being drilled and at 6 m intervals during the pulling of the NQ rods upon completion of the hole (i.e. until reaching the HQ casing). The directional surveys are conducted utilizing a Reflex EZYTRAC multi-shot electronic survey tool with the instrument periodically serviced and calibrated by Imdex Global BV, the official Reflex Instrument distributor in Ghana. The NQ2 core (i.e. in fresh rock) is oriented utilizing the Reflex Act III core orientation tool.

10.5.2 Reverse Circulation (RC) Drill Samples

All Reverse Circulation (RC) drill collar locations were surveyed-in by a professional surveyor utilizing a combination of DGPS-established benchmarks and theodolite surveying; and all drill casing (PVC) secured by a cement base. Directional surveys (azimuth/inclination) were conducted at 30 m downhole intervals utilizing an electronic single-shot drill hole survey tool.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sample Processing and Storage

Core is transported to and stored at the Kwabeng exploration camp. The core shack has the trained personnel and facilities to receive and layout core and RC samples in preparation for logging and sampling by the site geologist.

11.2 Sampling Methodology

11.2.1 Diamond Drill Core Samples

Drill core obtained from diamond drilling is targeted directly from the core tube into wooden core boxes, marked with the drill hole number and depth information. In the case of saprolite material the core is laid directly onto a strip of plastic wrap placed inside the box and then securely wrapped around the core to stabilize and prevent the dehydration of the saprolite. Core recovery and any drilling problems are noted by company staff at the drill site.

The NQ2 core (i.e. in fresh rock) is laid out along an angle iron on a work bench and meticulously re-assembled piece by piece with the core aligned with the orientation marks at the bottom of each 3 m drill run. The core orientation line (i.e. bottom of core) is marked along the length of the core with down-hole pointing arrows. The core is then measured, core recovery and rock quality designation (RQD) information collected, and a dashed sampling line perpendicular to the core orientation line marked along the length of the core. Each individual core box is photographed with the photographs taken from both dry and wet core.

A company geologist subsequently conducts geological logging of the core and marks the sample intervals. Structural logging is conducted with the Reflex IQ-Logger structural logging laser-device with the structural measurements digitally collected. The core is sampled over nominal 1 m intervals; with adjustments where necessary for mineralized structures. More comprehensive geological logging (on half core) is routinely conducted after the reception of assays on significant gold intercepts and petrographic studies periodically undertaken.

The diamond drill core is then saw-split lengthwise by trained company personnel, and half the core is immediately placed into a labelled plastic bag with a unique sample ticket stapled to the inside lip of the bag, and securely sealed by staples. The remaining half of core is returned to the core box and the box stored in a secure facility. The samples are then laid-out in sequence in the designated sample room to avoid duplications and omissions of samples in the laboratory submission orders, and the sample bags placed in labelled rice sacks in sequence. The shipping sacks are immediately secured with a numbered security seal (i.e. nylon zap strap) and stored in a locked room pending shipment to the laboratory.

11.2.2 Reverse Circulation (RC) Drill Samples

Reverse circulation drill samples are collected immediately at the drill hole site under the supervision of a company geologist. The drill sample cuttings are collected in a cyclone over one (1) meter sample intervals; with the cyclone being purged after every 6 m drill run (i.e. hit with sledge hammer and air blown). Reverse circulation drilling is conducted under dry ground conditions to ensure sample integrity. If water is encountered in the RC hole, the drill target is subsequently drilled by the diamond core method.

The dry RC bulk chip sample (~ 25 to 30 kg) is then weighed and passed through a two – stage riffle splitter to produce a nominal 2 – 3 kg sample for assay which is also weighed on site. The splitter is thoroughly cleaned by hitting it with a wooden club and a wire brush is used after every sample. The split sample is immediately placed into a labelled plastic bag with a unique sample ticket stapled to the inside lip of the bag, and securely sealed by staples. The remaining portion of the bulk drill chip samples is then stored in large, labelled plastic bags at the drill site for future reference.

Drill cuttings from each sample interval are screened – washed and a quick log of the rock chips is completed at the drill site by a company geologist; noting amongst other things the sample quality/recovery, weathering profile, main lithologies, prominent alteration, and the character of the mineralization (i.e. oxide versus sulphide). Representative rock chips are also collected into a plastic sample tray for subsequent detailed geological logging of the drill hole by a senior geologist with the aid of a binocular microscope.

Upon transport to the Kwabeng exploration camp by company personnel at the end of the drill shift the samples are laid-out in sequence in a designated sample room to avoid duplications and omissions of samples in the laboratory submission orders, and the sample bags placed in labelled rice sacks in sequence. The shipping sacks are immediately secured with a numbered security seal (i.e. nylon zap strap) and stored in a locked room pending shipment to the laboratory. The bulk reference samples for economically significant gold intercepts are subsequently transported to the Kwabeng exploration camp for safe keeping.

11.2.3 Auger Sampling

Hand auger sampling is routinely utilized to test the geochemical signature of gold-in-soil anomalies at depth within the saprolite horizon to better define trenching targets. The augering is carried out with a locally fabricated cutting tool made from a used drill rod; the cylindrical cutting edge being driven into the ground to recover the sample. At auger sites where strong quartz scree is present, a collar pit (~ 0.5 m -1 m deep) is dug to facilitate penetration through the surficial quartz scree. Auger holes are typically sunk to a depth of 3 m – 5 m depending on the depth of the saprolite horizon. Sampling is typically conducted at 1 m intervals starting from the hole's 1 m mark. Auger hole spacing is typically at 25 m, with local 12.5 m in-filling. To avoid any contamination only dry samples are collected.

11.3 Data Management

Xtra-Gold Resources utilizes the Datamine Fusion geological data management system for the collection, reporting and management of its geological data. The integrated software system allows the company to manage all drill hole/trench/channel, surface sampling, and Quality Control data from one location including managing reporting, analysis, and exporting data to GIS or modelling packages.

Fusion Server: Fusion Server provides for one central location for the administration and storage of all data (drill hole, samples, QA-QC, etc) in one central database.

DHLogger: Complete drill hole/trench data capture and management with embedded QC (Quality Control) Management. Fully customizable interface for all types of geological data collection and management including geological, geochemical, and geotechnical. parameters

Sample Station: Complete surface sample data capture and management with integrated QC. Stores all data for rock, soil, and stream samples. All data is validated on input and all sample data is stored and can be reported on and used in Mine Modelling and GIS systems.

QueryBuilder: A querying tool to extract data from the Fusion Database. Includes querying, graphing and reporting capabilities. The QC Charting Wizards plots for Standards, Duplicates, Lab Checks, Thompson Howarth, etc may be quickly generated.

Lab import: permits direct import of sample results from a commercial laboratory. Lab import checks the contents of the file for errors, validates sample numbers and directly imports samples, field QC and lab QC into the database. *Lab import* automatically performs QC checks and presents a control chart showing the QC for that analytical batch.

11.4 Sample Preparation

11.4.1 SGS Laboratory Services

From August 2006 to August 2008 all samples were submitted to SGS Laboratory Services Ghana Ltd for analysis at their analytical facility located in Tarkwa, Ghana. The laboratory operates a Quality System, that accords to ISO 17025 standards. As part of the international group of SGS laboratories, the SGS Tarkwa laboratory takes part in a regular Round Robin sample analysis to check for bias or systematic error. Every sample batch is assayed alongside certified reference standards, a blank and a repeat. Aqua regia samples are done in batches of 20 and Fire assay samples in batches of 50. The Quality Control systems in place are such that analysis of blanks, standard reference materials, repeats and re-splits account for up to 25% of all determinations conducted. All such data is available to the company on final certificates if requested.

11.4.2 ALS Chemex (ALS Ghana Limited)

From September 2008 to February 2017 sample preparation and analysis for all Xtra-Gold's samples, including diamond core and RC samples, trench channel, soil, and surface chip/grab samples were conducted by ALS Chemex (ALS Ghana Limited) at their analytical facility located in Kumasi, Ghana. ALS Chemex laboratory operations are covered by ISO 9001:2000 certification for the provision of assay and geochemical analytical services by QMI Quality Registrars and are accredited to ISO 17025 standards in various jurisdictions. The quality system and work procedures used in the Kumasi laboratory are identical to those used in the ALS Chemex laboratory in Vancouver, Canada and are subject to regular internal audits by their global quality assurance team. The Kumasi laboratory also participates in a number of proficiency tests and round robins.

ALS Chemex's automated Laboratory Information Management System (LIMS) inserts quality control samples (reference materials, blanks and duplicates) on each analytical run, based on the rack sizes associated with the method. Quality control samples are inserted based on the following rack sizes specific to the method (Table 11.1).

Table 11.1: Summary of Quality Control Protocols

Rack Size	Methods	Quality Control Sample Allocation
20	Specialty methods including specific gravity, bulk density, and acid insolubility	2 standards, 1 duplicate, 1 blank
28	Specialty fire assay, assay- grade, umpire and concentrate methods	1 standard, 1 duplicate, 1 blank
39	XRF methods	2 standards, 1 duplicate, 1 blank
40	Regular AAS, ICP-AES and ICP-MS methods	2 standards, 1 duplicate, 1 blank
84	Regular fire assay methods	2 standards, 3 duplicates, 1 blank

ALS Chemex has developed the Open Lab™ system which allows clients on-line access to not just data reports generated by the laboratory, but to all the underlying QC data and audit trails. In addition, all lab QC data is automatically provided in the data files and analytical certificates posted/stored on their Webtrieve system or sent directly to the client.

11.4.3 Intertek Minerals Limited

From March 2017, sample preparation and analysis for all Xtra-Gold's samples, including diamond drill programs, trench channel, soil, and surface chip/grab samples were and are conducted by Intertek Minerals Limited (Intertek) at their analytical facility located in Tarkwa, Ghana. The Tarkwa laboratory is accredited by the South African National Accreditation System (SANAS) (Accreditation No: T0796) in accordance with ISO17025 for Fire Assay, Aqua Regia and Carbon digestion.

As part of the Intertek's QC process, a full range of blanks, in house reference materials, certified reference materials, re-splits and checks are analysed with each job. Each job will contain approximately 4% reference materials, 4% re-splits, 4% checks and 2% blanks which can be control blanks (which monitor the digestion, analytical processes and instrument) or Prep blanks (which monitor contamination and analytical processes).

11.5 Chain of Custody

Reverse circulation drill samples are collected immediately at the drilling site under the supervision of a company geologist who escorts the samples back to the Xtra-Gold exploration camp in Kwabeng at the end of the shift. Drill core samples are saw-split and bagged under the supervision of a company geologist in a sample cutting room located adjacent to the core shack at the exploration camp. Trench, auger, soil, and surface rock chip/grab samples are transported from the field to the Kwabeng camp under Xtra-Gold's field team supervision.

All samples are laid-out in sequence in the designated sample room to avoid duplications and omissions of samples in the laboratory submission orders, and the sample bags placed in labelled rice sacks in sequence. The shipping sacks are immediately secured with a numbered security seal (i.e. nylon zap strap) and stored in a locked room pending shipment to the laboratory. Only the Project Geologist and the Chief Geotechnician have access to the key. The Kwabeng exploration camp is a fenced in compound with 24 hr security. A record of all samples shipped, as well as the actual samples within the individual sacks and their security seal numbers, is kept by the Project Geologist.

Depending on sample shipment size, samples are either transported by Xtra-Gold personnel directly to the analytical facility or scheduled for pickup by the laboratory from the Kwabeng exploration camp. A Tracking Record of all sample deliveries/pickups and pending analytical orders is kept by the Project Geologist, including personnel in custody of samples and time of departure; laboratory drop-off site; status of security seals; and assay turnaround time.

Upon delivery or pickup of samples a signed copy of the Sample Submittal Form is provided to Xtra-Gold personnel by the laboratory's sample reception staff. The laboratory has been instructed to notify Xtra-Gold's VP, Exploration and/or Senior Project Geologist immediately of any signs of tampering with the security seals or damage to the shipping sacks.

11.6 Analytical Procedure

11.6.1 Sample Preparation and Analyses (SGS Laboratory Services – Pre September 2008)

Trench Channel, Hand Auger, and Rock Sample Samples

PRP86 Prep Method: Samples are dried in trays, crushed to a nominal 6 mm using a Jaw Crusher, then <1.5 kg is split using a Jones type riffle. Reject samples are retained in the original bag and stored. The split is pulverised in a chrome steel bowl to a nominal 75 µm. An approximately 200 g sub-sample is taken for assay, with the pulverised residue retained in a plastic bag. All the preparation equipment is flushed with barren material prior to the commencement of the job.

FAA505 Analytical Method: Fuse a 50 g sample with a litharge-based flux, cupel, dissolve prill in aqua regia, extract into DIBK and determine Gold by flame AAS – Detection Limit 0.01 ppm.

Soil Samples

SCR30 Prep Method: Samples are dried (105° C) and disaggregated to break up lumps prior to sieving to -80 mesh; oversize material discarded.

FAE505 Analytical Method: Fuse a 50 g sample with a litharge-based flux, cupel, dissolve prill in aqua regia, extract into DIBK and determine Gold by flame AAS – Detection Limit 2 ppb.

11.6.2 Sample Preparation (ALS Chemex) (September 2008 – February 2017)

Prior to July 2009, drill core, trench channel, hand auger, and rock samples were prepared utilizing ALS Chemex's PREP-31 method as follows: The samples are logged in the tracking system, weighed, dried and finely crushed to better than 70% passing a 2 mm (Tyler 9 mesh, US Std. No.10) screen. A split of up to 250 g is taken utilizing a riffle splitter and pulverized to better than 85 % passing a 75 micron (Tyler 200 mesh, US Std. No. 200) screen.

