REGIONAL MINERAL TARGETING IN TAKA-CHIMUR-SHEGAON BUZURG AREA IN CHANDRAPUR, WARDHA AND NAGPUR DISTRICTS OF MAHARASHTRA TO EVALUATE THE AERO-GEOPHYSICAL ANOMALIES, INTERPRETATION OF REMOTE SENSING DATA AND INTEGRATION WITH BASELINE GEOSCIENCE DATA FOR BASE-METALS, REE, RM AND OTHER ASSOCIATED MINERALIZATION

By

MTCS
INTELLIGENT MINING SOLUTIONS

MINING TECH CONSULTANCY SERVICES LTD

www.mtcspl.com
Email- info@mtcspl.com

Place: Ahmedabad

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Summary of the Block for Regional Mineral Targeting

	Features	Details
	Block ID	MTCS/NMET-006/2025/MH/CWN-RMT
	Current Exploration Agency	Mining Tech Consultancy Services Limited (MTCS), Ahmedabad
	Previous Exploration Agency	Geological Survey of India, Indian Bureau of Mines (IBM), Mineral Exploration & Consultancy Limited (MECL)
	G4 stage Geological Report (Previous stage Geological Report)	All the above-mentioned agencies conducted exploration works separately in small parts of the whole block.
	Commodity	Base Metal, Rare Earth Elements (REE), Rare Metals (RM) & Associated Mineralization
	Mineral Belt	-
	Completion Period with entire time schedule to complete the project	24 months
	Objectives	The exploration scheme of the RMT block has been formulated with the following objectives: 1. Integration & interpretation of existing base line data (Geological, Geophysical data) and study of the available geological reports to identify data gaps in respect of generating mineral prospectivity maps for base-metals, REE, RM & associated mineralization within the block. 2. Carry out exploration works in terms of traverse mapping, geochemical sampling, geophysical survey, pitting/trenching and scout drilling within the gap areas. 3. Identifying and earmarking potential areas / targets for undertaking G4 level of exploration. 4. Preparation of detailed study report.
	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	The work will be carried out by the exploration agency (MTCS).
	Name/ Number of Geoscientists	Four (5 Field + 3 HQ). Names will be provided prior to filed work.
	Expected Field days (Geology, Geophysics, Surveyor)	Geology – 600 days (400 Field + 200 HQ), Geophysics – 170 days (120 Field + 50 HQ)

<table>
<tr><td>1.</td><td>Location</td><td></td></tr>
<tr><td></td><td>Latitude & Longitude</td><td>
<table>
<tr><th rowspan="2">Corner points</th><th colspan="2">WGS-84</th><th colspan="2">WGS-84 / 44 N</th></tr>
<tr><th>Latitude</th><th>Longitude</th><th>Northing</th><th>Easting</th></tr>
<tr><td>A</td><td>20° 45' 0.00" N</td><td>79° 0' 0.00" E</td><td>2295767.844</td><td>291766.3451</td></tr>
<tr><td>B</td><td>20° 45' 0.00" N</td><td>79° 30' 0.00" E</td><td>2295204.212</td><td>343835.2235</td></tr>
<tr><td>C</td><td>20° 15' 0.00" N</td><td>79° 30' 0.00" E</td><td>2239856.643</td><td>343327.6582</td></tr>
<tr><td>D</td><td>20° 15' 0.00" N</td><td>79° 0' 0.00" E</td><td>2240409.064</td><td>291089.3321</td></tr>
</table>
</td></tr>
<tr><td></td><td>Villages</td><td>Taka-Chimur-Shegaon Buzurg</td></tr>
<tr><td></td><td>Tehsil/ Taluk</td><td>Samudrapur, Umred, Bhiwapur, Chimur, Sindewahi, Bhadravati & Warora</td></tr>
<tr><td></td><td>District</td><td>Chandrapur, Wardha & Nagpur</td></tr>
<tr><td></td><td>State</td><td>Maharashtra</td></tr>
<tr><td>2.</td><td>Area (hectares/ square Kilometres)</td><td></td></tr>
<tr><td></td><td>Block Area</td><td>2887.20 sqkm / 288720 Ha</td></tr>
<tr><td></td><td>Forest Area</td><td>Not Available</td></tr>
<tr><td></td><td>Government Land Area</td><td>Not Available</td></tr>
<tr><td></td><td>Private Land Area</td><td>Not Available</td></tr>
<tr><td>3.</td><td>Accessibility</td><td></td></tr>
<tr><td></td><td>Nearest Rail Head</td><td>Warora, Hinganghat & Umred</td></tr>
<tr><td></td><td>Road</td><td>NH-44 & NH-353E (Passing through the Block)</td></tr>
<tr><td></td><td>Airport</td><td>Nagpur (~100 km)</td></tr>
<tr><td>4.</td><td>Hydrography</td><td></td></tr>
<tr><td></td><td>Local Surface Drainage Pattern (Channels)</td><td>The drainage pattern of the area is dendritic in nature.</td></tr>
<tr><td></td><td>Rivers/ Streams</td><td>Stream of first and second order with dendritic pattern is observed within the area.</td></tr>
<tr><td>5.</td><td>Climate</td><td></td></tr>
<tr><td></td><td>Mean Annual Rainfall</td><td>The average rainfall recorded during past years at Nagpur was 800mm, most of which fell between June and September and is about 20% less as compared to the Maharashtra average of 1035mm</td></tr>
<tr><td></td><td>Temperatures (December) (Minimum) Temperatures (June) (Maximum)</td><td>Minimum – 10°C

