

Ref. No: MAPL/NMEDT/DPR/26-27/05

Date: 05.06.2026

To,
The Director & HOD
NMEDT
Ministry Of Mines
9th Floor,
Jeevan Prakash LIC Building,
Kasturba Gandhi Marg,
NEW-DELHI-110001

Subject: Submission of Detailed Proposal for Reconnaissance Survey (G4 Stage) at Rangasgre Dajugre Bauxite Block in West Garo Hills District, Meghalaya State.

Respected Sir,

We are pleased to submit the Detailed proposal for Reconnaissance Survey (G4 Stage) at Rangasgre-Dajugre Bauxite/Aluminous Laterite and associated Critical Minerals Block (70.97 Sq. Km.) in West Garo Hills District, Meghalaya State.

The In Principle Approval was accorded in the 93rd TCC-I meeting. We reaffirm our continued commitment to NMEDT and assure diligent and timely execution of the proposed exploration program.

Thanking You,

For Mining Associates Private Limited



Indranil Bhattacharjee
(GM -Projects & Planning)

MINERAL EXPLORATION PROJECT PROPOSAL
FOR
RECONNAISSANCE SURVEY (G4) FOR BAUXITE/ALUMINOUS
LATERITE AND ASSOCIATED CRITICAL MINERALS IN RANGSAGRE-
DAJUGRE BLOCK NEAR THE VILLAGES RANGSAGRE AND DAJUGRE,
DISTRICT- WEST GARO HILLS, STATE – MEGHALAYA.

(70.97 SQ. KM.)

UNDER NMEDT

(T.S. No. 78K/01)

Commodity-BAUXITE /ALUMINOUS LATERITE AND ASSOCIATED
CRITICAL MINERALS



(Date of Submission: 5th June, 2026)

Submitted by:

MINING ASSOCIATES PVT. LTD.
Plot no. 110, Main Dhemo,
Beside Railway Siding,
P.O. Sitarampur, Asansol,
Dist. Paschim Bardhaman,
WEST BENGAL- 713359.

To,

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

INDEX

SL.NO	CONTENTS
A	SUMMARY OF THE BLOCK FOR G4 STAGE EXPLORATION
B	DETAILED DESCRIPTION OF THE PROJECT
1	BLOCK SUMMARY
2	PREVIOUS WORK
3	BLOCK DESCRIPTION
4	PROPOSED/PLANNED METHODOLOGY
5	NATURE AND QUANTUM OF THE WORK
6	TIME SCHEDULE
7	MANPOWER DEPLOYMENT
8	BREAK UP OF EXPENDITURE
9	JUSTIFICATION
10	REFERENCES

LIST OF FIGURES

SL.NO	CONTENTS
1.	Figure-I: Proposed Block superimposed on Geological Map
2.	Figure-II: Composite Map of Proposed Block and GSI's 2024-25 and 2025-26 Blocks

LIST OF PLATES

SL.NO	CONTENTS
1.	Location Map of the Block (Plate No-I)
2.	Location of Block on Google image (Plate No-II)
3.	Location of the Block on Toposheet (Plate No-III)
4.	NGDR Stream Sediment Al ₂ O ₃ Anomaly Map (Plate No-IV)
5.	NGDR Stream Sediment TREE Anomaly Map (Plate No-V)

SUMMARY OF THE BLOCK FOR G4 STAGE EXPLORATION

	Features	Details
	Block ID	Rangsagre-DajugreBlock (70.97 Sq. Km.)
	Exploration Agency	Mining Associates Pvt. Ltd.
	Commodity	Bauxite/Aluminous Laterite and associated Critical Minerals (REE, Ga, Nb, V and Ti)
	Mineral Belt	Laterite–Bauxite Bearing Terrain of West Garo Hills developed over the Assam–Meghalaya Gneissic Complex (AMGC).
	Completion Period with entire Time Schedule to complete the project	12 Months with review after 3 rd , 6 th and 9 th months. Project Cost: 157.96 lakhs.
	Objectives	1. To assess the Bauxite/Aluminous Laterite potential within the proposed Rangsagre–Dajugre Block, West Garo Hills District, Meghalaya and delineate favourable lateritic and bauxitic zones developed over the Assam–Meghalaya Gneissic Complex (AMGC). 2. Preparation of Large-Scale Geological Map at 1:12500 scale to demarcate various litho units like Bauxite, aluminous laterite, gneisses, basalt, granitoids etc. with their structural manifestations. 3. Collection of 150 Bedrock/Chip samples from Bauxite/aluminous laterite bearing zones. 4. Pitting for delineating Bauxite/aluminous laterite zones prior to scout borehole drilling. 5. To generate reliable baseline geochemical data for Al₂O₃, SiO₂, Fe₂O₃, TiO₂, LOI and associated critical minerals. 6. To prove the occurrences of Bauxite zones and delineate the depth continuity of it by planning systematic scout boreholes according to the MEMC norms. 7. To establish the spatial continuity, thickness variation, lateral extent and quality of Bauxite horizons through pitting and scout drilling, sampling and laboratory studies in order to delineate the Bauxite Resources at G-4 (334) level in the block as per UNFC norms. 8. To generate integrated geological, geochemical and analytical datasets for assessment of mineral potential.

		9. To evaluate the distribution and enrichment pattern of associated critical and strategic minerals including REE, Ga, Nb, V and Ti within the lateritic profile. 10. To carry out exploration and identify prospective target zones for further detailed exploration as per MEMC Rules, 2015, Mineral Auction Rules-2015, MMDR Act - 2015 and UNFC guidelines to facilitate the Govt. of Gujarat for auctioning 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	All work will be done by MAPL.															
	Name/Number of Geoscientists	2 Geologist (Field) + 1 Geologist (HQ)															
	Expected Field days (Geology, Geophysics, Surveyor)	a. Geologist:60 Field Days + 40 HQ Days b. Surveyor:30 Days															
1.	Location	The proposed block falls in SOI Toposheet No. 78K/1 and covers a total area of 70.97 Sq. Km.															
	Boundary Coordinates of Proposed Block	<table border="1"> <thead> <tr> <th>Points</th><th>Latitude</th><th>Longitude</th></tr> </thead> <tbody> <tr> <td>A</td><td>25°53'3.08"N</td><td>90°10'7.68"E</td></tr> <tr> <td>B</td><td>25°53'8.45"N</td><td>90°14'46.83"E</td></tr> <tr> <td>C</td><td>25°48'12.13"N</td><td>90°14'53.70"E</td></tr> <tr> <td>D</td><td>25°48'6.77"N</td><td>90°10'14.74"E</td></tr> </tbody> </table>	Points	Latitude	Longitude	A	25°53'3.08"N	90°10'7.68"E	B	25°53'8.45"N	90°14'46.83"E	C	25°48'12.13"N	90°14'53.70"E	D	25°48'6.77"N	90°10'14.74"E
Points	Latitude	Longitude															
A	25°53'3.08"N	90°10'7.68"E															
B	25°53'8.45"N	90°14'46.83"E															
C	25°48'12.13"N	90°14'53.70"E															
D	25°48'6.77"N	90°10'14.74"E															
	Villages	Rangsagre and Dajugre															
	Tehsil / Taluk	Tikrikilla and Dadenggiri															
	District	West Garo Hills															
	State	Meghalaya															

2.	Area (hectares/square kilometers)	
	Block Area	70.97 sq. km.
	Forest Area	--
	Government Land Area	--
	Private Land Area	--
3.	Accessibility	
	Nearest Rail Head	Nearest major railway stations: Dhubri (Assam), 40-50 km and Guwahati (Assam).
	Road	A motorable road traverses the central part of the block through Debaragiri–Domselsgiri–Levatangiri–Rangsagre–Balsagiri villages. Several village roads and tracks provide access to different parts of the block. The area is approachable throughout most of the year, except during periods of intense monsoon rainfall. The block is connected to the regional road network through Tikrikilla and NH-217.
	Airport	Rupsi Airport (40 km) Major Airport: Lokpriya Gopinath Bordoloi International Airport, Guwahati

