Government of Karnataka

No: DMG/Plan/NMET/Siri/2023-24

Office of the Director,
Dept. of Mines and Geology,
No.49, Khanija Bhavan, R.C. Road,
Bengaluru-01.

To:

The Director & HoD
National Mineral Exploration Trust (NMET)
Ministry of Mines
F-114, Shastri Bhawan
New Delhi-11 0001.

It is certified that:

1. Project titled "**Gold and Associated Minerals in Sirigeri Block, Ballari District, Karnataka State for G3 Stage Mineral Exploration**" along with estimated cost Rs. **2.82** Crore is submitted for consideration of NMET funding.

2. The project proposal is prepared following the guidelines prescribed in Minerals (Evidence of Mineral Contents) Rules, 2015.

3. The proposal has been duly examined and concurred by associate finance in accordance with canons of financial propriety.

4. The same project proposal or project proposal with similar objectives has not been submitted to any other funding agency by this organization and the project proposal bears no duplication with existing work/ ongoing project undertaken by this agency.

Yours faithfully,

Place: Bengaluru
Date: 19.10.2023

R. Girish IAS,
Director
Department of Mines & Geology

plan Eng 2

PROPOSAL FOR GOLD AND ASSOCIATED MINERALS IN SIRIGERI BLOCK, BALLARI DISTRICT, KARNATAKA STATE FOR G3 STAGE MINERAL EXPLORATION UNDER NMET.

COMMODITY: GOLD AND ASSOCIATED MINERALS

By

Department of Mines and Geology,
Karnataka

Place: Bengaluru
Date: 19th October 2023

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Summary of the Proposed G3 Level Block.
General Information of the block.

	Features	**Details**
	Block ID	**DMG-Kar-2-2023-24-NMET**
	Current Exploration Agency	Department of Mines and Geology, Karnataka
	Previous Exploration Agency	GSI carried out G4 stage exploration
	G4 stage Geological report	G4 stage GR of GSI is enclosed
	Commodity	Gold and Associated Minerals
	Mineral Belt	Hunagund-Kushtagi Schist belt
	Completion Period with entire Time schedule to complete the project	12 months
	Objectives	1. To carry out integrated Geophysical surveys Ground magnetic, resistivity, self-potential, induced polarization survey for delineating possible zones of Gold mineralization. 2. To Carry out G3 level of mineral exploration as per MMDR Act, 1957, Mineral (Evidence of Mineral Content) Rule, 2015 and IBM guidelines. 3. To delineate the strike continuity and depth persistence of the Gold mineralization and demarcate the gold mineralization within the proposed block. 4. To study potential Gold mineralization in the contact zone between Granite and Volcanics. 5. To carry out Structural and Mineralogical studies including estimation of resources as per UNFC norms and to carve out potential resource block for auction.
	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be	Majority of the work will be carried out by Department of Mines and Geology with some of the components like Geophysical surveys, drilling and partial sample analysis on outsource basis.

<table>
<tr><td></td><td>outsourced and name of the outsource agency</td><td></td></tr>
<tr><td></td><td>Name/ Number of Geoscientists</td><td>Manimala M, Geologist and on need basis additional Geologist will be deployed for the work from Department of Mines & Geology as and when required.</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Expected Field days (Geology) Geological Party Days</td><td>Field Party days (Mapping):50days
Field Party Days (Drilling):120 days
Total:170 days</td></tr>
<tr><td>HQ Days(mapping):30 days
HQ Days (Drilling):60 days
Total HQ days 90 days</td></tr>
<tr><td>1</td><td>Location</td><td></td></tr>
<tr><td></td><td>Co-ordinates</td><td><table><tr><th>Point ID</th><th>Longitude</th><th>Latitude</th></tr><tr><td>A</td><td>76.84502771</td><td>15.42834302</td></tr><tr><td>B</td><td>76.85507880</td><td>15.43595272</td></tr><tr><td>C</td><td>76.86269455</td><td>15.42585002</td></tr><tr><td>D</td><td>76.85254896</td><td>15.41715705</td></tr></table></td></tr>
<tr><td></td><td>Village</td><td>Sirigeri, Dasapura and Sidrampur villages</td></tr>
<tr><td></td><td>Taluk</td><td>Siruguppa</td></tr>
<tr><td></td><td>District</td><td>Ballari</td></tr>
<tr><td></td><td>State</td><td>Karnataka</td></tr>
<tr><td>2</td><td>Area (Sqkm)</td><td></td></tr>
<tr><td></td><td>Block Area</td><td>02.00 Sqkm</td></tr>
<tr><td></td><td>Forest Area</td><td>No</td></tr>
<tr><td></td><td>Government Land Area</td><td rowspan="2">Land Status will be ascertained and will be added in the report.</td></tr>
<tr><td></td><td>Private Land Area</td></tr>
<tr><td>3</td><td>Accessibility</td><td></td></tr>
<tr><td></td><td>Nearest Rail Head</td><td>Nearest railway station is at Kuditini which is located at about 26 km towards South of the block.</td></tr>
<tr><td></td><td>Road</td><td>The block can be reached by a travel of 5 km through the Sirigeri cross road from the nearby National Highway -150Alocated South East of the block.</td></tr>
<tr><td></td><td>Airport</td><td>Nearest airport is Jindal Vidyanagar Toranagal which is located at 36 km from the block.</td></tr>
</table>

4	**Hydrography**	
	Local Surface Drainage Pattern (Channels)	The area is generally flat with major part covered by cultivated land and small mounds in the south and south-western part of the block. The general drainage pattern of the area is dendritic.
	Rivers / streams	Tungabhadra river flows to the North West of the block. The right bank of the main canal is the perennial source of water. The streams are seasonal.
5	**Climate**	Semi- Arid Climate
	Mean Annual Rainfall	440mm
	Temperatures (December, Minimum)	18^0C
	Temperatures (May, Maximum)	36^0C
6	**Topography**	
	Toposheet Number	Old Toposheet No.57A/15 and New No:D43E15
	Morphology of the Area	The Block area is almost plain with gentle slope towards North. The elevations in the area ranges from 502 m to 414 m above MSL.
7	**Availability of baseline geosciences data**	
	Geological map (1:50K/25K)	1: 50K map is available. However, w.r.to proposed block1:12,500 scale map compiled by GSI during G4 exploration is also available.
	Geochemical map	NGCM data of Toposheet No.D43E15is available as follows: ❖ GSI-BRGM Project Report (1998) Report on Regional geochemical inventory in selected areas of Karnataka craton's greenstone belt, India. Records of GSI - BRGM (Geol. Surv. Of India- Bureau de Recherché Geologique et Minieres) Project, Field season 1995-98. ❖ Ahmed S. (1995) Specialised thematic mapping and geochemical surveys of Hagari schist belt, Bellary & Raichur districts, Karnataka state. Unpublished Progress Report, Field Season 1992-1993, Geological Survey of India, State Unit- Karnataka and Goa, Bangalore.

	Geophysical map (Aeromagnetic, ground geophysical maps)	There is no proposed block specific Geophysical map. However, regional scale Geophysical map available (Gravity and Magnetic Geophysical Survey) in the GSI report Code no. NGPM/Sr/KAR/2015/065 by M.S Kumar et al, 2016 is considered.
8	**Justification for taking up Preliminary Exploration**	❖ Schist belts of Karnataka are known for Gold mineralisation and the proposed block area is part of Hungund-Kushtagi Schist belt. ❖ Based on 132Sqkm block of G4 level exploration for Gold and associated minerals carried out by GSI during the field season 2017-18, GSI had delineated four different alteration zones in the G4 block. ❖ The GM block was carved out from the 132 Sq.km block for CL with an extent of 25 Sq.km. This block has been annulled in 2ndattempt of auction due to no participation of bidders. ❖ Among the four zones, the Zone-III, which falls within this proposed G3 block, is found to be potential and is recommended by GSI for detailed investigation. ❖ The stream sediments samples in this zone had indicated gold values of 660, 80, 70 ppb, ❖ BRS samples had indicated 400 and 70 ppb. ❖ The trenching carried out in this zone had indicated Au values ranging from 70 to 180 ppb. ❖ Zone III is well established with the evidences of carbonatisation, silicification, sulphidation and other alteration features. ❖ This zone was traced over a strike length of 900 m with a width ranging from 100-150 m. ❖ During the G4 level exploration, GSI has reported presence of ancient working for gold in form of pounding marks and pestle stones. Same has been confirmed by the DMG during the pre-field studies (13-09-2022 to 19-09-2022). ❖ DMG team has noticed shear zone bearing the indication of alteration zone with dissemination of Sulphides which is extending over a strike length of 900 m.

		❖ Two BRS samples were collected during PFS. Out of them, one sample has indicated gold value of 300ppb and the other had indicated nil value. ❖ Based on the above indications, DMG had proposed to take up G3 level exploration in Zone-III. Apart from this zone, it is also planned to explore the possibility of mineralization in the sheared contact zone between the pink K-feldspar granite and the rhyolite which falls to the Eastern part of the proposed block which had been reported in the earlier report of GSI.

Table 1: General Information of the Block

PROPOSAL FOR G3 LEVEL MINERAL EXPLORATION FOR GOLD AND ASSOCIATED MINERALSIN SIRIGERE BLOCK, BALLARI DISTRICT, KARNATAKA STATE

1. Introduction

Gold has been a precious metal since ancient times owing to its physical and chemical properties of being soft, bright, malleable, ductile and resistant to acids and reagents. Along with its bright yellow colour, it has been in utility in Gems and Jewellery industry playing a significant role in Indian economy.

In India, production of Gold has declined and demand has increased (India's annual gold consumption 3000 tonnes) drastically and it is by and large met through imports (706 tonnes worth 3.4 Trillion Rupees). The increasing demand of base metals and gold led to high priority document for their exploration in the XII Plan (2012-2017). Off late, there has been no mineable large scale deposit development in India. However, the possibility of working of small mineral bodies in proximity to each other through technological advances and increased operational efficiency cannot be ruled out. Therefore, it is necessary to locate and explore such small sized deposits in clusters.

With the enactment of MMDR Amendment Act 2015, Minerals (Evidence of Mineral Contents) Rules, 2015 and Mineral Auction Rules, 2015, Govt. of India had mandated State Governments to speed up exploration work for commodities other than Iron ore in the respective State and upgrade for auction to grant ML & CL. Hence, department's exploration wing is taking up G3 level of exploration of the annulled GM block in this project.

2. Location and Accessibility.

The proposed block lies to the South-East of Siruguppa and North-East of Kurugodu taluk of Bellary district, Karnataka State as shown in Plate No. 1. It falls in the jurisdiction

of Dasapura, Sidrampura and Sirigeri villages of Ballari District. The block can be reached by National Highway 150A followed by 5 km stretch through Sirigeri cross road which connects the block. The block fall in the Survey of India Top sheet No. D43E15 (old No. 57A/15). Nearest railway station is at Kuditini which is located at about 26.5km south of the block. Nearest Airport is Jindal Vidyanagar Airport at a distance of 36 Km towards South West of the block.

3. Physiography and Drainage

The maximum elevation in the area is 502 m above mean sea level (MSL) as seen at Rampura gudda fall in the Western part with in the block. Tungabhadra River flows in the North Western side, outside the proposed block area, Tungabhadra right bank main canal passes through the block area. The Tungabhadra right bank main canal forms the perennial source of water for all the nearby villages including cultivation. Most of the smaller streams are seasonal and dry throughout the year. The drainage pattern is dendritic to parallel.

4. Climate

The climate in the area is considered to be semi-arid with scanty rainfall is reported throughout the year (Web 1). Dry climate prevails in the area for the major part of the year. The annual average rainfall received in the area is 440 mm (DES 2016). The maximum rainfall in the area is from Southwest monsoon receives from June to September. The climate is generally warm hot throughout the year except in the months of November, December and January. Minimum temperature in December is 18º C and the Maximum temperature in May is 36º C.

5. Flora and Fauna

The area is occupied by shrubs, thorny bushes and grass besides local trees including Cassia, Acacia, Tamarind, Pongamia, Belphal, Sitaphal were grown in the proposed block

area; In the block area and in the surrounding villages, Cotton, Paddy, Chilli, Papaya, Jawar Maize, Bajara, Ragi, Groundnut and Sunflower are the common crop grown.

6. Forest, Sanctuaries and National Parks

There is no National park, Wildlife sanctuary and Biosphere reserves present within the block area. The Devaraya wildlife sanctuary is located at about 30 Km away from the block.

7. Regional Geology

The generalized regional stratigraphy of the Hungund-Kushtagi Schist belt is given below. Amphibolite of Archaean age belonging to Dharwar Supergroup occur as xenoliths in the biotite gneiss of Peninsular Gneiss-II, migmatites and grey granites as thin linear discontinuous bands. They represent the oldest lithounits of the study area. These enclaves have a general trend of NNW-SSE to N-S trend and at places have been traced over a strike length of 100 m -250 m. These amphibolite enclaves are highly migmatised, fractured as exposed within the grey granite and possibly represent older basic rocks and sills partially digested during different stages of migmatization (Ahmed 1995).

The Peninsular Gneissic Complex (PGC-II) is represented by biotite granite gneiss and migmatites. Its contact with the schist belts are tectonised. Gneissic foliation is developed with alternate parallel arrangement of biotite and quartzo-feldspathic bands.The Hungund-Kushtagi-Hagari Group is represented by Ilkal and Mudenur Formations. The Ilkal Formation comprises amphibolites, schistose metabasalt, BIF and meta-felsic volcanics. Amphibolites occur as enclaves within the grey granite. Metabasalt is a greenish grey, schistose rock comprising chlorite, actinoite, albite and epidote. Quartz-sericite schist/felsic tuff constitutes meta-acid volcanic Group that occurs as linear bodies within the metabasalt. The Mudenur Formation often comprises BIF, meta-argillites, phyllites and metafelsic tuff with thin bands and lenses of ferro-dolomite.

Phyllite/meta-argillite occurs as alternating sequence of siltstone, phyllites with thin interbands of greywacke. A few thin bands of reddish to pinkish, hard and compact Ferro-dolomite and chert bands occur along with BIF which has alternate layers of ferruginous and siliceous material. The linear to arcuate shape Closepet granite was emplaced in the western part during Archaean to Palaeo-proterozoic time. It is represented by equigranular grey biotite granite and pink K-feldspar granites which impart sharp often sheared contact with the adjacent schist belt. (Ahmed, 1995; Setty et al., 2006; Madhusudan, 2009).

Regional stratigraphy of Hungund-Kushtagi Schist Belt (after Ahmed, 1995)

<table>
<tr><td colspan="2">Recent</td><td colspan="2">Soil and Alluvium</td></tr>
<tr><td colspan="2">Younger Intrusives</td><td colspan="2">Quartz veins and reefs, Pegmatites
Dolerite and gabbro dykes</td></tr>
<tr><td colspan="2">Intrusive Granite (≈Closepet granite)</td><td colspan="2">Pink granite
Grey granite</td></tr>
<tr><td rowspan="2">Dharwar Supergroup</td><td rowspan="2">Hungund-Kushtagi Group</td><td>Mudenur Formation (≈ Chitradurga Group)</td><td>BMQ with chert, Meta-argillites, phyllites and metafelsic tuff with thin bands of ferro-dolomite</td></tr>
<tr><td>Ilkal Formation (≈ BababudanGroup)</td><td>Meta-tuffs, Quartz-sericite schist Meta-rhyolite (felsic volcanics), Metabasalt, Amphibolites (pillowed)</td></tr>
<tr><td>Peninsular gneissic complex</td><td>Peninsular Gneisses</td><td>Gneisses</td><td>Banded biotite gneisses and Migmatites with enclaves of amphibolites (schistose and massive)</td></tr>
</table>

Table-2: The Regional Lithological Map of the proposed Sirigeri block

8. Geology of the Block

The area under investigation is in Southern part of Hunugund-Kushtagi schist belt and Northward extension of Ramgiri-Penakacherla schist belt. The area exposes rocks of Ilkal Group, Mudenur Group which are intruded by younger Closepet Granite, basic intrusives, pegmatites and quartz veins. The surface manifestation for Gold mineralisation in the

proposed block area is marked by alterations developed by interaction between hydrothermal solutions and host rock at various places. The main alterations noticed are silicification, epidotisation, carbonatisation, sulphidisation and chloritisation and structural features like shearing, fractures and granulation which is an indication for favourable milieu for Gold mineralisation.

Presence of old workings in the vicinity is another support in delineation of probable mineralisation. Four nos. of Mineralised zones were been established in the G4 level exploration by GSI. Shear zone trending NNW-SSE direction.

Four sulphide ore zones delineated by GSI during the Geological mapping were based on the sulphide minerals, field evidences and analytical results for gold values. Out of the four zones, three zones namely Zone-I, Zone-II and Zone-III falls in the GM block of GSI.

Out of these three zones, only zone-III falls in the proposed block of 2.00 Sq.km area which is located NW of Dasapura village is found to be relatively more potential zone for gold mineralisation which is hosted in the sheared pink Granite, often is carbonated and epidotised and intruded by dolerite and quartz. The rock contains disseminations of pyrite and Arsenopyrite. More number of pounding marks and pestle stones were traced in this zone. This Zone-III was traced to a strike length of 900 m trends in NNW-SSE direction.

Hence, this Zone-III and the sheared Contact zone between Pink-K- Feldspar Granite and Rhyolite which falls in the Northeast of Zone-III are considered for G3 level exploration.

8.1 Stratigraphic sequence of the area

The lithology of the area consists of meta-felsic tuff, metabasalt (Ilkal Formation) and banded hematite-magnetite chert/quartzite, meta-argillites, phyllites and quartz sericite schist, Ferro dolomite (Mudenur Formation) of Hungund-Kushtagi Group of Dharwar Supergroup. Intrusive granites (Close pet granite) are represented by equigranular pink K-feldspar granite and grey biotitic granite in the area. Younger intrusive of acidic and basic rocks are sparsely distributed in the area. The generalised stratigraphy of the study area is given in Plate-2.

9. Scope of the proposed Exploration

The G3 Level of exploration program envisage with Geological mapping (1:4000 scale), ground geophysical surveys, Trenching, Bedrock sampling, chemical analysis, diamond drilling, core logging, core sampling and Detail Geological report preparation to derive the followings;

- To carry out integrated ground geophysical survey (Induced polarisation (I.P.) cum Resistivity, Self-Potential and magnetic) to delineate potential mineralized zones.
- To demarcate the mineralized zone within the proposed block.
- To delineate the strike and dip, depth continuity of the gold mineralization by drilling.
- To establish thickness, grade and quality of gold mineralization zones.
- Assessment of resources in accordance with MEMC Rule, 2015.
- To establish Gold mineralisation along the sheared contact zone between the Pink K-feldspar granite and Rhyolite (Acid volcanic rock) by way of detailed mapping, trenching, sampling followed by diamond core drilling.
- To carve a potential resources block for Auctioning as ML /CL.

10. Recommendations of G4 level Mineral Exploration Report of GSI

During the investigation for Gold in Sirigeri block, four alteration zones were identified in North and Southwestern part. The Zone-III lying on the North Western part of Dasapura shows three BRS samples having Au values 400 ppb (BRS-62B), 88 ppb (BRS-50) and 70 ppb (BRS-74A) indicating possible Au bearing than the remaining zones. The gold values for the rest of the BRS samples received so far are below detection limit i.e.<25 ppb. Among trench samples, Au values obtained are one sample each from TS-2 (50 ppb) and TS-4 (165 ppb) and four samples from TS-5(70, 100 and 180 ppb) which are in Zone-III located west of Dasapura. Also stream sediment samples collected from Zone –III, yielded Au values of 70, 165, and 660 ppb from SD-1, SD-2 and SD-10 respectively."

"In addition, along the Zone-III, at west of Rampura, seven trench samples from TS-8 yielded gold values range from 35 to 145 ppb. Zone-II located SE of Sirigeri have a few gold values in trench samples (TS-9 and 10) with analytical Au values from 25 to 35 ppb and only one BRS sample with Au value of 62 ppb and one stream sediment sample with Au of 55 ppb.

During the field investigation and microscopic study, no gold grains were found for the Sirigeri block. From the field evidences and analytical results, it is found that Zone-III shows potential for gold mineralization than the other zones in the study area.

- In the GM report under chapter 8, ii. Brief details of exploration carried out.

Madusudanan (2009) concluded that, the mineralization is hosted by granites which is confined to very thin, impersistent sulphidic quartz vein emplaced along the highly irregular, fine shallow fractures. He reported that Geophysical anomaly zones delineated by Geophysical survey didn't correspond to the geochemical anomalous zones obtained from geophysical survey.

According to the author, the delineation of zones in the area by Geophysical I.P., resistivity and magnetic survey was not successful/significant may be due to the feeble,

impersistent nature of mineralization. However, he recommended traverses interval at 100 m for reconnaissance of the total area and at 50 or less for detailed coverage on anomaly zones has to maintained.

- Based on the above, GSI in its GM report it is mentioned, that a total of 40-50-line Km line work can be planned for a geophysical team as a full field season programme to cover 2.0 Sq km Rampura-Dasapura block for delineating possible zones of gold mineralization if any.

DMG team of Geologists carried out pre-field investigation from 13-9-2022 to 17-9-2022, where the team had observed shear zone with the indication of sulphide mineralization. Two BRS samples collected during the traverse was analyzed for Gold, out of which one sample had indicated gold value of 300 ppb and the other had indicated nil value.

Based on the GSI recommendation and the field observations by DMG, it is proposed to take up detailed investigation by DMG at G3 level over an extent of 2.00 Sq km which includes the Zone-III and the sheared contact zone between the Pink K-feldspar granite and the Rhyolite which falls Northeast of Zone-III in Sirigeri block.

11. Objectives:

The main objective of the proposal is to carve out a potential gold resource block to attract the bidders during the auction as CL.

12. Previous Work

- GSI-BRGM Project Report (1998) Report on Regional geochemical inventory in selected areas of Karnataka craton's greenstone belt, India. Records of GSI – BRGM

(Geol. Surv. India- Bureau de Recherché Geologiqueet Miners) Project, Field season 1995-98.

- Ahmed S. (1995) Specialised thematic mapping and geochemical surveys of Hagari schist belt, Bellary &Raichur districts, Karnataka state. Unpublished Progress Report, Field Season 1992-1993, Geological Survey of India, State Unit- Karnataka and Goa, Bangalore.

- Setty S.R., Babu Rao K., Subramanian N. (2006) Investigation for possible gold mineralisation in geochemical anomalies in parts of Hagari schist belt, Bellary district, Karnataka (P-II stage). Unpublished Progress Report, Field Season 2001-02, Geological Survey of India, State unit Karnataka and Goa, Bangalore.

- Madusudanan R. (2009) Integrated survey for granitoid hosted gold mineralisation in Sirigeri-Konchigere sector, Hagari Schist Belt, Bellary district, Karnataka (P-II Stage). Unpublished Progress Report, Field season 2003-04, Geological Survey of India, State unit- Karnataka and Goa, Bangalore.
- Reconnaissance Survey for Gold and associated Minerals in Sirigeri Block in parts of Bellary District, Karnataka. (Block No: SR-KAR-06) (Field Season 2017-18).(G-4 level).
- A Report on Regional gravity and magnetic (TF) survey in toposheet nos. 57A/7, A/8, A/12, A/15 and A/16.

13. Block Description: The boundary coordinates of the proposed block are given below (Table-3)

Point ID	Longitude	Latitude
A	76.84502771	15.42834302
B	76.85507880	15.43595272
C	76.86269455	15.42585002
D	76.85254896	15.41715705

Table-3 .The boundary coordinates of the proposed block.

14. Planned Methodology:

14.1 The exploration program is proposed in accordance with the objective set for G3 level of Exploration norms. The exploration will be carried out as per the Minerals (Evidence of Mineral Content) Rule, 2015 and amended up to 2021. Accordingly, the following scheme of exploration is formulated in order to achieve the objective.

14.2 DGPS survey: Before the Geological mapping, DGPS survey is proposed to fix the corners of the boundary points of the proposed block over an extent of 2 Sq. km.

14.3 Geological mapping: Geological mapping will be carried out in the entire 2 Sq km area on 1:4000scale. During Geological mapping, the litho units and their structural features will be captured. Surface signatures of the mineralization with their dispositions will be captured and the same will be depicted in the Geological map, which will be used as a base for planning future Exploration. The width of Zone-III as per GSI report is 100-150m. During the detailed Geological mapping followed by trenching, the actual mineralized zone will be delineated to plan diamond drilling for proving depth persistence of the mineralization.