Maximum – 47°C</td></tr>
<tr><td>6.</td><td>Topography</td><td></td></tr>
<tr><td></td><td>Toposheet Number</td><td>55 P/02. 55 P/03, 55 P/06 & 55 P/07</td></tr>
<tr><td></td><td>Morphology of the Area</td><td>The area exhibits moderate to highly undulating topography with minimum and maximum elevation of 195m MSL and 420m MSL respectively. The relief of the area is about 225m</td></tr>
</table>

7	**Availability of baseline geoscience data**	
	Geological Map (1:50K/ 25K)	Available for some part of the block
	Geochemical Map	Available
	Geophysical Map (Aero-geophysical, Ground geophysical, Regional as well as local scale GP maps)	Available
8.	**Justification for taking up Regional Mineral Targeting (RMT)**	India's geologically diverse terrain offers significant potential for discovering critical mineral resources essential for industrial growth and strategic self-reliance. Regional Mineral Targeting (RMT) provides a focused, data-driven approach to explore underutilized regions, particularly for critical minerals like Lithium, Base Metal and REE which are key to sectors such as renewable energy, electronics and infrastructure. RMT integrates base line geological data such as aero geophysical surveys, remote sensing, geological and geochemical mapping data to identify zones with high mineral potential. Supported by the National Mineral Exploration Policy and reforms under the MMDR Act, RMT encourages both public and private sector participation. By targeting high-potential areas and leveraging advanced technologies like GIS and AI, RMT aligns with India's strategic, economic and sustainability goals, making it a vital step toward unlocking the nation's mineral wealth.

PROPOSAL FOR REGIONAL MINERAL TARGETING IN TAKA-CHIMUR-SHEGAON BUZURG AREA IN CHANDRAPUR, WARDHA AND NAGPUR DISTRICTS OF MAHARASHTRA FOR BASE-METALS, REE, RM AND OTHER ASSOCIATED MINERALIZATION

1. Block Summary

1.1. Introduction

During February 2025, Geological survey of India (GSI) had earmarked 7 blocks for Regional Mineral Targeting (RMT) and invited expression of interest from all the Notified Private Exploration Agency (NPEA) for carrying out mineral targeting in these areas.

Mining Tech Consultancy Services Limited (MTCS) had submitted its expression of interest for RMT block and subsequently allotted with RMT block located in Taka-Chimur-Shegaon Buzurg area of Chandrapur, Wardha and Nagpur districts in Maharashtra to evaluate the existing data i.e. aero-geophysical, interpretation of Remote Sensing data and integration with baseline geoscience data for base-metals, REE, RM and other associated mineralization. The block was handed over to MTCS by the Hon'ble Union Minister of Coal & Mines on 4th March 2025, during 175-year Foundation Day of GSI.

1.2. Location & Accessibility

The RMT block is located near Taka-Chimur-Shegaon Buzurg villages in Chandrapur, Wardha and Nagpur districts of Maharashtra. The area is bounded between latitude 20° 15' 0.000" N to 20° 45' 0.000" N and longitude 79° 0' 0.000" E to 79° 30' 0.000" E and falls within the Survey of India Toposheet no. 55 P/02. 55 P/03, 55 P/06 & 55 P/07.

The area is accessible from Nagpur NH-44 & NH-353E (Passing through the Block). The nearest railway station is Warora on the southwestern boundary of the block, and the nearest airport is at Nagpur (~100 km) from the RMT block.

1.3. Physiography

The area exhibits moderate to highly undulating topography with minimum and maximum elevation of 195m aMSL and 420m aMSL respectively. The relief of the area is about 225m. The Southeast part of the RMT block comprises of ridges with highest elevation. Stream of first and second order with dendritic pattern is observed within the area.

