

**Byumba, Rusizi and Nyamugali Projects, Rwanda**  
(Latitude 1° 35.0' S, Longitude 30° 4.0' E)  
(Latitude 2° 34.8' S, Longitude 29° 2.6' E)  
(Latitude 1° 34.0' S, Longitude 29° 50.0' E)

**Independent Technical Report on Gold  
Exploration and Mineral Resources**

Prepared by Coffey Mining Pty Ltd on behalf of:

**TransAfrika Belgique SA**

Effective Date: 30 August 2011

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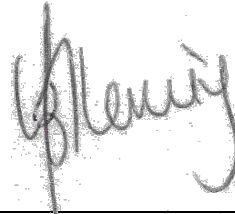
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**The Reader is advised to read the Reliance on Other Experts (Section 3) of this document**



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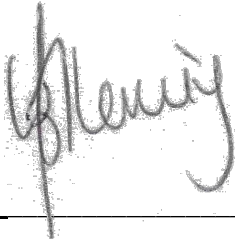
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## **1 SUMMARY**

### **1.1 Introduction**

Coffey Mining (SA) (Pty) Ltd (Coffey Mining) was requested by TransAfrika Belgique SA (TransAfrika) to compile an Independent Technical Report (ITR) on their Rwanda gold exploration permits held by TransAfrika Rwanda Ltd, a wholly owned subsidiary. The shares of TransAfrika are being sold by TransAfrika Resources Cyprus Ltd, the parent company to Desert Gold Ventures Inc., a Toronto Stock Exchange (TSX) – Venture listed company.

Under the terms of the agreement, Desert Gold will acquire all of the issued and outstanding shares of TransAfrika in exchange for an aggregate of 20,000,000 common shares of Desert Gold. In addition, Desert Gold will be required to issue a further 12,000,000 common shares, in the event that within a two year period Desert Gold publishes a NI 43-101 compliant resource estimation disclosing that the mineral properties located in Rwanda, Mali and Senegal contain an additional 1,000,000 ounces of gold.

This report is compliant with the requirements of the Canadian National Instrument 43-101 (NI43-101), its Companion Policy (National Instrument 43-101CP) and Reporting Template (National Instrument 43-101F1).

The Standards under which the ITR is drafted are the South African Code for Reporting of Mineral Resources and Mineral Reserves (SAMREC). Mineral Resources have been reconciled to the mineral resource categories set out under the Canadian Institute of Mining (CIM) Definition Standards and the report is presented in compliance with NI43-101.

The report covers exploration work to date on two gold exploration permits which cover three project areas, Byumba, Rusizi and Nyamugali in the Republic of Rwanda. In addition to regular technical visits, the original regional exploration program leading to the discovery of the Byumba deposit and first phase of diamond drilling was managed by Coffey Mining in 2007 and 2008.

### **1.2 Location**

The Byumba Project is located in the Gicumbi district in the Northern Province of the Republic of Rwanda. The Rusizi Project is located in the Rusizi district in the Southern Province of the country, adjacent to the Burundi border. The Nyamugali Project is located in the Rulindo district, also in the Northern Province of the Rwanda, approximately 10km west of Byumba.

### **1.3 Ownership**

TransAfrika, through its wholly owned subsidiary TransAfrika Rwanda Gold SARL has acquired 100% ownership of two Exploration Permits over the two main gold domains in Rwanda. These include permit No 107/16.03/05 issued on 13 November 2007 covering 90,119ha (Byumba) and 7,044ha (Rusizi), and permit No 0040/16.03/05 issued on 1



September 2008 covering 14,754ha (Nyamugali) and 684ha (Rusizi Extension). The exploration permits are valid for a period of four years from the date of issue and are renewable without reduction for an additional four years.

#### **1.4 Property History and Current Status**

The area has been explored on an irregular basis for its mineral potential since the early 1900's. The bulk of the recorded work was completed by various Belgian companies, the Belgian Geological Survey and the United Nations Development Program between the 1930's and 1980's around the Nyungwe forest in the south east and Miyove in the north.

A grass roots exploration program was started in 2007 by TransAfrika in the Byumba and Rusizi areas. Several artisanal alluvial sites were identified using helicopter and ground reconnaissance over the permit areas. These areas were prioritized based on size of workings, geology and accessibility. Thereafter soil sampling identified a 3.5km long northeast trending gold anomaly in the Rubaya prospect of the Byumba Project in the north. A diamond drilling program, comprising 33 drillholes for 5,183m was carried out between July 2008 and August 2009.

The Rusizi Project has been subject to small alluvial workings for gold by artisanal miners but there has been no known exploration for commercial deposits. Soil sampling has been carried out on the Rusizi Project. No coherent gold-in-soil anomaly was identified.

An aerial reconnaissance survey was undertaken across the Nyamugali Project area. Several artisanal workings were identified, and their locations were photographed and recorded. A follow-up ground inspection and traversing was conducted but no detailed field work has been done.

#### **1.5 Geology and Mineralization**

All permit areas fall within the Central African Kibaran Orogen. Where gold deposits have been described within the belt the nature of gold mineralization has been found to be highly variable between deposits. Two areas which host gold have been identified in Rwanda and all permit areas lie within these two gold domains.

Metasediments of the Rwandan Supergroup underlie the permit areas. Various sedimentary units have been recorded including metaquartzites, sandstones, siltstones and sericite ± muscovite ± graphite ± chlorite ± biotite schists. The sediments are folded and faulted along the dominant north northwest-south southeast trend. The folds are open to locally tight and upright with the surface topography tending to follow the structural grain of the folded sediments, with more arenaceous units forming ridges. The bulk of the Byumba deposit is hosted within a monotonous sequence of finely bedded to laminated shale, siltstone and fine grained sandstone.

Mineralization at Byumba is confined to steeply dipping 1m to 8m wide zones separated by 3m to 15m of poorly mineralized material. Mineralization is hosted by sandstone layers with quartz-sericite-pyrite (QSP) alteration mineral assemblage indicative of fluid movement through the more porous and permeable sandstone. The most intense alteration is observed in fold closures and on fold limbs close to fold closures.

It would appear that QSP alteration and gold mineralization took place during the single phase of folding. Zones of higher grade gold mineralization are parallel or nearly parallel to bedding.

## **1.6 Mineral Resource Estimate**

The drillhole data used in the mineral resource estimate included collars, downhole surveys, geology and assays, and consisted of 33 drillholes. A series of grade shell wireframes were constructed using a 0.5g/t Au cutoff which generated 14 grade shells varying in strike length between 100 and 1,160m and down dip extents to 200m, often open at depth.

Mineral resources reported in Table 1.6\_1 were estimated according to SAMREC guidelines. Gold grades were determined using inverse distance weighting squared into a 3D block model confined within 0.5g/t grade shells. Primary block dimensions are 100m along the strike, 2m across the strike and 5m vertically. A 0.5g/t Au cut-off was used with no high-grade value capping. An outlier analysis was done and it was found that capping the data affected the mean grade by less than 1% and that the high grade samples in question contributed less than 3% towards the relative contained metal in the samples.

Values for Au (g/t), recovery (%) and length (m) were estimated. An average in situ bulk density was applied after estimation for oxide, transition and fresh zones. The resource categorization has been based on the robustness of the various data sources available and confidence in the geological interpretation. The mineral resource is classified as Inferred mainly as a result of the lack of confidence in the geological interpretation.

The Mineral Resource is reported exclusive of geological loss. The Competent Person responsible for the mineral resource estimation and classification is Janine Fleming of Coffey Mining. Janine Fleming is registered professional natural scientists (Pr.Sci.Nat.) with the South African Council for Natural Scientific Professionals (SACNASP) and a Competent Person” as defined in the 2007 edition of the SAMREC Code. She is also a “Qualified Person” as that term is defined in Canadian National Instrument 43-101.

Table 1.6_1 Byumba Project Inferred Mineral Resource Estimate January 2010				
Weathering Zone	Tonnage (Kt)	Au (g/t)	Bulk Density	Au ounces
Oxide	701	1.22	2.35	27,000
Transition	2,606	1.38	2.55	115,000
Fresh	2,245	1.69	2.75	122,000
<b>Total</b>	<b>5,551</b>	<b>1.48</b>	<b>2.61</b>	<b>265,000</b>

## 1.7 Conclusions

The TransAfrika properties currently represent early stage exploration targets in a very under explored and poorly understood geological terrain. As such the planned exploration activities are inherently high risk and the mineralization models speculative in nature.

The areas are considered prospective for low to moderate grade gold deposits suitable for open-pit and underground mining with the first phase of grass roots exploration successfully highlighting a previously unknown, mineralized system at Byumba. The Rubaya deposit is open down dip and along strike and has yet to be fully delineated. Besides the Rubaya target on the Byumba permit, the targets investigated to date show the potential for gold mineralization but have not been fully explored and there are numerous untouched prospective areas with only a very small portion of the permits having been investigated.

## 1.8 Recommendations

The priority is to undertake additional infill and extension drilling at Byumba to fully delineate the mineralization and to increase the mineral resource estimate. If the results from this exercise are promising a Scoping Study should be undertaken. A budget of USD3.2M is estimated to be adequate for the required exploration program (Table 1.8\_1).

Table 1.8_1 Byumba, Nyamugali and Rusizi Project Estimated Exploration Budget. (USD '000s)	
Item	Total
Drilling	\$1,929
Logistics and equipment	\$239
Consulting and salaries	\$430
Laboratories	\$227
Kigali and Johannesburg Office	\$375
Contingency	\$200
<b>TOTAL</b>	<b>\$3.200</b>



Coffey Mining considers the exploration rationale to be appropriate for this stage of the projects. Additional funding may be required at a later stage.

## 2 INTRODUCTION

### 2.1 Scope of Work

Coffey Mining (SA) (Pty) Ltd (Coffey Mining) was requested by TransAfrika Belgique SA (TransAfrika) to compile an Independent Technical Report (ITR) on their Rwanda gold exploration permits held by TransAfrika Rwanda Ltd, a wholly owned subsidiary. The shares of TransAfrika are being sold by TransAfrika Resources Cyprus Ltd, the parent company to Desert Gold Ventures Inc., a Toronto Stock Exchange (TSX) – Venture listed company.

Under the terms of the agreement, Desert Gold will acquire all of the issued and outstanding shares of TransAfrika in exchange for an aggregate of 20,000,000 common shares of Desert Gold. In addition, Desert Gold will be required to issue a further 12,000,000 common shares, in the event that within a two year period Desert Gold publishes a NI 43-101 compliant resource estimation disclosing that the mineral properties located in Rwanda, Mali and Senegal contain an additional 1,000,000 ounces of gold.

This report is compliant with the requirements of the Canadian National Instrument 43-101 (NI43-101), its Companion Policy (National Instrument 43-101CP) and Reporting Template (National Instrument 43-101F1).

The Standards under which the ITR is drafted are the South African Code for Reporting of Mineral Resources and Mineral Reserves (SAMREC). Mineral Resources have been reconciled to the mineral resource categories set out under the Canadian Institute of Mining (CIM) Definition Standards and the report is presented in compliance with NI43-101.

The effective date of the report is 30 August 2011.

The Rwandan exploration properties consist of three areas termed the Byumba, Rusizi and the Nyamugali Projects. These areas are covered by two exploration permits, held by TransAfrika Rwanda Gold SARL. Gold is the targeted commodity for all three exploration projects.

Exploration on the three projects has consisted of aerial reconnaissance surveys, stream sediment sampling, soil sampling, geological mapping, grab sampling, pitting, induced polarisation (IP) and ground geophysical surveys and diamond drilling. The Rubaya prospect in the Byumba exploration project has had the most detailed exploration to date with two coherent gold-in-soil anomalies delineated. These targets were followed up with an IP survey and diamond drilling. Broad zones of low-grade gold mineralization, with sporadic high gold values over shorter lengths, have been intersected in most of the drillholes. A SAMREC compliant gold mineral resource estimate was carried out on the Byumba Project in January 2010 (Fleming and McKinney, 2010).

Coffey Mining is an independent technical consulting group, with no direct or indirect interests in TransAfrika Belgique. The exploration program and resource estimate has been managed

and completed by Coffey Mining from its Southern African office in Johannesburg, making use of assistance from the technical experts listed in Section 2.2.

All units are metric, unless otherwise stated i.e. tonnes are reported as metric tonnes.

## 2.2 Participants

The Coffey Mining personnel involved in the ITR including the resource estimation of the Byumba Project, along with their principal areas of responsibility, are listed below:-

**Mark McKinney, Coffey Mining Associate Consultant Geologist– Southern Africa:**

(Pr.Sci.Nat, BSc (Hons) Geology)

Project management, site visits, database development and validation, geological modelling, and report preparation.

**Janine Fleming, Coffey Mining Senior Resource Consultant – Southern Africa:**

(Pr.Sci.Nat, B.Sc. (Hons) Geology, MGSSA)

Statistical analyses, variography, block model development, grade estimation, resource classification and report preparation.

**Kathleen Body, Coffey Mining Principal Consultant – Resources – Southern Africa:**

(Pr.Sci.Nat, BSc (Geology))

Reporting and Peer Review.

Mark McKinney, Janine Fleming and Kathleen Body are all registered professional natural scientists (Pr.Sci.Nat.) with the South African Council for Natural Scientific Professionals (SACNASP) and are “Competent Persons” as defined in the 2007 edition of the SAMREC Code. They are also “Qualified Persons” as that term is defined in Canadian National Instrument 43-101.

Neither Coffey Mining, nor the key personnel nominated for the work, has any material interest in TransAfrika, its subsidiaries or their mineral properties. The work, and any other work done by Coffey Mining for TransAfrika, is strictly in return for professional fees. Payment for the work is not in any way dependent on the outcome of the work or on the success or otherwise of TransAfrika’s own business dealings. As such, there is no conflict of interest in Coffey Mining undertaking the ITR as contained in this document.

## 2.3 Data Acquired

The data and information made available to Coffey Mining to compile this ITR is summarized as follows:-

- A variety of maps in the public domain detailing the regional geology, topography and geography.
- A report compiled by the United Nations on regional exploration completed in the 1980's in and near the exploration permit areas.
- Details of mineral rights holdings.
- A legal opinion provided by Advocate Anita Mugeni, Kigali, describing TransAfrika's legal rights and entitlements to prospect for gold and other metals on the areas where exploration permits are held.
- Photographs and geographic coordinates of artisanal workings on and near the properties acquired during site visits and field work.
- Details and results of soil sampling, trenching, mapping, geophysics and other field work.
- Electronic drillhole, channel, trench and geochemical database.
- Structural investigations and geological reports.
- The documents relied on for the report are referred to in Section 20 of the report.

## 2.4 Site and Technical Visits

Site visits were undertaken by Mr Mark McKinney in August and November 2007 and on a regular basis during the exploration drilling in 2008, when the project was being managed by Coffey Mining. Since the last visit, 11 (eleven) diamond drillholes were drilled at Byumba. Coffey Mining undertook the QA/QC on all the laboratory data and estimated a mineral resource.

The intention of the initial site visits was to identify the properties, understand the location, physiography and local infrastructure and establish the nature of the exploration to be undertaken. Initial site visits comprised four days of inspection of the properties by helicopter and several excursions onto the ground on foot. In addition, alluvial workings within the permit areas were overflown, photographed and their position recorded with a hand held global positioning system (GPS).

In November 2007, Coffey Mining established a field exploration team based in Kigali to commence exploration of the permit areas. Subsequent site visits have involved management of the teams, reviews of field work conducted and planning of future field work.

### **3 RELIANCE ON OTHER EXPERTS**

Coffey Mining has based Section 4.2 of this report on a legal opinion commissioned by TransAfrika of Advocate Anita Mugeni and data supplied by TransAfrika. Coffey Mining has endeavoured, by making all reasonable enquiries, to confirm the authenticity and completeness of the third party technical data upon which this report is based. A final draft of this report was provided to TransAfrika, along with a written request to identify any material errors or omissions.

Neither Coffey Mining nor the authors of this report are qualified to provide extensive comment on the legal aspects associated with ownership and other rights pertaining to TransAfrika mineral tenements. Similarly, neither Coffey Mining nor the authors of this report are qualified to provide comment on any environmental issues associated with TransAfrika.

## 4 PROPERTY DESCRIPTION AND LOCATION

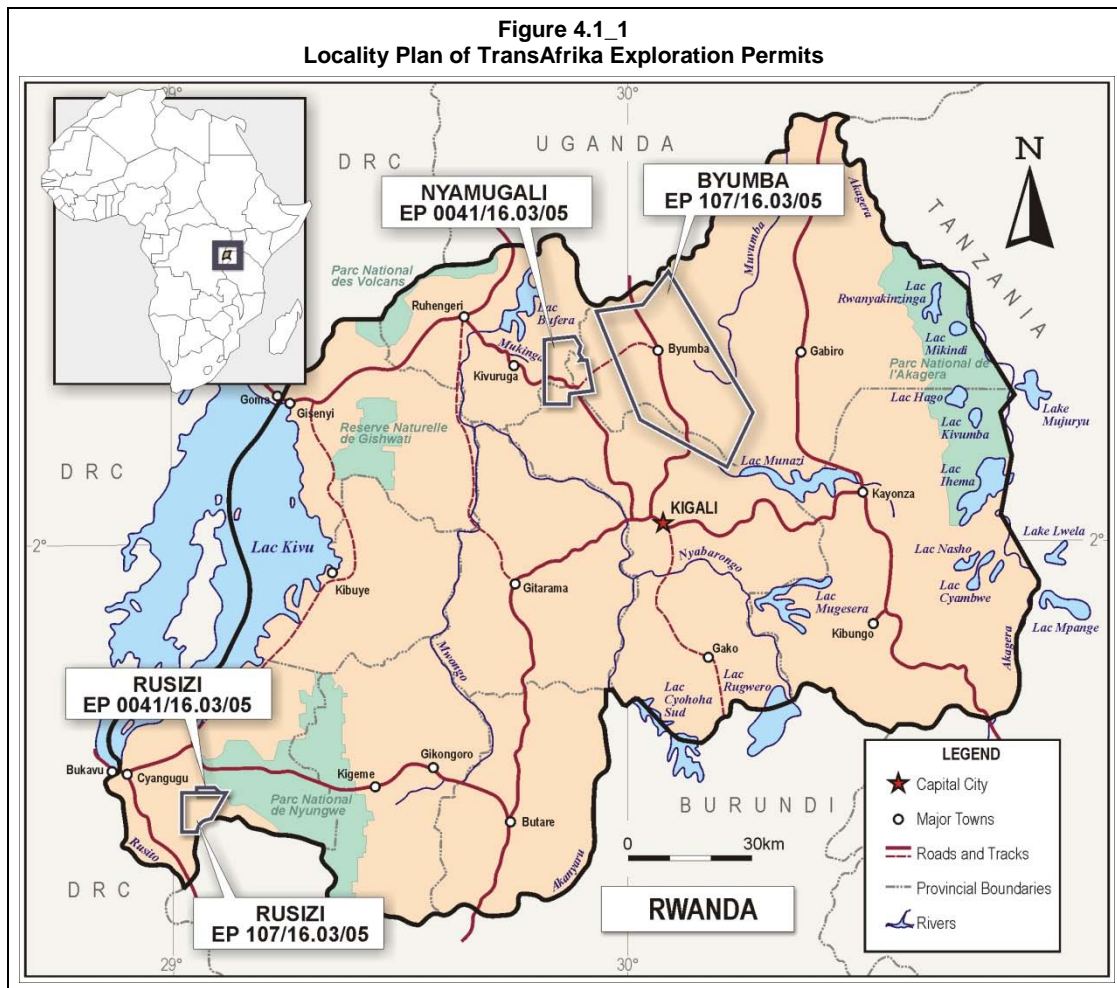
The location of all known mineralized zones and mineral resources are discussed in detail in Sections 10 and 17.

### 4.1 Location and Access

The two exploration permits cover three areas of Rwanda. The Byumba Project is located in the Gicumbi district, approximately 30km to the north of Kigali, and runs north to the Ugandan border, centred around the town of Byumba (Latitude 1° 35.0'S, Longitude 30° 4.0' E) (Figure 4.1\_1). The Rusizi Project is located in the Rusizi district, 150km southwest of Kigali, adjacent to the Burundi border (Latitude 2° 34.8' S, Longitude 29° 2.6' E). (Figure 4.1\_1). The third area is the Nyamugali Project in the Rulindo district, approximately 10km west of Byumba (Latitude 1° 34.0' S, Longitude 29° 50.0' E) (Figure 4.1\_1).

The property boundaries are located by co-ordinates given on the relevant annexure provided with each Exploitation Permit. There is no requirement on TransAfrika to physically beacon the boundaries.

The areas are densely populated, with subsistence farming and minor commercial agricultural activities covering most of the available land. Rwanda has a good network of all weather roads and an international airport making access to exploration sites relatively easy.



## 4.2 Mineral and Surface Rights

The mineral rights holdings are based on a review of data provided by TransAfrika and a legal opinion commissioned of Advocate Anita Mugeni of Kigali.

TransAfrika, through its wholly owned subsidiary TransAfrika Rwanda Gold SARL, has acquired two exploration permits in Rwanda issued in terms of the law of 27 April 1971 modifying the Mining Code of 30 January 1967, but at present being regulated by the new law No 37/2008 of 11/08/2008 on mining and quarry exploitation. This includes the exploration permit with ministerial order No 107/16.03/05 issued on 13 November 2007 (Figure 4.1\_1) which covers both the Byumba and the southern portion of the Rusizi Project areas, and exploration permit with ministerial order No 0041/16.03/05 issued on 1 September 2008 which covers the Nyamugali and the northern portion of the Rusizi Project areas. Both permits are issued for gold, are valid for 4 years, and cover a total area of some 114,500ha.

Rwanda adopted a new Mining Policy in 2009. Rwanda's Law on Mining and Quarry Exploitation (Law No. 37/2008) governs prospecting, search, exploitation, purchase,

stocking, handling, transport and commercialization of transferable substances other than hydrocarbon and including quarry products (GOR Mining Law 2008a). The Law Establishing Rwanda Geology and Mines Authority (OGMR) and Determining its Responsibilities, Organization and Functioning (2007) establishes and guides the Rwandan Geology and Mines Authority (GOR OGMR Law 2007a).

Mineral substances are regarded as the property of all Rwandans, but the state retains the power to manage that property, with the objective of furthering the social and economic development of the nation. The Mining Law recognizes the following mining rights:

1. **Prospecting licenses** are available for periods up to two years and are limited to areas of 1000 square kilometers.
2. **Research licenses** are available for up to 4-year periods, with one renewal. Research licenses are granted for areas up to 2 square kilometers and are transferrable. At the end of the research license period, the licensee must provide the state with a report regarding the findings of the research.
3. **Small mine exploitation licenses** are available for renewable 5-year periods. The license is limited to an area of 2 square kilometers and depth of 40 meters. Small mine exploitation licenses may be transferred.
4. **Vast mining concessions** are available for 30-year, renewable periods. The concession area is subject to a minimum size of 100 hectares and maximum size of 400 hectares.
5. **Quarry exploitation licenses** are available for renewable 5-year terms for areas up to one hectare

All licenses require environmental statements. No mining operations can be initiated on public land unless the state authorizes expropriation and payment of fair compensation. Mining operations can enter into leases with landholders for the use of land for mining operations. According to the Organic Land Law, while the state owns minerals, landowners have first priority for exploitation if they apply for a permit to extract them (GOR Mining Law 2008; Rwanda Organic Land Law 2005). All products gained from mining are the property of the licensee upon payment of a tax.

The TransAfrika exploration permits are treated as research licences which confer on TransAfrika the exclusive right to explore. Such a licence has a defined area and but no limit on depth and for a specific substances.

The requirements for an applicant for research licence shall include:

- a) be a holder of a prospecting licence;
- b) presenting a prospecting report;
- c) justifying the applicant's technical and financial ability;



- d) present a document on the complete study of the environmental impact and a program of environmental protection.

In terms of mining rights in Rwanda, the duration of a research licence is 4 years and can only be renewed once for another 4 years. There is no obligation for the permit holder to relinquish part of the area attributed under each permit. Activities must start within 2 months of the date of the permit. TransAfrika fulfilled this requirement by commencing with exploration activities in the required time.

A progress report (Interim Report) must be submitted after 2 years of exploration. TransAfrika have submitted the progress report for both permits after 2 years of exploration. There is also the obligation to provide an evaluation report of reserves and feasibility study after 4 years. This report is currently due by November 2011. The licence may be renewed once for another period of four (4) years, when the licensee is able to account for the execution of the work defined in the work plan.

An application for renewal of a research licence must be submitted at least two (2) months before the expiry date of its validity period. If two (2) months lapse after lodgement of the application and no reply has been given, the application shall be deemed accepted. Therefore it may be considered that the exploration may be carried on during the renewal process unless specifically prohibited by the Mining authorities.

Requirements attached to these permits are given in Table 4.2\_1. No yearly fees are payable on the exploration permits.

The bulk of the surface area within the permit areas is covered by subsistence agriculture. This includes fields of vegetables, cassava and banana in a complex mosaic of hereditary land holdings of local villagers. Numerous small homesteads occur throughout the area. Surface rights are not held by individual title deed but rather by historical claim on tribal and state land.

There are no known legal proceedings that may have an influence on the rights to prospect or mine for minerals on the exploration permits. There are no known royalty agreements, back-in rights, payments or other agreements and encumbrances to which the property is subject. There is no stipulation in the Rwandan mining legislation for mandatory state participation. TransAfrika holds a 100% interest in all the exploration permits.

Table 4.2_1				
Byumba, Nyamugali and Rusizi Project				
Summary of TransAfrika Exploration Permits in Rwanda				
Exploration Permit	Area (ha)	Exploration Permit Requirements	Holder	Expiry Date
Ministerial order No 107/16.03/05	92,400 (Byumba)	Holder of the exploration permit is required to:- (i) Provide supporting documentation in respect of the action plan, environmental protection plan and investment plan. (ii) Proceed to exploration within three months. (iii) Provide progress reports on research after 2 years.  In addition there are specific requirements for the prevention of environmental degradation that must be adhered to. A deposit of US\$0.75 million has been paid to the Ministry of Mines against environmental rehabilitation.	TransAfrika Rwanda Gold SARL	12-Nov-11 Renewable for another term of 4 years with no reduction in area.
	6,994 (Rusizi)			31-Aug-12 Renewable for another term of 4 years with no reduction in area.
No 0041/16.03/05	14,570 (Nyamugali)			
	556.5 (Rusizi)			

### 4.3 Royalties and Agreements

Coffey Mining is not aware of any royalties, back-in rights, payments or other encumbrances that could prevent TransAfrika from carrying out its plans or the trading of its rights to its license holdings in Rwanda.

### 4.4 Environmental Liabilities

In April 2010, TransAfrika Rwanda Gold SARL submitted an Environmental Management Plan in respect of both gold permit areas, which was approved by the competent Rwandan authorities in June 2010.

In addition, an Environmental Deposit of USD753,855 has been lodged with the Rwandan government against completion of environmental rehabilitation of any ground disturbance. The deposit is refundable upon completion of environmental rehabilitation.

## **5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

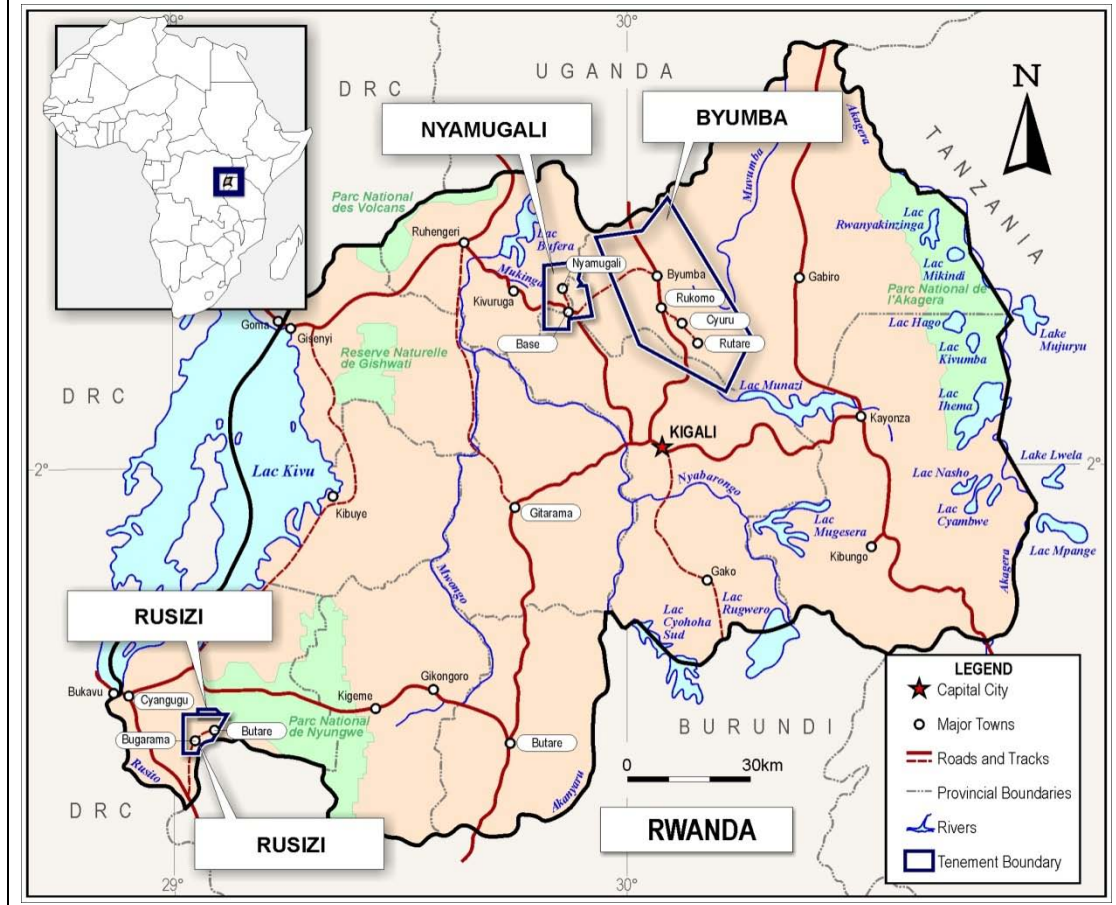
### **5.1 Access**

The Byumba Project can be accessed by a sealed road from Kigali to Rukomo and then via a gravel road from Rukomo through Cyuru to Rutare, which is just to the south of the drilled area (Figure 5.1\_1). Roads and footpaths make accessibility within the concession relatively easy; however access within the drilled area is limited due to the steep topography. During 2008 drill rigs were moved by helicopter and hand-carried to sites prepared using manual labour and in 2009 all drill rig moves were undertaken using manual labour. A supply depot was established on the ridge above the drill area and materials moved to the rigs from there. Accommodation and core yard facilities have been established in Byumba town some 21km to the northwest by road.

The Rusizi Project can be accessed by a sealed road from Kigali, through Gitarama and Butare to Cyangugu in the west, then to Bugarama in the south, and then via a gravel road from Bugarama to Butare sector. Alternatively, one can fly from Kigali to Kamembe (Cyangugu) in the west, and continue by road to Bugarama and then to the project area in the Butare sector. A network of footpaths and trails afford access to most parts of the permit. Field accommodation was established in Bugarama; about 45 minutes drive from the main project area.

The Nyamugali Project can be accessed by a sealed road from Kigali to Base in the Rulindo district, and then via a gravel road to Nyamugali. A network of gravel road and footpaths afford access to most parts of the permit area.

**Figure 5.1.1**  
**Road Access Map to Project Areas**



## 5.2 Climate

Rwanda has a temperate climate, mild and humid, with an average temperature of 20°C in Kigali. Temperatures range from a minimum of 10°C to a maximum of 34°C, largely dependent on altitude. There are four discernable seasons:-

- The long rains from mid-March to mid-May.
- The long dry from mid-May to September.
- The short rains from October to mid-December.
- The short dry from mid-December to mid-March.

Rwanda has an average annual rainfall of 960mm. The dry seasons remain cloudy, with only June to September consistently having less than 100mm of rain per month.

Field operations are not interrupted by the climate.

### 5.3 Local Resources & Infrastructure

Electricity is available in larger towns and cities, but not readily available in the smaller towns and villages. The power supply is fairly reliable but most operations have a generator backup for periods when the national grid is down. Some of the big towns within the permit areas possess some basic amenities such as hospitals, hotels and guesthouses, restaurants, gasoline stations and numerous small shops.

There is no mining infrastructure in any of the permit areas and basic earth moving equipment can only be sourced from the capital city of Kigali. Rwanda has a mining industry largely centred around small scale extraction of wolfram and coltan. Basic mining equipment and mining personnel are available in Kigali.

TransAfrika does not currently hold any surface rights. Any ground required for mining operations, potential tailings storage areas, potential waste disposal areas, heap leach pad areas and potential processing plant sites would require the purchase or long term lease from the Rwandan Government.

## 5.4 Physiography

The topography on all of the properties is hilly, with flat marshy ground in some of the valleys (Figures 5.4\_1 to 5.4\_6). The elevation of Rwanda ranges from approximately 1,300m above mean sea level (amsl) in the eastern marshes to 4,500m amsl on the Karisimbi volcano in the northern Virunga Mountains. The bulk of the country within the permits falls between 1,500m and 2,200m amsl. Rwanda has four rivers serving as natural boundaries over much of its borders with its neighbours Uganda, Burundi and Tanzania, and part of its boundary with the Democratic Republic of Congo (DRC). Three major internal rivers divide the country running roughly north south. Drainage to the north is towards Lake Edward and then the Nile River, to the south is towards Lakes Kivu and Tanganyika and then the Congo River. Shallow marshy lakes are common in the east, and part of the boundary with the DRC is over Lake Kivu to the west.

Most of the land surface is given over to subsistence farming, with terraced hillsides and levelled valleys in the northern Byumba and Nyamugali Project areas (Figures 5.4\_4 and 5.4\_6). Commercial agriculture is located in the river valleys and some of the hillsides and is largely confined to tea plantations. In the southern Rusizi Project area farming is of the subsistence type with slash and burn clearing still used (Figure 5.4\_5). Thick forest cover is found in the Nyungwe National Park, forming the northern boundary of the southern permit.