14.4 Bed Rock sampling: During the Geological mapping, it is also proposed to collect 25 nos. of BRS and analyze for Au and associated minerals and analyze 1 no. as internal check sample and 3 nos. of samples as external check.

14.5 Ground Geophysical Survey: Integrated ground geophysical survey (Induced polarisation (I.P.) cum Resistivity, Self-Potential and magnetic) were planned to carry out in the proposed area. The survey was planned in a grid pattern of 20m X 50 m. Traverse were planned in NE-SW direction with an interval of 50 m and station interval of 20 m. A total 40- Line Kms were planned for the survey.

14.6 Surveying: Topographical survey will be carried out for countering at 2m intervals followed by locating and fixing of the planned borehole points along with determination of reduced level and coordinates collar RLs of boreholes.

14.7 Trenching/ Pitting: A total of 7nos. of exploratory trenching is proposed to be carried out on both the Zone-III (delineated by GSI) and the sheared contact zones between the Granite with Rhyolite. A total quantum of 308 $m^3$of trenching is proposed to expose the mineralised Zones, if warranted.

Out of 7 trenches 5 nos. of trenches in Zone-III with a dimension of 35 m length X 1.5 m width X1.0 m depth is proposed with a quantum of 263 m^3. In sheared contact zone 2 nos. of trenches with a dimension of 15 m length X 1.5 m width X 1m depth is proposed with a quantum of 45 m^3. The trenches will be located by the field Geologist based on the Geological mapping.

A total of 288 nos. of trench samples will be generated from the trenches with 230 nos. as primary samples, 12 nos. as internal check samples 23 nos. as external check samples and 23 nos. of composite samples. The trench walls will be geologically mapped and samples will be collect from the bottom of the trenches.

The samples collected from trenches will be subjected to the chemical analysis forgold by Fire Assay method and 23 nos. collected as composite samples will be analyzed for 34 (Li, B, Na, Mg, Al, K, Ca, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Ru, Rh, Pd, Ag, Cd, Sn, Sb, Ba, W, Os, Ir, Pt, Au, Hg, Ti, and PB)elements by ICP-MS. The main objective of the trenching is to delineate the actual shear zone to establish mineralization followed by Diamond Core Drilling to prove its depth persistence.

14.8 Diamond core drilling: Based on results of BRS, geological mapping supported with ground geophysical survey, trench sample results, exploratory drilling will be carried out on mineralised zone delineated.

The present drilling exploration proposal is prepared based on the data established by Large Scale Geological Mapping on 1: 12,500 by GSI and also based on the Pre-field traverses carried out by DMG Geologists.

It is proposed to drill 6nos. of boreholes with a quantum of 690m of drilling. 5 nos. of bore holes PBH-1 to PBH-5 is planned to explore the depth persistence of Zone-III at a vertical depth of 60 m and 1 nos. of bore holePBH-6 to explore the depth persistence of mineralisation in the sheared contact zones(Granite-Rhyolite contact) at 30 m vertical depth. Boreholes will be drilled in NQ size (outer diameter 75.7mm and inner diameter 47.6 mm).

Boreholes (5nos.) PBH-1 to PBH-5 is proposed to explore Zone-III in 4 section lines of which 2 boreholes were planned in section 1 and one borehole each in the remaining 3 section lines. The section Line 1 to 3 is placed at a lateral interval of 200 m, whereas section line 4 is placed at a lateral distance of 280m from the section line 3 to avoid the intersection of dyke in the borehole.

The proposed drilling of borehole PBH-6 will be decided based on the data generated during Geological mapping and trenching.

The delineated mineralised zone width and the borehole locations are tentative and will be finalised after the completion of detail Geological mapping and trenching. The borehole wise coordinates and proposed total depth are detailed in the table below. The proposed cross section of the boreholes is provided in Plate- 4A and 4B.

DETAILS OF PROPOSED BOREHOLES AT G3 LEVEL IN SIRIGERI BLOCK

Sl. No.	Borehole ID	Easting	Northing	Proposed Depth (m)	Angle (^{0})	Azimuth (^{0})
1	PBH-01	15.42493	76.85110	135	50	245
2	PBH-02	15.42460	76.85021	130	50	245
3	PBH-03	15.42299	76.85105	120	50	245
4	PBH-04	15.42132	76.85177	120	50	245
5	PBH-05	15.41897	76.85278	120	50	245
6	PBH-06	15.42797	76.85820	65	50	245
			Total	**690**		

Note: The proposed borehole locations and the depth are tentative which is expected to vary after the completion of the Geological Mapping and trenching.

Table-4: Proposed borehole Co-ordinates and respective depth proposed

14.9 Drill Core Logging and Sampling. Detailed drill core logging will be carried out with systematic recording of information as much as possible with recording of relevant measurements to determine the lithology (rock type), mineralogy, structure and alteration zones.

14.10 Borehole deviation survey: Deviation survey with the help of Multi-shot Camera is planned in all the 6 number of boreholes.

14.11 Sampling: For preparation of samples, the borehole core will be longitudinally split into two equal halves by using core splitter. One half will be powdered to -120 mesh size and the other half will be kept for future studies. The powdered material will be mixed thoroughly and about 100 gm of representative samples will be collected for chemical analysis by successive coning and quartering as primary samples and rest of the material (-120 mesh size) will be kept as duplicate half for future reference.

From the drill cores of PBH-1 to 5 drilled to explore the Zone-III, a total of 375 nos. of drill core samples will be generated (300as primary samples, 15 as internal check, 30nos. as external check and 30nos. as Composite samples).

From the drilled cores of borehole nos.PBH-6 drilled to explore the sheared contact zone, a total of 21 nos. of drill core samples is anticipate (18 primary samples , 1 no. as internal check, 1 no. as external check and 1 nos. as Composite samples).

In total, 396 nos. of samples will be generated from the drill cores (318 nos. as primary, 16 nos. as internal check, 31 nos. as external check and 31 nos. as composite). The external Check samples will be sent to NABL accredited Labs for analysis of 34

elements by ICP-MS. Primary, internal and external check samples will be analysed for Gold by fire assay method.

14.12 Laboratory Studies

A total of 573 numbers of primary samples will be generated by way of Bed rock samples, trench samples and Drill core samples which will be analysed for Gold. A total 29nos. of samples will be prepared for internal check, 57nos. of samples will be prepared for external check and 54 samples as composite samples which will be analysed and studied by ICPMS- for 34 elements. These composite samples will be analysed at NABL external lab. The break up is provided in the proposed chapter under Quantum of work proposed.

In total a quantum of 713nos. of samples will be analysed for gold and associated minerals in this block.

14.13 Petrological and Mineralogical study on drill core samples: It is proposed to study10 nos. of drilled core samples for petrological study and thin section study on the same samples.

15. The Quantum of work proposed:

Sl No	Stage	Components	units	qty
1	Preparation of exploration proposal		nos	1
2	Detailed Geological	Detailed Geological Mapping (1:4000 Scale)	Sqkm	2

	Mapping of 2.0 Sq km (1:4000)	Trenching works		m^3	308
3	Survey Work	Demarcation of Lease boundary by DGPS. and fixing up of bore points (5+6) and 20 party days for topography Survey		nos	11
4	Geophysical Survey	Integrated ground geophysical survey (Induced polarisation (I.P.) cum Resistivity, Self-Potential and magnetic)		Per Line km	40
5	Surface Sampling	Bedrock sampling		nos.	25
6	Drilling works (Medium Hard Rock)	No of Bore Holes		nos	06
		Core Drilling (NQ series)		m	690
		Detailed core/ sample logging including supply of core/ sample boxes		m	690
		Drill core preservation		m	690
7	Laboratory studies	Primary Analysis	BRS	nos	25
			Trench samples	nos	230
			Drill Core	nos	318
				Total	**573**
		Internal Check sample analysis (5%)	BRS		1
			Trench samples	nos	12
			Drill Core	nos	16
				Total	**29**
		External Check sample analysis (10%)	BRS	nos.	3
			Trench samples	nos	23
			Drill Core	nos	31
				Total	**57**
		Composite sample analysis for Gold and associate minerals (10%)			
			Trench samples	nos	23
			Drill Core	nos	31

				Total	**54**
				Grand total	**713**
8	Petrological samples (BH samples)	Preparation of thin section		nos	10
		Study of thin section		nos	10
9	Specific gravity studies	Of Core samples		nos	6
10	Report preparation			nos	1

Table-5: Envisaged Quantum of work in Sirigeri block.

16. Manpower Deployment

The Manpower deployment details will be provided later.

17. Break-up of expenditures

The tentative Cost has been estimated based on the Schedule of Charges of projects funded by National Mineral Exploration Trust (NMET) w.e.f. 01/04/2020. The total estimated cost works to Rs. 2,82,28,402. The summary of cost estimation for G3 level is given in the Table 6 and details of cost estimate are given in Table 7.

Sl.No	Item	Total Estimated Cost (Rs)
1	Detailed Mapping (1: 4000: 2 Sqkm)	28,42,180
2	Trenching works	10,25,640
3	Survey works	4,15,360

4	Integrated ground geophysical survey (Induced polarisation (I.P.) cum Resistivity, Self-Potential and magnetic)	57,94,772
5	Drilling	84,26,700
6	Analysis	25,79,324
7	Peer review of report	30,000
8	**SUB TOTAL**	2,11,13,976
9	Preparation of Exploration Project Proposal (2% of approved project cost or 3.8 lakhs whichever is lower)	4,21,680
10	Exploration Report (For the projects having cost exceeding Rs 150 lakhs but less than Rs 300 lakhs : A Minimum of Rs. 7.5 lakhs or 3% of the value of work whichever is more)	7,50,000
11	Reimbursement of outsourced component	12,15,040
12	Tender Process	4,21,680
13	**Grand Total.**	2,39,22,375
14	**GST 18%**	43,06,027
15	**Grand Total (with GST 18%)**	**2,82,28,402**
	Say in Lakhs	**282.28**

Table-6: The summary of cost estimation G-3 level block.

Detailed estimated cost for G-3 level exploration in Sirigeri block of Ballari District of Karnataka over an area of 2.00Sq km is as below.

Sirigeri Gold G3 exploration project.							
S.N	Item of Work	Unit	Rates as per NMET SoC				NMET approved cost
			SoC Item No	Work/Activity description	Rates as per SoC	Qty	**Amount (Rs)**
A	**Geological Mapping (1: 4000 scale, 02.00 Sq.km)**						
i	Geologist Party days (1) -Field	Days	1.2		11,000	170	18,70,000
ii	Geologist Party days (1) -HQ	Days	1.2		9,000	90	8,10,000
iii	Labour Charges (2 labours)	Days	5.7		477	340	1,62,180
iv	Trenching	Per Cu m	2.1.1		3,330	308	10,25,640
						Total (A)	**38,67,820**
B	**Survey works**						

i	Demarcation of lease boundary and fixation of borehole and determination of coordinates and RL (Including charges deployed for the work) by DGPS		Per point of observation	1.6.2		19,200	11	2,11,200
ii	Survey Party days (1 party) without Labour for contouring (2m interval)		one Surveyor per day	1.6.1a		8,300	20	1,66,000
iii	Labour Charges (4 labours)		Labour day	5.7		477	80	38,160
							Total (B)	**4,15,360**
C	**Ground Geophysical Survey- out source**							
	IP cum resistivity, S P, Magnetic		Per Line Km	3.4b		14,48,693	40	**57,94,772**
D	**Drilling- out source**							
i	Surface drilling (01 rig- Medium Hard rock- NQ)		m	2.2.1.3	As per MOC approved rate	10,100	690	69,69,000
ii	Borehole deviation survey by multi-shot camera		m	2.2.6		330	690	2,27,700
ii	Land/ Crop Compensation		per borehole	5.6	As per actual as certified by local authorities subject to a maximum of 20,000 per borehole	20,000	6	1,20,000
iii	Construction of concrete Pillar (12"x12"x30")		per borehole	2.2.7 a		2,000	6	12,000
iv	Borehole plugging by cement (NQ)		m	2.2.7 b		150	06	900
v	Core preservation		m	5.3		1,590	690	10,97,100
							Total (C)	**84,26,700**
E	**Analysis- out source**							
i	Sampler charges		Days	1.52		5,100	60	3,06,000
ii	Labour charges (4 nos)		Days	5.7		477	420	2,00,340
iii	Sample analysis	Primary samples (Gold) by fire assay method	Trench Sampl	per samples	4.1.5a	2,380	230	5,47,400
			Borehole samples	per samples	4.1.5a	2,380	318	7,56,840
			Bed Rock Sampl	per samples	4.1.5a	2,380	25	59,500

iv		Composite Sample (10% of Borehole and trench samples) For 34 elements	ICPMS (34 elements)	per samples	4.1.14		7,731	54	4,17,474
v		Internal check (5%) Fire assay method		per samples	4.1.15 a		2380	29	69,020
vi		External check (10%) Fire assay method		per samples	4.1.15 a		2380	57	1,35,660
vii	Petrological samples (Bh Core Samples)	Preparation of thin section		per samples	4.3.1		2,353	10	23,530
viii		Study of Thin Section		per samples	4.3.4		4,232	10	42,320
ix	Bulk density	of core samples		per samples	4.1		3,540	6	21,240
								Total (D)	**25,79,324**
								Total (A+B+C+D)	**2,10,83,976**
F	Peer review of report			lump sum	MOM office Memorandum dated 12 July 2023		30,000	1	30,000
G	Preparation of Exploration Proposal				as per 28th EC meeting	2% of approved project Cost subject to maximum of 5 Lakhs.			4,21,680
H	Exploration Report			no	5.2	For the projects exceeding Rs. 50 Lakhs but less than 150 Lakhs: A Minimum of Rs. 7.5 lakhs or 3% of the work whichever is more		1	7,50,000

I	Tendering process cost			2.3	one time, in case of outsourced components of project work. 2% of the approved project cost or 5 lakhs whichever is lower will be paid exploration agency		1	4,21,680
J	Operational charges			6 (ii)	Will be reimbursed as per point 3 of NMET SoC after recalculation when cost of outsourcing component will be provided. The copy of contract agreement for outsourced component and work completion report are also required to reimburse the operational charges.			12,15,040
K							**Grand Total**	**2,39,22,375**
L							**GST 18%**	**43,06,027**
M							**Grand Total with GST (18%)**	**2,82,28,402**
							Or say in Lakhs	**282.28**

Table 7: Estimated cost for G-3 level exploration in Sirigeri block.

Note:

1. The above cost estimates has been worked out based on the latest NMET SoC approved by Mom dated 31st March 2020.

2. The rates applicable are as on 31.03.2021. The escalation for 2021-22 shall be charged as per RBI indices, when available.

18.References:

1. GSI-BRGM Project Report (1998) Report on Regional geochemical inventory in selected areas of Karnataka craton's greenstone belt, India. Records of GSI - BRGM (Geol. SurveyIndia- Bureau de Recherché Geologiqueet Minières) Project, Field Season 1995-98.

2. Ahmed S. (1995) Specialised thematic mapping and geochemical surveys of Hagari schist belt, Bellary &Raichur districts, Karnataka state. Unpublished Progress Report, Field Season 1992-1993, Geological Survey of India, State Unit-Karnataka and Goa, Bangalore.

3. Setty S.R., BabuRao K., Subramanian N. (2006) Investigation for possible gold mineralisation in geochemical anomalies in parts of Hagari schist belt, Bellary district, Karnataka (P-II stage). Unpublished Progress Report, Field Season 2001-02, Geological Survey of India, State unit Karnataka and Goa, Bangalore.

4. Madusudanan R. (2009) Integrated survey for granitoid hosted gold mineralisation in Sirigeri-Konchigere sector, Hagari Schist Belt, Bellary district, Karnataka (P-II Stage). Unpublished Progress Report, Field season 2003-04, Geological Survey of India, State unit- Karnataka and Goa, Bangalore.

5. Reconnaissance survey for Gold and associated Minerals in Sirigeri block in part of Bellary District, Karnataka. (Block No. SR-KAR-06) (Field Season 2017-18).(G-4 Stage)

6. https://www.reuters.com/markets/commodities/indias-dec-gold-imports-plunge-79-fall-by-over-third-2022-sources-2023-01-12/
7. https://www.statista.com/statistics/625818/import-value-of-gold-india/

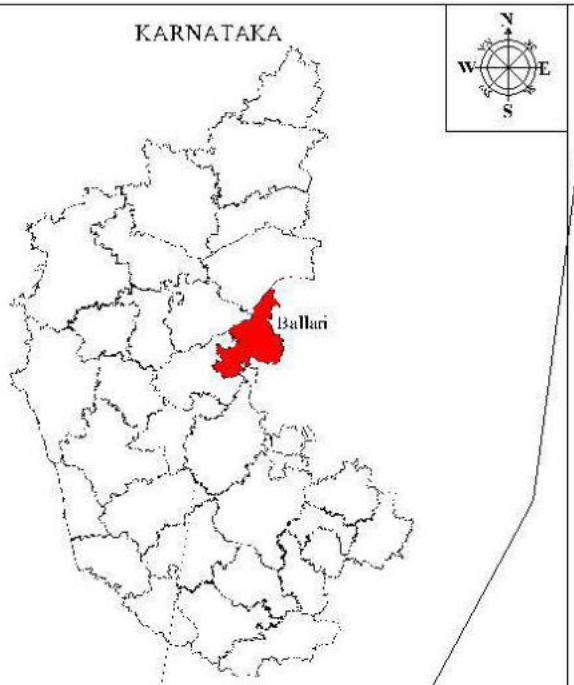
1. Tentative time schedule/action plan for the proposed G3 level of exploration for Gold is given in table 8.

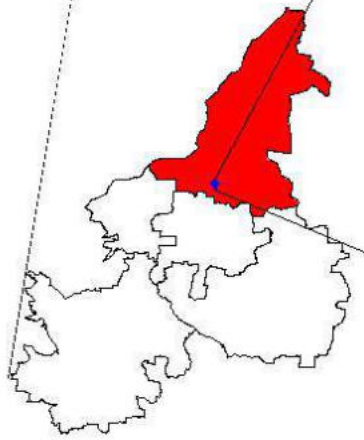
Sl No	Details of works	Duration in Months	Months											
			1	2	3	4	5	6	7	8	9	10	11	12
1	Camp Setting	1												
2	Detailed Scale Geological Mapping (Includes 2 Sq km of DSM+ 29nos of BRS, 288 TS, & 396 drill core samples+ 308 cum trenching	3												
2.1	Geologist Party days- Field (01 Party)	2												
2.2	Geologist Party days- Head Quarters (01 Party)	1												
2.3	Laboratory works	2												
3	Ground Geophysical survey	3												
4	Topographical Survey	1												
5	Surface Drilling [Includes Preparatory work for drilling approach road and platform preparation, drilling (2rig 690 m drilling)]	4												
5.1	Geologist Party days- Field (01 Party)	4												
5.2	Geologist Party days- Head Quarters (01 Party)	2												
5.3	Laboratory works	3												
6	Survey Works (Includes Survey party days for DGPS survey of Boreholes and boundary points- Topography survey -01 party)	1												
7	Camp Winding	1												
8	Preparation of Reports and maps	1												

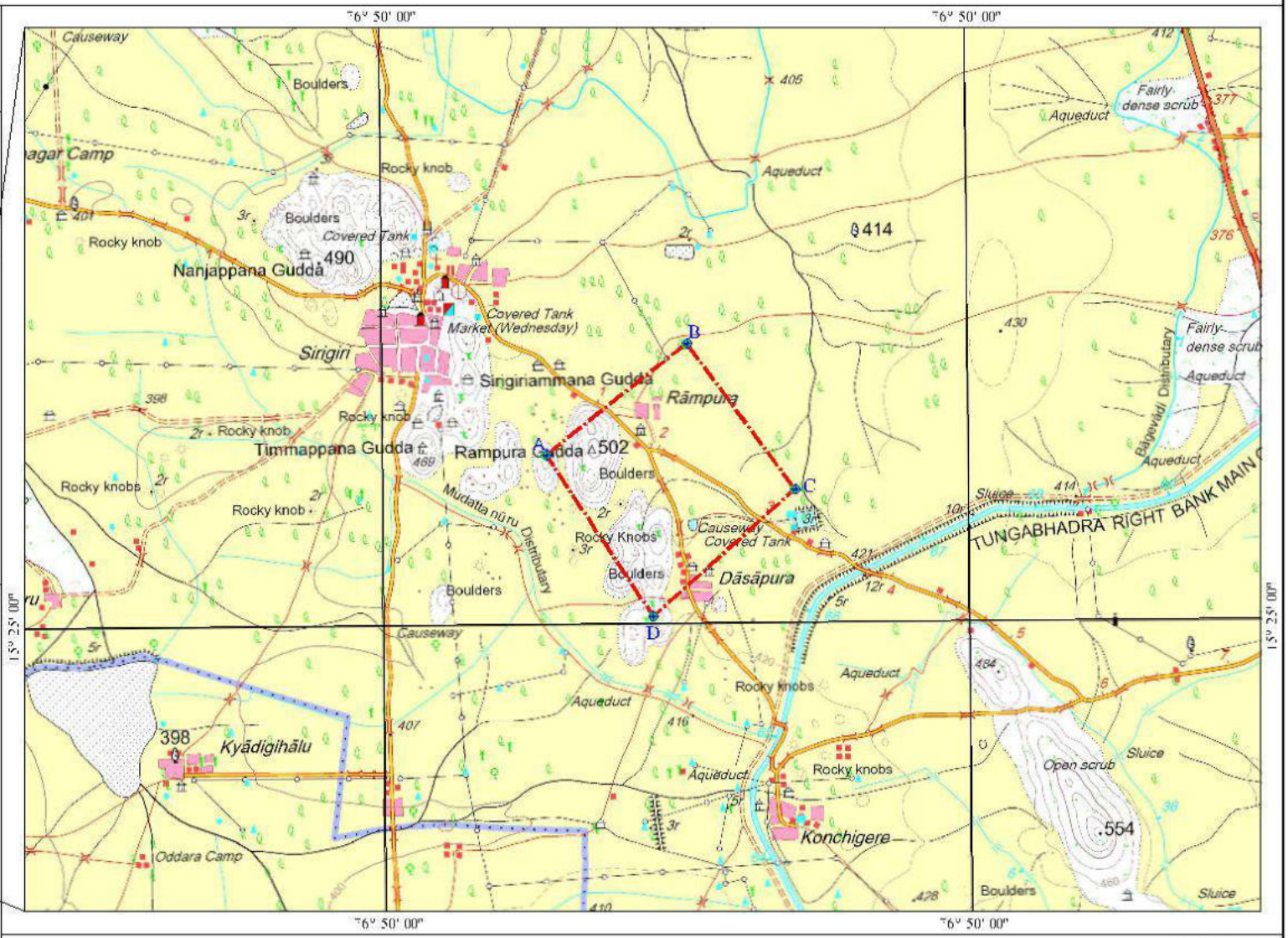
Review

Table 8: Tentative time schedule/action plan G-3 level exploration in Sirigeri block.