2. Geology

2.1. Regional Geology

The study area exposes the part of Sakoli and Sausar Fold Belt along with Amgaon Gneissic Complex (AGC), Tirodi Biotite Gneiss and migmatites (TBG) as a basement. The Sausar Fold Belt is an important Mesoproterozoic mobile belt in the Central Indian Peninsular Shield. Sausar Fold Belt consists of two major lithotectonic ensembles that includes Tirodi Biotite Gneiss, migmatites and the metasedimentary Sausar Group (SSG). The migmatitic biotite gneiss forms basement for Sausar, occupy the northern and central part of the study area. The Sausar Group hosts the largest productive

manganese ore deposits in India.

The Sausar Group of rocks has undergone metamorphism under the greenschist, epidoteamphibolite and amphibolite facies. The gondites are regarded as the products of granulite facies metamorphism of manganiferous sediments. In the west, in the Chhindwada district of M.P., the dominant structural trend in the central part is NW-SE. In parts of Nagpur and Bhandara districts, Maharashtra it takes a trend of WNW-ESE to E-W to ENE-WSW; towards further east in Balaghat district of M.P., it becomes dominantly NE-SW.

Recent	Soil and Alluvium	
Palaeocene	Deccan Trap	
Cretaceous	Lameta Formation	
Upper Jurassic	Chikiala Formation*	Brown and buff ferruginous sandstone and conglomerate
Jurassic	Kota Formation*	Sandstone, grit, red clay and a few limestone beds
Upper Triassic	Maleri Formation*	Fine to medium grained sandstone and red shale
Upper Permian to Lower Triassic	Kamthi Formation	Red brown and variegated sandstone, reddish siltstone and variegated shale
Lower Permian	Motur Formation#	Mottled clays and chloritic sandstone and carbonaceous shale
Lower Permian	Barakar Formation	Light grey to white sandstone, shale and coal seams
Upper Carboniferous	Talchir Formation	Tillite, turbidite, varve needle shale and sandstone
---------- Unconformity----------		
Proterozoic	Pakhal Super group	Cover sediments
Archaean	Bengapal Gneisses	Gneisses, meta -sediments and Metabasics
* Developed only in Sironcha and Amravati tehsils of Gadchiroli district. # Developed only in Kamthi coalfield		

(Source: Miscellaneous publication on geology and minerals resources of Maharashtra)

Lithostratigraphy of the Study area (as per CR, unified legend)

Group	Formation	Lithological unit
Satpura Lameta		Alluvium Laterite
Unclassified	Unclassified	Granite
Dongargarh Granite	Dongargarh Granite	Granite
Sausar	Mansar	Muscovite schist, Phyllite
Sakoli	Intrusive	Meta gabbro
	Dhabetekri	Chert, Meta basalt, Phyllite
	Gaikhuri	BIF, Phyllite, Quartzite
Tirodi Gneissic Complex		Gneiss/migmatite
Amgaon Gneissic Complex		Quartzite, BIF, Mica schist, Kyanite, sillimanite, cordierite schist, Calc-silicate rock, Granulite, Amphibolite, Tonalite-trondjhemite- granite/ granodiorite, Granite gneiss/migmatite, Granite, Tourmalinite, Quartz vein

Based on the preliminary studies 5 Major Rock Suits such as Decan Traps Volcanics, Lower Gondwana sandstone and shales, Bengpal Granite genies & Migmatites, Lameta Limestone, Penganga Shale and sandstone, have been identified.

3. Available Geological Reports and Data

The RMT block is located near Taka-Chimur-Shegaon Buzurg Villages in Chandrapur, Wardha and Nagpur districts of Maharashtra. The area falls under the Survey of India Toposheet no. 55 P/02. 55 P/03, 55 P/06 & 55 P/07.

Previously, investigation for various mineral commodities have been undertaken within the toposheet no. 55 P/02. 55 P/03, 55 P/06 & 55 P/07. Some of the major geological reports relevant to the RMT block have been listed as under.

Sl. No.	Report Title	Commodity	Organization	Publication Year
1.	Geology And Basemetal Mineralisation in Tas-Jogikhera Area,Nagpur District, Maharashtra.	Base Metal	GSI	1988
2.	Progress Report on Regional Assessment of Base Metal Mineralisation in the Bhanori - Kolari Tambekhani Area, Nagpur District, Maharashtra	Base Metal	GSI	1978