The mineralized zone defined and drilled on the Byumba Project area to date lies along the northeastern side of a steep northwest trending valley (Figures 5.4\_1 and 5.4\_4). Elevation ranges from some 1,650m amsl in the valley floor to 2,075m amsl on the top of the ridge. Hill slope angles vary from some 15° to 30° with a median around 20°. The Rubaya and Rwandogo streams drain the valley from the southeast and northwest respectively, converging in the centre of the project to form the Gisuma stream which drains to the southwest. The streams flow for the bulk of the year. Below the mineralized zone the valley has been extensively worked for alluvial gold by artisanal miners.



Figure 5.4\_1  
Topocadastral Map Showing the Locality of the Byumba Project

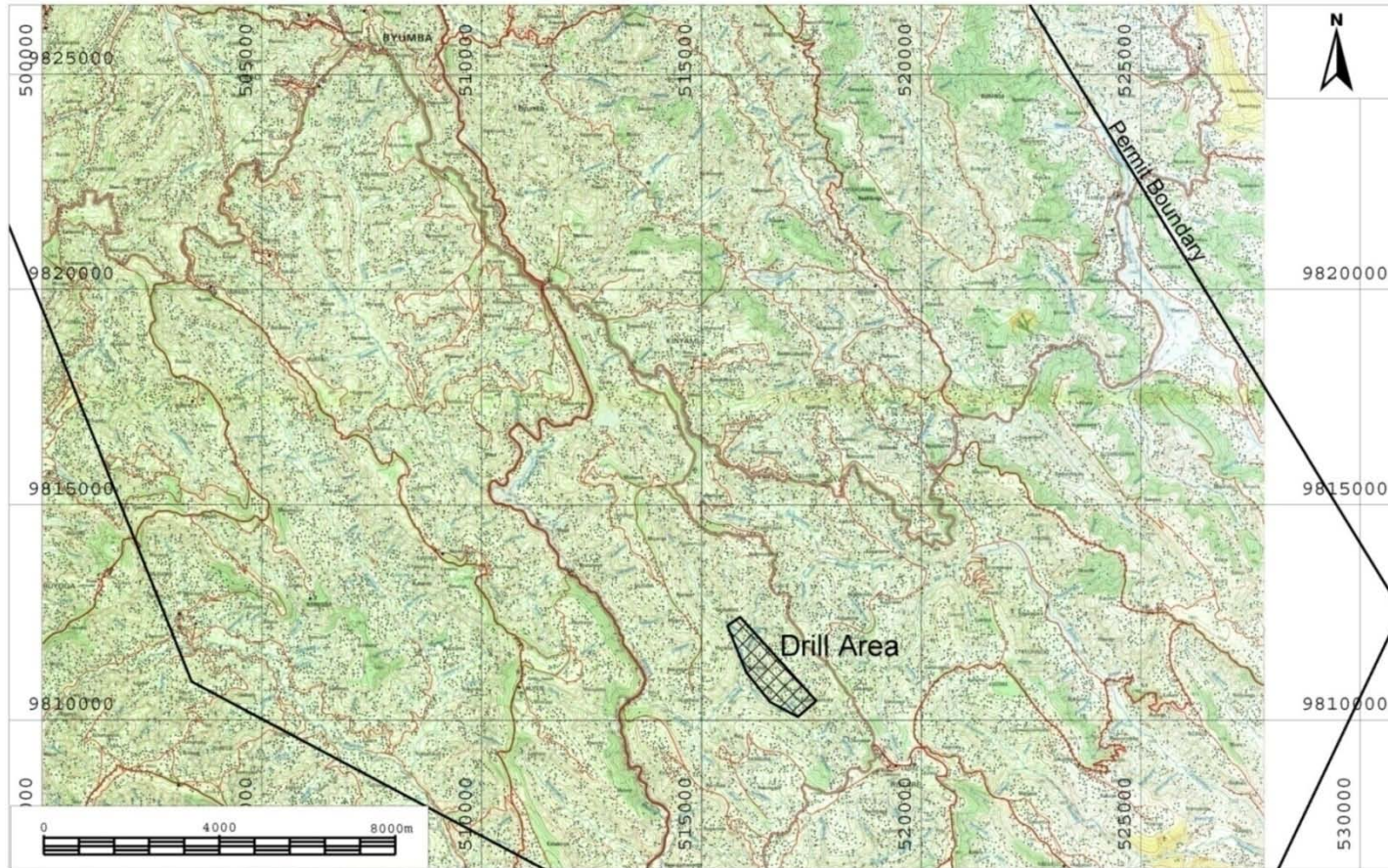




Figure 5.4 2  
Topocadastral Map Showing the Locality of the Nyamugali Project

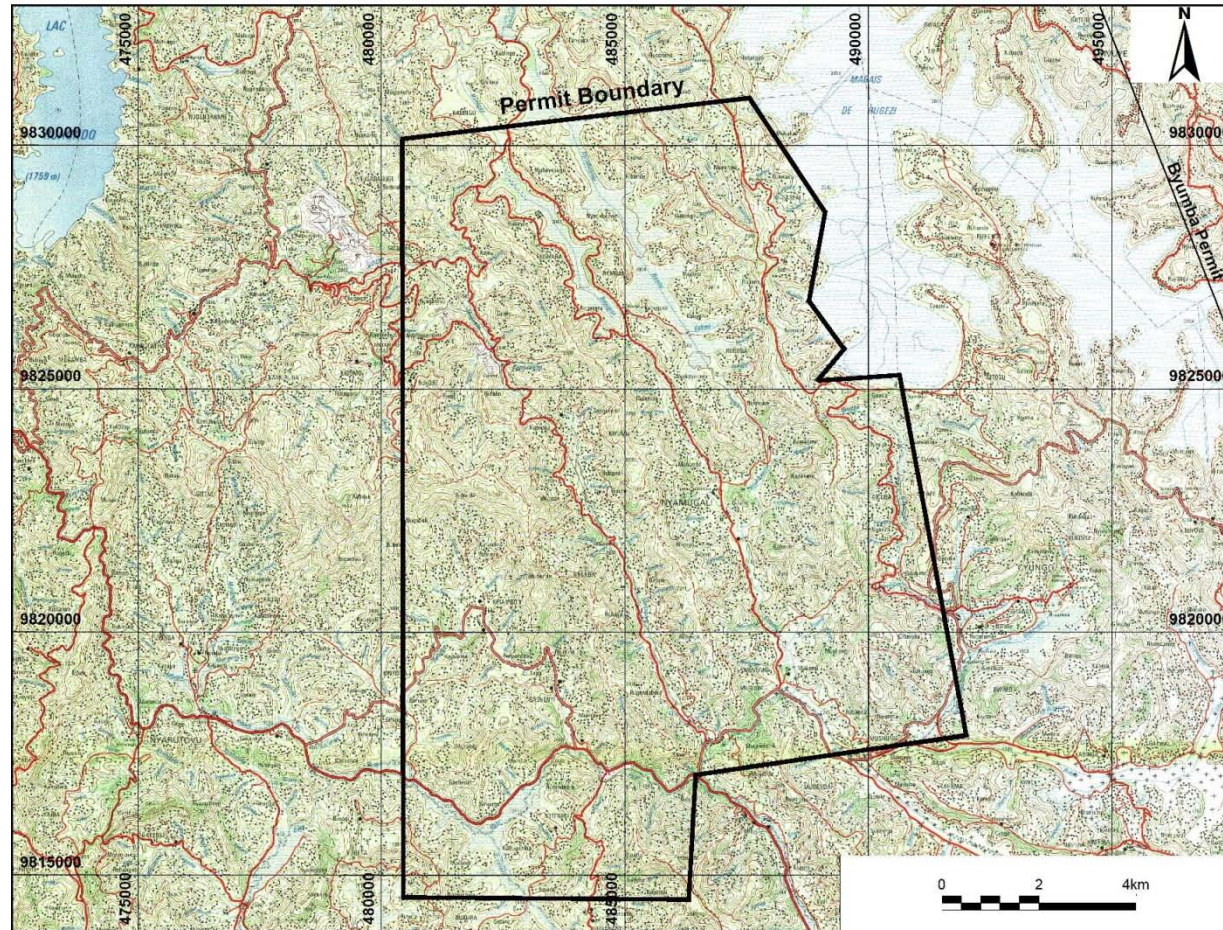
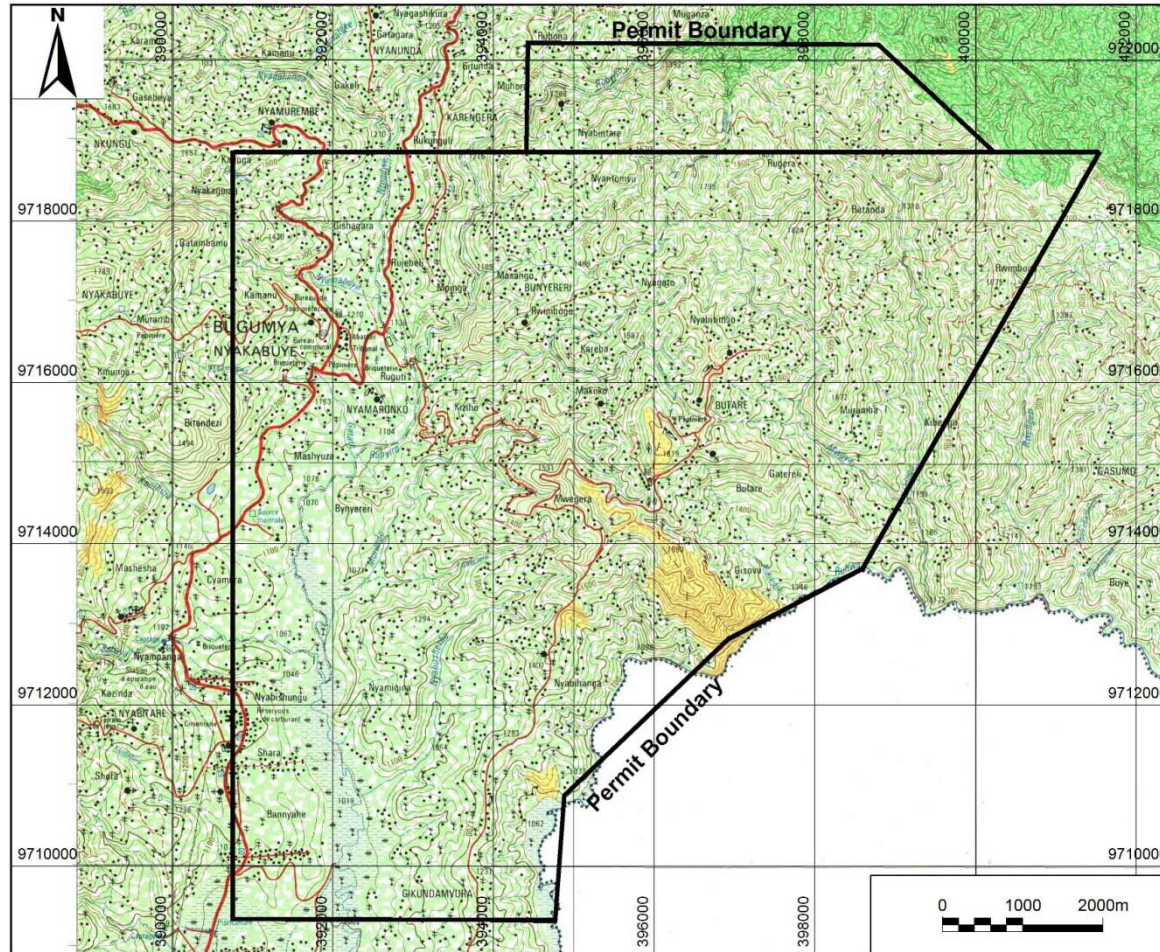




Figure 5.4 3  
Topocadastral Map Showing the Locality of the Rusizi Project



**Figure 5.4\_4**  
**Photograph Looking Northwest Down the Rubaya Valley, in the Byumba Project**



**Figure 5.4\_5**  
**Physiography of the Southern Rusizi Project**





**Figure 5.4. 6**  
**Physiography of the Northern Nyamugali Project**



## 6 HISTORY

The three areas under exploration permits have all been subject to small alluvial workings for gold by artisanal miners. There is no record of systematic gold exploration over any of the exploration permits or work by private companies prior to TransAfrika commencing exploration in 2007. What is known of the geology and mineral occurrences has been discovered and described during regional surveys conducted by governmental and non-governmental organisations, such as the Belgian Geological Survey and the United Nations Development Program around the Nyungwe forest (north of the Rusizi Project) and Miyove area (between the Nyamugali and Byumba projects).

Gold was first discovered in Rwanda in the late 1930s by Societe des Mine d'Etain du Rwanda-Urundi. Their work comprised the exploration, evaluation and exploitation of the alluvial gold mineralization, and locating the source of the alluvial and in situ gold in the region. Significant alluvial and in situ gold (quartz-gold vein) were found during the exercise, and it is estimated that up to four tons of gold was mined in the Miyove region, in the river valleys and some quarries of up to 60m deep, between 1935 and 1959.

### 6.1 Byumba Project

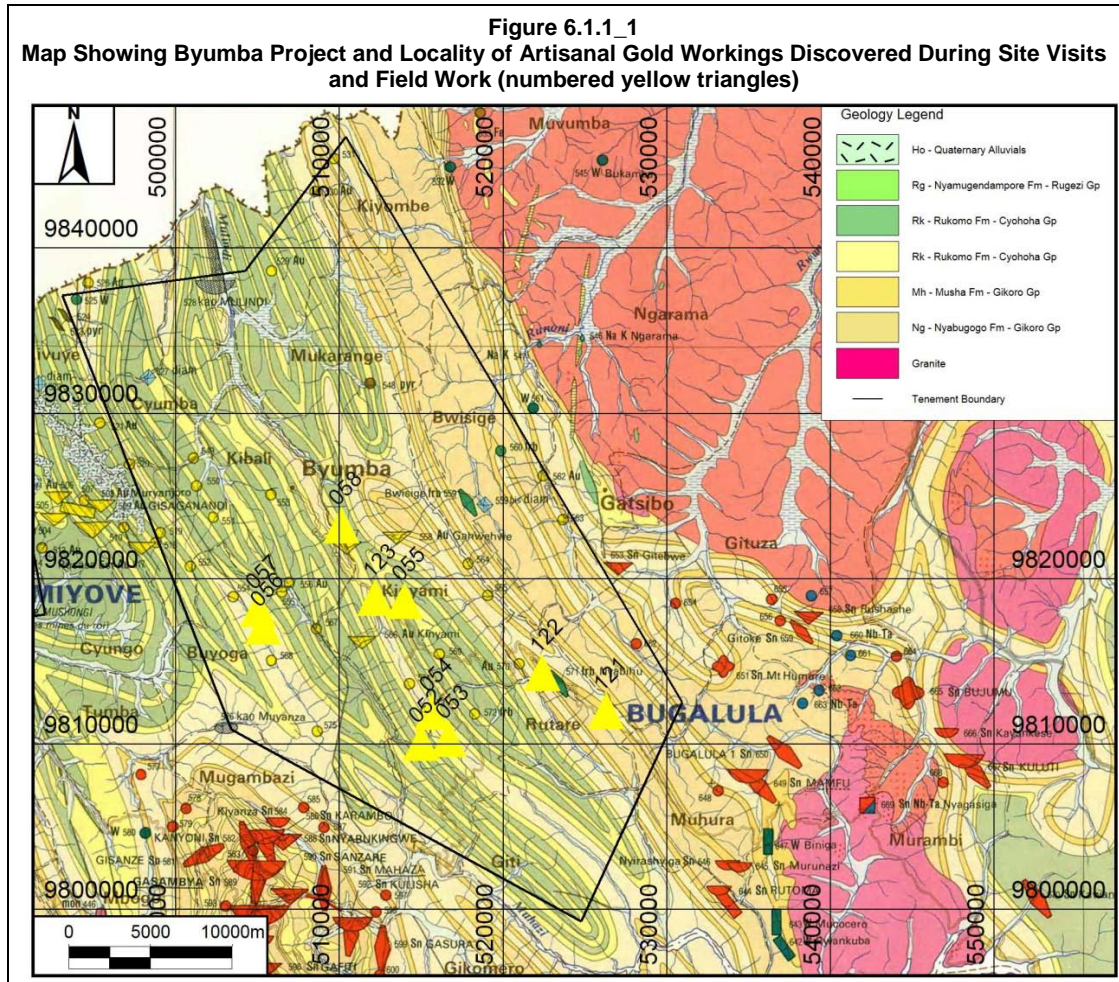
There are no known previous exploration campaigns to have targeted the Byumba Project area for commercial deposits of gold. Only one set of data from a 1987 report on work sponsored by the United Nations Development Program reports sampling of gold occurrences within Rwanda. One set of veins near Miyove, to the west of the permit, was identified as having significant mineralization. This is being evaluated by Cyprus based Rogi Mining.

#### 6.1.1 Artisanal Workings

Gold in alluvial workings is considered to be sourced from in-situ gold mineralization within the catchment area of the streams hosting the alluvials. Since 1900, a number of world class gold deposits were found in West and East Africa in areas of artisanal mining activities.

Numerous reconnaissance flights and ground visits have been undertaken on the Byumba Project. These have lead to frequent identification of current and historical artisanal alluvial workings (Figure 6.1.1\_1). As the permit area was not extensively covered, it is likely that additional workings exist. The workings vary in size from small pits in alluvial gravels (Figure 6.1.1\_2 and Figure 6.1.1\_3) to sections of stream that have been worked for several kilometres with fairly extensive hand pitting operations to strip overburden from underlying gravels (Figure 6.1.1\_4). The methods employed in gold extraction are primitive in the extreme, largely revolving around puddling out fines from very immature fluvial conglomerates and then panning the fines (Figure 6.1.1\_2). No gravity concentration, corduroy tables, mercury amalgamation, etc. has been observed on any of the operations. Pan tails observed to date show generally fine gold with a few grains in the region of 0.5mm, but the bulk of the material below 0.1mm.

Alluvial workings discovered on the Byumba Project fall into six discrete drainages (Figure 6.1.1\_1) with at least three of the groupings lying along a north northwest-south southeast structural trend. Drainage analysis indicates that the sources for all of these alluvial workings must lie within the permit area.





**Figure 6.1.1\_2**  
**Photographs of Artisanal Gold Panners, Byumba, Localities 57 and 54**





**Figure 6.1.1\_3**  
**Alluvial Workings, Byumba, Locality 53**



The underlying black material is a clay derived from graphitic schist below the alluvial gravels.



**Figure 6.1.1\_4**  
**Alluvial Workings, Grey, in Stream, and Large Pit, Byumba, Locality 54 (the pit is stripping overburden from paleo gravels and has been active for over a year)**





## 6.2 Rusizi Project

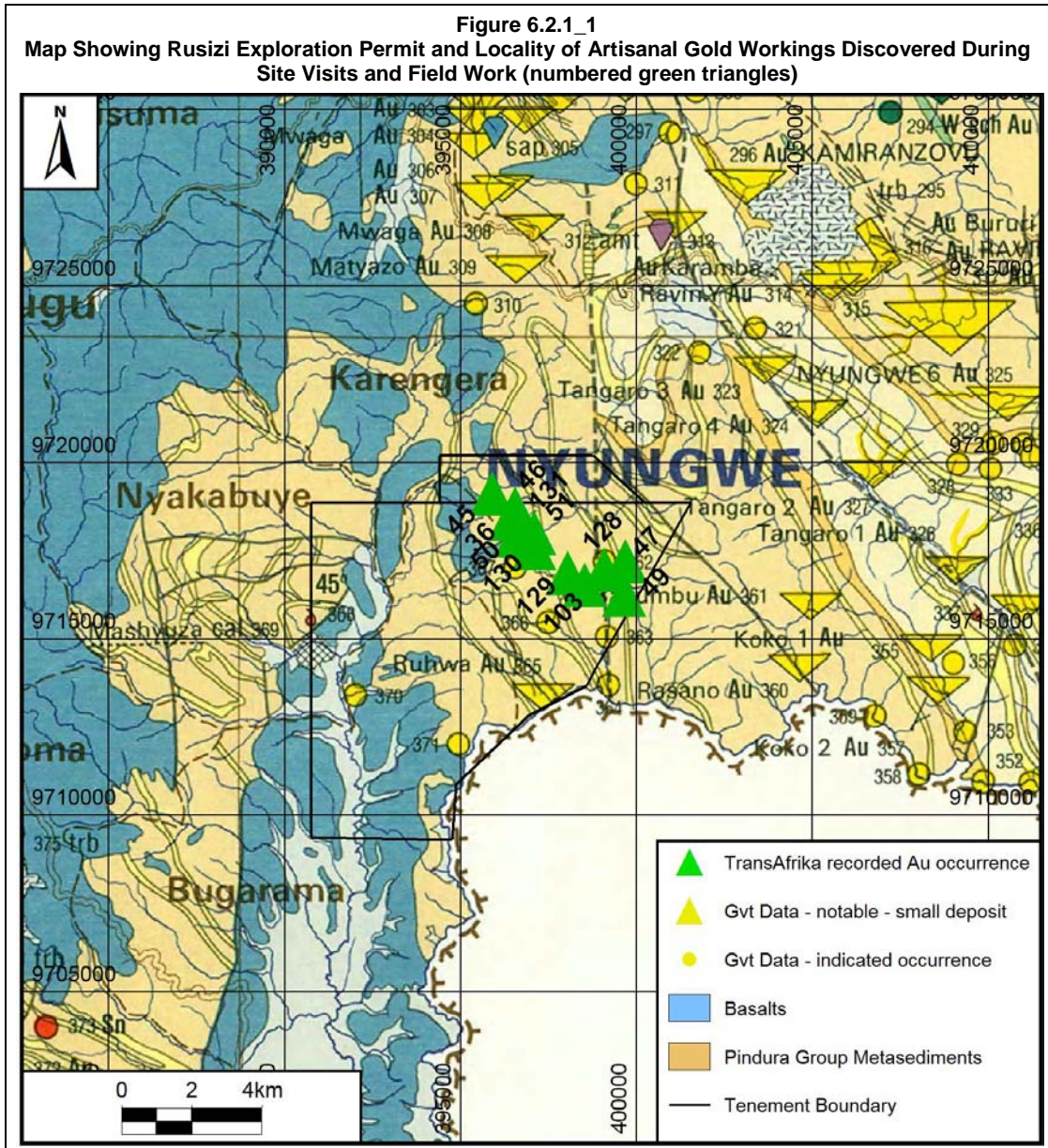
The Rusizi Project has been subject to small alluvial workings for gold by artisanal miners. There has been no known exploration for commercial deposits on this property. What is known of the geology and mineral occurrences has been discovered and described during regional surveys conducted by governmental and non-governmental organisations, such as the Belgian Geological Survey and the United Nations Development Program.

### 6.2.1 Artisanal Workings

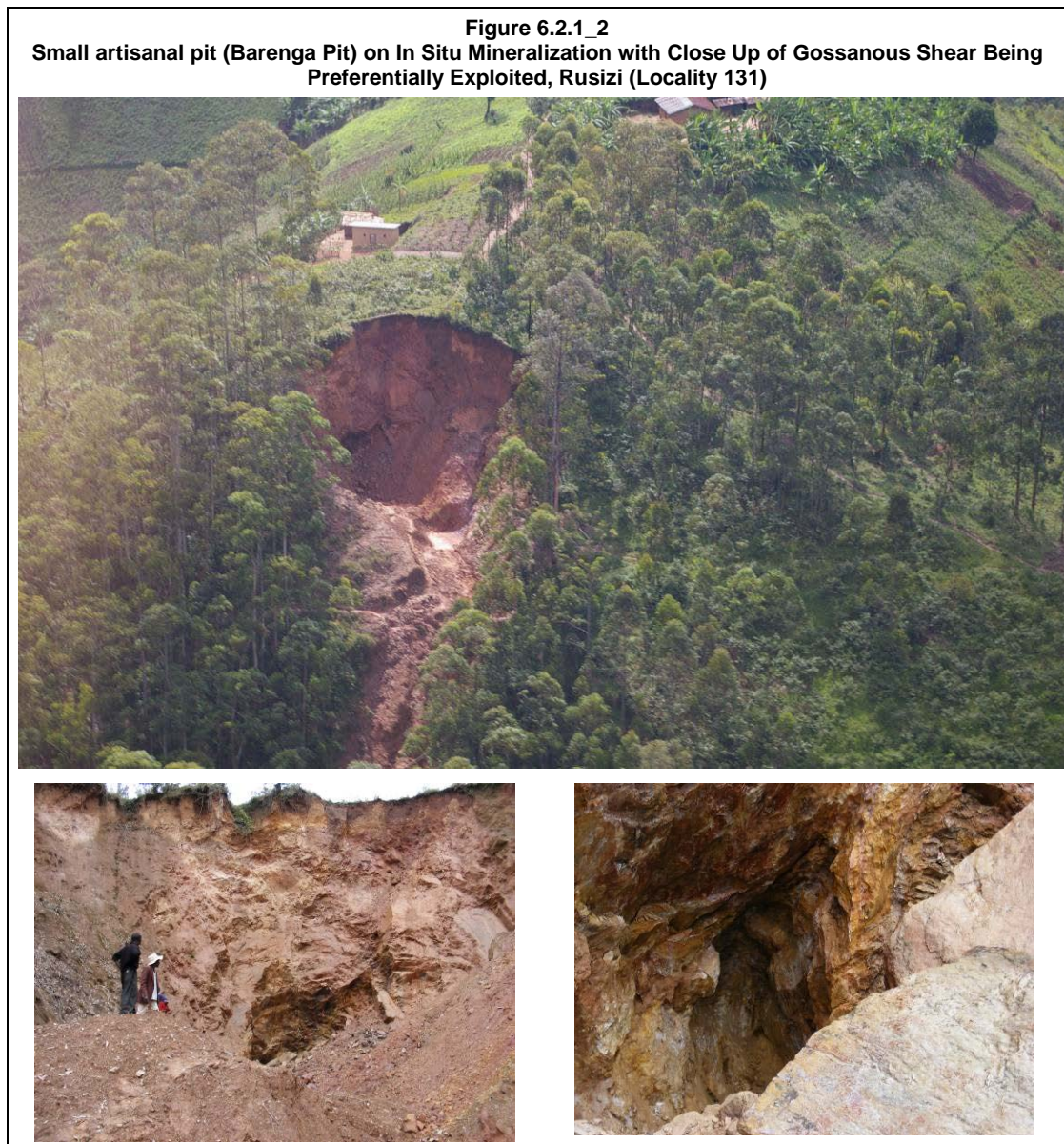
Similarly to the Byumba Project, a number of reconnaissance flights and ground visits were undertaken on the Rusizi Project prior to the commencement of field work. These surveys led to the identification of current and historical artisanal alluvial gold workings (Figure 6.2.1\_1). The workings vary in size from small pits in alluvial gravels (Figure 6.2.1\_2) to sections of stream that have been worked for several kilometres with fairly extensive hand pitting operations to strip overburden from underlying gravels (Figure 6.2.1\_2). Pan tails observed to date show generally fine gold with a few grains in the region of 0.5mm, but the bulk of the material below 0.1mm.

The workings are confined to the northeast of the permit area (Figure 6.2.1\_2) and along the Ruhwa River which forms the southern border with Burundi. Drainage analysis indicates two to three primary sources for the alluvials in the northeast of the project. Aerial reconnaissance shows a primary source for the workings along the Ruhwa River to be further east and outside of the exploration permit.

One in situ gold occurrence has been exposed in a small artisanal pit (Figure 6.2.1\_2, Locality 131) on the crest of a ridge, called the Barenga Pit. This was reportedly worked by the local community until recently, when ongoing collapse started to threaten local farm land. Mineralization appears confined to a sub-vertical shear several metres wide hosting numerous irregular grey quartz stringers in gossanous quartz-sericite schist. There is abundant iron staining and remnants of fine cubic boxworks after pyrite. Alluvial workings in the river below extend to the toe of the ridge below the pit indicating a proximal relationship between in situ and alluvial mineralization.







### 6.3 Nyamugali Project

As with the other projects, there are no known exploration campaigns to have targeted the project area for commercial deposits of gold. Most of the known exploration work done in the region took place in the Miyove area approximately 3km east of the property, where significant quantities of alluvial and in situ gold have been discovered and exploited by various groups in the colonial era. The most recent work began in 2004 by Rogi Mining, a Cyprus-based mining company on their property in Miyove. They are currently evaluating a set of mineralized quartz veins intersected during a trenching and pitting program.

### 6.3.1 Artisanal Workings

To locate artisanal gold workings on the permit an aerial survey was carried out. All artisanal gold workings were photographed and their positions recorded using a GPS. The workings here vary in size from small pits in alluvial gravels to sections of stream that have been worked for several of kilometres with fairly extensive hand pitting operations to strip overburden from underlying gravels. The main workings are confined to the central portion of the concession area along the 4km stretch of the Mugobore River within the project area. The river follows the regional northwest – southeast trend. Other workings can be found along the Nyamagane River along the eastern boundary of the property and the Busanane River in the west near the Base centre.

## 6.4 Current Status

In 2007 Coffey Mining was commissioned by TransAfrika to design, manage and implement a grass roots exploration program over their Rwanda projects. Work commenced in August 2007 with helicopter and ground reconnaissance to identify artisanal alluvial sites over both the Byumba and Rusizi Projects. The Rubaya area in the Byumba Project was identified as a priority target with active artisanal alluvial gold workings along the Rubaya, Rwandogo and Gisuma streams (Figure 6.4\_4) indicating primary mineralization within a defined catchment of some 16km<sup>2</sup>.

In the Byumba Project the catchment area soils were sampled at a line spacing of 200m with 50m sample intervals along lines oriented 034° (Rubaya valley) and 060° (Rwandogo valley). Samples were analysed at ALS Chemex, Johannesburg, (a South African National Accreditation System (SANAS) certified Laboratory) for gold. This sampling identified a 3.5km long northeast trending anomaly. Infill soil sampling was then undertaken at 25m intervals along 50m spaced lines yielding two coherent anomalies along the trend. Diamond drilling commenced on these anomalies in July 2008.

Work in the Rusizi Project commenced with an aerial survey to identify current and historic artisanal workings. From this work targets were identified and soil sampling work carried out.

Work on the Nyamugali Project to date has consisted of an aerial reconnaissance survey only with no follow up ground inspection. No samples have been collected at this point.

## 7 GEOLOGICAL SETTING AND MINERALISATION

### 7.1 Regional Geology

The Project areas fall within the Central African Kibaran Orogen, which extends from Katanga, DRC, in the south, to southern Uganda in the north. It forms a large metallogenic province, containing numerous granite-related ore deposits rich in minerals such as cassiterite ( $\text{SnO}_2$ ), columbite-tantalite (also called coltan),  $((\text{Nb,Ta})_2\text{O}_5)$ , wolframite  $((\text{Fe, Mn})\text{WO}_4)$ , beryl ( $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$ ), spodumene ( $\text{LiAlSi}_2\text{O}_3$ ), amblygonite ( $\text{LiAlFPO}_4$ ), monazite  $((\text{Ce, La, Y, Th})\text{PO}_4)$  and gold (Au). These minerals occur as primary mineralization in quartz veins and pegmatites, but also as secondary mineralization in alluvial or eluvial deposits (Figure 7.1\_1). Most of Rwanda is considered to be part of the cassiterite (tin) domain, but there are two areas which host gold. All permits are within these areas.

In contrast to similar geological domains in the DRC, the geology of Rwanda is relatively well known and the country has been fully mapped on a regional scale. The stratigraphic units themselves have been mapped over wide areas, as the lack of dense vegetation due to intense farming makes outcrops more common than in the DRC. Precambrian units often consist of very similar lithologies that have been affected by various tectonic phases, making it difficult to recognise the different units in the field farther to the west. However, the strata in Rwanda have identifiable markers that can be used to separate the various groups.

The Proterozoic (Burundian/Kibaran) metasediments in Rwanda which cover the permit areas form part of the Rwandan Supergroup, with five Group subdivisions (Table 7.1\_1).

Major structural features in the area are:-

- The recent largely north-south faulting related to the East African Rift.
- A series of major open north northwest-south southeast trending upright folds.
- A series of north northwest-south southeast trending faults sub parallel to the main fold direction.
- Granites associated with tin, tungsten and niobium mineralization.