LOCATION MAP OF PROPOSED SIRIGERI GOLD BLOCK







DMG PROPOSED SIRIGERI GOLD BLOCK GPS Co-Ordinate - (WGS-1984)		
Point ID	Latitude	Longitude
A	15.42834302	76.84502771
B	15.43595272	76.85507680
C	15.42585002	76.86269455
D	15.41715705	76.85254896

INDEX

- Proposed Sirigeri Block
- Block Corner points

0 500 1000 1500 2000 3000m

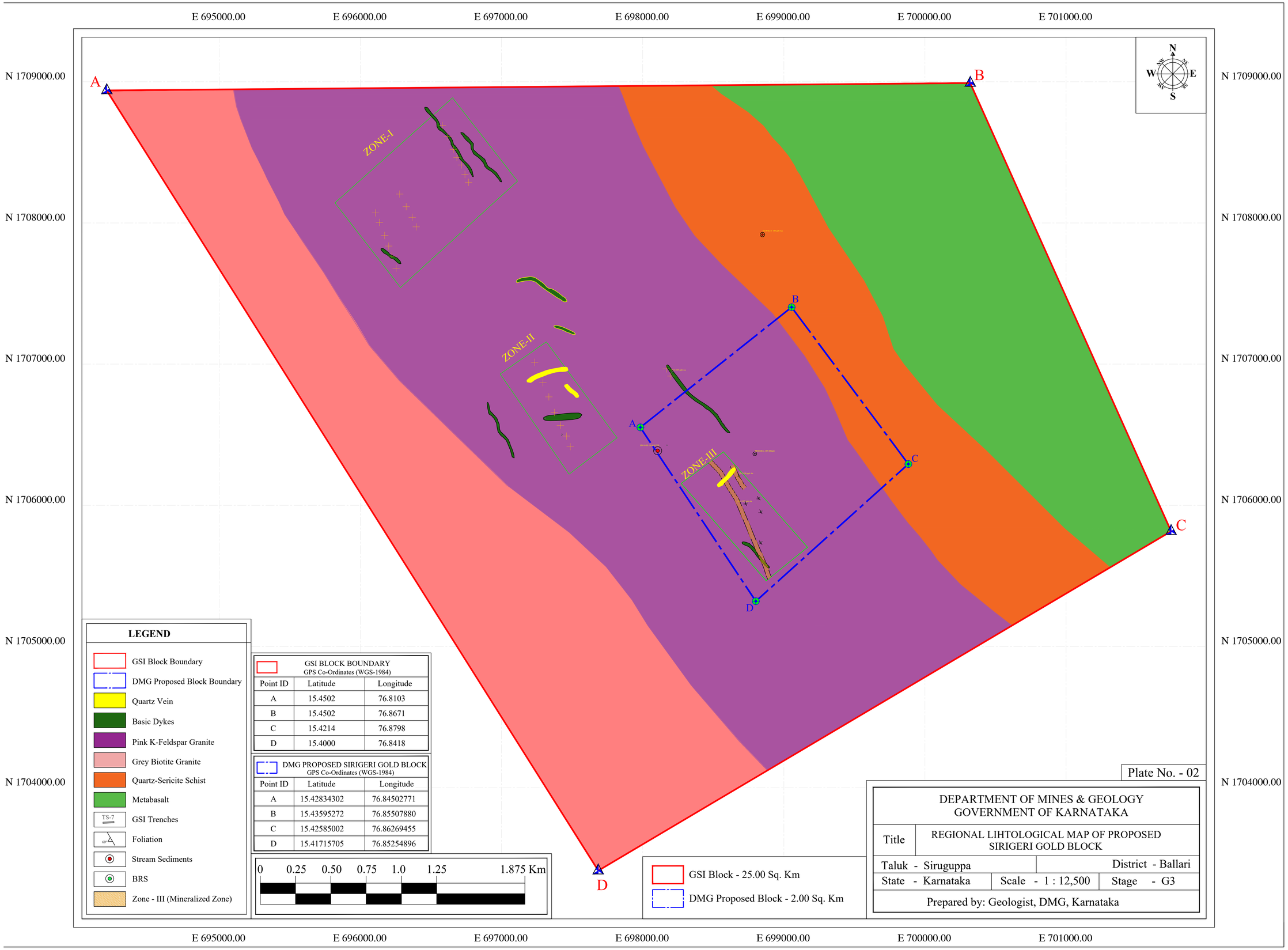
Scale :- 1:50,000

Toposheet No. :- 57A/15

Plate No. - 01

DEPARTMENT OF MINES & GEOLOGY GOVERNMENT OF KARNATAKA				
Title	LOCATION MAP OF PROPOSED SIRIGERI GOLD BLOCK			
Taluk	Siruguppa		District	Ballari
State	Karnataka	Extent : 2.00 Sq. Km	Stage	G-3
Prepared by: Geologist, DMG, Karnataka				

REGIONAL LITHOLOGICAL MAP OF PROPOSED SIRIGERI GOLD BLOCK



LEGEND

- GSI Block Boundary
- DMG Proposed Block Boundary
- Quartz Vein
- Basic Dykes
- Pink K-Feldspar Granite
- Grey Biotite Granite
- Quartz-Sericite Schist
- Metabasalt
- GSI Trenches (TS-7)
- Foliation
- Stream Sediments
- BRS
- Zone - III (Mineralized Zone)

GSI BLOCK BOUNDARY
GPS Co-Ordinates (WGS-1984)

Point ID	Latitude	Longitude
A	15.4502	76.8103
B	15.4502	76.8671
C	15.4214	76.8798
D	15.4000	76.8418

DMG PROPOSED SIRIGERI GOLD BLOCK
GPS Co-Ordinates (WGS-1984)

Point ID	Latitude	Longitude
A	15.42834302	76.84502771
B	15.43595272	76.85507880
C	15.42585002	76.86269455
D	15.41715705	76.85254896

0 0.25 0.50 0.75 1.0 1.25 1.875 Km

GSI Block - 25.00 Sq. Km

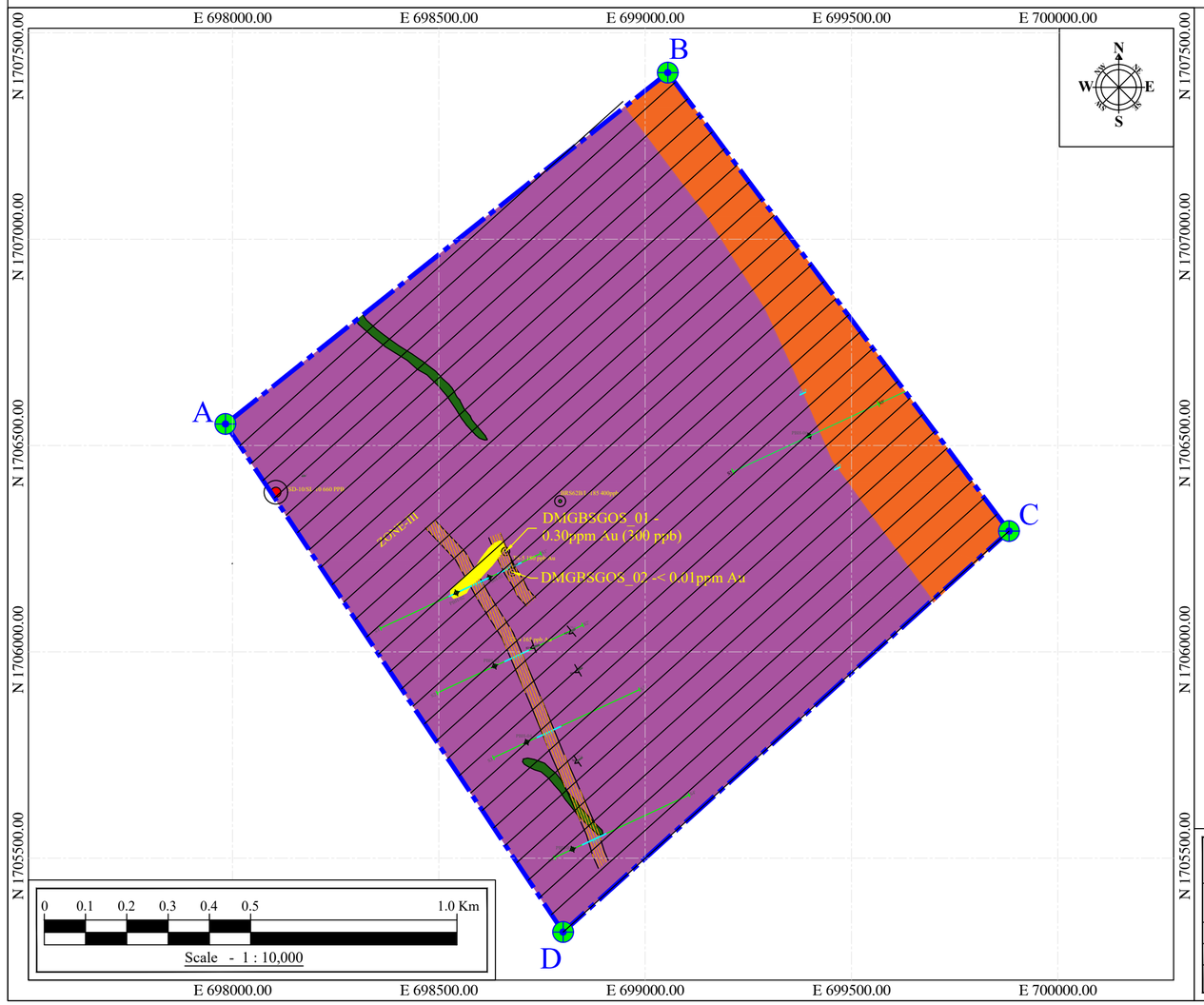
DMG Proposed Block - 2.00 Sq. Km

Plate No. - 02

DEPARTMENT OF MINES & GEOLOGY
GOVERNMENT OF KARNATAKA

Title	REGIONAL LIHTOLOGICAL MAP OF PROPOSED SIRIGERI GOLD BLOCK	
Taluk - Siruguppa		District - Ballari
State - Karnataka	Scale - 1 : 12,500	Stage - G3
Prepared by: Geologist, DMG, Karnataka		

LITHOLOGICAL MAP WITH PRPOSED BOREHOLES & TRENCH LOCATIONS OF PROPOSED SIRIGERI GOLD BLOCK BY DMG



DMG PROPOSED SIRIGERI GOLD BLOCK
GPS Co-Ordinates (WGS-1984)

Point ID	Latitude	Longitude
A	15.42834302	76.84502771
B	15.43595272	76.85507880
C	15.42585002	76.86269455
D	15.41715705	76.85254896

LEGEND

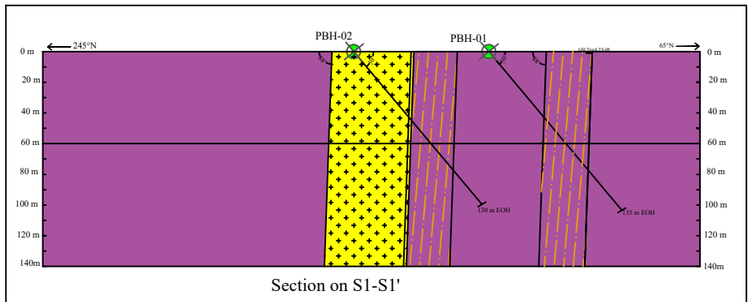
- DMG Proposed Block Boundary
- Quartz Vein
- Basic Dykes
- Pink K-Feldspar Granite
- Quartz-Sericite Schist
- Zone - III (Mineralized Zone)
- Proposed Boreholes
- Proposed Trenches
- GSI Trenches
- Foliation
- Stream Sediments
- BRS BY GSI
- BRS BY DMG

Plate No. - 03

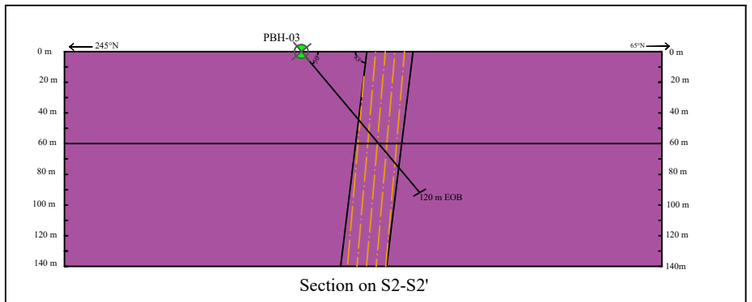
DEPARTMENT OF MINES & GEOLOGY
GOVERNMENT OF KARNATAKA

Title	LITHOLOGICAL MAP WITH PRPOSED BOREHOLES & TRENCH LOCATIONS OF PROPOSED SIRIGERI GOLD BLOCK BY DMG	
Taluk - Siruguppa		District - Ballari
State - Karnataka	Extent : 2.00 Sq. Km	Stage - G3
Prepared by: Geologist, DMG, Karnataka		

CROSS SECTIONS OF PROPOSED BOREHOLES OF SIRIGERI GOLD BLOCK ON ZONE-III



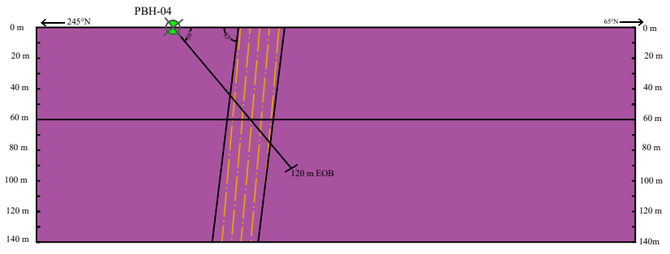
Section on S1-S1'

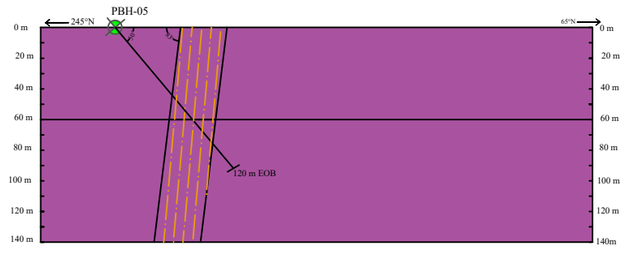


Section on S2-S2'

Pink K feldspar Granite
Quartz Vein
Alteration Zone ?
PBH-02
Proposed Boreholes

Pink K feldspar Granite
Alteration Zone ?
PBH-03
Proposed Boreholes





Section on S4-S4'

Pink K feldspar Granite
Alteration Zone ?
PBH-04
Proposed Boreholes

Pink K feldspar Granite
Alteration Zone ?
PBH-05
Proposed Boreholes

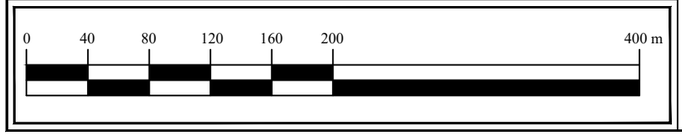
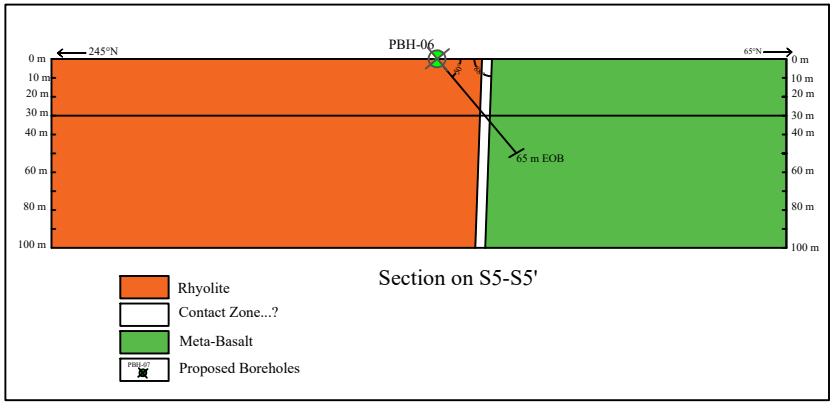


Plate No. - 4A

DEPARTMENT OF MINES & GEOLOGY GOVERNMENT OF KARNATAKA		
Title	CROSS SECTIONS OF PROPOSED BOREHOLES OF SIRIGERI GOLD BLOCK ON ZONE-III	
Taluk - Siruguppa		District - Ballari
State - Karnataka	Scale - 1:4000	Stage - G3
Prepared by: Geologist, DMG, Karnataka		

CROSS SECTIONS OF PROPOSED BOREHOLES OF SIRIGERI GOLD BLOCK ON CONTACT ZONES



Section on S5-S5'

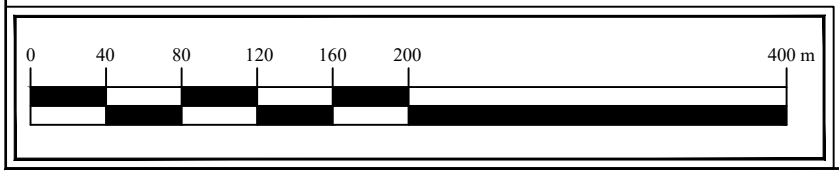


Plate No. - 4B

DEPARTMENT OF MINES & GEOLOGY GOVERNMENT OF KARNATAKA		
Title	CROSS SECTIONS OF PROPOSED BOREHOLES OF SIRIGERI GOLD BLOCK ON CONTACT ZONES	
Taluk - Siruguppa		District - Ballari
State - Karnataka	Scale - 1:4000	Stage - G3
Prepared by: Geologist, DMG, Karnataka		

Sl No	Stage	Components		units	qty
1	Preparation of exploration proposal			nos	1
2	Detailed Geological Mapping of 2.0 Sq km (1:4000)	Detailed Geological Mapping (1:4000 Scale)		Sqkm	2
		Trenching works		m^3	308
3	Survey Work	Demarcation of Lease boundary by DGPS. and fixing up of bore points (5+6) and 20 party days for topography Survey		nos	11
4	Geophysical Survey	Integrated ground geophysical survey (Induced polarisation (I.P.) cum Resistivity, Self-Potential and		Per Line km	40
5	Surface Sampling	Bedrock sampling		nos.	25
6	Drilling works (Medium Hard Rock)	No of Bore Holes		nos	6
		Core Drilling (NQ series)		m	690
		Detailed core/ sample logging including supply of core/ sample boxes		m	690
		Drill core preservation		m	690
7	Laboratory studies	Primary Analysis	BRS	nos	25
			Trench samples	nos	230
			Drill Core	nos	318
			Total (a)		573
		Internal Check sample analysis (5%)	BRS		1
			Trench samples	nos	12
			Drill Core	nos	16
			Total (b)		29
		External Check sample analysis (10%)	BRS	nos.	3
			Trench samples	nos	23
			Drill Core	nos	31
			Total ©		57
		Composite sample analysis for Gold and associate minerals	Trench samples	nos	23
			Drill Core	nos	31
			Total (d)		54
		Grand total (a+b+c+d)			**713**
8	Petrological samples (BH samples)	Preparation of thin section		nos	10
		Study of thin section		nos	10
9	Specific gravity studies	Of Core samples		nos	6
10	Report preparation			nos	1

GOVERNMENT OF INDIA

MINISTRY OF MINES

GEOLOGICAL SURVEY OF INDIA

GEOLOGICAL REPORT FOR THE MEMORANDUM

ON

GOLD IN SIRIGERI BLOCK, BELLARY DISTRICT, KARNATAKA

Block No. and Name: SR_KA_07_Sirigeri_II

Mineral Commodity: Gold

REFERENCE REPORT - FINAL REPORT ON

RECONNAISSANCE SURVEY FOR GOLD AND ASSOCIATED MINERALS IN SIRIGIRI BLOCK IN PART OF BELLARY DISTRICT, KARNATAKA. (BLOCK NO: SR-KAR-06) (FIELD SEASON 2017-18)

(G4 STAGE)

FSP CODE No. M2APMM-MEP/NC/SR/SU-KG/2017/18977

Field season year 2017-18

State Unit: Karnataka & Goa

Southern Region

Bangalore

November 2021

1. Executive Summary

I. The mapped area consists of 25.10 sq.km (2510.07 Ha) consists of metavolcano-sedimentary rocks of (Hungund-Kushtagi Group) metafelsic-tuffs, quartz sericite schist, banded hematite-magnetite chert/quartzite, meta-argillites, phyllites, and ferroan dolomite of Dharwar Supergroup. Closepet granite is represented by pink K-feldspar granite and grey biotite granite in the area which are intruded by younger basic dykes, pegmatite, aplite and quartz veins.

II. The above pink granites have a sheared contact along NNW-SSE with the schist belt in the eastern part of mapped area and is affected by mylonitisation in different degrees, carbonated and exhibit local development of chlorites and epidotes. The area has under gone three phases of deformation, which resulted in the development of foliation planes namely S_1, S_2, and S_3 due to folding F_1, F_2 and F_3 during the deformation D_1, D_2, and D_3 respectively. The common trend of regional S_1 foliation vary from NW-SE to NNW-SSE with moderate to steep dip towards NE or SW, S_2 foliation trending NW-SE to WNW-ESE with steep easterly dip and S_3 is represented by broad warps, kinks and wide spaced cleavage in ENE-WSW to E-W direction.

III. The old workings in the form of pounding marks and pestle stones for gold are extensively located at west of Dasapura and Rampura and SE of Sirigiri in parts of toposheet no. 57A/15. The evidences for mineralization are observed in the form of, silicification, epidotisation, chloritisation, carbonatisaion, shearing, sulphide dissemination/staining within pink K-feldspar granite, grey biotite granite and BIF in the study area.

IV. Based on field evidences like alteration, shearing and proximity to old workings observed during LSM, four mineralized zones for gold were delineated. These four zones are situated (i) 700 m Northwest of Sirigiri, (ii) 500 m Southeast of Sirigiri, (iii) 250 m West of Dasapura and (iv) 1.4 km Northwest of Kurugodu village. Gold and associated minerals are suspected within the sheared pink granite. All the four zones are oriented in NW-SE to NNW-SSE parallel to the general strike of the area.

V. Mineralised zones:- Zone-I is a combination of three sub-zones located about 700 m NW of Sirigiri within pink K-feldspar granite, intruded by quartz veins and dolerite dykes. Each sub-zone is traced up to 400-500 m (trending NNW-SSE) in strike length and 30-40 m in width. Zone-II is located 500 m southeast of Sirigiri within pink K-feldspar granite. The zone is 700 m long (NNW-SSE direction) and 50-100 m in width. Zone-III is located about 250 m west of Dasapura village and extended towards NW direction possibly upto west of Rampura. This Zone III has been traced up to 900 m in length and 100-150 m in width in NNW-SSE to NW-SE direction. Gold mineralisation in this zone is associated within the pink K-feldspar granite and associated quartz lenses and veins. This Zone is hosted in sheared pink K-feldspar granite, which is often carbonated and epidotised and intruded by dolerite dykes and quartz veins. Zone-IV consists of three sub-zones (minor patches) located about 1.4 km NW of Kurugodu village. The larger sub-zone has been traced up to 200 m in length along NNW-SSE direction and 20-30 m in width. Mineralization in this zone is associated with the grey biotite granite which is rarely sulphidised.

2. Details of the Qualified Person(s) / Exploration Agency

i.

a) Name: GEOLOGICAL SURVEY OF INDIA

b) Address: STATE UNIT: KARNATAKA & GOA, GEOLOGICAL SURVEY OF INDIA, VASUDHA BHAVAN, KUMARASWAMY LAYOUT, BENGALURU-560111

c) Contact Mobile No: 080-2666-2411

d) E-Mail id: ddg.sukg@gsi.gov.in

e) Qualification: Bachelor / Master degree forms the basic qualification in Geology/ Geophysics/ Chemistry/ Mineralogy/ Engineering disciplines.

f) Experience:**170 years**

g) Affiliation to any organization/ company, if yes, specify the name of the organization or company: GEOLOGICAL SURVEY OF INDIA, MINISTRY OF MINES, GOVERNMENT OF INDIA

ii. Details of qualification and experience of persons associated with various aspects of exploration assessment of resources and reserves: Not applicable

3. Title and ownership

i. **Name of the explorer:** Geological Survey of India
Address: SU: Karnataka & Goa, Bangalore, Southern Region, Kumaraswamy layout, Geological Survey of India., Bangalore, 560111
Telephone No: 080-2666-2411
E-Mail i.d.:ddg.sukg@gsi.gov.in

ii. **Details of period of prospecting:** 2017-18

iii. **In case of a license or lease:** Not applicable

4. Details of the Area under Study

i) **Village, District, State:** Dasapura, Rampura, Sirigiri. The investigation block lies to the southeast of Siruguppa and northeast of Kurugodu taluk of Bellary district, Karnataka state.

ii) **Survey of India Toposheet No., Differential Global Positioning System (DGPS) coordinates:** The areal extend of the block is 25.10 sq.km (2510.07 Ha) and falls in parts of toposheet no. 57A/15. The following are the DGPS coordinates of the block

SL NO	CODE	LATITUDE	LONGITUDE	LATITUDE	LONGITUDE
1	A	15.3999518	76.84139227	15°23'59.82647"	76°50'29.01218"
2	B	15.4503754	76.81036646	15°27'01.35142"	76°48'37.31926"
3	C	15.4499749	76.86751502	15°26'59.90969"	76°52'03.05407"
4	D	15.4212791	76.87966021	15°25'16.60478"	76°52'46.77676"

iii) **Cadastral details of the area with land use, area under forest with type of forest.** According to the cadastral details compiled by KSRSAC approximately 1971.79 ha of land in the block are under private holdings and are agriculture land. A built up area of 141.46 Ha and other are government lands.

iv) **Mineral(s) under investigation:** Gold mineralization.

5. Physiography and environment

i. **Relief of the area with minimum and maximum elevation, drainage pattern, natural water courses, reservoirs, etc**.