Sl. No.	Report Title	Commodity	Organization	Publication Year
3.	A Note on Preliminary Appraisal of Base Metal Occurrences at Nimbha and Dongar Maunda in Nagpur District,Maharashtra and Amgawan in Jabalpur District, Madhya Pradesh	Base Metal	GSI	1972
4.	Geology Of a Part of Garchiroli Tehsil, Chanda District in Toposheets 64d/3 And D/7. A Progress Report for the Field Season 1961-62, and Notes on Reported Occurrence of Some Minerals in Umrer Tahsil of Nagpur District and Sironcha Tahsil of Chanda District	Corundum, Building Material, Chromite, Base Metal, Soapstone, Limestone	GSI	1961
5.	Progress Report on Geochemical Survey in Parts of Nagpur and Bhandara Districts, Maharashtra	Base Metal	GSI	1974
6.	A Report on The Geochemical Investigation for Gold in the Sakoli Group at Ran Mangli-Tas-Kotalpar Area, Nagpur District, Maharashtra	Gold	GSI	1996
7.	Rio Tnto Exploration Inda Private Limited Author Amarpal Singh Arora Final Relinquishment Report on the Chandrapur North Reconnaissance Permit Maharashtra India Rio Tinto Report Number 28896	Gold, Copper, Lead, Zinc, Silver, Bismuth, Cadmium, Diamond	Indian Bureau of Mines (IBM)	2009
8.	Report On Investigation for Establishing Zones of Copper and Associated Gold Mineralisation around Govindpur Copper Prospects, Chandrapur District, Maharashtra	Copper, Gold	GSI	2007
9.	Final Report on Search for Gold and Associated Metals in Dongarmouda-Ranmangli-Pahungaon Areas, Nagpur District, Maharashtra	Gold	GSI	1995
10.	Part-I Final Report on Exploration for Gold in Kolari Prospect, Nagpur District, Maharashtra (E-1 Stage) Part-II Environmental Appraisal in Respect of Abiotic Parameters Around Exploration Site for Exploration for Gold in Kolari Prospect, Nagpur District, Maharashtra (E-1 Stage)	Gold	GSI	2002
11.	Preliminary Investigation for the Reported Occurrences of Gold in Bhiwapurâ Pauni Areas, Nagpur-Bhandara Districts, Maharshtra State	Gold	GSI	1968

Sl. No.	Report Title	Commodity	Organization	Publication Year
12.	Final Report on Exploration for Gold in Kosari-1 Block, Nagpur District, Maharashtra	Gold	GSI	1998
13.	Report On the Preliminary Exploration for Gold in Kitari Block, Nagpur District and Khapri Thutan Bori Blocks, Nagpur Bhandara Districts, Maharashtra	Gold	GSI	1994
14.	Geology And Preliminary Investigation for Sulphide Mineralisation in Pahungaon Area, Block-8, District Bhandara Maharashtra	Sulphides	GSI	1989

Also, some of the baseline reports falling within the RMT area are mentioned as under:

Sl. No.	Report Title	Report Type	Organization	Publication Year	Topo-sheet Number
1.	Geology Of Portions of Warora and Brahmpuri Tehsils, Chanda District in Toposheet 55P/07	Geological Report	GSI	1962	55P07
2.	Geology Of a Portion of Chanda District in Toposheet 55P/03 And Yeotmal District in Toposheet 55P/04	Geological Report	GSI	1963	55P03, 55P04
3.	Geology Of a Portion of Bhandara, Brahmapuri and Warora Tahsil of Bhandara and Chanda District	Geological Report	GSI	1959	55P06, 55P10, 55P11
4.	Note On Reconnaissance of The Bandar Coalfield Chanda District, Maharashtra	Geological Report	GSI	1960	55P03, 55P06, 55P07
5.	Geology of a Portion of Chanda Districts in Toposheet 56M/02 And Portion of Chanda and Wardha Districts in Toposheet 55P/03	Geological Report	GSI	1964	56M02, 55P03
6.	Geology Of Parts of Hinganghat Tehsil of Wardha District, Umrer Tehsil of Nagpur District and Warora Tehsil of Chanda District, Maharashtra State in Toposheet 55P/02	Geological Report	GSI	1963	55P02
7.	Geology of Parts of Hinganghat Tahsil of Wardha District Umrer Tahsil of Nagpur District and Warora Tahsil of Chanda District Maharashtra State	Geological Report	GSI	1963	55P02, 55P03, 55P05
8.	Geochemical Mapping in Toposheet Number 55 P/6, In Parts of Chandrapur District, Maharashtra	Geochemical Report	GSI	2012	55P06

Sl. No.	Report Title	Report Type	Organization	Publication Year	Topo-sheet Number
9.	Report On Geochemical Mapping in Toposheet No 55P/03, 04 And Part of 56M/09 Covering Parts of Chandrapur, Wardha, Yeotmal Districts, Maharashtra	Geochemical Report	GSI	2012	55P03, 55P04, 56M09
10.	Report On Geochemical Mapping in Toposheet No 55P/03, 04 And Part of 56M/09 Covering Parts of Chandrapur, Wardha, Yeotmal Districts, Maharashtra	Geochemical Report	GSI	2012	55P03, 55P04, 56M09
11.	Report On Geochemical Mapping in Toposheet No 55P/03, 04 and Part of 56M/09 Covering Parts of Chandrapur, Wardha, Yeotmal Districts, Maharashtra	Geochemical Report	GSI	2012	55P03, 55P04, 56M09