Figure 7.1.1 Regional Metallogenic Setting of the South Kivu Area DRC, Rwanda and Burundi

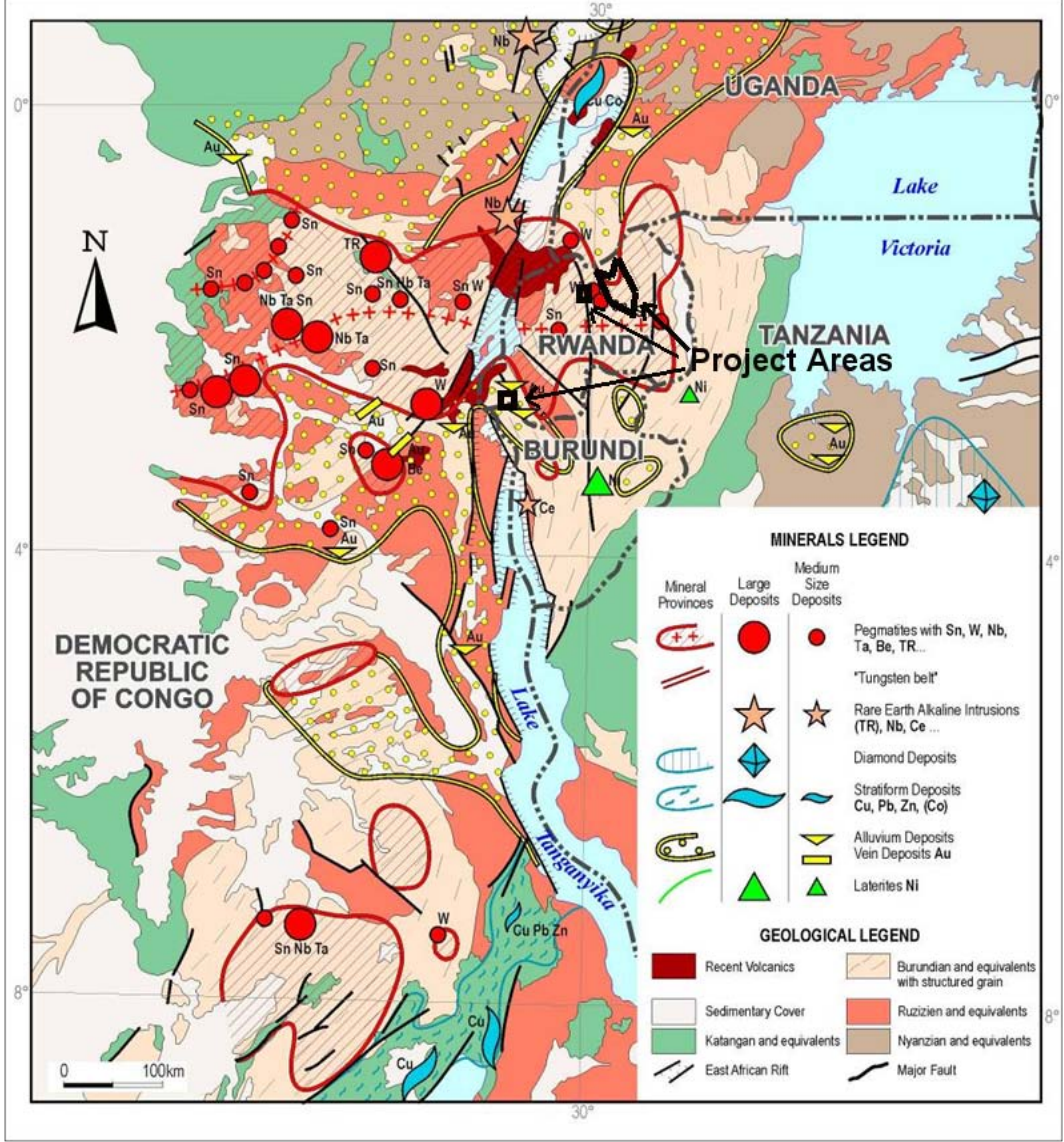


Table 7.1_1 Byumba, Nyamugali and Rusizi Project Proterozoic Rwandan Supergroup Stratigraphy after Hannon and Rusanganwa (1991)			
	Cyohoha Group	Rukomo Formation	Fine grained sandstone to conglomerate and interbedded schist. Bedding with a thickness of tens of centimetres to metres.
		Sakinyaga Formation	Bleached quartzites with green laminations, light to dark grey quartzophyllites and gravel conglomerates.
		Nyabidahe Formation	Quartzophyllites with dark bands and wavy and lenticular bedding.
	Pindura Group	Rukira Formation	Grey or black schist, laminated to banded, alternating with fine sandstone and schist. Includes >100m thick graphitic schist and minor vulcanosedimentary units.
		D'Uwinka Formation	Quartzophyllites with black, green and dark to light grey bands.
		Bulimbi Formation	Pelitic sediments, varying between homogeneous graphitic (pyritic) schist to dark grey schist with acid volcano-sedimentary interlayers.
		Kibuye Formation	Quartzophyllite alternating between dark to light grey.
	Gikoro Group	Gitwe Formation	Assemblage of quartzites and sandstones, minor gravels <1cm, white grey to dark grey.
		Bwisige Formation	Quartzites, argillaceous sandstones and conglomerates, alternating banded siltstone, schist and fine grained sandstone.
		Nyungwe Formation	Alternating decimetre to metre scale red quartzites and black quartzophyllites or phyllites.
		Musha Formation	Pelitic sediments, alternating banded grey schist and beige sandstone.
		Nyabugogo Formation	Banded fine to very coarse grained quartzites, banded grey schist and beige siltstone.
		Kaduha Formation	Alternating decimetre scale brown to red quartzites and dark grey phyllite.
		<b>Note:</b> Formations in <b>black</b> are found in the Byumba / Nyamugali project areas. Formations in <b>blue</b> are the equivalent formations found in the Rusizi Project area.	

The main structural deformation phase of the Kibaran Belt occurred around 1,300Ma with the Kibaran Orogeny. This was characterized by syntectonic granitic intrusion into upright folds, a characteristic structural feature of the belt. The next phase, around 1,275Ma, was dominated by the formation of rifts and half-grabens under tensional settings. The Lomamian Orogeny followed at around 950Ma and was characterised by numerous tin bearing granite intrusions, as well as faulting and folding cross cutting the structures formed in the Kibaran Orogeny. This period also saw shortening across the Kibaran Belt by as much as 50%. The final phase of deformation was the breakup of Gondwanaland in the Pan African Orogeny, terminating about 600Ma with the formation of the Rift Valley.

## 7.2 Mineralisation

In situ bedrock mineralization discovered to date is limited to the Byumba deposit. Gold mineralization has been defined over a strike length of some 1,160m and some 200m down dip. Mineralization is confined to steeply dipping 1m to 8m wide zones separated by 3m to 15m of un-mineralized material.

The deposit is hosted within a monotonous sequence of finely bedded to laminated shale, siltstone and fine grained sandstone of the Bulimbi Formation. The shale may, locally, be graphitic and contain very sparse euhedral pyrite grains. The sandstone layers commonly host scattered large cubes of euhedral pyrite.

The pyrite forms part of a quartz-sericite-pyrite (QSP) alteration mineral assemblage indicative of fluid movement through the more porous and permeable sandstone. The most intense alteration is observed in fold closures and on fold limbs close to fold closures. Intense pervasive alteration occurs in low strain areas at folded closures showing the QSP alteration to be syngenetic with folding.

In the core studied to date, higher grade gold mineralization correlates with:-

- QSP alteration which is best developed close to and within the closures of recumbent isoclinal folds.
- Bedding parallel zones of higher shear strain. These zones are characterized by recumbent isoclinal folds.
- Permeable sandstone layers. QSP alteration selectively replaces sandstone layers.

The presence of permeable sandstone layers is an essential requirement for gold mineralization. The sandstone layers played an essential part in fluid movement during mineralization by providing porous mediums.

It would appear that QSP alteration and gold mineralization took place during the single phase of folding observed in the core. Zones of higher grade gold mineralization are parallel or nearly parallel to bedding.



## 7.3 Local Geology

### 7.3.1 Byumba Project

The Byumba Project is underlain by metasediments of the Rwandan Supergroup. Metaquartzites, sandstones, siltstones and sericite ± muscovite ± graphite ± chlorite ± biotite schists have been recorded by Rwandan Geological Survey workers in the permit area. However, mapping to date has relied on broad stratigraphic packages and aerial photography. Exposure is largely limited to road cuttings and incised streams, as the bulk of all land is covered by assorted crops.

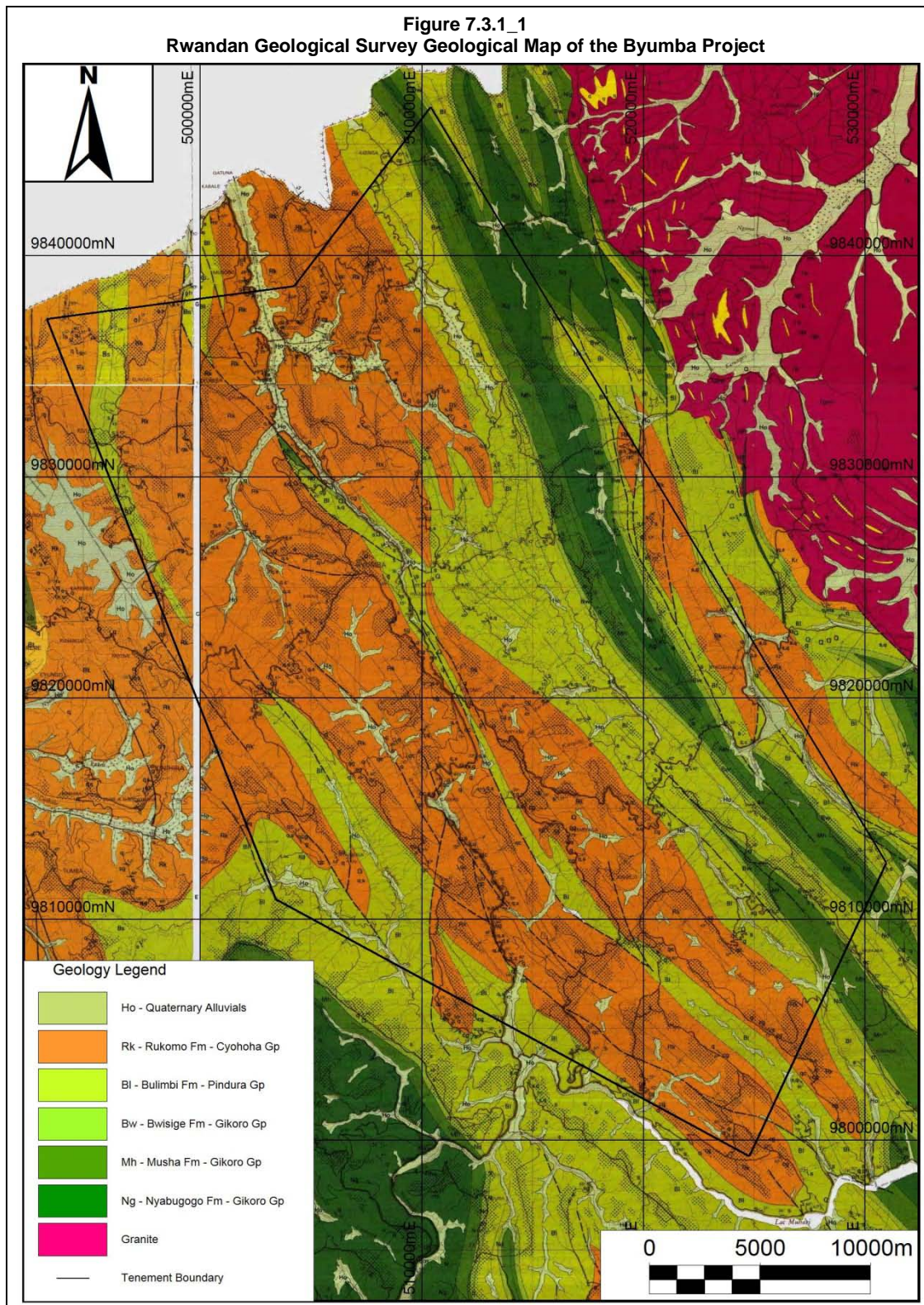
The sediments are folded and faulted along the dominant north northwest-south southeast trend (Figure 7.3.1\_1). The oldest metasediments of the Gikoro Group are exposed in the cores of anticlines while the youngest are preserved in the cores of synclines. The folds are open to locally tight and upright. The surface topography tends to follow the structural grain of the folded sediments, with more resistant arenaceous units forming ridges.

Faults and shears tend to be sub parallel to the fold axes. Only one of the mapped shears on the Byumba Project has been observed in the field (Figure 7.3.1\_2). This shear consists of some 50m of steeply dipping sheared banded mudstones/siltstones with sporadic less than 20cm wide light grey, ferruginous quartz veining. The quartz is highly fractured and contains numerous large euhedral pyrite remnants. The surrounding metasediments are locally ferruginous. The structure appears to be sub-vertical and has a component of vertical displacement downthrown to the northeast. The scale of displacement and the lateral component are unknown.

The mineralized zone forming the Byumba deposit lies just to the north of a sinistral flexure in this shear. The area of the flexure has been mapped by the Rwandan Geological Survey as two juxtaposed synclines, one in the Bulimbi Formation to the northeast and one in the Rukomo Formation to the southwest. The soil sampling shows the surface mineralization to be confined to the north-eastern side of the fault within the Bulimbi Formation (Figure 7.3.1\_1).

The Bulimbi Formation is comprised of pelitic meta-sediments. The lower quarter of the formation is dominated by a sequence of black graphitic (and sporadically pyritic) schists with rare millimetre scale silt laminations. Above this is a monotonous sequence of alternating grey schist and beige sandstone in centimetre scale beds. Locally, interlayered acid volcano-sedimentary material occurs.

As outcrop is limited the geological data described below is taken mostly from drill core supplemented by mapping.





**Figure 7.3.1\_2**  
**Photograph of Iron Staining and Quartz Veining in Sheared Banded Mudstone/Siltstone**



### Lithology

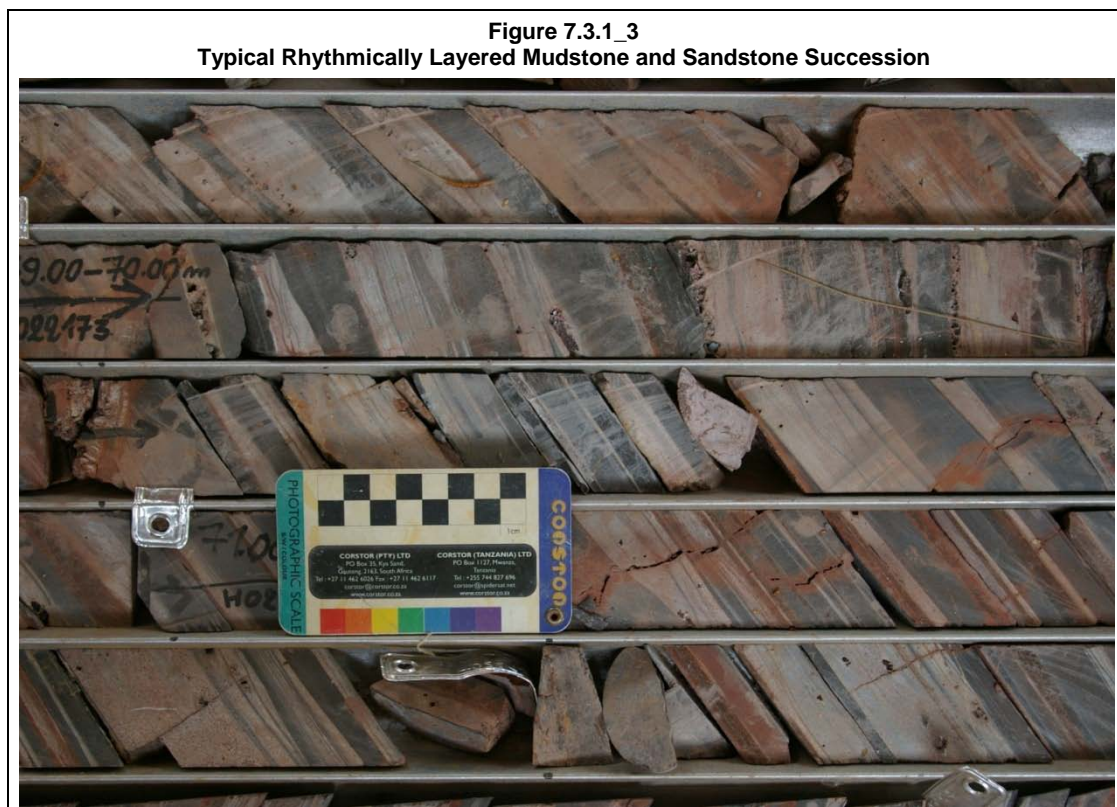
Outcrop is very limited throughout the area and the current knowledge of the local geology is based largely on the mapping of drill pads incised into the hillside, several shallow trenches and drill core.

The bulk of the deposit is hosted within a monotonous sequence of finely bedded to laminated shale, siltstone and fine grained sandstone (Figure 7.3.1\_3). The shale is generally medium to dark grey in fresh material, becoming a paler grey to beige with increased grain size to sandstone. Weathered surfaces are predominantly red throughout due to massive haematite staining (Figure 7.3.1\_4). The shale may be locally graphitic. The sandstone layers commonly host scattered large (up to 10mm) cubes of euhedral pyrite. The shale layers contain very sparse euhedral pyrite grains. Sericite alteration of the feldspars in the more muddy units is common and overall the sequence is best described as a rhythmically layered mudstone and sandstone succession.

Both shale and sandstone are often crosscut by ferruginous quartz veinlets, and rarely by quartz veins. The veins are generally concordant to bedding, whereas the veinlets are oblique to stratification. A high proportion of the veins mapped appear extensional and brittle characteristic of tensional gashes, which in some cases have been sealed by black minerals suspected to be ferromagnesian minerals.

Several metres of cleaner, more robust, sandstone has been intersected within two of the footwall drillholes, but apart from this unit no continuous marker horizons occur within the mineralized area drilled to date. Essentially the entire deposit defined to date is hosted within one lithological unit.

Graded bedding and soft sediment deformation structures are common, all indicating that the stratigraphy has not been inverted.





**Figure 7.3.1\_4**  
**Weathered Phyllite Exposed in the Side of a Drill Pad**



Note shallow to moderate dip to the right.

### Structure

The lithologies intersected broadly strike  $140^{\circ}$  and dip moderately to steeply to the northeast. Dip near surface as mapped in drill pads is frequently  $45^{\circ}$  while dips encountered in drill core at depth are generally in the region of  $75^{\circ}$ . The bulk of this effect is thought to be from surface creep and ablation, with weathered material sagging down the hill slope under gravity and with the volume reduction inherent in weathering. Broadly the overall strike and dip is consistent at depth over the entire strike length investigated. This is consistent with the Rwandan Geological Survey interpretation of the deposit occupying the southwest limb of a north northeast trending syncline.

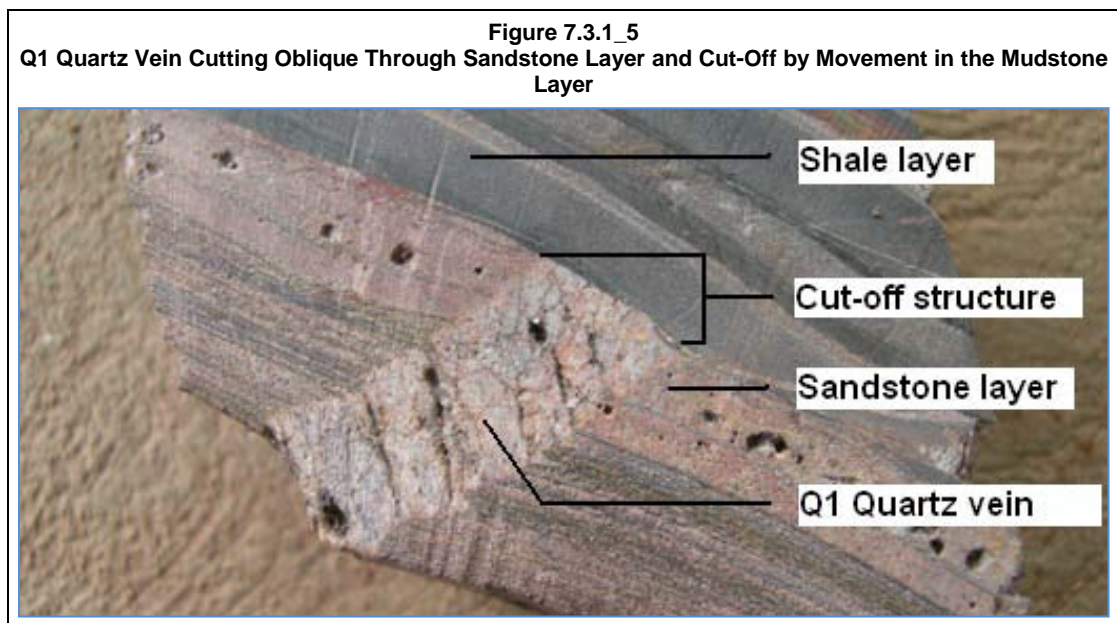
TransAfrika has undertaken an initial structural investigation based on drill core (both oriented and un-oriented) and the following is a summary of the findings (van Schalkwyk, 2009).

### Quartz Veining

Three phases of quartz veining have been observed in the core. In order of decreasing age these are:-

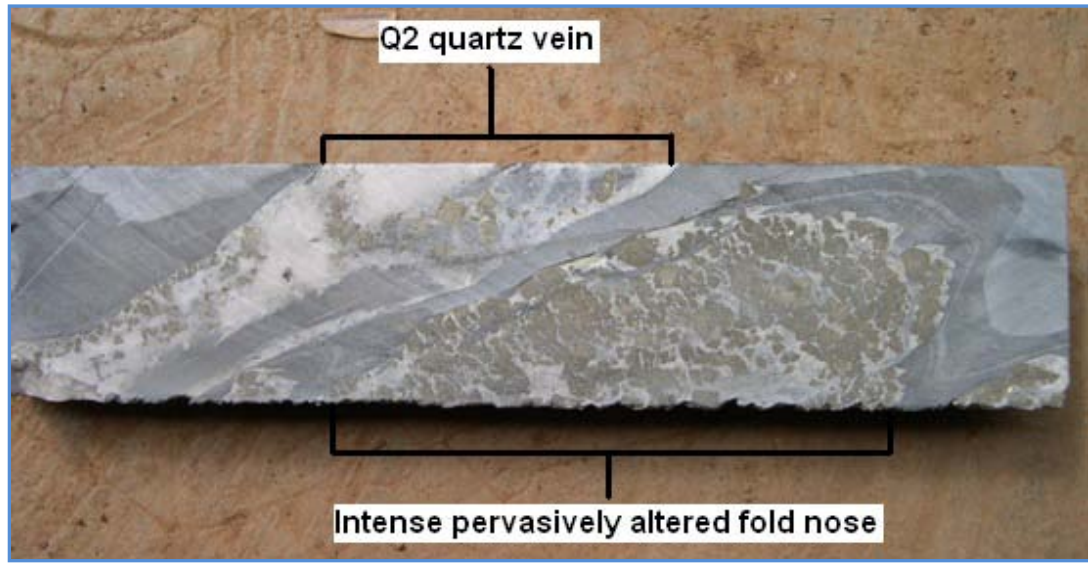
- Q1 – Thin (less than 1cm) white quartz generally at a high angle to bedding and frequently attenuated in mudstone layers (Figure 7.3.1\_5).
- Q2 – Preserved on fold limbs close to fold closures. The white quartz veins are often pyritic and spatially associated with areas of quartz-sericite-pyrite (QSP) alteration (Figure 7.3.1\_6).
- Q3 - Milky white quartz veins of less than 1cm to 2.2m thick (Figure 7.3.1\_7). The thicker veins are often brecciated. These veins are cross cutting, oblique and parallel to bedding. Brecciation and open spaces in the veins indicate a tensional environment during emplacement.

There is no evidence to suggest that the quartz veining hosts or controls the gold mineralization.





**Figure 7.3.1\_6**  
**Q2 Quartz Vein Adjacent to a Fold Closure Overprinted by Pervasive Quartz - Sericite - Pyrite Alteration**



**Figure 7.3.1\_7**  
**Brecciated Q3 Quartz Vein**





### *Folding*

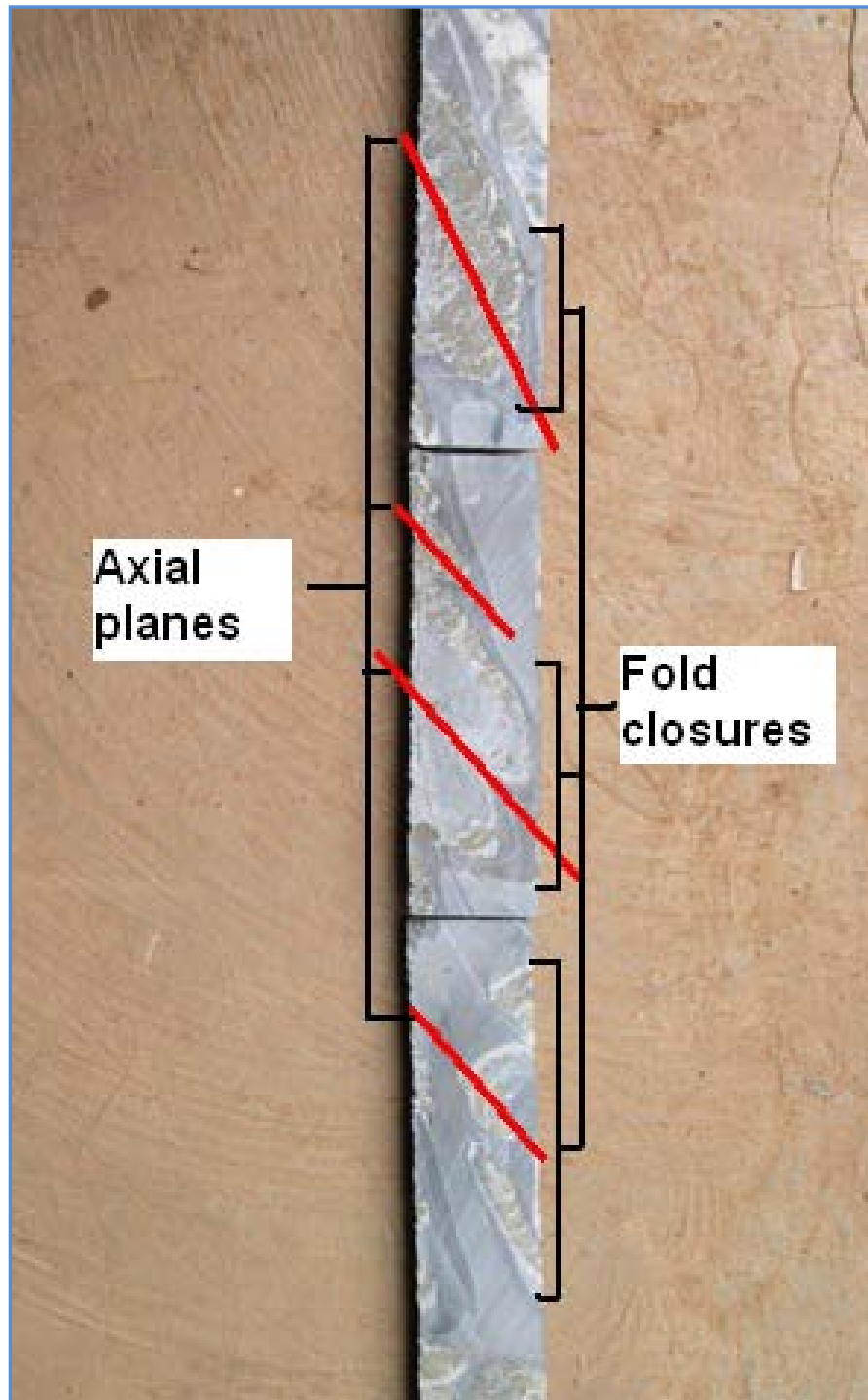
The most readily observed structures in the core are recumbent isoclinal fold noses (Figure 7.3.1\_8). Only a single phase of folding is preserved in the core. Axial plane cleavage appears poorly developed and was only observed in two instances, both close to fold closures. In these cases the axial planar cleavages dip parallel to bedding. Axial planes measured in drillhole RB09-29 (-80m to -85m) form an angle of 40° to 50° to the long axis of the core, i.e. dipping roughly between 70° and 80° from the horizontal. In drillhole RB09-27 (-132m to -138m) the axial planes dip at 65° to the core axis. The orientation of the axial plane cleavage is consistent with the recumbent nature of the folds. These recumbent folds would appear to mark bedding parallel zones of higher strain.

The wavelengths of the observed folds vary from a few centimetres to 20m.

### *Thrusting*

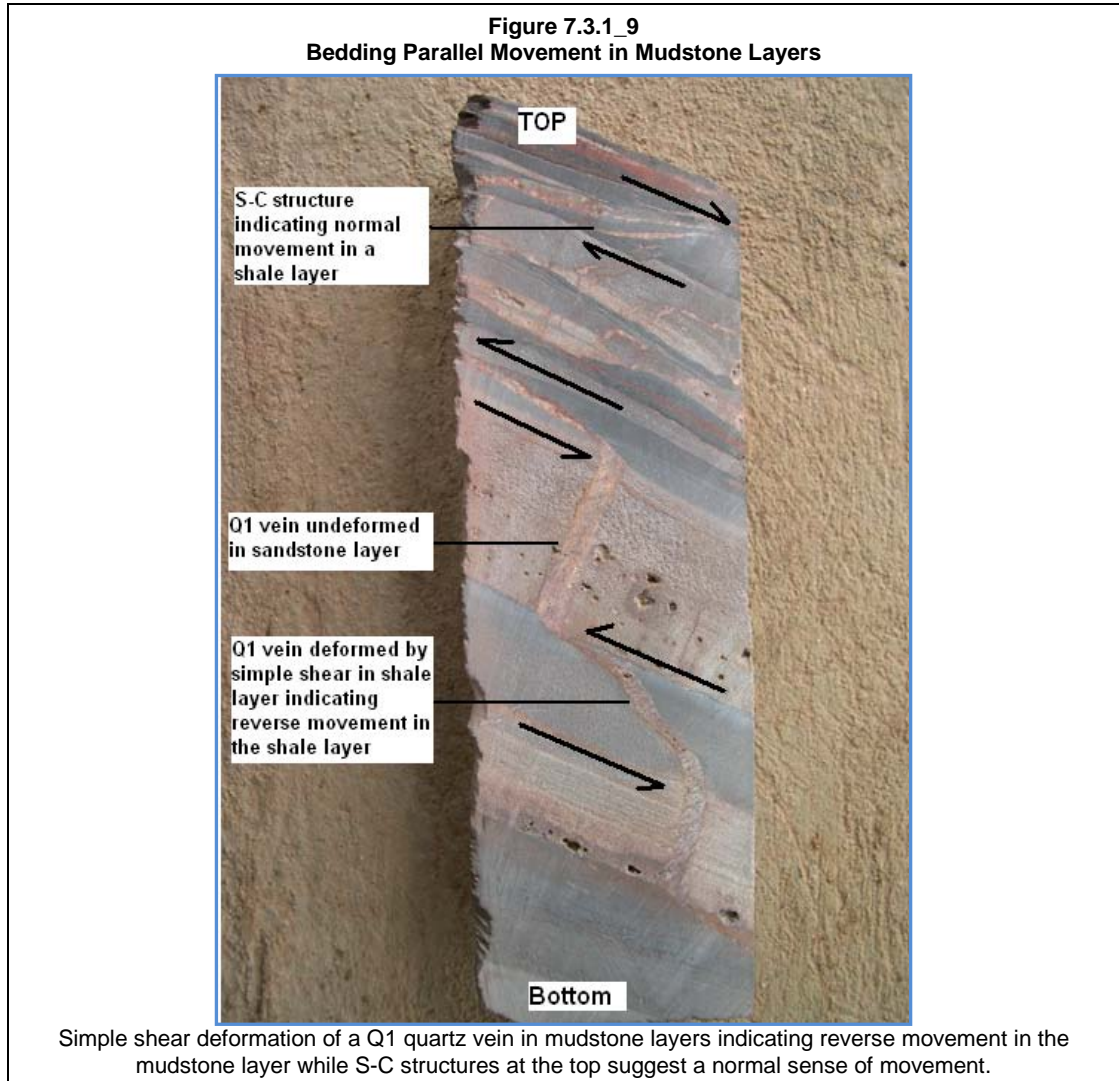
In drillhole RB09\_23 a 1.6m wide shear zone was intersected which is modelled as dipping steeply (circa 80°) to the southwest. A “z” geometry fold with a wavelength of ± 20m is developed in the hanging wall (southwest) of the shear zone. In drillhole RB09\_28, two 10cm wide mylonite zones are developed with a similar orientation to the overlying thrust fault. In all cases strain indicators show thrust movement. The mylonites have a steeper dip than the bedding, some 70° to the southwest.

Figure 7.3.1\_8  
Recumbent Isoclinal Folds Overprinted by QSP Alteration



*Bedding Parallel Movement in Mudstone Layers*

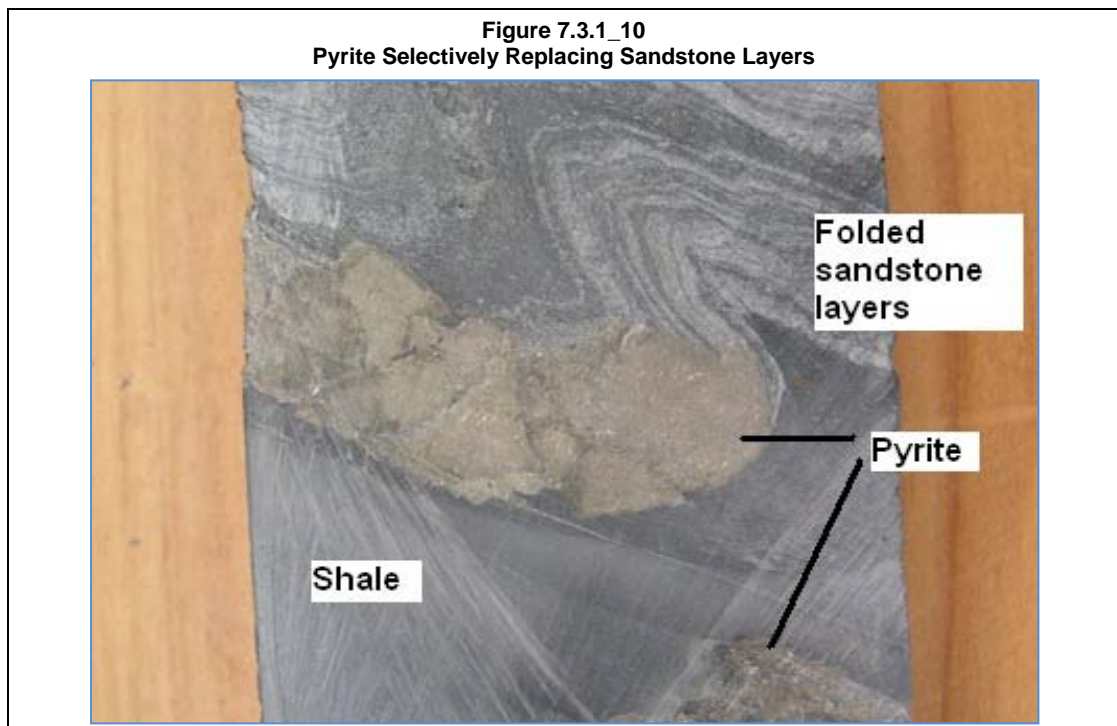
Deformation of crosscutting Q1 quartz veins and S-C structures suggest both reverse movement and normal slip in the shale beds (Figure 7.3.1\_9). The deformation of the early quartz veins and undeformed pyrite crystals in the sandstone layers suggest that movement along the bedding planes was almost entirely taken up by the mudstone layers.