4.	Hydrography	
	Local Surface Drainage Pattern (Channels)	The drainage pattern is sub-dendritic to dendritic in nature
	Rivers / Streams	Numerous seasonal streams traverse the block and ultimately drain into the Ringa River system.
5.	Climate	
	Mean Annual Rainfall	4850 mm
	Temperatures (December)(Minimum) Temperatures (June) (Maximum)	Minimum-12 ⁰ C Maximum-35 ⁰ C
6.	Topography	
	Toposheet Number	78K/01
	Morphology of the Area	Undulating to moderately rugged terrain comprising laterite-capped plateau remnants, hilltops, ridges and dissected valleys with sub-dendritic drainage.
7.	Availability of baseline geosciences data	
	Geological Map (1:50K)	Attached (refer Plate No.-IV)
	Geochemical Map	Available
	Geophysical Map (Aerogeophysical, Ground geophysical, Regional as well as local scale GP maps)	Not Applicable
8.	Justification for taking up G4 stage mineral exploration	1. Proposed Rangagre–Dajugre Block lies within the favourable geological terrain of the Assam–Meghalaya Gneissic Complex (AMGC), comprising augen gneiss, biotite gneiss, amphibolite and porphyritic granite, which provide favourable parent lithologies for lateritisation and bauxite formation. 2. The Chairman informed the Committee that the approved GSI project (Proposed Block) for F.S. 2026–27 had been dropped as per the instructions of the Secretary, Ministry of Mines, and the project may be taken up by NPEAs. Considering the favourable geological and geochemical evidences, In-Principle Approval was accorded by the 93rd TCC-I and MAPL was advised to submit a Detailed Project Report (DPR). 3. NGDR/GSI geological maps clearly depict extensive laterite and bauxitic zones within and around the proposed block, indicating continuation of favourable lateritised terrain inside the proposed G4 area itself. 4. The proposed block forms part of a regionally continuous laterite–bauxite bearing terrain developed over AMGC lithologies in Toposheet No. 78K/01. 5. Geochemical data of stream sediment samples available in NGDR show Al₂O₃ values ranging from 20.88% to 24.37% within the proposed block, indicating satisfactory

		aluminous enrichment and probable upstream source of laterite/bauxite mineralisation. 6. The block lies immediately adjacent to GSI FS 2024–25 & FS 2025–26 exploration areas, demonstrating strong geological continuity and high exploration potential. 7. GSI G4 exploration in adjoining Solanggiri–Rongmasogiri area delineated 7.06 sq. km laterite bodies, 3.89 sq. km bauxitic clay bodies. Total mineralised extent of 10.96 sq. km. 8. Adjoining GSI investigations reported significant aluminous enrichment with: Al_2O_3 values up to 40.46%. Average Al_2O_3 around 28%. Pitting/trenching samples showing Al_2O_3 up to 27.76%. 9. NGCM/NGDR geochemical investigations from and around the proposed block indicate anomalous aluminous and critical mineral signatures with: ΣREE values ranging from 142 ppm to 694 ppm, Ga values ranging from 11 ppm to 32 ppm, Cr values ranging from 36 ppm to 303 ppm, Ni values ranging from 13 ppm to 109 ppm. 10. These geochemical anomalies indicate favourable conditions for aluminous laterite/bauxite mineralisation associated with critical mineral enrichment. 11. Analytical studies from adjoining GSI blocks indicate enrichment of associated critical minerals including: Gallium (Ga), Vanadium (V), Niobium (Nb), Titanium (Ti), Rare Earth Elements (REE). 12. ΣREE values reported from adjoining GSI investigations range up to 3238.22 ppm with average ΣREE around 431 ppm, indicating strong critical mineral potential associated with lateritic profile development. 13. The proposed block shares similar lithological, geomorphological and geochemical characteristics with the adjoining GSI-explored areas, suggesting strong potential for continuation of laterite–bauxite and critical mineral mineralisation into the proposed block. 14. NGCM/PGRS studies in West Garo Hills have also reported anomalous Al_2O_3, REE, Ga, Co, Cu, Pb, Zr and Hf values, independently validating the regional prospectivity of the terrain. 15. Favourable geomorphological features such as plateau remnants, elevated surfaces and
--	--	---

		dissected hilltops support preservation and enrichment of lateritic and bauxitic horizons. 16. Tropical climatic conditions and prolonged weathering history of the region are highly conducive for advanced lateritisation and residual enrichment processes. 17. No systematic block-scale exploration has been carried out within the proposed block till date: No detailed geological mapping, grid-based geochemical sampling, systematic pitting/trenching, scout drilling has been carried out. No subsurface database available. 18. Significant exploration gaps exist regarding thickness and continuity of laterite/bauxite horizons, grade variation of Al_2O_3 and reactive silica, distribution of associated critical minerals, subsurface continuity of mineralised zones. 19. The proposed G4 exploration programme will generate reliable baseline geological and geochemical data, delineate favourable mineralised zones, assess mineral potential of the block, identify priority targets for subsequent G3 exploration. 20. The project assumes strategic importance in view of India's growing emphasis on securing domestic resources of critical minerals, particularly Rare Earth Elements (REE) and Gallium (Ga), which are essential for high-technology, renewable energy and defence applications 21. Hence, systematic Reconnaissance Survey (G4 stage) is fully justified for evaluation of Bauxite/Aluminous Laterite and associated critical minerals in the proposed Rangasagre–Dajugre Block under NMEDT.
--	--	---

DETAILED DESCRIPTION OF THE PROJECT

1. Block Summary

Physiography

The proposed Rangsaḡre–Dajugre Block is characterised by undulating to moderately rugged terrain comprising laterite-capped uplands, plateau remnants, isolated hillocks, ridges and narrow intervening valleys. Elevations within the block generally range from about 100 m to 230 m above mean sea level, with the highest elevations occurring over the central and eastern hilltops. The area is dissected by a network of seasonal and perennial streams exhibiting predominantly sub-dendritic to dendritic drainage patterns. A major north–south flowing stream traverses the central part of the block through Debaragiri–Domselsgiri–Levatangiri–Rangsaḡre–Balsagiri areas, while several first- and second-order tributaries drain the surrounding hill slopes and valleys.

The physiography reflects prolonged tropical weathering and erosion of the basement rocks of the Assam–Meghalaya Gneissic Complex (AMGC), resulting in the development of laterite and bauxitic clay cappings over elevated surfaces and plateau remnants. The presence of gently sloping uplands, hilltop surfaces and residual plateaus provides favourable geomorphological conditions for the formation, preservation and concentration of bauxite/aluminous laterite deposits. Overall, the physiographic setting of the area is highly conducive for lateritisation and associated enrichment of critical minerals within the weathering profile.

Geological Background of the area

Regional Geology

The proposed Rangsaḡre–Dajugre Block forms part of the West Garo Hills sector of the Meghalaya Plateau and lies within Survey of India Toposheet No. 78K/01. Geologically, the area belongs to the Assam–Meghalaya Gneissic Complex (AMGC), which constitutes the crystalline basement of the region. The Meghalaya Plateau represents a stable Precambrian cratonic block bounded by the Brahmaputra Valley in the north, the Bengal Basin in the south and southwest, and the Mikir Hills in the east.

The regional geological framework comprises the Meghalaya Gneissic Complex, Shillong Group metasediments, Khasi Basic–Ultrabasic Intrusives, Granite Plutons, Sylhet Trap volcanics, Gondwana sediments and younger Cretaceous–Tertiary sedimentary successions. The oldest rocks belong to the Meghalaya Gneissic Complex and consist predominantly of biotite gneiss, biotite-hornblende gneiss, granite gneiss, mica schist, amphibolite, granulite, gabbro and diorite. These rocks are intruded by granitic bodies and basic-ultrabasic intrusives and are unconformably overlain by younger sedimentary and volcanic sequences.

In the West Garo Hills region, the crystalline basement is represented mainly by the Assam–Meghalaya Gneissic Complex comprising porphyritic gneiss, foliated gneiss and biotite gneiss, with occurrences of amphibolite as older supracrustal enclaves. Mylittm Granitoids and dolerite dykes are also reported from the adjoining areas. Extensive laterite and bauxitic clay horizons occur as residual cappings over the AMGC rocks and constitute the principal target for bauxite and associated critical mineral exploration.

Regionally, the dominant foliation trend is NE–SW with moderate northwesterly dips. The area is affected by faults and fractures trending predominantly NNW–SSE and NE–SW, which have influenced the disposition of the basement rocks and associated weathering profiles.

The occurrence of extensive lateritic and bauxitic clay cappings, coupled with favourable tropical weathering conditions and encouraging geochemical signatures of Al₂O₃, REE, Ga, Nb, V and Ti, indicates that the region is highly prospective for Bauxite/Aluminous Laterite and associated critical

mineral mineralisation.

The generalized regional stratigraphic succession of the region (After GSI) is as follows:

Age	Formation/Group	Lithology
Quaternary	Undifferentiated	Soil, alluvium, colluvium
Quaternary (Residual)	Laterite/Bauxitic Clay Horizon	Laterite, bauxitic clay
Cretaceous	Sylhet Trap	Basalt, rhyolite, acid tuff
Neo-Proterozoic–Early Palaeozoic	<u>Mylliem</u> Granitoid	Granite, pegmatite, aplite
<u>Palaeoproterozoic</u>	Assam Meghalaya Gneissic Complex (AMGC)	Porphyritic gneiss, foliated gneiss, biotite gneiss
Older <u>Metamorphics</u>	Older <u>Supracrustals</u>	Amphibolite

Geology of the Block

The proposed Rangsaḡre–Dajugre Block is situated in the West Garo Hills District of Meghalaya and forms part of the Precambrian Assam–Meghalaya Gneissic Complex (AMGC). The block is characterised by a diverse assemblage of crystalline basement rocks comprising augen gneiss, amphibolite, biotite gneiss and porphyritic granite. Pegmatite and quartz veins occur as minor intrusive bodies within the gneissic terrain, while doleritic/basic dykes are observed locally.

Augen gneiss constitutes the dominant lithological unit within the block and forms the principal basement rock over large parts of the area. Amphibolite occurs as isolated bodies and enclaves within the gneissic complex, whereas biotite gneiss and porphyritic granite are exposed in several parts of the block. Pegmatite and quartz veins represent late-stage intrusive phases emplaced within the basement rocks.