From July 2009 onward, RC chip and drill core samples were prepared utilizing the PREP31-B method; in which a 1 kg split of the sample is pulverized to better than 85% passing 75 microns.

From October 2010 onward, including all the 2010 – 2012 drilling campaign sampling, drill core samples with observed visible gold and/or exhibiting typical Kibi-type granitoid hosted mineralization characterized by liberated, particulate gold grains were typically prepared utilizing ALS Chemex's PREP-22 method as follows; pulverize entire sample in multiple stages to 85% passing 75 microns or better. Recombine and homogenize by riffling and /or re-pulverize.

The soil samples were prepared using ALS Chemex's PREP-41 method as follows: samples are logged in the tracking system, weighed, low temperature dried and sieved to 180µmm (-80 mesh); both fractions are retained.

11.6.3 Analytical Method (ALS Chemex) (September 2008 – February 2017)

Prior to December 2011, all samples, including drill core and RC chips, trench channel, hand auger, rock, and soil samples, were typically analysed for gold only utilizing ALS Chemex's Au-AA24 method: Fire Assay Fusion with Atomic Absorption Spectroscopy (AAS) Finish. A prepared sample (50 g nominal sample weight) is fused with a mixture of lead oxide, sodium carbonate, borax, silica and other reagents as required, inquarted with 6 mg of gold-free silver and then cupelled to yield a precious metal bead. The bead is digested in 0.5 mL dilute nitric acid in the microwave oven. An amount of 0.5 mL concentrated hydrochloric acid is then added and the bead is further digested in the microwave at a lower power setting. The digested solution is cooled, diluted to a total volume of 4 mL with de-mineralized water, and analysed by atomic absorption spectroscopy against matrix-matched standards. Reporting range is 0.005 ppm – 10 ppm. Samples yielding over limit gold values (> 10 ppm) are re-assayed by Fire Assay (50 g nominal sample weight) with Gravimetric Finish (Au-GRA22).

Selective pulp duplicates submitted for re-assay, in addition to the standard Au-AA24 gold assay, were also submitted to a conventional exploration geochemistry ICP-AES analysis utilizing the ALS Chemex ME-ICP41 method (35 elements). Over limit values for base metal and pathfinder elements of interest are subsequently re-analysed utilizing an Ore Grade ICP-AES method (OG46 method code).

From December 2011 onward, all samples except for soil samples, were analysed utilizing ALS Chemex's Au-AA26 method: Fire Assay Fusion (50 g aliquot) with Atomic Absorption Spectroscopy (AAS) Finish. Reporting range is 0.01ppm – 100 ppm.

From August 2011 onward, drill core samples with observed visible gold and/or exhibiting typical Kibi-type granitoid hosted mineralization characterized by liberated, particulate gold grains were typically analysed four (4) times either by the Au-AA24 (Au-GRA22 if >10 ppm) method or the Au-AA26 method; with the arithmetic average of the four assays reported. With the four fire assays conducted on four separate 250 g pulp subsamples (splits).

11.6.4 Sample Preparation and Analytical Method (Intertek Minerals Limited) (Post March 2017)

Currently all assays are undertaken by Intertek Minerals Limited at their Tarkwa facility in Ghana. Batches of samples are typically collected by the laboratory from the Kwabeng field camp on a two-week schedule.

Drill core, trench channel, saw-cut channel, hand auger, and rock grab samples are typically prepared utilizing Intertek's SP12 prep-method as follows: samples are logged in the tracking system, weighed, dried, and crushed to nominal 10 mm screen size. A split of up to 1.2 kg is taken utilizing a riffle splitter and pulverized to better than 85 % passing a 75 micron. The milling specifications (grind size) are checked regularly.

All samples are analysed for gold utilizing method FA51/AA which is a lead collection fire assay (50 g aliquot) fusion method with an Atomic Absorption Spectroscopy finish (AAS) finish. Reporting range is 0.01 ppm – 800 ppm.

Drill core samples with observed visible gold and/or exhibiting typical Kibi-type granitoid hosted mineralization characterized by liberated, particulate gold grains are typically pulverized in their entirety to better than 85% passing 75 microns (SP13 prep-code) and analysed three (3) times by the FA51/AA method; with the arithmetic average of the three assays reported. With the three fire assays conducted on three separate 300 g pulp subsamples (splits).

Soil samples are dry-sieved to 180 microns (SV12 prep-code) and the undersize fraction analysed by 50-gram Trace Level fire assay fusion with atomic absorption spectroscopy finish (FA50/AA). Reporting range is 0.005 ppm – 10 ppm.

12 DATA VERIFICATION

12.1 Accurate Placement and Survey of Drill hole Collars

Pre 2010: Drill collar locations were surveyed-in by a professional surveyor utilizing a combination of DGPS-established benchmarks and Total Station surveying.

Post 2010: Drill collar locations were surveyed-in by the company's in-house surveyor utilizing a combination of DGPS-established benchmarks and Total Station surveying.

Topographical control for the drill collars, including the digital terrain model (DTM) employed in the present MRE, is based on a satellite topography survey (i.e. photogrammetry) conducted in 2012 by PhotoSat of Vancouver, Canada (1 m bare earth survey grid).

12.2 Downhole Surveys

Pre 2010: Downhole surveys (azimuth/inclination) were conducted at 30 m downhole intervals utilizing an electronic single-shot drill hole survey tool.

Post 2010: Downhole surveys (azimuth/inclination) were conducted at 30 m downhole intervals as the hole is being drilled and at 6 m – 9 m intervals during the pulling of the NQ rods upon completion of the hole (i.e. until reaching the HQ casing), utilizing an electronic multi-shot drill hole survey tool.

12.3 Analytical Quality Assurance and Quality Control Data

Quality-Control Programmes have been implemented to ensure best practice in the sampling and analysis of the diamond drill core, reverse circulation (RC) chip samples, saprolite trench and saw-cut channel samples, and soil samples and that the data can be used to inform subsequent work and the progression of the project.

12.4 Quality Assurance and Quality Control (QA/QC) Procedures and Results

12.4.1 2008 – 2010 Exploration Campaign

Analytical protocols utilized by Xtra-Gold involved the insertion of quality control samples into the sample stream of assay samples submitted to the laboratory. As of September 2008 certified reference standards, coarse analytical blanks, and field duplicate samples were inserted within sample sequences at the following rate: one (1) of each for every 20 samples within batches of Drill Core, RC Chip, and Trench Channel samples; and one (1) of each for every 40 samples within batches of Geological/Characteristic (i.e. grab, composite chip), Hand Auger, and Soil samples.

In February 2010, Xtra-Gold commissioned SEMS to conduct a detailed technical audit of Xtra-Gold's drill sample QA/QC program. Datasets assessed for quality control include:

Laboratory standards, blanks, duplicates and check repeats (Fire Assay and Gravimetric determinations). The audit reviewed the following:

- Client introduced standards, blanks and RC field duplicates (Fire Assay and Gravimetric determinations)
- Client resubmitted pulps
- Client quartered core
- SEMS quarter core control
- SEMS RC duplicates resubmitted to ALS Chemex and also Intertek, Tarkwa
- Check sieve test analysis
- Laboratory and field splitting error
- Results for Screen Fire assay versus 50 g Fire Assay

The following results were found from the investigation:

- Comparison of laboratory standards indicates that precision and accuracy are well within industry tolerance.
- Standards obtained from Canada indicate that some batches sent to ALS were poorly analysed. Those batches were re-analysed by ALS.
- Blanks obtained from Rocklabs indicate that there is no evidence from the results of laboratory or client blanks to suggest low-level contamination or repeated cross-contamination during crushing or pulverisation
- Laboratory duplicates and check repeats generally indicate that precision is well within industry tolerance.
- Xtra-Gold duplicates indicate that there is insignificant bias in the correlation between duplicates and original samples.
- Xtra-Gold quarter core submission to compare with original half core results highlighted the presence and effect of coarse gold grains on assays (nugget effect).
- RC chip resubmission indicated that there is possibly a problem with splitting of the sample in the field while resubmission of core indicates that there is also a problem with splitting in the laboratory.

12.4.2 Umpire analysis for period 2008 – 2012

In 2021, 200 samples from the period 2008 – 2012 were reanalysed by Intertek.

The following results of the internal QA samples were found from the investigation:

- Although a relatively small population, no analyses of the blanks were greater than 3x the detection limit indicating that no significant contamination has occurred.
- The two internal CRMs didn't perform well. The one CRM performed within specification but the other failed.
- Typical of the deposit, a relatively large proportion of the duplicates have differences between the original and repeats.

The analysis of the umpire analysis indicates that there is a little bias between the datasets. However, there are a number of differences between the original analysis and the repeat analysis that are beyond generally acceptable limits. Having noted this and when looking at various other duplicate analyses utilising a number of other laboratories, it is clear that the nature of the gold deportment within the deposit is the reason for the significant differences between the original and repeat analyses.

12.4.3 2010-2012 Exploration Campaign

Sampling carried out by Xtra-Gold was conscientiously and diligently pursued. The quality control programme involved inserting and analysing blanks standards, and duplicates, checking laboratory repeats to check precision and resampling core (quarter core). Overall the results of the QA/QC checks were reported as being very encouraging

The results were as follows:

- **Contamination:** All the QC blanks are below detection indicating that contamination is not significant.
- **Accuracy:** Some 30 CRMs were used by the laboratories. In all cases the analysis indicates that the laboratory's accuracy is within specification.
  Xtra-Gold used 11 CRMs in the QC programme. Generally the analysis of the CRMs indicates that the assay data can be considered accurate and suitable for mineral resource estimation.
- **Precision:** Various tests of the precision were undertaken. In general the analysis of the duplicates indicates that there is very little bias between the original and repeat analyses. However there are a number of individual differences between the original analysis and the repeat analysis that are beyond generally acceptable limits. Having noted this and when looking at various other duplicate analyses utilising a number of other laboratories, it is clear that the nature of the gold deportment within the deposit is the reason for the significant differences between the original and repeat analyses.
- **Independent quarter core re-assay in mineralised zones:** The independent assessment of mineralised intersections from the Big Bend, East Dyke, Mushroom, Double 19 and South Ridge prospects, yielded a precision of the original and resampling programmes that is within specification. The results suggest the presence of particulate/coarse grained gold.

12.5 Conclusions and Recommendations

The following conclusions and recommendations are made:-

- The operator is diligent in the use of the QA/QC programme with the recording of data for analysis. An important aspect is that an effective and dynamic QC programme is utilised to review data as it comes in from the laboratory; a practice currently being applied on site.
- The assessment of the blanks confirms that there is minimal contamination at the laboratory.

- The assays were undertaken utilising a 50 g aliquot for the fire assay whereas the CRMs generally utilised a 30 g aliquot. The expectation is that the larger aliquot should produce results that are better grouped (precision) and more accurate.
- An excessive number of different CRMs have been previously used. It is recommended that fewer are used in the future. It is considered more practical to identify 2 to 5 different CRMs to span the assay range of the expected grades i.e. 0.5 – 2 ppm. This will allow more control and conformation of the data, i.e. identification of sample swaps in particular.
- In the earlier programmes numerous failures of the Xtra-Gold CRMs have been noted. Most of these have been attributed to the misidentification of the CRMs. The laboratory CRMs demonstrate that the data can be considered to be accurate.
- The precision is tested by analysis of the duplicate data. The results of the duplicate analysis presented suggests that the precision is an issue. This is probably truer for the higher grades and may be related the presence of coarser grains of gold.

It was concluded that the geochemical data used in the resource estimation was satisfactory, with variations most probably due to the nature and deportment of the gold and probably related to the presence of coarse gold in the deposits.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

A Gold Deportment Study which assessed the mineralogical and metallurgical aspects of the gold mineralization in the Kibi Gold Project was completed in October 2011 by SGS South Africa (Pty) Ltd. Two 10 kg samples of oxide material (average grade of 7.28 g/t Au) and sulphide material (average grade of 3.47 g/t Au) were analysed. The composite oxide sample was created from trench samples that were crushed and combined. The mineralogical test work included metallurgical and mineralogical tests that were undertaken in conjunction with the gravity test work. The tests performed included:

- Test work to determine the amenability of the material to gravity recovery;
- Gold distribution across size fractions (grading analysis);
- Heavy liquid separation to determine the amount of free gold or gold in heavy particles such as sulphides;
- Exposure and mineral association analysis of the particulate gold grains in the gravity concentrate;
- Chemical composition of the material and metallurgical test products;
- general mineralogical characterization of the material;
- Identification and quantification of gold minerals including native gold, gold-tellurides, etc. In the gravity concentrates;
- Grain size distribution of the gold grains in the gravity concentrate;
- Test work to determine the gold recovery by direct cyanidation; and
- Diagnostic leach analysis of the gravity tailings to determine the gold deportment in the gravity tails.