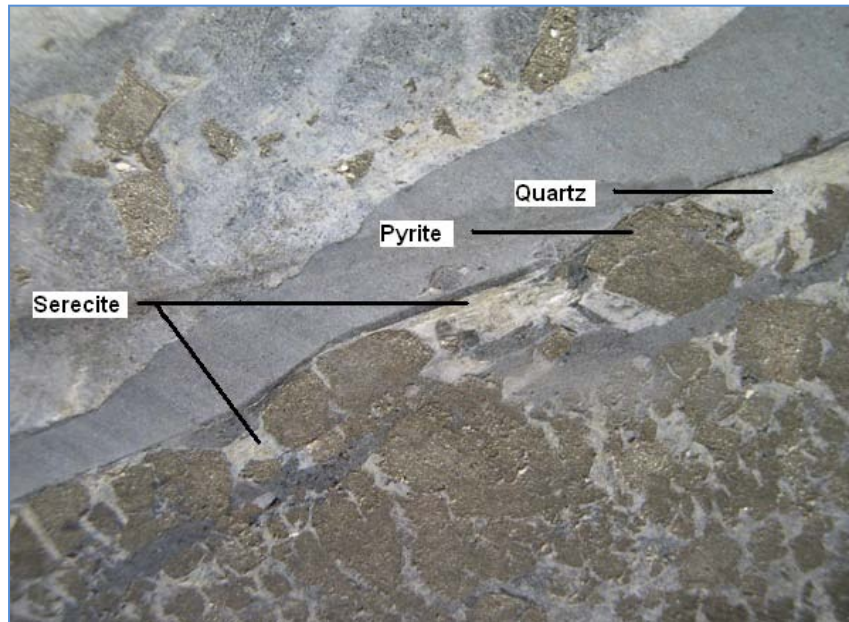
### Alteration and Mineralization

Coarse grained, disseminated to massive pyrite occurs in and is restricted to the sandstone layers (Figure 7.3.1\_10). The pyrite forms part of a QSP alteration mineral assemblage indicative of fluid movement through the more porous and permeable sandstone (Figure 7.3.1\_11). Fluid fronts are commonly observed in the altered layers.

The most intense alteration is observed in fold closures and on fold limbs close to fold closures (Figures 7.3.1\_10 and 7.3.1\_12). Intense pervasive alteration occurs in low strain areas at folded closures showing the QSP alteration to be syngenetic with folding. Fine grained, disseminated pyrite does occur within quartz veins and coarser grained sandstone layers but is not common.



**Figure 7.3.1\_11**  
**Detail of QSP Assemblage Preferentially Replacing a Sandstone Layer**



**Figure 7.3.1\_12**  
**Intense Pervasive QSP Alteration In Sandstone Within a Low Strain Domain Associated with Folding**



In the core studied to date, higher grade gold mineralization correlates with:-



- QSP alteration which is best developed close to and within the closures of recumbent isoclinal folds.
- Bedding parallel zones of higher shear strain. These zones are characterized by recumbent isoclinal folds.
- Permeable sandstone layers. QSP alteration selectively replaces sandstone layers.

The distribution of Q1 and Q3 veins do not correlate with gold grades, only one Q3 quartz vein assayed 1.72g/t Au over 2.2m (RRB09\_28, 97.00 to 99.20m). Rather it is the presence of permeable sandstone layers that is an essential requirement for gold mineralization. The sandstone layers played an essential part in fluid movement during mineralization by providing a porous medium.

It would appear that QSP alteration and gold mineralization took place during the single phase of folding observed in the core. Zones of higher grade gold mineralization are parallel or nearly parallel to bedding.

#### Weathering Surfaces

Weathering facies (oxide, transition and sulphide) were determined from core logging based primarily on pyrite mineralization and its weathered products. These surfaces were then digitized on sections and clipped to drillhole intervals. The sectional interpretations were then connected together to create wireframe surfaces (Figures 7.3.1\_13 and 7.3.1\_14).

These surfaces broadly track the topography but significant variations in depth below surface occur (Figure 7.3.1\_15). This appears to be due to both the rugged terrain and the influence of permeable structures. The base of the oxides extends from 5m to 80m below surface although 20m to 30m is the most common. The base of the transition zone extends from 60m to 120m below surface with an average of around 75m.

Steep gradients on the surfaces are evident in the north-eastern two drill lines (Figures 7.3.1\_13 and 7.3.1\_14). These appear to correlate with a thrust fault observed in the core. The fault is presumed to have provided a pathway for circulating oxygenated groundwater.



Figure 7.3.1\_13  
Base of Oxide/Top of Transition Surface 5m Elevation Contours

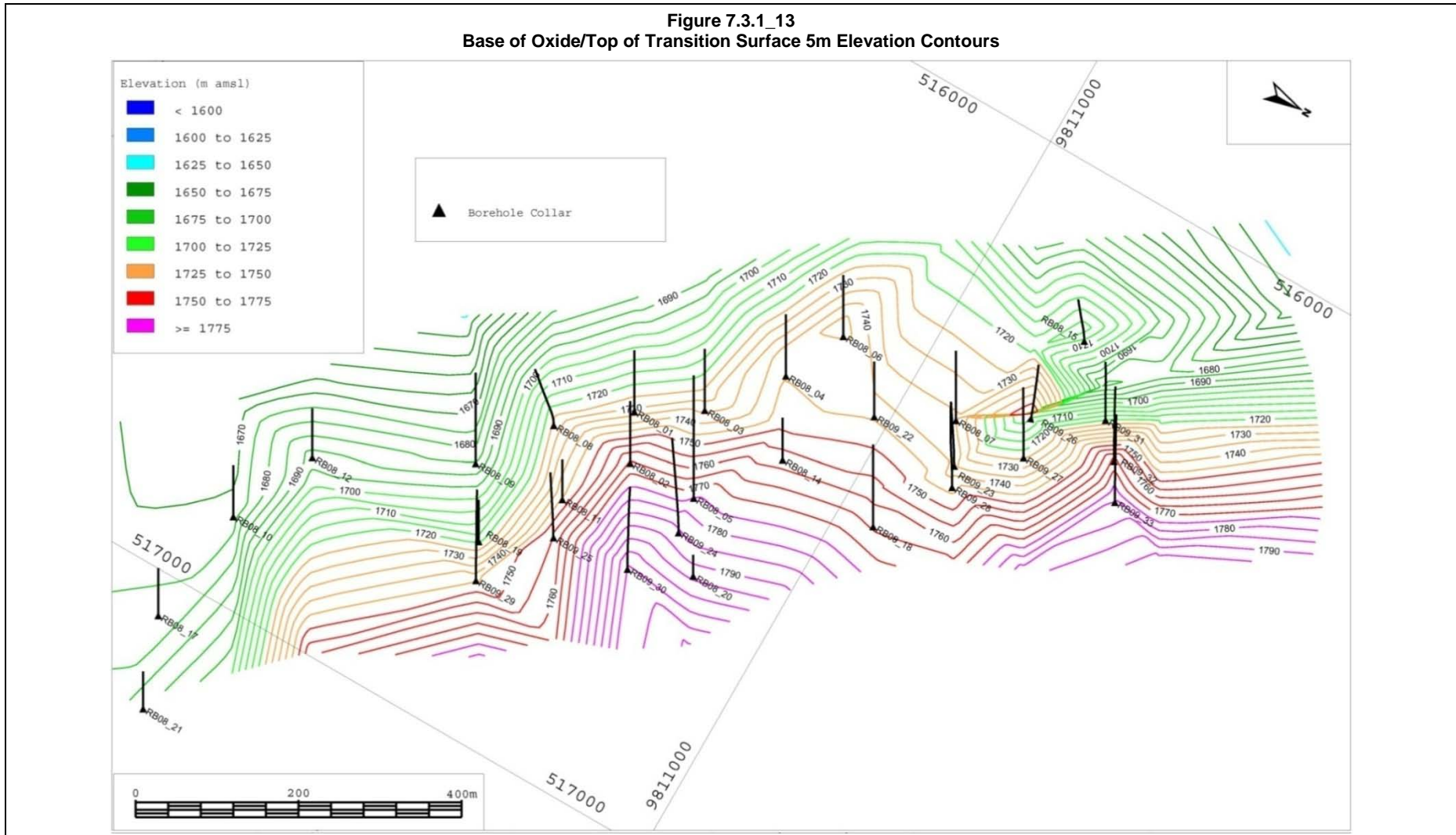


Figure 7.3.1\_14  
Base of Transition/Top of Sulphide Surface 5m Elevation Contours

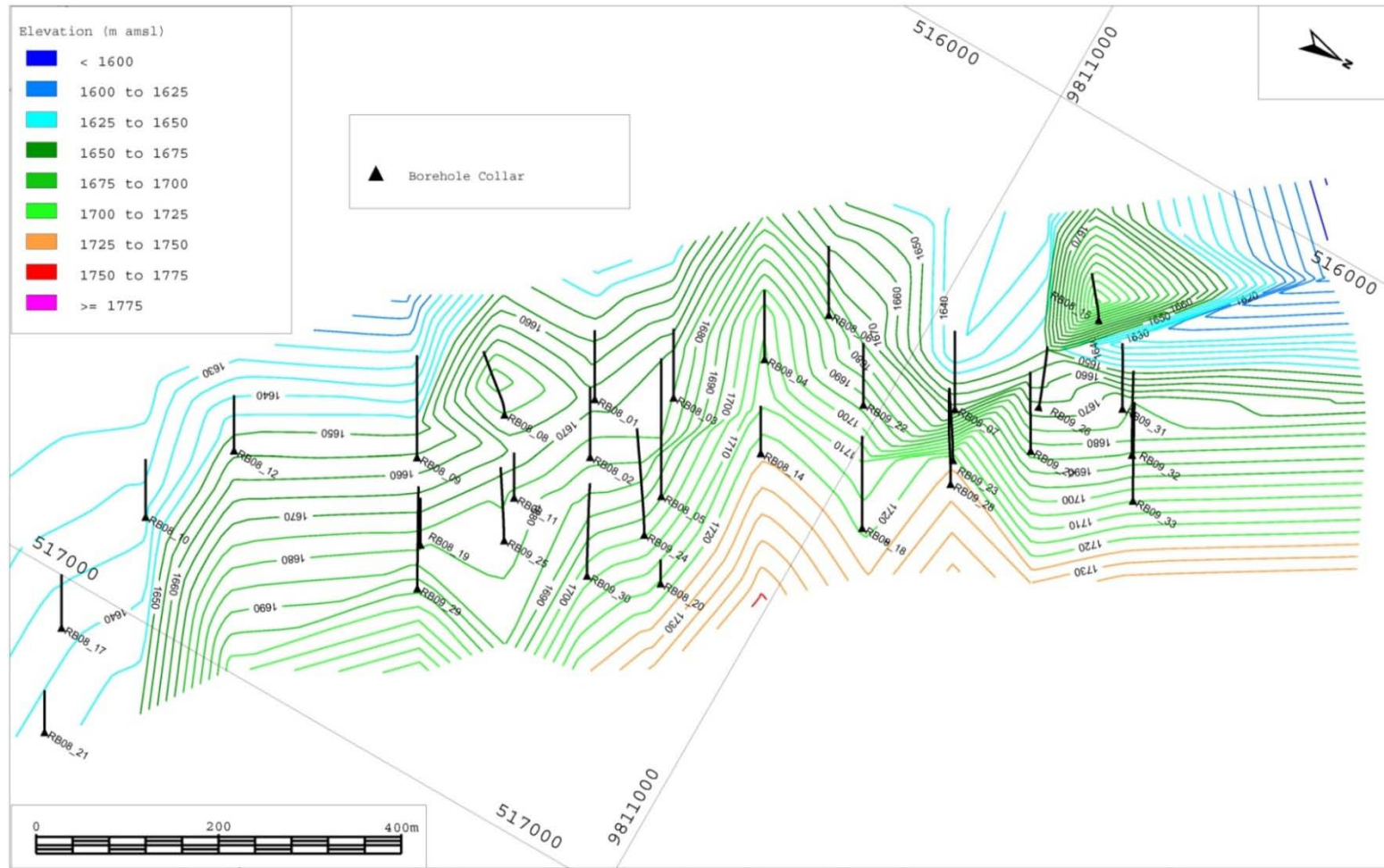
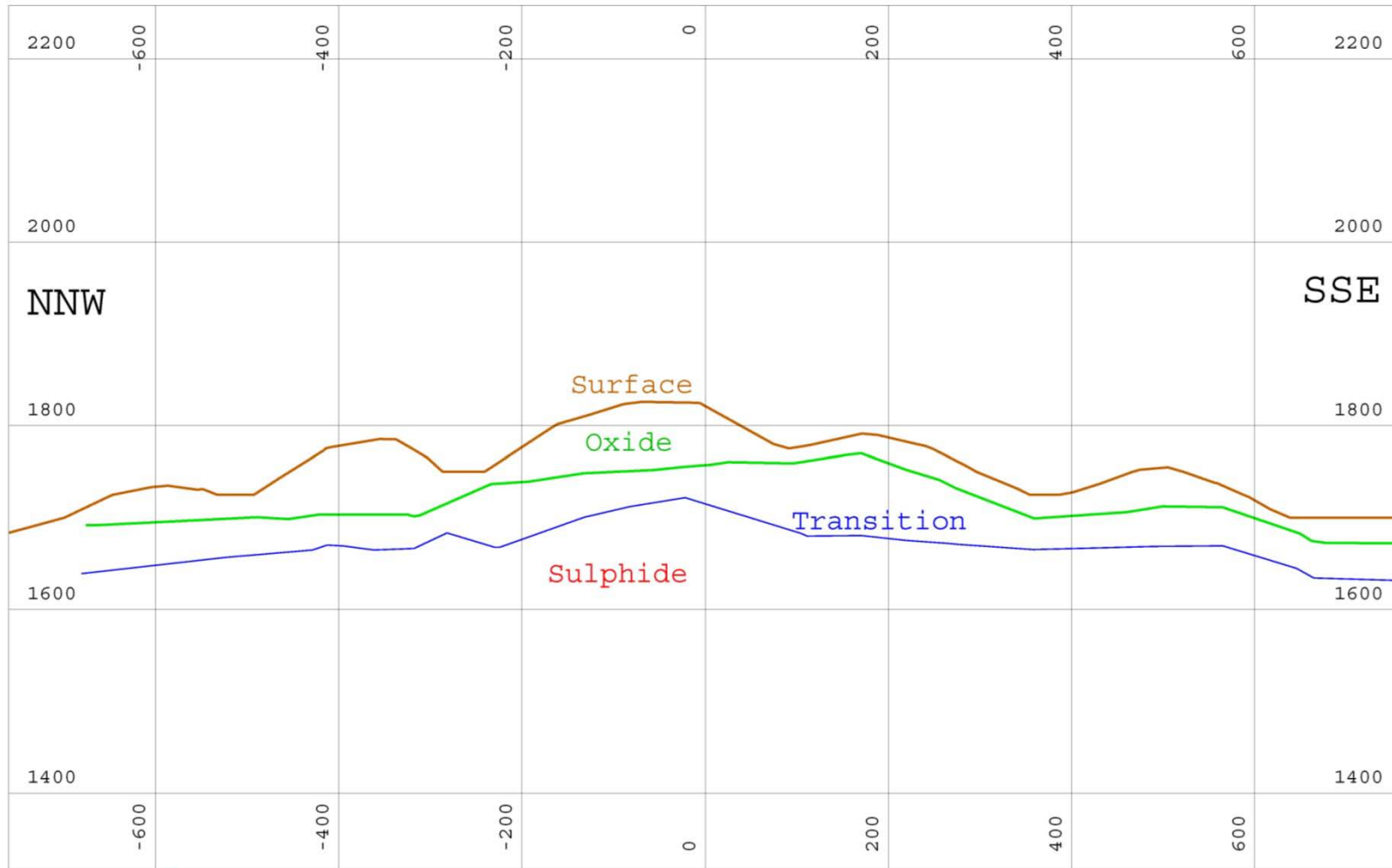


Figure 7.3.1\_15  
 Longitudinal Section Through Topographic and Weathering Surfaces



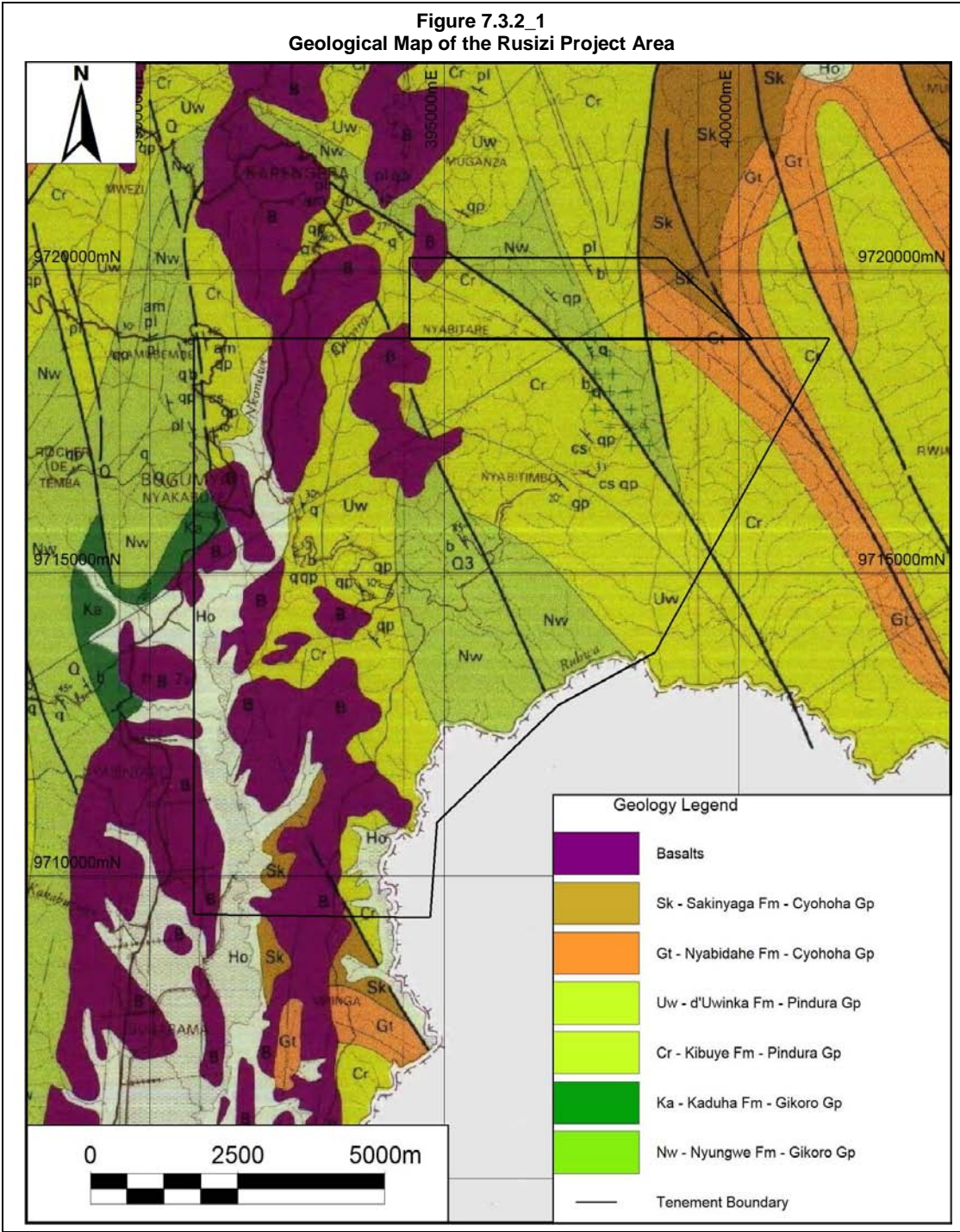
### 7.3.2 Rusizi Project

The Rusizi project area is also underlain by metasediments of the Rwandan Supergroup. Metaquartzites, sandstones, siltstones and sericite ± muscovite ± graphite ± chlorite ± biotite schists have been recorded by Rwandan Geological Survey workers in the permit area. However, mapping to date has relied on broad stratigraphic packages and aerial photography. Exposure is largely limited to road cuttings and incised streams, with the bulk of all land covered by assorted crops.

The sediments are folded and faulted along the dominant north northwest-south southeast trend (Figure 7.3.2\_1). The oldest metasediments of the Gikoro Group are exposed in the cores of anticlines while the youngest are preserved in the cores of synclines. The folds are generally open to locally tight and upright. The surface topography tends to follow the structural grain of the folded sediments, with more arenaceous units forming ridges.

Faults and shears tend to be sub parallel to the fold axes. There is a stronger structural overprint from the north-south trending Rift Valley structures. Flood basalts associated with this event cover the eastern portion of the permit, possibly centred along a small failed rift.



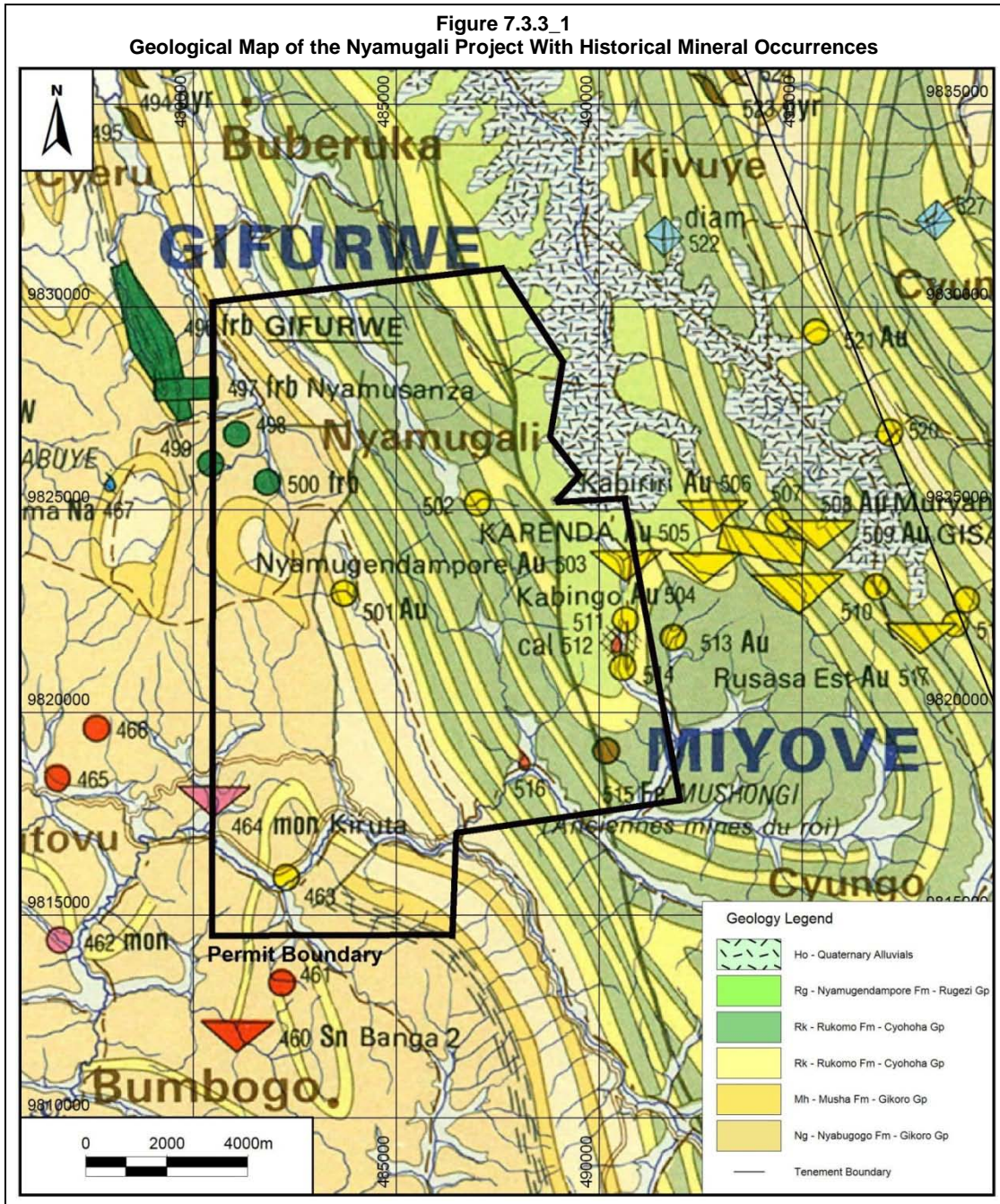




### 7.3.3 Nyamugali Project

Mapping by the Rwandan Geological Survey (Figure 7.3.3\_1) has revealed that the Nyamugali Project area is also underlain by metasediments of the Rwandan Supergroup. Metaquartzites, sandstones, siltstones and sericite ± muscovite ± graphite ± chlorite ± biotite schists are the main lithological units in this group. Bedrock exposure is rare except along a few road cuttings. The sediments are folded and faulted generally along the dominant north northwest-south southeast trend. However, geological features in the older Bumbogo formation in the southwest section of the property tend to be oblique to the regional trend. The faults and shears also tend to be sub parallel to the fold axes.

Figure 7.3.3 1  
 Geological Map of the Nyamugali Project With Historical Mineral Occurrences



## 8 DEPOSIT TYPES

### 8.1 Orogenic Gold Deposits

The principal exploration target and focus of exploration to date is what can most appropriately be termed orogenic gold. Common sub-types of this class of deposit include lode, quartz vein and shear zone-related gold, with the underlying similarity being that they all formed as part of an orogenic (collisional) tectonic event.

Orogenic gold deposits can be described as gold-bearing quartz veins, stringers and wallrock accompanied by only minor sulphides that are localised by brittle to ductile structures within variable rock types.

These deposits account for up to 18% of the world's gold production, ranking them second only to production from placer deposits. Deposits range in size from 0.5t to 1,600t of contained gold, with most typically containing between 1t and 20t Au. Gold grades are highly variable, but values of >1ppm Au for open-pit and >5ppm Au for underground operations can be economic. World-class orogenic gold deposits occur in various countries, including Australia, Brazil, DRC, Canada, Ghana, Tanzania, the USA and Zimbabwe.

The types of rock that can host orogenic gold deposits are highly varied. Orogenic gold deposits are hosted by rocks that have been subjected to a range of metamorphic conditions (from sub-greenschist through to granulite facies). However, the majority of deposits (and the larger ones) occur within rocks that have been metamorphosed to greenschist facies (within a metamorphic pressure-temperature regime broadly corresponding to the brittle-ductile transition).

In Rwanda and the neighbouring areas of the DRC and Burundi gold mineralization is separate from the tin, tungsten and niobium mineralization in both space and time, with the gold mineralization occurring later. Tin mineralization can be tied to a granite source, but the source of the gold is unknown. Archean basement, granites and pegmatites as sources have all been suggested, but a direct link to any of these has not been found.

Where gold deposits have been described, the nature of the gold distribution was found to be highly variable between deposits. Mineralization occurs in swarms of discontinuous veins of varying thickness and extent and gold occurs as native gold and/or associated with sulphides, with pyrite and arsenopyrite being the most commonly reported. Veins may follow brittle fractures, bedding planes, shear zones and schistosity.

According to published work carried out by Banro Corporation (Banro) on their eastern DRC properties and exploration work by the United Nations in Rwanda, gold deposits in the Kibaran Orogen occur as two broad types:

- The first type describes Banro's Twangiza Project in the DRC. Twangiza is underlain by mudstones, siltstones and greywackes which have been folded and intruded by mafic and feldspar porphyry sills. The highest concentration of gold mineralization is associated with brittle fracture at the hinge of an anticline. Gold is associated with arsenopyrite and pyrite, which occur as disseminations and in vein gangue in the sediments and feldspar porphyry sills that provide suitable brittle hosts and rheology contrasts (Skead, 2007). Gold mineralization of similar description is reported in south west Rwanda.
- The second type of deposit is associated with a higher metamorphic grade than the Twangiza type, shearing (brittle-ductile deformation) and tourmalinization. Gold is distributed in quartz veins and "stockworks" bound within steeply dipping shears. This type of deposit is found at Namoya in the DRC and in the Miyove area, adjacent to the northern permit area, in Rwanda.

Both deposit styles have the potential to host significant gold deposits. Details of the work conducted by Banro are available on their website [www.banro.com](http://www.banro.com) and Technical Reports filed on [www.sedar.com](http://www.sedar.com).



## **9 EXPLORATION**

### **9.1 Byumba Project**

#### **9.1.1 Introduction**

Exploration work by TransAfrika was initiated with helicopter, vehicle and ground reconnaissance of the exploration permit. Logistics were established with airfreight between Johannesburg and Kigali, the requisite importation permits for bringing equipment into Rwanda and an office with managerial, accounting and logistics support staff in Kigali. A base camp in Byumba was established along with a team of geologists and field personnel in February 2008. The team undertook ground reconnaissance work, orientation stream sediment sampling and establishment and mapping of soil sample grids (Section 9.1.2) prior to a diamond drilling campaign targeting two anomalies identified in the soils sampling campaigns which commenced in July 2008 as detailed in Section 10.1.

#### **9.1.2 Soil Sampling**

##### Introduction

TransAfrika have collected some 8,846 soil samples (excluding quality control and assurance samples) from the Byumba Project to date (Figure 9.1.2\_1). Areas for soil sampling were selected on the basis of river catchments containing artisanal alluvial workings or historic gold occurrences recorded by the Geological Survey.

An initial orientation stream sediment sampling survey of catchments with known mineralization was undertaken. However, this failed to consistently highlight known areas and the methodology requires revision prior to additional survey work.

##### Sampling Method and Approach

Soil sample grids were initially designed with a 200m to 400m line spacing and 50m sample spacing running at right angles to the structural grain (and hence topography) of the area. This north-northwest trend is also one of the anticipated controlling orientations on mineralization, corresponding to fold axial planes and the broad strike of mapped shears.

In areas which returned coherent anomalies infill sampling was undertaken up to 50m line spacing with 25m sample spacing as indicated. Isolated anomalies were followed up by four samples in a diamond pattern centred on the anomalous sample.

Program designs were done in Micromine® 3D modelling software and sample localities were navigated to using a handheld global positioning system (GPS) accurate to within 5m. Samples were taken from the B soil horizon, generally 50cm to 80cm below surface, well below the depth affected by hand cultivation. Due to the tropical climate, dry samples were not possible for the bulk of the year and some 2kg of unscreened material was gathered in the field, placed in calico bags with unique ticket numbers and shipped to ALS Chemex,

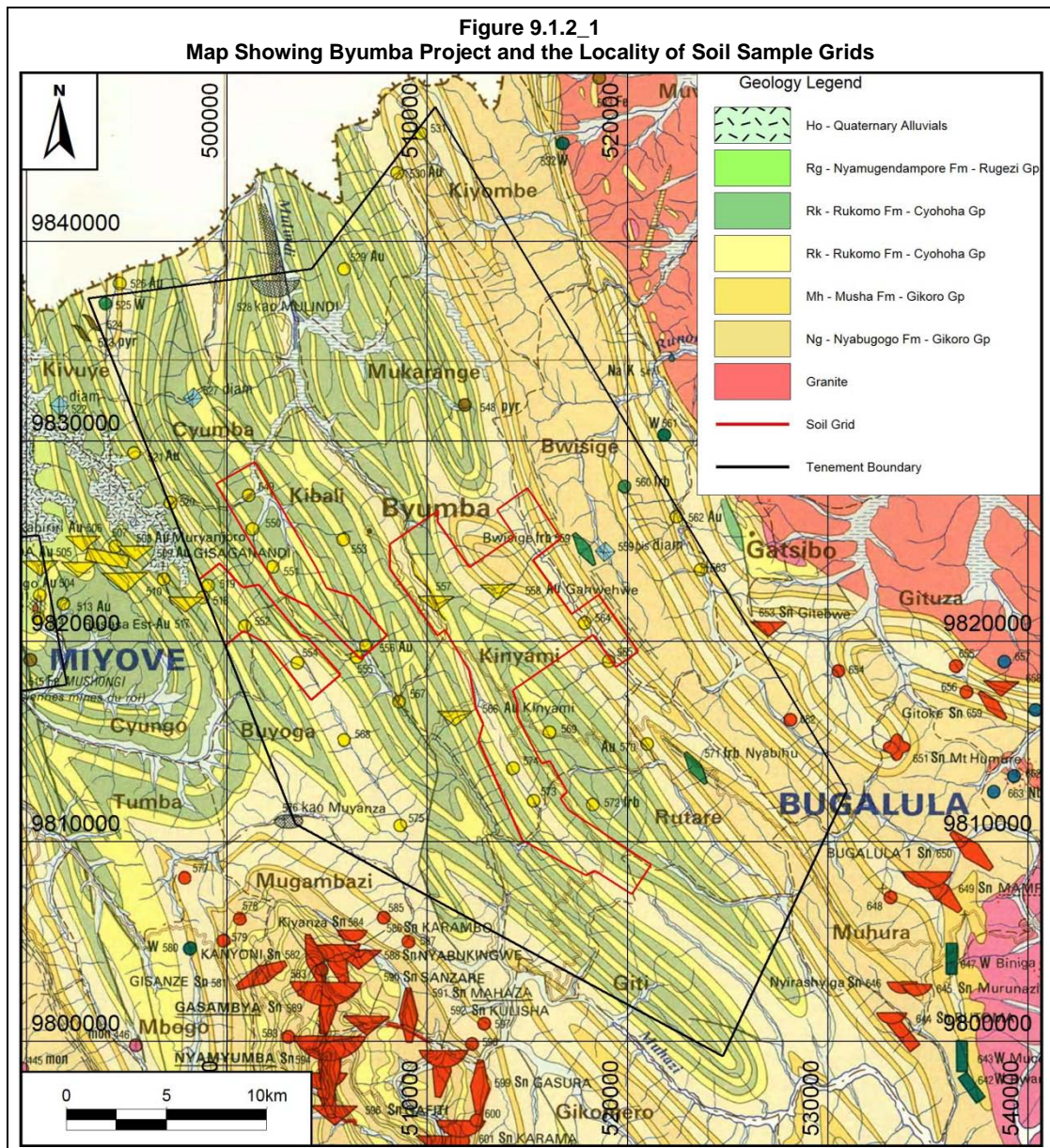
Johannesburg. Shipping was undertaken by commercial airfreight in bags sealed after inspection by the Rwandan Customs Authority.