The following datasets are available on NGDR portal and shall be taken into consideration while performing mineral prospectivity analysis during Phase-I studies.

a. Geological Database
b. Structural Data (Dyke, Fault, Fold, Lineament, Strike & Dip, Structural Discontinuity)
c. Geomorphological Landform
d. Geochemistry Data (NGCM)
e. Ground Geophysics Data (NGPM), except for area falling within part of SoI TS no. 55P/07 (i.e. area falling within Tadoba Tiger Reserve)
f. Aero-Geophysical Data (NAGMP), except for area falling within part of SoI TS no. 55P/03 and 55P/07

4. Block description

The RMT block falls within the Survey of India Toposheet no. 55 P/02. 55 P/03, 55 P/06 & 55 P/07. The co-ordinates of cardinal points of the area are given in Table I. Total size of the block is 2887.20 sqkm out of which 914 sqkm falls under the buffer zone of Tadoba Tiger Reserve (located on the south-east corner of the block under SoI TS no. 55P/07).

Table I: Cardinal points of the RMT Block

Corner points	WGS-84		WGS-84 / 44 N	
	Latitude	Longitude	Northing	Easting
A	20° 45' 0.00" N	79° 0' 0.00" E	2295767.844	291766.3451
B	20° 45' 0.00" N	79° 30' 0.00" E	2295204.212	343835.2235
C	20° 15' 0.00" N	79° 30' 0.00" E	2239856.643	343327.6582
D	20° 15' 0.00" N	79° 0' 0.00" E	2240409.064	291089.3321

5. Proposed Scope of Work by MTCS

5.1. Scope for proposed exploration

Regional Mineral Targeting is proposed to be undertaken in 4 phases within the study area. The work comprises of the following:

Phase I

- Collection, integration and study of existing base line data and geological reports for mineral targeting and gap analysis.
- Preparation of Prospectivity map based on existing data.

Phase II

- Traverse mapping (1:50,000/ 1:25,000 scale) in the data gap area along with pitting/trenching & geochemical sampling
- Updation of Prospectivity map based on data collected from Gap areas

Phase III

- Geophysical survey within few specific zones along with pitting/trenching & geochemical sampling to identify target zone for drilling.

Phase IV

- Scout drilling within the anomalous zones identified by Geological mapping, geophysical survey and geochemical sampling.
- Identification of mineral systems and potential areas for G4 investigations based on data generated by carrying out the above-mentioned exploration works.
- Preparation of Geological Report compiling old and newly generated data.

5.2. Objectives

The objectives of current exploration program shall be:

I. Integration, study & interpretation of existing base line data (Geological, Geophysical data) and available geological reports to identify data gaps in respect of generating mineral prospectivity maps for base-metals, REE, RM & associated mineralization within the block.

II. Carry out exploration works in terms of traverse mapping, geochemical sampling, geophysical survey, pitting/trenching and scout drilling within the gap areas to fill the gaps.

III. Identifying and earmarking potential areas / targets for undertaking G4 level of exploration.

IV. Preparation of geological report based on old and newly generated data.

5.3. Planned Methodology

The details of different activities to be carried out in phases are described below:

PHASE - I

5.3.1 Data Integration, Interpretation & Gap Analysis

Integration, study & interpretation of existing base line data and geological reports will be done for mineral targeting and gap analysis. Along with existing data, hyperspectral remote sensing maps will be incorporated for data analysis.

For this purpose, an expert for AI & ML will be assigned, if required, to interpret the existing data and preparation of mineral prospectivity maps in respect of Base Metal, REE & Rare Metals.

An interim report will be prepared indicating the findings of the above activities, mineral prospectivity maps and data gap areas.

PHASE - II

5.3.2 Traverse Mapping (1:50,000 / 1:25,000 scale) & associated activities

Based on the data interpretation & gap analysis, traverse mapping on 1:50,000 / 1:25,000 scale will be carried out in the data gap areas. During this mapping program, surface (bedrock) and stream sediment samples (from 1st order streams)/regolith/soil samples will be collected for analysis. For the purpose budget, collection of 200 BRS & 100 stream sediment/soil/regolith samples has been considered.

For the Tadoba Tiger Reserve area and its buffer zone, hyperspectral remote sensing and aero-geophysical data (if available) will be used in case field study is not possible.

5.3.3 Pitting/Trenching

While conducting traverse mapping, pitting & trenching will be done in targeted locations. For budget purpose, 50 cum excavation for pitting and 100 cum for trenching have been considered. Collection of 25 pit & 50 trench samples has been taken here.