The maximum elevation in the area is 580 m above mean sea level (msl) as seen at northwest of Sindigiri village. Tungabhadra River flows in the north western side outside the study area and Tungabhadra right bank main canal passes through the area. The area is covered with many small streams. The Tungabhadra right bank main canal forms the perennial source of water for all the nearby villages and certain stretch of canal irrigated lands. The drainage pattern is dendritic to parallel. Most of the streams are seasonal and dry throughout year. There are many bore-wells in the villages for supply of potable water to the villagers.

ii. **Roads, railway track, electric transmission line, telephone line, etc., passing through the area or nearby**

The study area is located about 340 km and 30 km north westerly from Bangalore and Bellary (the District Headquarter) is connected via National Highway (NH) - 44 and NH-150A respectively. The nearest railway station is located at Bellary. Within the study area, there are all weathered metalled roads and fair weather jeepable tracks. The common infrastructure like drinking water, phone, electricity and primary education facilities are available in surrounding villages. The police station, post office, and dispensary facilities available at Kurugodu and Sirigiri. There are good metalled roads present in the area. Both operative and non-operative building stone quarries and several canal projects connected with Tungabhadra Reservoir are present for construction and irrigation purpose. The Suzlon Energy Ltd, a green energy producing company is the only industry present in the study area near Sindigeri- Konchigere village which generates electricity using wind energy.

iii. **Host population (local tribes), Human settlements within and nearby the area**

As per Sirigeri 2011 Census Details, Sirigeri village total population is 12273 and number of houses are 2356. Female Population is 50.6%. Village literacy rate is 46.3% and the Female Literacy rate is 18.7%. Schedule Tribe population is 22.9 % of the total population. As per the 2015 census, Krurugodu Town Municipal Council (TMC) has a population of 26,456 out of which 51% of the population are males and 49% females (Web 2). Kurugodu has an average literacy rate of 68%, higher than the national average of 59.5% and12% of the population is under 6 years of age (Web 2). According to 2011 census, Bellary district has a population of 2,452,595 with literacy rate of 67.43%. The sex ratio in the district is 983 females for every 1000 males.

iv. **Socio Demographic profile of the area and nearby:**

As per Sirigeri 2011 Census Details, Sirigeri village total population is 12273, Schedule Caste population is 23.4 % (2874) of the total population. Working population is 51.4 %. Child (0-6) population by 2011 is 1769. Girl Child (0-6) population by 2011 is 50.0

% (884). Muddatanur (7 KM) , Kurugod (12 KM) , Karur (13 KM) , Kallukamba (14 KM) , Badanahatti (15 KM) are the nearby Villages to Sirigeri. Sirigeri is surrounded by Holagunda Taluk towards East, Bellary Taluk towards South, Halaharvi Taluk towards East, Gangavathi Taluk towards west.

v. Historical sites and archaeological monuments, places of worship, public utilities etc. within or nearby:

Numerous neolithic archaeological sites are located around Bellary, such as the ash mounds at Sanganakallu, Budhihal, Kudithini, Tekkalakote, Hiregudda and Kupgal (Web 4). Hampi in Bellary district is one of the important pilgrimages center in India as well as world. It is declared as UNESCO world heritage site (Web 5). In the study area, significant historical sites are located at Kurugodu. The 'Hill fort of Kurugodu' is believed to have been a part of the Kishkindha kingdom ruled by the monkey brothers Vali and Sugreeva during the Treta Yuga (period when Lord Rama ruled the earth). Later in the Dwapara Yuga, this place became the capital of the Kuntala kingdom ruled by the great king Chandrahasa. The town of Kurugodu, surrounded by many small hillocks, proved an ideal environment for the then prehistoric settlement. There is ample evidence given by archaeologists in the form of artifacts to prove that this site was once occupied by prehistoric men. A few cave paintings found here can be traced back to the Bronze Age, with the others belonging to the Iron Age. An inscription found here dated to around 2nd century AD confirms that this place was also under the rule of the Satavahanas between 2nd and 3rd centuries AD. Subsequently, it came under the control of the Badami Chalukyas after which it gave rise to one of the lesser known dynasty, the Sindhs of Kurugodu. The Sindhs ruled Kurugodu from 7th century till the end of the 12th century. The fort of Kurugodu was built by the Sindh kings way back in the 10th century and was later improved by the Vijayanagara Kings. This fort is four tiered, with its bottom most tier of fortification encircling the entire town of Kurugodu and its surrounding hillocks. At a later stage, Hyder Ali captured this fort and post to the death of Tippu Sultan, it was left abandoned (Web 6). Sri Dodda Basaveshwara temple located at Kurugodu where Ratha Mahothsava is held every year on holy Purnima.

vi. Forests, sanctuaries, national park and wild life sanctuaries; grazing land and gochar land within or near by the area with distance from periphery of the area explored:

There is no national park, wildlife sanctuary and biosphere reserve present within the study area. The Deva Raya wildlife sanctuary is located 30 km from the study area, in the Bellary district of Karnataka which is named after the kings of Vijayanagar Empire. This private sanctuary is maintained by the Association for the Preservation of the Environment based in Hyderabad. Deva Raya wildlife sanctuary protects leopards, wolves, peacocks, pythons, bears, hyenas, deer, monkeys like langur and rhesus, porcupines, crocodiles, wild bear, anteaters and a variety of plants and other animals.

vii. Flora and Fauna within and nearby:

Shrubs, thorny bushes and grass besides local trees including Cassia, Acacia, Tamarind, Pomgamia, Belphal, Sitaphal cover the dry land in the study area viz. northwest of

Sindigeri and Sirigiri. Chili, Cotton, Paddy, Pomegranate, Papaya, Jawar, Maize, Bajra, Ragi, Groundnut and Sun-flower etc. are extensively cultivated in the area. Fauna consists of monkeys, deer, hare, wolves, snakes, lizards, scorpions and birds like partridge, peacock, quail, wild duck, and waterfowl.

viii. Water bodies such as river, nala, stream, reservoir, etc., within or nearby:

Tungabhadra right bank main canal passes through the area. The area is covered with many small streams. The Tungabhadra right bank main canal forms the perennial source of water for all the nearby villages and certain stretch of canal irrigated lands. Most of the streams are seasonal and dry throughout year. There are many bore-wells in the villages for supply of potable water to the villagers.

ix. Climatic conditions:

The climate here is considered to be a local steppe (semi-arid) climate. In Kurugodu and Sirigiri, there is little rainfall throughout the year (Web 1). Dry climate prevails is in the area for major part of the year. The area receives an average annual rainfall of 440 mm (DES 2016). The greater supply of rain is by the southwest monsoon beginning from the first week of June to September. The climate is generally warm to hot throughout the year except in November, December and January. Minimum temperatures in December is 18C and Maximum temperatures in May is 36 C

x. Any other physiographic, social and environmental factor having potential to affect the viability of the project and assessment of resources and reserves.

None

6) Infrastructure

i. Local infrastructure with roads, railways, port facilities, electricity, water etc. with distance from the area. Details of nearby industries in the area which may use the mineral commodity likely to be mined:

The common infrastructure like drinking water, phone, electricity and primary education facilities are available in surrounding villages. The police station, post office, and dispensary facilities available at Kurugodu and Sirigiri. There are good metalled roads present in the area. Both operative and non-operative building stone quarries and several canal projects connected with Tungabhadra Reservoir are present for construction and irrigation purpose. The Suzlon Energy Ltd, a green energy producing industry present in the study area near Sindigeri- Konchigere village which generates electricity using wind energy.

7) Geology

i. Brief regional geology of the area outlining the broad geological, stratigraphical and structural frame work.

The study area forms central part of Hagari schist belt of Dharwar Supergroup and its adjacent granites (Setty et al., 2006). The contact relation of schist belt with the granite is sharp and sheared. The general trend of schistosity in the schist belt is NNW-SSE with dipping moderate to steep easterly as well as westerly. Minor/discrete shears zones are present in

granite along N-S ridges of Sirigiri, Dasapura and Rampura areas (Madusudanan 2009; Setty et al 2006).

ii. Regional Stratigraphy:

The generalized regional stratigraphy of the Hungund-Kushtagi-Hagari Schist belt is given below. Amphibolite of Archaean age belonging to Dharwar Supergroup occur as xenoliths in the biotite gneiss of Peninsular Gneiss-II, migmatites and grey granites as thin linear discontinuous bands. They represent the oldest lithounits of the study area. These enclaves have a general trend of NNW-SSE to N-S trend and at places have been traced over a strike length of 100 m -250 m. These amphibolite enclaves are highly migmatised, fractured as exposed within the grey granite and possibly represent older basic rocks and sills partially digested during different stages of migmatisation (Ahmed 1995).

The Peninsular Gneissic Complex (PGC-II) is represented by biotite granite gneiss and migmatites. Its contact with the schist belts are tectonised. Gneissic foliation is developed with alternate parallel arrangement of biotite and quartzo-feldspathic bands.The Hungund-Kushtagi Group is represented by Ilkal and Mudenur Formations. The Ilkal Formation comprises amphibolites, schistose metabasalt, BIF and meta-felsic volcanics. Amphibolites occur as enclaves within the grey granite. Metabasalt is a greenish grey, schistose rock comprising chlorite, actinoite, albite and epidote. Quartz-sericite schist/felsic tuff constitute meta-acid volcanic Group that occurs as linear bodies within the metabasalt. The Mudenur Formation often comprises BIF, meta-argillites, phyllites and metafelsic tuff with thin bands and lenses of ferro-dolomite. Phyllite/meta-argillite occurs as alternating sequence of siltstone, phyllites with thin interbands of greywacke. A few thin bands of reddish to pinkish, hard and compact ferro-dolomite and chert bands occur along with BIF which has alternate layers of ferruginous and siliceous material. The linear to arcuate shape Closepet granite was emplaced in the western part during Archaean to Palaeoproterozoic time. It is represented by equigranular grey biotite granite and pink K-feldspar granites which impart sharp often sheared contact with the adjacent schist belt. (Ahmed, 1995; Setty et al., 2006; Madhusudan, 2009).

Regional stratigraphy of Hungund-Kushtagi-Hagari Schist Belt (after Ahmed, 1995)

<table>
<tr><td colspan="2">Recent</td><td colspan="2">Soil and Alluvium</td></tr>
<tr><td colspan="2">Younger Intrusives</td><td colspan="2">Quartz veins and reefs, Pegmatites
Dolerite and gabbro dykes</td></tr>
<tr><td colspan="2">Intrusive Granite (≈Closepet granite)</td><td colspan="2">Pink granite
Grey granite</td></tr>
<tr><td rowspan="2">Dharwar Supergroup</td><td rowspan="2">Hungund-Kushtagi Group</td><td>Mudenur Formation (≈ Chitradurga Group)</td><td>BMQ with chert, Meta-argillites, phyllites and metafelsic tuff with thin bands of ferro-dolomite</td></tr>
<tr><td>Ilkal Formation (≈ Bababudan Group)</td><td>Meta-tuffs, Quartz-sericite schist Meta-rhyolite (felsic volcanics), Metabasalt, Amphibolites (pillowed)</td></tr>
</table>

Peninsular gneissic complex	***Peninsular Gneisses***	**Gneisses**	*Banded biotite gneisses and Migmatites with enclaves of amphibolites (schistose and massive)*

ii. Local geological setting detailing the common rock types, controls of mineralization, details of old workings if any, surface exposures, etc., of the area under study also of adjoining nearby areas, if the information is likely to have an impact on the area under study.

An area under investigation lying in parts of Toposheet Nos. 57A/15 was mapped to understand the control of mineralization and bring out gold mineralized zones in the area.The area under investigation belongs to southern part of Hundgund-Kushtagi-Hagari schist belt and northward extension of Ramgiri-Penakacherla schist belt. The area exposes rocks of Ilkal Group, Mudenur Group which are intruded by younger Closepet Granite, basic intrusives, pegmatites and quartz veins.

The lithology of the area consists of meta-felsic tuff, metabasalt (Ilkal Formation) and banded hematite-magnetite chert/quartzite, meta-argillites, phyllites and quartz sericite schist, ferroan dolomite (Mudenur Formation) of Hungund-Kushtagi Group of Dharwar Supergroup. Intrusive granites (Closepet granite) are represented by equigranular pink K-feldspar granite and grey biotite granite in the area. Younger intrusives of acidic and basic rocks are sparsely distributed in the area mostly in the granites. The generalised stratigraphy of the study area is given below.

Stratigraphic sequence of the mapped area:

Younger Intrusives		*Quartz veins and reefs, pegmatites* *Dolerite and basalt dykes*	
Intrusive Granite (≈Closepet granite)		*Pink K-feldspar granite* *Grey biotite granite*	
Dharwar Supergroup	***Hungund-Kushtagi Group***	**Mudenur Formation**	*Banded hematite-magnetite chert/ quartzite, meta-argillites, phyllites, metafelsic tuff, ferro-dolomite*
		Ilkal Formation	*Quartz-sericite schist, meta-tuff, (acid volcanics), Metabasalt, Amphibolite*

Description of rock types

The area comprises of metavolcanics of Ilkal Formation and metasedimentaries of Mudenur Formation of Hungund-Kushtagi Group of Dharwar Supergroup. One long narrow linear ridge located at the eastern part of the study area is occupied by BIF intercalated with meta-argillite, phyllite and felsic tuff whereas in the western part, the small isolated mounds are covered with granites which are intruded by numerous basic dykes and quartz veins. The major lithounits observed in the area can be described below.

Metabasalt: Metabasalts prominently occur along the margin of the schist belt particularly in the southern part of the study area. Scanty exposures of metabasalt occur in NW of Sindigeri and West of Sanavasapura village. The metabasalts in the area are schistose and often massive at the core portion. The rock is greenish grey, fine to medium grained, hard and compact. It shows well developed schistosity. It consists of chlorite, plagioclase and occasionally biotite and sulphides viz. pyrite and chalcopyrite. At places it is carbonated and typically effervesces with dilute HCl (acid:water ratio is 1:2). Under microscope, mostly pyrite disseminations are observed in it.

Acid volcanics (quartz sericite schist and meta-tuffs): Acid volcanics occur in a narrow linear pattern in the schist belt in the form of meta-tuff and quartz-sericite schist. The contact of granite and acid volcanics is ambiguous due to thick soil cover. Meta tuff and quartz sericite schsit was exposed around Sanavasapura, Tungabhadra right bank main canal cuttings, east of Dasapura and Rampura. These rocks are sheared contact with pink granite is seen on the canal section. Quartz sericite schist is fine grained, whitish grey to greenish grey colour, foliated and consisting of mostly quartz and sericite. It is highly carbonated at places. It shows minute contortions and kinks. Meta-felsic tuff occurs on the western side of the NW-SE trending ridge located NW of Sindigeri.

Meta-argillite and phyllite: They occur associated with metabasalt and acid volcanics and form the narrow elongated ridge in the eastern side of the area. They form alternating layers with banded ferruginous chert/quartzite bands. Their thickness varies from centimeters to meters. Meta-argillites are greyish green, brownish and yellowish brown, fine to medium grained with clasts of quartz and feldspar at places. Upon mixing of water with argillite, becomes sticky and produce earthy smell. It is well exposed on the NW-SE trending ridge. Phyllite occurs as patches in association of meta-argillite exposed on the same ridge. It is greyish green to brownish red, very fine-grained consisting of quartz, mica and chlorite. The mica exhibits phyllitic sheen at places. Foliation creates minor wavy surfaces on it due to shearing. It is easily cleavable and brittle and often exhibit slaty habit. Good exposures are noticed on the hill sections of Δ580, Δ572 and Δ554 located NW of Sindigeri, southwest of Sanavasapura.

Banded Haematite-magnetite chert/quartzite: Banded Iron Formations (BIF) comprises Banded Hematite/Magnetite Chert (BHC/BMC) and Banded Hematite/Magnetite Quartzite (BHQ/BMQ). The earlier worker Ahmed (1995) have reported, iron occurs in the form of hematite only, however the present study reveals that the above litho-units containing hematite and magnetite in association of quartzite/chert. They occur as bands with variable thickness from centimeters to several meters intercalated with meta-argillite. They form elongated narrow ridge west of Sanavasapura and Sindigeri, lying over metavolcanics. At the NW of Sindigeri i.e. in the southern part of the ridge, BIF shows presence of sulphide clots viz. peacock green colour to yellow colour viz. malachite, azurite whereas towards northern side it is absent. Chert bands are prominently seen on the top of ridges associated with BHQ/BMQ bands. Chert band often contains feeble sulphide mineralisation in the form of pyrite. It is generally carbonated and often a dirty white layer of carbonate has developed over it. BMC/BMQ show strongly magnetic attraction observed in the field. Metallic vein lets are traversed in (along/across) BIF.

Ferrodolomite: Ferrodolomite occurs in the form of thin impersistent bands and lenses often associated with meta-argillite-BIF sequences. They trend parallel to the regional NW-SE trend and occur on the foothills of the NW-SE trending ridge. Good exposures are noticed in the downhills west of Sanavasapura. They are brownish grey to pink red in colour profusely traversed by quartz veins. They exhibit elephant skin weathering on the surface, highly jointed with reddish impure iron carbonates. Thin white carbonate veins also traverse the rock and is highly reactive to dilute HCl acid. These bands and lenses extend from 10 to 200 m and have a width of 2 to 10 m.

Grey biotite granite: The grey biotite granite is light grey to grey coloured, fine to medium grained, rarely porphyritic, consisting of plagioclase, biotite, quartz and rare potash feldspar. Fine grained grey biotite granite shows equigranular texture whereas porphyritic texture is seen in medium grained grey granite at places. It displays a homogeneous and isotropic appearance in the field and no solid state deformation. The grey biotite granites in the study area are represented by grey biotite granite and granodiorite. The contact between the two litho units is gradational and some places got ambiguous contact due to thick soil cover. Grey biotite granites are one of the younger intrusive occurring in the western side of the study area. The fine-grained grey granite occurs prominently around Kurugodu hills and due to its good polishing property; it is quarried for building material purposes. A lensoid body of amphibolite occurs within the grey biotite granite west of Kurugodu. It has a general trend of NNE-SSW to N-S and highly disturbed. The amphibolite body is cut across by numerous quartzo-feldspathic veins. The amphibolite is dark grey to greyish green, medium to coarse grained, mostly massive and few small enclaves showing pervasive foliation.

Pink K-feldspar granite: Pink K-feldspar granite occurs in between grey biotite granite and schistose units. The contact between these two granites is ambiguous due to soil cover, whereas its contact with schist belt is sharp and sheared. Although the sharp contact is not exposed mostly due to soil cover but its sharp and sheared contact with acid volcanics is observed in the Tungabhadra river right bank canal section located east of Dasapura village. Development of mylonites and stretching of quartz grains provide evidence of sheared contact between the pink K-feldspar granite and acid volcanics. There is a reduction and refinement of grains along with rotation of quartz in granite is observed at its contact with acid volcanics and under microscope, foliation is defined by alignment of sericite and quartz. Subgrain formation and rotation of quartz grains are often observed during thin section study of sheared granite under transmitted light. Shearing and alterations are mostly confined in the pink K-feldspar granite which is absent in grey biotite granite. Good exposures of pink K-feldspar granite occur in the hills and hillocks of Sirigiri, Dasapura, Konchigere, and isolated patches on the ground level at east of Bailuru, Sindigeri, and southeast of Konchigere. The rock is greyish pink to pink, medium to coarse grained, consists of K-feldspars, quartz predominantly with minor plagioclage, epidote, biotite and iron oxides. Quartz ribbons are formed at several places in the granite viz. west of Dasapura, north and southeast of Sirigiri. Sulfide mineralisation is feeble in the granite and due to its minute size usually water was added to it find out the presence of sulphides in it. Under microscope, aggregates of pyrites and relict pyrite grains completely altered to goethite are observed within sheared pink granite. Colloform banding also observed in goethite. Shearing, epidotisation and effects of mylonitisation, are noticed in the west of Dasapura, eastern part of Sirigeri and Bailuru. Epidotes and epidotised surface are commonly

observed within pink K-feldspar granite and exposed along joint planes. Veins and small lensoidal patches of milky to dirty white and smoky quartz are often associated with it. Old working in the form of pounding marks and pestle stones are found in the pink granite particularly adjacent to silicification and sulphidisation.

Basic dykes: There are mostly two sets of basic dykes in sinistral and dextral form occur in the study area which are emplaced within the secondary shear or Riedel shear fractures, a fundamental feature of shear zones architectures (Matin 2005; Katz et al., 2004). They are represented by mostly dolerite and occur as small outcrops in granitoids, varying up to 1 km in strike length. Riedel shear fractures filled by dolerite dykes are developed probably in the late stage of transpression (Matin 2005). At north of Sirigiri, dolerite dykes within pink K-feldspar granite are observed with an overstepping pattern probably the synthetic (same to the sanse of shearing) R-shears that are arranged in an en echelon, overstepping geometry (Davis et al., 2000). Exposures of dolerite dykes intruding pink K-feldspar granite occur in the hillocks west of Rampura and north of Sirigiri. Sulphides are mostly pyrite, chalcopyrite and pyrrhotite. These dykes trend in NW-SE to NNW-SSE direction.

Pegmatite veins and Quartz veins: Pegmatite veins occur within granites particularly in grey biotite granite. Numerous pegmatite veins are noticed in northwest and western part of Kurugodu village. The rock consists of large crystals of plagioclase feldspars, orthoclase, quartz, biotite, muscovite without any mineralisation. Quartz veins are mostly intrusive in pink K-feldspar granite in the form of reefs/veins and lenses. They vary in colours like smoky, greyish white, milky white and cherty dimensions. Rare sulphide grains mostly pyrites are identified in few quartz veins. The smoky quartz veins/lenses are mostly excavated from left behind cavity/cutting like feature in the country rock probably for the extraction of gold after grinding it followed by panning from it. A prominent quartz vein occurs as a reef in the SE of Sirigiri hills having a length of more than 200 m and width of 5- 10 m. It is sheared and fractured. Pyrite is noticed in it in the form of specks and disseminations. Its colour varies from smoky to dirty white and pinkish.

Mineralization:

In order to evaluate geochemical anomaly zones (gold mineralized zones) bedrock samples, trench samples and stream sediment samples were collected randomly from alteration zones of various lithounits occurring in the study area. Maximum samples were collected from sheared pink K-feldspar granite and sulphidic ferruginous chert.

Mineralised zones for gold could not be established in the area as gold is not visible with naked eye or through hand lens or petrographic study. However, four sulphide ore zones are delineanated according to the presence of sulphide minerals and field evidences viz. carbonatisation, silicification, sulphidisation, and other aleration criteria. These four Zones located in the study area are (i) Northwest of Sirigiri (ii) Southeast of Sirigiri (iii) Northwest of Dasapura (iv) Northwest of Kurugodu. Out of these four Zones, Zone III located NW of Dasapura village is found relatively more potential zone for gold mineralisation than other three. This zone shows analytical Au values ranges 50-660 ppb collected from BRS, TS and SD samples. These zones for gold demarcated in the study area are invariably present within the pink and grey granite. The different sulphide minerals identified are mostly pyrite and rare chalcopyrite and arsenopyrite. Pyrites and euhedral pyrite cubes of various sizes (upto 1cm) are are often observed in sheared pink granite viz. West of Dasapura, NW and SE of Sirigiri zone

and arsenopyrites are commony observed under microscope. Analytical results of BRS, TS and SD samples also indicate the presence of arsenic in the country rock.

iii. Structural details of the area such as dip, strike, folds, faults, etc.

Primary/ Non-diastrophic structures

Primary structures are well preserved in BIF represented by compositional and colour banding. It is developed in BIF; iron rich layers alternate with cherty quartzite layers and banding represent the original sedimentary layering (S_0). BIF trends NW-SE to NNW-SSE with moderate dip in the southwestern side and steeper in the northeastern side.

Secondary/ Diastrophic structures

Secondary structures include planar and linear features of rocks formed during deformations. The major diastrophic structures observed in the area are foliations, lineation, folds, puckering, joints and wide spread fractures.

Folds

Three phases of deformations have been noticed on the basis of fold studies of which first one is the most prominent. The three deformations are F_1, F_2 and F_3 developed during deformations D_1, D_2, and D_3 respectively.

***F_1 fold*:** The mesoscopic F_1 folds produced due to D_1 deformation are non-cylindrical and reclined to tight isoclinal fold with a very high amplitude/wavelength ratio. Axial surfaces are curved, steeply dip and run parallel to the general trend of the bedding in BIF. The trend of the axial surfaces of F_1 folds are NW-SE to NNW-SSE, with steep dip towards SW/NE and low southerly plunge.