Wooden pegs with grid co-ordinates were placed at each sample site to aid re-location. The as sampled co-ordinates, land use, soil and topographic characteristics and various other parameters were logged and entered into an excel spreadsheet in the field. The data was then uploaded into Micromine® for validation and interpretation.

### Results

The soil sampling program in Byumba revealed two coherent gold-in-soil anomalies in the Rubaya area (Figures 9.1.2\_2 and 9.1.2\_3). The Rubaya target, which hosts the two large, coherent anomalies, has been sampled in detail at a 50m by 25m spacing (Figure 9.1.2\_3). Several small anomalies were also picked up in the Rwasama, Cyuru, Warufu and Kisaro (Figures 9.1.2\_2) areas, but infill sampling showed them to be more segmented, even in areas with active artisanal mining.

The smaller of these coherent anomalies is some 440m long by 200m wide and trends northwest (300°) with a maximum returned value of 349ppb Au. The larger runs for 1,160m and attains a maximum width of some 350m. It trends northwest on 318° with a maximum value of 5,480ppb Au. Both anomalies occupy the flanks of steep hillsides in metasediments adjacent to a shear shown on the Geological Survey mapping as running up the valley. Their elongation direction parallels this shear and the general structural fabric of the region. Generally, the grades from anomalous to ordinary tend to drop off sharply and do not show gradation in grade. Based on these results a diamond drilling program was planned (Figure 9.1.2\_3).



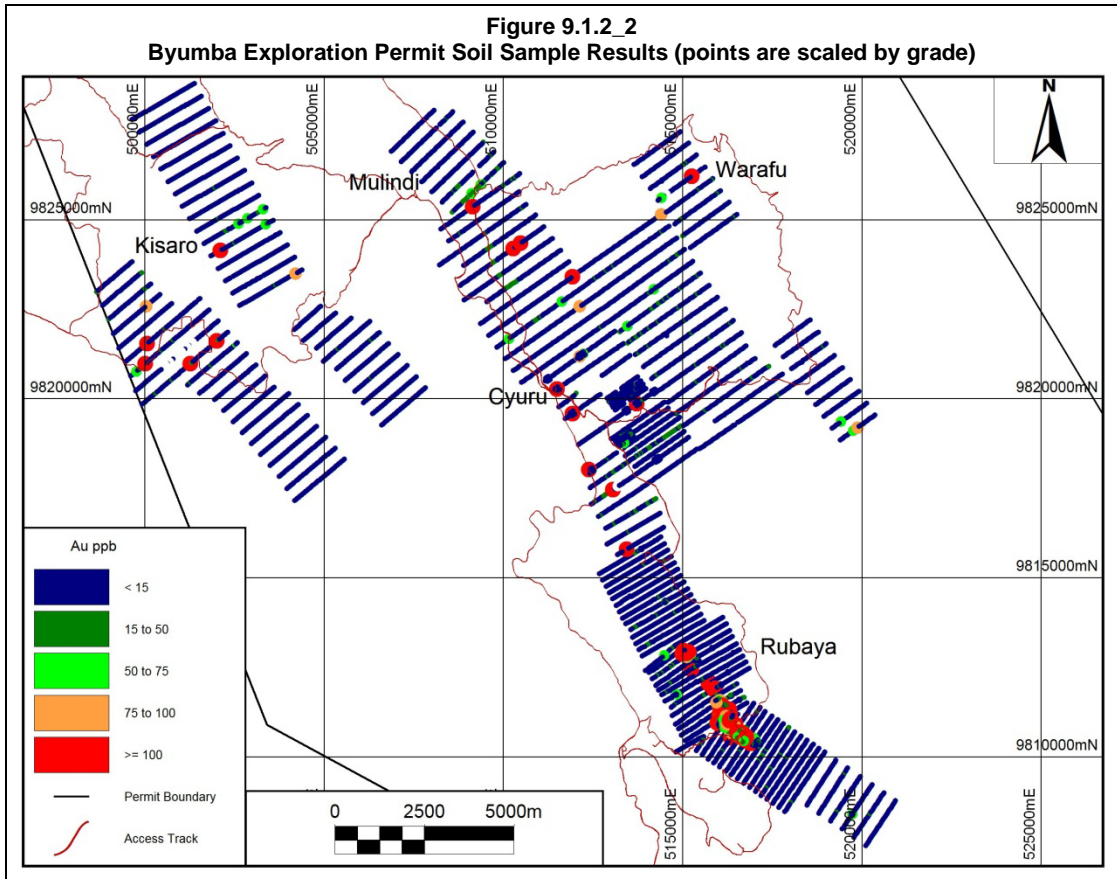
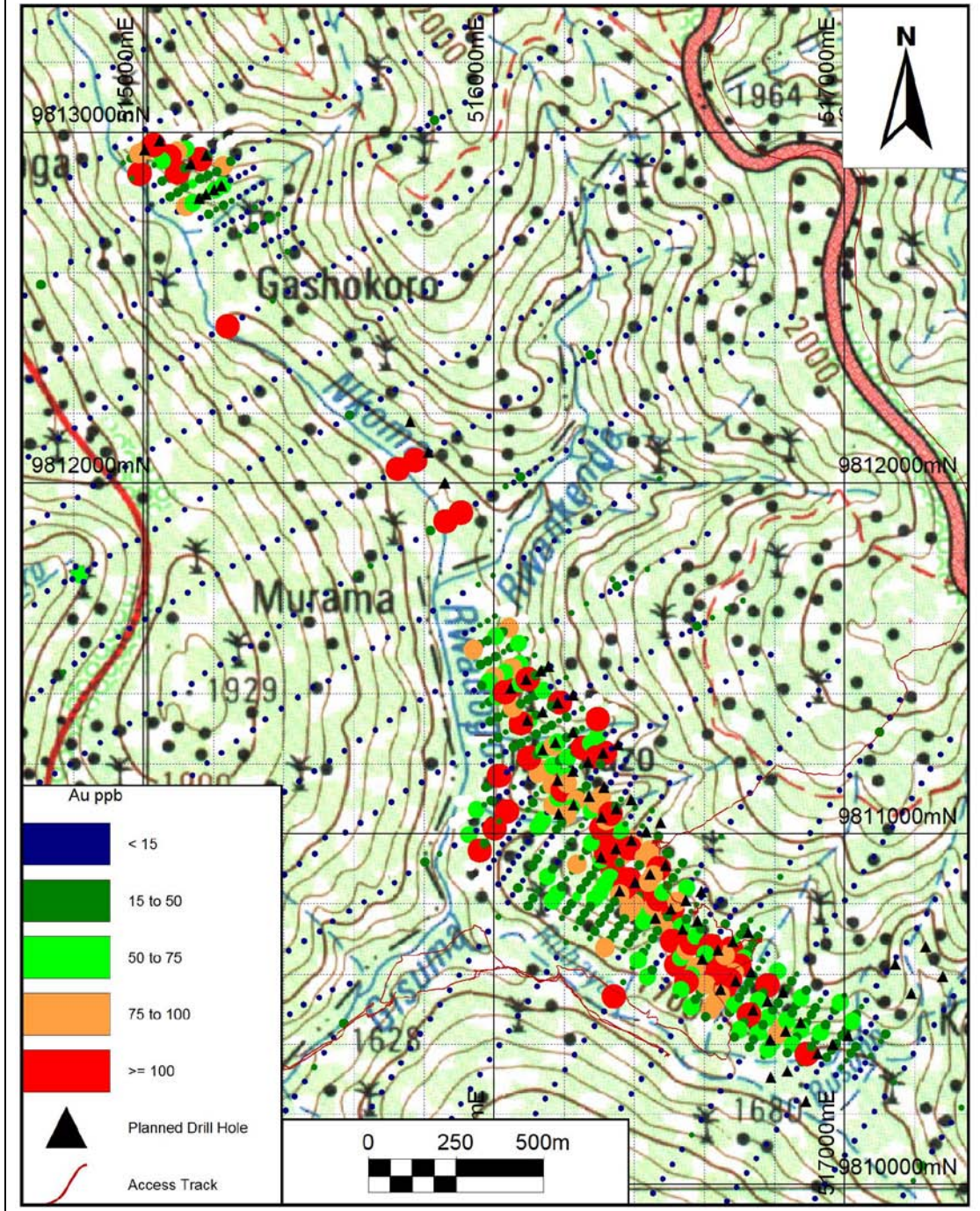




Figure 9.1.2\_3  
 Detail of Rubaya Soil Sample Anomalies Overlaying Topo Map (black triangles are planned diamond drillholes)



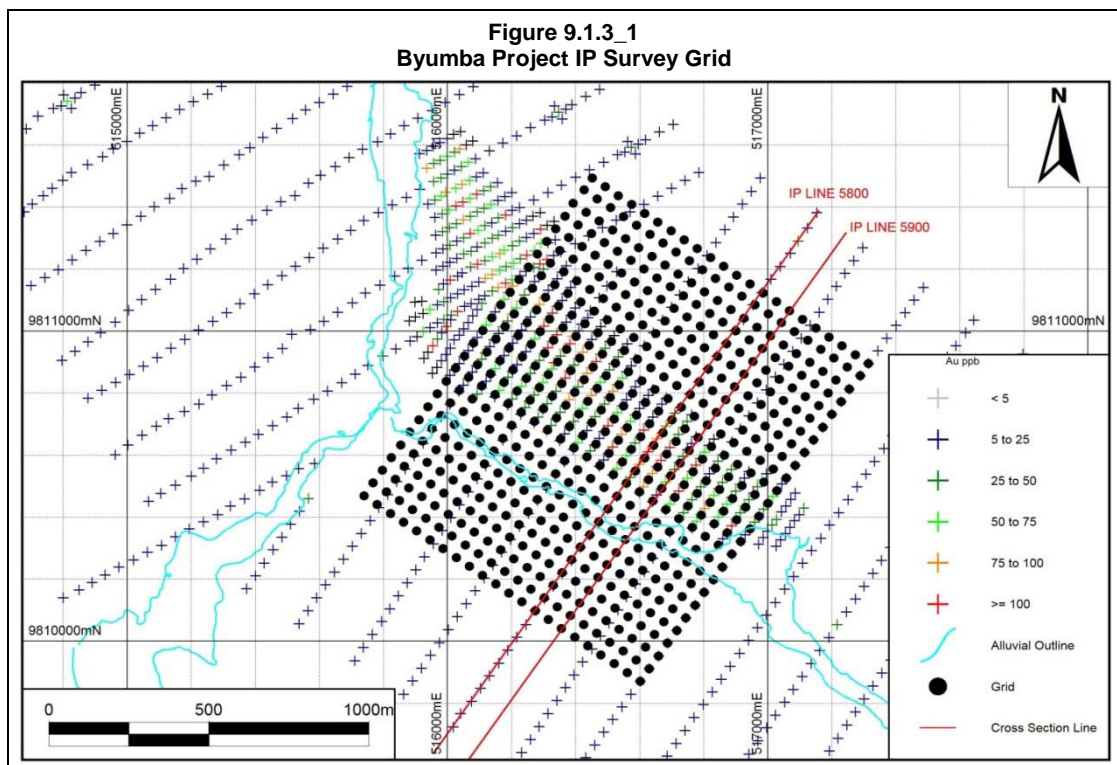
### 9.1.3 Geophysics

#### Introduction

Spectral Geophysics Pty Ltd of Botswana was commissioned to undertake an Induced Polarization (IP) orientation survey on the Byumba Project (Figure 9.1.3\_1) between August and September 2008. The objective of the IP program was to delineate discrete targets potentially associated with gold mineralization, and also to determine whether there are significant geological features beneath the main soil anomaly worth investigating at depth.

#### Methodology

The survey was designed to provide high-density apparent resistivity and chargeability measurements from near surface to depths of approximately 200m. A total of 20 line-kilometres on a 50m by 50m grid of survey were completed over the main soil anomaly.

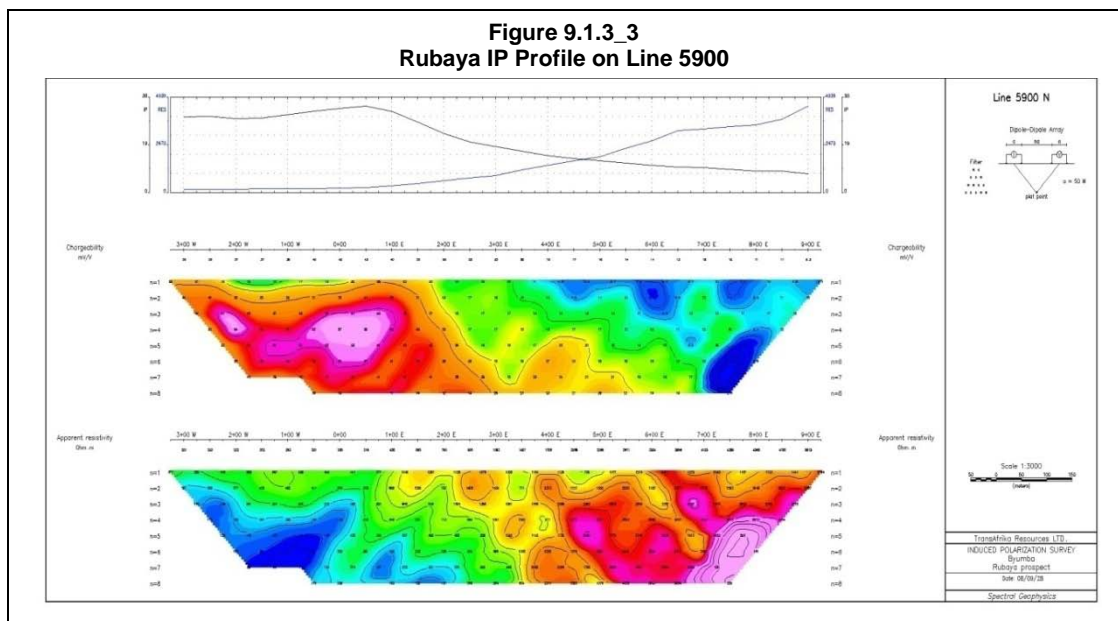
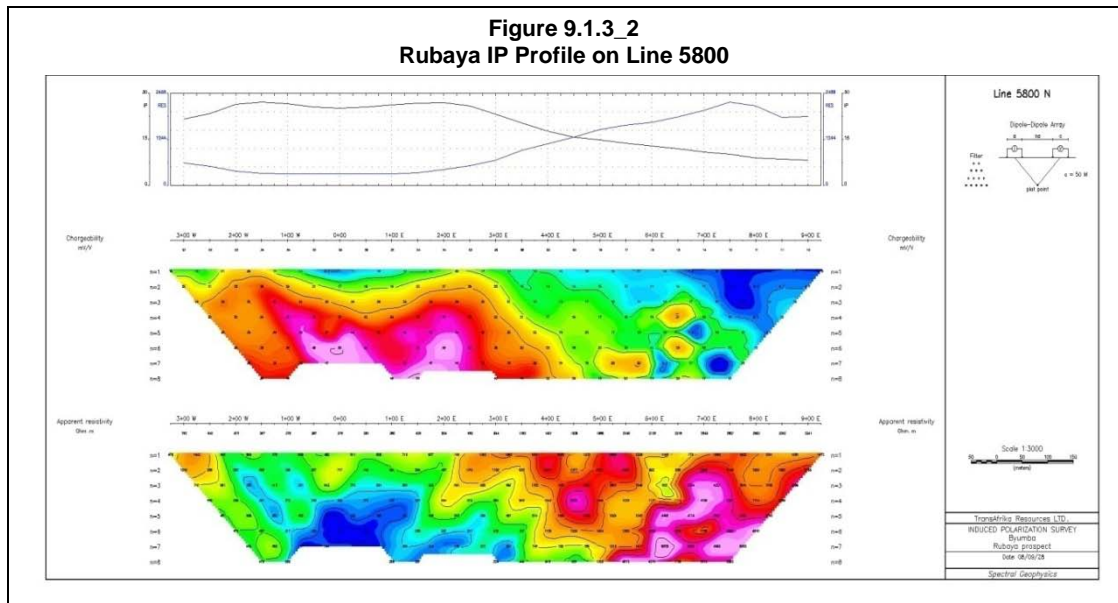


A dipole-dipole array was used with a dipole length of 50m. The data was collected at 50m station intervals. The dipole-dipole array had a very good vertical resolution and good coverage on vertical section. The IP data was downloaded daily from the IP receiver to a computer, and the data processed to produce plots of apparent resistivity and total chargeability.



**Results**

Initial plots of apparent resistivity and total chargeability indicated a poor resolution of potential mineralized and geological structures (Figures 9.1.3\_2 and 9.1.3\_3). The high graphite content of some of the sediments is considered a likely cause for the poor resolution. The program was put on hold prior to testing some of the IP targets with diamond drilling.



## 9.2 Rusizi Project

### 9.2.1 Introduction

Exploration work by TransAfrika on the Rusizi Project was initiated with helicopter, vehicle and ground reconnaissance surveys. Logistics was established with airfreight between Johannesburg and Kigali, and then Kigali to Bugarama via Changugu. The exploration camp was established in Bugarama with managerial and logistics support from Kigali. A team of geologists and field personnel undertook the field work which comprised ground reconnaissance work, mapping, soil sampling and grab and channel sampling between August and December 2008.

### 9.2.2 Soil Sampling

#### Introduction

A total of 1,877 soil samples have been collected from the Rusizi Project to date (Figure 9.2.2\_1). Soil sampling areas have been selected based on river catchments hosting artisanal alluvial workings identified during the reconnaissance survey or historic gold occurrences recorded by the Geological Survey within an area.

#### Sampling Method and Approach

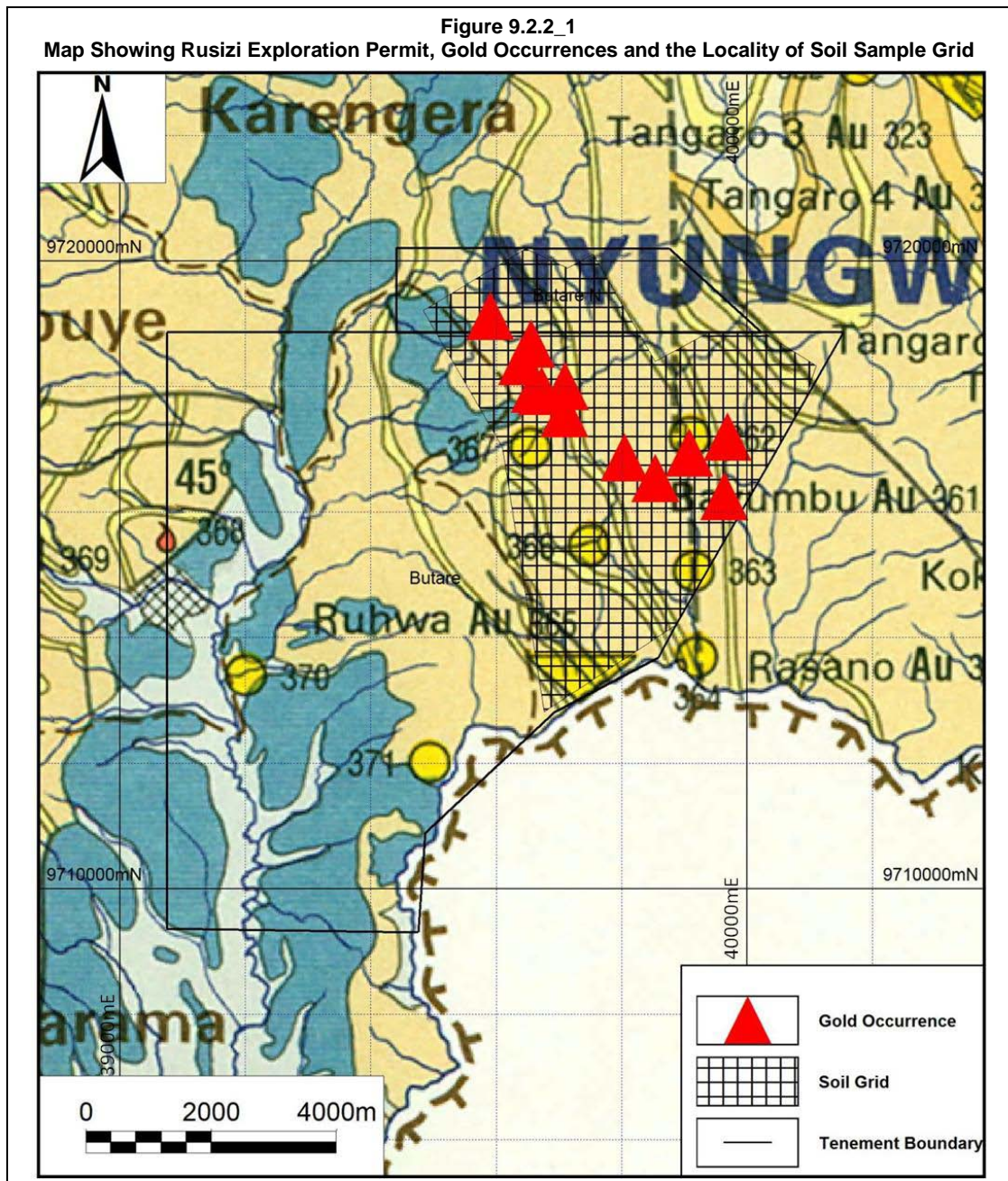
As with the Byumba Project, soil sample grids were initially designed with a 200m to 400m line spacing and 50m sample spacing running at right angles to the structural grain (and hence topography) of the area. This north - northwest trend is the anticipated controlling orientations on mineralization, corresponding to fold axial planes and the broad strike of mapped shears.

Soil sampling programs were designed in Micromine® 3D modelling software and the sample localities were navigated to using a handheld GPS accurate to within 5m. Samples were taken from the B soil horizon, generally 50cm to 80cm below surface where possible, to minimize any organic content in the sample. Dry samples were difficult to obtain due to the tropical climate so some 2kg of unscreened material was gathered in the field, placed in calico bags with unique ticket numbers and shipped to ALS Chemex laboratory in Johannesburg. All sample shipping was undertaken by commercial airfreight in sealed bags after inspection by the Rwandan Customs Authority.

Wooden pegs with grid co-ordinates were placed at each sample site to aid re-location. The as sampled co-ordinates, land use, soil and topographic characteristics and various other parameters were logged and uploaded into Micromine® for interpretation.

In areas which returned coherent anomalies, infill sampling was undertaken up to 50m line spacing with 25m sample spacing as indicated. Isolated anomalies were followed up by four samples in a diamond pattern centred on the anomalous sample.

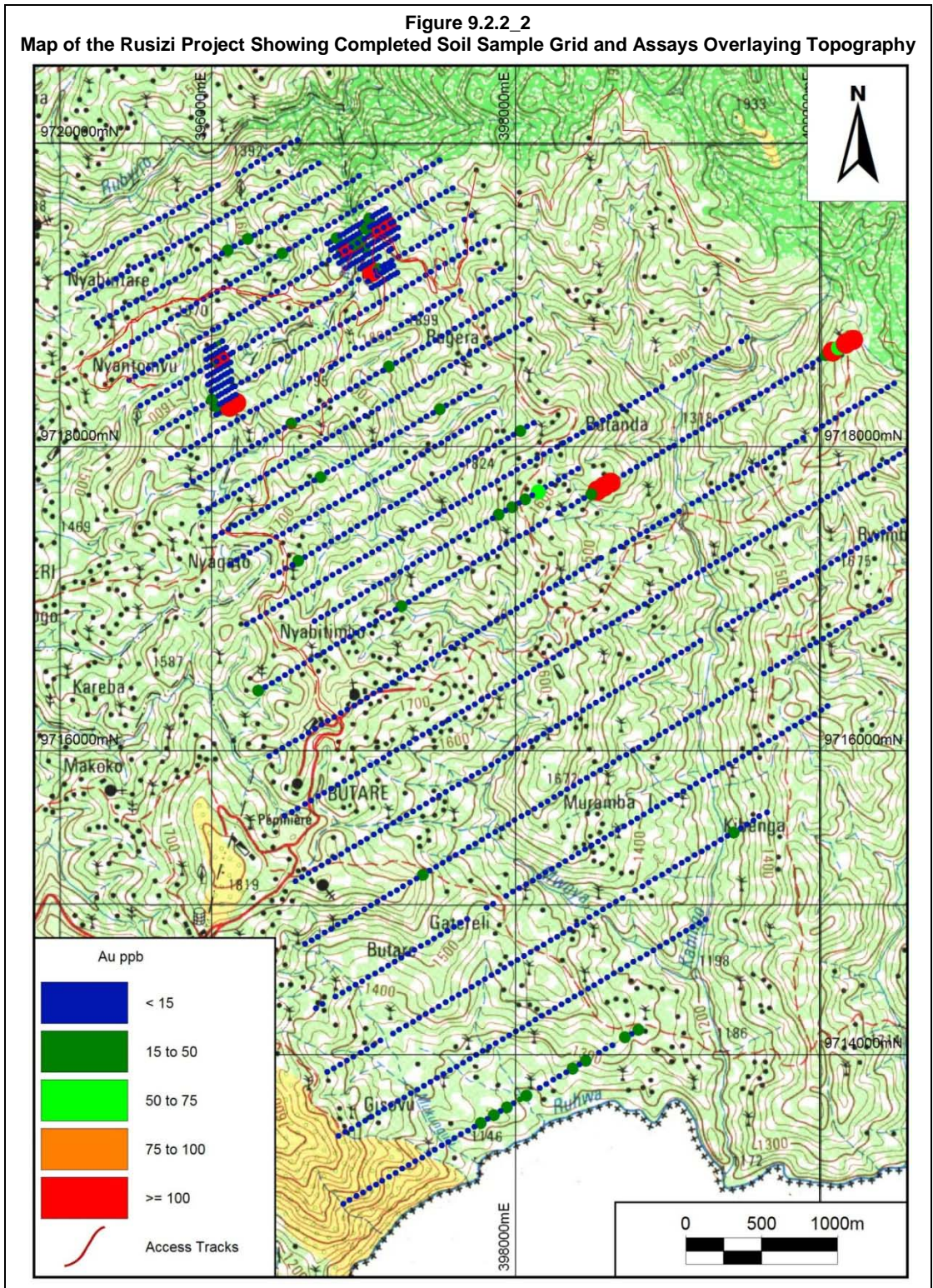




Results

The soil sampling program in Rusizi failed to delineate any coherent gold-in-soil anomaly (Figures 9.2.2\_2) even around the Barenga Pit (Figure 6.2.1\_2) where a 9.08g/t Au quartz vein was sampled prior to the soil sampling program. There are however, scattered anomalies varying from single points to several sample locations, but these have yet to be investigated further.





### 9.2.3 Channel Sampling

#### Introduction

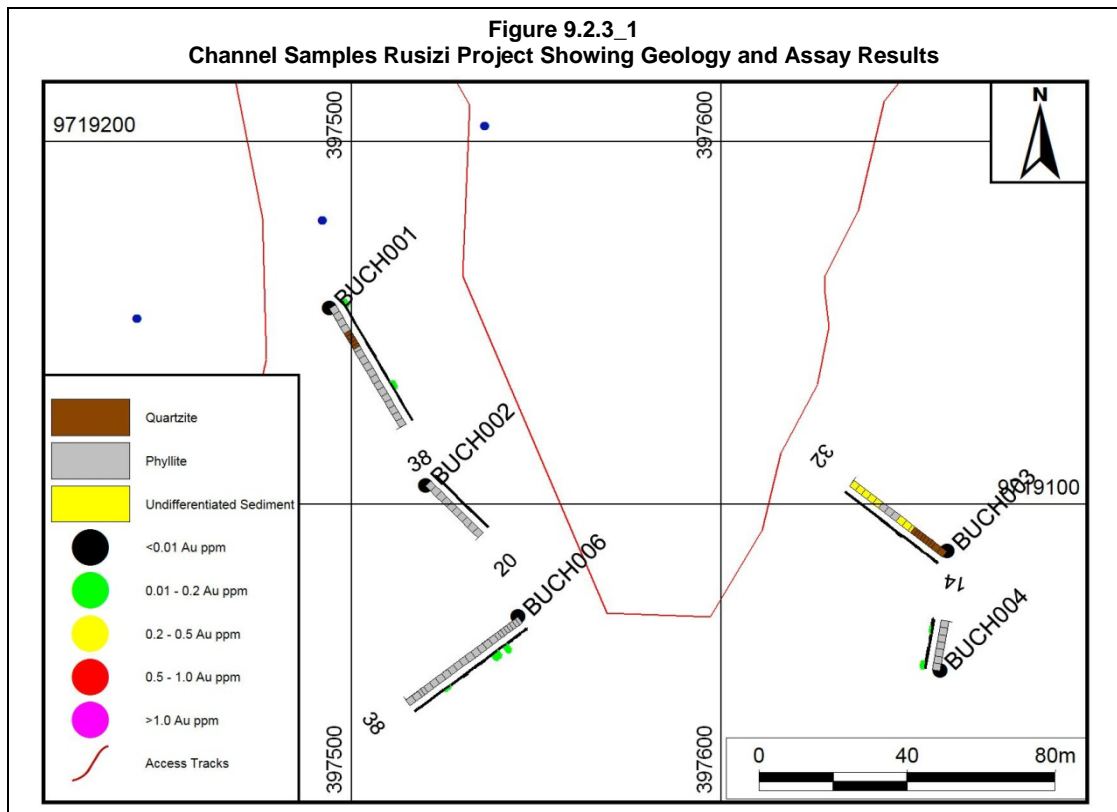
As part of the regional exploration work in the area by TransAfrika, a number of road cuttings were mapped and sampled. A total of 132 channel samples covering a total length of 196m have been collected in the northeast corner of the project area to date.

#### Sampling Method and Approach

Channel samples were collected along several road cuttings with bedrock exposures and interesting geological features. One side wall of the road cut was cleaned, chained and marked with wooden pegs at one to two metre intervals, depending on geological features and structures. Channel samples were taken horizontally along the wall and between the marked pegs, approximately 20cm above the ground level to minimise sample contamination. Other samples were also taken at right-angles to quartz veins and other geological features. Sample positions were recorded with a handheld GPS. Each sample was placed in a plastic bag with a unique number before submitting to ALS Chemex in Johannesburg for gold analysis.

#### Results

Geological mapping along road cuttings and within the project area revealed folding and micro-folding. Numerous minor faults (normal and reverse), shear zones and brecciations, trending northwest-southeast were also observed. Assay results of the channel samples collected on the concession were very poor however, with most results reporting below detection limit (Figure 9.2.3\_1).



## 9.2.4 Geophysics

No geophysical work has been undertaken at this stage on the Rusizi Project area.

## 9.3 Nyamugali Project

### 9.3.1 Introduction

Exploration work to date by TransAfrika has consisted of gridded aerial reconnaissance survey across the Nyamugali Project area.

### 9.3.2 Gridded Aerial Reconnaissance Survey

#### Introduction

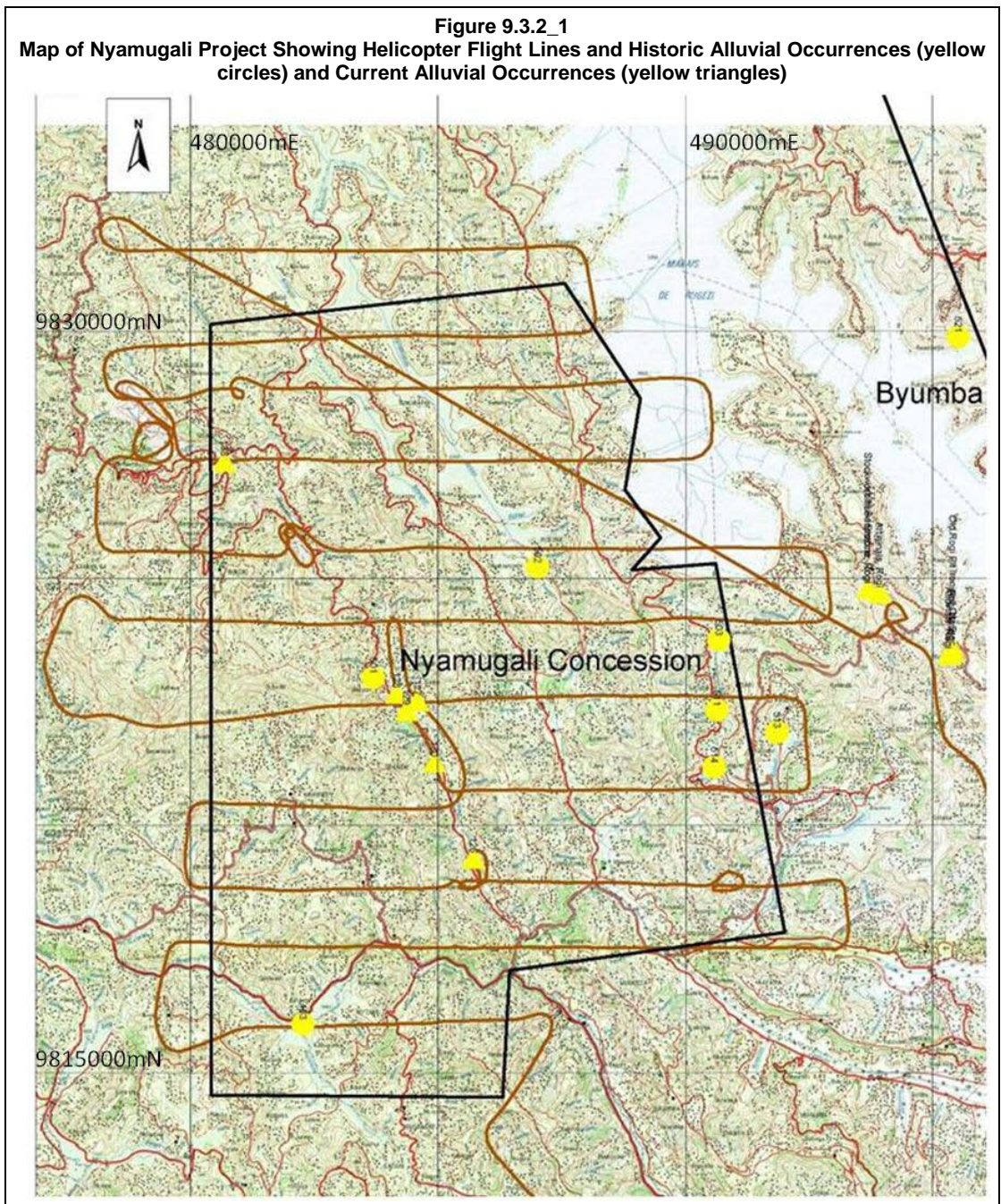
A target generation survey was undertaken with the use of helicopter to identify artisanal activities and potential locations to explore for gold mineralization. The gridded aerial reconnaissance survey was done on 1.5km spaced east-west flight lines. This was to locate artisanal workings, both active and inactive. The bulk of the reported historic alluvial workings could not be seen but additional current alluvial workings were detected along some 4km of the Mugobore River (Figure 9.3.2\_1). All artisanal workings were photographed and their locations recorded with a GPS.



