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Web site : www.prbinfraprojects.com
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INFRAPROJECTS PVT. LTD.

Ref.No : PRBIPPL/NMET/DPR/24-25/0706 Date : 16.01.2025

To,
The Director & HOD
National Mineral Exploration Trust
Ministry Of Mines
F-114, Shastri Bhavan
NEW-DELHI-110001

Subject : **Re-submission of Detailed Proposal for G4 Stage Nawagarh-Nelsod-Antagarh Iron Ore Block, Dist-Uttar Bastar-Kanker, State--Chhattisgarh**

Respected Sir,

As per 70th TCC meeting agenda 70.4.10 & 70.4.11 and recommendations by TCC members thereof, a detailed proposal for G4 Stage work for Iron Ore (35 Sq Km) by combining Nawagarh-Nelsod-Antagarh Blocks is submitting herewith for your kind consideration and approval please in the upcoming 73rd TCC-I meeting to be held on 30th & 31st January-2025.

Thanking You

For PRB Infraprojects Private Limited

FOR PRB INFRAPROJECTS PVT.LTD.

(DIRECTOR)

(Managing Director)

MINERAL EXPLORATION PROJECT PROPOSAL

FOR

RECONNAISSANCE SURVEY (G4-STAGE) WORK FOR IRON ORE IN NAWAGARH-NELSOD-ANTAGARH AREA, TALUKA-, DISTRICT-UTTAR BASTAR KANKER, STATE-CHHATTISGARH

UNDER NMET

T.S.No.-64 H/04 & 64 D/16
Commodity-IRON ORE
(Industrial Mineral**)**

(Date of Resubmission: 16th JAN-2025)

Submitted by:

PRB INFRAPROJECTS PVT.LTD.
S-3,2nd Floor Ratan Heights
Medical Square, Untkhana Road
NAGPUR-440024.

To,

THE DIRECTOR AND HOD
National Mineral Exploration Trust
Ministry Of Mines
NEW-DELHI-110001

PRB INFRAPROJECTS PVT. LTD. NAGPUR

INDEX

LIST OF ANNEXURES

Summary of the Block for G4 stage exploration

Sr. No.	Features	Details
1.	Block ID	Nawagarh-Nelsod-Antagarh Iron ore Block
2.	Current Exploration Agency	PRB Infraprojects Pvt Ltd
3.	Previous Exploration Agency	New Area
4.	Previous Geological Exploration Report	Nil
5.	Commodity	Iron Ore
6.	Mineral Belt	Durg-Bastar-Chandrapur Iron ore belt
7.	Completion Period with entire Time Schedule to complete the project	12Months
8.	Objectives	Demarcation and assessment of Iron Ore deposits
9.	Whether the work will be carried out by the proposed agency or through outsourcing and details thereof. Components to be outsourced and Name of the outsource agency	Entire work shall be carried out by M/s PRB Infraprojects Pvt. Ltd. (In house)
10.	Name/Number of Geoscientists	Two Geologist (2G), Geophysicist (1GP)& Surveyor (1)
11.	Expected Field days(Geology, Geophysics, Surveyor)	a. Geologist:200Field Days+60 HQ Days b. Surveyor: 90 Days
1.	**Location**	
	Latitude	Between 20° 04’ 09.43"& 20° 06’ 10.88"
	Longitude	Between 80° 59’ 47.80"& 81° 08’ 17.11"
	Villages	Nawagarh,Nelson,Antagarh, Karregaon,
	Tehsil/Taluk	Bhanupratappur
	District	Uttar Bastar Kanker
	State	Chhattisgarh
2.	**Area(hectares/square kilometers)**	
	Block Area	35 Sq.km.
	Forest Area	--
	Government Land Area	--
	Private Land Area	--
3.	**Accessibility**	
	Nearest Rail Head	Antagarh Railway station
	Road	Antagarh-Koiliveda State Highway 130D connected to Bhanupratappur
	Airport	Raipur
4.	**Hydrography**	
	Local Surface Drainage Pattern (Channels)	The drainage pattern is mostly dendritic in nature
	Rivers/Streams	Pulunjgori River& its tributaries.
5.	**Climate**	
	Mean Annual Rainfall	1492mm
	Temperatures(December)(Minimum) Temperatures (June) (Maximum)	10-20^{0}C 28-40^{0}C
6.	**Topography**	
	Topo sheet Number	64D/16 and 64 H/04

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<table>
<tr><td></td><td>Morphology of the Area</td><td>The eastern part of the mapped area in topo sheet no. 64H/4 forms NNW-SSE and E-W trending hill ranges whereas East part forms a plain land in Karregaon. The area is drained by the Southwesterly flowing Pulunjgori River and its tributary. The highest elevation in the area is 502m above msl, as recorded in the north-east of Parali Protected Forest whereas lowest elevation in the area is 398m above msl near Surewahi village.</td></tr>
<tr><td>7.</td><td>Availability of baseline geosciences data</td><td></td></tr>
<tr><td></td><td>Geological Map(1:50K)</td><td>DRM Sources (Plate III)</td></tr>
<tr><td></td><td>Geochemical Map</td><td>NA</td></tr>
<tr><td></td><td>Geophysical Map(Aerogeophysical, Ground geophysical , Regional as well as local scale GP maps)</td><td>Yes (Aero geophysical data)</td></tr>
<tr><td>8.</td><td>Justification for taking up G4stage mineral exploration</td><td>The proposed block is nearer to North Metabodli Iron Ore Block and in South NECO JAISWAL Group Iron ore Mine .

Subsequently, after 70thTCC Meeting , it was decided to carve out a bigger block area and take up G4 stage exploration under NMET to put up this block for further Exploration work.

GSI progress report on Prospecting for Iron Ore in Parwi Area, Kanker Dist, Chhattisgarh State FS. 2008-09.And GSI also worked on Aerogeophysical data of Kanker – Dhamtari Area, Bastar Craton, Parts of Chhattisgarh, and Orissa. FS.2010-2012. Results shows western part of the area is High magnetic Intensity and associated with Iron ore formations

Team of Geologists from PRB Infraprojects Pvt.Ltd visited the proposed block area and collected 5 rock samples. Analytical results of the samples are found to be encouraging which are given as below.