***F_2 fold**:* F_2 folds occur most commonly as moderate to open folds dominantly with Z-asymetry. The folds are moderate to steeply inclined with moderate plunge towards easterly. The trend of the axial plane is WNW-ESE to NW-SE dipping moderate to steep northeasterly. The F_1 fold is followed by development of another set of tectonic fabric, rods and crenulation cleavage. The earlier schistosity S_1 and the limb of BIF ($S_0 \| S_1$) is folded in Z-asymmetry as studied from BIF bands of the study area. Moreover, the BIF ridge on a regional scale shows a prominent Z-asymetry with a right-handed shift. This observation is quite unique in the study area and contradicts with the earlier observations of Ahmed (1995) who reported a doubly plunging syncline with canoe shaped structure. But from present study it is found, the long narrow NW-SE trending ridge is formed as an overall dextral shift Z-shaped fold. The BIF bands strike NW-SE to NNW-SSE with moderate to steep dips. The Z-pattern is exposed in the Y-Z plane or in the plan view, whereas the scanty S-shift is along the cross-section in the X-Y plane indicate that the study area has undergone transpressional tectonics involving strike-slip and transpressional components, similar to the set up in Kushtagi schist belt reported by Matin (2006).

***F_3 fold*:** F_3 fold appears to be large scale swerving of the first-generation fold arms. It is produced due to the D_3 deformation and is at a high angle to the previous fabric and left less intense signature. This deformation is responsible for development of warps, kinks and wide spaced cleavge in BIF and acid volcanics trending ENE-WSW to E-W direction.

Joints

Three prominent sets of joints are found in the study area mostly within pink K-feldspar granite. These are given below.

(1) NW-SE to NNW-SSE/60°-90°dipping on either side

(2) N-S to NNE-SSW/70°-90° dipping on either side

(3) ENE-WSW to E-W/90°

Shearing

The schists and associated granitoids were subjected to shearing, fracturing, mostly parallel to the regional strike of the formation. The sharp and sheared contact of schists with granitoids is prominently seen in the Tungabhadra right bank canal section located east of Dasapura. Minor shear zones and bands are noticed in intrusive pink K-feldspar granite exposed northwest of Dasapura, southeast and north of Sirigiri. Shear zones are very thin and linear, fractured and sheared and at places filled with infilling epidote and quartz veins in en-echelon shift pattern. Shear zones trends in N-S and NNW-SSE directions. N-S trending shears are interesected by NW-SE trending shears as observed on the hills west of Dasapura. Weathering in the sheared granite show reddish brown colour due to oxidation of iron sulphides. Slickenslides are also seen in fracture plane/joint planes. Poor dissemination of pyrite and rare chalcopyrite in equigranular pink K-feldspar granites and quartz veins are seen in shear zones. Mylonite is developed at the sheared contact between pink K-feldspar granite and acid volcanics

A discussion on the type of the deposit based on the style of mineralization and minerals under investigation. Suggested exploration plan with spacing of the sampling points and depth of exploration commensurate with the stage of exploration.

The geological set up for gold mineralisation in sheared granodiorite and at the margin of Jonnagiri schist belt in Dona area and Ramgiri-Penakacherla schist belt in Ramgiri area, Andhra Pradesh is similar as found along the western margin of Hungund-Kushtagi-Hagari schist belt and invokes significant interest in search for gold mineralization (Setty et al., 2005; Ahmed 1995). Gold mineralization is confined within pink K-feldspar granite and shearing, epidotisation, silicification, sulphidisation are the prominent signatures associated with mineralisation. The sulphide minerals occur in the form of fine dissemination of pyrite and rare chalcopyrite in the sheared pink granite.

Extensive pounding marks present in the granites are the indirect evidences of ancient metallurgical/processing activity for gold (Ahmed, 1995; Setty et al., 2006; Madusudanan, 2009). It possibly suggests to the proximity of the possible source rock for Au mineralisation. High anomalous gold values (up to 2.75 ppm obtained by Setty et al., 2006) were obtained from the insitu soil derived from granite country rock. However, source rock for gold mineralisation is highly enigmatic due to presence of ancient processing activity for gold in the area and BRS collected from granite have analyzed Au upto 200 ppb indicates feeble gold mineralisation in the granite (Setty et al., 2006).

iv. The extent and variability of the mineralization expressed as length (in meter) (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource. NA

8) Previous Exploration

i. Name and address of prospecting agency or permit holder or licensee involved in the exploration of the area with year and period of exploration.

GSI-BRGM Project Report (1998) Report on Regional geochemical inventory in selected areas of Karnataka craton's greenstone belt, India. Records of GSI - BRGM (Geol. Surv. India-Bureau de Recherché Geologique et Minieres) Project, Field season 1995-98.

Ahmed S. (1995) Specialised thematic mapping and geochemical surveys of Hagari schist belt, Bellary & Raichur districts, Karnataka state. Unpublished Progress Report, Field Season 1992-1993, Geological Survey of India, State Unit- Karnataka and Goa, Bangalore.

Setty S.R., Babu Rao K., Subramanian N. (2006) Investigation for possible gold mineralisation in geochemical anomalies in parts of Hagari schist belt, Bellary district, Karnataka (P-II stage). Unpublished Progress Report, Field Season 2001-02, Geological Survey of India, State unit- Karnataka and Goa, Bangalore.

Madusudanan R. (2009) Integrated survey for granitoid hosted gold mineralisation in Sirigiri-Konchigere sector, Hagari Schist Belt, Bellary district, Karnataka (P-II Stage). Unpublished Progress Report, Field season 2003-04, Geological Survey of India, State unit- Karnataka and Goa, Bangalore

ii. Brief details of the exploration carried out

Regional geochemical surveys for gold in Hungund-Kushtagi schist belt by stream sediment and alluvial sampling was carried out under the joint collaborative item by GSI-BRGM (1998), has resulted in the identification of 18 geochemical anomaly zones for gold in Hagari schist belt. As a follow-up of work of GSI-BRGM Project, all the 18 geochemical anomalies were evaluated by geochemical soil sampling during the field season 1999-2000 by Bhat et al., (2005) and they have reported the gold anomalies in anomaly blocks 6A, 7 and 8 in granite-greenstone terrain and significant soil gold anomaly zones with Au values range from 10 to 2400 ppb. Among the above three anomaly Blocks, Block no. 8 lies in present study area i.e. Sirigiri block.

Ahmed (1995) mapped northern part of Hungund-Kushtagi schist belt and adjacent granitoids during 1992-93. He reported the study area is covered by the Peninsular Gneiss of Archaean age enveloping the schist belt, which branch off towards west near the intersection of Tungabhadra River. The pink and grey granites are mostly exposed near the western margin of the schist belt. Quartz veins, pegmatites, dolerite dykes are sparsely distributed in the area. He established the order of superposition based on studies of primary structures like pillows in metabasalts and graded bedding in metasediments as no depositional contacts or conglomerates are noticed in the mapped area. He reported no mineral of economic significance is noticed in the area except granite for building material and constructional purposes.

Setty et al (2006) investigated the area for possible gold mineralisation by analyzing soil geochemical anomaly at the contact of Hungund-Kushtagi-Hagari schist belt and granite of Eastern Dharwar Craton of Archaean age in Dasapura-Rampura areas, Bellary district. The regional strike of the rock types of Hungund-Kushtagi schist belt varies from NNW-SSE to NW-SE with moderate dips due NE or SW. The investigation area lies between north latitudes of 15°25'00" to 15°26'00" and east longitudes 76°50'00" to 76°51'30" falling in the Survey of India toposheet No. 57A/15. They carried out geological mapping in and around the geochemical anomaly block on 1:25,000 scale for 25 L. km. The authors reported 6 six samples out of 70 bedrock samples (BRS) from sheared granite and basic dykes have analysed

35 to 200 ppb of Au indicating feeble gold mineralisation in the granite. They carried out geochemical soil sampling on 125 × 25 m/125 × 50 m grid pattern and collected 844 soil samples at a depth of 20-60 cm along some prefixed sample lines. Out of 844 soil samples, 601 samples showed gold values ranging from 10 to 2750 ppb and rest of the samples are less than 10 ppb. The authors also had collected 174 trench samples (TS) out of 36 trenches measuring 202 cubic meters (cu. m) excavated in soil cover area to test the soil Au anomalies. They reported 150 samples out of 174 trench samples show Au values ranging from 25 to 1.49 ppm and rest of the samples analyzed less than 25 (<25) ppb Au. They also mentioned the occurrence of metallic slags as dumps in proximity to the processing (pounding marks) sites. They recovered fine specks of alluvial gold from stream sediment of 1st order drainage. However, they have found no other clear-cut indications in the form of old workings, shaft, pits and ore dumps in the area. Suggesting the possibility of gold mineralization at depth and trenching results obtained from sheared granite, the authors recommended to test by scout drilling to clearly assess the possibility of auriferous mineralization in the area.

Madusudanan (2009) carried out integrated survey for granitoid hosted gold mineralisation in Sirigiri-Konchigere sector during FS 2003-2004 to delineate zones of Au mineralisation in the granite occupying the western margin of Hagari schist belt. The study area is bounded by north latitudes 15°24'30" – 15°26'32" and east longitudes 76°50'23" – 76°52'08" falling in the Survey of India toposheet no. 57 A/15. Large scale geological mapping on 1:12,500 scale for 2.0 sq. km area and collected 103 BRS samples from the study area. He reported the areas where previous work (Madusudanan et al., 2004) indicated values upto 4.45 g/t Au have values close to detection limit and other higher Au values have indicated insignificant Au values as well. He concluded that the mineralization is hosted by granites which is confined to very thin, impersistent sulphidic quartz veins emplaced along the highly irregular, fine shallow fractures. He reported geophysical anomaly zones delineated by geophysical survey didn't correspond to the geochemical anomalous zones obtained from geological survey. According to the author, the delineation of zones in the area by geophysical I.P., resistivity and magnetic surveys was not successful/ significant may be due to the feeble, impersistent nature of mineralisation. Absence of other indications such as openings, inclines, shafts, dumps lead the author for the above conclusion. However, he recommended traverse interval at 100 m for reconnaissance of the total area and at 50 m or less for detailed coverage of anomaly zones has to be maintained.

Thus, a total of 40 to 50-line km work can be planned for a geophysical team as a full field season programme to cover 2.0 sq km Rampura-Dasapura block for delineating possible zones of gold mineralisation, if any.

iii. Reserves or resources estimated, if any, during the previous exploration campaign with quantity and grade under various categories. NA

9) Aerial or ground geophysical or geochemical data

i. Details of aerial, ground geophysical and geochemical survey taken up and their results.

High altitude aero-geophysical map was obtained from the Remote Sensing and Areal Survey Division, GSI, Bangalore. The aero-magnetic map shows moderate to high magnetic expression of about 50-80 nT (magnetic field intensity in nano Tesla- nT) along NW-SE trend

in the eastern and southwestern part and lower magnetic expression (28-50 nT) in the middle part of the area in a similar NW-SE trending pattern. The higher magnetic values coincide with the occurrence of BIF bands, and schistose metabasalt lying NW-SE direction. But in the southwestern part, the moderate magnetic values come from grey biotite granite which needs further investigation. The low magnetic values correspond to the K-rich granite which is mostly soil covered and plain land except in the northwestern part where isolated hills of it are present.

Kumar et al., (2016) carried out geophysical mapping including regional gravity and magnetic (TF) surveys in the study area under the Project National Geophysical Mapping (NGPM) programme. According to the authors, the gravity high zones represent the schist belts, whereas the residual gravity lows along the strike of schist belts are altered portions. Gneisses are shown as moderate gravity expressions and granites as isolated low gravity closures in the order of their densities. The structural fabric of the area was brought out according to the anomaly pattern of the area. The low gravity anomaly shows NW-SE trending pattern and its range increases from west to east i.e. from granite to schistose rocks.

Trivikram and Hiralal (2015) carried out geochemical mapping in the T.S. no. 57A/15 lying in the parts of Bellary District of Karnataka on 1:50,000 scale during FS 2014-2015 with an objective to generate geochemical baseline data for use in managing/developing natural resources and for applications in environmental, public health and other social concerns. The authors had collected 740 stream sediment/slopewash samples from T.S. no. 57A/15 out of which 196 composite samples were prepared for chemical analysis. They reported one composite stream sediment sample collected from pink granite terrain showed gold value of 250 ppb located from 146 composite grid i.e. near Rampura village. However, all other samples showed Au value of <50 ppb.

10) Exploration undertaken during current investigation

i. Details of pitting, trenching, drilling, etc., with spacing and distribution of the sample points along with geographical co-ordinates.

In Sirigeri block – A total of 10 numbers of trenches have been carried out. The Geographical co-ordinates of trenches are as follows: -

TRENCH NO.: TS-1: Co-ordinates: N15°25′25.44″; E76°51′10.06″,
TRENCH NO.: TS-2: Co-ordinates: N15°25′22.37″; E76° 51′10.54″,
TRENCH NO.: TS-3: Co-ordinates: N15°25′15.21″; E76° 51′10.40″,
TRENCH NO.: TS-4: Co-ordinates: N15°25′24.27″; E76°51′07.02″,
TRENCH NO.: TS-5: Co-ordinates: N15°25′30.50″; E76°51′03.25″,
TRENCH NO.: TS-6: Co-ordinates: N15°25′46.99″; E76°50′06.92″,
TRENCH NO.: TS-7: Co-ordinates: N15°25′37.88″; E76°50′48.27″,
TRENCH NO.: TS-8: Co-ordinates: N15°25′54.63″; E76°50′49.77″,
TRENCH NO.: TS-9: Co-ordinates: N15°25′40.36″; E75°50′23.30″.
TRENCH NO.: TS-10: Co-ordinates: N15°25′44.25″; E76°50′19.31″

ii. Data spacing for reporting of exploration results:

The includes the systematic measurement of chemical properties of naturally occuring material. This is done by collecting samples from suspected zones and analysing them using reliable methods. Trench samples (PTS), bed rock samples (BRS), stream sediment samples (SSS) and petrochemical samples (PCS) were collected to generate geochemical data of the

study area. During large scale geological mapping (LSM) on 1:12,500 scale, 75 nos. of trench, 196 bed rock and 10 stream sediment samples were collected from different litho-units mostly from alteration/sulphidised zones. Apart from these, 16 petrochemical samples (PCS) collected from various rocks of the area for whole rock analysis and for reporting of exploration results.

11) Location of data point

i. Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys, azimuth, inclination, coordinates of bore holes etc), trenches, mine workings and other locations used in mineral resource estimation.

Resource estimation is not done.

ii. Quality and adequacy of topographic control.

NA

12) Sampling technique

i. Nature and quality of sampling (eg. cut channels, random chips, etc.) and measures taken to ensure sample representation.

A total of 75 nos. of trench, 196 bed rock and 10 stream sediment samples were collected from different litho-units mostly from alteration/sulphidised zones. Apart from these, 16 petrochemical samples (PCS) collected from various rocks of the area for whole rock analysis.

The bedrock samples were mostly collected by both channel, grab and chip sampling process from alteration and suspected mineralized zones. The sample width varies according to the width and nature of alteration zones. Trench samples were collected from trenches of varying depth (0-1.5m) and 1m width. The trenches are made to expose the mineralized body and to assess the strike length and potential of the mineralized zones. They are collected by channel and groove samplings.

The petrochemical sampling provides information to reconstruct the petrogenetic history of the metabasalt, acid volcanics, granite and dolerite dyke. Sixteen samples from different litho-units in Sirigiri block were collected for petrochemical analysis. About 1.5 to 2 kg of sample was collected and the entire sample was crushed to -120 mesh size (ASTM), followed by coning and quartering and 250 g of sample was sent to NCEGR, GSI, Bangalore for whole rock X-ray Fractionation (XRF) analysis. Earlier PCS samples were analysed by AAS method at Chemical lab, GSI, SU:K&G, Bangalore for major oxides. Due to errorneous results, these samples were further analysed by XRF method as mentioned above.All the smaples, including bedrock, stream sediment and trench samples are analyzed by GT-AAS and AAS-Flame method to detect Au and other associated elements respectively.

13) Drilling technique and drill sampling employed

i. Drill type (eg. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (eg. core diameter, triple or standard tube).

Nil

ii. Whether core and chip sample recoveries have been properly recorded and results assessed.

NA

iii. Measures taken to maximise sample recovery and ensure representative nature of the samples.

NA

iv. **Whether a relationship exists between sample recovery and grade and whether sample bias could have occurred due to preferential loss or gain of fine or coarse material.**

NA

v. **Logging: -Whether core and chip samples have been logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.**

NA

vi. **Discussion on the analysis results of handheld X-ray fluorescence (XRF), if used in the investigation.**

NA

14) Sub-sampling techniques and sample preparation

i. **If core, whether cut or sawn and whether quarter, half or all core taken.**

NA

ii. **a) If non-core, whether riffled, tube sampled, rotary split, etc., and whether sampled wet or dry.**

b) For all sample types, the nature, quality and appropriateness of the sample preparation technique.

NA

iii. **Quality control procedures adopted for all sub-sampling stages to maximize representation of samples.**

NA

iv. **Measures taken to ensure that the sampling is representative of the in-situ material collected.**

NA

v. **Whether sample sizes are appropriate to the grain size of the material being sampled.**

NA

15) Quality of assay data and laboratory tests

The samples were analyzed in Chemical Laboratory, State Unit of Karnataka and Goa, Geological Survey of India, Bangalore and PPOD laboratory, State Unit of Karnataka and Goa. The methods of gold assay are very precise and gold values as low as 25ppb levels can be deciphered with precision. The Geological Survey of India, Chemical Laboratories used the world class standards for maintaining the standard and accuracy of the values received.

16) Moisture

NA

17) Bulk Density

NA

18) Beneficiation studies as may be required

NA

19) Resource estimation techniques

Reconnaissance resource estimation was not carried out during the investigation

20) Reporting of resources

NA

21) Summary and recommendations:

i. A discussion on the outcome of the exploration work:

Based on field evidences like alteration, shearing and old working proximity, four zones viz. Zone-I, Zone-II, Zone-III and Zone-IV are demarcated as potential zones for sulphide and other associated mineralisation.

These four zones located in the study area are (i) Northwest of Sirigiri (ii) Southeast of Sirigiri (iii) West of Dasapura (iv) Northwest of Kurugodu

Zone-I is a combination of three sub-zones located about 700 m NW of Sirigiri within pink K-feldspar granite associated with quartz veins and dolerite dykes. Each sub-zone is traced up to 400-500 m (trending NNW-SSE) in strike length and 30-40 m in width. This zone is characterized by alterations in the form of carbonatisation and sulphidisation along with shearing related silicification and mylonitisation. Old workings in the form of pounding marks and rock cuts are the surface manifestation for mineralization noticed in Zone-I. Sulphides in dissemination form are found in the form of pyrite and sulphide stains. Twenty BRS samples (BRS-128 to 144) were collected from this zone. One stream sediment sample (SD-5) was collected from this zone. All the samples from this zone show poor analytical Au values and found to be below detection limit.

Zone-II is located 500 m southeast of Sirigiri within pink granite and characterized by shearing, silicification, chloritisation, epidotisation and alteration evidenced from mylonites, stretching of quartz veins and veinlets and alignment of chlorite along foliation plane. The zone is traced up to 700 m in strike length (NNW-SSE direction) and 50-100 m in width. In this zone the mineralisation is observed as disseminated sulphides in the form of fine pyrite and chalcopyrite within granite with few pinkish white to smoky quartz veins. Two trenches (TS-9 and TS-10) were excavated in this zone and 41 nos. of BRS samples (BRS- 59 to 61, BRS- 69 to 73, BRS-96, BRS- 100 to 120) were collected from this zone. Old working in the form of remnants of rock pits and pounding marks were observed during mapping. Two stream sediment samples (SD-4, SD-6) were collected from this zone. Analytical results of gold values in TS-9 and TS-10 shows below detection limit and or the ranging from 25-35 ppb. Similarly, two stream sediment samples have low gold values of 55 ppb each and one BRS have gold value of 62 ppb.

Zone-III is located about 250 m west of Dasapura village and extended towards NW direction possibly upto west of Rampura. Gold mineralisation in this zone is associated within the pink K-feldspar granite and associated quartz lenses and veins. This zone is hosted in sheared pink granite, which is often carbonated and epidotised and intruded by dolerite dykes and quartz veins. The rock contains fine disseminated pyrite, chalcopyrite and arsenopyrite. There are extensive pounding marks (old workings) and pestle stones were observed in the zone. However, no dump materials were found except slag material at few places. This zone is presently covered with soil up to certain extent. **This Zone III has been traced up to 900 m in length and 100-150 m in width in NNW-SSE to NW-SE direction.** A total of 8 trenches (TS-1 to TS-8) were excavated. Fifty-two nos. of BRS samples (BRS- 41 to 53, BRS- 62 to 68,

BRS- 74 to 95) were collected from this zone. Four stream sediment samples (SD-1 to SD-3, SD-10) were collected from this zone. Higher analytical gold values are obtained from this zone. Two BRS shows 400 and 70 ppb of gold values. Trench samples collected from TS-5 have gold value ranges from 70 to 180 ppb. One sample from TS-6 and TS-2 have gold value of 165 and 50 ppb respectively. Stream sediment collected from this zone have analytical gold values of 660, 80, 70 ppb. In addition, NW extension of this zone to west of Rampura, show seven samples from TS-8 have analytical gold values range from 35 to 145 ppb and one BRS have 88 ppb of Au. Analysis of one slag sample shows Au value below detection limit.

Zone-IV consists of three sub-zones (minor patches) located about 1.4 km NW of Kurugodu village. Gold mineralisation in this zone is associated with the grey granite which is silicified and rarely sulphidised. Old workings are observed in the form of rock cuts and pounding marks. The larger sub-zone has been traced up to 200 m in length and 20-30 m in width. Fourteen nos. of BRS samples (BRS- 145 to 155, BRS-167-168) were collected from this zone. Analytical results of all the samples show below detection limit of Au value.

Analyical results of 196 nos. of BRS samples, only 5 nos. of samples have gold (Au) value above detection limit i.e. 400 ppb (BRS-62B), 130 ppb (BRS-166), 88 ppb (BRS-50), 70 ppb (BRS-74A) and 62 ppb (BRS-59). Rest of the BRS shows analytical gold value below detection limit (<25 ppb). The BRS-62B sample was collected from sheared pink granite with smoky quartz located NW of Dasapura (Zone-III) gives rise to gold value of 400 ppb making the Zone-III as most potential zone than the other three zones. Analytical results of all the 75 trench samples show twenty samples with anomalous gold value ranges from 25 to 180 ppb collected from sheared pink granites. Out of ten trenches, 3 trenches like TS-5, TS-8 and TS-9 show continuous gold values in above detection limit. Out of six trench samples from TS-5 (NW of Dasapura), four samples (TS/5/1, TS/5/4, TS/5/5, TS/5/6) have Au value of 180 ppb, 115 ppb, 100 ppb and 70 ppb respectively for a width of 2m each collected from feebly sulphidic pink K-feldspar granite with epidotes and quartz vein lets/ lenses. Trench no. TS-8, west of Rampura, seven trench samples show Au values of 35, 40, 45, 45, 95, 140 and 145 ppb for a width of 2m each collected from sheared pink granite and sulphidic dolerite dyke. Out of ten trench samples from TS-9, five samples show Au concentrations ranging from 25 to 30 ppb collected from sheared epidotised pink granite with smoky quartz for a width of 1m each. In all other trench samples show Au values below detection limit (<25 ppb) except sample nos. TS/2/2 (50 ppb), TS/4/6 (165 ppb), TS/10/1 (30 ppb) and TS/10/2 (35 ppb). Seven out of ten stream sediment samples (SD) viz. SD-1, SD-2, SD-4, SD-6, SD-8 to SD-10 have Au values of 70, 80, 55, 55, 220, 195 and 660 ppb respectively. The underlain lithology is sheared pink granite with sulphides located NW of Dasapura gives rise to Au value of 660 ppb (SD-10), 80 ppb (SD-2) and 70 ppb (SD-1).

From the analytical results of all the samples including BRS (Au ranges 70-400 ppb), TS (Au ranges 50-180 ppb), SD (Au ranges 70-660 ppb) and field evidences of old workings in the form of extensive pounding marks, pestle stones and open rock cuts from the sheared pink granites with sulphides, **Zone-III located NW of Dasapura is considered as relatively potential than the other zones of gold mineralisation.**

ii. Discussion on the suggested future plan or strategy for the deposit for further exploration and mining:

During field investigation and microscopic study, no gold grain was found for the Sirigiri block. From the field evidences and analytical results, it is found that Zone III show potential for gold mineralization than the other zones in the study area. Hence further detailed investigation may be carried out for gold in the Zone- III of Sirigiri block.

