PROPOSAL OF PRELIMINARY EXPLORATION
(G3 STAGE)

FOR BAUXITE, ALUMINOUS LATERITE AND ASSOCIATED CRITICAL MINERALS
IN KHARA EAST BLOCK-A & BLOCK-B

DISTRICT- KABIRDHAM, CHHATTISGARH

Part of Toposheet No. 64C/13

(NMET PROJECT)

STRATEGIC & CRITICAL MINERALS/ INDUSTRIAL

80th TCC Meeting (28-29 August 2025)

DIRECTORATE OF GEOLOGY AND MINING
CHHATTISGARH

PRELIMINARY EXPLORATION (G3 STAGE) FOR BAUXITE, ALUMINOUS LATERITE AND ASSOCIATED CRITICAL MINERALS IN KHARA EAST BLOCK-A & BLOCK-B, TEHSIL-BODLA, DISTRICT-KABIRDHAM, CHHATTISGARH

	Features		**Details**	
	Block ID		Khara East Block-A & Block-B	
	Exploration Agency		DGM	
	Previous Exploration Agency		DGM	
	G4 stage Geological Report (Previous stage Geological Report)		Submitted	
	Commodity		Bauxite, Laterite & associated Vanadium, Gallium & Scandium (Strategic and Critical Minerals)	
	Mineral Belt		Chilpi Group	
	Completion Period with entire Time schedule to complete the project		10 months	
	Objectives		To explore the area of bauxite and aluminous laterite associated with Vanadium, Gallium and Scandium (strategic and critical minerals), their areal extension, quality of bauxite, grade and assessment of the mineral resources of the block.	
	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		As the topography consists of hills mounds and valley in the area, the drilling is to be outsourced.	
	Name/ Number of Geoscientists Expected Field days (Geology)		02 Nos.	
	Geological Party Days		120 days	
1.	**Location**			
	Khara East Block A	Latitude	21° 50' 26.967" N to 21° 50' 47.603" N	
		Longitude	80° 51' 51.398" E to 80° 52' 51.618" E	
	Khara East Block B	Latitude	21° 51' 39.779" N to 21° 52' 9.653" N	
		Longitude	80° 52' 34.461" E to 80° 53' 20.291" E	
	Villages		Khara, Dongariya, Newaspur	
	Tehsil/ Taluk		Bodla	
	District		Kabirdham	
	State		Chhattisgarh	
2.	**Area (hectares/ square kilometres)**			
	Block Area		Block A	1.00 Sq. km.
			Block B	1.00 Sq. km.

	Forest Area	2.00 Sq. km. in Protected forest of Khara Range in Kawardha Circle
	Government Land Area	After DGPS survey
	Private Land Area	After DGPS survey
3.	**Accessibility**	
	Nearest Rail Head	Rajnandgaon
	Road	Gandai -Salhewara-Lohara-Kawardha
	Airport	Raipur
4.	**Hydrography**	
	Local Surface Drainage Pattern (Channels)	Dendritic Drainage Pattern
	Rivers/ Streams	Banjar River/Jatla nala
5.	**Climate**	
	Mean Annual Rainfall	1000-1200 mm
	Temperatures (December) (Minimum)	8^0 C
	Temperatures (June) (Maximum)	45^0 C
6.	**Topography**	
	Toposheet Number	64C/13
	Morphology of the Area	Mostly hilly area
7.	**Availability of baseline geoscience data**	
	Geological Map (1:50K/ 25K)	50K maps available
	Geochemical Map	NGCM data available
	Geophysical Map (Aeromagnetic, ground geophysical, Regional as well as local scale GP maps)	Not Available
8	**Justification for taking up Reconnaissance Survey**	

1. In the proposed study area, DGM has carried out G-4 stage reconnaissance survey for iron ore in F.S. 2024-25.The proposed area falls under Chilpi Group of rock. During the course of survey in Khara block laterite and bauxite capping has been demarcated in the area.

2. **Block-A:** 07 Nos. of bauxite and laterite surface sample were collected and analysed.

   Analytical data of samples collected indicates the presence of bauxite and laterite. In bauxite Al_2O_3 varies from **31.46%** Al_2O_3 (**min**) and **52.50 %** Al_2O_3 (**max**).

   The presence of Vanadium and Gallium values in laterite and bauxite seen more than the cut-off value of **V_2O_5 (**0.05%) and **Ga_2O_3 (**0.003%) respectively.