5.3.4 Analysis of Field Samples

All the samples collected during traverse mapping and pitting & trenching activities will be analyzed in NABL accredited laboratory for Base Metals, Gold, REE & Rare Metals. For the purpose of budget estimation, following sample analysis scope has been considered (10% check samples included in all cases):

Fire Assay (for Gold)	• BRS: 66 samples • SS/Soil/Regolith: 22 samples • Pit/Trench: 28 samples
ICP-MS (for Base Metal, Critical Elements & REE)	• BRS: 220 samples • SS/Soil/Regolith: 110 samples • Pit/Trench: 40 samples
Ni-Sulphide Fire Assay (PGE)	• BRS: 66 samples • Pit/Trench: 28 samples
XRF Analysis (Major Oxides)	• BRS: 220 samples
Petrochemical Samples	40 samples
Mineralogical Study	• XRD: 20 samples • EMPA: 10 samples (20 Hours)

Based on the outcome of the above activities, the mineral prospectivity maps will be updated and potential areas will be demarcated. An interim report will be prepared with the findings of the above activities and updated mineral prospectivity maps.

PHASE III

5.3.5 Geophysical Survey

Ground geophysical survey in terms of Gravity & Magnetic Survey will be carried out within specific zones. IP surveys will also be conducted where sulphide mineralization is encountered. Radiometry Survey will be done for REE mineralization. For demarcation of sub-surface structures, Magnetotelluric (MT) survey will be conducted.

For budget estimates following quantities have been considered for geophysical survey:

Gravity Magnetic Survey	800 points
I.P. cum-resistivity, SP, Magnetic Survey	100 Lkm
Magnetotelluric (MT) survey	80 stations
Radiometric Survey	140 stations

5.3.6 Pitting/Trenching

Pitting & trenching will be done in the anomalous zones identified by geophysical survey. For budget purpose, 100 cum excavation for pitting and 200 cum for trenching have been considered. Collection of 50 pit & 100 trench samples has been taken here. While conducting pitting/trenching, additional 100 bedrock samples will be collected from anomalous zones.

5.3.7 Sample Analysis in Phase III

Samples collected during pitting & trenching activities will be analyzed in NABL accredited laboratory for Base Metals, Gold, REE & Rare Metals. Isotope study will be for the obtaining knowledge in respect of genesis of the 5 Major Rock Suites reported in the block. For the purpose of budget estimation, following sample analysis scope has been considered (10% check samples included in all cases):

Fire Assay (for Gold)	• BRS: 55 samples • Pit/Trench: 40 samples
ICP-MS (for Base Metal, Critical Elements & REE)	• BRS: 110 samples • Pit/Trench: 165 samples
Ni-Sulphide Fire Assay (PGE)	• BRS: 28 samples • Pit/Trench: 40 samples
XRF Analysis (Major Oxides)	• BRS: 110 samples
Petrochemical Samples	20 samples
Mineralogical Study	• XRD: 30 samples • EMPA: 10 samples (20 Hours)
Fluid Inclusion Study	10 samples
Hydro-geological Sampling ❖ Complete analysis for 14 elements	 • 20 samples • 10 samples

❖ Boron analysis ❖ Mercury analysis ❖ Fluoride analysis	• 10 samples • 10 samples • 10 samples
Geochronology Study ❖ Sulphur/carbon isotope analysis by Mass Spectrometer ❖ Carbon/oxygen isotopic analysis by Mass Spectrometer ❖ Isotopic analysis of one sample by LA-MC-ICPMS ❖ Zircon isotope analysis ❖ Rb-Sr isotope analysis	 • 25 samples (for major litho-suites) • 25 samples (for major litho-suites) • 10 samples (for major litho-suites) • 10 samples (for Sediments) • 10 samples (For Bengpal Formation)

Based on the outcome of the above activities, the target area for drilling will be identified. An interim report will be prepared with the findings of the above activities.

PHASE IV

5.3.8 Scout Drilling

Scout drilling has been planned within the anomalous zones identified by Geological mapping, geophysical survey and geochemical sampling. Total 3000m drilling has been proposed in 15 scout boreholes having proposed depth of 200m for each hole. Geological logging of cores will be done with collection of samples from mineralized intervals.

5.3.9 Analysis of Core Samples

Core samples will be analyzed in NABL accredited laboratory for Base Metals, Gold, REE & Rare Metals as well as for Coal. For budget purpose, following sample analysis scope has been considered (10% check samples included in list):

Fire Assay (for Gold)	55 samples
ICP-MS (for Base Metal, Critical Elements & REE)	330 samples
Ni-Sulphide Fire Assay (PGE)	40 samples
XRF Analysis (Major Oxides)	165 samples
Proximate analysis with Total Sulphur for Coal	110 samples
Petrochemical Samples	30 samples
Mineralogical Study	• XRD: 30 samples • EMPA: 10 samples (20 Hours)

5.3.10 Specific Gravity Determination

For specific gravity determination, a total of 10 samples are proposed. The samples are to be drawn from ore zones / mineralized zones.