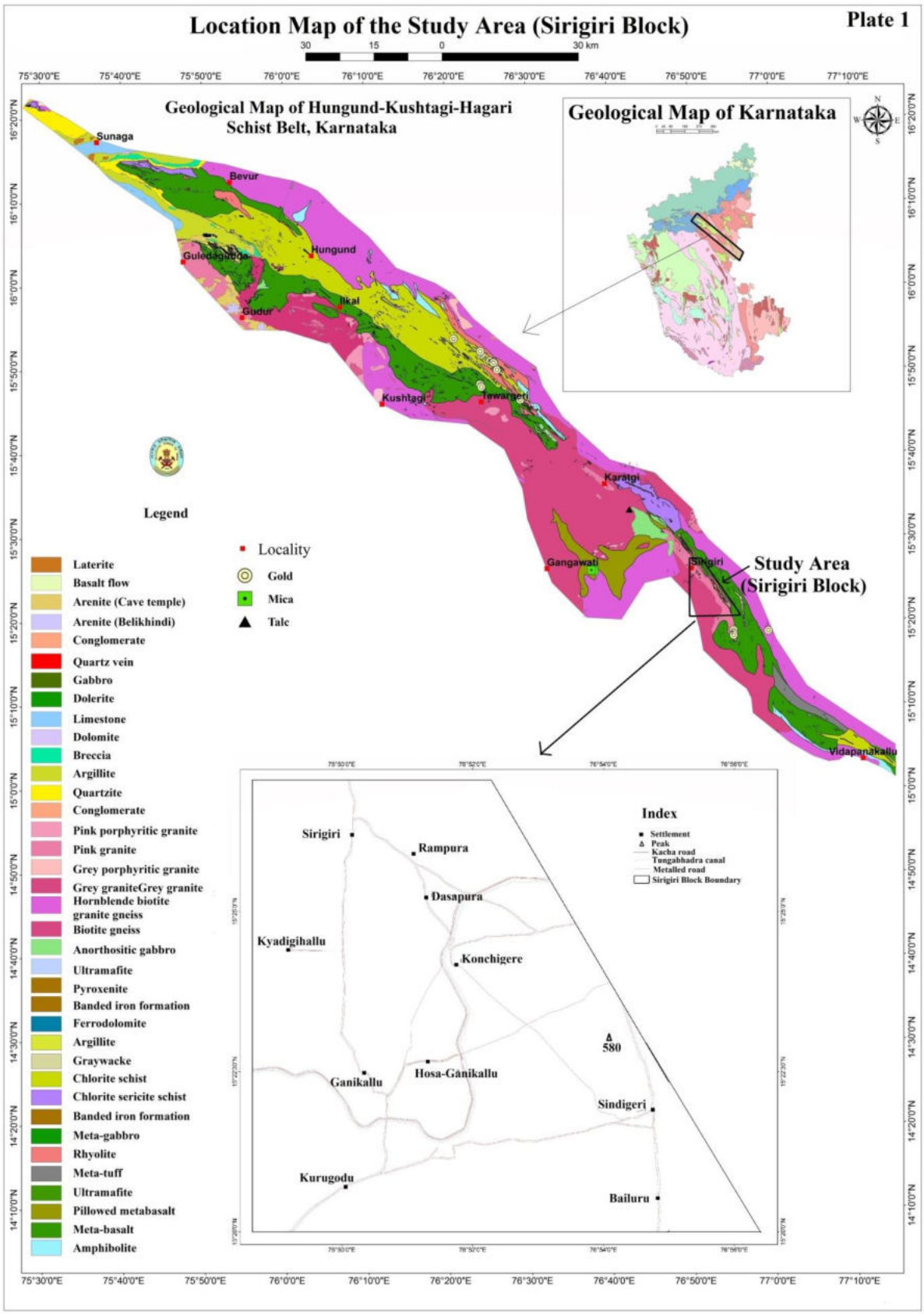

Location Map of the Study Area (Sirigiri Block)
Plate 1
30 15 0 30 km
Geological Map of Hungund-Kushtagi-Hagari Schist Belt, Karnataka
Geological Map of Karnataka
Sunaga
Bevur
Guledagudda
Hungund
Gudur
Ilkal
Kushtagi
Tewargeri
Karatgi
Gangawati
Sirigiri
Study Area (Sirigiri Block)
Vidapanakallu
Legend
Laterite
Basalt flow
Arenite (Cave temple)
Arenite (Belikhindi)
Conglomerate
Quartz vein
Gabbro
Dolerite
Limestone
Dolomite
Breccia
Argillite
Quartzite
Conglomerate
Pink porphyritic granite
Pink granite
Grey porphyritic granite
Grey graniteGrey granite
Hornblende biotite granite gneiss
Biotite gneiss
Anorthositic gabbro
Ultramafite
Pyroxenite
Banded iron formation
Ferrodolomite
Argillite
Graywacke
Chlorite schist
Chlorite sericite schist
Banded iron formation
Meta-gabbro
Rhyolite
Meta-tuff
Ultramafite
Pillowed metabasalt
Meta-basalt
Amphibolite
Locality
Gold
Mica
Talc
Index
Settlement
Peak
Kacha road
Tungabhadra canal
Metalled road
Sirigiri Block Boundary
Sirigiri
Rampura
Dasapura
Kyadigihallu
Konchigere
580
Ganikallu
Hosa-Gānikallu
Sindigeri
Kurugodu
Bailuru

Plate 2- Sirigiri Block on the toposheet 57A/15, in parts of Bellary district,

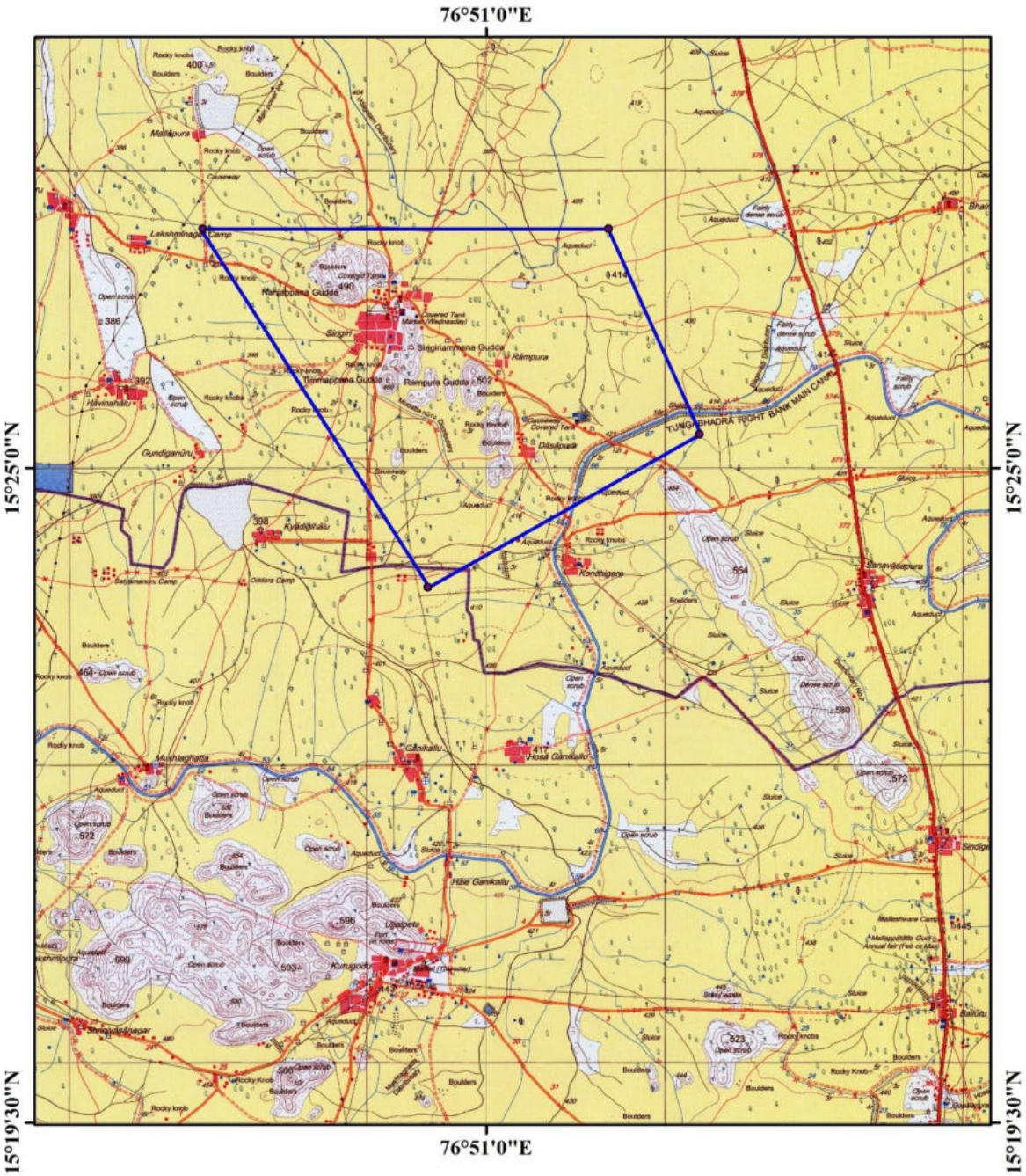


Plate 3- Sirigiri Block over the Large Scale Map, in parts of Bellary district, Karnataka

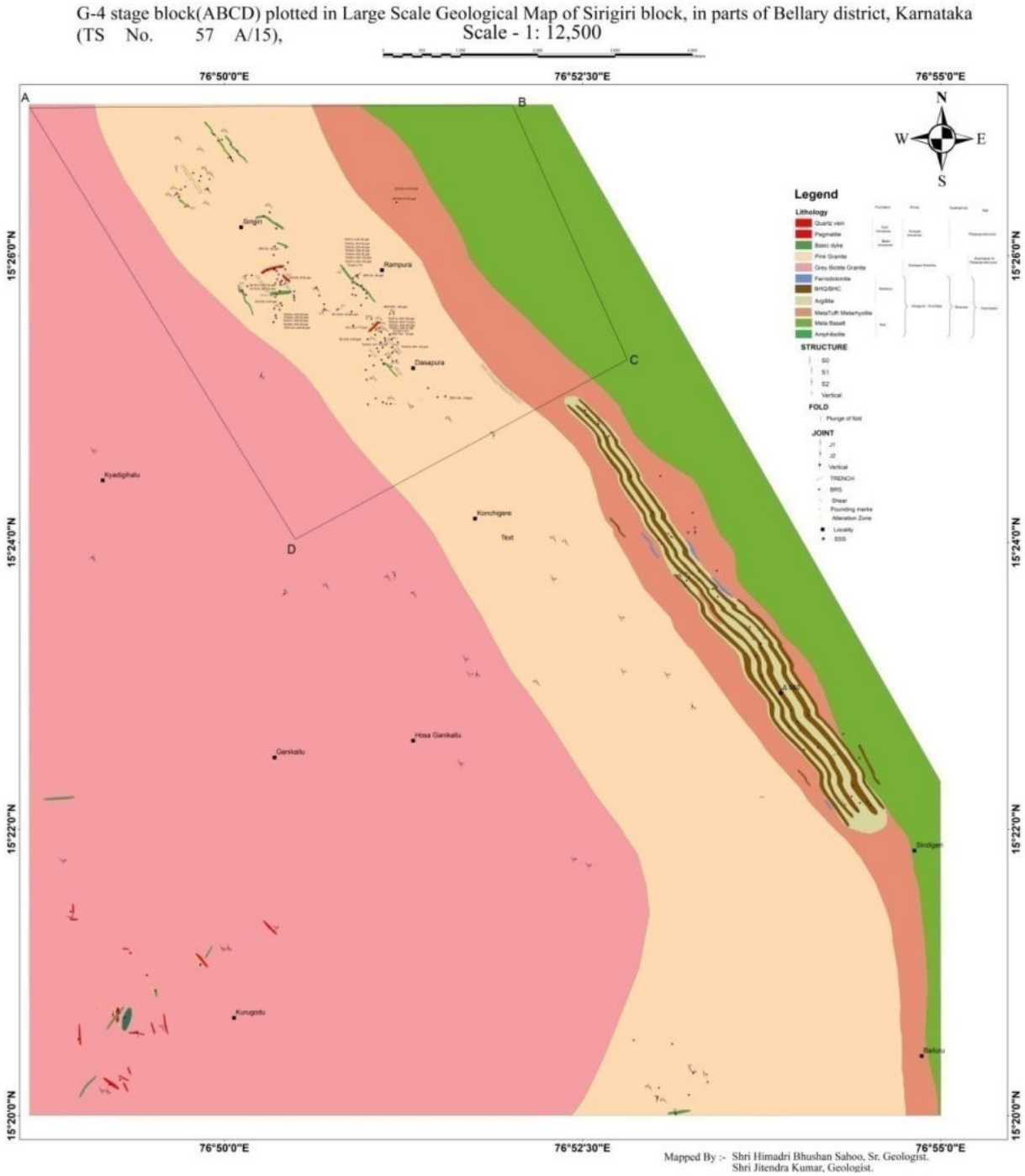


Plate 4- Geology map of Sirigiri Block, in parts of Bellary district, Karnataka

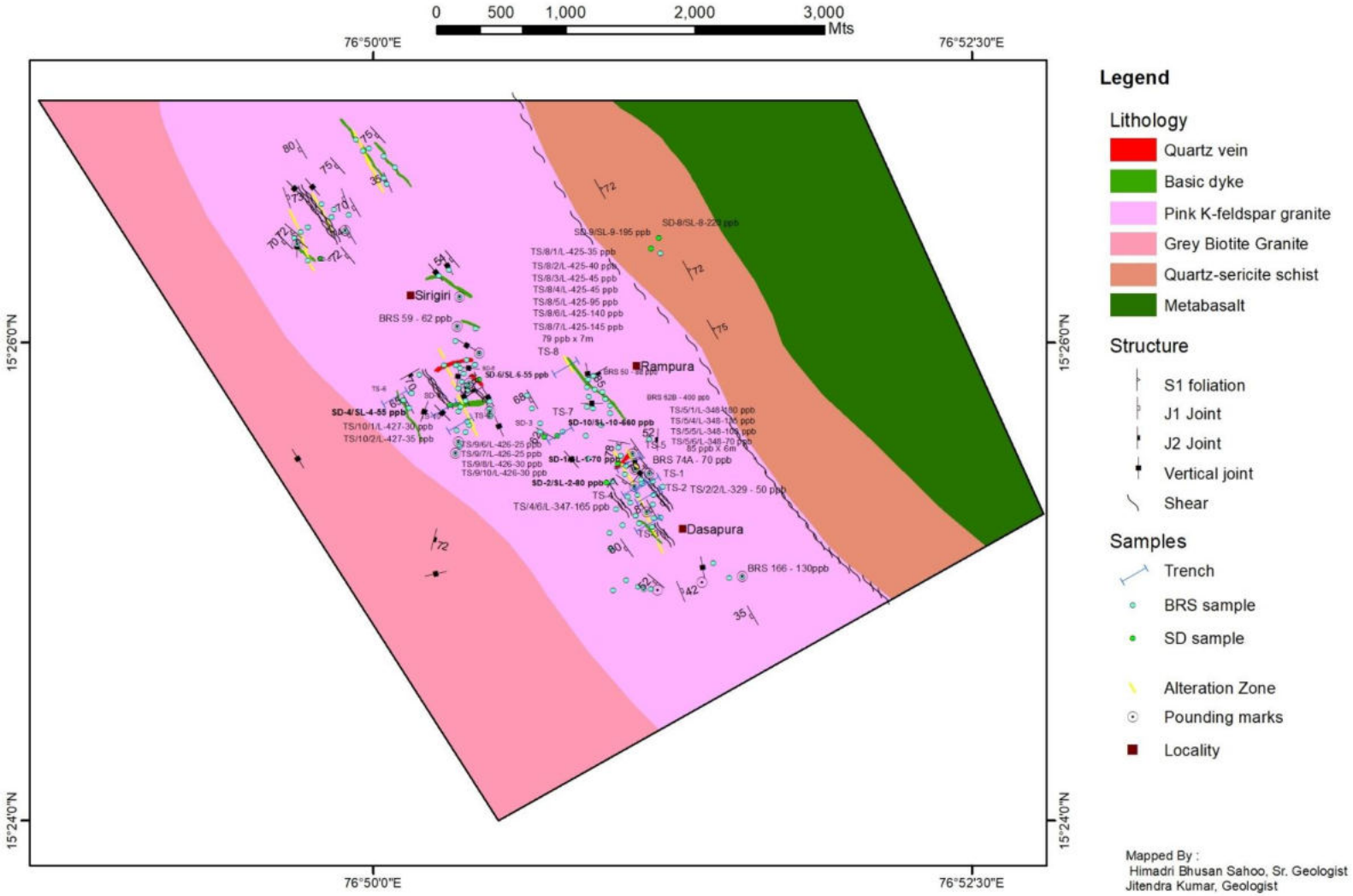


Plate 5- Trench Sections

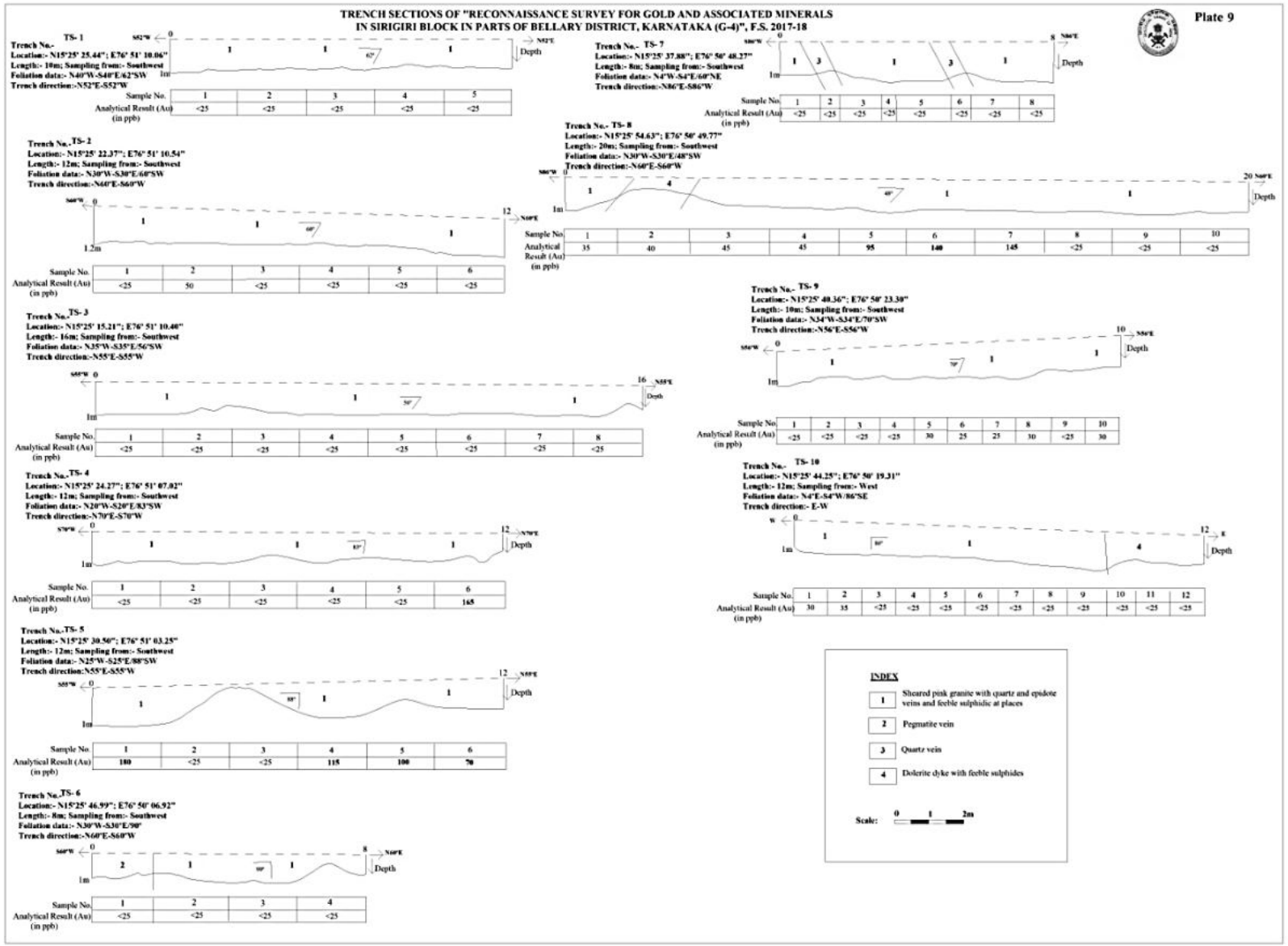
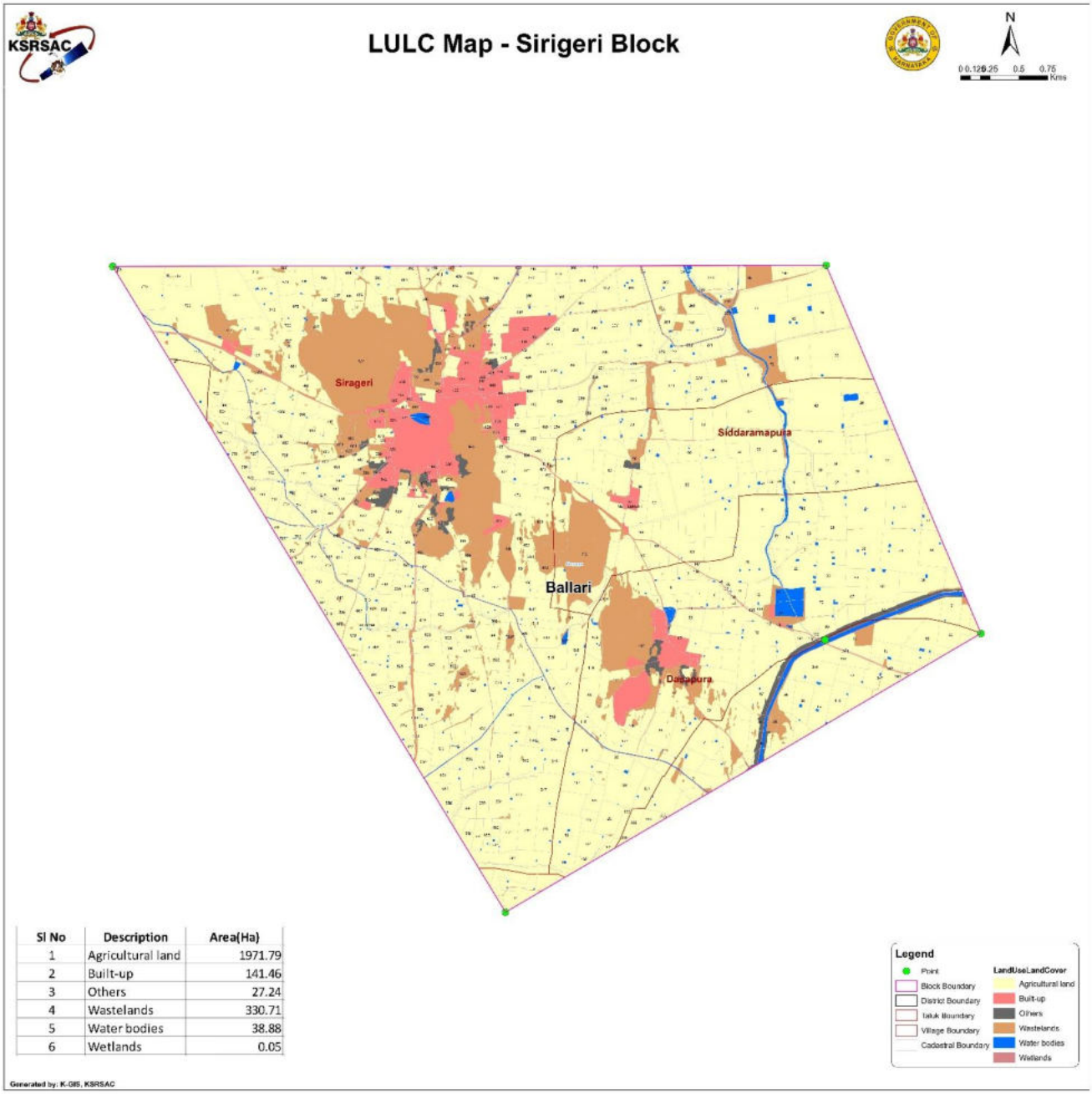


Plate 6- Land use and Land cover map of Sirigiri block prepared by KASRAC



ANNEXURE-I

Details of logging and sampling with gold assays results of samples of trenches in Sirigeri block.