   The value of Vanadium ranging from 0.077% to 0.355% with **average 0.199% V_2O_5**. The value of Gallium ranging from 0.005% to 0.011% with **average 0.008% Ga_2O_3**. Apart from this, Scandium values

	are also very encouraging **(30-42 mg/kg or ppm)** in the block. 3. **Block-B:** 17 Nos. of bauxite and laterite surface sample were collected and analysed. Analytical data of samples collected indicates the presence of bauxite and laterite. In bauxite Al_2O_3 varies from **20.76%** Al_2O_3 (**min**) and **57.01%** Al_2O_3 (**max**). The value of Vanadium ranging from 0.03% to 0.241% with **average 0.17% V_2O_5**. The value of Gallium ranging from 0.002% to 0.008% with **average 0.005% Ga_2O_3**. Apart from this, Scandium values are also very encouraging **(15-35 mg/kg or ppm)** in the block. 4. Considering the more than cut-off value of the Vanadium, Gallium and Scandium in bauxite and laterite, about 1.00 sq. km. area for each Block-A & Block-B, total 2.00 sq. km. area demarcated for formulation of G-3 stage exploration. 5. During the course of G-4 exploration in Gopaltola iron ore block about 12.15m. of bauxite struck in borehole no. PBH-4. The **Al_2O_3** varies from 35.26% to 49.72% **(Avg.: Al_2O_3% 42.04).** 6. The exploration will be helpful in estimation of preliminary mineral resources (333) of Bauxite and associated critical and strategic minerals in the block area. 7. A recent exploration by Geological Survey of India (GSI) has found reserves of vanadium in Arunachal Pradesh. Concentration of vanadium have been found in the palaeo-proterozoic carbonaceous phyllite rocks in the Depo and Tamang areas of Papum Pare district in Arunachal Pradesh. This is the first report of a primary deposit of vanadium in India with an **average grade of 0.76% V2O5 (vanadium pentoxide).**

DETAILED DESCRIPTION ON THE FOLLOWING TITLES

1. BLOCK SUMMARY

PHYSIOGRAPHY:

Prominent river of the area is Banjar that is flowing towards west along Chhattisgarh-Madhya Pradesh State border. The maximum elevation of this area is 741 MSL (approx). The physiography of the exploration block is mostly hilly terrain. The area lies in protected forests of Khairagarh forest division.

CLIMATE:

The area receives about 90% of its total rainfall during SW monsoon which extends from June to October. The average rainfall is around 1200 mm. The temperature rises upto 45°C during summer. During pleasant winter months (November to February) the temperature goes down to 8°C.

FLORA AND FAUNA:

The area consists of protected forests. Major crop of this area is paddy however some amount of wheat, pulses vegetables and oilseeds are also grown at places.

In the forest, the chief floral species are Sal (Bosewellia Serrate), Saja (Tharaminalia_tomantosa), Mahua (Basialatifolia), Bija (Pterocarpusmarsupium), Tendu (Diospyrosmalapokyon), Bahera (ThamanalirBelerica), Mango (MangaferaIndica) etc.

The wild life at present is scanty and important fauna are Monkey - emipithecusentekus (Bendra), Spotted deer - Cervus axis (Chital), Wild Boar, Leopard (Pantherapardusfusca), Bear, Hyena etc.

BACKGROUND GEOLOGY

Regional Geology:

Regionally the area is dominantly occupied by the rocks of Chilpi Group forming the northern part of Kotri - Dongargarh Belt. Chilpi Group is underlain by Nandgaon Group of rocks and a major part of older rocks are covered under the blanket of Deccan Trap. Unmetamorphosed Chandarpur and Raipur Groups of rock are juxtaposed with Chilpi Group in eastern part along the down-dip direction.

The stratigraphy of the area after Tripathi et al. (1974) and modified later by Das Gupta et al. (1981) is as follows :-

Age	Supergroup/Group/ Formation		Lithounits
Recent			Alluvium
Cenozoic			Laterite with bauxite
Up. Cretaceous to Lr. Palaeocene	Deccan Trap		Basaltic lava flows
Cretaceous	Lameta Group		Limestone, arkosic sandstone, calcareous & conglomeratic sandstone and clay at places.
Meso to Neo Proterozoic	Chhattisgarh Supergroup: Raipur Group	Maniari Fm.	Siltstone and shale with lenses of dolomite, dolomitic limestone and gypsum.
		Hirri Fm.	Grey bedded dolomite with chert layers and nodules.
		Tarenga Fm.	Shale, argillaceous limestone and dolomitic limestone.
		Chandi Fm.	Stromatolytic limestone, dolomitic limestone and shale intercalation
		Gunderdehi Fm.	Calcareous shale with feldspathic sandstone intercalations
	Chhattisgarh Supergroup: Chandarpur Group		Glauconitic arenite, arkose and conglomerate.
Meso-Proterozoic	Intrusives		Quartz veins/reefs
			Basic dyke
	Chilpi Group		Quartzite, shale, slate, phyllite, argillite, ferruginous sandstone, limestone, jasperoid, BHQ, BMQ, jaspilite, ferruginous shale, crystalline limestone & dolomite with basal conglomerate
Palaeo-Proterozoic	Malanjkhand Granitoids		Hornblende bearing granodiorite, biotite granite
	Nandgaon Group		Meta-basalt, meta-andesite and meta-rhyolite
Basement rock: Amgaon Gneiss (?)			