The most significant geological feature of the area is the extensive development of laterite and bauxitic clay horizons occurring as residual cappings over the crystalline basement. These lateritic bodies are mainly developed over elevated surfaces, hilltops, ridges and plateau remnants and are products of prolonged tropical weathering and lateritisation of the underlying AMGC lithologies. The distribution of laterite and bauxitic clay within the block, together with favourable geomorphological conditions, indicates a conducive environment for residual enrichment of alumina.

Geochemical investigations carried out by NGCM/NGDR in and around the proposed block have reported encouraging Al_2O_3 values along with anomalous concentrations of Total REE, Ga, Cr, Ni and other trace elements. Furthermore, adjoining GSI investigations in the Solanggiri–Rongmasogiri area have established the occurrence of laterite and bauxitic clay horizons associated with enrichment of REE, Gallium (Ga), Niobium (Nb), Vanadium (V) and Titanium (Ti). These observations indicate that the lateritic profile of the area possesses not only bauxite potential but also significant potential for associated critical mineral enrichment.

Minor alluvial and colluvial deposits comprising sand, silt, clay and pebble occur locally along drainage channels and valley floors. However, the principal exploration target within the block is the laterite–bauxitic clay horizon developed over the Precambrian basement rocks.

The geological setting, characterised by favourable parent lithologies, prolonged weathering history, tropical climatic conditions, extensive lateritisation and encouraging critical mineral signatures, is considered highly favourable for the occurrence of Bauxite/Aluminous Laterite and

associated critical minerals such as REE, Ga, Nb, V and Ti. Stratigraphy:

Age	<u>Lithounit</u>	Lithology
Quaternary (Residual)	Laterite–Bauxitic Clay Horizon	Bauxitic Clay, Laterite, Aluminous Laterite and Ferruginous Laterite
Precambrian	Assam–Meghalaya Gneissic Complex (AMGC)	Augen Gneiss, Amphibolite, Biotite Gneiss, Porphyritic Granite, Pegmatite & Quartz Veins and <u>Doleritic/Basic</u> Dykes

Note: Laterite and bauxitic clay occur as residual cappings developed over the basement rocks of the Assam–Meghalaya Gneissic Complex and constitute the principal exploration target within the proposed block. The Geological Map is given below in **Figure 1**.

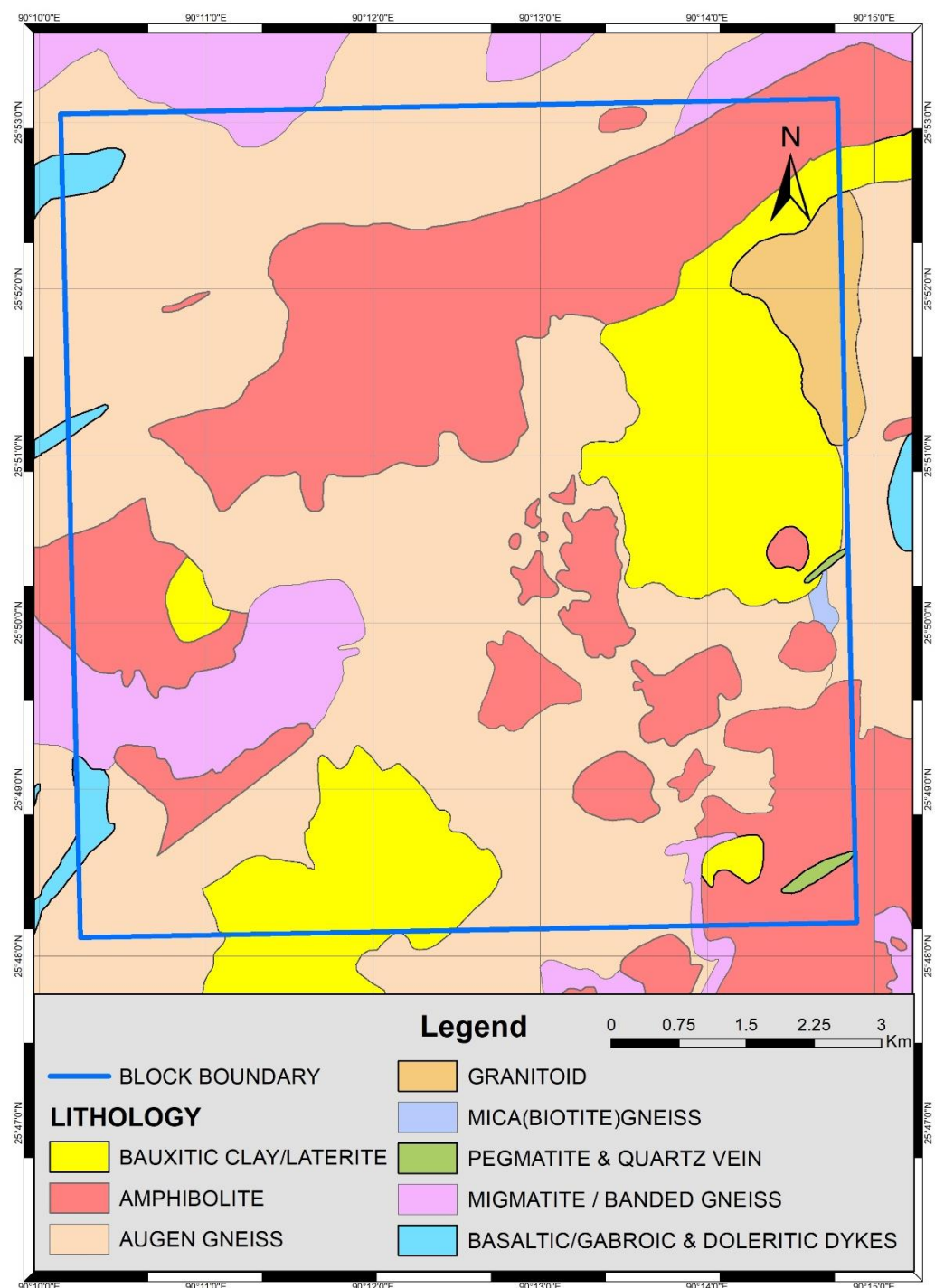


Figure 1: Block Superimposed on Geological Map

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

The proposed Rangsaḡre–Dajugre Block exhibits favourable geological, geomorphological and geochemical characteristics for the occurrence of Bauxite/Aluminous Laterite and associated critical minerals. The block is situated within the Assam–Meghalaya Gneissic Complex (AMGC), comprising augen gneiss, amphibolite, biotite gneiss and porphyritic granite, which provide suitable parent lithologies for the development of lateritic and bauxitic profiles under prolonged tropical weathering conditions.

NGDR geological maps indicate extensive occurrences of laterite and bauxitic clay within the proposed block as well as in adjoining areas, suggesting continuity of a regionally developed laterite–bauxite bearing terrain. The area is characterised by plateau remnants, elevated surfaces, ridges and hilltops, which are favourable geomorphological settings for residual accumulation and preservation of bauxite and aluminous laterite deposits.

Stream sediment geochemical data available in NGDR indicate Al_2O_3 values ranging from 20.88% to 24.37% within the proposed block. These values are considered encouraging and indicate significant aluminous enrichment within the drainage catchments, suggesting the presence of favourable upstream source zones for laterite/bauxite mineralisation.

Regional geochemical investigations carried out under NGCM and other government-funded programmes in West Garo Hills have reported anomalous concentrations of Al_2O_3 along with enrichment of Total Rare Earth Elements (ΣREE), Gallium (Ga), Chromium (Cr), Nickel (Ni) and other trace elements. ΣREE values ranging from 142 ppm to 694 ppm and Ga values ranging from 11 ppm to 32 ppm have been reported from and around the area, indicating favourable conditions for critical mineral enrichment within lateritic profiles.

The proposed block is located immediately adjacent to GSI Reconnaissance Survey (G4 Stage) blocks explored during F.S. 2024–25 and F.S. 2025–26, thereby demonstrating strong geological continuity. GSI investigations in the adjoining Solanggiri–Rongmasogiri area delineated 39 laterite and bauxitic clay bodies covering an aggregate area of approximately 10.96 sq. km, comprising about 7.06 sq. km of laterite and 3.89 sq. km of bauxitic clay. Analytical results from the adjoining exploration reported Al_2O_3 values up to 40.46%, with average Al_2O_3 values of approximately 28%, confirming the presence of significant aluminous enrichment within the regional lateritic profile.

The adjoining GSI investigations also established enrichment of critical minerals including Rare Earth Elements (REE), Gallium (Ga), Niobium (Nb), Vanadium (V) and Titanium (Ti), with ΣREE values reported up to 3238.22 ppm. These results demonstrate the potential of lateritic profiles in the region to host both bauxite and associated critical minerals of strategic importance.

Remote sensing studies, geomorphological analysis and geological mapping collectively indicate extensive lateritisation over AMGC lithologies within the proposed block. The combination of favourable parent rocks, extensive laterite development, encouraging geochemical anomalies, proven mineralisation in adjoining areas and absence of systematic block-scale exploration strongly supports the mineral potentiality of the area.