A study of the photographs and waypoints was undertaken to identify and prioritize potential locations for possible primary gold exploration. However ground follow up and field work has not been undertaken.

#### Artisanal Workings

The workings here are confined to alluvial gravels along sections of stream that have been worked over a four kilometre stretch (Figure 9.3.2\_2). The main workings are confined to the central portion of the concession area along the Mugobore River which follows the regional northwest–southeast trend (Figure 9.3.2\_1). Other workings can be found along the Nyamagane River along the eastern boundary of the property and the Busanane River in the west near the Base centre.





**Figure 9.3.2\_2**  
**Photograph of Alluvial Workings Along the Mugobore River**



### **9.3.3 Geophysics**

No geophysical work has been done on the property.

### **9.3.4 Summary and general comments**

Coffey Mining is of the opinion that all the exploration undertaken or contracted by TransAfrika has been completed to industry acceptable standards and is suitable for additional target generation.

### **9.4 Nyamugali Project**

No systematic sampling program has been undertaken in the area of the Nyamugali Project.

### **9.5 Technical Assessment**

Coffey Mining is of the opinion that all the sampling undertaken or contracted by TransAfrika has been completed to industry acceptable standards.

## **10 DRILLING**

### **10.1 Byumba Project**

#### **10.1.1 Introduction**

Drilling commenced in July 2008 with four diamond drill rigs being operated by two drill contactors, Hallcore Drilling Pty Ltd and Partners Drilling Pty Ltd of South Africa. Due to the terrain and intense land use all pads were prepared by hand and rig moves and supplies were done either by hand carrying the equipment or by helicopter (Figure 10.1.1\_1). The rigs used required modification for helicopter slinging. The reduced size and power of the rigs lead to eight drillholes being stopped short of planned depth.

The drilling program was managed by Coffey Mining until November 2008 and thereafter by TransAfrika staff utilising the same procedures established by Coffey Mining. Coffey Mining maintained an electronic data base for the project throughout the program. In 2009 only one rig was used and all rig moves were undertaken using manual labour. Drilling finished in August 2009 after the completion of 33 drillholes (Figure 10.1.1\_2) for 5,182.93m.

Holes were inclined at  $-60^{\circ}$  to horizontal with a drill direction of  $240^{\circ}$  and a nominal drill line spacing of 100m, but this was modified locally to accommodate the terrain (Figure 10.1.1\_2). Drillhole spacing along grid lines is variable from 30m to 150m and was frequently controlled by ease of access and pad construction.

The bulk of the drilling covers a strike length of approximately 1.2km corresponding to the south eastern portion of the largest soil sample anomaly (Figure 10.1.1\_3). One drillhole, RB08-16, was drilled separately some 970m to the north northeast to investigate in situ mineralization beneath an active artisanal pit.



**Figure 10.1.1\_1**  
**Disassembled Drill Rig Being Moved to Site by Helicopter**



Figure 10.1.1\_2  
Drillhole Collar Plan

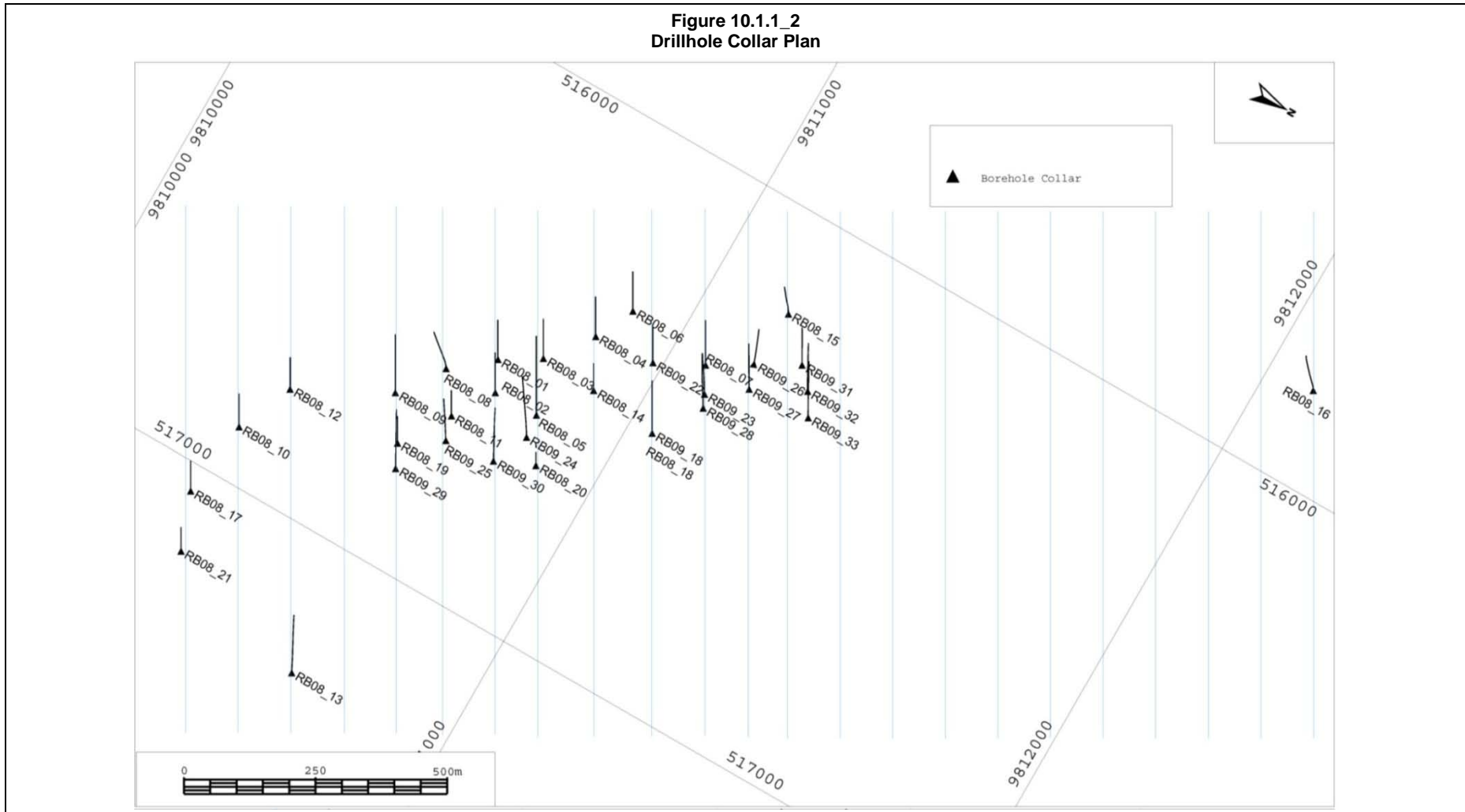
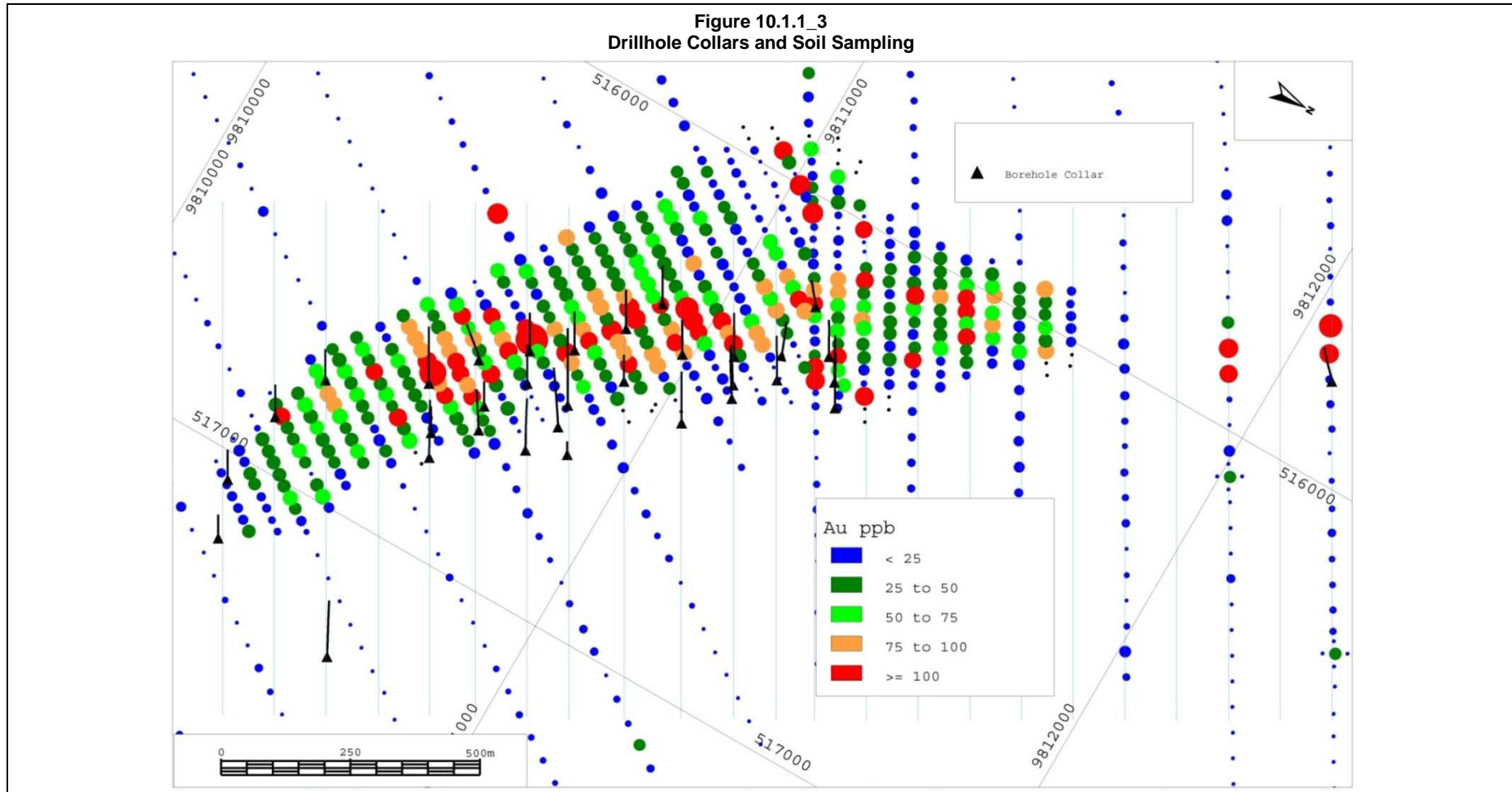


Figure 10.1.1\_3  
Drillhole Collars and Soil Sampling



### 10.1.2 Core Recoveries

All drillholes were drilled using diamond drilling. All drilling was undertaken by reputable drilling contractors to industry standard producing HQ (63.50mm) and NQ (47.60mm) size core. Generally, drillholes commenced with HQ and were drilled to more competent material between 40m to 80m before casing off HQ and drilling NQ to the end of drillhole.

Core recoveries were recorded for each drill run. Recoveries in the oxide and transition zones were frequently poor due to the friability of the weathered meta-sediments. The global average recoveries by weathering facies are:-

- Oxide Facies 67%
- Transition facies 84%
- Sulphide Facies 95%

The recoveries are highly variable for each of the weathering facies; ranging between 10% and 100%. This variability seemed to be related to the use of different drilling contractors during the course of the drilling program. The oxide zone shows the least variation in the recovery percentages. There appears to be some correlation between recovery and grade. With the oxide recovery at approximately 67% and the sulphide recoveries at approximately 95% there is also almost a 40% difference (1.24g/t vs. 1.69g/t) in the gold grade for these units. It is possible that with the low core recovery in the oxide zone there is also loss of gold in the drilling fines. A statistical analysis of the oxide zone with recoveries greater than 50% shows an increased gold grade from 1.24g/t to 1.43g/t. This would indicate that the recoveries have a major impact on the gold grade (Table 11.1.2\_1).

<b>Table 10.1.2_1</b>		
<b>Byumba Project</b>		
<b>Comparison of Oxide Grades and Recoveries</b>		
	<b>Oxide</b>	<b>Oxide with Recoveries &gt; 50%</b>
Count	27	21
Minimum	0.07	0.27
Maximum	7.14	7.14
Mean	1.24	1.43
Median	0.71	0.8
Standard Deviation	1.33	1.44
Variance	1.78	2.06
Coefficient of Variation	1.08	1



### 10.1.3 Collar Surveys

All drillhole collars were surveyed by using a handheld GPS with an estimated accuracy of 5m. Topographic data available for the area is limited to 20m contours from government topocadastral maps. These were georeferenced and the contours digitised to generate a regional digital terrain model (DTM).

All survey data and government mapping data is in a modified form of Universal Transverse Mercator (UTM) known as the Rwanda/Burundi Mean Solution. This was introduced in the two countries as they straddle UTM Zone 35 and 36. The system uses 30°E as a datum with coordinates E5000,000 but otherwise operates as a standard UTM grid with Gauss-Kruger projection, a Modified Clark 1880 spheroid and 0.9999 scale factor.

### 10.1.4 Downhole Surveys

All drillholes were laid out at surface using a sighting compass and inclinometer. In total 14 of the 33 drillholes were surveyed at 3m to 30m intervals downhole using a multishot tool.

Downhole surveys were not corrected for magnetic declination as the National Geophysical Data Centre (<http://www.ngdc.noaa.gov/>) calculates the declination to be only 0° 16' east of true north. No significant spatial errors are introduced by not applying the correction factor.

### 10.1.5 Logging

All core was logged to industry standard using a set of defined lithological codes. Data captured included:

- Lithology
- Weathering Facies
- Colour
- Texture
- Weathering Intensity
- Alteration
- Mineralization
- Bottom Contact
- Texture
- Grain Size
- Structure.

In addition, all drill runs were measured for core recovery and Rock Quality Designation (RQD). Several of the drillholes were oriented using an Ace electronic core orientation tool.

For the most part lock between adjacent oriented runs could only be achieved in the sulphide material limiting usable readings to deeper portions of drillholes. Oriented core runs where lock between adjacent runs could be achieved were structurally logged and  $\alpha$ ,  $\beta$  and  $\gamma$  angles measured. These were then converted in Micromine® to true orientations and thicknesses in conjunction with the downhole surveys.

The logging is considered suitable to support mineral resources estimation.

#### **10.1.6 Drillcore Sampling**

Samples were taken to honour lithological contacts where appropriate. As the controls on mineralization were poorly understood and the bulk of the deposit lies within one monotonous sequence with little visual indication of mineralization, the entire drillhole was continuously sampled in all cases. Sample lengths varied from 15cm in cases where specific lithologies were being targeted, to a maximum of 6.10m in an area of very poor recovery. The vast majority of samples were 1m in length.

Core was split using a diamond saw and half core submitted for analysis with a unique sample number. The other half was placed back into the core tray stored in the core storage facility at the Byumba exploration camp.

#### **10.1.7 Chain of Custody - Responsibility and Accountability**

A full chain of custody was implemented for the sample submission by the geologists for the entire process from the sampling to the analytical laboratory.

The details of the samples to be submitted were recorded on standard documentation on site. The samples were checked by sampling personnel and the geologists prior to shipment. This was provided with the despatch notes. Any discrepancies on receipt by the laboratory were flagged for follow up. The assay certificates were e-mailed to the Project Geologist as CSV files. Cross checking of the assay certificates with the results was possible as these included details of each batch, including the shipment codes.

Samples were air freighted from Kigali to Johannesburg in Rwanda Customs Department sealed containers.

#### **10.1.8 Relative Density Measurements**

Relative density was measured using the Archimedean 'weight in air/weight in water' technique. For the relative density to approximate the in situ dry bulk density the core must be essentially impermeable.

Only solid core billets were measured and these were sealed with clear lacquer prior to immersion. The lacquer adds no significant volume or mass to the samples. These relative density determinations are considered appropriate for estimating in situ bulk density. The highly friable nature of the weathered (oxide) material meant that very few readings were

obtained within this facies. As a result an average oxide bulk density was used based on similar rock types in other areas.

In total 215 relative density measurements were taken during the course of the drilling campaign.

## **10.2 Rusizi Project**

No exploration drilling has been carried out at this stage on the Rusizi Project area.

## **10.3 Nyamugali Project**

No exploration drilling has been completed at this stage on the Nyamugali Project area.

## **11 SAMPLE PREPARATION, ANALYSES AND SECURITY**

### **11.1 Byumba Project**

#### **11.1.1 Analytical Method**

Sample preparation and analysis was carried out by ALS Chemex, Johannesburg, South Africa.

Samples from the soil sampling campaign were oven dried, de-lumped and dry screened to 180 micron. Approximately 250g was then split off and pulverised to 85% passing 75 micron. A 30g sub sample was then analysed by lead collection fire assay with either an Atomic Absorption Spectrometer (AAS) finish or inductively coupled plasma and atomic emission spectrometry (ICP-AES) finish. The detection limit for these methods is 0.001ppm for Au. ALS Chemex is a South African National Accreditation System (SANAS) accredited laboratory for gold analysis by this method and the method is suitable for gold soil samples (Registration Number T0387). The technique is considered to yield total gold results.

Diamond core drill samples were crushed to less than 2mm using a jaw crusher and then split using a riffle splitter. One of the splits was then pulverised to achieve 85% of the sample at less than 75µm. A 50g sub sample was then analysed for gold by Fire Assay with an ICP-AES finish. The detection limit for this method is 0.001ppm Au.

#### **11.1.2 Analytical Quality Assurance and Quality Control**

##### Introduction

A comprehensive quality assurance and quality control (QA/QC) program was undertaken for both soil sampling and drill core samples. The QA/QC program identified various aspects of the results that could have negatively influenced the subsequent mineral resource estimate. It was possible to identify samples that had been swapped, missing samples, and incorrect labelling amongst other aspects.

The QA/QC aims to confirm both the precision and accuracy of the laboratory and thereby confirm that the data used in the mineral resource estimate is of sufficient quality.

The control samples used comprised of a standard, a blank and a duplicate within every 20 samples submitted. The intended aim was 5% coverage for each of the control sample types.

The quality control data was analysed on an on-going basis and generated numerous queries with the laboratory. All queries were satisfactorily resolved. Definition of terms related to the QA/QC protocols applied and subsequent evaluations are provided below:

A standard is a certified reference material (CRM) with a known (statistically) element abundance and standard deviation. Reference standards are used to gauge the accuracy of analytical reporting by comparing the pre-determined values to those reported by the laboratory used during an exploration project.



A blank is a standard with abundance of the element of interest below the level of detection of the analytical technique.

A duplicate is the split of a sample taken at a particular stage of the sampling process; e.g. Field Duplicate.

The precision and accuracy are discussed in terms of the following statistical measures routinely applied by Coffey Mining.

- **Thompson and Howarth Plot** showing the mean relative percentage error of grouped assay pairs across the entire grade range, used to visualise precision levels by comparing against given control lines.
- **Rank HARD Plot**, which ranks all assay pairs in terms of precision levels measured as half of the absolute relative difference from the mean of the assay pairs (HARD), used to visualise relative precision levels and to determine the percentage of the assay pairs population occurring at a certain precision level.
- **Mean vs HARD Plot**, used as another way of illustrating relative precision levels by showing the range of HARD over the grade range.
- **Mean vs HRD Plot** is similar to the above, but the sign is retained, thus allowing negative or positive differences to be computed. This plot gives an overall impression of precision and also shows whether or not there is significant bias between the assay pairs by illustrating the mean percent half relative difference between the assay pairs (mean HRD).
- **Correlation Plot** is a simple plot of the value of assay 1 against assay 2. This plot allows an overall visualisation of precision and bias over selected grade ranges. Correlation coefficients are also used.
- **Quantile-Quantile (Q-Q) Plot** is a means where the marginal distributions of two datasets can be compared. Similar distributions should be noted if the data is unbiased.

Quality control monitoring protocols involved submission of blanks, duplicates and certified reference standards with the sample batches. After every 18th sample an alternating standard was allocated to the sampling sequence followed by a blank as the 20th sample. For the diamond drilling program within these 20 samples a duplicate was taken of the 9th sample and this sequence was repeated throughout. Duplicates were not used in the soil sampling program.

For the field duplicates in the core sampling an empty sample bag with a sample ticket was submitted for the laboratory to split the previous sample after crushing during sample preparation. Two standards were used in the soil sampling and two in the diamond drilling; a high and a low grade standard for each program. All standards were supplied by Geostats Pty Ltd, Australia and Table 11.1.2\_1 shows the Expected Values (EV). Washed silica sand was used for the blanks.

<b>Table 11.1.2_1</b>				
<b>Byumba Project</b>				
<b>Summary of Standard Expected Values</b>				
Standard	Au Grade			Units
	EV	+1 Stnd Dev	-1 Stnd Dev	
GLG305-1 (soil)	101.57	113.27	89.87	ppb
GLG901-3 (soil)	53.9	60.91	46.89	ppb
G396-8 (drilling, channel)	4.82	5.11	4.53	ppm
G397-3 (drilling, channel)	1.73	1.85	1.61	ppm

### Soil Sampling QA/QC

QA/QC data is reviewed on a regular basis and any anomalous results queried with the laboratory. The broad guidelines employed are:-

- CRM reporting more than 2 standard deviations from the expected value.
- Blank reporting more than 3 times detection limit.

If these guidelines were not met then the laboratory was asked to re-analyses 5 to 10 samples either side of the failed reference sample. Similarly, if infill soil samples around a multiline anomaly failed to show a coherent anomaly, check samples were selected for re-assay. The numbers of control samples used in the Byumba Project soil sampling program are given in Table 11.1.2\_2.

<b>Table 11.1.2_2</b>			
<b>Byumba Project</b>			
<b>Summary of the Number of Control Samples Used in Soil Sampling Program</b>			
Control Type	Submitted	Total Samples	Proportion
Blanks	487	9,817	5.0%
GLG305-1	236		2.5%
GLG901-3	248		2.5%
<b>Total</b>	<b>971</b>		<b>10.0%</b>

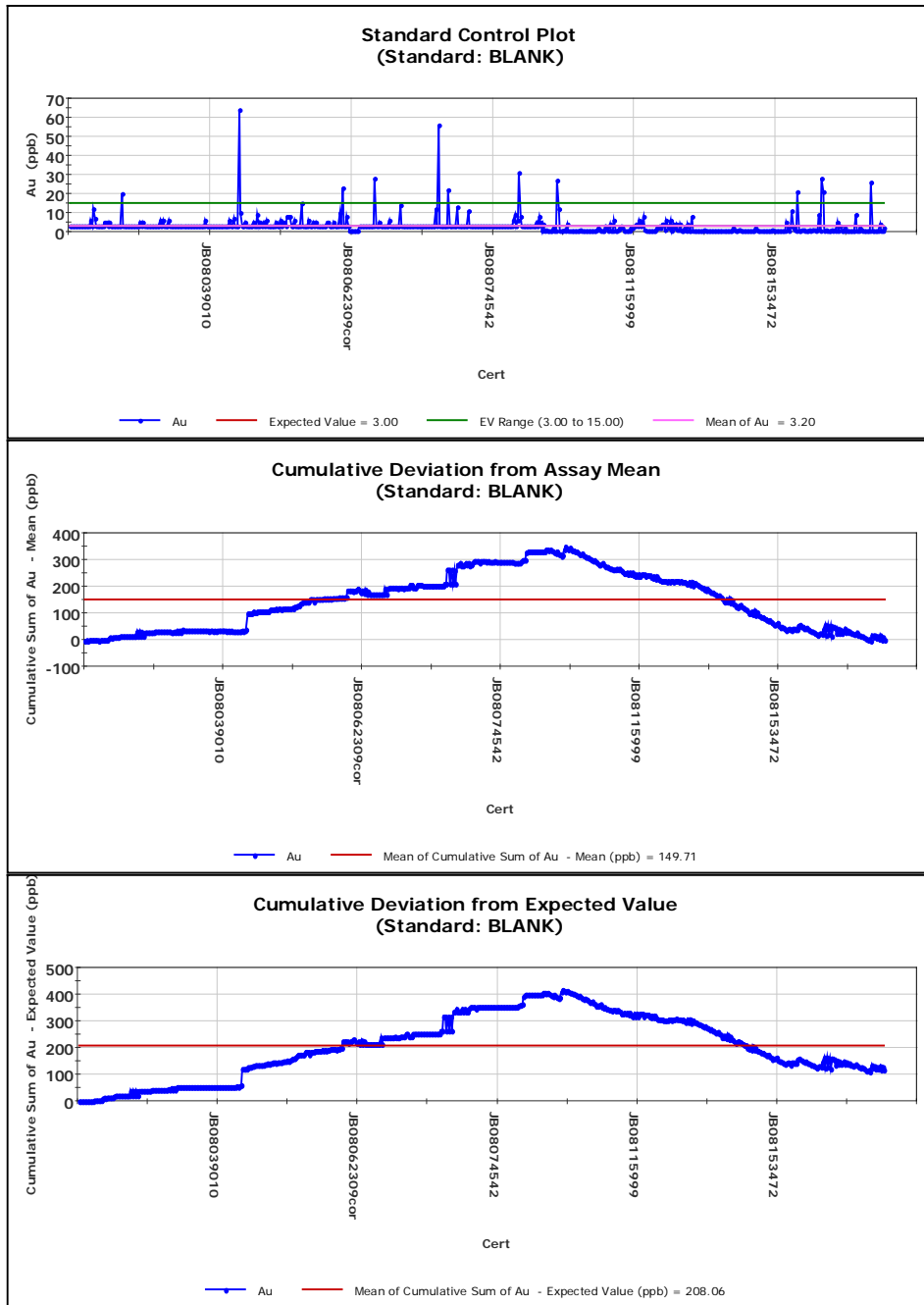
Seven anomalous results in excess of three times detection limit were returned for Blanks (Figure 12.1.2\_1). This corresponds to 1.4% of the blank samples; re-assay has shown the contamination to be isolated and it is not considered to have materially affected the overall program.

Analysis of CRM GLG305-1 and GLG901-3 shows reasonable precision and accuracy with a minor bias (Figure 11.1.2\_2 and Figure 11.1.2\_3). Isolated results in excess of two standard deviations from the expected value occur and were queried with the laboratory and surrounding samples submitted for re-analysis.

The soil sampling programs for both the Byumba and Rusizi Projects were done concurrently and samples submitted to the same laboratory for the same analysis. For this reason, the QA/QC graphs in Figures 11.1.2\_1 to 11.1.2\_3 represent all soil control samples for both project areas.

**Figure 11.1.2 1**  
**QA/QC Analysis Charts, Soil Sampling Gold Blanks**

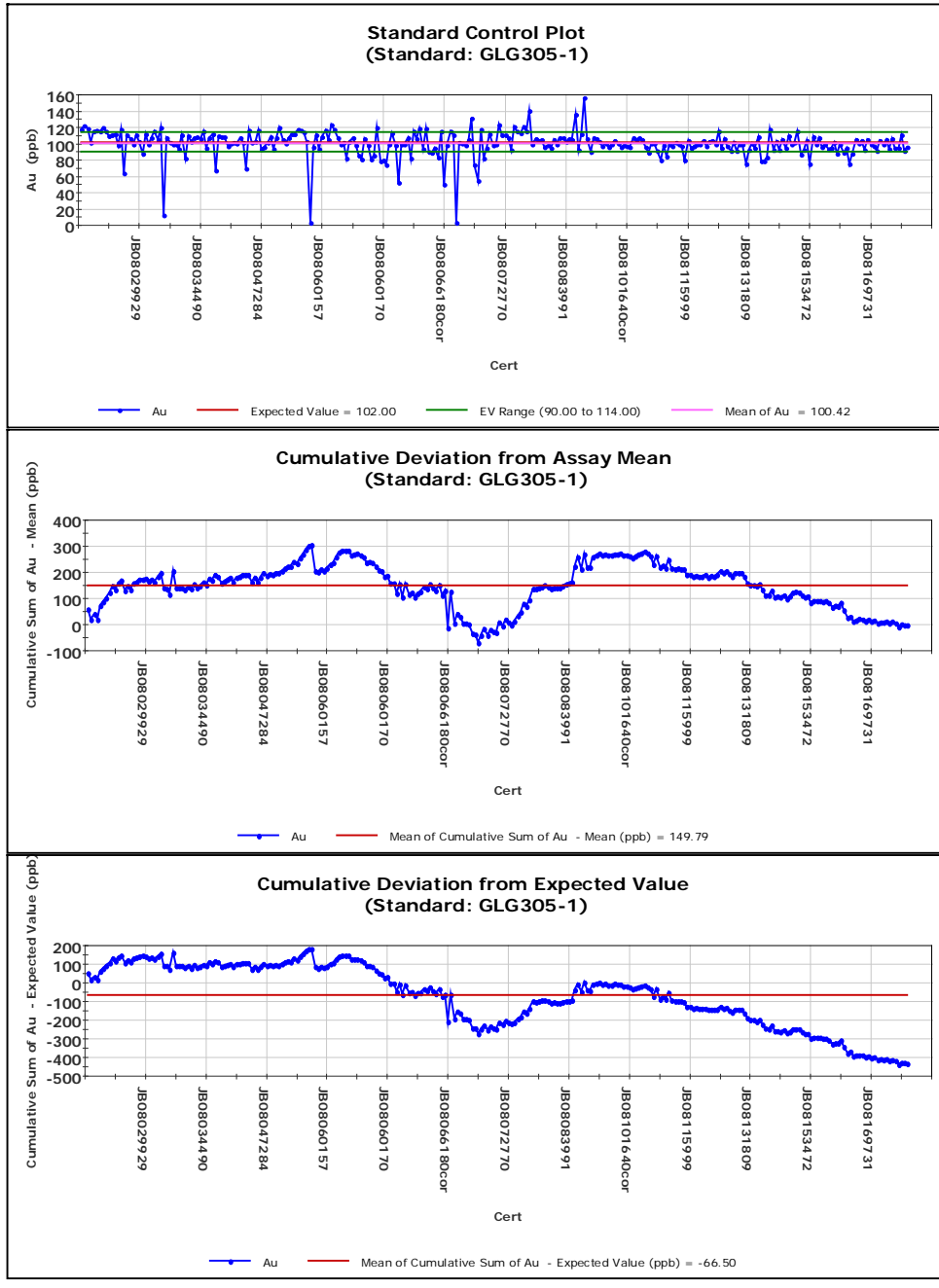
Standard:	BLANK	No of Analyses:	577
Element:	Au	Minimum:	0.50
Units:	ppb	Maximum:	64.00
Detection Limit:		Mean:	3.20
Expected Value (EV):	3.00	Std Deviation:	4.92
E.V. Range:	3.00 to 15.00	% in Tolerance	61.35 %
		% Bias	6.73 %
		% RSD	153.60 %





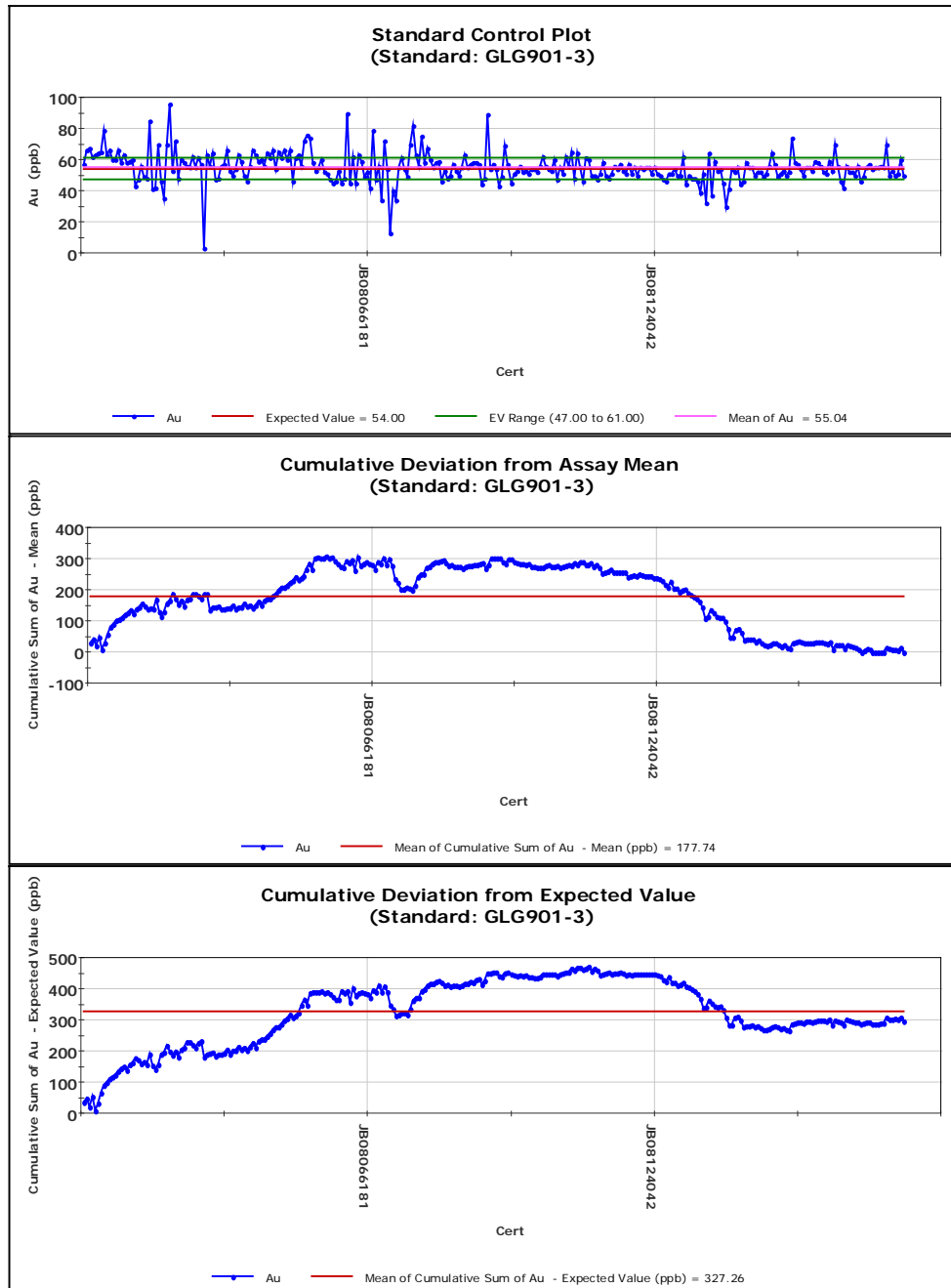
**Figure 11.1.2 2**  
**QA/QC Analysis Charts, Soil Sampling Gold CRM GLG305-1**

Standard:	GLG305-1	No of Analyses:	272
Element:	Au	Minimum:	3.00
Units:	ppb	Maximum:	157.00
Detection Limit:		Mean:	100.42
Expected Value (EV):	102.00	Std Deviation:	16.26
E.V. Range:	90.00 to 114.00	% in Tolerance	71.69 %
		% Bias	-1.55 %
		% RSD	16.19 %



**Figure 11.1.2\_3**  
**QA/QC Analysis Charts, Soil Sampling Gold CRM GLG901-3**

Standard:	GLG901-3	No of Analyses:	287
Element:	Au	Minimum:	3.00
Units:	ppb	Maximum:	96.00
Detection Limit:		Mean:	55.04
Expected Value (EV):	54.00	Std Deviation:	9.74
E.V. Range:	47.00 to 61.00	% in Tolerance	67.94 %
		% Bias	1.92 %
		% RSD	17.70 %



Diamond Drill Core QA/QC

During the course of the diamond drill campaign a total of 5,176 samples (excluding QA/QC samples) were submitted to ALS Chemex in Johannesburg for analysis. The number and proportions of each type of control sample submitted are shown in Table 11.1.2\_3. QA/QC data is reviewed on a regular basis and any anomalous results queried with the laboratory. The broad guidelines employed are:-

- CRM reporting more than 2 standard deviations from the expected value.
- Blank reporting more than 3 times detection limit.