The preliminary conclusions made indicated that:

- The gold in the sulphide samples (3.49 g/t Au) was highly amenable to cyanidation leaching with ~97% recoverable by means of direct cyanidation. This material is also amenable to gravity upgrading, with ~67% of the gold recovered at a mass pull of ~3%. In the gravity concentrate (97.5 g/t Au), a total of 143 particulate gold grains were observed in the gravity concentrate of this sample.
- The grading analysis on the sulphide sample indicated a very high upgrading of gold in the +106µm size fraction (~69%). This indicates that the gold is either large gold grains or locked in large gold-bearing particles. From the liberation and mineral association characteristics determined by QEMSCAN, on the gravity concentrate, the gold was found to be ~63% liberated and ~25% was associated with pyrite. This indicates that the gold is either large, liberated gold grains or locked in large gold-bearing pyrite particles.
- The direct cyanidation and diagnostic leach indicates that the sample is highly amenable to cyanide leaching, with ~97% of the gold recovered from the head sample at a grind of 80%-75µm by direct cyanidation and ~96% for the gravity tailings at a grind of~50%-75µm. This is corroborated by the exposure and the mineral association characteristics as determined by QEMSCAN analysis of the gravity concentrate. Approximately 90% of the particulate gold grains are ≥10% exposed and should be leachable.

- The gold in the composite oxide sample (7.28 g/t Au) is also highly amenable to cyanidation, with ~97% of the gold recoverable by means of direct cyanidation. The material is also amenable to gravity upgrading, to some degree, with only ~56% of the gold recovered at a mass pull of ~3%. In the gravity concentrate (134.83 g/t Au) a total of 125 particulate gold grains were observed by QEMSCAN.
- The grading analysis on the composite oxide sample indicated a very high upgrading of gold in the +106µm size fraction (~74%). This indicates that the gold is either large gold grains or locked in large gold-bearing particles. From the liberation and mineral association characteristics determined by QEMSCAN analysis of the gravity tailings, it was found that the gold grains were moderately liberated (~76%) and that ~10% was occurring in silicates and ~14% in oxides. This indicates that the gold is either large, liberated gold grains or locked in large gold-bearing silicate/oxide particles.
- The direct cyanidation and diagnostic leach tests indicated that the sample is highly amenable to cyanide leaching, with ~98% of the gold recovered from the head sample at a grind of 80%-75µm and ~99% of the gold in the gravity tailings at a grind of 50%-75µm. This is corroborated by the exposure and mineral association characteristics of particulate gold in the gravity - 28 - concentrate, as determined by QEMSCAN analysis. Approximately ~96% of the gold grains are ≥10% exposed and should be leachable.
- The most simplistic processing option would be to mill the material to ~80%-75µm followed by carbon-in-leach cyanidation. Another option, which may result in somewhat lower operational cost is to mill the material relatively coarsely (say 80%-106µm) followed by gravity concentration and intensive cyanidation of the gravity concentrate. The gravity tailings could then be milled finer to ~80%-75 µm, followed by carbon-in- leach cyanidation. Taking out the coarse gold and some of the sulphides by gravity, will allow shorter retention times in the leach tanks and possibly even lower cyanide consumption.

14 MINERAL RESOURCE ESTIMATES

14.1 Methodology

Geological models for each target were generated by Tect based on the geology of the target and the identified structural trends. Block models were generated for Big Bend, Double 19, Road Cut, East Dyke (North Limb, Core, South Limb), South Ridge, Mushroom, GH and GM. Each target was estimated separately from the data within the assigned geological model using variograms and search parameters that are aligned to the identified structural direction. The approach was based on the premise that gold-bearing fluids would have preferentially flowed through the delineated structural setting, as depicted by the geological model and evidenced as mineralized veins.

The database is comprised of collar coordinates, downhole surveys, lithological core logs, bulk density data and assay data for the 414 drill holes and 270 trenches completed on the project.

Detailed descriptive statistical analyses of the data for each target were competed prior to starting the estimate in order to understand the data thoroughly. An assessment of the various data populations was made and capping values for each target were determined.

The estimations for each target were undertaken using ordinary kriging as lognormal kriging had produced results that could not be validated. Directional variograms were developed for each target utilising the direction of the veins within the target. This direction was also used as the search parameter for each estimate. The block size was considered after testing various parameters and with consideration to the geometry of the targets.

14.2 Geological Models

Three dimensional models of each target were created based on the known geology and structural interpretation by Tect. 3D Geological Modelling in Leapfrog Geo™ was performed and utilised the relevant interpretations described in Sections 7.4 - 7.6. The most recent structural and lithological data was integrated and incorporated into the 3D target models (including Big Bend, Double 19, East Dyke, Gate House, Gold Mountain, Mushroom, Road Cut and South Ridge,). These target models serve a dual purpose, as they are used as well-constrained mineralization envelopes for mineral resource estimation, and as approximations of structurally-controlled mineralization zones that may be subject to further exploration targeting (Figure 14.1 and Figure 14.2).

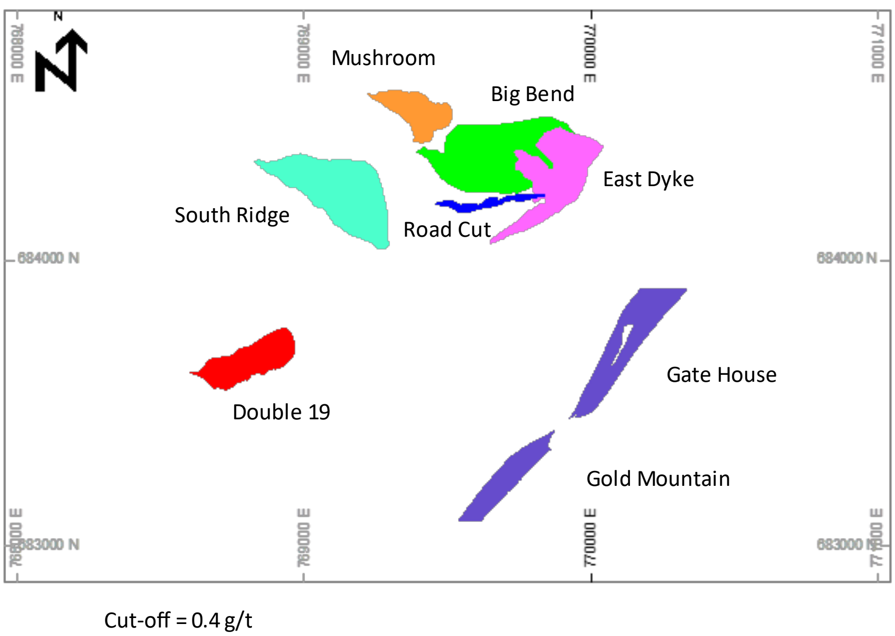
Gold assays with a 0.4 g/t cut-off were used to constrain the outer limit of mineralization envelopes, otherwise referred to as target models. No compositing of the assay data was applied prior to creating the envelopes. Each target model was informed by the structural setting of the unconstrained mineralized zone, as indicated by the geometry of combined lithological contacts and intersected gold mineralization.

The structural setting of targets Big Bend, Double 19, East Dyke, Mushroom and Road Cut, in particular, are further enhanced by additionally-modelled lithological contacts of undifferentiated mafic units (M1 and M2), diorite and metasediments.

Triangulation of target models in Leapfrog Geo™ was undertaken using the Vein System tool in conjunction with manual interval selection of 0.4 g/t cut-off intervals. This methodology was preferred, largely because of the level of confidence in the structural setting for each target vs. the pure implicit modelling (Intrusion tool) guided by LVA (locally variable anisotropy) or structural trends.

Using the deposit tool, a base surface (or contact) was modelled for a fresh rock-saprolite/laterite (TR-SAP-LAT) transitional zone and complete saprolite/laterite (SAP-LAT) zone, as recorded by drill hole and trench logs. Both TR-SAP-LAT and SAP-LAT surfaces approximate the level of oxidation and weathering from topography.

Figure 14.1: Map of the Targets



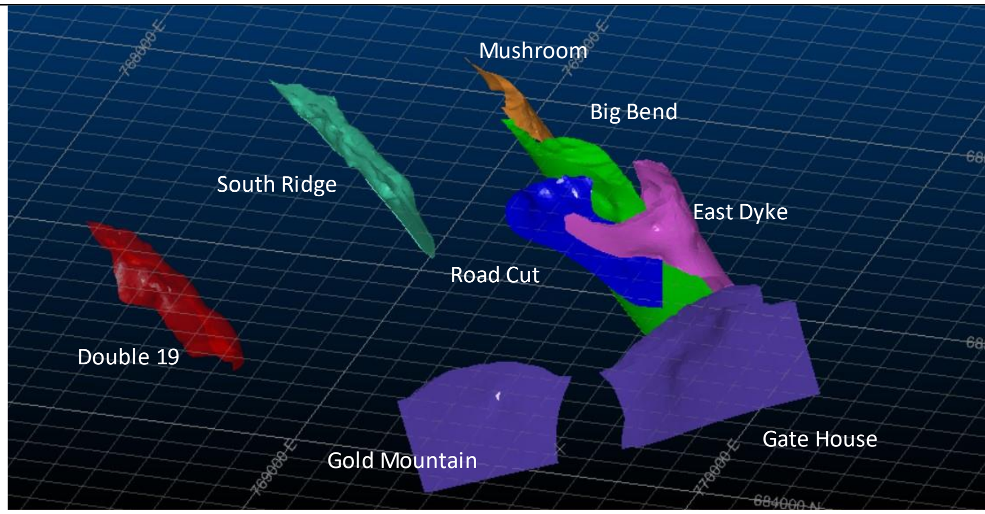
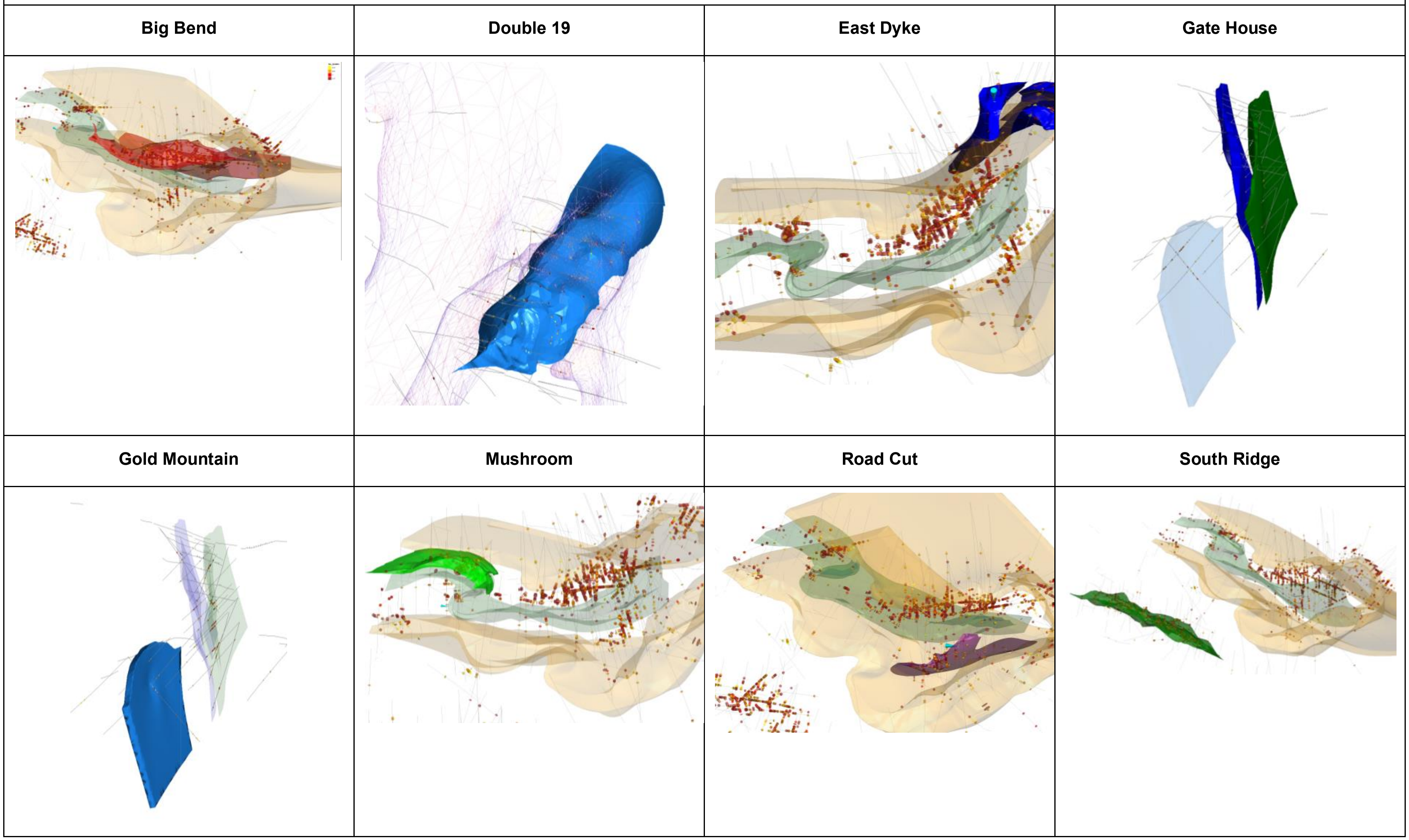

Mushroom
Big Bend
South Ridge
East Dyke
Road Cut
Double 19
Gate House
Gold Mountain

Figure 14.2: Isometric Views of the Geological Models of the Various Targets



14.3 Compositing

The data was composted to 1m intervals utilising the weighting by the drill hole length and density.

14.4 Descriptive Statistics: Composites

An intensive statistical analysis was undertaken on the data for each of the targets. The summary of analysis are presented in Table 14.14. and Figure 14.3. with comparisons of trench and drill hole data. It was determined that the drill hole and trench data represent the same geological environment and are compatible. It is noted that the trench data represents the oxide horizon.