Local Geology:

The local geology of the proposed area is tabulated as under: -

Age	Supergroup/ Group/Formation	Lithounits
Recent to Sub-recent		Laterite/Bauxite/Lateritic Iron ore/ Ferruginous Laterite
Meso-Proterozoic	Chilpi Group	Slaty shale

Mineral potentiality based on geology, geophysics, ground geochemistry etc.

Block- A During large scale mapping of Khara area F.S. 2024-25, 07 No. of bauxite and laterite surface samples with max 52.50% Al_2O_3 and min 31.46% Al_2O_3 were marked in and around proposed area.

Chemical analysis of these 07 No. of samples shows **V_2O_5 ranging from 0.077% to 0.355% with average 0.199% V_2O_5 and Ga_2O_3 ranging from 0.005% to 0.011% with average 0.008% Ga_2O_3 in the area**. Apart from this, Scandium values are also very encouraging **(30-42 mg/kg or ppm)** in the block.

Block-B During large scale mapping of Khara area F.S. 2024-25, 17 No. of bauxite and laterite surface samples with max 57.01% Al_2O_3 and min 20.76% Al_2O_3 were marked in the proposed area.

Chemical analysis of these 17 No. of samples shows **V_2O_5 ranging from 0.030% to 0.241% with average 0.17% V_2O_5 and Ga_2O_3 ranging from 0.002% to 0.008% with average 0.005% Ga_2O_3 in the area**. Apart from this, Scandium values are also very encouraging **(15-35 mg/kg or ppm)** in the block.

Scope for proposed exploration

The exploration will be helpful in estimation of preliminary mineral resources (333) of Bauxite & Aluminous laterite & associated Vanadium, Gallium and Scandium (critical and strategic minerals) present in the area.

Observation and recommendation of previous work-

The previous data available of the area indicate the presence of bauxite in the area.

The Objective of the proposed exploration program

i. Work will start with detailed mapping within the blocks with 1: 4000 scale.
ii. Surface sampling will be done during the course of mapping.
iii. Chemical analysis of all the surface samples will be done.
iv. On the basis of chemical analysis, enriched zones of bauxite, laterite and other associated critical and strategic minerals will be demarcated.
v. After review by NMEDT, location point of borehole will be proposed.
vi. Drilling will be carried out after detailed geological mapping as per “The Mineral (Evidence of mineral content) Rule 2015.
vii. Chemical analysis of all the borehole samples will be done.
viii. 10% of the total samples will take as check samples will be analyzed at other laboratory.

2. PREVIOUS WORK

Previous exploration in the proposed block area -

In the proposed area, bauxite and laterite has been demarcated in the area during exploration of Iron Ore in Khara Area (G-4 level) Tehsil-Bodla District-Kabirdham, F.S. 2024-25". Large scale mapping on 1:12500 scale was carried out in the proposed block A & B.

Block-A: A total of 07 no. of bauxite and laterite samples were drawn from proposed block A with max 52.50% Al_2O_3 and min 31.46% Al_2O_3. Analytical results of bedrock samples collected during LSM around Khara East Block-A is tabulated below:

Sample No.	SiO_2%	Fe_2O_3%	Al_2O_3%	V_2O_5 %	Ga_2O_3 %	Sc mg/kg
KHR-2	6.46	21.00	43.58	0.211	**0.011**	-
KHR-3	1.74	44.60	**31.46**	**0.077**	0.007	-
KHR-4	2.98	11.00	**52.50**	0.190	0.010	**41.73**
KHR-7	9.22	34.00	32.34	0.097	0.006	-
KHR-12	1.18	47.60	33.60	**0.355**	**0.005**	**35.41**
KHR-15	22.60	26.30	39.40	0.262	0.010	**30.51**
KHR-19	25.46	5.80	40.00	0.199	0.008	-
Average	9.95	27.19	38.98	0.199	0.008	-

Block-B: A total of 14 no. of bauxite and laterite samples were drawn from proposed block B with with max 57.01% Al_2O_3 and min 33.45% Al_2O_3. Analytical results of bedrock samples collected during LSM around Khara East Block-B is tabulated below:

SampleNo	SiO_2%	Fe_2O_3%	Al_2O_3%	TiO_2%	V_2O_5%	Ga_2O_3%	Sc mg/kg
KHR-39	2.15	9.66	**55.50**	4.55	0.13	0.005	**14.46**
KHR-40	4.56	27.31	**43.23**	3.66	0.17	0.004	-
KHR-41	2.29	13.26	**54.32**	4.75	0.21	0.006	-
KHR-42	1.56	23.39	**46.78**	5.30	0.23	0.006	**35.28**
KHR-43	0.07	8.41	**56.81**	7.05	0.15	0.003	-
KHR-44	6.92	36.90	**34.21**	4.78	0.19	0.004	-
KHR-45	11.79	50.99	22.13	1.92	0.12	0.004	-
KHR-46	5.84	43.79	30.22	2.80	0.15	**0.008**	**21.49**
KHR-47	0.78	65.81	**20.76**	2.25	**0.03**	0.004	-
KHR-48	1.83	33.99	**40.30**	4.04	0.10	0.004	-
KHR-49	0.87	19.18	**49.75**	6.44	0.23	0.005	**25.28**
KHR-50	0.84	12.93	**55.05**	5.08	0.23	0.004	-
KHR-51	0.22	16.39	**52.96**	5.84	0.20	0.005	-
KHR-52	1.38	5.78	**57.01**	8.31	0.17	0.003	-
KHR-53	0.38	9.14	**55.91**	8.12	**0.24**	0.004	**33.25**
KHR-54	6.16	39.93	**33.45**	3.62	0.18	0.005	-
KHR-55	2.23	9.96	**55.01**	4.94	0.17	0.002	-

3. BLOCK DESCRIPTION

Coordinates of corner point of Khara East Block-A		
Corner Point	Latitude	Longitude
A	21° 50' 47.428" N	80° 51' 51.425" E
B	21° 50' 47.603" N	80° 52' 51.618" E
C	21° 50' 28.366" N	80° 52' 51.460" E
D	21° 50' 28.114" N	80° 52' 31.700" E
E	21° 50' 33.145" N	80° 52' 31.732" E
F	21° 50' 26.967" N	80° 52' 10.577" E
G	21° 50' 26.984" N	80° 51' 51.398" E

Coordinates of corner point of Khara East Block-B		
Corner Point	Latitude	Longitude
A	21° 52' 9.653" N	80° 52' 34.461" E
B	21° 52' 7.479" N	80° 53' 20.291" E
C	21° 51' 45.942" N	80° 53' 17.423" E
D	21° 51' 39.779" N	80° 52' 34.461" E

4. PLANNED METHODOLOGY

In accordance to the objectives for the block, the exploration programme is formulated. The exploration shall be carried out as per Minerals (Evidence of Mineral Contents) Rule-2015 as amended. Accordingly, the following scheme of exploration is formulated in order to achieve the objectives. The following work components have been included in their respective heads as mentioned below: -

A. Detailed Geological Mapping:

Detailed Geological mapping will be carried out on 1:4000 scale in the proposed area. Rock types, their contact and structural features will be mapped. Surface manifestations of the mineralized zones will be marked on map. Samples of various litho-units for petrological studies and chemical analysis from outcrops will be taken during the course of geological mapping.

B. Surveying:

The block boundary will be surveyed by Total Station or DGPS in WGS-84 datum for demarcation of block boundary points. Survey party will be associated with bed rock sample collection by taking up the points and plotting its location on map for proper interpretation of the sample data and will also be associated with Geological Mapping and the litho-contacts will be plotted for finalization of Geological map on 1:4000 scale. During drilling, borehole fixation and determination of reduced level and co-ordinates of the boreholes will be undertaken. Contouring of the areas would be done on 1m contour intervals along with survey of surface features if mineralized zones are identified.

C. Drilling: 12 nos. of borehole. (400*400 m grid)

C.1 Drill Core Logging: 250 metre
C.2 Drill Core Sampling: 250 nos.

D. Sample collection and analysis

D.1 Whole Rock Analysis: As required

D.2 Petrological & Mineralogical Studies:

From the samples collected during the course of detailed mapping and drilling, 05 samples from various lithounits will be studied for petrography and 05 samples from mineralized zones will be studied for the ore mineral assemblages, their distribution, alteration and enrichment etc. in polished sections.

5. NATURE, QUANTUM AND TARGET

Following work component are proposed in the Khara East Block-A & Block-B, District – Kabirdham, Chhattisgarh.

S. No.	ITEM OF WORK	QUANTUM OF WORK
1	Detailed Geological Mapping (1:4000)	2.00 km^2
2	Topographical survey (1:4000)	2.00 km^2
3	Drilling	12 boreholes (400*400 m) 250 meters
4	Sampling work	
	a) Surface sample	50 Nos.
	c) Core sampling	250 Nos.
5.	Laboratory studies	
	Surface sampling analysis	50 No.
	Core samples analysis	250 Nos.
	Check sample	30 Nos.
	Composite Sample	12 Nos.
6	Physical studies	
	Petrological studies	5 Nos.
	Mineralogical studies	5 Nos.
	Bulk density/Specific Gravity study	5 Nos.
	Report preparation	As per Minerals (Evidence of Mineral Contents) Rules 2015 (as amended)

6. TIME SCHEDULE FOR THE PROPOSED WORK

Time Schedule/ Action Plan for Preliminary Exploration (G3) for Bauxite, Aluminous Laterite and Associated Critical Minerals in Khara East Block-A & Block-B, Kabirdham District, Chhattisgarh											
Item of work	**1**	**2**	**3**	**4**		**5**	**6**	**7**	**8**		**9**	**10**
Camp setup												
Geological mapping												
Surveying / Contouring												
Sample Analysis												
Review for drilling												
Forest Permission for Drilling					**Review**					**Review**		
Drilling												
Sample preparation												
Geologist party days for mapping and sampling												
Analytical work												
Camp winding												
Geological report												