If these guidelines were not met then the laboratory was asked to re-analyses 5 to 10 samples either side of the failed reference sample.

<b>Table 11.1.2_3</b>			
<b>Byumba Project</b>			
<b>Summary of the Number of Control Samples for the Diamond Drilling Program</b>			
<b>Control Type</b>	<b>Submitted</b>	<b>Samples</b>	<b>Proportion</b>
Blanks	298	5,981	5.0%
G396-8	130		2.2%
G397-3	116		2.0%
Duplicates	261		4.0%
<b>Total</b>	<b>805</b>		<b>13.2%</b>

Blanks

Contamination during sample preparation was evident in early batches during 2008 (Figure 11.1.2\_4). This was discussed with the laboratory and measures put in place to better control cleaning of equipment. Thereafter only one blank, sample H017000, returned a higher than expected grade, likely due to minor contamination from the previous sample.

Standard G396-8

During 2008 several samples of this standard returned higher than acceptable results (Figure 11.1.2\_5). Batches of ten samples either side of anomalous values were re-assayed to ensure that there was no overall bias. After several queries with the laboratory the standard returned results within acceptable limits. For the project, this standard returned results with an overall bias of less than 3.5%.

Standard G397-3

Outside of anomalous results that were queried and resolved with the laboratory, there was only one sample, H023039, that returned a lower than expected grade (Figure 11.1.2\_6). Overall the majority of these samples returned values that fell within two "between laboratory" standard deviations from the EV with a bias of less than 0.5%.

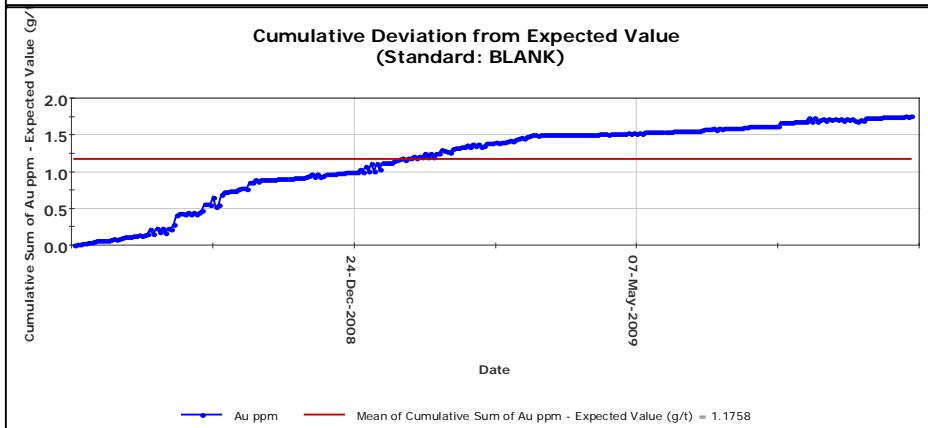
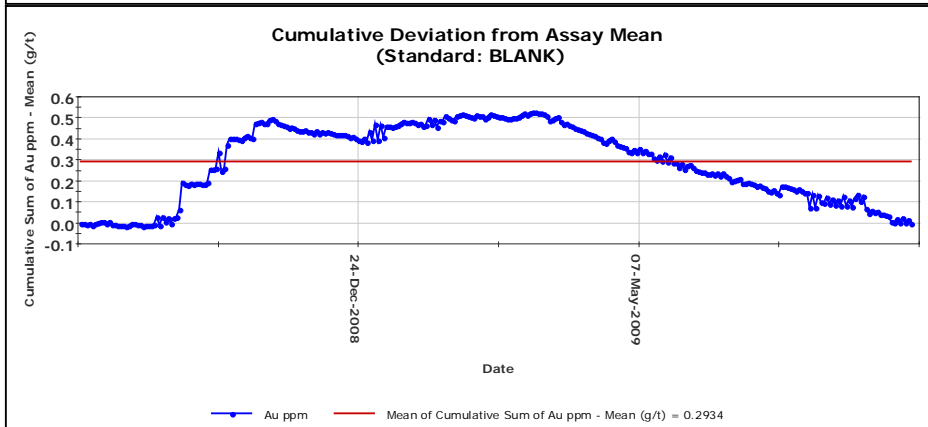
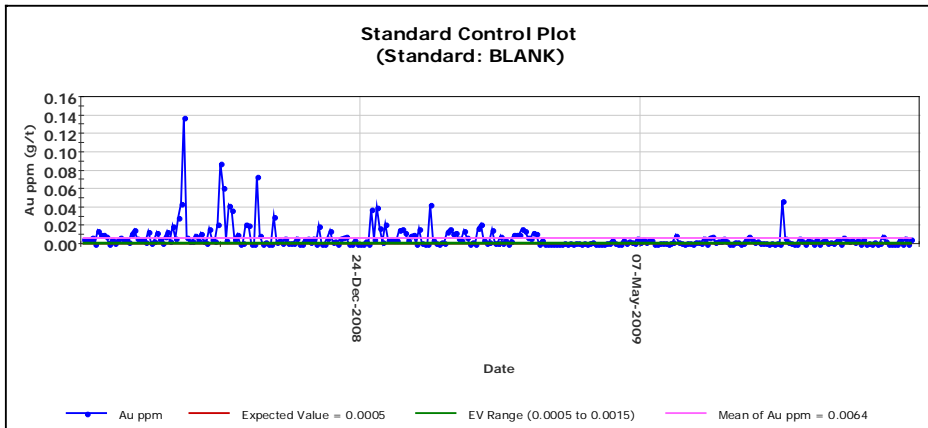
Field Duplicates

Of all data pairs grading more than ten times detection limit, 75% are within 20% HARD precision limits with a bias of -8% (Figure 11.1.2\_7). The slightly poor precision on the duplicate assay pairs is most likely due to the natural nugget effect of gold. If the six highest grade pairs are removed precision improves significantly and there is no significant bias between the data sets.



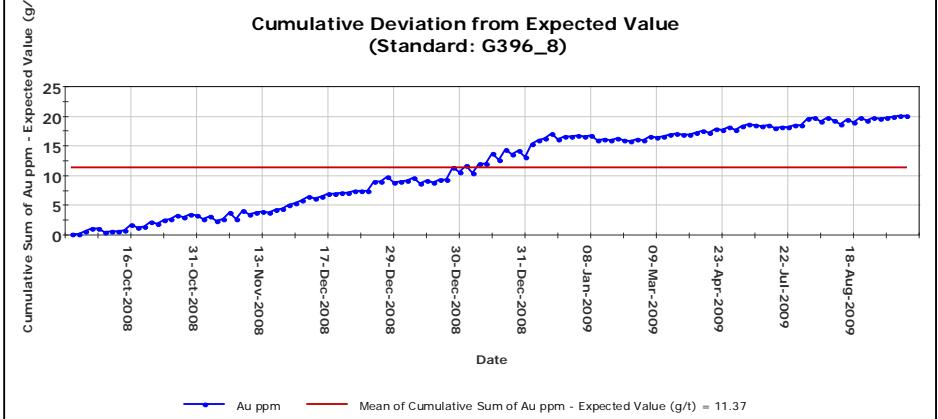
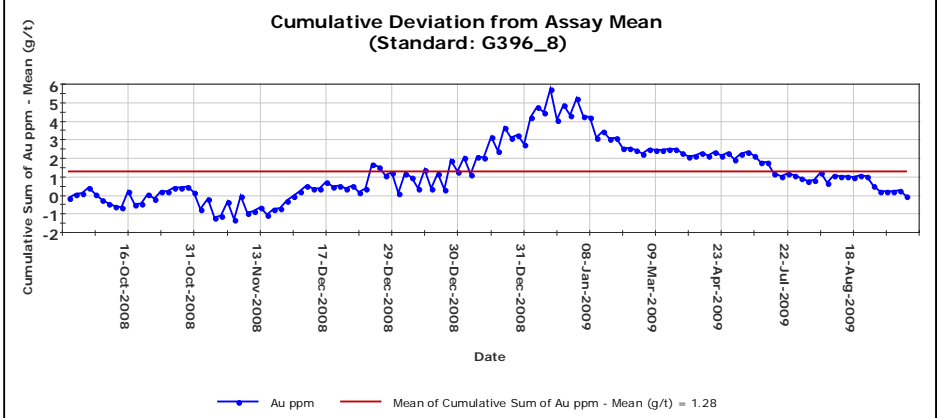
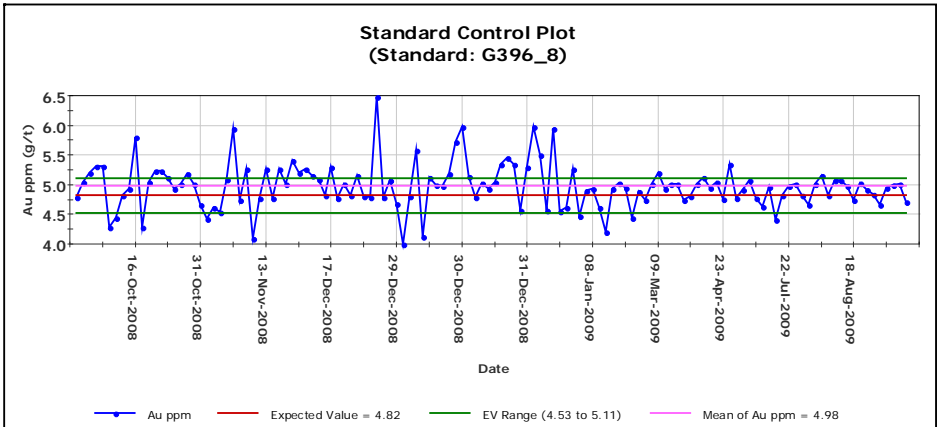
**Figure 11.1.2.4**  
**QA/QC Analysis Charts, Diamond Drilling/Channel Sampling Gold Blanks**

Standard:	BLANK	No of Analyses:	297
Element:	Au ppm	Minimum:	0.0005
Units:		Maximum:	0.1380
Detection Limit:		Mean:	0.0064
Expected Value (EV):	0.0005	Std Deviation:	0.0128
E.V. Range:	0.0005 to 0.0015	% in Tolerance:	15.4882 %
		% Bias:	1,184.5117 %
		% RSD:	199.9226 %



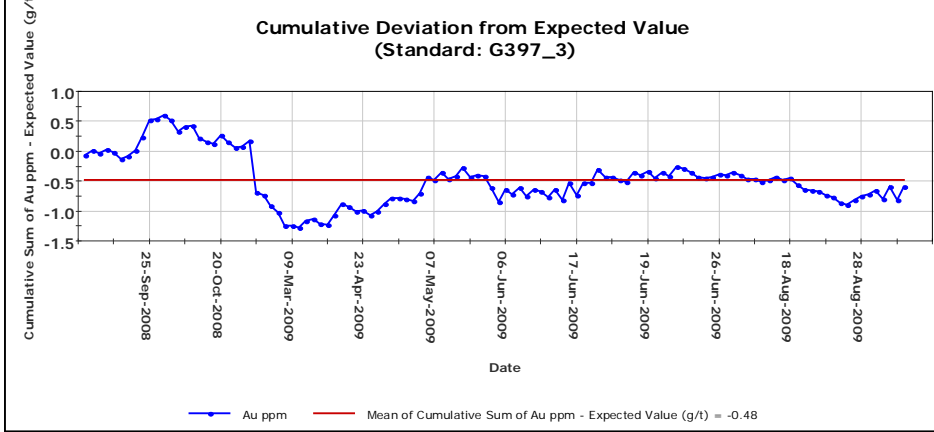
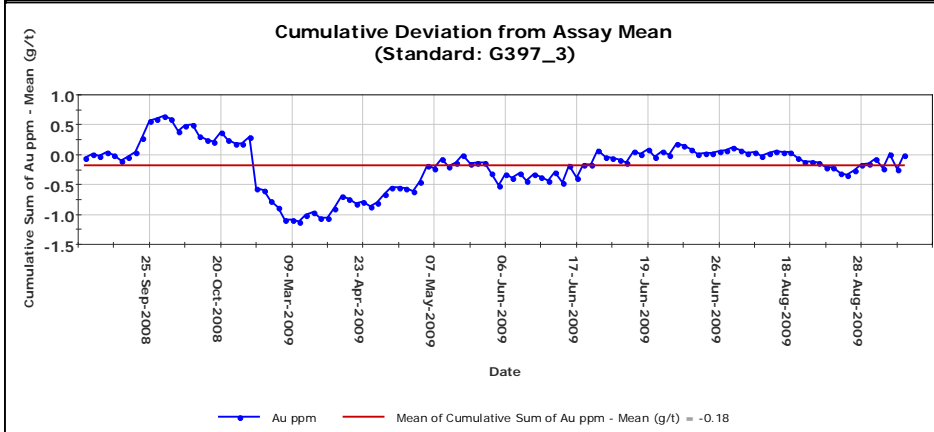
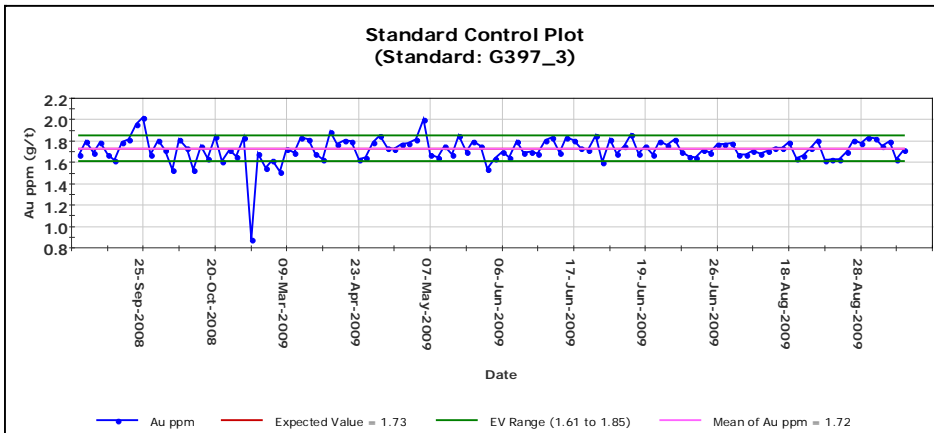
**Figure 11.1.2 5**  
**QA/QC Analysis Charts, Diamond/Channel Sampling Gold CRM G396\_8**

Standard:	G396_8	No of Analyses:	128
Element:	Au ppm	Minimum:	4.00
Units:		Maximum:	6.49
Detection Limit:		Mean:	4.98
Expected Value (EV):	4.82	Std Deviation:	0.38
E.V. Range:	4.53 to 5.11	% in Tolerance	62.50 %
		% Bias	3.25 %
		% RSD	7.62 %



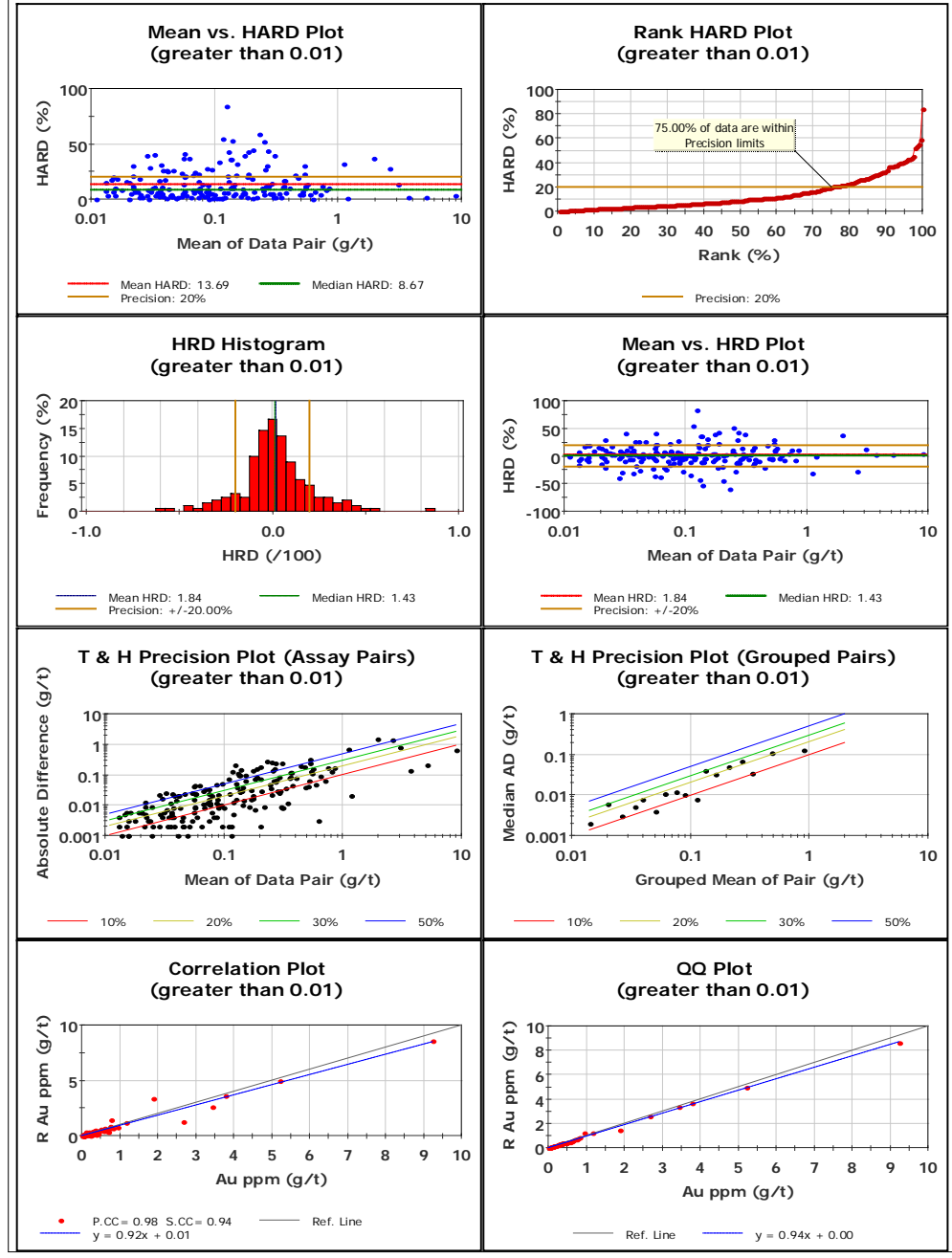
**Figure 11.1.2 6**  
**QA/QC Analysis Charts, Diamond/Channel Sampling Gold CRM G397\_3**

Standard:	G397_3	No of Analyses:	116
Element:	Au ppm	Minimum:	0.88
Units:		Maximum:	2.02
Detection Limit:		Mean:	1.72
Expected Value (EV):	1.73	Std Deviation:	0.12
E.V. Range:	1.61 to 1.85	% in Tolerance	87.07 %
		% Bias	-0.30 %
		% RSD	6.95 %



**Figure 11.1.2\_7**  
**QA/QC Analysis Charts, Diamond/Channel Sampling; Field Duplicates >10x Detection Limit.**

	Au ppm	R Au ppm	Units		Result
No. Pairs:	192	192		Pearson CC:	0.98
Minimum:	0.01	0.01	g/t	Spearman CC:	0.94
Maximum:	9.23	8.59	g/t	Mean HARD:	13.69
Mean:	0.30	0.29	g/t	Median HARD:	8.67
Median:	0.09	0.09	g/t	Mean HRD:	1.84
Std. Deviation:	0.87	0.82	g/t	Median HRD:	1.43
Coefficient of Variation:	2.89	2.86			



## 11.2 Rusizi Project

### 11.2.1 Analytical Method

Sample preparation and analysis was carried out by ALS Chemex, Johannesburg, South Africa. Methodology was as described in Section 11.1.2.

### 11.2.2 Quality Assurance and Quality Control

As for the Byumba Project field control samples comprising two different CRM, and blanks were also introduced at the frequency of 1 in 20 samples. QA/QC data was reviewed on a regular basis and any anomalous results queried with the laboratory. Table 11.2.2\_1 shows the control samples from the soil sampling campaign and Table 11.2.2\_2 shows the control samples from the channel sampling.

Table 11.2.2_1 Rusizi Project Summary of the Number of Control Samples Used in Soil Sampling Program			
Control Type	Submitted	Samples	Proportion
Blanks	92	1,877	5.0%
GLG305-1	45		2.4%
GLG901-3	49		2.6%
<b>Total</b>	<b>186</b>		<b>10.0%</b>

Table 11.2.2_2 Rusizi Project Summary of the Number of Control Samples Used in Channel Sampling Program			
Control Type	Submitted	Samples	Proportion
Blanks	7	132	5.0%
GLG305-1	5		4.0%
GLG901-3	2		1.5%
<b>Total</b>	<b>14</b>		<b>10.5%</b>

The soil and channel sampling programs over Rusizi occurred concurrently with the soil and diamond drilling programs on the Byumba Project. For this reason the QA/QC graphs for the Rusizi Project are presented together with the Byumba data in Section 11.1.2. All soil sampling data from both projects is combined (Figures 11.1.2\_1 to 11.1.2\_3) and the channel sampling data from Rusizi is included with the diamond core data from Byumba (Figures 11.1.24 to 11.1.2\_7).

## 11.3 Nyamugali Project

No sampling or Q/AQC has been carried out on the property.



## **12 DATA VERIFICATION**

### **12.1 Byumba Project**

#### **12.1.1 Data Validation**

The electronic drillhole data base was imported into Micromine®; a three dimensional modelling software, on an ongoing basis during the course of the exploration work. The data was then validated and interrogated by Janine Fleming. In conjunction with the QA/QC program, validation errors were queried with either the laboratory or TransAfrika and a series of corrections were returned and integrated into the final database prior to resource estimation. Field procedures and core logging were reviewed by Mark McKinney during several site visits.

#### **12.1.2 Data Quality Summary**

The geological and downhole survey data is considered to be of industry acceptable standard and appropriate for mineral resource estimation.

The sample sizes and intervals are considered appropriate for the deposit and the grain size of the material being sampled. The sampling methodology is appropriate and supports the mineral resource estimate and classification made.

The assay data are considered acceptable in terms of both assay precision and accuracy. The standards data generally report within the targeted  $\pm 10\%$  range.

The collar and DTM surveys are of poor accuracy and suitable only for a maximum mineral resource classification of Inferred.

### **12.2 Rusizi Project**

#### **12.2.1 Data Validation**

The exploration database was imported into a three dimensional modelling software on a regular basis. The data was then validated and interrogated by Mark McKinney. Validation errors were queried with TransAfrika who returned a series of corrections. Some isolated high gold-in-soil sample locations were also revisited to check their authenticity.

### **12.3 Nyamugali Project**

There was no data available for validation.

### **13 MINERAL PROCESSING AND METALLURGICAL TESTING**

No mineral processing or metallurgical testing has been undertaken for the Byumba, Rusizi or Nyamugali Projects at this time.

## 14 MINERAL RESOURCE ESTIMATES

### 14.1 Byumba Project

#### 14.1.1 Introduction

The scope of work provided to Coffey Mining was to estimate the mineral resources for the Byumba deposit based on the existing data. No mineral reserves were estimated at this time. The Competent Person responsible for the mineral resource estimation and classification is Janine Fleming. Janine Fleming is a registered professional natural scientists (Pr.Sci.Nat.) with the South African Council for Natural Scientific Professionals (SACNASP) and a Competent Person” as defined in the 2007 edition of the SAMREC Code. She is also a “Qualified Person” as that term is defined in Canadian National Instrument 43-101.

#### 14.1.2 Data Source

The data, which was provided as an electronic database, consisted of 33 drillholes and trenches totalling 345 intersections. It included data for drillhole collars, downhole surveys, geology and assays.

#### 14.1.3 Geological Interpretation and Modelling

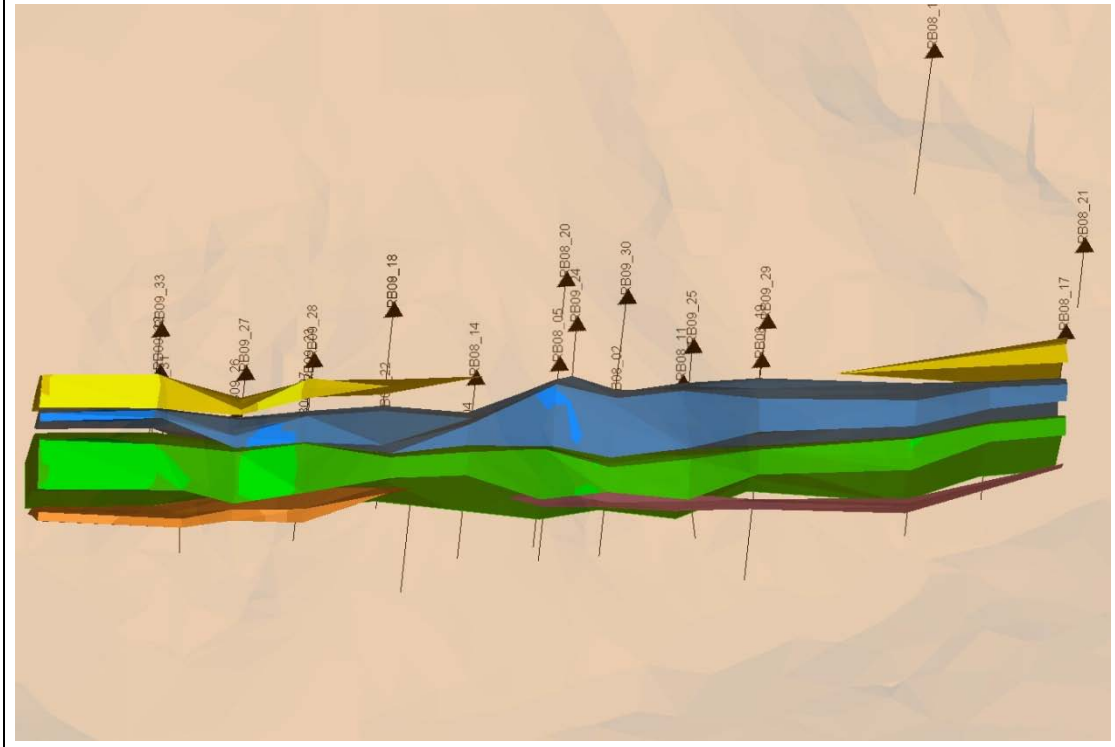
##### Broad Mineralized Zones

In order to understand the broad geometry of the target, low grade zones were initially investigated. For ease of reference a series of drill section lines oriented 060° starting 500m south of the southernmost drill line were digitised. These were named according to their distance from the first line.

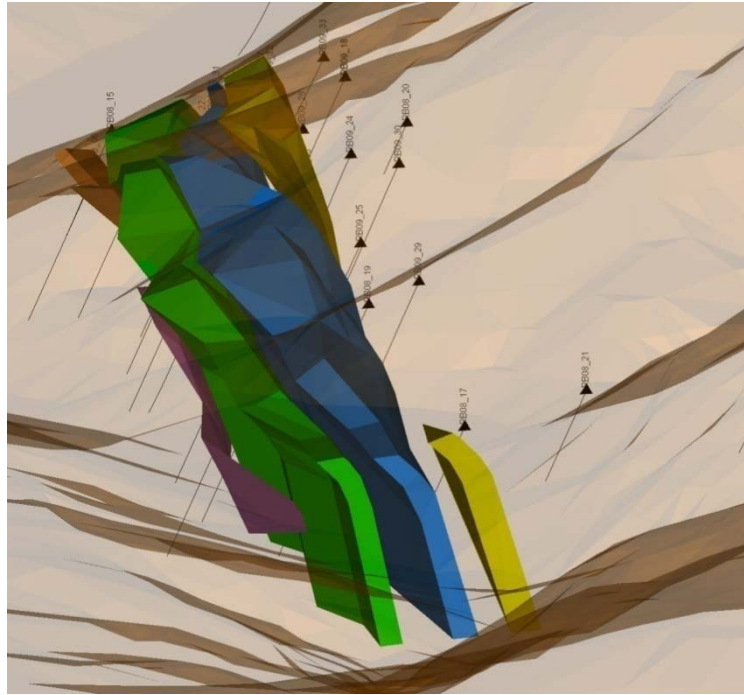
Each section line with drillholes had a sectional interpretation of the broad mineralized zones using a 0.25ppm Au sample cut-off grade. This cut-off grade was relaxed by 1m locally to allow continuity. Sectional outline interpretations were clipped to the drillhole traces in three dimensions (3D) and projected down to a nominal elevation of 1,500m amsl. In the absence of identifiable lithological units within the mineralized zones the geometry was guided by bedding as recorded in pad mapping, core intersection angles and in oriented core. These give a roll over near surface to approximately 45°, steepening with depth to ±75° to 80°.

Sectional interpretations were then connected together to form solids and projected to a point half way between drill lines on terminations. The exercise yielded five simple and robust grade shells striking 140° dipping 45° to 85° to the northeast (Figure 14.1.3\_1 to Figure 14.1.3\_3). Two of these are large and continuous throughout the 1,160m drilled strike length (named By1 and By2). Widths vary from 10m to 50m with broad pinch and swell. The remaining three grade shells occur in both the hangingwall and footwall of the two main units and are thinner and less continuous. Drilled strikes vary from 300m to 700m and widths from 1m to 20m. They also appear to pinch out at depth.