Table 14.14.: Descriptive Statistics per Target

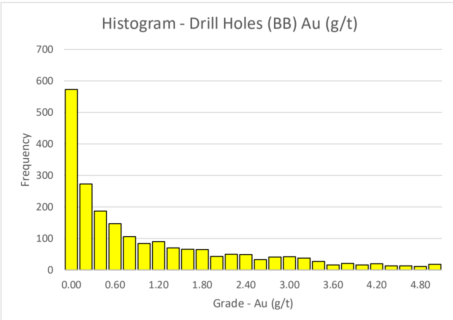
Drill holes								
	Big Bend	Double 19	East Dyke	Gate House	Gold Mountain	Mush room	Road Cut	South Ridge
Count	4858	3660	1556	285	66	905	576	3778
Average	0.83	0.81	0.68	0.63	0.44	1.16	0.44	0.52
Min	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Max	45.50	114.34	42.40	5.76	4.56	272.00	7.40	40.80
Range	45.50	114.34	42.40	5.76	4.56	272.00	7.40	40.80
Std Dev	2.06	2.86	2.37	0.86	0.76	9.34	0.78	1.64
Median	0.07	0.06	0.02	0.27	0.13	0.07	0.08	0.05
Mode	0.00	0.01	0.00	0.01	0.02	0.00	0.01	0.01
Geomean	0.28	0.24	0.14	0.47	0.32	0.29	0.22	0.19
CoV	249%	351%	349%	138%	172%	804%	176%	316%
Trenches								
	Big Bend	Double 19	East Dyke	Gate House	Gold Mountain	Mush room	Road Cut	South Ridge
Count	429	132	232	92		16	8	478
Average	1.63	1.59	1.36	0.09		0.10	0.66	1.04
Min	0.01	0.01	0.00	0.01		0.04	0.01	0.00
Max	45.30	11.80	29.10	1.38		0.27	3.44	17.60
Range	45.30	11.80	29.10	1.38		0.23	3.43	17.60
Std Dev	3.52	2.51	3.23	0.18		0.06	1.15	2.01
Median	0.31	0.49	0.11	0.04		0.11	0.27	0.28
Mode	0.01	0.02	0.03	0.01		0.07	#N/A	0.01
Geomean	0.30	0.42	0.19	0.03		0.09	0.20	0.26
CoV	216%	158%	237%	200%		53%	173%	193%

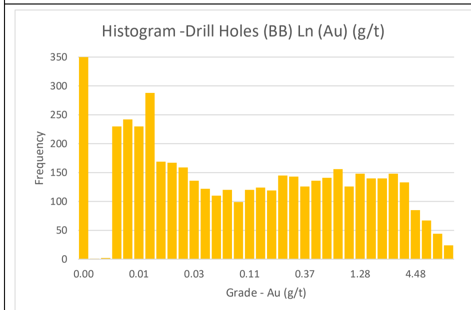
The analysis of the data confirms that the gold grade populations of each of the targets is lognormal.

Figure 14.3: Histograms of the Data for Each Target

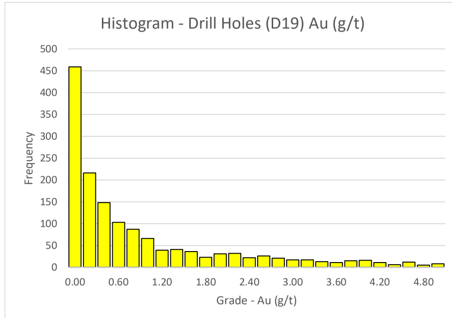
Drill holes

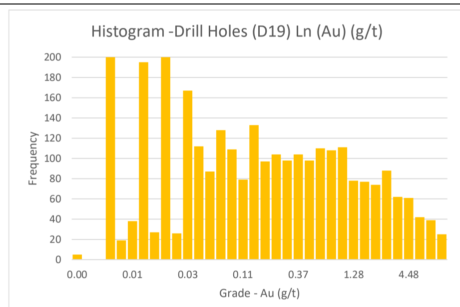
Big Bend



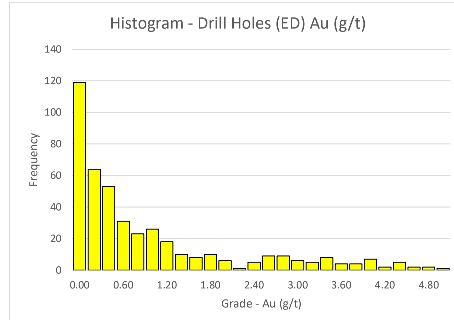


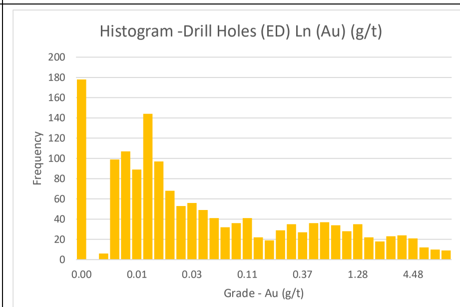
Double 19



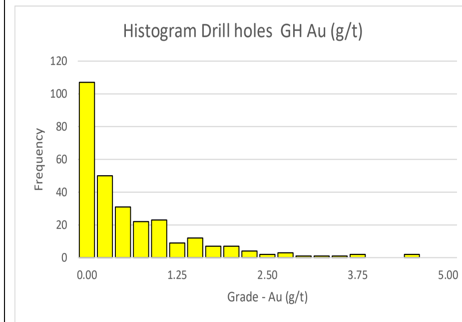


East Dyke





Gate House



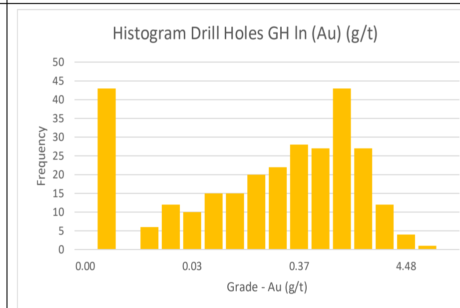
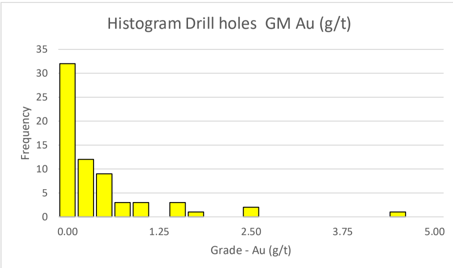
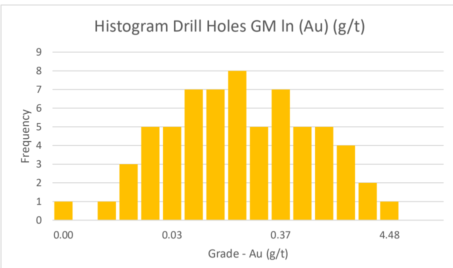


Figure 14.1: Histograms of the Data for Each Target

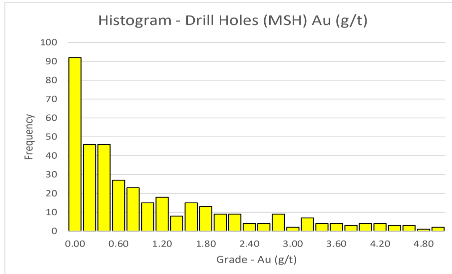
Drill holes

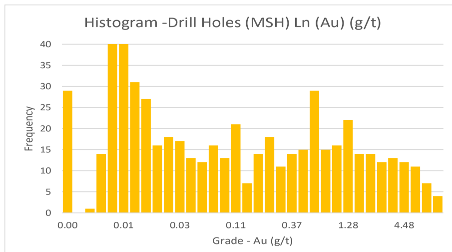
Gold Mountain



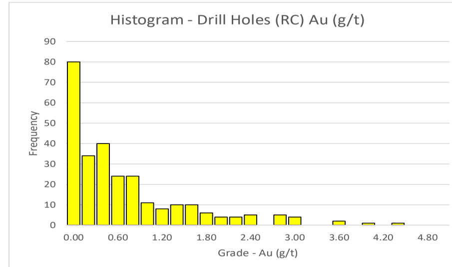


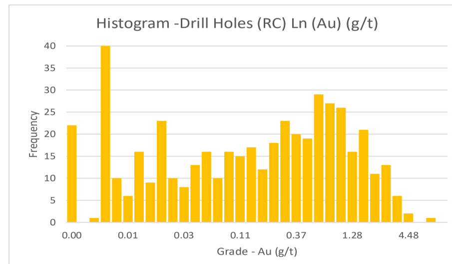
Mushroom



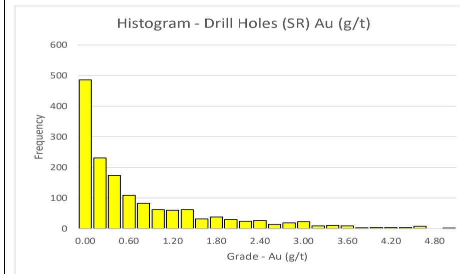


Road Cut





South Ridge



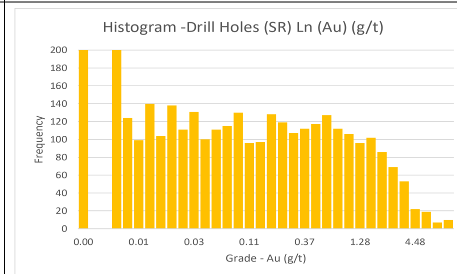
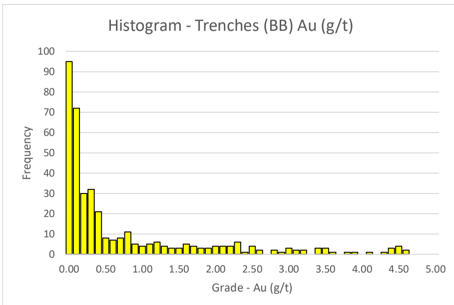
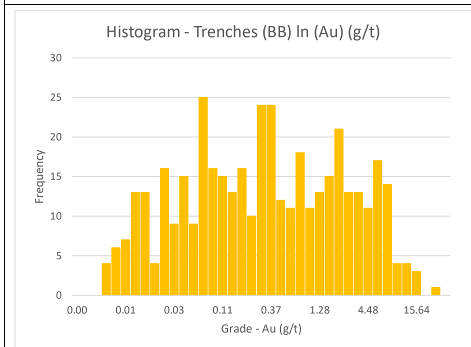