Reference:

1. Geology and Mineral Resources of Chhattisgarh, miscellaneous publication no. 30 part XXI, Third revised edition, 2013.
2. Exploration of Iron Ore in Khara Area (G-4 level) Tehsil- Bodla, District-Kabirdham, F.S. 2024-25,

List of Enclosures:

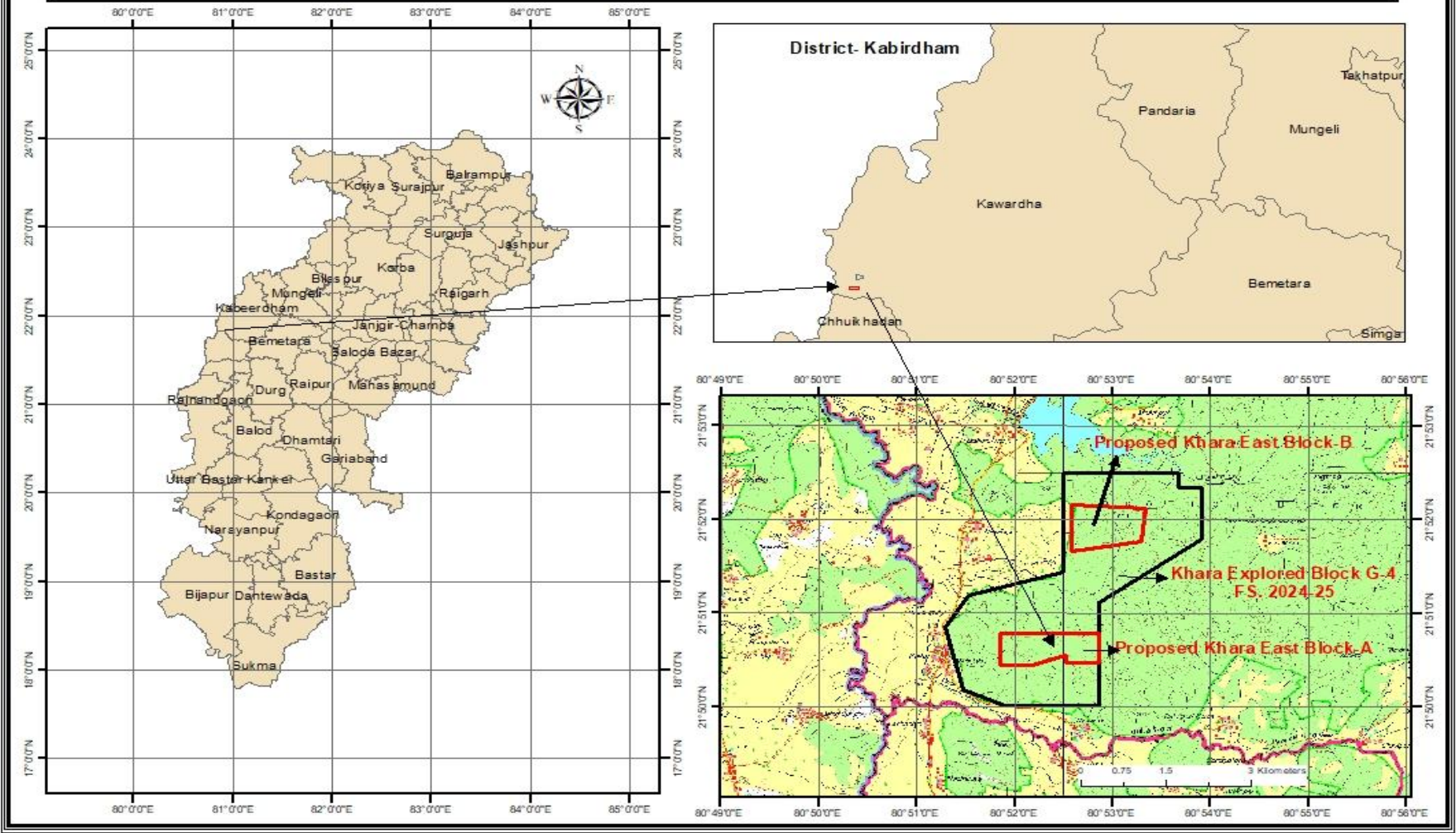
1. Location Map of Khara East Block-A & Block-B, Tehsil- Bodla, District- Kabirdham, Chhattisgarh (Part of Toposheet No. 64 C/13)
2. Borehole Plan of Khara East Block-A & Block-B in Part of Toposheet No. 64 C/13.
3. Borehole Plan of Khara East Block-A & Block-B in 50K Map