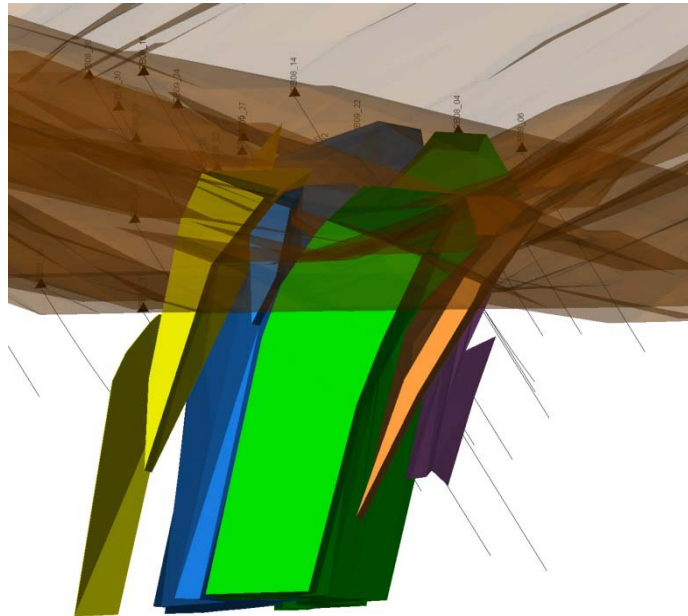
**Figure 14.1.3.1**  
**Isometric View of Broad Grade Shells, Looking Downdip ( $\pm 75^\circ$  on 050°)**



**Figure 14.1.3\_2**  
**Isometric View of Broad Grade Shells, Looking Northwest**



**Figure 14.1.3\_3**  
**Isometric View of Broad Grade Shells, Looking Southeast**



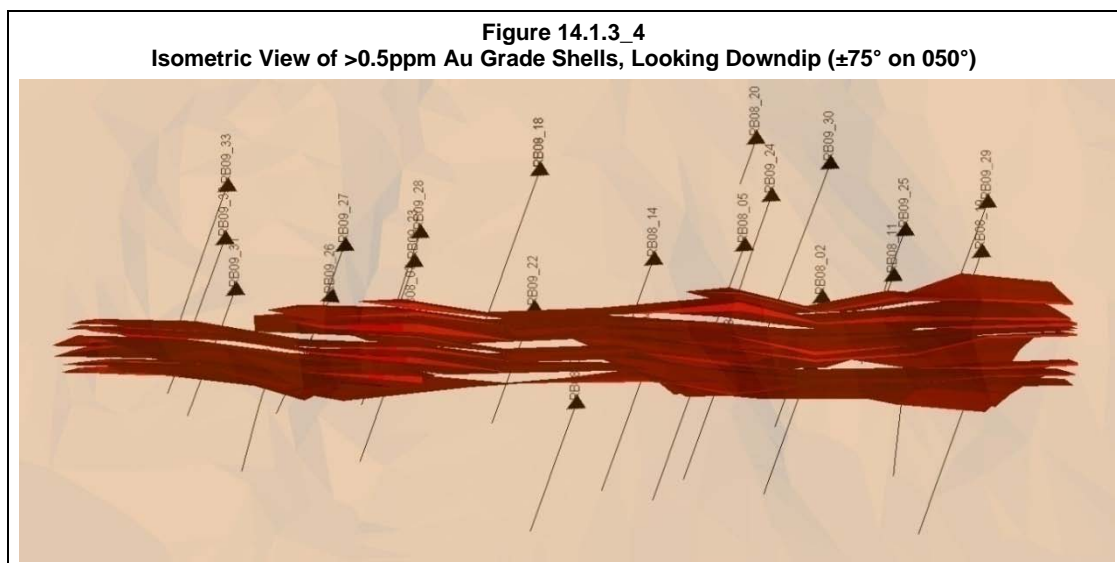


### 0.50ppm Au Grade Shells

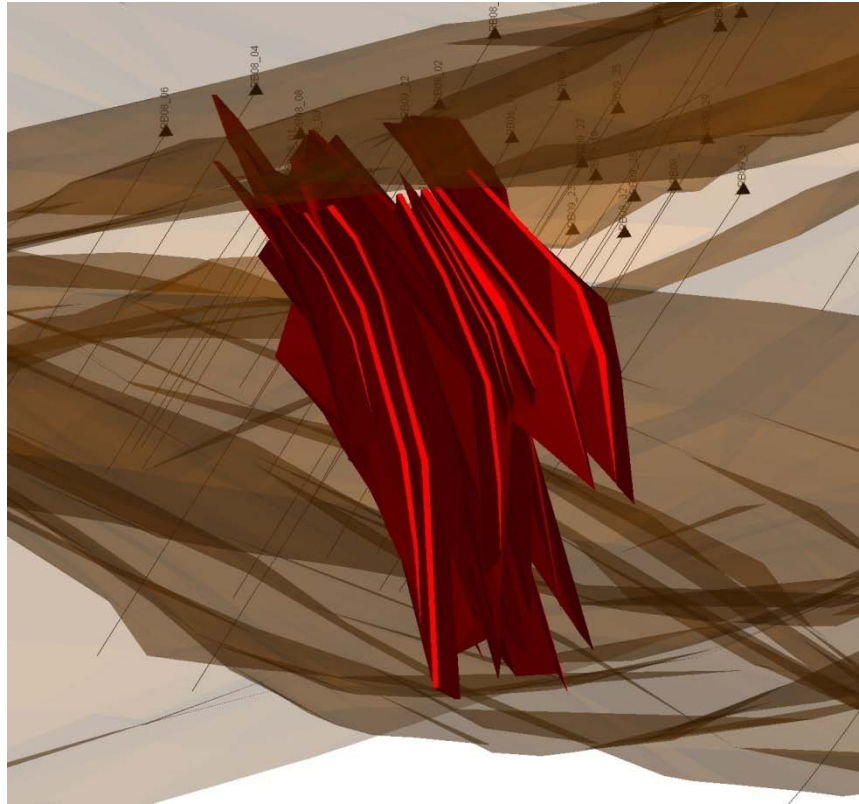
A similar procedure to that outlined for the Broad Mineralized Zones was employed in modelling the grade shells. A sample grade cut-off of 0.50ppm Au was employed, although material of less than 0.50ppm Au was included locally to gain continuity. Geometries were guided by the measured dips from pad mapping, oriented core and core intersection angles (in un-oriented core). Individual shells were not allowed to transect the boundaries of the broad mineralization envelopes.

Sectional interpretations were extended some 75m down dip on average and 100m past the last intersecting drill line along strike. Wireframes were terminated to points half way between intersecting drill lines along strike. Wireframes were only produced where intersections could be modelled over two or more drill lines. Single line intersects were only modelled in section.

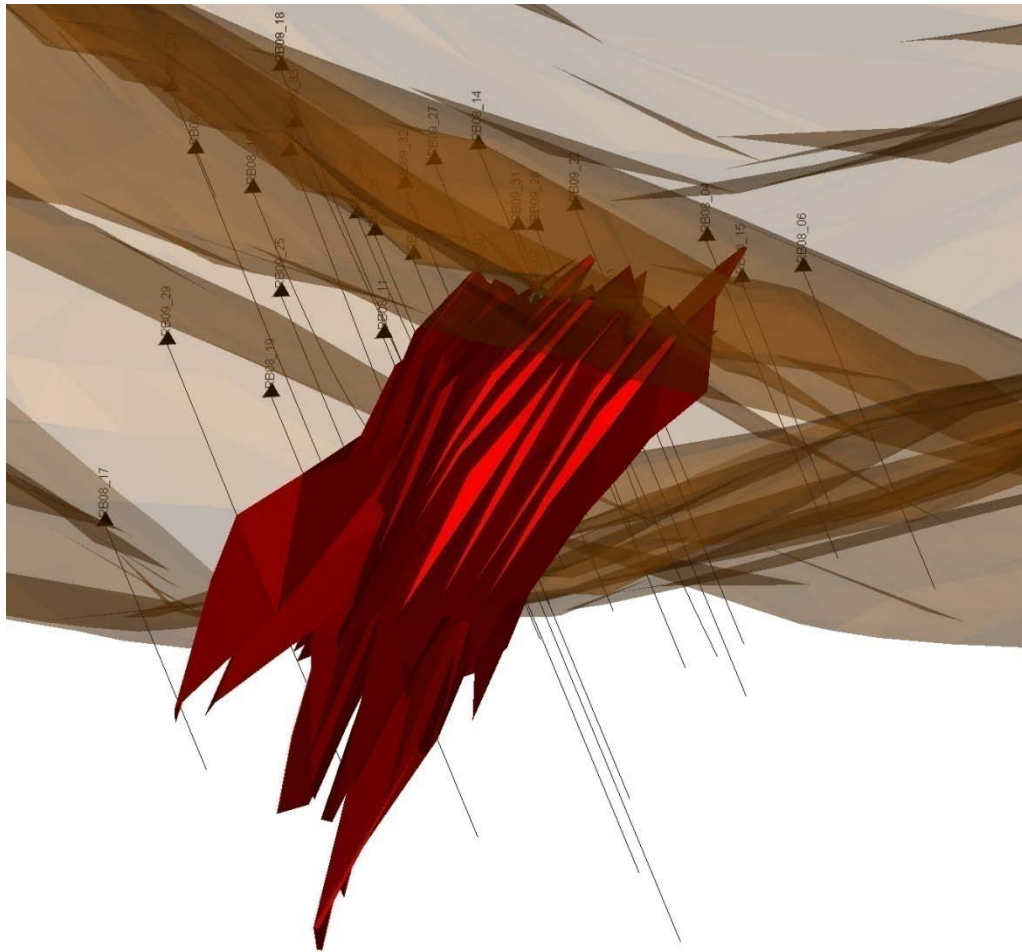
The exercise yielded 14 grade shells although only between three and ten have been intersected on any one section (Figures 14.1.3\_4 to 14.1.3\_6). Strike lengths vary from 100m to 1,160m and down dip extents to 200m, often open at depth. True widths vary from 1m to 8m with separations between shells of 3m to 15m.



**Figure 14.1.3 5**  
**Isometric View of >0.5ppm Au Grade Shells, Looking Northwest**



**Figure 14.1.3 6**  
**Isometric View of >0.5ppm Au Grade Shells, Looking Southeast**



#### 14.1.4 Statistical Analysis

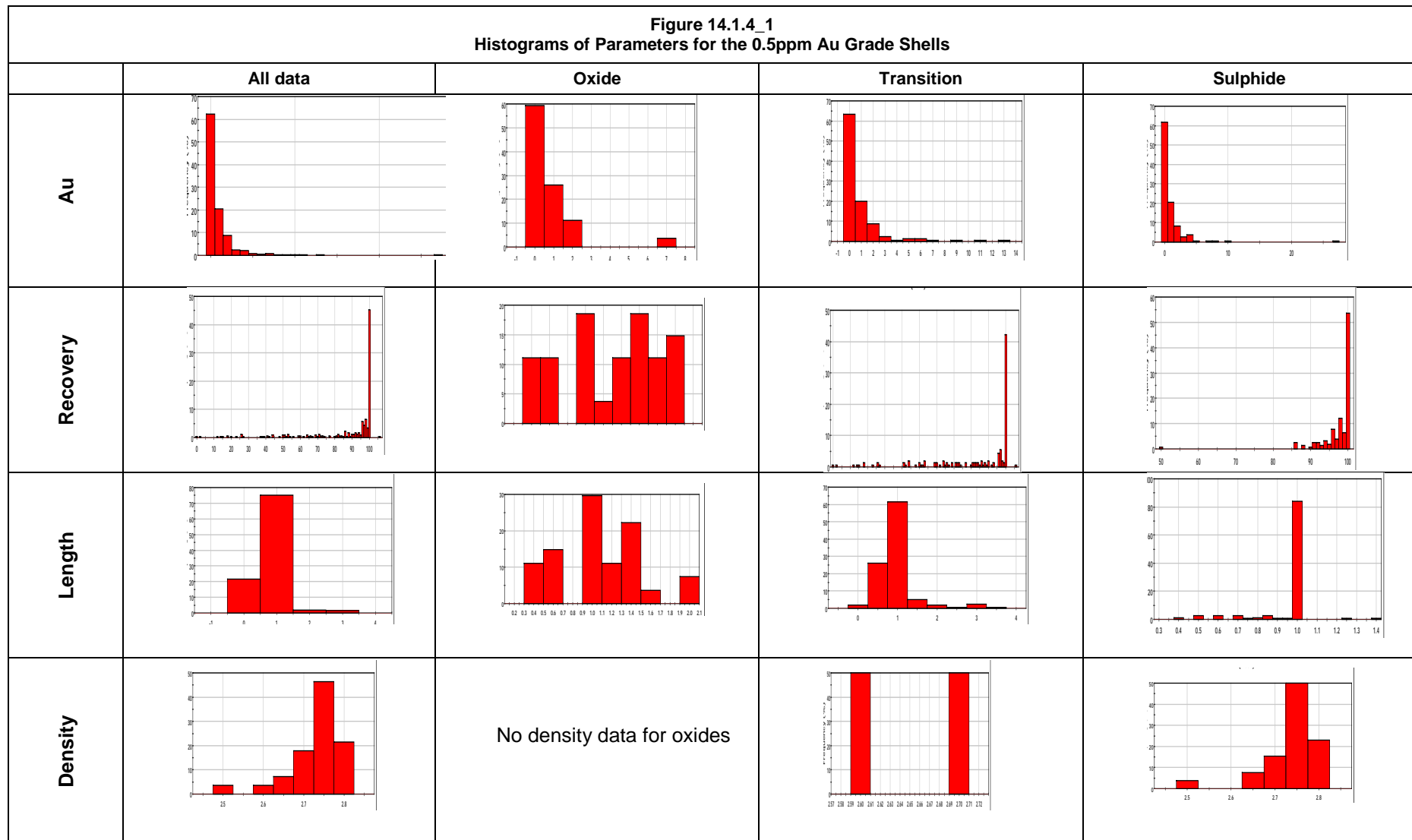
##### Compositing

The data was composited within the 0.5ppm Au grade shells to 1m intervals.

##### Statistics

A detailed statistical analysis was undertaken according to the geological model developed for the 0.5ppm Au grade shells and for each element per composite (Table 14.1.4\_1 and Figure 14.1.4\_1). The gold data shows a similar distribution for all weathering zones, typically negatively skewed with a few high grade outliers. The recovery data is highly variable, but within the oxide zone showing the least variation. Although a total of 215 density measurements were taken only 28 samples fall within the 0.5ppm Au grade shells and of these 26 are within the Sulphide or Fresh zone.

**Figure 14.1.4.1**  
**Histograms of Parameters for the 0.5ppm Au Grade Shells**



**Table 14.1.4\_1**  
**Byumba Project**  
**Summary of the Statistics for the Drillhole Data**

<b>Au g/t</b>	<b>All data</b>	<b>Oxide</b>	<b>Transition</b>	<b>Fresh</b>
Count	345	27	161	157
Minimum	0.01	0.07	0.04	0.01
Maximum	27.8	7.14	13.2	27.8
Mean	1.36	1.24	1.33	1.40
Median	0.74	0.71	0.83	0.70
Standard Deviation	2.22	1.33	1.86	2.64
Variance	4.91	1.78	3.44	6.95
Coefficient of Variation	1.64	1.08	1.39	1.89
<b>Recovery %</b>				
Count	345	27	161	157
Minimum	0.88	20.32	0.88	50.00
Maximum	106.67	100.00	106.67	100.00
Mean	88.61	68.44	83.03	97.8
Median	98.79	71.33	97.14	100
Standard Deviation	20.69	25.27	24.59	4.96
Variance	428.24	638.46	604.78	24.57
Coefficient of Variation	0.23	0.37	0.3	0.05
<b>Length m</b>				
Count	345	27	161	157
Minimum	0.3	0.5	0.3	0.4
Maximum	3.78	2	3.78	1.4
Mean	1.02	1.15	1.05	0.96
Median	1	1	1	1
Standard Deviation	0.38	0.42	0.5	0.13
Variance	0.14	0.18	0.25	0.02
Coefficient of Variation	0.37	0.36	0.48	0.14
<b>Density cm<sup>3</sup></b>				
Count	28	no data for oxide	2	26
Minimum	2.54		2.61	2.54
Maximum	2.85		2.71	2.85
Mean	2.75		2.66	2.76
Median	2.77		2.66	2.77
Standard Deviation	0.07		0.05	0.06
Variance	0		0	0
Coefficient of Variation	0.02		0.02	0.02

### Outlier Analysis

The histograms and statistics of each unit were examined to evaluate whether outlier values were present and if these values warranted cutting or capping of the data. Some very high values were identified but it was not deemed necessary to cut or cap the data as these were deemed to be indicative of the nugget effect of the gold. An outlier analysis was done and it was found that capping the data affected the mean grade by less than 1% and that the high grade samples in question contributed less than 3% towards the relative contained metal in the samples.



To ensure there was no bias in the modelling, each block required the use of a minimum of five sample points for the estimation within the first search radius, two within the second search radius and only within the third search radius, where there were still blocks that had not been estimated was the estimation allowed to use only one sample point. Blocks estimated using the third search radius would be given the lowest level of confidence.

#### 14.1.5 Block Model Development

A 3D estimate representing the 0.5ppm Au grade shells as defined by the wireframes was undertaken. The block model cell size utilised was based on drillhole spacing and the width of the grade shells (Table 14.1.5\_1).

Table 14.1.5_1 Byumba Project Summary of the Block Model Details					
	Block Model Origin (Centroid)		Parent Cell Size (m)	No of Blocks	Subcell Splitting
	Min	Max			
XC	516,000	517,000	2	500	Yes
YC	9,810,300	9,811,500	100	12	Yes
ZC	1,350	1,800	5	90	Yes

#### 14.1.6 Grade Estimation

##### Strategy

The Byumba Project was modelled using the 3D software package Datamine™. A 3D block model was created for the steeply dipping grade shells at a 0.5ppm (g/t) Au cut-off.

The data within the 0.5g/t grade shells was estimated using inverse distance weighting to the power of two. Values for Au (g/t), recovery (%) and length (m) were estimated. An average in situ bulk density was applied after estimation for oxide, transition and fresh zones.

The search strategy applied used three search criteria and is summarised in Table 14.1.6\_1. 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 drillholes rather than be informed from data in the same drillhole.

Table 14.1.6_1 Byumba Project Sample Search Parameters								
Estimation Pass	Rotation			Search Distance (Elliptical)			Min. Samples	Max. Samples
	X	Y	Z	X	Y	Z		
1	0	75	330	5	150	50	5	20
2	0	75	330	10	300	100	2	20
3	0	75	330	25	750	250	1	100

The model was checked visually and statistically to ensure that the results can be confidently reported. The statistical analysis is shown in Table 17.1.6\_2.

Table 14.1.6_2 Byumba Project Mineral Resource Estimate Boreholes vs. Block Model Statistics			
Element	Block mean	Drillhole mean	% difference
Au g/t	1.48	1.36	9%
Recovery %	87.16	88.61	2%
Length m	1.06	1.02	4%

Mean bulk densities were used for each unit (Table 14.1.6\_3).

Table 14.1.6_3 Byumba Project Densities per Weathered Zone	
Zone	Bulk Density
Oxide	2.35
Transition	2.55
Sulphide	2.75

As there were no density measurements within the oxide zone an average value of densities for similar rock types in other areas was used.

#### Geological Losses

Due to the uncertainty regarding the exact geological structures relating to this project no geological loss was applied.

#### 14.1.7 Classification

The classification of the mineral resources has been undertaken in accordance with the guidelines of the SAMREC Code prepared by The South African Mineral Resource Committee under the auspices of The South African Institute of Mining and Metallurgy (March 2007).

The resource categorization has been based on the robustness of the various data sources available, confidence of the geological interpretation, variography and various estimation service variables (e.g. distance to data, number of data, maximum search radii etc).

##### Criteria for Resource Categorisation

The resource estimate has been classified as an Inferred Mineral Resources based on the criteria set out in Table 14.1.7\_1.

<p align="center"><b>Table 14.1.7_1</b>  <b>Byumba Project</b>  <b>Confidence Levels of Key Criteria for Mineral Resource Classification</b></p>		
<b>Items</b>	<b>Discussion</b>	<b>Confidence</b>
Drilling Techniques	Diamond drilling to international standards. Reverse Circulation to international standards.	High
Logging	Standard nomenclature and procedures to international standards.	High
Drill Sample Recovery	The core recovery is highly variable and it is considered that drilling contractors have a high impact on the recovery.	Moderate
Sub-sampling Techniques and Sample Preparation	International standard for Diamond Drilling and Reverse Circulation.	High
Quality of Assay Data	Available data is of robust quality and has been derived from internationally recognised and procedures and techniques.	High
Verification of Sampling and Assaying	QA/QC program employed, and results show low bias between EV and Lab results.	High
Location of Sampling Points	Handheld GPS survey of all collars with downhole survey for many drillholes.	Moderate
Data Density and Distribution	Drilled with a spacing of 30m to 150m.	Moderate
Database Integrity	Errors identified and rectified.	High
Geological Interpretation	Geological interpretation is open ended at this stage and additional work is required to define major structures and mineralization features.	Low
Mineralization Type	Able to correlate grade and there is continuity of the geology across the property. However as the geology is not properly defined there is uncertainty relating to the controls on the mineralization.	Low
Estimation and Modelling Techniques	Inverse Distance used as there is insufficient data to compute usable variograms.	Low/Moderate
Cut-off Grades	Cut off applied at Au >0.5 g/t.	Moderate
Mining Factors or Assumptions	Open cut similar to operating mines in Tanzania.	NA
Density	Insufficient samples within the mineralized zones.	Low

The geology requires substantial additional work before it will be fully understood; however continuity of geology and grade can be adequately demonstrated.

The mineral resource has been categorised as Inferred. A higher confidence is not warranted due to insufficient knowledge about the geology of the deposit.

### 14.1.8 Resource Reporting

The Resource is reported exclusive of geological loss (Table 14.1.8\_1).

Table 14.1.8_1 Byumba Project Inferred Mineral Resource Estimate, January 2010				
Inferred Mineral Resources at 0.5g/t Au Cut-off				
Weathering Zone	Tonnage (Kt)	Au (g/t)	Density	Au ounces
Oxide	701	1.22	2.35	27,000
Transition	2,606	1.38	2.55	115,000
Fresh	2,245	1.69	2.75	122,000
<b>Total</b>	<b>5,551</b>	<b>1.48</b>	<b>2.61</b>	<b>265,000</b>

Mineral resources estimated according to SAMREC guidelines based on 33 diamond drillholes. Gold grades determined using inverse distance weighting squared into a 3D block model confined within 0.5g/t grade shells. Primary block dimensions are 100m along the strike, 2m across the strike and 5m vertically. A 0.5g/t Au sample grade cut-off was used with no high-grade value capping. Review of recent projects in eastern DRC and Tanzania indicate that a 0.5g/t Au cutoff for potential open pit operations is reasonable. There are no similar operations within Rwanda to benchmark against.

The Competent Person responsible for the mineral resource estimation and classification is Janine Fleming of Coffey Mining. Janine Fleming is a registered Professional Natural Scientist (Pr.Sci.Nat.) with the South African Council for Natural Scientific Professionals (SACNASP) and a Competent Person” as defined in the 2007 edition of the SAMREC Code. She is also a “Qualified Person” as that term is defined in Canadian National Instrument 43-101.

In compliance with Canadian National Instrument 43-101, Part 7 Use of a Foreign Code, TransAfrika is incorporated in the Republic of Mauritius and the project and property that is the subject of this report is located in Rwanda. The mineral resource categories of the SAMREC Code reported here reconcile with the same mineral resource categories in the CIM Definition Standards.

Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

The quantity and grade of reported inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource; and it is uncertain if further exploration will result in upgrading them to an indicated or measured mineral resource category.



Contained metals, expressed in troy ounces (oz), presented in the table above, are the product of resource tonnes multiplied by metal grades, are provided for information purposes only, and not meant to imply recoverable product as mineral resources which are not mineral reserves do not have demonstrated economic viability.

**14.2 Rusizi Project**

Mineral resource estimates have not been carried out on the Rusizi Project area.

**14.3 Nyamugali Project**

Mineral resource estimates have not been carried out on the Nyamugali Project area.

## 15 ADJACENT PROPERTIES

There are no adjacent properties.

## **16 OTHER RELEVANT DATA AND INFORMATION**

No other relevant data is presented at this time.

## 17 INTERPRETATION AND CONCLUSIONS

The TransAfrika properties currently represent an early stage exploration target in a very under explored and poorly understood geological terrain. As such the planned exploration activities are inherently high risk and the mineralization models speculative in nature.

The exploration permits over which TransAfrika holds options host numerous alluvial and some eluvial and in situ artisanal gold workings. The areas are considered prospective for low to moderate grade gold deposits suitable for open-pit and underground mining.

The first phase of grass roots exploration has been successful at systematically assessing initial targets and defining a large, previously unknown, mineralized system at Rubaya.

The diamond drilling program has demonstrated that bedrock gold mineralization is more widespread than is immediately obvious from the coherent gold-in-soil anomaly. Broad zones of low-grade gold mineralization (>0.5g/t Au), with sporadic high gold values over shorter lengths have been intersected in most of the drillholes. The long intersections of low gold grades with sporadic narrow high grade sections in the primary rocks indicate a hydrothermal system. The mineralization appears to be structurally controlled, preferentially in fold closures and on fold limbs close to fold closures. The mineralization is entirely restricted to the sandstone layers and is contained within a quartz-sericite-pyrite alteration assemblage indicative of fluid movement through the more porous and permeable sandstone.

Besides the Rubaya target on the Byumba permit, the other targets investigated to date show the potential for gold mineralization but have not been fully explored and there are numerous untouched prospective areas with only a very small portion of the permits having been investigated.

## 18 RECOMMENDATIONS

Work completed by TransAfrika on its Rwanda permits thus far has been largely focussed on the Byumba Project with only minor work carried out on the Rusizi Project and an aerial survey completed over the Nyamugali Project. The recommended exploration priority is to increase and improve the mineral resource for the Byumba Project.

### 18.1 Phase 1 - Byumba Project

The first phase of exploration will include structural analysis, metallurgical test work, diamond drilling, modelling of the data and updating of the inferred mineral resource based on the results obtained.

The Rubaya prospect is a grass roots discovery of a significant mineralized system in a poorly explored and understood geological terrain. While major strides have been made in understanding the broad structural and geological controls on gold mineralization at Byumba, additional structural work will be required to better understand the geometry and distribution of the higher grade zones. In addition, petrographic studies should be undertaken on the distribution of gold and associated alteration assemblages to validate the field observations. Drillhole collars and surfaces should be accurately surveyed and a digital terrain model produced.

Where drilling was undertaken in the Rubaya Project area, the mineralization remains open towards the northwest and down dip and should be investigated further. The proposed drilling is focussed on delineating the geology underlying the soil anomaly in the southeast of the deposit. The programme is to drill 30 inclined drillholes (NQ size) with triple tube for improved core recovery, on 21 lines for a total of 8,500m (Figure 18.1\_1).

In subsequent diamond drilling every effort should be made to attain the highest quality core samples. Useable oriented core in the mineralized portions would aid with structural interpretation of the deposits and improved recoveries in the oxide zone are crucial to avoid skewing the grade within this zone. There is some evidence to suggest that grades within the oxide zones may have been under reported due to the major core loss encountered.

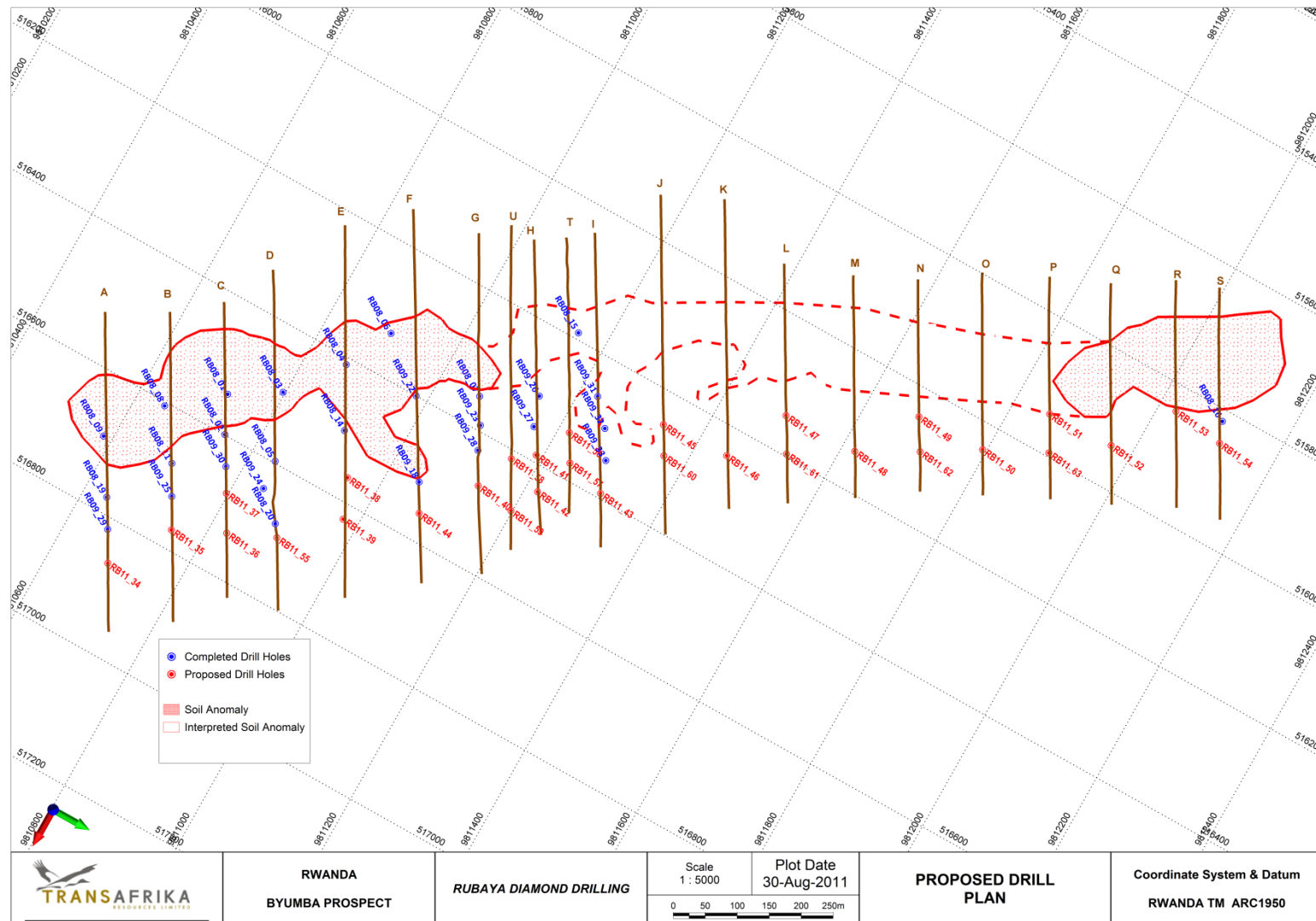
For subsequent mineral resource estimations a better understanding of the local geology, mineralization and structural constraints should yield higher confidence in the resource estimation. Minimum requirements to upgrade to an Indicated Resource would be a higher data density in terms of drillholes and number of samples.

If the results from the additional drilling are promising the project should be progressed to a scoping study.

The first phase of will take 12 months to complete and exploration has been costed at \$3.2M.



Figure 18.1\_1  
Proposed Extension of Drill Grid and Location of Close Spaced Drill Program



## **18.2 Phase 2 - Byumba Project: Upgrading of the Deposit Definition**

For subsequent mineral resource estimations a better understanding of the local geology, mineralization and structural constraints should yield higher confidence in the resource estimation. Minimum requirements to upgrade to an Indicated Resource would be a higher data density in terms of drillholes and number of samples.

If the results from the additional drilling are promising the project should be progressed to a scoping study. As this phase of exploration is dependent on the outcome of Phase 1, costing will be done following completion of Phase 1.

## **18.3 Phase 3 - Exploration**

Subsequent work may include systematic ground reconnaissance surveys be carried out over the portions not already covered on all three permit areas. A ground survey, rather than air survey, is recommended as the permit areas are generally fairly accessible and exploration should utilise local knowledge as much as possible to identify historic workings.

Targets from the ground survey should then be integrated with analysis of purchased regional aeromagnetic data, recently flown by the Rwanda Government, in conjunction with the regional geology and topography. River catchments in the target areas should then be followed up with wide spaced soil sampling. A suggested grid for reconnaissance geochemical sampling would be 500m to 1km line spacing over target areas with 100m sample stations on lines perpendicular the general topography. Prospective areas from initial survey work should be followed up with a combination of infill soil sampling, trenching and drilling if appropriate. Due to the graphite content of the sediments in the area it is unlikely IP surveys will prove useful.

In addition to the regional work described above, the following is recommended for the individual projects.

### **18.3.1 Rusizi Project**

Only minor follow up work on the identified soil anomalies is recommended at this stage.

### **18.3.2 Nyamugali Project**

Systematic soil sampling over the drainages hosting the artisanal workings identified in the aerial reconnaissance survey is recommended. A drainage survey to identify catchments and source areas for the alluvial workings will be required for this. Identified anomalies should then be followed up with a combination of infill soil sampling, trenching and drilling if appropriate.

This phase of exploration will run simultaneously with Phase 1 of the Byumba Project and is estimated to require USD184,000, including USD84,000 for assays and USD100,000 for salaries and logistics..

#### 18.4 Total Exploration Budget

The total budget required for Rwanda is USD3.200,000 as presented in Table 18.4\_1. At the completion of the diamond drilling a decision will be taken on commencing a Scoping Study based on the drill results returned.

<b>Table 18.4_1</b> <b>Bumba, Nyamugali and Rusizi Project</b> <b>Total Estimated Exploration Budget. (USD '000s)</b>	
<b>Item</b>	<b>Total</b>
Drilling	\$1,929
Logistics and equipment	\$239
Consulting and salaries	\$430
Laboratories	\$227
Kigali and Johannesburg Office	\$375
<b>TOTAL</b>	<b>\$3.200</b>

The scheduling of the exploration is presented in Table 18.4\_2 and the associated costing in Table 18.4\_3.

Coffey Mining considers the exploration rationale to be appropriate for this stage of the projects. Additional funding may be required at a later stage.

<b>Table 18.4_2</b>				
<b>Summary of Work Schedules by Permit Area</b>				
<b>Permit</b>	<b>Q3 2011</b>	<b>Q4 2011</b>	<b>Q1 2012</b>	<b>Q2 2012</b>
<b>Rusizi</b>	Limited work recommended			
<b>Byumba</b>	Establishment, rig mobilization, construct drill platforms. Diamond drilling	Diamond drilling, soil sampling	Diamond drilling. Metallurgical test work	Modelling and resource estimate
<b>Nyamugali</b>			Target generation	Public liaison, Mapping

<b>Table 18.4_3</b>					
<b>Summary of the proposed Spending of the Exploration Budget for Rwanda</b>					
<b>Permit</b>	<b>Q3 2011</b>	<b>Q4 2011</b>	<b>Q1 2012</b>	<b>Q2 2012</b>	<b>Total</b>
Corporate RSA & Mali/Senegal	\$112,500	\$112,500	\$112,500	\$37,500	<b>\$375,000</b>
Logistics & Equipment*	\$75,200	\$75,800	\$76,800	\$11,600	<b>\$239,400</b>
Field Teams & Technical Consulting	\$112,600	\$133,600	\$148,600	\$35,000	<b>\$429,800</b>
Drilling & Geophysical Contractors	\$226,400	\$928,800	\$774,000	\$0	<b>\$1,929,200</b>
Laboratories	\$30,200	\$95,200	\$98,800	\$2,500	<b>\$226,700</b>
<b>Total</b>	<b>\$556,900</b>	<b>\$1,345,900</b>	<b>\$1,210,700</b>	<b>\$86,600</b>	<b>\$3,200,100</b>

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