5.3.11 Identification of Potential Area for G4 Exploration

Based on the data generated by carrying out the exploration works in Phase I to Phase IV, mineral systems present in the block and potential mineralized areas will be identified for conducting G4 investigation in future.

5.3.12 Preparation of Geological Report

A Geological Report will be prepared compiling the old and newly generated data.

6. Quantum of Work

Quantum of work proposed by MTCS for this RMT Project is given below table (Table II).

Table II: Work quantum

Sl. No.	Nature of work	Unit	Quantum	Remarks
	PHASE I			
A	**Data Integration & Gap Identification**			
1	Remote Sensing study & interpretation, collation, integration of datasets of NGCM, NGPM, Airborne Geophysical, Geology, Structural trend maps, Outcrop boundaries, Mineral occurrences, Seismo-tectonics, Geochronology, ASTER alterations etc. and preparation of thematic maps. Consultation of all ME reports, extraction and plotting of selected data (drill, alteration minerals, Geophysical etc.) in GIS for predictive geological mapping and preparing thematic maps	sq.km.	2887.20	Geologist/ Geophysicist/ GIS & AI/ML experts - as necessary Progress Report/ Outcome delineating potential and gap area to identified
	PHASE II			
B	**Traverse Mapping (1:50000/ 1:25000 scale) and associated works**			
1	Field study within the gap area	sq.km.	600	Considering 20% area having data gaps
2	Bedrock/ Chip/ Channel Samples	Nos.	200	
3	Stream Sediment/ Soil/ Regolith Samples	Nos.	100	
C	**Pitting/Trenching**			
1	Pitting	cum	50	
2	Trenching	cum	100	
3	Pit Samples	Nos.	25	
4	Trench Samples	Nos.	50	
D	**Laboratory Studies of Field Samples**			
1	**Bedrock Samples (Chip/ Channel Samples)**			
a	Fire Assay + 10% check samples	Nos.	66	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	220	
c	PGE Analysis (5 elements) + 10% check samples	Nos.	66	
d	XRF Analysis (Major Oxides) + 10% check samples	Nos.	220	
2	**Stream Sediment/ Soil /Regolith Samples**			
a	Fire Assay + 10% check samples	Nos.	22	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	110	
3	**Pit/Trench Samples**			
a	Fire Assay + 10% check samples	Nos.	28	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	40	
c	PGE Analysis (5 elements) + 10% check samples	Nos.	28	
4	**Petrochemical Samples**			
a	Petrochemical Samples (PCS) for Major, Minor, Trace & REE	Nos.	40	
b	Ore Microscopy (OM)	Nos.	40	

Sl. No.	Nature of work	Unit	Quantum	Remarks
5	**Mineralogical Study**			
a	XRD	Nos.	20	
b	EPMA	Hrs	20	10 samples
	PHASE III			
E	**Geophysical Survey**			
1	Gravity Magnetic Survey	station	800	
2	I.P. cum-resistivity, SP, Magnetic Survey	LKm.	100	
3	MT Survey	station	80	
4	Radiometric Survey	station	140	
F	**Bedrock Samples**			
1	Bedrock Samples (Chip/ Channel Samples)	Nos.	100	
G	**Pitting/Trenching**			
1	Pitting	cum	100	
2	Trenching	cum	200	
3	Pit Samples	Nos.	50	
4	Trench Samples	Nos.	100	
H	**Laboratory Studies of BRS/Pit/Trench Samples**			
1	**Bedrock Samples (Chip/ Channel Samples)**			
a	Fire Assay + 10% check samples	Nos.	55	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	110	
c	PGE Analysis (5 elements) + 10% check samples	Nos.	28	
d	XRF Analysis (Major Oxides) + 10% check samples	Nos.	110	
2	**Pit/Trench Samples**			
a	Fire Assay + 10% check samples	Nos.	40	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	165	
c	PGE Analysis (5 elements) + 10% check samples	Nos.	40	
3	**Petrochemical Samples**			
a	Petrochemical Samples (PCS) for Major, Minor, Trace & REE	Nos.	20	
b	Ore Microscopy (OM)	Nos.	15	
4	**Mineralogical Study**			
a	XRD	Nos.	30	
b	EPMA	Hrs	20	10 samples
5	**Fluid Inclusion Study**			
a	Fluid Inclusion Study	Nos.	10	
6	**Geophysical property of rock samples, magnetic, susceptibility etc.**	Nos.	50	
7	**Hydro-geological Analysis**	Nos.		50 samples considered
a	Complete analysis for 14 elements	Nos.	20	
b	Boron analysis	Nos.	10	