Figure 14.1: Histograms of the Data for Each Target

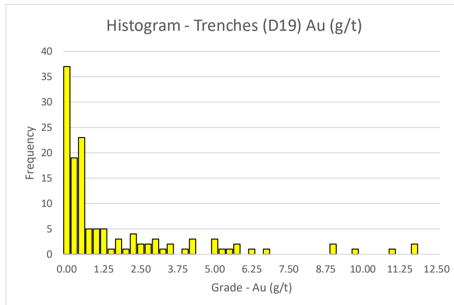
Trenches

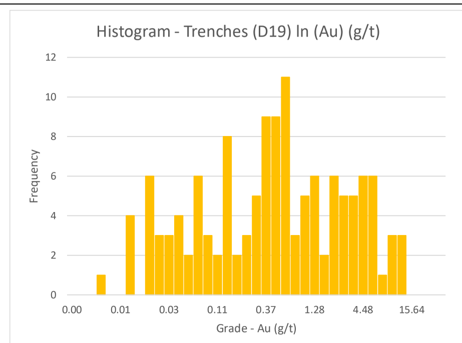
Big Bend



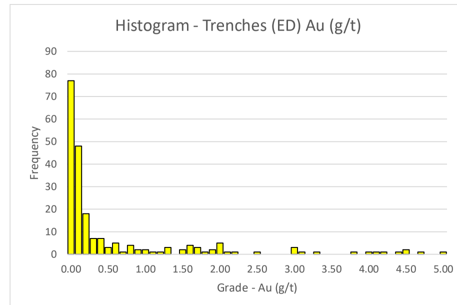


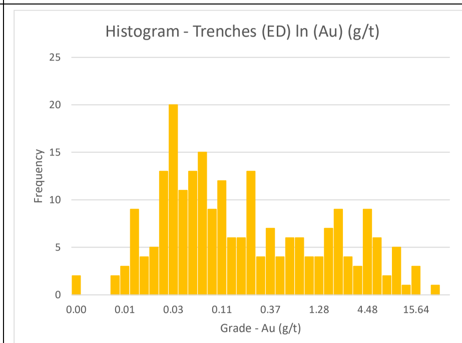
Double 19



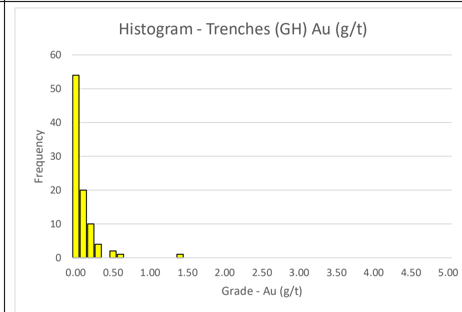


East Dyke





Gate House



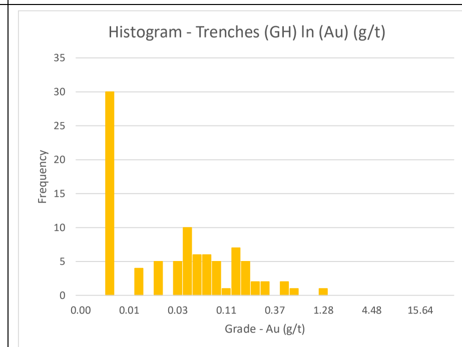
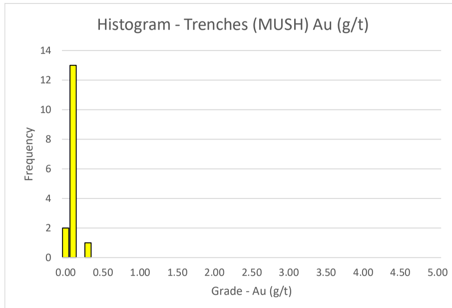
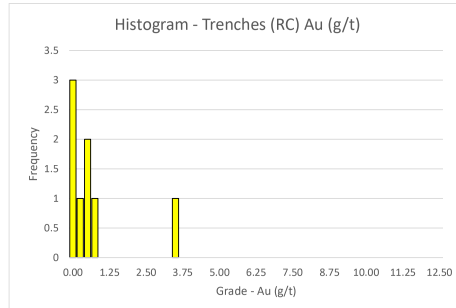
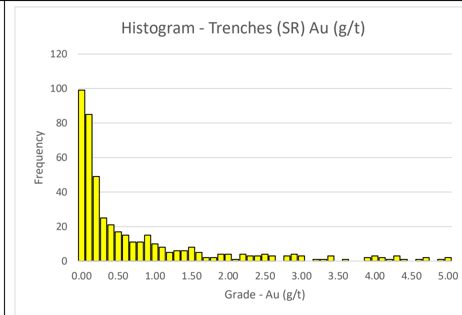
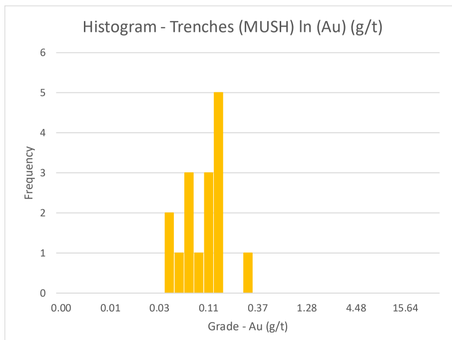
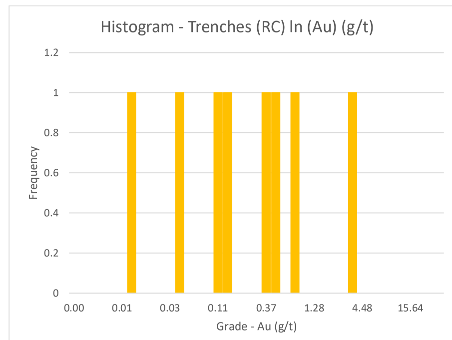
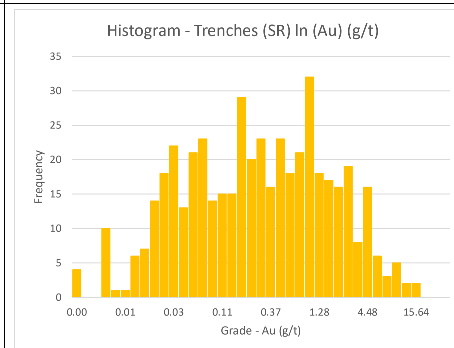


Figure 14.1: Histograms of the Data for Each Target

Drill holes

Gold Mountain	Mushroom	Road Cut	South Ridge
			
			

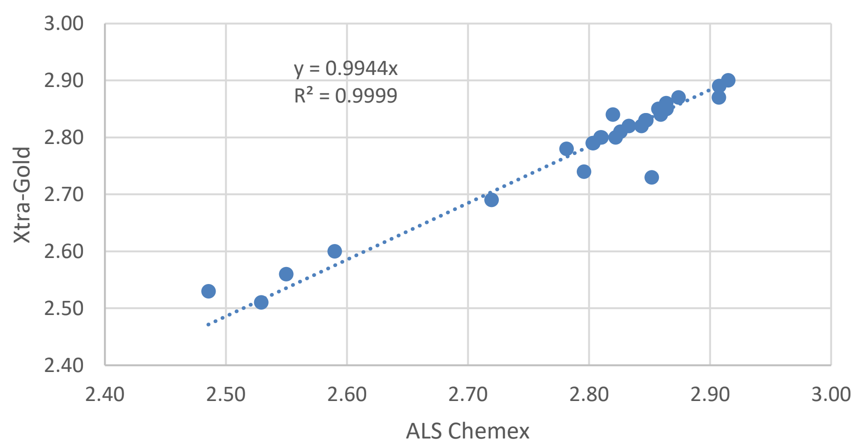
14.5 Density

Density determinations were undertaken by ALS and by Xtra-Gold.

The density was measured by pycnometer (Method: OA-GRA08). In addition, density determinations were undertaken on site using the Archimedes method. From the available information, cognisance of the porosity was noted with samples being immersed in wax prior to weighting in water.

A full analysis of both datasets was undertaken to confirm that the data was equivalent and that all the data could be used to determine the densities of all the blocks in the block model. Figure 14.4 shows a strong correlation coefficient and a very low bias between data sets. As a result, the two datasets were considered compatible and were used to determine the density of the mineralised material. A summary of the determinations is presented in Table 14.1.

Figure 14.4: Comparison of ALS and Xtra-Gold Density determination



Using all the data, densities were estimated independently of the gold and merged into the block model.

Table 14.1: Statistics of ALS and Xtra-Gold Density Determinations					
	Count	**Average**	**Minimum**	**Maximum**	**Standard Deviation**
Big Bend					
Saprolite	22	1.56	1.37	2.34	0.25
Transition	12	2.34	2.17	2.53	0.11
Fresh	927	2.84	2.60	3.43	0.06
Double 19					
Saprolite	13	1.82	1.44	2.15	0.22
Transition	8	2.34	2.03	2.64	0.09
Fresh	15	2.90	2.76	3.08	0.09
East Dyke					
Saprolite	12	1.58	1.41	2.06	0.19
Transition	2	2.55	2.49	2.61	0.08
Fresh	87	2.86	2.66	3.11	0.08
Mushroom					
Saprolite	13	1.68	1.26	2.40	0.30
Transition	5	2.46	2.14	2.59	0.22
Fresh	159	2.84	2.57	3.11	0.09
South Ridge					
Saprolite	15	1.53	1.29	1.77	0.16
Transition	13	2.39	2.25	2.57	0.07
Fresh	1451	2.83	2.55	3.83	0.08

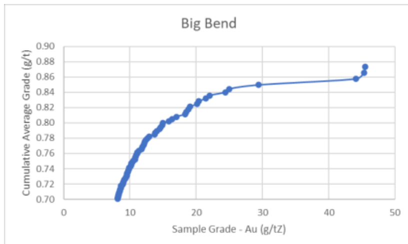
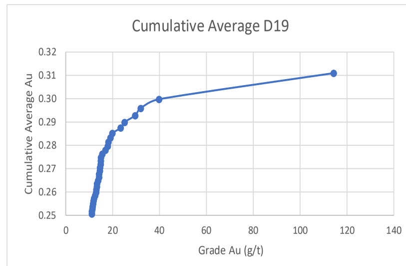
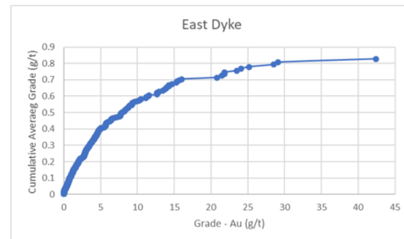
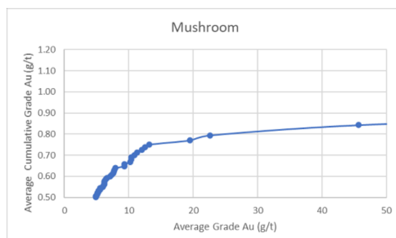
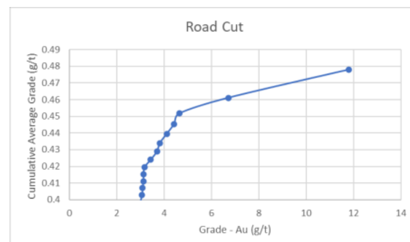
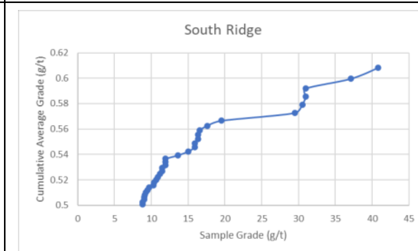
14.6 Outlier Analysis

The data was examined to determine if any of the data would be considered as an outlier that may have a negative effect on the estimation. An assessment of the high-grade samples was completed for each target to determine the requirement for possible high-grade cutting or capping. The approach is summarised as:

- Detailed review of histograms and probability plots with significant breaks in populations interpreted as possible outliers.
- Investigation of clustering of the higher-grade data.
- High-grade data which clustered was considered to be real while high grade samples not clustered with other high-grade data was considered to be a possible outlier that required further consideration either through cutting and/or search restriction.

Based on the analysis of the data set, capping was considered appropriate. The capping value was established for each target independently. The results of the outlier analysis are summarised in and the cumulative averages graphically represented in Figure 14.5.

Table 14.2: Outlier Analysis			
Target	**Capping value - Au (g/t)**	**Target**	**Capping value - Au (g/t)**
Big Bend	20	Gold Mountain	None
Double 19	25	Mushroom	20
East Dyke	15	Road Cut	None
Gate House	None	South Ridge	15

<table>
<tr><th colspan="4">Figure 14.5: Outlier Analysis: Graphs of Cumulative Averages</th></tr>
<tr><td>Big Bend</td><td>Double 19</td><td>East Dyke</td><td>Gate House</td></tr>
<tr><td></td><td></td><td></td><td>NA</td></tr>
<tr><td>Gold Mountain</td><td>Mushroom</td><td>Road Cut</td><td>South Ridge</td></tr>
<tr><td>NA</td><td></td><td></td><td></td></tr>
</table>

14.7 Block Model Development

A three dimensional (3D) model was developed. The block model cell size of 5 m x 5 m x 5m was established after considering the Kriging Neighbourhood Analysis (KNA) (Table 14.3).

Table 14.3: Summary of the Block Model Details

Centroid Based	Big Bend	East Dyke	Double 19	South Ridge	Road Cut	Mushroom	GM/GH
X	769,300	769,700	768,500	768,800	769,400	769,200	769,500
Y	684,200	684,000	683,500	684,000	684,100	684,400	683,000
Z	-200	-100	200	200	200	300	100
Block Model Origin (Centroid)							
X	770,000	770,100	768,900	769,300	769,900	769,600	770,400
Y	684,500	684,500	683,800	684,400	684,300	684,600	683,800
Z	600	600	500	600	500	600	500
Block Model Max (Centroid)							
X	140	80	80	100	100	80	180
Y	60	100	60	80	40	40	160
Z	160	140	60	80	60	60	80
Block Model Parent Cell Size							
X	5	5	5	5	5	5	5
Y	5	5	5	5	5	5	5
Z	5	5	5	5	5	5	5
Sub cell splitting							
	No	No	No	No	No	No	No

14.8 Search Criteria

The search strategy used three search criteria and is summarised in Table 14.4. The shape and orientation of the search ellipse was informed by the results of the structural analysis (Figure 14.6 and Figure 14.7).

A three-pass estimation strategy was applied to each domain, applying progressively expanded and less restrictive sample searches to successive estimation passes, and only considering blocks not previously assigned an estimate. The search criteria are designed to be informed from adjacent drill holes rather than be informed from data in the same drill hole.