Mahendra Kumar Chandrawanshi
Assistant Geologist

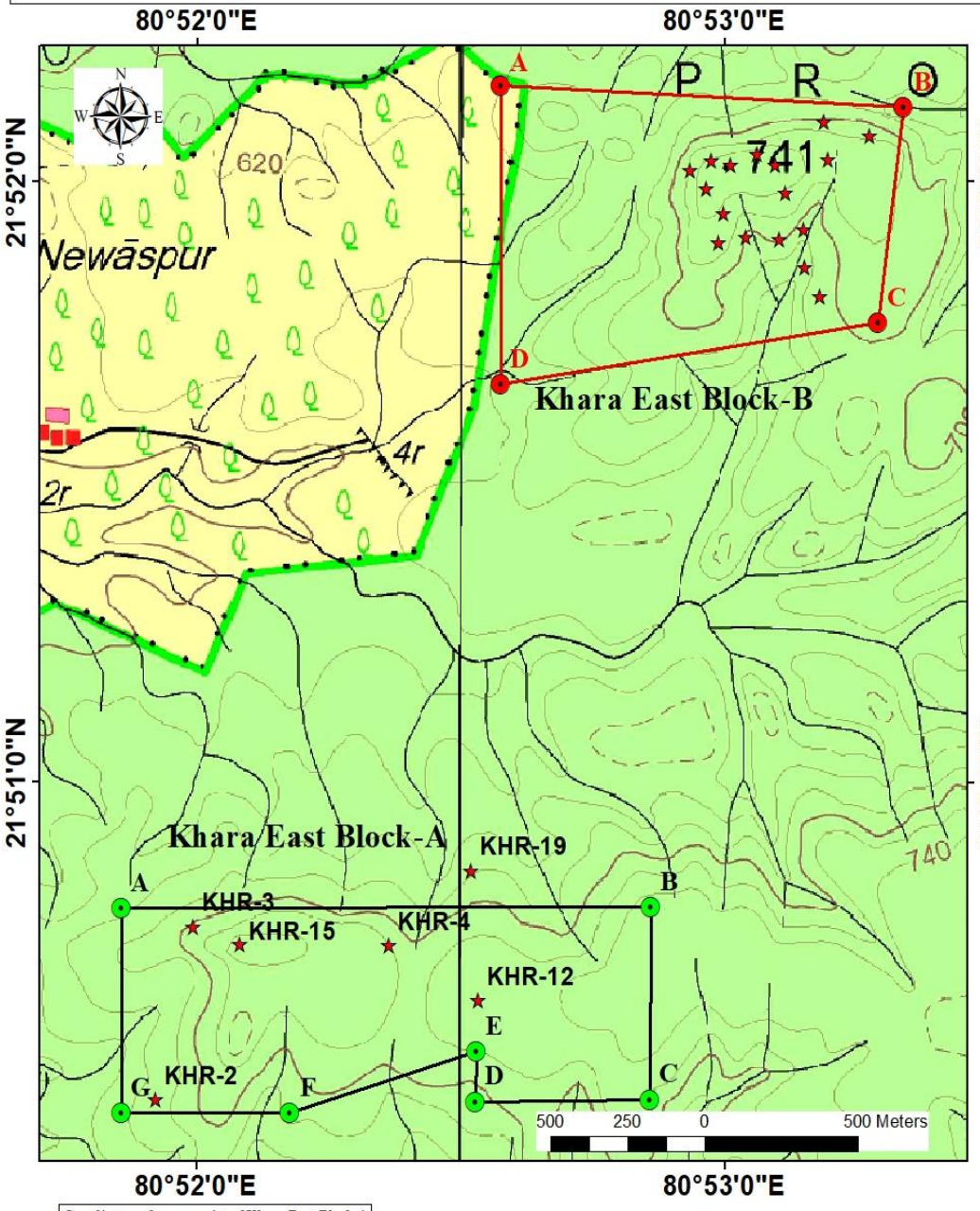
Mandeep Singh
Assistant Geologist

Narendra Kumar Nishad
Asssistant Geologist

LOCATION MAP OF KHARA EAST BLOCK,
Tehsil- Bodla, District- Kabirdham, Chhattisgarh
Part of Toposheet No. 64C/13



KHARA EAST BLOCK-A & BLOCK-B,
TEHSIL- BODLA, DISTRICT- KABIRDHAM,
PART OF TOPOSHEET NO. 64 C/13
AREA- 2.00 SQ. KM. (1+1)