<table>
<tr><th>Sr. No.</th><th>Sample No</th><th>Fe%</th><th>SiO$_2$%</th><th>Al$_2$O$_3$%</th></tr>
<tr><td>1.</td><td>N-1</td><td>64.11</td><td>1.39</td><td>0.70</td></tr>
<tr><td>2.</td><td>N-12</td><td>44.52</td><td>35.20</td><td>0.47</td></tr>
<tr><td>3.</td><td>NW-12</td><td>40.26</td><td>41.33</td><td>0.50</td></tr>
<tr><td>4.</td><td>N-8</td><td>34.27</td><td>50.14</td><td>0.31</td></tr>
<tr><td>5.</td><td>N-18</td><td>33.00</td><td>51.67</td><td>0.46</td></tr>
</table>
</td></tr>
</table>

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DETAILED DESCRIPTION OF THE PROJECT

1. Block Summary

Physiography

Physiographically, forms NNW-SSE and E-W trending hill ranges whereas East part forms a plain land in Karregaon. The area is drained by the East to South-West flowing Pulunjgori River, River and it tributary nala. The highest elevation in the area is 502m above msl, as recorded in the north-east of Parali PF whereas lowest elevation in the area is 398m above msl near Surewahi.

2. Geological Back ground of the area

Regional Geology
Bengpal Group (Hanker Complex)

The oldest rock formation of the area has represented by granite gneiss. Granite gneisses are marked in vicinity of villages Nelsod, Karregaon, Kanagaon, Nawagaon and Antagarh.
Rock is hard, compact, medium to coarse grained, grey, dull brown to pinkish in colour and porphyritic texture.Banded magnetite quartzite (BMQ) seen on the block area. It is hard, compact, fine grained, reddish brown to grayish brown colour. The rock consists of alternate bands of quartzite and magnetite.

Bailadila Group

Bailadila Group of rocks are represented by hematite and quartzite. Hematite is occurring as discontinuous, small isolated mounds as well as in float boulder form, in association with quartzite. Hematite is very hard, compact, fine grained, massive as well as laminated, steel grey to dark blue colour, metallic luster and dark cherry red streak. Quartzite is hard, compact, medium to coarse grained, white to dull white colour, well - sorted, siliceous cementing material, consists of quartz and iron oxides.
The schistosity is well developed in quartizite and ferruginous quartzite showing north-east-south-west to East-west direction with subvertical dips. The litho units of the area have been folded into a series of antiforms and synforms.

Table 1: The Regional Stratigraphic sequence of lithounits (after GSI) is given below

Lithology	Stratigraphic status Group	Age	Nature and Characteristics
Soil/Laterite	-	Cainozoic	Dark grey, dark brown, pale yellow to Yellowish brown.
BasicDyke	-	MesoPro terozoic	Greyish to greenish black, medium to coarse grain, massive, hard and compact rock.
Quartzreef/ vain	-	Paleo to MesoProteroz oic	Quartz reef/vein; White to grayish white pink, medium to coarse-grained rock.
Granite	Dongargarh Granite	Paleo to Proterozoic	Pink grey fine to very coarse grained, massive, hard and compact rock. Composition varies from biotite granite, Amphibole granite to leuco granite.
Banded Haematite Quartzite (BHQ) /Banded Haematite Jasper(BHJ)	Bailadila Group	Archaean to Palaeo Proterozoic	Consist of alternate pinkish to buff colour layers of quartzite / Jasper and dark grey to steel grey metallic layers of iron ore.

Granite gneiss, migmatite, para genesis streaky gneiss, augen gneiss, Horn blende gneiss & biotite gneiss (Gneissic complex)	Bengpal Group	Archaean	Gneisses; Light grey to greenish grey, fine to coarse grained, well foliated, hard and compact rock. Migmatite; Comprises leuco some bands of quartz felds parandmelano some bands of biotite, hornblende.
Banded magnetite Quartzite(BMQ) Banded Grunerite Quartzite (GMQ)			BMQ; Medium to coarse grained, banded; consist of alternate band of quartzite and magnetite with Grunerite and actinolite as accessories. GMQ; Medium to coarse grained, banded; consist of alternate band of quartzite and Grunerite ,magnetite.
Amphibolite, Horn blende schist, Meta basics, meta–Ultra mafic & talc-Tremolite schist And alusite schist, Tremolite schist And quartz mica schist.	Bengpal Group		Amphibolite; Dark green to greenish black medium to Coarse grained, banded foliated rock and grade to Hornblende schist. Meta-basic; Dark green to greenish green, fine grained, massive to foliated rock and grades To hornblende schist, Meta-ultra mafic; Grey, medium to Coarse grained, schistose, hard and compact rock. Talc–Tremolite schist; Grey, fine to coarse-grained rock with Soapy feeling and radiating crystal. And alusite schist; Greyish white, medium to coarse grained, well foliated rock. Tremolite schist;Greenish grey, medium grained, radiating, hard and compact rock. Quartz–mica schist; Dirty white to silvery white, medium grained rock. ***(G.S.I.2005)***

Geology of the area

In the block area it is observed that mainly the Bengpal Group of rocks occur as enclaves within the granite-gneiss of Bengpal Group of Archaean age. They are characterized by amphibolites, metapelites including micaceous quartzite, mica schist & quartz mica schist, banded quartzite, BIF mainly BMQ with iron ore bands, metabasics. Dolerite dykes, quartz & aplite are the basic and acid Intrusives.

Banded magnetite quartzite/banded hematite quartzite

BMQ is the more prevalent than BHQ. At places, hematite has been converted into specularite rich bands. Bedding in BMQ shows variable strike and dip. It shows N-S to NWSE strike with dip amount of 10 to 85^{o} on either side due to intense deformation. In the central eastern part, trend of BMQ varies from N-S to NNW-SSE with dip amount of 14 – 85^{o} towards east.

Dolerite dykes:

The coarse grained, dark coloured, very hard and massive in nature. Whereas distinct linear massive dolerite dykes trending NW-SE and WNW-ESE are noticed traversing all the former litho units. Thickness of these dykes varies from place to place.

Quartz vein/ Aplite vein:

NW-SE trending quartz veins mostly trending at several places in the mapped area. A few aplite veins occur as narrow linear bodies having variable trends.

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Scope for proposed exploration

Sr. No.	Nature of Work	Proposed Work
1	Detailed Geological Mapping(1:12500)	35Sq.km
2	Geophysical Mapping- Ground Magnetic Survey	25sq.km.
3	Bed Rock Samples	
	Grab Samples	60
	Channel samples	30
	Drill Core Samples	60
4	Chemical Analysis(Including check & External samples	150+15+8 = 173
5	Category of Land	Forest
6	Geological/Geophysicists Personnel	03Nos.
7	Period of Scheme	12 months
8	No. of Boreholes	4+2
9	No. of Rigs to be deployed	2 Nos.
10	Total Drilling	300 m
11	Average Borehole Depth	50 Mtr. (Inclined BH)

NOTE : Regarding Sr.No-2 (Geophysical Mapping Ground magnetic survey) the details of traverse and stns calculations are as below :

	Travers Intr.	**Width**	**Total Travers**	**Stn.**
1) Block No-1 (B1) = 15 L km	200 m	0.60 km	15	10 stn
2) Block No-2 (B2) = 10 L.km	200 m	0.50 km	10	06 stn
3) Block No-3 (B3) = 15 L.km	200 m	0.50 km	15	10 stn
4) Block no-4 (B4) = 10 L.km	200 m	0.50 km	10	06 stn

			Area in Sq Km	**Stn x trav.**	**Total stn**
Per traverse	25 Stn	Block -1	7.5 Sq Km	10 x 15	150
		Block-2	5.0 Sq Km	06 x 10	60
		Block-3	7.5 Sq Km	10 x 15	150
		Block -4	5.0 Sq Km	06 x 10	60
			==========		=======
		Total	25.0 Sq KM	Total	420 Stn
			==========		========

Recommendations of G4 Stage Mineral Exploration Report.