Table 14.4: Summary of Search Parameters

	Orientation	Search Distance (Rotation)			Search Distance (Elliptical)			Min. Samples	Max. Samples	Search Distance (Elliptical)			Min. Samples	Max. Samples	Search Distance (Elliptical)			Min. Samples	Max. Samples
		X	Y	Z	X	Y	Z			X	Y	Z			X	Y	Z		
Big Bend	300/45	45	0	-60	50	50	25	12	24	100	100	50	12	24	250	250	125	12	24
Double 19	060/45	45	0	60	50	10	60	12	24	100	20	120	4	12	250	50	300	4	12
East Dyke																			
CORE	060/30	0	30	60	20	250	250	12	24	40	500	500	12	24	100	1250	1250	12	24
North limb	270/15	0	15	270	200	500	75	12	24	400	1000	150	12	24	1000	2500	375	12	24
South limb	180/15	0	15	180	500	500	50	12	24	1000	1000	100	12	24	2500	2500	250	12	24
Gate House																			
Gold Mountain																			
Mushroom	210/45	0	90	-45	50	50	25	12	24	100	100	50	12	24	250	250	125	12	24
Road Cut	300/45	0	0	0	50	50	50	12	24	100	100	100	12	24	250	250	250	12	24
South Ridge	090/15	0	0	0	50	50	50	12	24	100	100	100	12	24	250	250	250	12	24

Figure 14.6: Stereonets of Veins

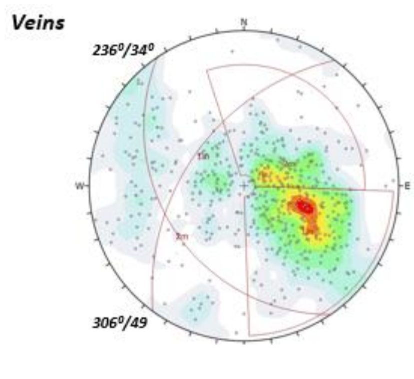
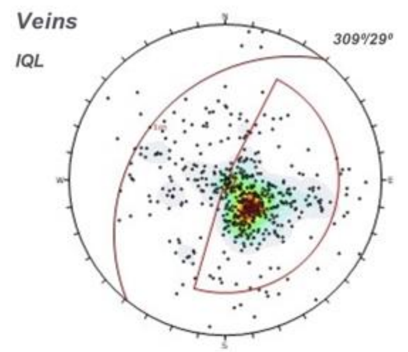
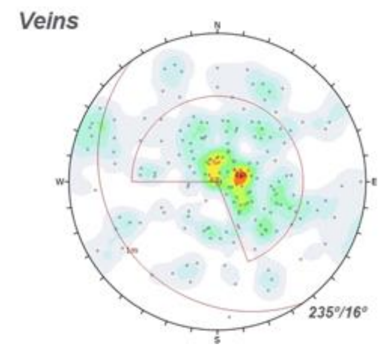
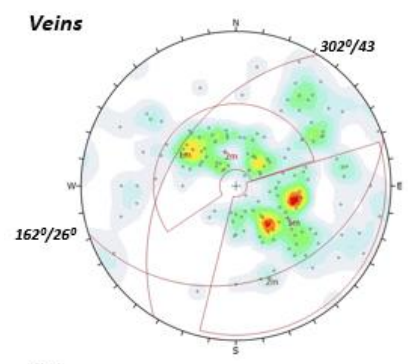
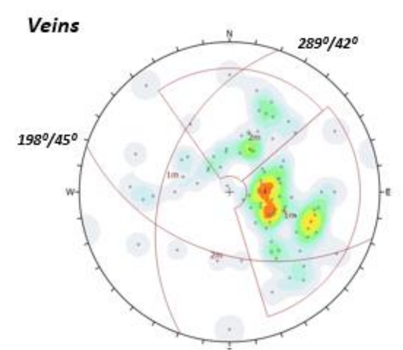
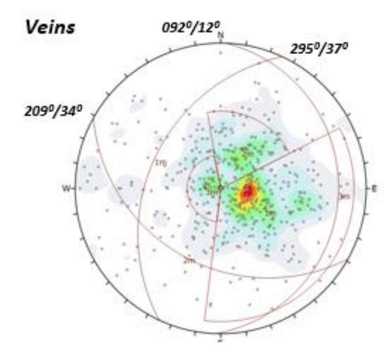
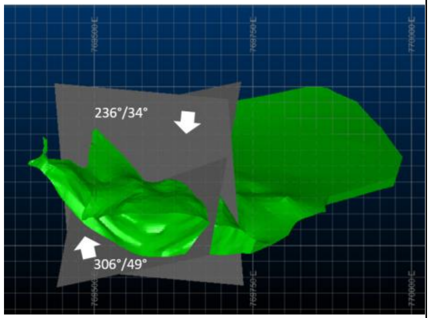
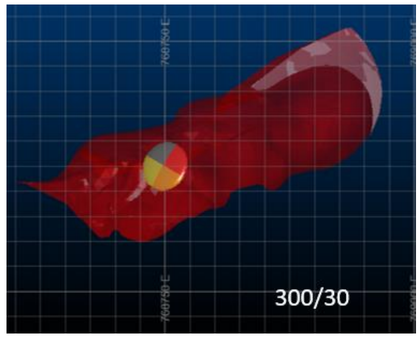
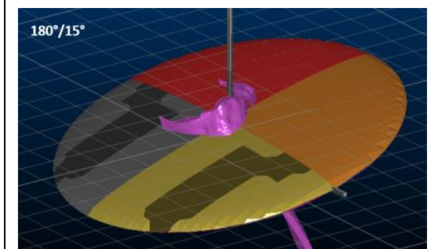
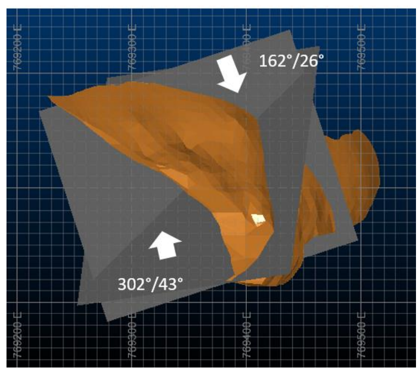
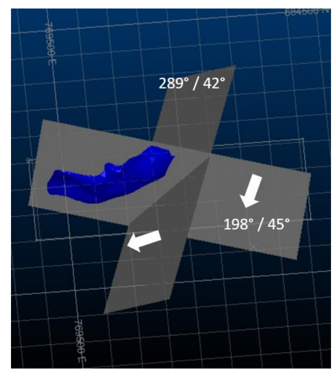
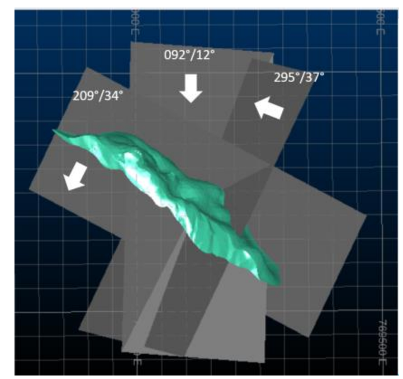
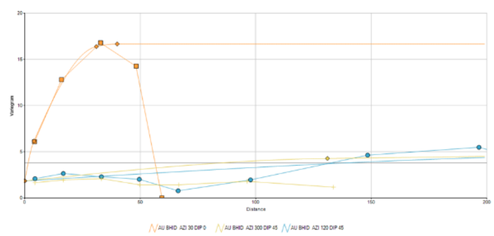
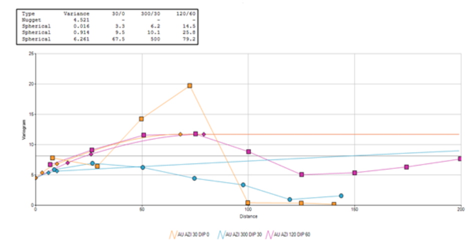
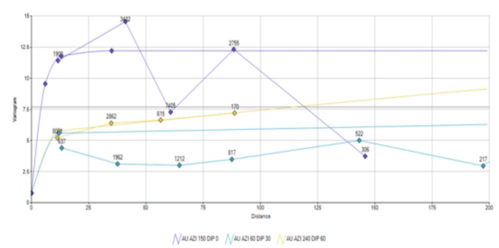
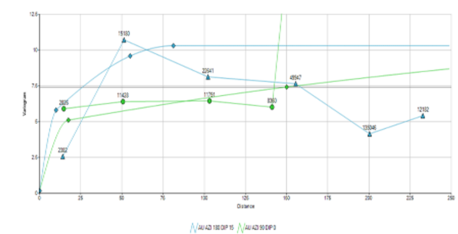
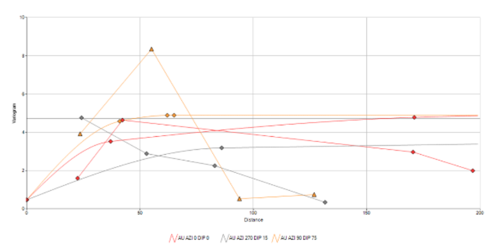
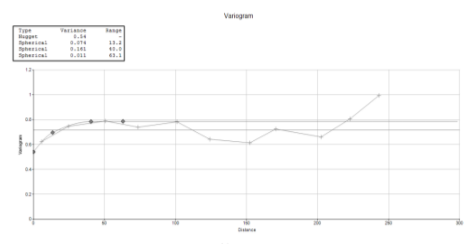
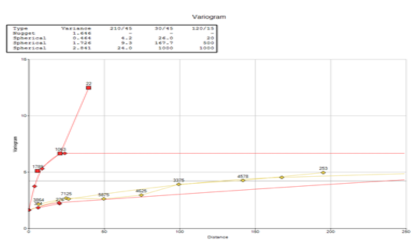
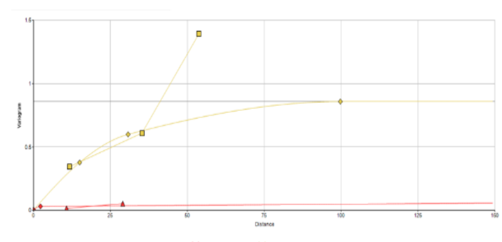
Big Bend	Double 19	East Dyke	Gate House
			No structural data
Gold Mountain	**Mushroom**	**Road Cut**	**South Ridge**
No structural data			

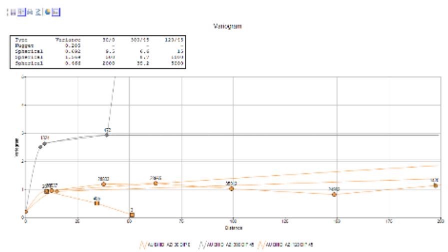
Figure 14.7: Isometric views of the Geological Models and the Vein Directions			
Big Bend	**Double 19**	**East Dyke-Core**	**East Dyke- South Limb**
 	 	 	
Gate House & Gold Mountain	**Mushroom**	**Road Cut**	**South Ridge**
No structural data	 	 	

14.9 Variography

Variographic modelling was undertaken separately for each target. Anisotropic Variogram models were developed for the vein orientation. In general this direction presented a good or best orientation for variogram modelling (Figure 14.8).

Figure 14.8: Variograms for each Target

Big Bend	Double 19
	
East Ridge – Core	**East Ridge - South Limb**
	
East Ridge - North Limb	**Gate House and Gold Mountain**
	
Mushroom	**Road Cut**
	

South Ridge	
	

14.10 Estimation

As the populations for all the targets are lognormal, lognormal kriging was initially tested. However, the result was evidently incorrect, as in general very high grades were estimated. On further investigation it was established to be as a result of the high variance in the data which had a negative influence on the back transformation from the log values to the real values. As a result Ordinary kriging was utilised as being a more appropriate approach.

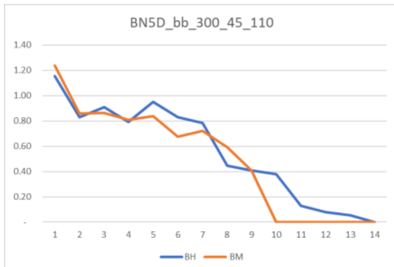
The estimation of each target was undertaken independently utilizing the structural information available. The premise used is that the main vein direction was the pathway for the mineralising fluid with their orientation being oblique to the lithological model.

14.11 Validation

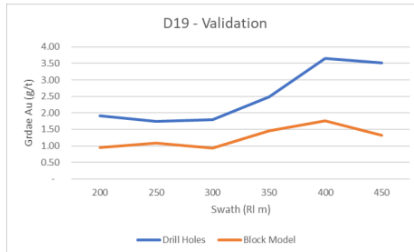
Swath plots were undertaken for each target to demonstrate the veracity of the estimates (Figure 14.9). This analysis confirms the veracity of the estimates.

Figure 14.9: Swath Plots of the Individual Targets

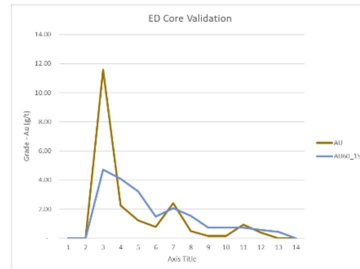
Big Bend



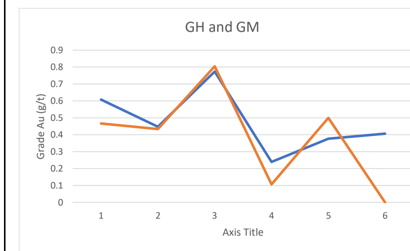
Double 19



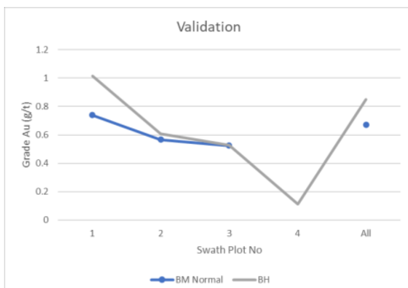
East Dyke - Core



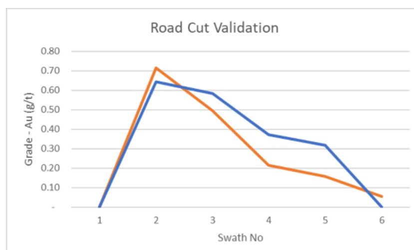
Gate House and Gold Mountain



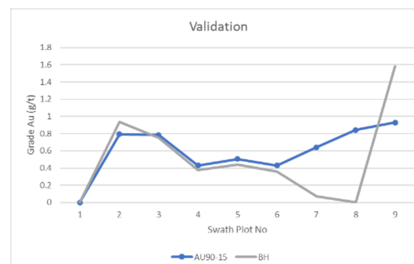
Mushroom



Road Cut



South Ridge



14.12 Reasonable Prospects for Eventual Extraction

Consideration of the Reasonable Prospects for Eventual Economic Extraction (RPEEE) was undertaken using a simple financial assessment, assuming initially open pit extraction transitioning in some targets to an underground mining operation. An appropriate gold processing facility was assumed.

This simple financial model is presented, with the included assumptions, in Table 14.5. Based on these assumptions, there is potential for an open pit operation initially and subsequently an underground mine. Therefore a Mineral Resource can be declared.