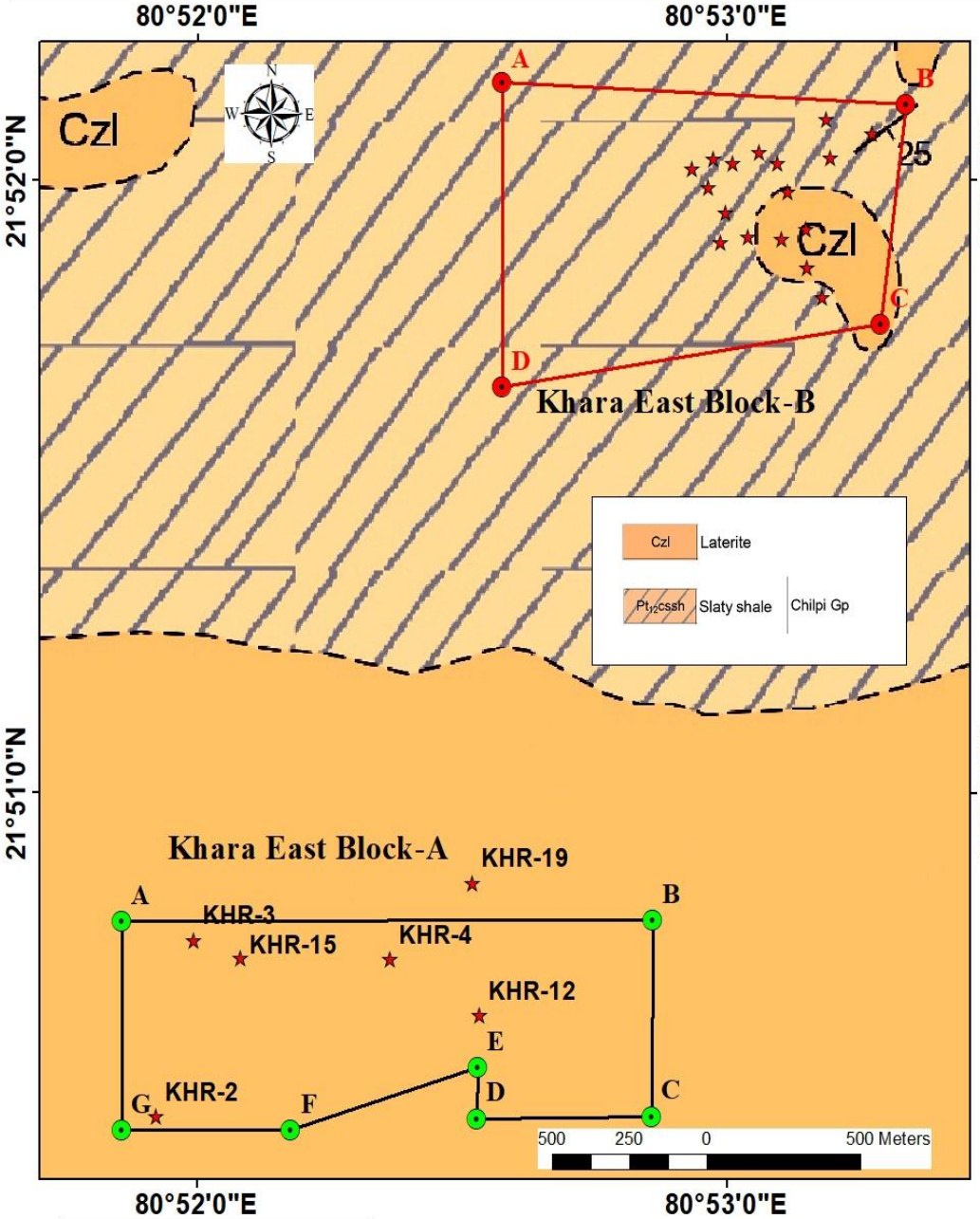
Coordinates of corner point of Khara East Block-A		
Corner Point	Latitude	Longitude
A	21° 50' 47.428" N	80° 51' 51.425" E
B	21° 50' 47.603" N	80° 52' 51.618" E
C	21° 50' 28.366" N	80° 52' 51.460" E
D	21° 50' 28.114" N	80° 52' 31.700" E
E	21° 50' 33.145" N	80° 52' 31.732" E
F	21° 50' 26.967" N	80° 52' 10.577" E
G	21° 50' 26.984" N	80° 51' 51.398" E

Coordinates of corner point of Khara East Block-B		
Corner Point	Latitude	Longitude
A	21° 52' 9.653" N	80° 52' 34.461" E
B	21° 52' 7.479" N	80° 53' 20.291" E
C	21° 51' 45.942" N	80° 53' 17.423" E
D	21° 51' 39.779" N	80° 52' 34.461" E

Legend

- Sample location
- Khara East Block- A
- Corner Point of Khara East Block-A
- Khara East Block- B
- Corner point Khara East Block-B

KHARA EAST BLOCK-A & BLOCK-B,
TEHSIL- BODLA, DISTRICT- KABIRDHAM,
PART OF TOPOSHEET NO. 64 C/13
AREA- 2.00 SQ. KM. (1+1)