70th TCC Meeting NMET proposed a bigger block and details mapping of the area to PRB Infraprojects Pvt. Ltd to submit the DPR for the block to NMET after revised the area &add sample analyzing a few samples.

Analytical results of 5 Nos Rock samples collected by team geologist from the proposed block are found to be encouraging.

Objectives:

1. To delineate the surface outcrop all the litho unit exposed the block area by geological mapping in 1:12500 scale.
2. To delineate the Ore body/targeted area of Iron ore by Ground Magnetic survey to decipher its depth persistence, subsurface continuity and to establish the potential zones
3. In second stage to drill 06 Nos. of boreholes as per MEMC rules 2015 to decipher its depth persistence, subsurface continuity and to establish the potential zones.

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4. To evaluate the insitu resources of Iron ore bodies and preparation of Geological Report (GR).
5. Carry out mineral exploration works as per Minerals (Evidence of Mineral Contents) Rule-2015, Mineral (Auction) Rules-2015 and MMDR Amendment act-2015. In turn to facilitate the Government of Chhattisgarh in auctioning of the block.

2. Previous Work

A look into the available literature reveals that the Banded Iron Ore Formations of Chhattisgarh have drawn much attention of the officers of the Geological Survey of India during the last century. B.C.Gupta was the first geologist who initiated geological work around Dalli-Rajhara during F.S. 1937-38 and assigned Archaean age to the group of rocks comprising ferruginous shale, phyllite, slaty shale, BIF, arkose and metabasics. Parwi area has been systematically mapped by D. K. Chatterjee .Systematic mapping of the area by V P Mishra. They have shown occurrences of hematite quartzite, granite-gneiss, greenstone and dykes in the area. During the reconnoitory traverse M.K. Patel (2006-07) has brought out the presence of magnetite-specularite band and BMQ bands in this area. Vinod kumar and others (2011) mapped and interpretation of Aerogeophysical data of kanker-dhamteri area, Bastar Craton, Parts of Chhattisgarh and Odisha.

3. Block description

S.N.	BLOCK CORNER POINT	LATITUDE	LONGITUDE
1	A	20° 4'17.46"N	80°59'39.90"E
2	B	20° 3'57.36"N	81° 0'0.02"E
3	C	20° 5'22.77"N	81° 1'29.97"E
4	D	20° 6'34.21"N	81° 0'23.70"E
5	E	20° 8'17.62"N	81° 1'55.11"E
6	F	20° 7'41.69"N	81° 6'37.62"E
7	G	20° 5'56.35"N	81° 7'46.27"E
8	H	20° 6'8.55"N	81° 8'13.62"E
9	I	20° 8'14.78"N	81° 7'17.33"E
10	J	20° 8'52.75"N	81° 4'51.22"E
11	K	20° 9'5.97"N	81° 2'56.38"E
12	L	20° 9'1.43"N	81° 1'56.84"E
13	M	20° 6'47.98"N	80°58'52.60"E
14	N	20° 5'21.54"N	81° 0'35.64"E

4. Proposed/ Planned Methodology

The Proposed work includes large scale mapping on 1:12500 scale, grab and channel sampling. Geophysical survey such as ground magnetic survey and few scout drill holes.

Detailed Geological and Structural Mapping

Geological mapping on 1:12500 scale is to be carried out in an area of 35sq. km. by taking traverses with the help of GPS . The geological map will be prepared by adding geological features and structural details etc. picked up during field mapping.

Chemical Analysis

The collected samples shall be analyzed by XRF for 20radicals like i.e. Fe2O3, FeO, TiO2, SiO2, Al2O3, P2O5, LOI & Reactive Silica etc. 10% of the primary samples shall be analyzed as check samples.

ICP-OES/ICP-MS (sequential technique) Sample package for 34 elements i.e. 16 other elements Viz.Li, Ga, In, Be, Ge, Mo, Cr, Ta, W, Ba, Co, Rb, Sr, Zr, Nb, Ni: 18 REE viz. La, Ce,Pr,Nd,Sm,Eu,Gd,Tb,Dy,Ho,Er,Tm,Yb,Lu,Sc,Y:02 Actinides viz.U,Th of 216 samples (Per Grab and Channel Sample).

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XRD studies of 10 samples for identification of minerals (Random).

Petrological Study: 10 No of Rock samples will be collected for thin section preparation & study.

Geological Report

Prepare a detailed report (Final G4 stage report) along with geological/Structural/Ground Magnetic survey map identifying and establishing the deposit with quality and quantity of the resources with worthy of being raised to a G3 scheme of exploration as per MEMC-2015. Data generated from G-4 level of work and earlier data if any shall be presented in the report as per the guidelines laid down in provisions of Mineral (Evidence of Content) Rules 2015 in the NMET prescribed format for pre review.

5. Nature and Quantum of the work

Sr. No.	Item of Work	Unit	Proposed Quantum
1.	Geological Mapping (1:12500)	Sq. Km	35
2.	Geophysical Survey-Ground magnetic survey	Sq. Km	50 L sq km
3.	Channel/grab sampling	Nos.	60+30+60 = 150
	Check Samples/External Samples	Nos.	15 + 8 = 23
4.	Sample preparation and Laboratory Studies	Nos.	173
5.	Scout drilling (4+2)	M	300 m (06 Boreholes)
	Chemical Analysis		
A	Primary Samples(6 radicals) Fe%, Mn%, SiO2%, Al2O3%, P%, S%.	Nos.	150
B.	Internal Check Samples (10% of primary samples) for analysis of 6 radicals i.e. Fe%, Mn%, SiO2%, Al2O3%, P%, S%.	Nos.	12
	External Check Samples (50% of Internal samples) for analysis of 5 radicals i.e. Fe%, Mn%, SiO2%, Al2O3%, P%, S%.	Nos.	6
D	XRD studies for Identification of minerals (Random)	Nos.	05
E	ICP-OES/ICP-MS (sequential technique) sample package for 34 elements i.e.16 other elements viz. Li, Ga, In, Be, Ge, Mo, Cr, Ta, W, Ba, Co, Rb, Sr, Zr, Nb, Ni,: 18 REE viz. La	Nos.	20

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	Ce,Pr,Nd,Sm,Eu,Gd,Tb,Dy,Ho, Er,Tm,Yb,Lu,Sc,Y:02 Actinides viz.U,Th		
4	**Petrographic /mineragraphic study**		
A	Preparation of thin section	Nos.	10
B	Study of thin section	Nos.	10
C	Petrographic study report	Nos.	10
8.	Geological Report Preparation	Nos.	1

Channel sampling spacing (As per MEMC, 2015)

Type of deposit	**Irregular (discontinuous)**
G4- Stage	At 400m interval

7. Reference:

1) GSI Report "On Prospecting for Iron Ore in Parwi Area, Kanker District, Chhattisgarh"by Thawait D.K. FS2008-09 in year 2010.