TRENCH NO.: TS-1					
Length: 10 m	Width: 2 m			Depth: 1 m	
Co-ordinates: N15°25′25.44″; E76°51′10.06″				Elevation: 444 m	
Direction: N52°E-S52°W				Foliation data: N40°W-S40°E/62°SW	
No. Of samples collected: 5				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	2	2	Sheared pink granite (pounding mark sites)	<25
2	2	4	2	Sheared pink granite	<25
3	4	6	2	Sheared pink granite	<25
4	6	8	2	Sheared pink granite	<25
5	8	10	2	Sheared pink granite	<25
TRENCH NO.: TS-2					
Length: 12 m	Width: 1m			Depth: 1.2m	
Co-ordinates: N15°25′22.37″; E76° 51′10.54″				Elevation: 449 m	
Direction: N60°E-S60°W				Foliation data: N30°W-S30°E/60°SW	
Nos. of samples collected: 6				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	2	2	Sheared pink granite with feeble sulphides (pounding mark sites)	<25
2	2	4	2	Sheared pink granite with feeble sulphides	50
3	4	6	2	Sheared oxidised pink granite	<25
4	6	8	2	Sheared oxidised pink granite	<25
5	8	10	2	Sheared pink granite with quartz	<25
6	10	12	2	Sheared pink granite with quartz veinlet	<25

TRENCH NO.: TS-3					
Length: 16 m	Width: 1m			Depth: 1m	
Co-ordinates: N15°25′15.21″; E76° 51′10.40″				Elevation: 455 m	
Direction: N55°E-S55° W				Foliation data: N35°W-S35°E/56°SW	
Nos. of samples collected: 08				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	2	2	Reddish brown oxidised coarse grained pink granite with iron and sulphide stains (pounding mark sites)	<25

2	2	4	2	Reddish brown oxidised coarse grained pink granite with iron and sulphide stains	<25
3	4	6	2	Reddish brown oxidised coarse grained pink granite with iron and sulphide stains	<25
4	6	8	2	Reddish brown oxidised coarse grained pink granite with iron and sulphide stains	<25
5	8	10	2	Reddish brown coarse grained pink granite with iron and sulphide stains	<25
6	10	12	2	Reddish brown coarse grained pink granite	<25
7	12	14	2	Coarse grained pink granite	<25
8	14	16	2	Coarse grained pink granite	<25

TRENCH NO.: TS-4					
Length: 12 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′24.27″; E76°51′07.02″				Elevation: 440 m	
Direction: N70°E-S70°W				Foliation data: N20°W-S20°E/83°SW	
Nos. of samples collected: 6				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	2	2	Coarse grained pink granite with feeble sulphide stains (pounding mark sites)	<25
2	2	4	2	Coarse grained pink granite (feeble sulphide)	<25
3	4	6	2	Coarse grained pink granite (feeble sulphide stains)	<25
4	6	8	2	Oxidised pink granite (feeble sulphide stains)	<25
5	8	10	2	Oxidised grained pink granite (feeble sulphide stains)	<25
6	10	12	2	Oxidised pink granite with (feeble sulphide stains)	165

TRENCH NO.: TS-5					
Length: 12 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′30.50″; E76°51′03.25″				Elevation= 431 m	
Direction: N55°E-S55°W				Foliation data: N25°W-S25°E/88°SW	
Nos. of samples collected: 6				Sampling from Southwest to Northeast	
Sl no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	2	2	Feeble sulphidic pink granite with epidote veins and quartz veinlets and lenses (Pounding mark site)	180
2	2	4	2	Feeble sulphidic pink granite with epidote veins and quartz veinlets and lenses	<25
3	4	6	2	Feeble sulphidic pink granite with epidote veins and quartz veinlets and lenses	<25
4	6	8	2	Oxidised pink granite	115

5	8	10	2	Oxidised pink granite	100
6	10	12	2	Oxidised pink granite with quartz lenses	70

TRENCH NO.: TS-6					
Length: 8 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′46.99″; E76°50′06.92″				Elevation= 406 m	
Direction: N60°E-S60°W				Foliation data: N30°W-S30°E/90°	
Nos. of samples collected: 4				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	To (m)			
1	0	1.8	1.8	Pegmatite vein within sheared granite	<25
2	1.8	4	2.2	Sheared granite with feeble sulphide stains and smoky quartz veinlets	<25
3	4	6	2	Sheared granite with smoky quartz	<25
4	6	8	2	Pink granite with quartz veinlets	<25

TRENCH NO.: TS-7					
Length: 8 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′37.88″; E76°50′48.27″				Elevation= 434 m	
Direction: N86°E-S86°W				Foliation data: N4°W-S4°E/60°NE	
Nos. of samples collected: 08				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	1.2	1.2	Epidotised sheared granite	<25
2	1.2	1.8	0.6	White to smoky quartz veins	<25
3	1.8	3	1.2	Fragile sheared granite	<25
4	3	3.4	0.4	Oxidised brownish sheared granite	<25
5	3.4	5.2	1.8	Fine grained sheared granite	<25
6	5.2	5.7	0.5	Dirty white quartz vein	<25
7	5.7	7	1.3	Sheared granite	<25
8	7	8	1	Sheared granite	<25

TRENCH NO.: TS-8					
Length: 20 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′54.63″; E76°50′49.77″				Elevation= 424 m	
Direction: N60°E-S60°W				Foliation data: N30°W-S30°E/48°SW	
Nos. of samples collected: 10				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width(m)**	**Sample Description**	**Au Assay (ppb)**
	From(m)	**To(m)**			
1	0	1.6	1.6	Sheared granite	35
2	1.6	3.8	2.2	Sulphidic limonitised dolerite	40
3	3.8	6	2.2	Sheared granite	45

4	6	8	2	Sheared granite	45
5	8	10	2	Sheared fragile granite	95
6	10	12	2	Sheared granite	140
7	12	14	2	Sheared epidotised granite	145
8	14	16	2	Sheared epidotised granite with sulphide stains	<25
9	16	18	2	Sheared epidotised granite with sulphide stains	<25
10	18	20	2	Sheared epidotised granite with sulphide stains	<25

TRENCH NO.: TS-9					
Length: 10 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′40.36″; E75°50′23.30″				Elevation= 418 m	
Direction: N56°E-S56°W				Foliation data: N34°W-S34°E/70°SW	
Nos. of samples collected: 10				Sampling from Southwest to Northeast	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	1	1	Oxidised sheared granite with smoky quartz	<25
2	2	2	1	Oxidised sheared granite with smoky quartz	<25
3	2	3	1	Oxidised sheared granite with smoky quartz	<25
4	3	4	1	Oxidised sheared granite with smoky quartz	<25
5	4	5	1	Oxidised sheared granite with smoky quartz	30
6	5	6	1	Oxidised sheared granite with smoky quartz	25
7	6	7	1	Sheared epidotised granite with smoky quartz	25
8	7	8	1	Sheared epidotised granite with smoky quartz	30
9	8	9	1	Sheared epidotised oxidised granite	<25
10	9	10	1	Sheared epidotised oxidised granite	30
TRENCH NO. : TS-10					
Length : 12 m	Width: 1 m			Depth: 1 m	
Co-ordinates: N15°25′44.25″; E76°50′19.31″				Elevation= 414 m	
Direction: E-W				Foliation data: N4°E-S4°W/86°SE	
No. Of samples collected: 12				Sampling from Southeast to Northwest	
Sl. no.	**Sampling length**		**True Width (m)**	**Sample Description**	**Au Assay (ppb)**
	From (m)	**To (m)**			
1	0	1	1	Coarse grained pink granite	30
2	1	2	1	Coarse grained pink granite	35
3	2	3	1	Coarse grained pink granite	<25
4	3	4	1	Coarse grained pink granite (sulphide stains)	<25
5	4	5	1	Coarse grained pink granite (sulphide stains)	<25
6	5	6	1	Epidotised granite with sulphide stains	<25
7	6	7	1	Epidotised granite with sulphide stains	<25
8	7	8	1	Epidotised granite with sulphide stains	<25
9	8	9.2	1.2	Epidotised granite with sulphide stains	<25
10	9.2	10	0.8	Dolerite dyke with feeble sulphides	<25

11	10	11	1	Dolerite dyke with feeble sulphides	<25
12	11	12	1	Dolerite dyke with feeble sulphides	<25

Annexure II

DETAILS OF BED ROCK SAMPLES WITH GOLD AND ASSOCIATED ELEMENTS OF "RECONNAISSANCE SURVEY FOR GOLD AND ASSOCIATED MINERALS IN SIRIGIRI BLOCK IN PART OF BELLARY DISTRICT, KARNATAKA. (BLOCK NO-SR-KAR-06)", F.S. 2017-18

		Location			All assay values in ppm except Au (in ppb)												
Sr No.	Sample No.	Latitude (N)	Longitude (E)	Lithology	Cu	Pb	Zn	Ni	Co	As	Cd	Sb	Bi	Mo	Cr	Ag	Au
1	BRS-01/L-3	15º22′ 11.53″	76º 54′ 29.17″	Carbonated banded hematite quartzite	75	10	40	25	15	<100	<10	<30	<30	<30	25	<5	<25
2	BRS-02/L-4	15º22′ 11.02″	76º 54′ 26.13″	Carbonated limonitised banded hematite quartzite	35	25	35	30	<10	<100	<10	<30	<30	<30	<10	<5	<25
3	BRS-03/L-5	15º22′ 13.67″	76º 54′ 22.72″	Carbonated sulphide stained banded hematite quartzite	20	20	45	15	15	<100	<10	<30	<30	<30	30	<5	<25
4	BRS-04/L-7	15º22′ 18.26″	76º 54′ 23.18″	Carbonated sulphidic banded hematite quartzite	55	15	125	10	<10	140	<10	<30	<30	<30	45	<5	<25
5	BRS-05/L-9	15º22′ 34.91″	76º 54′ 26.05″	Carbonated banded hematite quartzite	15	15	35	20	15	<100	<10	<30	<30	<30	<10	<5	<25
6	BRS-06/L-11	15º22′ 29.74″	76º 54′ 25.92″	Carbonated sulphidic schistose metabasalt	75	15	110	50	65	125	<10	<30	<30	<30	45	<5	<25
7	BRS-07/L-23	15º22′ 39.83″	76º 54′ 19.16″	Quartz sericite schist	20	15	65	30	<10	130	<10	<30	<30	<30	15	<5	<25
8	BRS-08/L-25	15º22′ 34.10″	76º 54′ 08.54″	Carbonated banded hematite quartzite	20	25	70	35	25	140	<10	<30	<30	<30	20	<5	<25
9	BRS-09/L-27	15º22′ 33.17″	76º 54′ 02.88″	Carbonated sulphidic banded hematite chert	45	25	65	15	15	<100	<10	<30	<30	<30	15	<5	<25
10	BRS-10/L-30	15º22′ 47.78″	76º 54′ 4.48″	Carbonated sulphidic banded hematite chert	35	20	50	20	<10	<100	<10	<30	<30	<30	<10	<5	<25
11	BRS-11/L-32	15º22′ 45.07″	76º 53′ 59.85″	Carbonated sulphidic banded hematite chert	75	20	25	10	15	<100	<10	<30	<30	<30	55	<5	<25
12	BRS-12/L-38	15º22′ 49.72″	76º 53′ 57.20″	Carbonated sulphidic banded hematite chert	40	20	85	10	20	<100	<10	<30	<30	<30	15	<5	<25
13	BRS-13/L-39	15º22′ 58.60″	76º 53′ 53.12″	Carbonated sulphidic banded hematite chert	40	15	120	15	<10	<100	<10	<30	<30	<30	<10	<5	<25
		Location			All assay values in ppm except Au (in ppb)												

Sr No.	Sample No.	Latitude (N)	Longitude (E)	Lithology	Cu	Pb	Zn	Ni	Co	As	Cd	Sb	Bi	Mo	Cr	Ag	Au
14	BRS-14/L-42	15º23′ 12.52″	76º 53′ 42.49″	Carbonated banded hematite chert	55	<10	25	<10	10	<100	<10	<30	<30	<30	40	< 5	<25
15	BRS-15/L-44	15º23′ 4.19″	76º 53′ 44.88″	Carbonated sulphidic banded hematite quartzite with manganese	45	15	175	15	10	<100	<10	<30	<30	<30	<10	< 5	<25
16	BRS-16/L-53	15º23′ 17.71″	76º 53′ 44.71″	Carbonated sulphide stained banded hematite chert	160	25	55	15	15	<100	<10	<30	<30	<30	30	< 5	<25
17	BRS-17/L-55	15º23′ 24.69″	76º 53′ 39.96″	Carbonated limonitised banded hematite quartzite	10	15	45	<10	<10	<100	<10	<30	<30	<30	<10	< 5	<25
18	BRS-18/L-71	15º23′ 37.40″	76º 53′ 26.57″	Banded hematite quartzite	25	20	95	<10	10	<100	<10	<30	<30	<30	25	< 5	<25
19	BRS-19/L-72	15º23′ 40.58″	76º 53′ 24.41″	Ferrodolomite	15	15	35	15	20	110	<10	<30	<30	<30	75	< 5	<25
20	BRS-20/L-76	15º23′ 45.46″	76º 53′ 14.61″	Carbonated schistose metabasalt	135	20	110	60	45	<100	<10	<30	<30	<30	140	< 5	<25
21	BRS-21/L-77	15º23′ 44.08″	76º 53′ 13.63″	Carbonated schistose metabasalt	80	15	75	95	50	<100	<10	<30	<30	<30	15	< 5	<25
22	BRS-22/L-80	15º23′ 48.18″	76º 53′ 26.25″	Ferrodolomite	20	30	60	30	20	<100	<10	<30	<30	<30	30	< 5	<25
23	BRS-23/L-82	15º23′ 47.88″	76º 53′ 18.66″	Carbonated banded hematite quartzite	45	30	300	10	25	180	<10	<30	<30	<30	30	< 5	<25
24	BRS-24/L-85	15º23′ 45.91″	76º 53′ 10.91″	Banded hematite quartzite	10	15	45	<10	<10	120	<10	<30	<30	<30	145	< 5	<25
25	BRS-25/L-87	15º24′ 04.29″	76º 53′ 17.11″	Carbonated schistose metabasalt with quartz partings	65	30	95	110	40	200	<10	<30	<30	<30	140	< 5	<25
26	BRS-26/L-88	15º24′ 04.21″	76º 53′ 14.16″	Carbonated ferruginous schistose metabasalt	70	25	90	125	65	125	<10	<30	<30	<30	90	< 5	<25
		Location			**All assay values in ppm except Au (in ppb)**												

Sr No.	Sample No.	Latitude (N)	Longitude (E)	Lithology	Cu	Pb	Zn	Ni	Co	As	Cd	Sb	Bi	Mo	Cr	Ag	Au
27	BRS-27/L-91	15º24′ 02.38″	76º 53′ 07.22″	Carbonated banded hematite quartzite	100	20	100	20	20	130	<10	<30	<30	<30	<10	< 5	<25
28	BRS-28/L-94	15º24′ 01.04″	76º 53′ 01.78″	Carbonated schistose metabasalt with quartz partings	45	20	65	100	45	220	<10	<30	<30	<30	260	< 5	<25
29	BRS-29/L-99	15º24′ 12.50″	76º 53′ 16.11″	Carbonated schistose metabasalt	35	25	55	60	30	405	<10	<30	<30	<30	100	< 5	<25
30	BRS-30/L-104	15º24′ 12.78″	76º 52′ 59.43″	Carbonated limonitised banded hematite quartzite	30	10	40	<10	15	<100	<10	<30	<30	<30	25	< 5	<25
31	BRS-31/L-110	15º24′ 27.85″	76º 53′ 02.59″	Carbonated schistose metabasalt with quartz partings	15	20	20	15	20	<100	<10	<30	<30	<30	20	< 5	<25
32	BRS-32/L-114	15º24′ 27.57″	76º 52′ 50.21″	Carbonated banded hematite chert	15	20	75	<10	<10	<100	<10	<30	<30	<30	15	< 5	<25
33	BRS-33/L-123	15º24′ 44.56″	76º 52′ 40.94″	Carbonated sulphide stained banded hematite chert	10	10	25	<10	<10	<100	<10	<30	<30	<30	25	< 5	<25
34	BRS-34/L-124	15º24′ 43.90″	76º 52′ 40.22″	Carbonated sulphide stained banded hematite chert	25	<10	65	<10	15	<100	<10	<30	<30	<30	25	< 5	<25
35	BRS-35/L-129	15º24′ 55.41″	76º 52′ 31.01″	Carbonated ferruginous schistose metabasalt	60	25	95	120	45	200	<10	<30	<30	<30	380	< 5	<25
36	BRS-36/L-130	15º24′ 53.06″	76º 52′ 31.54″	Carbonated banded hematite chert	15	10	80	10	<10	125	<10	<30	<30	<30	20	< 5	<25
37	BRS-37/L-133	15º24′ 49.65″	76º 52′ 36.57″	Carbonated banded hematite chert	45	25	110	<10	<10	130	<10	<30	<30	<30	20	< 5	<25
38	BRS-38/L-134	15º24′ 46.28″	76º 52′ 38.69″	White to pinkish quartz vein	<10	<10	10	<10	<10	140	<10	<30	<30	<30	40	< 5	<25
39	BRS-39/L-143	15º25′ 51.68″	76º 50′ 55.18″	Medium to coarse grained pink granite with quartz	25	<10	15	<10	<10	<100	<10	<30	<30	<30	250	< 5	<25

		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
40	BRS-40/L-143	15º25′ 51.68″	76º 50′ 55.18″	Mylonitised pink granite with quartz veins	<10	<10	10	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
41	BRS-41/L-144	15º25′ 50.74″	76º 50′ 53.85″	Coarse grained pink granite with thin quartz veins	<10	<10	20	<10	<10	120	<10	<30	<30	<30	<10	<5	<25
42	BRS-42/L-146	15º25′ 48.15″	76º 50′ 55.45″	Coarse grained pink granite with smoky quartzs	<10	<10	25	<10	<10	160	<10	<30	<30	<30	10	<5	<25
43	BRS-43/L-147	15º25′ 47.60″	76º 50′ 57.38″	Pink granite with pounding marks	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	15	<5	<25
44	BRS-44A/L-149	15º25′ 45.87″	76º 50′ 58.19″	Mylonite granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	10	<5	<25
45	BRS-44B/L-149	15º25′ 45.87″	76º 50′ 58.19″	Pink granite	20	<10	15	<10	<10	100	<10	<30	<30	<30	25	<5	<25
46	BRS-44C/L-149	15º25′ 45.87″	76º 50′ 58.19″	Basalt dyke	180	<10	60	40	10	100	<10	<30	<30	<30	55	<5	<25
47	BRS-45/L-150	15º25′ 44.26″	76º 50′ 59.42″	Medium to coarse grained granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
48	BRS-46/L-152	15º25′ 43.49″	76º 50′ 54.99″	Coarse grained pink granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	20	<5	<25
49	BRS-47/L-153	15º25′ 43.87″	76º 50′ 53.59″	Coarse grained pink granite with smoky quartz	<10	<10	15	<10	<10	115	<10	<30	<30	<30	15	<5	<25
50	BRS-48/L-154	15º25′ 36.69″	76º 50′ 53.24″	Coarse grained pink granite with pounding marks	<10	<10	25	<10	<10	140	<10	<30	<30	<30	<10	<5	<25
51	BRS-49/L-155	15º25′ 46.46″	76º 50′ 54.05″	Granulated pink granite	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	20	<5	<25
52	BRS-50/L-156	15º25′ 48.77″	76º 50′ 53.62″	Coarse grained pink granite with smoky quartz	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	20	<5	**88**

53	BRS-51/L-160	15º25′ 42.34″	76º 50′ 59.42″	Sulphide stained coarse grained pink granite with quartz veinlets	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	15	< 5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
54	BRS-52/L-161	15º25′ 39.37″	76º 50′ 57.19″	Carbonated mylonitised granite	<10	<10	10	<10	<10	<100	<10	<30	<30	<30	<10	< 5	<25
55	BRS-53/L-162	15º25′ 30.86″	76º 50′ 53.89″	Fragile coarse grained pink granite	<10	<10	15	<10	<10	100	<10	<30	<30	<30	<10	< 5	<25
56	BRS-54/L-166	15º25′ 37.68″	76º 50′ 47.40″	Sheared pink granite	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	15	< 5	<25
57	BRS-55/L-167	15º25′ 39.81″	76º 50′ 41.75″	Pink granite with quartz veins (suspected old working site)	<10	<10	30	<10	<10	100	<10	<30	<30	<30	20	< 5	<25
58	BRS-56/L-170	15º26′ 11.47″	76º 50′ 21.65″	Sulphide stained coarse grained pink granite (Pounding marks)	<10	<10	20	<10	<10	110	<10	<30	<30	<30	<10	< 5	<25
59	BRS-57/L-173	15º26′ 18.25″	76º 50′ 18.96″	Coarse grained pink granite	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	10	< 5	<25
60	BRS-58/L-175	15º26′ 16.73″	76º 50′ 16.41″	Coarse grained pink granite	<10	<10	10	<10	<10	115	<10	<30	<30	<30	20	< 5	<25
61	BRS-59/L-179	15º26′ 03.98″	76º 50′ 20.96″	Coarse grained pink granite	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	20	< 5	62
62	BRS-60/L-180	15º26′ 00.37″	76º 50′ 20.63″	Milky to smoky quartz veins with sulphides	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	20	< 5	<25
63	BRS-61/L-182	15º25′ 55.60″	76º 50′ 23.38″	Coarse grained pink granite with quartz veins and sulphides	<10	<10	10	<10	<10	120	<10	<30	<30	<30	20	< 5	<25
64	BRS-62A/L-185	15º25′ 35.73″	76º 51′ 09.24″	Sheared coarse grained pink granite	10	<10	30	<10	<10	105	<10	<30	<30	<30	40	< 5	<25
65	BRS-62B/L-185	15º25′ 35.73″	76º 51′ 09.24″	Sheared coarse grained pink granite	<10	<10	30	<10	<10	165	<10	<30	<30	<30	15	< 5	**400**

66	BRS-63/L-187	15º25′ 32.00″	76º 51′ 05.07″	Sheared pink granite with sulphide staining (pounding marks site)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	10	< 5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
67	BRS-64/L-188	15º25′ 33.63″	76º 51′ 01.51″	Carbonated coarse grained pink granite	<10	<10	10	<10	<10	135	<10	<30	<30	<30	<10	< 5	<25
68	BRS-65A/L-189	15º25′ 31.50″	76º 51′ 02.10″	Carbonated coarse grained pink granite with quartz veins (Pounding marks site)	<10	<10	10	<10	<10	175	<10	<30	<30	<30	<10	< 5	<25
69	BRS-65B/L-189	15º25′ 31.50″	76º 51′ 02.10″	Carbonated coarse grained pink granite with feeble sulphides and quartz veins (Pounding marks site)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	15	< 5	<25
70	BRS-65C/L-189	15º25′ 31.50″	76º 51′ 02.10″	Carbonated coarse grained pink granite with feeble sulphides and quartz veins (Pounding marks site)	<10	<10	15	<10	<10	200	<10	<30	<30	<30	20	< 5	<25
71	BRS-66/L-190	15º25′ 29.09″	76º 51′ 03.41″	Coarse grained pink granite with quartz veinlets	<10	<10	15	<10	<10	210	<10	<30	<30	<30	15	< 5	<25
72	BRS-67/L-191	15º25′ 26.99″	76º 51′ 03.07″	Sheared mylonite pink granites (friable)	<10	<10	15	<10	<10	100	<10	<30	<30	<30	15	< 5	<25
73	BRS-68/L-192	15º25′ 28.17″	76º 51′ 05.61″	Sheared pink granite (extensive pounding marks)	<10	<10	<10	<10	<10	195	<10	<30	<30	<30	25	< 5	<25
74	BRS-69/L-194	15º26′ 03.55″	76º 50′ 25.62″	Sulphide stained coarse grained pink granite with quartz veins	<10	<10	10	<10	<10	105	<10	<30	<30	<30	<10	< 5	<25
75	BRS-70A/L-196	15º25′ 57.25″	76º 50′ 26.54″	Sheared granite with sulphide stained and quartz veins (Pounding marks site)	<10	<10	<10	<10	<10	<100	<10	<30	<30	<30	<10	< 5	<25
76	BRS-70B/L-196	15º25′ 57.25″	76º 50′ 26.54″	Sheared granite with sulphide stained and quartz veins (Pounding marks site)	<10	<10	<10	<10	<10	155	<10	<30	<30	<30	20	< 5	<25
77	BRS-71A/L-197	15º25′ 54.41″	76º 50′ 25.48″	Sheared granite with sulphides	<10	<10	<10	<10	<10	165	<10	<30	<30	<30	65	< 5	<25
78	BRS-71B/L-197	15º25′ 54.41″	76º 50′ 25.48″	Milky to smoky quartz vein with box work texture	<10	<10	20	<10	<10	180	<10	<30	<30	<30	20	< 5	<25