Considering the favourable geological setting, widespread lateritisation, encouraging Al_2O_3 anomalies, critical mineral signatures and proven continuity with adjoining mineralised zones, the proposed Rangsaḡre–Dajugre Block is considered highly prospective for Bauxite/Aluminous Laterite and associated critical minerals such as REE, Ga, Nb, V and Ti, thereby warranting systematic G4-stage exploration.

Scope for proposed exploration

Sr. No.	Nature of Work	Proposed Work
1	Remote Sensing	70.97 sq. km
2	Geological Mapping in 1:12500 scale	70.97 sq. km
3	Bed Rock Samples	150 No.
4	DGPS Survey	10 No.
5	Sample Analysis (Bed rock samples)	150 No.
6	Pitting	70 pits
7	Sample Analysis (Pits)	140 No.
8	Core Drilling	~250 m
9	Borehole Depth	~25 m
10	Drill Core Samples	~200 No.
11	Specific Gravity Determinations	2 No.
12	Category of Land	--
13	Geological Personnel	02 Nos. (Field) + 01 No. (HQ)
14	Period of Scheme	12 months

Recommendations by Secretary, Ministry of Mines and 93rd TCC-I:

Agenda 93.3.1. Reconnaissance Survey (G4) for Bauxite/Aluminous Laterite and associated trace elements at Rangsa-Dajugre Block, West Garo Hills District, Meghalaya [Implementing Agency: MAPL]

- The proposed block falls within Survey of India Toposheet No. 78K/01 and exposes migmatitic and granodioritic gneisses of the Assam–Meghalaya Gneissic Complex (AMGC), along with quartz-mica schist, quartzite, banded magnetite quartzite/chert, and serpentinised ultramafic dykes, which occur as enclaves within the AMGC.
- Regional geological studies in Toposheet No. 78K/01 have recorded lateritic and 25 bauxitic clay cappings over porphyritic gneisses and basic intrusives, indicating favourable conditions for lateritisation.
- Geochemical mapping and PGRS studies in the West Garo Hills sector have reported anomalous Al_2O_3 values, along with enrichment of Ga, Co, Cu, Pb, Zr, Hf, and Total REE, indicating potential for aluminous laterite with associated trace elements.
- During the NGCM work carried out in F.S. 2020–21, ΣREE values ranging from 142 ppm to 694 ppm were reported. The Al_2O_3 values ranged from 10.93% to 29%, Fe_2O_3 from 2.72% to 10.37%, Cr from 36 ppm to 303 ppm, Ni from 13 ppm to 109 ppm, and Ga from 11 ppm to 32 ppm.
- During F.S. 2024–25, Specialised Thematic Mapping (STM) was carried out in the Dinganpara–Bikonggiri areas of West Garo Hills District, Meghalaya, partly covering Toposheet No. 78K/01. The ΣREE contents in laterite and lateritic clay ($n = 14$) range from 29.79 ppm to 1825.11 ppm (average: 355.36 ppm), with associated Al_2O_3 enrichment (~26.9%). Banded magnetite quartzite ($n = 3$) contains high Fe_2O_3 values ranging from 38.41% to 54.41%. Further, Cr values up to 8133 ppm and Ni values up to 1007 ppm have been recorded in quartz–mica–chlorite schist and ultramafic dykes, respectively, west of the Khenthapara area.
- A G4-stage exploration was carried out in the nearby Solanggiri and Rongmasogiri areas during F.S. 2024–25 to delineate bauxite and associated trace-element potential. The total areal extent of laterite and bauxitic clay was reported to be 10.96 sq. km, of which 7.06 sq. km comprises laterite and 3.89 sq. km comprises bauxitic clay, with thickness varying from 0.2 m to 1.2 m.

- g. Analytical results of Bed Rock Samples (BRS) (n = 80) collected from bauxite/laterite capping over porphyritic gneiss indicate Al₂O₃ contents ranging from 3.05% to 40.46% (average: 28.03%), Fe₂O₃ from 0.85% to 51.16%, SiO₂ from 29.74% to 59.66% (average: 50.54%), and TiO₂ from 0.16% to 6.50% (average: 2.78%). Associated trace elements include V (23–425 ppm; average: 111.21 ppm), Nb (8– 92 ppm; average: 41.76 ppm), Zn (11–60 ppm; average: 21.15 ppm), and Ga (21– 85 ppm; average: 38.69 ppm).
- h. Analytical results of pitting and trench samples (n = 30) indicate Al₂O₃ values ranging from 17.31% to 27.76% (average: 21.76%), Fe₂O₃ from 7.53% to 21.08% (average: 11.66%), SiO₂ from 41.68% to 61.33% (average: 51.55%), and TiO₂ from 1.0% to 1.5% (average: 1.2%). Total REE contents in BRS samples from laterite and bauxitic clay range from 56.47 ppm to 3238.22 ppm (average: 431.42 ppm), while regolith samples recorded Total REE values ranging from 40.47 ppm to 561.59 ppm (average: 334.43 ppm).
- i. In view of the above, the agency proposed the block for G4-stage exploration for bauxite/aluminous laterite and associated trace elements. The proposed work components include large-scale geological mapping, systematic surface sampling, and assessment of resources under the UNFC G4 category.
- j. The Committee reviewed the proposal, and the Chairman apprised the Committee that, as per the instructions of the Secretary, Ministry of Mines, the approved GSI project for F.S. 2026–27 has been dropped, and the project may now be taken up by NPEAs.
- k. In view of the above, the Committee suggested that the agency may submit the DPR.

Sl. No.	Agency	Brief Comments
1.	GSI	The proposed NMET block does not shows any overlapping with the earlier exploration blocks of GSI. However, one approved G4 item titled: Reconnaissance survey for aluminous laterite and its associated trace elements in and around Amonggiri, Dajugiri and Darekgiri areas, West Garo Hills district, Meghalaya, which was initially showing overlapping with the proposed NMET block has been dropped for FS 2026-27. There is no ongoing exploration in the proposed NMET block.
2.	MECL	NA
3.	AMD	AMD has not carried out any exploration / reconnaissance project in the proposed block and does not have any ongoing projects.
4.	State DMG/DGM/CGM	DMR Meghalaya not undertaken any exploration project in the proposed area. There are no ongoing exploration projects and no CL/ML granted for any major/minor mineral in the proposed block.
5.	NMEDT	The proposed block is not overlapping with NMEDT funded block.

Recommendations of TCC-1: The committee approved the project in-principle and suggested the agency to bring DPR within 2 months.

Objectives:

- To assess the Bauxite/Aluminous Laterite potential within the proposed Rangisagre–Dajugre Block, West Garo Hills District, Meghalaya and delineate favourable lateritic and bauxitic zones developed over the Assam–Meghalaya Gneissic Complex (AMGC).
- Preparation of Large-Scale Geological Map at 1:12500 scale to demarcate various litho units like Bauxite, aluminous laterite, gneisses, basalt, granitoids etc. with their structural manifestations.
- Collection of 150 Bedrock/Chip samples from Bauxite/aluminous laterite bearing zones.
- Pitting and trenching for delineating Bauxite/aluminous laterite zones prior to scout borehole drilling.
- To generate reliable baseline geochemical data for Al_2O_3 , SiO_2 , Fe_2O_3 , TiO_2 , LOI and associated critical minerals.
- To prove the occurrences of Bauxite zones and delineate the depth continuity of it by planning systematic scout boreholes according to the MEMC norms.
- To establish the spatial continuity, thickness variation, lateral extent and quality of Bauxite horizons through pitting and scout drilling, sampling and laboratory studies in order to delineate the Bauxite Resources at G-4 (334) level in the block as per UNFC norms.
- To generate integrated geological, geochemical and analytical datasets for assessment of mineral potential.
- To evaluate the distribution and enrichment pattern of associated critical and strategic minerals including REE, Ga, Nb, V and Ti within the lateritic profile.
- To carry out exploration and identify prospective target zones for further detailed exploration as per MEMC Rules, 2015, Mineral Auction Rules-2015, MMDR Act -2015 and UNFC guidelines to facilitate the Govt. of Gujarat for auctioning of the block.

2. Previous Work

No systematic mineral exploration specifically targeting Bauxite/Aluminous Laterite and associated critical minerals has been carried out within the proposed Rangisagre–Dajugre Block. However, regional geological, geochemical and remote sensing datasets generated by various government agencies indicate favourable conditions for the occurrence of bauxite and associated critical mineral mineralisation.

Geological information available through the National Geoscience Data Repository (NGDR) indicates that the proposed block is underlain predominantly by lithologies of the Assam–Meghalaya Gneissic Complex (AMGC), comprising augen gneiss, amphibolite, biotite gneiss and porphyritic granite, with minor pegmatite-quartz veins and basic/doleritic dykes. Extensive occurrences of laterite and bauxitic clay are mapped within the proposed block, suggesting favourable conditions for lateritisation and residual aluminous enrichment.

Regional geochemical investigations carried out under the National Geochemical Mapping (NGCM) programme have generated stream sediment geochemical data within and around the proposed block. The available NGDR database indicates Al_2O_3 values ranging from 20.88% to 24.37% within the proposed block. These values indicate significant aluminous enrichment within the drainage catchments and suggest the presence of favourable source zones for laterite and bauxite mineralisation.