2) GSI Report "Progress Report On The Investigation Of Iron Ores In Anjrel, Korgaon, Kharkagaon And Takrel Blocks Of Deposit F, Rowghat Bastar District, M P" by1977.

3) GSI report on "Interpretation of Aerogeophysical data of Kanker-Dhamteri area, Baster Craton, Part of Chhattisgarh and Odisha (FS-2010-12)

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PRB INFRAPROJCETS PRIVATE LIMITED

(Notified Private Exploration Agency)

WORKPLAN-G4 stage Reconnaissance Survey for Iron ore in Nawagarh Nelsod-Antagarh area in Talua-Bhanupratapur, Dist-Uttar Bastar Kanker , State-Chhattisgarh

7.0 TIME SCHEDULE

Item of Work	1	2	3	4	5	6	7	8	9	10	11	12
1 Forest clearance & Pre field preparation												
2.Geological Mapping(1:12500), Geophysical survey and Surface Sampling.												
3 Drilling & Chemical analysis												
4 Review												
5 Interpretation of analytical data, finalization of litholog, plates												
6 Review & report preparation/Peer review												
7 Final submission												

NOTE : Date of commencement of the work schedule will be taken up on necessary clearance and approval from concerned government agencies like Forest dept.

Manpower Deployment Geologist party:

- 2 Geologist-200 Field days+ 60 HQ days

Survey party:

- **1** Surveyor-90days

Drilling Party

2 Driller,2 Assistant Driller, 2 Rig man, 12 labors for Apprx.180days

PRB INFRAPROJCETS PRIVATE LIMITED
(Notified Private Exploration Agency)

WORK ESTIMATE : RECONNAISSANCE SURVEY (G4) STAGE WORK
FOR IRON ORE IN NAWAGARH-NELSOD-ANTAGARH BLOCK

Nawagarh-Nelsod-Antagarh Iron Ore Block G4 -35 Sqkm							
Item	**Item of Work**	**Item**	**SOR Sr No & Rates**		**Estimated Cost**		**Remarks**
Sr No.	**Item**	**Unit**	**Sr. No.**	**Rates**	**Qty.**	**Amount (Rs)**	
A	**GEOLOGICAL WORK** (Mapping1:12,500 scale)						
i	Charges for one Geologist- Field	day	1.2	11,000	200	2200000.00	
ii	Charges for one Geologist per- HQ	day	1.2	9,000	60	540000.00	
iii	2 labours/ party (Rs 494/day/labour)	day	5.7	494	400	197600.00	
iv	Sampling -1 Samplers	day	1.5.2	5,100	30	153000.00	
v	Sampling 4 labours/ party	day	5.7	494	120	59280.00	
	Sub Total- A					**3149880.00**	
B	**GEO PHYSICAL WORK**						
i	Geophysical mapping by Ground magnetic method	Stations	3.2a	1,800	500	900000.00	
ii	a) Geophysicist man days (1 No) in field	day	3.18	11000	20	220000.00	
iii	b) Geophysicist man days in HQ for data processing and report	day	3.18	9000	7	63000.00	
iv	4 labours/ party (Rs 494/day/labour)	per Lab	5.7	494	80	39520.00	
	Sub Total- B					**1222520.00**	
C	**PITTING AND TRENCHING**						
i	Trenching	Cu m	2.1.1	3330	0	0.00	
	Sub Total- C					**0.00**	
D	**LABORATORY STUDIES**						
1	**Chemical Analysis**						
i	**BRS/Channel/BH samples)**						

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a	Primary Samples: Quantitative chemical anylysis of rock by conventional wet & chemical for Total Fe,Total Mn, Al2O3, P2O5, CaO, SiO2 (BRS Samples-60, Channel Samples- 30, BH Samples-60)	Nos	4.1.1	8,157	150	1223550.00	
b	Check samples 10% of Primary samples & External sample (50% of Check samples) 15+8=23nos.	Nos	4.1.1	8,157	23	187611.00	
ii	ICP-OES/ICP-MS (sequential technique) sample package for 34 elements i.e.16 other elements viz. Li, Ga, In, Be, Ge, Mo, Cr, Ta, W, Ba, Co, Rb, Sr, Zr, Nb, Ni,: 18 REE viz. La Ce,Pr,Nd,Sm,Eu,Gd,Tb,Dy,Ho,Er,Tm,Yb,Lu,Sc,Y:02 Actinides viz.U,Th	Nos	4.1.14	7,731	20	154620.00	
ii	XRD studies for Identification of minerals (Random)	Nos	4.5.1	4,000	5	20000.00	
2	**Physical,Petrological, Mineralogical**					0.00	
i	Preparation of thin section	Nos	4.3.1	2,353	10	23530.00	
ii	Complete petrographic study report	Nos	4.3.4	4,232	10	42320.00	
iii	Preparation of polished section	Nos	4.3.2	1,549	10	15490.00	
iv	Complete mineragraphic study report	Nos	4.3.4	4,232	10	42320.00	
v	Digital Photographs	Nos	4.3.7	280	10	2800.00	
vi	Whole Rock Analysis by XRF (Major oxides)	Nos	4.1.15a	4,200	10	42000.00	
	Sub Total- D					**1754241.00**	
E	**DRILLING**						
i	Drilling upto 300m (Very Hard Rock 1Rig)*	m	2.2.1.4a	12,650	300	3795000.00	
ii	Land / Crop Compansation	per BH	5.6	20,000	0	0.00	
iii	Construction of concrete Pillar	per BH	2.2.7a	2,000	14	28000.00	
iv	Transportation of Drill Rig & associated (Up-Dn)	Km	2.2.8	36	1,000	36000.00	
v	Monthly Accomodation Charges for drilling Camp (up to 2 Rigs)	month	2.2.9	50,000	3	150000.00	
vi	Drilling Camp Setting Cost	Nos	2.2.9a	250,000	1	250000.00	
vii	Drilling Camp Winding up Cost	Nos	2.2.9b	250,000	1	250000.00	
viii	Approach Road Making (Hilly Terrain)	Km	2.2.10a	32,200	6	193200.00	