Table 14.5: Assessment of the Reasonable Prospects for Eventual Economic Extraction

Assumptions				**Financial**		
	Open Cast	**Underground**			**Open Cast**	**Underground**
	Au	Au			$ (annual)	$ (annual)
In Situ Grade	1.3	1.3	g/t	Revenue	$ 23,156,000	$23,156,000
Tonnage	2,880,000	4,780,000	t			
Mining losses - dilution etc	10%	10%		**Capex**	$ 40,000,000	$40,000,000
Mined -grade	1.17	1.17	g/t			
Price	$1,900	$ 1,900	$/oz	**Operating Costs (Opex)**		
					$ (annual)	$ (annual)
Production				G&A	$ 9,291,600	$ 9,291,600
	Monthly	Monthly		Mining	$ 1,101,600	$ 1,620,000
Tonnage	30,000	30,000		Processing	$ 5,896,800	$ 5,896,800
oz	1,128	1,128		Total	$ 16,290,000	$16,808,400
	Annual	Annual				
Tonnage	360,000	360,000		Gross Profit	$ 6,866,000	$ 6,348,000
oz	13,542	13,542				
Recovery	90%	90%		**Per tonne**	**$/t**	**$/t**
				Revenue	$ 64.32	$64.32
Cost per tonne at 360000 tpa				Cost	$ 45.25	$46.69
Cash on Mine	$/t	$/t		Value recovered	$ 19.07	$17.63
G&A	$25.81	$25.81		**Per oz**	**$/oz**	**$/oz**
Mining	$3.06	$ 4.50		Revenue	$ 1,710.00	$ 1,710.00
Processing	$16.38	$16.38		Opex	$ 1,202.93	$ 1,241.21
Total	$45.25	$46.69		Profit	$ 507.07	$468.79

Based on this assessment, a cut-off grade of 0.5 g/t Au was considered appropriate.

14.13 Classification

The classification of each target was undertaken on an individual basis and broadly based on the efficiency of the search criteria i.e. where a block could be informed by the first search strategy, it was considered as Indicated and the other blocks were considered as Inferred. The Mineral Resource estimate was constrained by the expected depth at which the mine would potentially become uneconomic.

14.14 Mineral Resource Reporting

The Mineral Resource is declared in terms of the guidelines of the Canadian Institute of Mine (CIM) Standards (Table 14.7 and Table 14.6). A cut-off grade of 0.5 g/t was applied after consideration of the reasonable expectation of eventual economic extraction (Section 14.12).

Table 14.6: Summary of the Mineral Resource Declaration

	Tonnage (t)	Density (t/m^3)	Grade – Au (g/t)	Au (oz)
Measured	-	-	-	-
Indicated	13,893,000	2.73	1.40	623,700
M+I	**13,893,000**	**2.73**	**1.40**	**623,700**
Inferred	5,694,000	2.80	0.96	180,700

The respective target grade/tonnage curves are shown in Figure 14.10.

Table 14.7: Mineral Resource Declaration - September 2021

Declared in terms of the CIM Standards

Cut-off: Au 0.5 g/t

Big Bend						Mushroom					
		Tonnage (t)	**Density (t/m^3)**	**Grade Au (g/t)**	**Au (oz)**			**Tonnage (t)**	**Density (t/m^3)**	**Grade Au (g/t)**	**Au (oz)**
Oxide	Measured					**Oxide**	Measured				
	Indicated	284,000	2.00	2.06	18,800		Indicated	103,000	2.04	1.50	4,900
	M+I	**284,000**	**2.00**	**2.06**	**18,800**		**M+I**	**103,000**	**2.04**	**1.50**	**4,900**
	Inferred						Inferred				
Transitional	Measured					**Transitional**	Measured				
	Indicated	115,000	2.41	2.13	7,900		Indicated	17,000	2.59	1.29	700
	M+I	**115,000**	**2.41**	**2.13**	**7,900**		**M+I**	**17,000**	**2.59**	**1.29**	**700**
	Inferred	-					Inferred	-	-	-	-
Fresh	Measured					**Fresh**	Measured				
	Indicated	6,072,000	2.82	1.44	280,700		Indicated	385,000	2.81	1.35	16,600
	M+I	**6,072,000**	**2.82**	**1.44**	**280,700**		**M+I**	**385,000**	**2.81**	**1.35**	**16,600**
	Inferred	1,257,000	2.82	1.03	41,400		Inferred	-	-	-	-
Total	Measured					**Total**	Measured				
	Indicated	6,472,000	2.78	1.48	307,400		Indicated	505,000	2.64	1.37	22,300
	M+I	**6,472,000**	**2.78**	**1.48**	**307,400**		**M+I**	**505,000**	**2.64**	**1.37**	**22,300**
	Inferred	1,257,000	2.82	1.03	41,400		Inferred	-	-	-	-

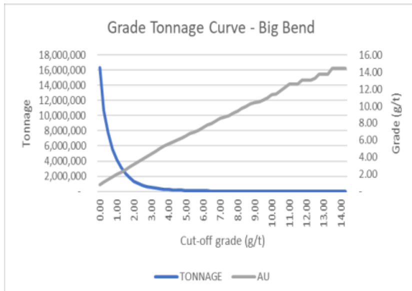
Double 19							Road Cut				
		Tonnage (t)	**Density (t/m^3)**	**Grade Au (g/t)**	**Au (oz)**			**Tonnage (t)**	**Density (t/m^3)**	**Grade Au (g/t)**	**Au (oz)**
Oxide	Measured					**Oxide**	Measured				
	Indicated	152,000	2.11	1.68	8,200		Indicated	-	-	-	-
	M+I	**152,000**	**2.11**	**1.68**	**8,200**		**M+I**	**-**	**-**	**-**	**-**
	Inferred						Inferred				
Transitional	Measured					**Transitional**	Measured				
	Indicated	89,000	2.11	1.67	4,800		Indicated	12,000	2.50	0.74	300
	M+I	**89,000**	**2.11**	**1.67**	**4,800**		**M+I**	**12,000**	**2.50**	**0.74**	**300**
	Inferred	-	-	-	-		Inferred	-	-	-	-
Fresh	Measured					**Fresh**	Measured				
	Indicated	1,343,000	2.71	1.33	57,400		Indicated	213,000	2.82	0.85	5,800
	M+I	**1,343,000**	**2.71**	**1.33**	**57,400**		**M+I**	**213,000**	**2.82**	**0.85**	**5,800**
	Inferred	-	-	-	-		Inferred	-	-	-	-
Total	Measured					**Total**	Measured				
	Indicated	1,584,000	2.62	1.38	70,400		Indicated	225,000	2.80	0.85	6,100
	M+I	**1,584,000**	**2.62**	**1.38**	**70,400**		**M+I**	**225,000**	**2.80**	**0.85**	**6,100**
	Inferred	-	-	-	-		Inferred	-	-	-	-

East Dyke						South Ridge					
		Tonnage (t)	Density (t/m^3)	Grade Au (g/t)	Au (oz)			Tonnage (t)	Density (t/m^3)	Grade Au (g/t)	Au (oz)
Oxide	Measured					Oxide	Measured				
	Indicated	269,000	2.17	1.58	13,700		Indicated	423,000	2.35	1.15	15,600
	M+I	**269,000**	**2.17**	**1.58**	**13,700**		**M+I**	**423,000**	**2.35**	**1.15**	**15,600**
	Inferred						Inferred				
Transitiona l	Measured					Transitional	Measured				
	Indicated	92,000	2.45	1.46	4,300		Indicated	181,000	2.68	1.16	6,700
	M+I	**92,000**	**2.45**	**1.46**	**4,300**		**M+I**	**181,000**	**2.68**	**1.16**	**6,700**
	Inferred	-	-	-	-		Inferred	-	-	-	-
Fresh	Measured					Fresh	Measured				
	Indicated	2,742,000	2.79	1.48	130,900		Indicated	1,402,000	2.81	1.03	46,400
	M+I	**2,742,000**	**2.79**	**1.48**	**130,900**		**M+I**	**1,402,000**	**2.81**	**1.03**	**46,400**
	Inferred	1,128,000	2.84	1.19	43,300		Inferred	943,000	2.82	1.02	30,800
Total	Measured					Total	Measured				
	Indicated	3,102,000	2.72	1.49	148,800		Indicated	2,005,000	2.70	1.07	68,700
	M+I	**3,102,000**	**2.72**	**1.49**	**148,800**		**M+I**	**2,005,000**	**2.70**	**1.07**	**68,700**
	Inferred	1,128,000	2.84	1.19	43,300		Inferred	943,000	2.82	1.02	30,800

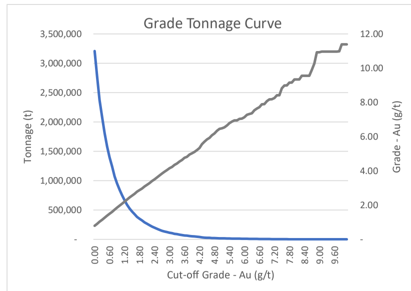
Gate House and Gold Mountain						Total					
		Tonnage (t)	Density (t/m^3)	Grade Au (g/t)	Au (oz)			Tonnage (t)	Density (t/m^3)	Grade Au (g/t)	Au (oz)
Oxide	Measured					Oxide	Measured	-			
	Indicated	-	-	-	-		Indicated	1,231,000	2.17	1.55	61,200
	M+I	**-**	**-**	**-**	**-**		**M+I**	**1,231,000**	**2.17**	**1.55**	**61,200**
	Inferred	9,000	1.50	0.70	200		Inferred	9,000	1.50	0.70	200
Transitiona l	Measured					Transitional	Measured				
	Indicated	-	-	-	-		Indicated	506,000	2.47	1.52	24,700
	M+I	**-**	**-**	**-**	**-**		**M+I**	**506,000**	**2.47**	**1.52**	**24,700**
	Inferred	192,000	2.40	0.73	4,500		Inferred	192,000	2.40	0.73	4,500
Fresh	Measured					Fresh	Measured				
	Indicated	-	-	-	-		Indicated	12,157,000	2.80	1.38	537,800
	M+I	**-**	**-**	**-**	**-**		**M+I**	**12,157,000**	**2.80**	**1.38**	**537,800**
	Inferred	2,166,000	2.80	0.80	60,500		Inferred	5,494,000	2.82	0.97	176,000
Total	Measured					Total	Measured				
	Indicated	-	-	-	-		Indicated	13,893,000	2.73	1.40	623,700
	M+I	**-**	**-**	**-**	**-**		**M+I**	**13,893,000**	**2.73**	**1.40**	**623,700**
	Inferred	2,366,000	2.76	0.79	65,200		Inferred	5,694,000	2.80	0.96	180,700

Figure 14.10: Grade-Tonnage Curves

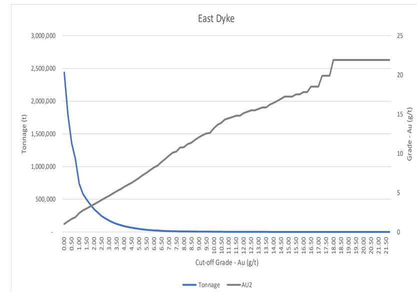
Big Bend



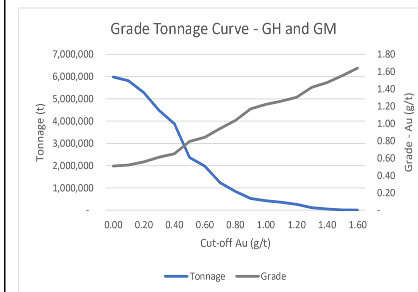
Double 19



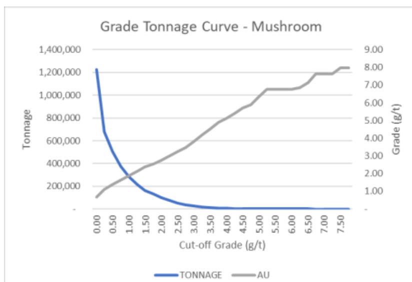
East Dyke



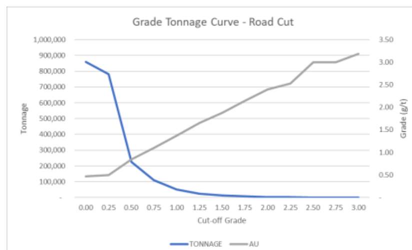
Gate House and Gold Mountain



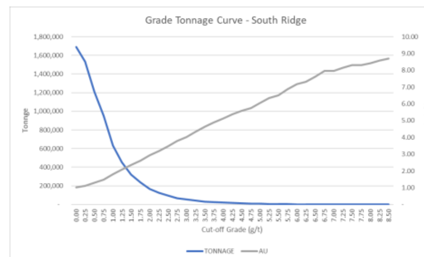
Mushroom



Road Cut



South Ridge



15 ADJACENT PROPERTIES

Although the Kibi area is blanketed by mining concessions, very little systematic exploration work for bedrock gold deposits has been conducted over the years in the Kibi Greenstone Belt. This reflects the fact that the Kibi area has traditionally been recognized as an alluvial gold district, and the surrounding concessions have been held since the mid-1980s to early 1990s specifically for their alluvial gold potential.

16 OTHER RELEVANT DATA AND INFORMATION

None.

17 INTERPRETATION AND CONCLUSIONS

The work undertaken has confirmed the presence of a number of targets (i.e. Big Bend, Double 19, East Dyke, Gate House, Gold Mountain, Mushroom, Road Cut and South Ridge) within the concession as well as providing a structural model that explains the paragenesis of the targets. The geological continuity has been demonstrated.