The NGDR geochemical database further indicates encouraging concentrations of Total Rare Earth Elements (TREE) within the block. Stream sediment samples collected from the area have reported TREE values ranging from approximately 141 ppm to 542 ppm. The spatial association of TREE anomalies with lateritic and bauxitic terrains suggests favourable conditions for critical mineral

Remote sensing interpretation and geological mapping indicate extensive lateritisation over the AMGC lithologies, particularly over plateau remnants, hilltops and elevated geomorphic surfaces. Such geomorphic settings are considered favourable for the formation, preservation and enrichment of bauxite and aluminous laterite deposits.

Analytical results from the adjoining GSI investigation reported Al_2O_3 values up to 40.46% with average Al_2O_3 values of approximately 28.03%. The study also established enrichment of associated critical minerals including Rare Earth Elements (REE), Gallium (Ga), Niobium (Nb), Vanadium (V) and Titanium (Ti), with TREE values reported up to 3238.22 ppm. These results demonstrate the prospectivity of the regional lateritic profile for both bauxite and associated critical mineral mineralisation.

NGDR Stream Sediment Al_2O_3 Anomaly Map (Al_2O_3 range: 20.88–24.37%) and NGDR Stream Sediment TREE Anomaly Map (TREE range: 141–542 ppm) are given in Plate-III and Plate IV respectively.



3. Block description

Sr. No.	Block Corner Point	Latitude	Longitude
1.	A	25°53'3.08"N	90°10'7.68"E
2.	B	25°53'8.45"N	90°14'46.83"E
3.	C	25°48'12.13"N	90°14'53.70"E
4.	D	25°48'6.77"N	90°10'14.74"E

4. Proposed/ Planned Methodology

Geological Mapping

Geological mapping will be carried out on 1:12,500 scale over the entire 70.97 sq. km block area by systematic traverses using GPS, Brunton compass, and tape. Lithological contacts, structural features, geomorphology, and surface manifestations of Bauxite/Aluminous Laterite observed during field mapping will be incorporated for preparation of the geological map and sections.

DGPS Survey

Coordinates of the proposed boreholes shall be surveyed using DGPS in WGS-84 Datum. RL's and co-ordinates of survey and Borehole points will be determined with reference to the Survey of India Bench Mark as available.

Geochemical Sampling

Bed Rock Sampling - During the course of Geological mapping, the bed rock/soil samples shall be collected. A total of 150 nos. bed rock/soil samples will be collected from the proposed block. Total 15 nos. check samples (10% External) will be analyzed for Major oxides.

Pitting

Pitting will be carried out on the surface up to a depth of 2 m after removal of soil/weathered column in the area. Pitting shall be carried out in the potential zones identified, based on the observations of geological mapping and the results of geochemical sampling. A provision of pitting in mineralized zones (1m x 1m X 2m deep) of 140 cubic meters is proposed from 70 No. of pits with provision of 140 Nos. of primary & 14 nos. check samples (10% External).

Drilling

A total of 10 vertical scout boreholes (coring) is proposed for the G-4 stage of Exploration, on basis of the results of surface exploration such as Geological Mapping & Geochemical Survey and Pitting in an area of 70.97 Sq.km. The average depth of the boreholes is considered to be 25 m and a total of 250 m of drilling is proposed in selected locations to find out the continuity of mineralized zones in strike & dip direction and to assess subsurface disposition of the targeted mineralized bodies.

Core Logging and Sampling

Recovered cores will be preserved in standard core boxes. Geological core logging will be carried out carefully by recording minute details and lithological characters of the rock formations including colour, texture, mineralogical composition, structural details, lithological variations and RQD where applicable as encountered in the boreholes. Representative core samples from Bauxite and associated lithologies will be collected following standard sampling procedures for laboratory studies.

After detailed core logging, the drill core will be split into two equal halves by using core splitter, of which one half will be preserved in the core box as reference. The drilled borehole cores will be sampled for a uniform length of 1.00m so that each sample falls between fixed reduced levels in all the boreholes. But the top and the bottom samples will usually be less than 1.00m length as the R.L of the collar of the borehole and the floor of the mineralized zone will be in fraction of the whole number. Around 200 core samples will be generated from 10 boreholes. Each sample thus obtained, will be crushed to (-) 60mesh size and its quantity will be further reduced to 500 grams by coning and quartering. The material will be further crushed to (-)120 mesh size. Representative samples weighing about 100grams each will be taken from this, one of which will be sent for primary analysis for Major oxides and other part of the samples needs to be kept for the purpose of check analysis. Check Samples: 10% of the total primary samples (24 No. of samples) shall be analysed for Major oxides.

Chemical Analysis

The primary surface and core samples will be analyzed at NABL accredited Laboratory for five elements i.e., Al₂O₃, SiO₂, Fe₂O₃, TiO₂ & LOI.

Around 5 samples will be prepared for Combined determination of Tri hydrate Alumina (THA-40°C) and Mono hydrate Alumina (MHA-240°C) & Reactive Silica.

40 samples by ICP-MS (sequential technique) sample package for 14 REE elements + 9 trace elements (U, Ta, Ge, Be, Hf, Sn, As, Rb, Th) including Ga and Sc.

Mineralogical and Petrographic Studies

During the course of Geochemical sampling and core logging, to know about the mineralogical composition and interrelation among the constituent minerals 10 rock samples will be taken up for Complete Petrographic studies to know about the constituent ore minerals, their mode of occurrence, textures and other Mineralogical characteristics.

X-Ray Diffraction Studies:

A total of 5 Nos. Aluminous Laterite, Bauxite samples representing the deposit will be subjected to X-Ray Diffraction studies to know about the general distribution pattern of the constituent minerals of the ore.

Specific Gravity Determination

2 nos. of samples are proposed to be subjected for specific gravity determination.

Geological Report

All geological, drilling, sampling, and analytical data generated during G4 exploration will be compiled into a Final G4 Stage Geological Report in accordance with MEMC Amendment Rules, 2021 and NMEDT guidelines.

5. Nature and Quantum of the work

G4 stage GR should be submitted for G3 stage proposal.

Sl. No.	Components	Unit	Quantity
A	Remote Sensing		
B	Detailed Geological Mapping		
1	In 1:12500 Scale	Sq. Km.	70.97
C	Survey work		
1	Demarcation of block boundary by GPS, Fixation of Borehole and determination of co-ordinates & Reduced Level (RL) of the borehole by DGPS (10 BH)	Per Point of observation	10
D	Pitting/Trenching		
1	Pitting (1m*1m*2m)	Cu. m.	140
E	Scout Drilling		
1	Core Drilling (~25 m average depth)	m	250 m
2	Borehole Pillaring (12"X12"X30")	Nos.	10
3	Borehole Plugging by Cement	Nos.	10
F	Laboratory studies Chemical Analysis		
1	Primary drill core samples analysis for 5 radicals viz. Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , TiO ₂ , LOI	Nos.	200
2	Pit Samples	Nos.	140
3	BRS samples	Nos.	150
4	External Check Samples from NABL Labs for 5 radicals viz. Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , TiO ₂ , LOI (10% of total samples)	Nos.	49
5	Analysis for Bauxite: Combined determination of Tri hydrate Alumina (THA- 40°C) and Mono hydrate Alumina (MHA- 240°C) & Reactive Silica	Nos.	5
6	Analysis for quantitative analysis of 14 REE elements + 9 trace by ICP-MS (sequential technique)	Nos.	40
	TOTAL NUMBER OF SAMPLES	Nos.	584
	Sample preparation	Nos.	584
G	Mineralogical and Petrographic Studies		
1	Complete Petrographic Studies along with 5 no. of digital photographs	Nos.	10
2	XRD Analysis for Identification of Minerals (Random)	Nos.	5
H	Specific Gravity determination	Nos.	2
I	Preparation of Exploration Proposal	Nos.	1
J	Geological Report preparation (as per MEMC Amendment Rules, 2021/UNFC)	Nos.	1

6.0 TIME SCHEDULE

Annexure 7B																	
Time Schedule/ Action Plan for Reconnaissance Survey (G4) for Bauxite/Aluminous Laterite and associated Critical Minerals in Rangsagre-Dajugre Area, West Garo Hills District, Meghalaya																	
S. No.	Items	Units	1	2	3	Review	4	5	6	Review	7	8	9	Review	10	11	12
1	Camp Setting	Month															
2	Geological Mapping & Sampling	Months															
5	Survey	Days															
6	Pitting	cu.m															
7	Scout Drilling	m															
8	Geologist Man days (HQ)	Days															
9	Sampler Man days	Days															
10	Camp Winding	Month															
11	Laboratory Studies	Nos.															
12	Report Writing	Months															

7.0 MANPOWER DEPLOYMENT:

- Geologist party:** 2 Geologist – 60 Field days. 1 Geologist - 40 HQ days. Labour - 2 labours/Team (i.e. 60 days*2 labours = 120 days).
- Sampler Party:** 1 Sampler – 150 Days and 4 Labours - (150x4) = 600 Days.
- Survey Party:** 1 Surveyor – 30 Days and 4 Labours – (30x4) = 120 Days.
- Drilling Party:** 1 Driller, 2 Assistant Driller, 1 Mechanic, 6 labours for Approx. 90 days