ix	BH Fixation and determination of co-ordinates & RL of BH by DGPS	Nos	1.6.2	19,200	6	115200.00	
x	Drill Core Preservation (One complete borehole plus mineralised cores of all the BHs)	m	5.3	1,590	110	174900.00	
	Sub Total- E					**4992300.00**	
*NOTE : 1st Phase 4no 2nd Phase 2=6No Each 50mt depth =300mt.							
	Total A to E					**11118941.00**	
					Incentiv LWI @ 25% on Fileld item	**2779735.25**	
					Total	**13898676.25**	
F	**Geological Report Preparation (A minimum of Rs. 2.5 lakhs or 5% of the value of work whichever is more)**		**5.2**			**694933.81**	
G	**Peer review Charges**					**30000.00**	
H	**Preparation of Exploration Proposal (2% of the Cost or Rs. 5 Lakhs whichever is lower)**		**5.1**			**277973.53**	
I	**Total Estimated Cost without GST**					**14901583.59**	
J	**Provision for GST (18% of I)**					**2682285.05**	
K	**Total Estimated Cost with GST**					**17583868.63**	

(RS ONE CRORE SEVENTY FIVE LACS EIGHTY THREE THOUSAND EIGHT HUNDRED SIXTY EIGHT AND PS SIXTY THREE ONLY)

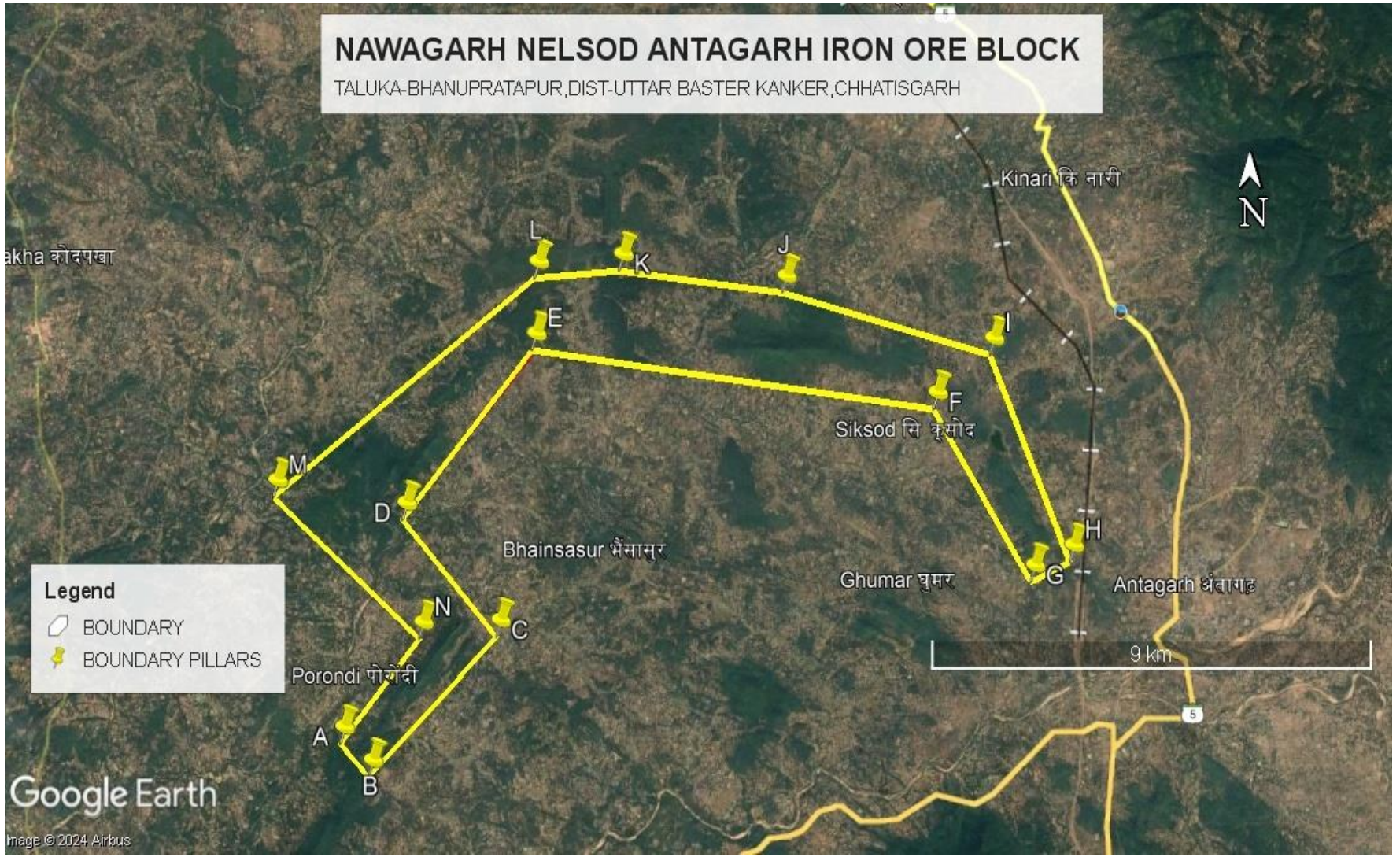

Fig.1 :Location of block on Google Map image

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(Plate No-II)