Coordinates of corner point of Khara East Block-A		
Corner Point	Latitude	Longitude
A	21° 50' 47.428" N	80° 51' 51.425" E
B	21° 50' 47.603" N	80° 52' 51.618" E
C	21° 50' 28.366" N	80° 52' 51.460" E
D	21° 50' 28.114" N	80° 52' 31.700" E
E	21° 50' 33.145" N	80° 52' 31.732" E
F	21° 50' 26.967" N	80° 52' 10.577" E
G	21° 50' 26.984" N	80° 51' 51.398" E

Coordinates of corner point of Khara East Block-B		
Corner Point	Latitude	Longitude
A	21° 52' 9.653" N	80° 52' 34.461" E
B	21° 52' 7.479" N	80° 53' 20.291" E
C	21° 51' 45.942" N	80° 53' 17.423" E
D	21° 51' 39.779" N	80° 52' 34.461" E

Legend

- Sample location
- Khara East Block- A
- Corner Point of Khara East Block-A
- Khara East Block- B
- Corner point Khara East Block-B

COST ESTIMATION FOR G-3 STAGE EXPLORATION IN KHARA EAST BLOCK-A & BLOCK-B

S. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Total		Remark
			SoC Item - S. No.	Rates as per SoC	Qty.	Amount	
A.	**GEOLOGICAL WORK**						
1	Survey Party Days (1 party)	Day	1.6.1a	8300	30	249000	
2	Labour charges for Survey work	Per Labour	5.7	541	120	64920	
3	Geologist Party Days (1 Party) Field	Day	1.3	11000	0	0	
4	Geologist Party Days (1 Party) HQ	Day	1.3	9000	0	0	
5	Labour charges for Geological Field work	Per Labour	5.7	541	240	129840	
6	Sampler Days	Day	1.5.2	5100	70	357000	
7	Labour for Sampling	Per Labour	5.7	541	280	151480	
8	DGPS survey for BH fixation & RL determination	Per point of observation	1.6.2	19200	23	441600	12 BH + 11 cardinal point
	Sub Total A					**1393840**	
B.	**DRILLING**						
1	Surface drilling (2 rigs)	Meter	2.2.1.3a	10100	250	2525000	
2	Road making (Rugged-Hilly terrain)	Per km	2.2.10b	32200	10	322000	as per actual
3	Transportation (2 rigs)	Per km	2.2.8	36	640	23040	
4	Monthly Accommodation charges for drilling camp	Monthly basis	2.2.9	50000	2	100000	for 2 rigs 1 month each
5	Drilling Camp Establishment Cost	Per Drill	2.2.9a	250000	2	500000	
6	Drilling Camp Winding Cost	Per Drill	2.2.9b	250000	2	500000	
7	Drill Core Preservation	Per Meter	5.3	1590	250	397500	
	Sub Total B					**4367540**	
C.	**LABORATORY STUDIES**						
a	Bulk density	per sample	4.8.1	1605	5	8025	
b.	Chemical Analysis						
1	Primary + Check Samples						
	(i) Primary Samples (SiO_2, Al_2O_3, Fe_2O_3, TiO_2, V_2O_5, Ga_2O_3 & LOI)	per sample	4.1.15a	4200	300	1260000	50 Nos. BRS sample and 250 Nos. core samples

	(ii) For Check Samples (SiO2, Al2O3, Fe2O3, TiO2, V2O5, Ga2O3 & LOI)	per sample	4.1.15a	4200	30	126000	
	(iii) Composite Samples (SiO_2, Al_2O_3, Fe_2O_3, TiO_2,V_2O_5, Ga_2O_3 & LOI)	per sample	4.1.15a	4200	12	50400	Per BH
	(iv) Analysis of rock/soil sample for 34 elements by ICP-MS (REE & other)	per sample	4.1.14	7,731	200	1546200	50 Nos. surface sample and 150 Nos. core samples
	(vi) Combined determination of Trihydrate alumina(THA-144° C), Monohydrate alumina(MHA-240° C) & reactive silica	per sample	4.1.17a	6700	12	80400	
c	Petrological study						
	(i) Preparation of standard thin section	per sample	4.3.1	2353	5	11765	
	(ii) Petrological study	per sample	4.3.4	4232	5	21160	
	Sub Total C					**3103950**	
D.	**Total A + B + C**				-	**8865330**	
E.	Peer review					**30000**	
	Preparation of exploration proposal	One Number (5 Hard copies along with soft copy)	5.1	2% of the project cost or Rs 3.8 lakh whichever is lower	1	**1,77,307**	
	Geological Report Preparation	Copy per 5 Hard copies of report along with soft copy	5.2	For the projects having cost upto Rs 150 lakhs : A Minimum of Rs.2.5 lakhs or 5% of the value of work whichever is more	1	**4,43,267**	
	Sub Total E					**650573**	
F.	**Grand Total D+E**					**9515903**	
	GST 18%					**1712863**	
G	**Grand Total: with GST 18%**					**11228766**	
						Say 112.28 Lakhs	