8.0 BREAK UP OF EXPENDITURE

SL. No.	Component	Cost in Rs.
A	Geological Mapping and Other Geological Works	60,39,857
B	Survey Work	3,60,000
C	Pitting	9,92,250
D	Drilling	36,85,125
E	Laboratory Studies	17,71,834
F	Total A to E	1,28,49,066
G	Preparation of Exploration Proposal	2,56,981
H	Geological Report Preparation	2,50,000
I	Peer Review	30,000
J	Total Estimated Cost without GST	1,33,86,047
K	Provision for GST@18%	24,09,488
L	Total estimated cost with GST	1,57,95,535
	or say Rs. in lakhs	~157.96

ANNEXURE 7A

Reconnaissance Survey (G4) for Bauxite/Aluminous Laterite and associated Critical Minerals in Rangisagre-Dajugre Area, West Garo Hills District, Meghalaya,
Area: 70.97 sq. kms., Total Drilling: ~250 m, No. of BH: 10 nos, Average BH depth range ~25 m, Schedule timeline: 12 months; Review after: 3, 6 & 9 months

S. No.	Item of Work *	Unit *	Rates as per NMEDT SoC					Remarks
			SoC-Item No.	Rates as per SoC	Qty.	Total Amount	Total Amount Multiplying factor-1.5 (Rs) (wherever applicable)	
A	Geological Work							
i	Geological mapping, (1:12500 scale)	Per sq. km.	1.1	18,300	70.97	1298751	1948127	
ii	a) Charges for Geologists in Field (without labour)	Per day Per Geologist	1.2.1a	14,500	60	870000	1305000	
iii	b) Charges for Geologists at HQ	Per day Per Geologist	1.2.1b	10,500	40	420000	420000	
iv	Labours Charges; Base rate	Per day Per Labour	5.8	556	120	66720	100080	
	Charges for one Sampler per day	Charges for one sampler per day	1.2.1b	7,850	150	1177500	1766250	
	Labours (4 Nos)	Per day Per Labour	5.8	556	600	333600	500400	
	Sub Total-A						6039857	
B	Survey work							
i	Demarcation of lease boundary, Fixation of borehole and determination of co-ordinates & Reduced Level (RL) of the boreholes by DGPS (including labour charge)	Per point of observation	1.3.2	24,000	10	240000	360000	(10 Borehole points)
	Sub Total-B						360000	
C	Pitting (after 1st Review)							

i	Excavation of ~70 pits upto 2 m depth with back filling (1m*1m*2m)	Per cu.m	2.1.2	4,725	140	661500	992250	
	Sub Total-C						992250	
D	SCOUT DRILLING (In House) (after 2nd review)							
i	Core Drilling: Average Depth: ~25m, No. of BH: 10	Per m	2.2.1.1c	5,500	250	1375000	2062500	
ii	Borehole Pillaring (12" *12" *30")	Per borehole	2.2.7	2,000	10	20000	30000	
iii	Borehole Plugging by Cement	Per borehole	2.2.8	10,000	10	100000	150000	
iv	Drill core preservation	Per m	5.3	1,590	200	318000	477000	
vi	Land/Crop compensation	Per borehole	5.6	30,000	10	300000	450000	As per actuals with maximum ceiling of 30000 per BH
vii	Miscellaneous charges (Transportation of Drilling rig, Accommodation of Drilling camp, Camp setting and winding, construction of approach road)	Lumpsum	2.2.9	5,15,625		343750	515625	For drilling cost less than 50 lakhs: 25% of the Drilling Cost.
	Sub Total-D						3685125	
E	Laboratory Studies							
1	Chemical Analysis							
i	Primary samples analysis for 5 radicals viz. Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , TiO ₂ , LOI	Nos	4.1.8a	2,506	490	1227940	1227940	Includes BRS (150), pit (140), and drill core samples (200)

ii	External check samples for 5 radicals viz., Al ₂ O ₃ , SiO ₂ , Fe ₂ O ₃ , TiO ₂ , LOI.	Nos	4.1.15a	2,506	49	122794	122794	(10% of total samples)
	Analysis for Bauxite						0	
i	Combined determination of Tri hydrate Alumina (THA- 40°C) and Mono hydrate Alumina (MHA- 240°C) & Reactive Silica (per BH 2 Sample)	Nos.	4.1.19a	7,500	5	37500	37500	
2	Physical, Petrological & Mineralogical studies					0	0	
i	Analysis for quantitative analysis of 14 REE elements + 9 trace by ICP-MS (sequential technique)	Nos.	4.1.15	7,400	40	296000	296000	
	10%Check samples	Nos.	4.1.15	7,400	4	29600	29600	
	Thin section Preparation		4.3.1	500	10	5000	5000	
ii	Complete Petrographic/ore micrographic study/mineragraphic report of of rock sample (along with 5 nos. digital photo microscope)	Nos.	4.3.4	2800	10	28000	28000	
iii	XRD Analysis for Identification of Minerals (Random)	Nos.	4.5.2	4000	5	20000	20000	
iv.	Specific Gravity Determination	Nos.	4.8.1	2500	2	5000	5000	
	Sub Total-E						1771834	
	Total Outsourced						0	
H	TOTAL						12849066	
I	Preparation of Exploration Proposal	One time	5.1	2% of the approved project cost or 5 Lakh whichever is lower	1		256981	

J	Geological Report Preparation	soft copy	5.2	Total Cost of Project exceeding 50 lakhs but less than 150 lakhs: 2.5 lakh	1		250000	These charges shall be paid after the final approved report is uploaded on NGDR by MAPL
K	Peer Review	Per review	--	As per EC decision	--		30000	
L	Total Estimated Cost without GST						13386047	
M	Provision for GST (18% of M)						2409488	
N	Total Estimated Cost with GST (in lakhs)						15795535	
						In Lakh	157.96	
Note:								
1	Strict adherence to the Ministry of Finance's and GFR guidelines is mandatory. Every transaction must adhere to GFR rule 21.							
2	In case of delay/non- performance, the appropriate action will be taken by competent authority against delinquent agency as per prevailing govt. of India rules/guidelines on procurement.							
3	If any part of the project is outsourced, the amount will be reimbursed as per Item no. 6 of NMET SoC. In case of execution of the project by NEA on its own, a Certificate regarding non outsourcing of any component/project is required.							
4	Necessary efforts should be made to minimize any adverse impact on the environment during exploration activities.							
5	Any item of work not mentioned above shall be added as per SoC.							
6	All the Geological Reports and data are to be uploaded on NGDR as per MERT template by the agency.							

Note:

A. Timelines

Total estimated time period for execution of G4 stage exploration in Rangisagar-Dajugre Bauxite/Aluminous Laterite and associated Critical Minerals Block is 12 months with review after 3rd, 6th and 9th months. In case, local hindrances, weather, climate etc. results in delay the timeline will undergo changes accordingly.

B. Total estimated expenditure

Total estimated cost is **Rs. 1,57,95,535** including GST.

C. Terms of payment

M/s Mining Associates Pvt. Ltd. will raise the invoice for the quantum of work completed in accordance with the approval as per NMEDT.

9.0 JUSTIFICATION

The proposed Rangisagre–Dajugre Block is located in West Garo Hills District, Meghalaya, and forms part of the Assam–Meghalaya Gneissic Complex (AMGC), comprising augen gneiss, biotite gneiss, amphibolite and porphyritic granite. These lithologies provide favourable parent rocks for lateritisation and the development of bauxite/aluminous laterite deposits under prolonged tropical weathering conditions. Geological maps available through NGDR indicate extensive occurrences of laterite and bauxitic clay within and around the proposed block, suggesting the continuation of a favourable laterite–bauxite bearing terrain within the area. The block forms part of a regionally continuous lateritised terrain developed over AMGC lithologies within Survey of India Toposheet No. 78K/01.

The significance of the area is further highlighted by the fact that the Geological Survey of India (GSI) had selected the block for Reconnaissance Survey (G4 Stage) during Field Season 2026–27 based on detailed geological evaluation. Subsequently, the Chairman informed the 93rd TCC-I that the approved GSI project had been dropped as per the instructions of the Secretary, Ministry of Mines, and the project may be taken up by NPEAs. Considering the favourable geological setting, encouraging geochemical signatures and overall prospectivity of the area, In-Principle Approval was accorded to M/s Mining Associates Pvt. Ltd. (MAPL) by the 93rd TCC-I, and submission of a Detailed Project Report (DPR) was advised.

Regional geochemical investigations carried out under the National Geochemical Mapping (NGCM) programme provide encouraging evidence regarding the mineral potential of the area. Stream sediment geochemical data available in NGDR indicate Al_2O_3 values ranging from 20.88% to 24.37% within the proposed block, suggesting satisfactory aluminous enrichment and the presence of favourable upstream source zones for laterite/bauxite mineralisation. In addition, stream sediment geochemical data indicate Total Rare Earth Element (ΣREE) values ranging from approximately 142 ppm to 694 ppm, together with anomalous concentrations of Gallium (Ga), Chromium (Cr) and Nickel (Ni). These geochemical signatures indicate favourable conditions for the occurrence of aluminous laterite and associated critical mineral enrichment.