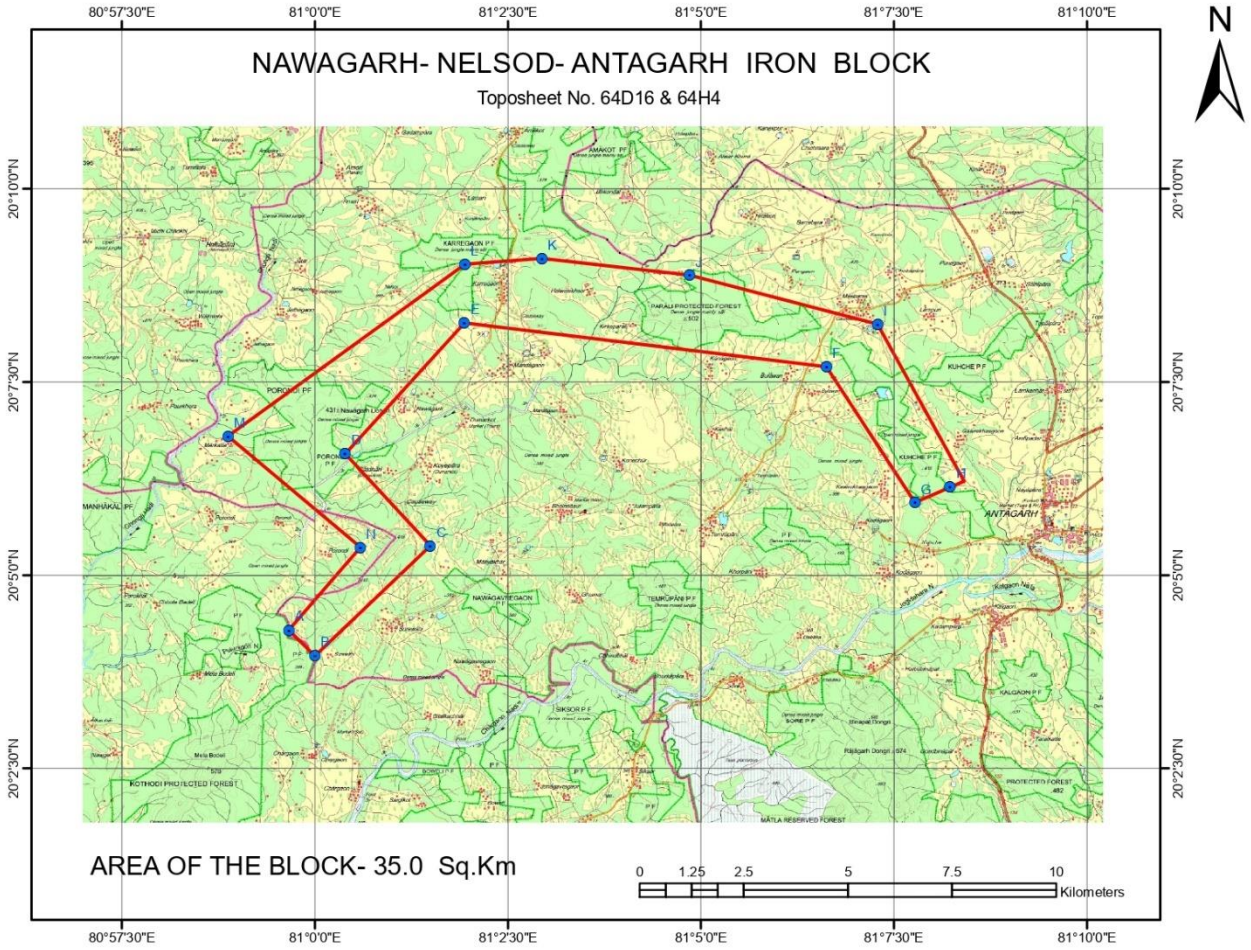

Fig.-2- Toposheet no 64 D/16 and 64 H/4

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(Plate No-III)

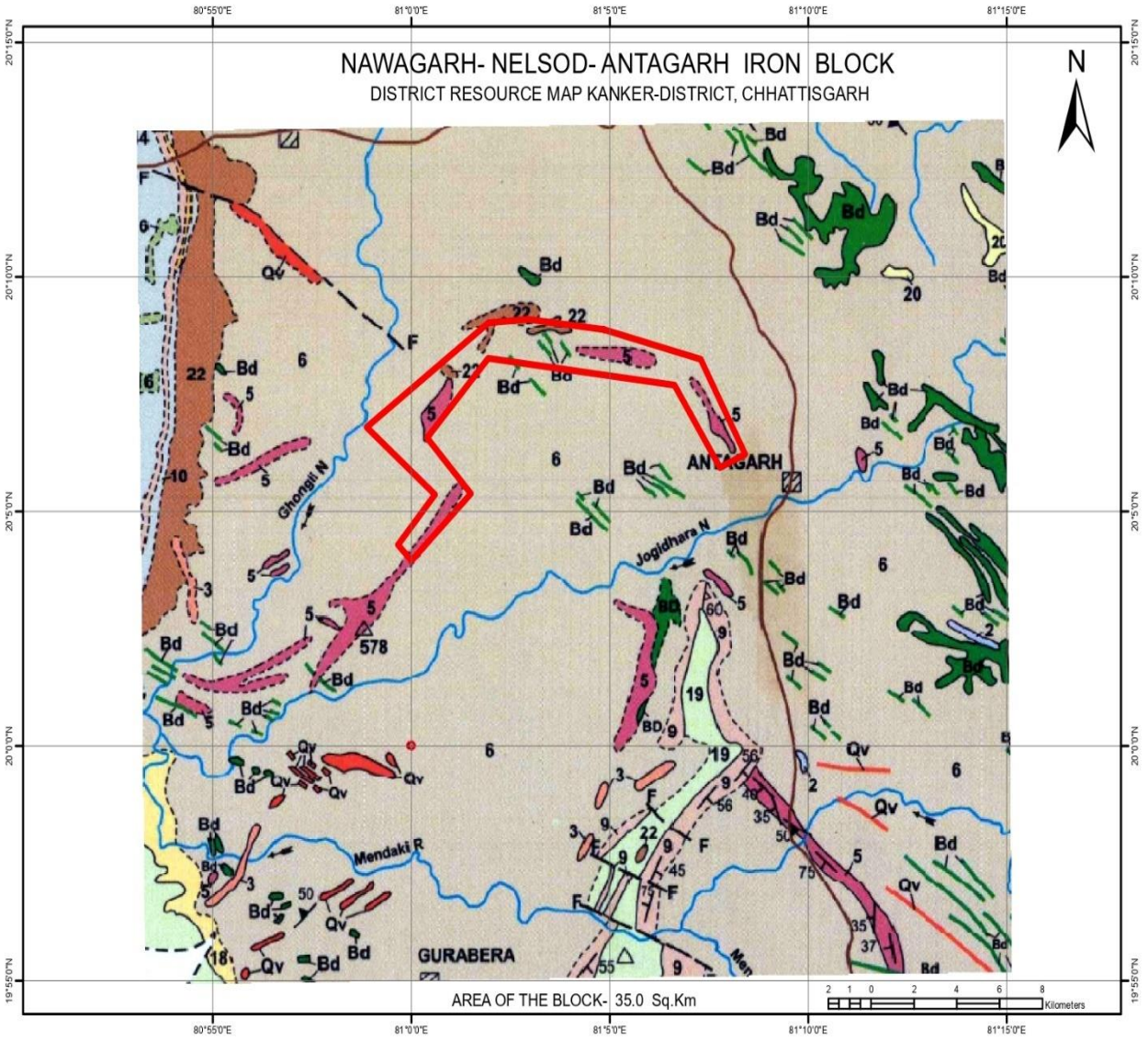

Fig.3 : Geological map of the block area (Kanker DRM)