		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
79	BRS-71C/L-197	15º25′ 54.41″	76º 50′ 25.48″	Sheared pink granite	<10	<10	15	<10	<10	165	<10	<30	<30	<30	10	<5	<25
80	BRS-72/L-200	15º25′ 48.58″	76º 50′ 21.26″	Coarse grained pink granite with quartz veins	<10	<10	40	<10	<10	240	<10	<30	<30	<30	30	<5	<25
81	BRS-73/L-201	15º25′ 50.22″	76º 50′ 22.13″	Pink granite with quartz veins	<10	<10	25	<10	<10	230	<10	<30	<30	<30	20	<5	<25
82	BRS-73A/L-202	15º25′ 54.41″	76º 50′ 21.13″	White to smoky quartz vein with sulphides	<10	<10	<10	<10	<10	200	<10	<30	<30	<30	15	<5	<25
83	BRS-73B/L-202	15º25′ 54.41″	76º 50′ 21.13″	Quartz vein with box work textures	<10	<10	10	<10	<10	200	<10	<30	<30	<30	20	<5	<25
84	BRS-74A/L-207	15º25′ 27.12″	76º 51′ 09.20″	Smoky quartz veins	<10	<10	10	<10	<10	260	<10	<30	<30	<30	50	<5	70
85	BRS-74B/L-207	15º25′ 27.12″	76º 51′ 09.20″	Coarse grained pink granite (pounding mark site)	<10	<10	15	<10	<10	200	<10	<30	<30	<30	35	<5	<25
86	BRS-75/L-208	15º25′ 25.13″	76º 51′ 10.11″	Pink granite with quartz veins and sulphides (Pounding mark site)	<10	<10	10	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
87	BRS-76/L-209	15º25′ 21.73″	76º 51′ 10.24″	Coarse grained pink granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	10	<5	<25
88	BRS-77/L-211	15º25′ 19.32″	76º 51′ 10.11″	Iron stained coarse grained pink granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	10	<5	<25
89	BRS-78/L-212	15º25′ 15.95″	76º 51′ 10.40″	Coarse grained pink granite	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
90	BRS-79A/L-213	15º25′ 13.70″	76º 51′ 09.95″	Coarse grained pink granite	<10	80	20	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
91	BRS-79B/L-213	15º25′ 13.70″	76º 51′ 09.95″	Dolerite dyke with sulphides	150	<10	70	<10	<10	<100	<10	<30	<30	<30	10	<5	<25

		Location			**All assay values in ppm except Au (in ppb)**												
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
92	BRS-80/L-214	15º25′ 16.16″	76º 51′ 12.05″	Coarse grained pink granite	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
93	BRS-81/L-215	15º25′ 23.79″	76º 51′ 12.62″	Coarse grained pink granite	<10	<10	30	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
94	BRS-82/L-217	15º25′ 23.80″	76º 51′ 05.42″	Coarse grained pink granite (pounding mark site)	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	30	<5	<25
95	BRS-83/L-218	15º25′ 21.30″	76º 51′ 03.86″	Coarse grained pink granite (pounding mark site)	<10	<10	35	<10	<10	<100	<10	<30	<30	<30	35	<5	<25
96	BRS-84/L-219	15º25′ 19.90″	76º 51′ 04.48″	Coarse grained pink granite (pounding mark site)	<10	<10	30	<10	<10	<100	<10	<30	<30	<30	10	<5	<25
97	BRS-85/L-221	15º25′ 14.18″	76º 51′ 02.45″	Coarse grained pink granite (Quarry site)	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
98	BRS-86A/L-222	15º25′ 16.49″	76º 51′ 05.76″	Mylonitised pink granite	<10	20	230	20	<10	<100	<10	<30	<30	<30	<10	<5	<25
99	BRS-86B/L-222	15º25′ 16.49″	76º 51′ 05.76″	Quartz veins	<10	<10	10	<10	<10	<100	<10	<30	<30	<30	50	<5	<25
100	BRS-86C/L-222	15º25′ 16.49″	76º 51′ 05.76″	Mylonitised granite (friable)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
101	BRS-87/L-223	15º25′ 17.49″	76º 51′ 08.52″	Coarse grained pink granite (pounding mark site)	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
102	BRS-88/L-224	15º25′ 25.61″	76º 51′ 07.10″	Mylonitised granite with feeble sulphides	<10	<10	10	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
103	BRS-89/L-225	15º25′ 24.62″	76º 51′ 07.36″	Coarse grained pink granite with sulphides (Quarry site)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
104	BRS-90/L-226	15º25′ 21.72″	76º 51′ 06.25″	Mylonitised granite (friable)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25

		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
105	BRS-91/L-227	15º25′ 14.68″	76º 51′ 06.57″	Mylonitised granite (friable) (Quarry nearby)	<10	<10	15	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
106	BRS-92A/L-229	15º25′ 08.18″	76º 50′ 59.54″	Quartz veins and boudins	<10	250	35	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
107	BRS-92B/L-229	15º25′ 08.18″	76º 50′ 59.54″	Sheared granite	<10	<10	30	<10	<10	<100	<10	<30	<30	<30	15	<5	<25
108	BRS-93/L-230	15º25′ 12.30″	76º 50′ 59.14″	Mylonitised granite (friable)	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
109	BRS-94/L-231	15º25′ 18.26″	76º 51′ 00.82″	Sheared granite	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
110	BRS-95/L-232	15º25′ 25.13″	76º 50′ 59.90″	Coarse grained pink granite with smoky quartzs	<10	30	45	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
111	BRS-96/L-234	15º25′ 51.89″	76º 50′ 11.45″	Coarse grained pink granite with thin quartz veins	<10	<10	75	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
112	BRS-97A/L-235	15º25′ 47.38″	76º 50′ 9.55″	Dirty white quartz vein	<10	15	35	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
113	BRS-97A/L-235	15º25′ 47.38″	76º 50′ 9.55″	Sheared pink granite	10	20	35	15	<10	<100	<10	<30	<30	<30	<10	<5	<25
114	BRS-98A/L-236	15º25′ 45.60″	76º 50′ 7.47″	Mylonitised granite	15	15	40	10	15	<100	<10	<30	<30	<30	20	<5	<25
115	BRS-98B/L-236	15º25′ 45.60″	76º 50′ 7.47″	Pegmatitic vein	<10	15	30	15	10	<100	<10	<30	<30	<30	<10	<5	<25

116	BRS-98C/L-236	15º25′ 45.60″	76º 50′ 7.47″	Sulphidic quartz vein	60	10	120	10	15	<100	<10	<30	<30	<30	<10	<5	<25
117	BRS-99/L-237	15º25′ 43.68″	76º 50′ 9.02″	Sulphidic basalt dyke	80	<10	210	35	10	<100	<10	<30	<30	<30	25	<5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
118	BRS-100/L-241	15º25′ 42.74″	76º 50′ 21.29″	Coarse grained pink granite with quartz veins	30	25	75	10	20	120	<10	<30	<30	<30	35	<5	<25
119	BRS-101/L-242	15º25′ 43.86″	76º 50′ 21.83″	Coarse grained pink granite with smoky quartz	15	10	30	15	20	105	<10	<30	<30	<30	25	<5	<25
120	BRS-102/L-243	15º25′ 45.36″	76º 50′ 23.11″	Dolerite dyke	120	20	60	50	15	<100	<10	<30	<30	<30	10	<5	<25
121	BRS-103/L-244	15º25′ 47.97″	76º 50′ 23.56″	Granulated mylonitised pink granite	20	<10	45	15	10	135	<10	<30	<30	<30	45	<5	<25
122	BRS-104/L-245	15º25′ 49.09″	76º 50′ 23.42″	Sheared pink granite (Pounding marks site)	<10	<10	35	<10	10	<100	<10	<30	<30	<30	<10	<5	<25
123	BRS-105/L-246	15º25′ 49.65″	76º 50′ 24.05″	coarse grained pink granite with smoky quartz veinlets (Pounding marks site)	15	<10	40	<10	15	120	<10	<30	<30	<30	<10	<5	<25
124	BRS-106/L-247	15º25′ 52.24″	76º 50′ 22.70″	Mylonitised granite (extensive pounding marks site)	15	<10	25	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
125	BRS-107/L-248	15º25′ 53.59″	76º 50′ 21.82″	Sulphide stained coarse grained pink granite (extensive pounding marks)	10	15	35	<10	<10	110	<10	<30	<30	<30	<10	<5	<25
126	BRS-108A/L-249	15º25′ 54.32″	76º 50′ 20.64″	Coarse grained pink granite	15	20	10	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25

127	BRS-108B/L-249	15º25′ 54.32″	76º 50′ 20.64″	Whitish pink quartz veins	20	25	<10	15	<10	<100	<10	<30	<30	<30	<10	<5	<25
128	BRS-108C/L-249	15º25′ 54.32″	76º 50′ 20.64″	Smoky quartz portions from quartz vein	15	15	15	<10	<10	<100	<10	<30	<30	<30	35	<5	<25
129	BRS-109A/L-250	15º25′ 54.35″	76º 50′ 17.71″	Sulphide stained box-work textured quartz vein	<10	20	<10	<10	<10	125	<10	<30	<30	<30	40	<5	<25
130	BRS-109B/L-250	15º25′ 54.35″	76º 50′ 17.71″	Sulphidic quartz vein	15	10	15	<10	15	<100	<10	<30	<30	<30	50	<5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
131	BRS-110/L-253	15º25′ 37.97″	76º 50′ 20.79″	Mylonitised pink granite	20	<10	80	15	10	<100	<10	<30	<30	<30	25	<5	<25
132	BRS-111/L-254	15º25′ 35.04″	76º 50′ 21.34″	Coarse grained compact pink granite (Pounding marks site)	<10	15	35	<10	20	<100	<10	<30	<30	<30	<10	<5	<25
133	BRS-112/L-255	15º25′ 33.95″	76º 50′ 21.62″	Sulphidic quartz veins	65	<10	<10	<10	25	<100	<10	<30	<30	<30	<10	<5	<25
134	BRS-113/L-256	15º25′ 32.24″	76º 50′ 20.56″	Faulted quartz veins within sheared pink granite (pounding marks site)	25	<10	30	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
135	BRS-114/L-257	15º25′ 37.52″	76º 50′ 23.09″	Sulphide stained coarse grained pink granite	10	<10	10	<10	<10	120	<10	<30	<30	<30	<10	<5	<25
136	BRS-115/L-258	15º25′ 39.23″	76º 50′ 24.01″	Sheared carbonated sulphidic pink granite with quartz veinlets	<10	<10	<10	10	<10	<100	<10	<30	<30	<30	<10	<5	<25
137	BRS-116/L-259	15º25′ 40.20″	76º 50′ 23.55″	Sulphidic quartz veins	<10	<10	<10	10	<10	<100	<10	<30	<30	<30	20	<5	<25

138	BRS-117/L-262	15º25′ 45.20″	76º 50′ 29.24″	Coarse grained pink granite with smoky quartz veins (Pounding marks site)	<10	15	15	15	10	<100	<10	<30	<30	<30	<10	<5	<25
139	BRS-118/L-263	15º25′ 43.51″	76º 50′ 29.00″	Smoky quartz veins within pink granite (Pounding marks site)	<10	15	<10	15	15	<100	<10	<30	<30	<30	20	<5	<25
140	BRS-119A/L-264	15º25′ 42.54″	76º 50′ 29.24″	Coarse grained pink granite with sulphidic darker enclaves (Pounding marks site)	40	<10	60	20	20	<100	<10	<30	<30	<30	25	<5	<25
141	BRS-119B/L-264	15º25′ 42.54″	76º 50′ 29.24″	White to smoky quartz vein and veinlets (Pounding marks site)	75	<10	15	15	15	<100	<10	<30	<30	<30	15	<5	<25
142	BRS-120/L-265	15º25′ 41.54″	76º 50′ 29.27″	Coarse grained pink granite with sulphidic darker enclaves (Pounding marks and triangular rock pit site)	35	20	45	10	10	105	<10	<30	<30	<30	25	<5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
143	BRS-121/L-271	15º25′ 37.70″	76º 50′ 41.89″	Mylonitised pink granite (abandoned quarry site)	10	10	25	15	15	<100	<10	<30	<30	<30	<10	<5	<25
144	BRS-122/L-272	15º25′ 43.43″	76º 50′ 39.72″	Pink granite with quartz veins (abandoned quarry site)	25	<10	25	10	20	<100	<10	<30	<30	<30	<10	<5	<25
145	BRS-123/L-273	15º25′ 46.69″	76º 50′ 38.54″	Coarse grained pink granite (Pounding marks site)	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
146	BRS-124/L-281	15º24′ 57.86″	76º 51′ .123″	Sheared pink granite with smoky quartz veinlets (Pounding marks site)	15	<10	20	<10	<10	<100	<10	<30	<30	<30	20	<5	<25
147	BRS-125/L-282	15º24′ 58.10″	76º 51′ 9.67″	Friable coarse grained pink granite with sulphides	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25

148	BRS-126/L-283	15º24′ 58.14″	76º 51′ 7.85″	Mylonitised pink granite with quartz veins	<10	<10	15	<10	10	105	<10	<30	<30	<30	<10	<5	<25
149	BRS-127/L-284	15º24′ 58.73″	76º 51′ 06.31″	Sulphidic quartz veins within pink granite (large quarry site)	<10	10	<10	<10	10	<100	10	<30	<30	<30	<10	<5	<25
150	BRS-127A/L-289	15º25′ 00.35″	76º 51′ 03.31″	Coarse grained pink granite (large quarry site)	<10	15	15	<10	10	<100	10	<30	<30	<30	<10	<5	<25
151	BRS-128/L-291	15º26′ 24.58″	76º 49′ 40.84″	Dirty to smoky quartz veins (pounding marks site)	<10	<10	25	10	15	<100	10	<30	<30	<30	15	<5	<25
152	BRS-129A/L-292	15º26′ 26.20″	76º 49′ 40.09″	Smoky sulphidic ferruginous quartz vein	10	<10	20	<10	20	105	10	<30	<30	<30	<10	<5	<25
153	BRS-129B/L-292	15º26′ 26.20″	76º 49′ 40.09″	Sheared pyritiferous pink granite	15	<10	65	<10	10	110	10	<30	<30	<30	<10	<5	<25
154	BRS-130/L-293	15º26′ 27.79″	76º 49′ 41.70″	Sheared silicified sulphidic pink granite	10	<10	<10	15	10	110	10	<30	<30	<30	40	<5	<25
155	BRS-131A/L-294	15º26′ 29.01″	76º 49′ 43.50″	Sheared silicified sulphidic pink granite (pounding mark site)	15	<10	20	15	<10	110	10	<30	<30	<30	<10	<5	<25
156	BRS-131B/L-294	15º26′ 29.01″	76º 49′ 43.50″	Pyritiferous smoky quartz (Pounding mark site)	25	<10	15	10	<10	110	10	<30	<30	<30	40	<5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
157	BRS-132/L-295	15º26′ 34.74″	76º 49′ 46.92″	Mylonitised granulated pink granite with quartz veins	10	15	10	10	<10	110	10	<30	<30	<30	<10	<5	<25

158	BRS-133/L-301	15º26′ 20.61″	76º 49′ 43.58″	Amphibolite within granite	95	<10	60	20	20	110	10	<30	<30	<30	<10	< 5	<25
159	BRS-134/L-304	15º26′ 31.42″	76º 49′ 49.50″	Dirty white quartz vein within sheared granite	<10	<10	25	10	<10	110	<10	<30	<30	<30	10	< 5	<25
160	BRS-134A/L-304	15º26′ 31.42″	76º 49′ 49.50″	Dirtywhite quartz vein within sheared pink granite	45	<10	<10	25	15	160	<10	<30	<30	<30	110	< 5	<25
161	BRS-135/L-305	15º26′ 33.38″	76º 49′ 50.04″	Sheared pink granite with lenses and veins of smoky quartz (pounding mark site?)	20	<10	15	15	<10	115	<10	<30	<30	<30	<10	< 5	<25
162	BRS-136/L-308	15º26′ 32.12″	76º 49′ 53.74″	Coarse grained fragile pink granite	<10	<10	15	10	<10	<100	<10	<30	<30	<30	<10	< 5	<25
163	BRS-137/L-310	15º26′ 28.06″	76º 49′ 52.94″	Sheared sulphide stained pink granite (bigger size pounding marks site?)	15	<10	15	10	<10	<100	<10	<30	<30	<30	25	< 5	<25
164	BRS-138/L-315	15º26′ 39.80″	76º 50′ 03.35″	Swerving dolerite dyke	160	10	55	60	25	<100	<10	<30	<30	<30	50	< 5	<25
165	BRS-139/L-316	15º26′ 41.34″	76º 50′ 02.61″	dolerite dyke with sulphides	125	15	95	70	30	<100	<10	<30	<30	<30	<10	< 5	<25
166	BRS-140/L-319	15º26′ 48.17″	76º 49′ 57.33″	dolerite dyke	175	20	60	100	25	<100	<10	<30	<30	<30	<10	< 5	<25
167	BRS-141/L-320	15º26′ 50.94″	76º 49′ 55.57″	Sheared pink granite with iron stains	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	<10	< 5	<25
168	BRS-142/L-321	15º26′ 48.70″	76º 49′ 58.87″	Sheared sulphide stained pink granite	<10	<10	<10	<10	25	<100	<10	<30	<30	<30	20	< 5	<25
169	BRS-143/L-323	15º26′ 46.71″	76º 50′ 02.60″	S shaped Dolerite dyke (another)	190	<10	55	60	<10	<100	<10	<30	<30	<30	<10	< 5	<25
170	BRS-144/L-324	15º26′ 43.90″	76º 50′ 05.34″	Pink granite at the contact of dolerite dyke	<10	15	25	<10	<10	<100	<10	<30	<30	<30	<10	< 5	<25

		Location			**All assay values in ppm except Au (in ppb)**												
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
171	BRS-145/L-334	15º20′ 52.34″	76º 49′ 30.91″	Quartz-feldspathic pegmatite vein within grey granite	<10	<10	15	<10	<10	105	<10	<30	<30	<30	<10	<5	<25
172	BRS-146A/L-335	15º20′ 58.85″	76º 49′ 27.55″	Pinkish coloured granite within grey granite	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	<10	<5	<25
173	BRS-146B/L-335	15º20′ 58.85″	76º 49′ 27.55″	Pegmatite vein within grey granite	<10	<10	<10	<10	<10	<100	<10	<30	<30	<30	60	<5	<25
174	BRS-147/L-366	15º21′ 25.47″	76º 48′ 55.62″	Pegmatite vein within coarse grained grey granite	<10	<10	<10	<10	<10	140	<10	<30	<30	<30	75	<5	<25
175	BRS-148/L-382	15º20′ 13.07″	76º 49′ 11.78″	Pegmatite vein within coarse grained grey granite	<10	<10	<10	<10	<10	250	<10	<30	<30	<30	65	<5	<25
176	BRS-149/L-384	15º20′ 15.08″	76º 49′ 16.28″	Numerous pegmatite vein within coarse grained grey granite	<10	<10	<10	<10	<10	110	<10	<30	<30	<30	60	<5	<25
177	BRS-150/L-387	15º20′ 35.05″	76º 49′ 23.41″	Pegmatite vein within coarse grained grey granite	15	<10	15	10	<10	155	<10	<30	<30	<30	75	<5	<25
178	BRS-151/L-393	15º20′ 41.19″	76º 49′ 18.13″	Amphibolite with crisscrossed pegmatite veins	95	<10	40	10	<10	135	<10	<30	<30	<30	80	<5	<25
179	BRS-152/L-394	15º20′ 42.93″	76º 49′ 15.95″	Dolerite dyke (fractured)	250	<10	<10	100	<10	135	<10	<30	<30	<30	400	<5	<25
180	BRS-153/L-395	15º20′ 43.80″	76º 49′ 15.04″	Pegmatite vein within coarse grained grey granite	25	<10	10	70	<10	180	<10	<30	<30	<30	120	<5	<25
181	BRS-154/L-396	15º20′ 44.30″	76º 49′ 15.71″	Greyish pink granite with pegmatite vein and earlier xenoliths (old working site-rock cuts)	15	<10	15	10	<10	175	<10	<30	<30	<30	75	<5	<25

182	BRS-155/L-402	15º20′ 32.09″	76º 48′ 58.82″	Greyish pink granite with pegmatite veins with sulphide stains (old working site-rock cuts)	20	35	15	<10	<10	140	<10	<30	<30	<30	30	<5	<25
		Location			**All assay values in ppm except Au (in ppb)**													
Sr No.	**Sample No.**	**Latitude (N)**	**Longitude (E)**	**Lithology**	**Cu**	**Pb**	**Zn**	**Ni**	**Co**	**As**	**Cd**	**Sb**	**Bi**	**Mo**	**Cr**	**Ag**	**Au**
183	BRS-156/L-413	15º20′ 7.77″	76º 53′ 1.44″	Pinkish grey granite	35	<10	<10	<10	<10	130	<10	<30	<30	<30	20	<5	<25
184	BRS-157/L-415	15º20′ 11.77″	76º 53′ 1.90″	Fine to coarse grained pink granite	10	<10	15	<10	<10	<100	<10	<30	<30	<30	35	<5	<25
185	BRS-158/L-418	15º20′ 8.76″	76º 53′ 14.44″	Greyish pink granite	25	<10	35	<10	<10	<100	<10	<30	<30	<30	65	<5	25
186	BRS-159/L-419	15º20′ 0.71″	76º 53′ 9.02″	Epidotised pink granite	15	<10	30	<10	<10	<100	<10	<30	<30	<30	30	<5	<25
187	BRS-159A/L-421	15º20′ 17.93″	76º 53′ 16.34″	Epidotised pink granite with sulphide stains	15	65	65	<10	<10	<100	<10	<30	<30	<30	35	<5	<25
188	BRS-160/L-429	15º26′ 22.40″	76º 51′ 12.04″	Carbonated acid volcanics	100	<10	70	150	45	<100	<10	<30	<30	<30	155	<5	<25
189	BRS-161/L-431	15º20′ 31.65″	76º 52′ 51.40″	Epidotised pink granite with sulphide stains	15	<10	30	<10	<10	<100	<10	<30	<30	<30	75	<5	<25
190	BRS-162/L-434	15º20′ 30.09″	76º 53′ 7.53″	Epidotised pink granite with sulphide stains and iron oxides	<10	<10	25	<10	<10	<100	<10	<30	<30	<30	45	<5	<25
191	BRS-163/L-438	15º20′ 14.15″	76º 53′ 22.37″	Epidotised pink granite	<10	<10	30	<10	<10	<100	<10	<30	<30	<30	25	<5	<25
192	BRS-164/L-441	15º25′ 4.66″	76º 51′ 25.25″	Pink granite with pounding marks	15	<10	25	<10	<10	<100	<10	<30	<30	<30	30	<5	<25

193	BRS-165/L-444	15º25′ 00.89″	76º 51′ 29.21″	Sheared pink granite with quartz lenses and veins (Extensive pounding marks)	30	<10	15	<10	<10	<100	<10	<30	<30	<30	45	<5	<25
194	BRS-166/L-445	15º25′ 1.19″	76º 51′ 32.49″	Sheared pink granite (Extensive pounding marks)	20	<10	20	<10	<10	<100	<10	<30	<30	<30	55	<5	**130**
195	BRS-167/L-453	15º21′ 3.29″	76º 49′ 49.88″	Grey granite with pegmatite veins	15	<10	45	<10	<10	<100	<10	<30	<30	<30	40	<5	<25
196	BRS-168/L-454	15º21′ 8.17″	76º 49′ 20.60″	Grey granite (Pounding marks site?)	<10	<10	20	<10	<10	<100	<10	<30	<30	<30	30	<5	<25

Any other information

NA

Certificate from the qualified person with name, date and signature.