The proposed block is situated immediately adjacent to GSI G4 exploration areas investigated during Field Seasons 2024–25 and 2025–26, thereby demonstrating strong geological continuity and high exploration potential. GSI investigations in the adjoining Solanggiri–Rongmasogiri area delineated 39 laterite and bauxitic clay bodies covering approximately 10.96 sq. km, comprising about 7.06 sq. km of laterite and 3.89 sq. km of bauxitic clay. Analytical results from the adjoining exploration reported Al_2O_3 values up to 40.46%, with average Al_2O_3 values of approximately 28.03%, confirming significant aluminous enrichment within the regional lateritic profile.

The adjoining GSI investigations also established enrichment of associated critical minerals including Rare Earth Elements (REE), Gallium (Ga), Niobium (Nb), Vanadium (V) and Titanium (Ti). ΣREE values reported from the adjoining exploration area reach up to 3238.22 ppm, with average ΣREE values of approximately 431 ppm. The proposed block shares similar geological, geomorphological and geochemical characteristics with these adjoining mineralised areas, suggesting strong potential for continuation of laterite–bauxite and associated critical mineral mineralisation into the proposed block.

The area is characterised by plateau remnants, elevated surfaces and dissected hilltops, which provide favourable geomorphological conditions for preservation and enrichment of lateritic and bauxitic horizons. The humid tropical climate and prolonged weathering history of the region have further facilitated extensive lateritisation and residual concentration processes. NGCM and PGRS investigations carried out in West Garo Hills have also reported anomalous concentrations of Al_2O_3 , REE, Ga and other associated elements, independently supporting the regional prospectivity of the terrain.

Despite the availability of encouraging geological, geomorphological and geochemical evidence, no systematic block-scale exploration has been undertaken within the proposed block. Detailed geological mapping, grid-based geochemical sampling, systematic pitting, trenching and scout drilling have not been carried out, and no subsurface database is presently available. Consequently, significant exploration gaps

exist regarding the thickness, continuity and grade characteristics of the laterite–bauxite horizons, the distribution of associated critical minerals and the subsurface continuity of mineralised zones.

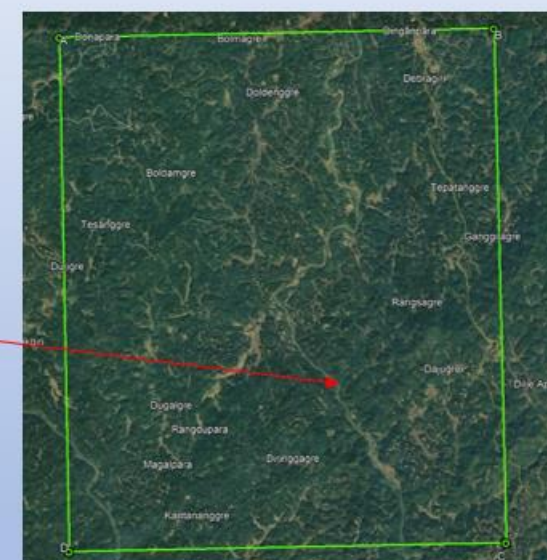
The proposed G4 exploration programme is therefore necessary to generate reliable baseline geological and geochemical data, assess the mineral potential of the block, delineate favourable mineralised zones and identify targets for subsequent G3-stage exploration. The project also assumes strategic importance in view of India's growing emphasis on securing domestic resources of critical minerals, particularly Rare Earth Elements (REE) and Gallium (Ga), which are essential for advanced technology, renewable energy, electronics and defence sectors.

Considering the favourable geological setting, extensive lateritisation, encouraging Al_2O_3 and ΣREE anomalies, proven mineralisation in adjoining GSI exploration areas, strategic critical mineral potential and the absence of systematic exploration within the block, systematic Reconnaissance Survey (G4 Stage) is fully justified for evaluation of Bauxite/Aluminous Laterite and associated critical minerals in the proposed Rangsa–Dajugre Block under NMEDT.

10. References:

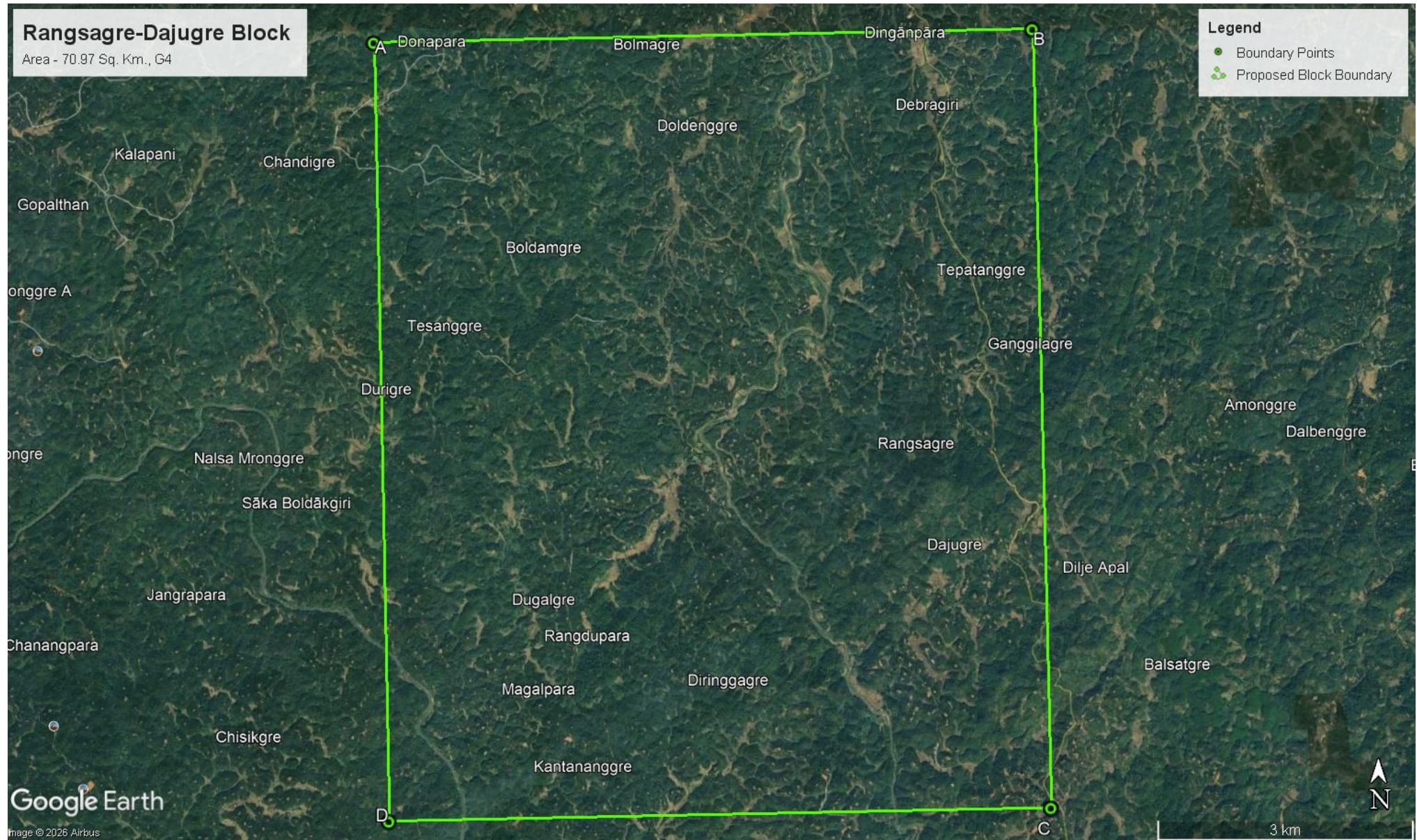
- GSI Report: Reconnaissance survey for bauxite and associated trace elements in and around solanggiri and rongmasogiri, West Garo hills district, Meghalaya (G4stage), T.No.78/01 Fsp Code: M2asmif-Mep/Nc/Ner/Su-Meg/2024/50086. Field Season 2024-25 by Konthoujam Kipgen Singh, Geologist and Shubham Kasaudhan, Geologist.
- 1:50,000 scale Geological Data obtained from Bhukosh portal (<https://bhukosh.gsi.gov.in>) of Geological Survey of India.
- NGDR portal-NGCM Data.
- Revised Schedule of Charges – NMEDT.