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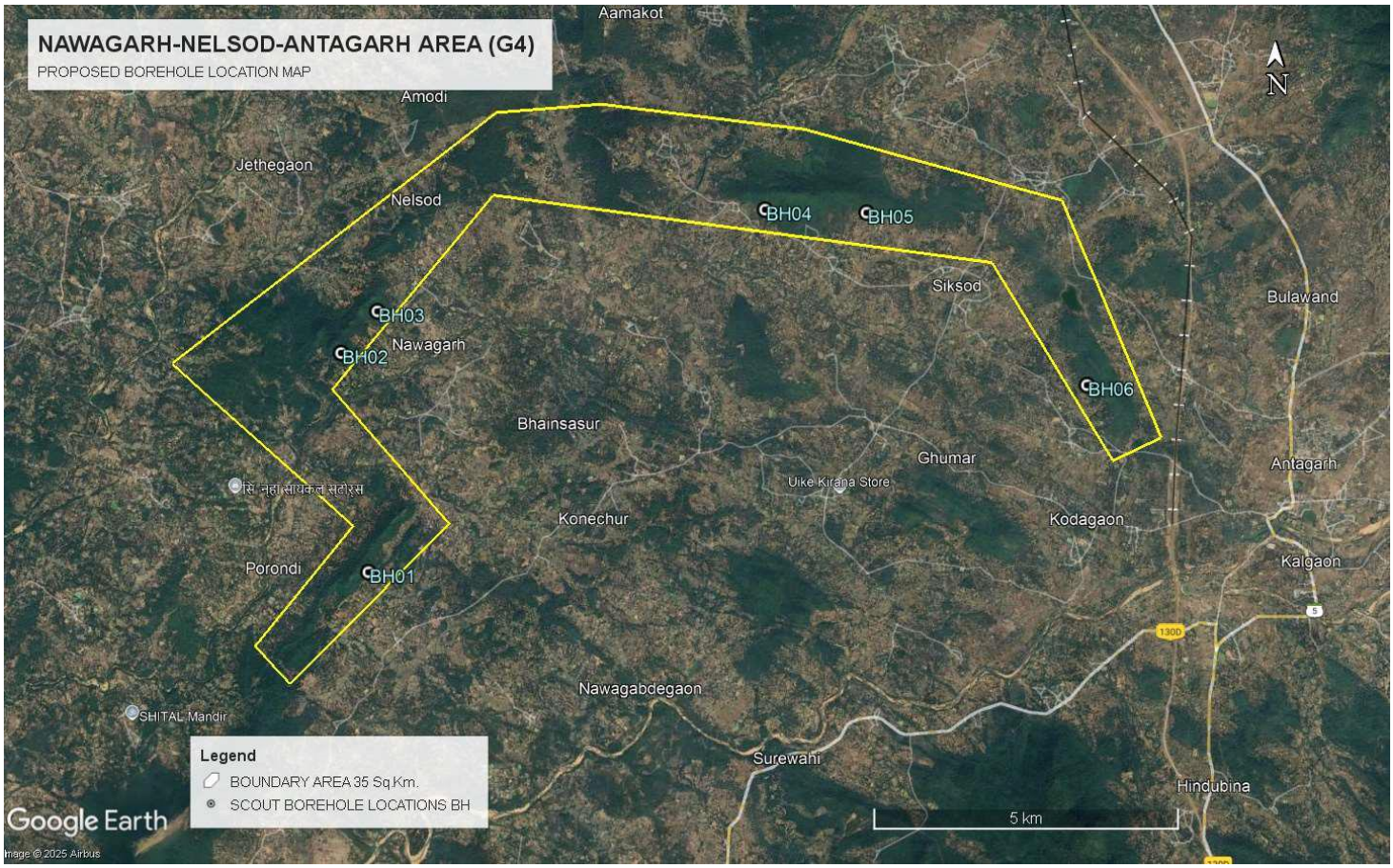

Fig-4 : Proposed borehole location map

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(Plate No-V)

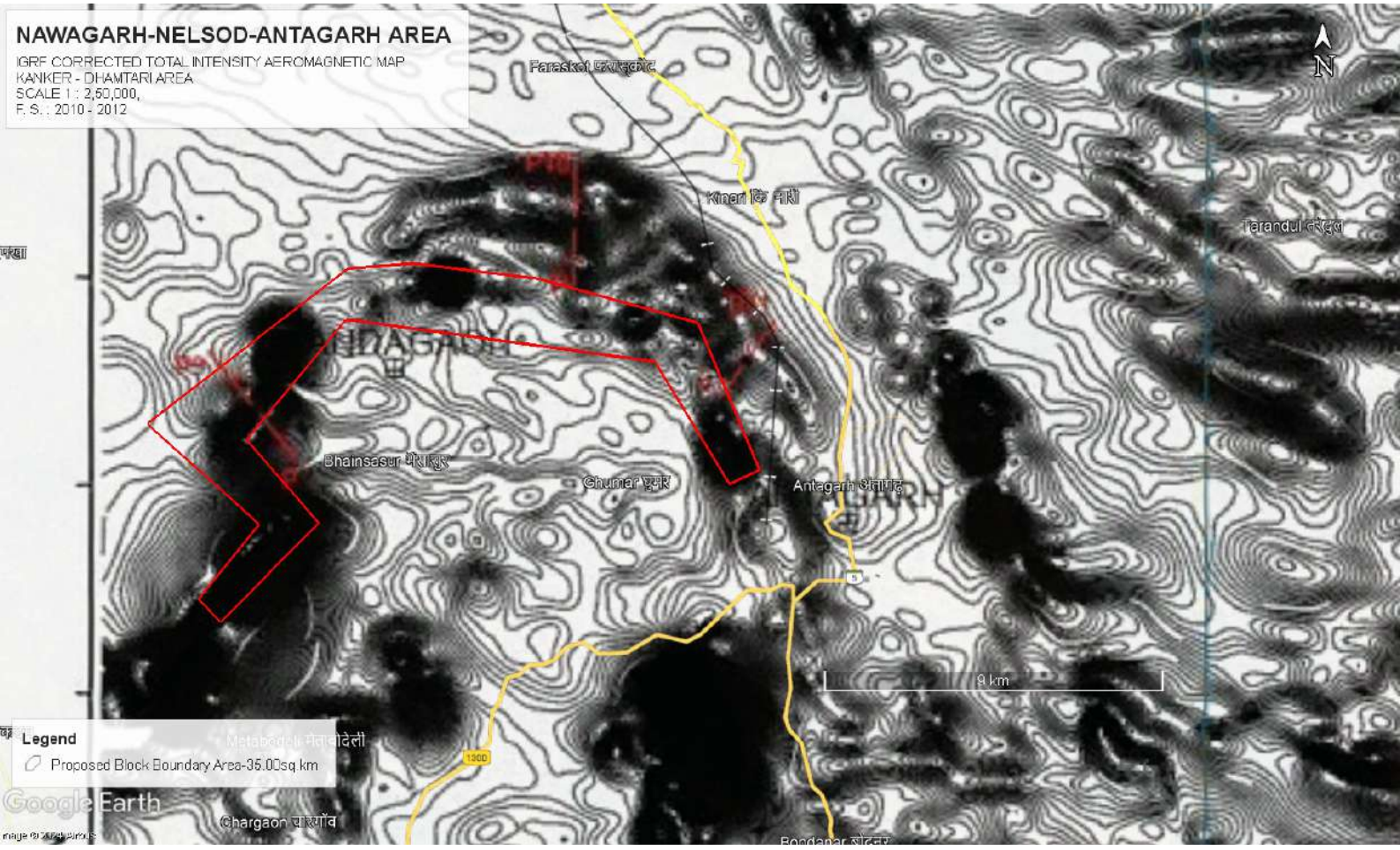

Fig No-5- Aero magnetic image of the location map.