The structural information has been utilised in the mineral resource estimate completed. The reported mineral resource is presented in Table 17.1.

Table 17.1: Mineral Resource Declaration - September 2021

Declared in Terms of the CIM Standards
Cut-off: Au 0.5 g/t

Big Bend				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	6,472,000	2.78	1.48	307,400
M+I	**6,472,000**	**2.78**	**1.48**	**307,400**
Inferred	1,257,000	2.82	1.03	41,400
Double 19				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	1,584,000	2.62	1.38	70,400
M+I	**1,584,000**	**2.62**	**1.38**	**70,400**
Inferred	-	-	-	-
East Dyke				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	3,102,000	2.72	1.49	148,800
M+I	**3,102,000**	**2.72**	**1.49**	**148,800**
Inferred	1,128,000	2.84	1.19	43,300
Gate House and Gold Mountain				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	-	-	-	-
M+I	**-**	**-**	**-**	**-**
Inferred	2,366,000	2.76	0.79	65,200
Mushroom				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	505,000	2.64	1.37	22,300
M+I	**505,000**	**2.64**	**1.37**	**22,300**
Inferred	-	-	-	-

Road Cut				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	225,000	2.80	0.85	6,100
M+I	**225,000**	**2.80**	**0.85**	**6,100**
Inferred	-	-	-	-
South Ridge				
	Tonnage (t)	**Density (t/m3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	2,005,000	2.70	1.07	68,700
M+I	**2,005,000**	**2.70**	**1.07**	**68,700**
Inferred	943,000	2.82	1.02	30,800
Total				
	Tonnage (t)	**Density (t/m^3)**	**Grade – Au (g/t)**	**Au (oz)**
Measured	-	-	-	-
Indicated	13,893,000	2.73	1.40	623,700
M+I	**13,893,000**	**2.73**	**1.40**	**623,700**
Inferred	5,694,000	2.80	0.96	180,700

A substantial amount of work has been completed on the Cobra Creek prospect where various targets have also been identified.

18 RECOMMENDATIONS

Based on the results of the 2021 Mineral Resource Estimate (MRE) and exploration results on early-stage targets across the project area, Pivot and Tect recommend a two-phase exploration program to further advance the Kibi Gold Project.

Phase 1 is geared towards the further delineation of existing mineral resources and identification of additional resource bodies within the MRE footprint area, continued advancement of early-stage targets across the Kibi Gold Project, and property-scale target generation exploration work.

Phase 2, designed to support the continued advancement of the project, includes additional drilling to further define mineral resources, an updated mineral resource estimate, completion of a Preliminary Economic Assessment (PEA), metallurgical test work and collection of additional data to support future scoping studies. With the implementation of Phase 2 being contingent upon the success of Phase 1.

18.1 Phase 1 Exploration

The recommended Phase 1 work program is detailed below:

18.1.1 Mineral Resource Estimate Footprint Area Work Program

Additional resource body exploration drilling targeting the down-plunge extensions of the respective 3D litho-structural deposit models and/or the lateral extensions of the resource bodies, is essential, with drill hole design aimed at intersecting the dominant vein set geometries.

Continued exploration drilling of the early-stage JK East, Boomerang West and Boomerang East targets, with the positioning of these prospects along the same F1 fold hinge as the Double 19 deposit offering potential for resource growth.

Infill drilling to upgrade inferred resources to the indicated category criteria.

Systematic scout drilling along the F_1 fold hinges that are spatially-associated with the Zone 3 – Zone 4 gold-in-soil anomalies, to discover additional gold-prospective litho-structural settings that offer potential for resource growth. Scout drilling should initially focus on the fold hinge segment extending between the Double 19 resource body and the Boomerang East target.

Collection of more comprehensive/representative structural measurements utilizing the IQL-Logger structural logging laser-device from historical drill core, across relevant mineralization zones, to further determine geometries of dominant vein sets.

A comparative study on the locality and geometry of measured veins and gold grades, from which spatial and statistical relationships may be derived and related to the extent of gold mineralization.

Continued mechanical trenching to permit detailed geological structural mapping, establish litho-structural controls of early-stage mineralization zones to help guide drilling efforts, test priority gold-in-soil anomalies and ground-proof 3D geophysical and geological/structural modelling targets.

18.1.2 Property-Scale Work Program

Exploration drilling should initially focus on the Cobra Creek (Zone 5) auriferous shear system, with drill hole design aimed at intersecting the sub-horizontal, en-echelon, high-grade auriferous vein arrays and shallow-plunging stockwork "shoots". Drilling efforts should also include scout drilling that targets possible dilational zone-hosted gold mineralization along the sheared QFP body contacts.

Integrated 3D modelling of the Kibi Gold Project section of the 2011 regional airborne VTEM and aeromagnetic surveys (~ 500 line-km), including: joint resistivity and chargeability inversion of the VTEM data and inversion of the total magnetic intensity (TMI) data.

High-resolution 3D implicit geological and structural modelling to guide ground-proofing of geophysical interpretations and help define licence- to target-scale geological settings and structural geometries.

Continued scout trenching to test priority gold-in-soil anomalies and to ground-proof 3D geophysical and geological/structural modelling targets.

18.2 Cost Estimate

A cost estimate for the recommended two-phase work program is provided in Table 18.1 to serve as a guideline. The estimated drilling expenditures are based on all-inclusive drilling costs utilizing Xtra-Gold's in-house operated diamond core drill rigs. Total expenditures are estimated at USD 5,295,000, including: USD 3,570,000 for Phase 1; and USD 1,725,000 for Phase 2. With the implementation of Phase 2 being contingent upon the success of Phase 1.

Table 18.1: Cost Estimates for the Recommended Work Program	
PHASE 1: WORK PROGRAM	**BUDGET COST**
MRE Footprint Work Program	
Exploration / Conversion Drilling (35,000 m)	$2,275,000
Historical Core Structural Logging / Comparative Vein Study	$25,000
3D Litho-Structural Modelling	$30,000
Mechanical Trenching (2,500 m)	$100,000
Property-Scale Work Program	
Exploration Drilling (15,000 m)	$975,000
VTEM - MAG 3D Inversions / 3D Litho-Structural Modelling	$65,000
Scout Mechanical Trenching (2,500 m)	$100,000
Phase 1 subtotal	$3,570,000
PHASE 2: Work Program	**BUDGET COST**
Exploration Drilling (15,000 m)	$975,000
MRE Update & PEA	$250,000
Metallurgical Test Work	$150,000
Topographical Survey (LIDAR)	$125,000
Environmental Baseline Study	$150,000
Community and Stakeholder Engagement	$75,0000
Phase 2 subtotal	$1,725,000
TOTAL (Phase 1 & Phase 2)	USD $5,295,000

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Appendix A

Authors Certificate

Authors Certificate Ken Lomberg (Director Geology and Resources)

As the Lead Qualified Person and Complier of the report entitled "**Xtra-Gold Resources Corporation Kibi Gold Project"** with an effective date of 30 September 2021, I hereby state:

1. My name is Kenneth Graham Lomberg and I am the Director (Geology and Resources) for Pivot Mining Consultants (Pty) Ltd, Lower Ground Floor, Island House, Constantia Office Park, Corner 14th Avenue and Hendrik Potgieter Road, Weltevreden park, 1709, Roodepoort, South Africa.
2. I am a practicing geologist and a registered with the South African Council for Natural Professionals.
3. I have a B.Sc. (Hons) (Geology), B.Com. (Economics and Statistics) and an M.Eng. (Mining Engineering). I have been 36 years mining industry experience (especially in platinum and gold). I have practiced my profession continuously since 1985.
4. I have over 5 years of relevant experience, having completed Mineral Resource estimations on various gold properties hosting Magmatic orogenic-style mineralization. I have the relevant experience of the type of deposit and of the resource estimation that is the subject of this report.
5. I have performed consulting work on various projects. These assignments have ranged from listings documents, CPRs, ITRs, feasibility studies, NI43-101 compliant resource estimations and valuations.
6. I am a 'Qualified Person' that term is defined in and for the purposes of the National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the Instrument).
7. I have visited the Kibi Project for personal inspection on 29 November to 5 December 2020.
8. I have prepared all sections of this report and am responsible for the Report and the Mineral Resource declaration.
9. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission of which would make the Report misleading.
10. I declare that this Report appropriately reflects the Qualified Person's/author's view.
11. I do not have nor do I expect to receive a direct or indirect interest in the Mineral Properties of Xtra-Gold Resources Corporation, and I do not beneficially own, directly or indirectly, any securities of Xtra-Gold Resources Corporation or any associate or affiliate of such company.
12. I am independent of Xtra-Gold Resources Corporation.
13. I have read the Instrument and Form 43-101F1 (the Form) and the Report has been prepared in compliance with the Instrument and the Form.
14. At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at Johannesburg and 16 November 2021.

Ken G Lomberg

Mr Kenneth Lomberg Director (Geology and Resources)

Authors Certificate Corné Koegelenberg (Principal Geoscientist)

As the Lead Qualified Person and Complier of the report entitled "**Xtra-Gold Resources Corporation Kibi Gold Project"** with an effective date of 30 September 2021, I hereby state:

1. My name is Corné Koegelenberg and I am the Principal Geoscientist for Tect Geological Consulting (CC), Unit 3, Metrohm House, 20 Gardner Williams Avenue, Paardevlei, Somerset West, 7130, Western Cape, South Africa.
2. I am a practicing geologist and am registered with the South African Council for Natural Professionals (SACNASP – 114569).
3. I have a B.Sc. (Hons) (Applied Geology), M.Sc. (Economic Geology) and Ph.D. (Structural Geology and Tectonics). I have been 9 years mining industry experience (especially in gold, copper, iron, PGE). I have practiced my profession continuously since 2012.
4. I have over 8 years of relevant experience, having completed structural investigations and the construction of 3D geological models on various gold properties hosting either magmatic or orogenic style mineralization. I have the relevant experience of the type of deposit, its structural setting(s) and best-practise 3D modelling methodologies that are the subject of this report.
5. I have performed consulting work on various projects. These assignments have ranged from structural investigations to 3D geological modelling for exploration, mining resource management and geotechnical engineering, and NI43-101 compliant resource estimations and valuations.
6. I am a 'Qualified Person' as defined in and for the purposes of the National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the Instrument).
7. I have visited the Kibi Project for personal inspection on 29 November to 10 December 2020.
8. I prepared 1, 2, 7, 17 and 18 sections of this report and am responsible for the Report. I am responsible for the Geology (Lithology, Structure, Mineralization) and 3D Deposit Modelling.
9. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission of which would make the Report misleading.
10. I declare that this Report appropriately reflects the Qualified Person's/author's view.
11. I do not have nor do I expect to receive a direct or indirect interest in the Mineral Properties of Xtra-Gold Resources Corporation, and I do not beneficially own, directly or indirectly, any securities of Xtra-Gold Resources Corporation or any associate or affiliate of such company.
12. I have read the Instrument and Form 43-101F1 (the Form) and the Report has been prepared in compliance with the Instrument and the Form.
13. At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at Somerset West on 16 November 2021.

Dr Corné Koegelenberg Principal Geoscientist (Structural and Economic Geology)

Authors Certificate Ian Basson (Principal Geoscientist)

As the Qualified Person and Complier of the report entitled "**Xtra-Gold Resources Corporation Kibi Gold Project"** with an effective date of 30 September 2021, I hereby state:

1. My name is Ian James Basson and I am the Principal Geoscientist for Tect Geological Consulting (CC), Unit 3, Metrohm House, 20 Gardner Williams Avenue, Paardevlei, Somerset West, 7130, Western Cape, South Africa.
2. I am a practicing geologist and a registered with the South African Council for Natural Professionals (SACNASP – 400006/04).
3. I have a B.Sc. (Hons) (Geology and Applied Geology) and Ph.D. (Structural Geology). I have 23 years mining industry experience (especially in gold, copper, iron and PGE). I have practiced my profession continuously since 1997.
4. I have over 22 years of relevant experience, having completed structural investigations and the construction of 3D geological models on various gold properties hosting either magmatic, orogenic, greenstone or Birimian-style mineralization. I have the relevant experience of the type of deposit, its structural setting(s) and best-practise 3D modelling methodologies that are the subject of this report.
5. I have performed consulting work on various projects. These assignments have ranged from listings documents, structural investigations and 3D geological modelling for exploration, mining resource management and geotechnical engineering, and NI43-101 compliant resource estimations and valuations.
6. I am a 'Qualified Person' as defined in and for the purposes of the National Instrument 43-101 (Standards of Disclosure for Mineral Projects) (the Instrument).
7. I have not visited the Kibi Project for personal inspection.
8. I prepared Sections 1, 2, 7, 17 and 18 of this report .I am responsible for reviewing the Geology (Lithology, Structure, Mineralization) and 3D Deposit Modelling.
9. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission of which would make the Report misleading.
10. I declare that this Report appropriately reflects the Qualified Person's/author's view.
11. I do not have nor do I expect to receive a direct or indirect interest in the Mineral Properties of Xtra-Gold Resources Corporation, and I do not beneficially own, directly or indirectly, any securities of Xtra-Gold Resources Corporation or any associate or affiliate of such company.
12. I have read the Instrument and Form 43-101F1 (the "Form) and the Report has been prepared in compliance with the Instrument and the Form.
13. At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Dated at Somerset West 16 November 2021.

Dr Ian James Basson Principal Geoscientist (Structural and Economic Geology)