PLATE – I: Location Map

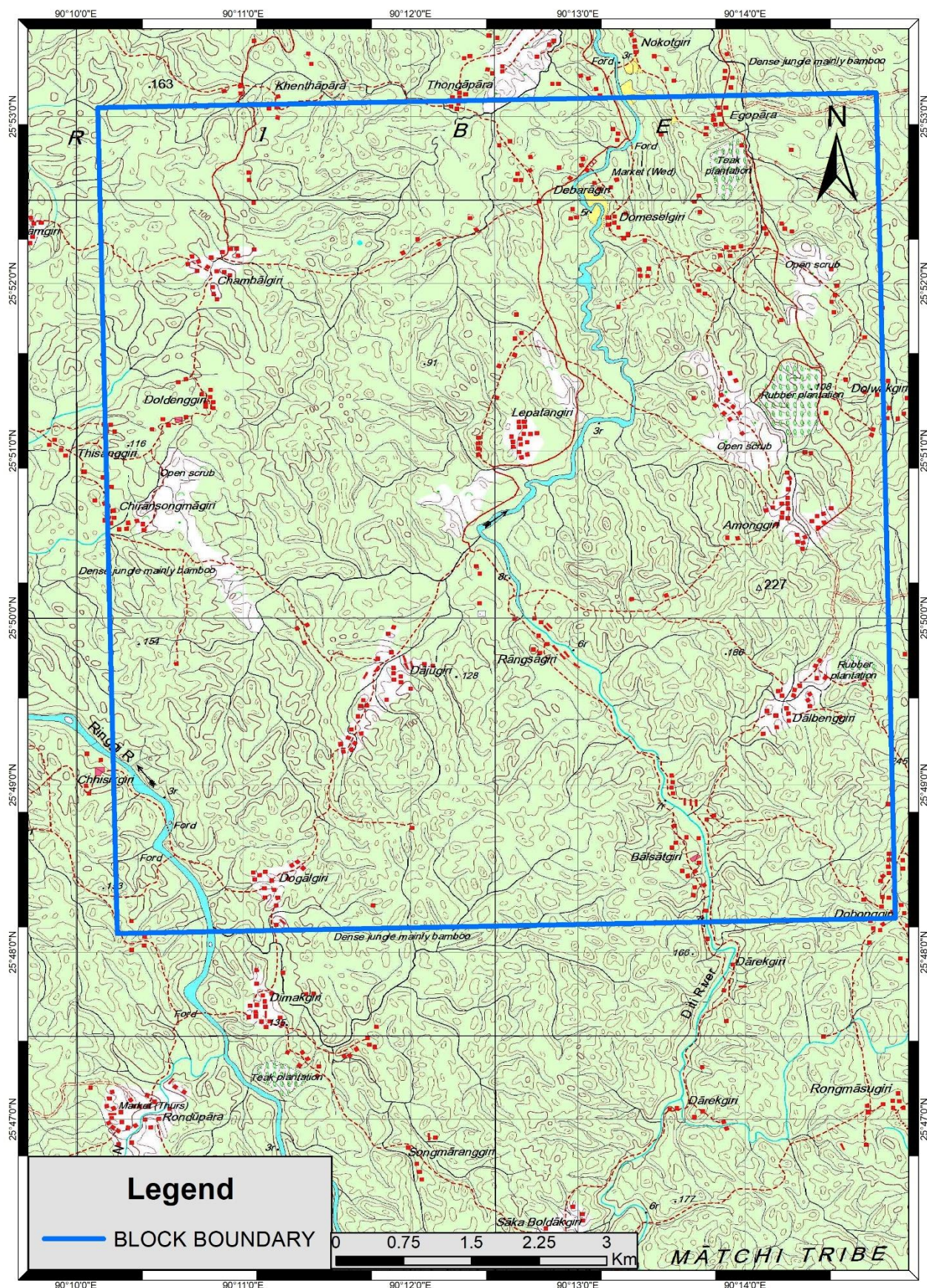


Proposed Rangsa-Dajugre Block

PLATE – II: Satellite Image Map of Rangsgre-Dajugre Block

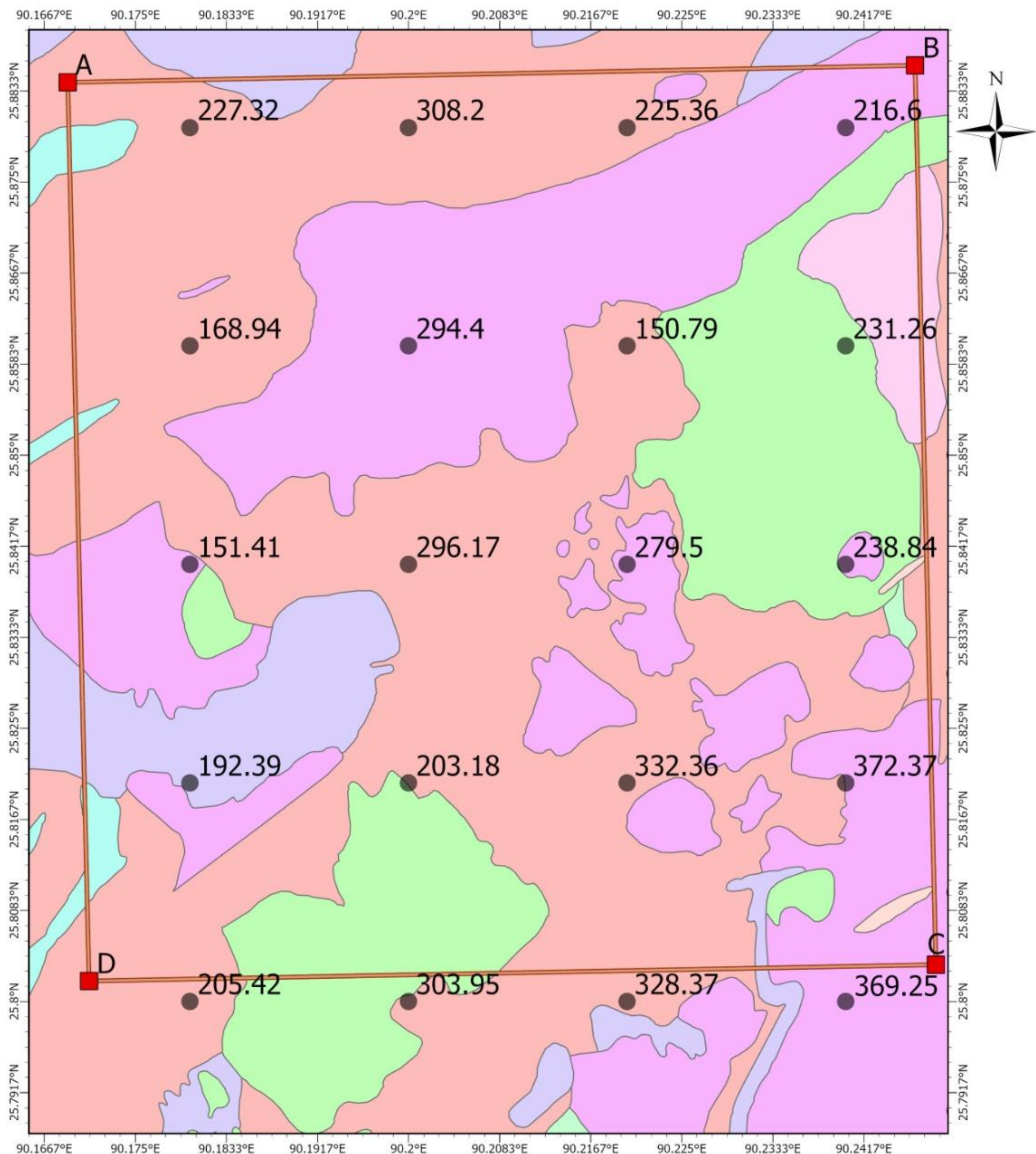


**PLATE – III: Proposed Rangsgre-Dajugre Block Superimposed on
Toposheet No. 78K/01**



**PLATE – IV: Proposed Rangagre-Dajugre Block with NGDR Stream Sediment
 Al_2O_3 Anomaly Values Superimposed on Geological Map**

**PLATE – V: Proposed Rangsagre-Dajugre Block with NGDR Stream Sediment TREE Anomaly Values
Superimposed on Geological Map**



Legend

- | | | | |
|--|---|---|---|
| <ul style="list-style-type: none"> Cardinal Points TREE of Stream Sediment Block Boundary | <ul style="list-style-type: none"> AUGEN GNEISS BASALTIC/GABROIC & DOLERITIC DYKES BAUXITIC CLAY/LATERITE FEEBLY OXIDIZED SAND, SILT AND CLAY GRANITOID GREY AND PINK PORPHYRITIC GRANITE | <ul style="list-style-type: none"> HIGHLY OXIDIZED DARK BROWN TO RD BROWN LOAMY SAND LAMPROPHYRE, TRACHYTE & DOLERITE DYKES MICA(BIOTITE)GNEISS MIGMATITE / BANDED GNEISS OXIDISED TO FEBBLY OXIDISED SAND SILT AND CLAY | <ul style="list-style-type: none"> PEGMATITE & QUARTZ VEIN QUARTZ MICA SCHIST UNDIFF. FLUVIAL SEDIMENTS- SAND, SILT AND CLAY UNSTABILISED & UNOXIDISED SAND, SILT AND CLAY WHITE TO GREYISH SAND,SILT , PEBBLE AND CLAY. <all other values> |
|--|---|---|---|

GEOLOGICAL MAP WITH TOTAL REE VALUE OF RANGSAGRE-DAJUGRE BLOCK, MEGHALAYA

Scale: 1:50,000