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EXPLANATION

	Lithology	Stratigraphic Status			Age	Nature and Characteristrics
22 22a	Laterite with bauxite at places; Laterite with iron ore				Cainozoic	Dark grey, dark brown, pale yellow to yellowish brown, spongy, pisolitic in nature with calcareous concretions at places
21	Sandstone, conglomerate		Chandarpur Group	Chhattisgarh Supergroup	Proterozoic	Sandstone : Purple, fine to medium grained, thickly bedded mostly arenitic, at places ferruginous with shale partings Meso to NeoConglomerate : Thickly bedded, polymictic; consists of sub-angular clasts of quartz, feldspar and lithic fragments
20	Sandstone	Tirathgarh Formation	Indravati Group			White, pinkish grey, medium grained, hard and compact rock
Qv	Quartz veins or reef, pegmatite & aplite				Meso Proterozoic	Quartz vein : white, light grey, light pinkish grey, smoky, medium to coarse grained; sheared at places with silicification and brecciation. Pegmatite : pink, coarse to very coarse grained, hard and compact rock.
Bd	Basic& meta-basic intrusive (Epidiorite)					Greyish to greenish black, medium to coarse grained, massive, hard and compact rock.
19	Meta-basalt	Maspur Formation	Abujmar Group		Palaeo to Meso Proterozoic	Greenish grey, green to dark green, fine to medium grained, hard and compact rock, vesicular at places.
18	Sandstone, shale & conglomerate	Gundal Formation				Light grey to buff, medium to coarse grained sandstone with grey, laminated shale and polymictic conglomerate with arenaceous matrix.
17	Biotite granite,hornblende-biotite granite, amphibole granite & leucogranite		Dongargarh Granite			Pink to grey, fine to very coarse grained, massive, hard and compact rock; composition varies from biotite granite, hornblende-biotite granite, amphibole granite to leucogranite.
16	Gabbro with ultramafic rocks		Nandgaon Group			Green, medium to coarse grained, massive, hard and compact basic rock associated with Ultramafic rocks like dunite, pyroxenite and hornblendite.
15	Meta-basalt (Pitepani Volcanics)	Ainhur Formation				Dull green, greyish black, reddish, aphanitic to medium grained, porphyritic to non-porphyritic, massive, vesicular, hard and compact volcanic rock with flow structures at places.
14	Rhyolitic conglomerate, arkosic wacke					Conglomerate: consists of poorly sorted pebbles and cobbles of granite, gneiss, rhyolite, basic volcanics and vein quartz embedded in the siliceous, clayey and carbonaceous matrix. Arkosic wacke: Dirty white, grey,medium to coarse grained, poorly sorted, hard and compact rock.
13	Acid tuff					Consists of fragments of andesitic basalt, trachyte, glassy lava, quartz, plagioclase, chert and jasper fused in a fine grained glassy matrix.
12	Shale, sandstone, conglomerate					Shale: Yellowish green, grey to brownish grey, hard, splintery, finely laminated, at places ferruginous rock. Sandstone: Yellowish green, grey to brownish grey, fine to medium grained, interbedded with finely laminated greenish shale. Conglomerate: Consists of pebbles of gneiss, quartzite, gabbro, rhyolite, basalt, schist, argillite, quartz and granite embedded in a quartzo-feldspathic matrix.
11	Meta-rhyolite with rhyolitic meta-tuff (Bijli Rhyolite)	Pachangi Formation				Grey to dark grey, greyish brown, fine grained, massive, vesicular, amygdalqidal, at places porphyritic rock with rhyolitic conglomerate and rhyolitic tuff.
10	Ferrugineous shale, phyllite, meta-tuff		Baliadila Group		Palaeo Proterozoic	Buff, cream, mostly hard, ferruginous rock; tuffaceous at places.
9	Banded haematite quartzite (BHQ) BHJ, meta-conglomerate and ferruginous shale with iron ore					BHQ/BHJ: consists of alternate bands of quartz/jasper and iron oxide/ hematite.Ferruginous shale: Yellowish, brownish grey, highly weathered, ferruginous rock; forms alternate rib and groove structures on weathered surface.
8	Orthoquartzite					White to dirty white, medium to coarse grained, well sorted, banded, hard and compact rock
7	Chlorite schist, phyllite, talc-tremolite schist, hornblende schist, meta-volcanic and altered ultramafic					Chlorite schist: Light green with numerous large porphyroblasts of garnet. Phyllite: Greyish green, fine grained, soft rock. Talc-tremolite schist: Dull green, soft, schistose rock. Hornblende schist : Dark greenish grey, medium to coarse grained foliated rock. Ultramafic: Dark grey, fine grained to aphanitic, hard and compact rock
6	Granitic gneiss, migmatite, paragneiss, streaky gneiss, augen gneiss, hornblende gneiss & biotite gneiss with thin schistose bands		Bengpal Group		Archaean	Gneisses: Greyish white to brownish grey, fine to coarse grained rock with crude foliation. Migmatite: comprises leucosome bands (quartz & feldspar) and melanosome bands (biotite & hornblende).
5	Banded magnetite quartzite (BMQ), banded grunerite quartzite, tremolite-actinolite schist					BHQ/BGQ: Consists of alternate bands of quartz and magnetite/ grunerite, platyin nature. Tremolite-actinolite schist: Light coloured, medium grained, hard and compact rock with radiating needles of tremolite.
4	Fuchsite quartzite					Pale green, medium to coarse grained, very hard and compact quartzite with fuchsite mica.
3	Quartzite, pyroxene quartzite, cherty quartzite & ferruginous quartzite					White, brownish white, greenish white, fine to medium grained, massive, hard and compact rock with variants like pyroxene quartzite, cherty quartzite & ferruginous quartzite.
2	Quartz-mica schist, mica schist and andalusite schist					Grey, green, greyish brown, fine to medium grained, soft, fissile mica schist; at places rich in quartz and andalusite.
1	Amphibolite, hornblende schist, meta basics, meta-ultramafic & talc-tremolite schist					Amphibolite/hornblende schist/meta-basic: Dark, greenish grey, medium to coarse grained, well foliated and compact rock. Ultramafic: Bluish grey to dark grey, fine grained; shows differential weathering. Talc-tremolite schist: Dark greenish grey to dull white, schistose with crude to highly developed schistosity.

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