Sl. No.	Nature of work	Unit	Quantum	Remarks
c	Mercury analysis	Nos.	10	
d	Fluoride analysis	Nos.	10	
7	**Geochronology Study (for 5 Major Rock Suites)**			
a	Sulphur/carbon isotope analysis by Mass Spectrometer	Nos.	25	
b	Carbon/oxygen isotopic analysis by Mass Spectrometer	Nos.	25	
c	Isotopic analysis of one sample by LA-MC-ICPMS	Nos.	10	
d	Zircon isotope analysis	Nos.	10	
e	Rb-Sr isotope analysis	Nos.	10	
	PHASE IV			
I	**Scout Drilling**			
1	Drilling (Hard Rock, upto 300m per hole)	m	3000	15 boreholes; 200m depth
2	Drill Core Samples	Nos.	300	
3	Bore hole Plugging by Cement	Nos.	3000	HQ 900m, NQ 2100
4	DGPS Survey of Boreholes	Nos.	15	
J	**Laboratory Studies of Core Samples**			
a	Fire Assay + 10% check samples	Nos.	55	
b	Base Metal, Critical Elements & REE + 10% check samples	Nos.	330	
c	PGE Analysis (5 elements) + 10% check samples	Nos.	40	
d	XRF Analysis (Major Oxides) + 10% check samples	Nos.	165	
e	Sample preparation upto 5kg Coal / Lignite	Nos.	100	
f	Proximate analysis of coal	Nos.	110	
g	Total Sulphur	Nos.	110	
3	**Petrochemical Samples**			
a	Petrochemical Samples (PCS) for Major, Minor, Trace & REE	Nos.	30	
b	Ore Microscopy (OM)	Nos.	20	
4	**Mineralogical Study**			
a	XRD	Nos.	30	
b	EPMA	Hrs	20	10 samples
5	**Bulk density determination**	No	10	
K	**Prospectivity Analysis & Reporting**			
1	Geological Report Preparation (Data interpretation and Prospectively Analysis, Identification of mineral systems and potential areas for G4 investigations)	Nos.	1	

7. Time schedule and cost estimates

7.1. Time schedule

The proposed exploration including all activities like data analysis, gap identification, exploration works within data gap area, identification of potential zones etc. will be completed within 22 months. Report writing will be done another 2 months. Thus, the total duration of the project shall be 24 months from the date of commencement. The bar chart showing activities wise time schedule is placed in Table No. III.

Table III: Tentative Time schedule for RMT Project

Activity	Type of Job	Months																							
		1	2	3	4	Review	5	6	7	8	9	10	Review	11	12	13	14	15	16	Review	17	18	19	20	21	22	23	24
Phase I																												
Collection, integration and study for mineral targeting and gap analysis. Preparation of Prospectivity map based on data analysis & identification of Gap areas	HQ																											
Phase II																												
Traverse Mapping (1:50000/ 1:25000 scale) and associated works	Field																											
Pitting & Trenching	Field																											
Laboratory Studies of Field Samples	Lab																											
Interim Report	HQ																											
Phase III																												
Ground Geophysical Survey	Field																											
Pitting & Trenching	Field																											
Laboratory Studies of BRS/Pit/Trench Samples	Lab																											
Interim Report	HQ																											
Phase IV																												
Scout Drilling	Field																											
Laboratory Studies of Core Samples	Lab																											
Data compilation, RMT report preparation & submission to GSI / NMET	HQ																											

Note: Time loss on account of any natural calamity /agricultural activity/forest clearance / local law & order problem/ lockdown etc. will be additional to the above timeline.

7.2. Cost estimates

Based on the Schedule of Charges (SoC) of projects funded by National Mineral Exploration Trust (NMET) w.e.f. 01.04.2020 tentative cost has been estimated for this project. The total estimated cost is Rs. 1,281 Lakhs (Inclusive GST). The summary of cost estimates is given in Table No. IV and details of cost estimates are given in Table No. V.

Table IV - Summary of Cost estimates

Sl. No	Item	Estimated Cost	
		INR	INR (Cr.)
Phase I			
A	Data Integration & Gap Identification	17,20,640	0.17
	SUB-TOTAL (Phase-I)	**17,20,640**	**0.17**
Phase II			
B	Traverse Mapping & associated works	27,88,140	0.28
C	Pitting & Trenching	5,20,000	0.05
D	Laboratory Studies of Field Samples	61,72,390	0.62
	SUB-TOTAL (Phase-II)	**94,80,530**	**0.95**
Phase III			
E	Geophysical Survey	3,48,02,770	3.48
F	Pitting & Trenching	22,52,840	0.23
G	Laboratory Studies of BRS/PS/TS	66,82,215	0.67
	SUB-TOTAL (Phase-III)	**4,37,37,825**	**4.37**
Phase IV			
H	Scout Drilling	4,36,52,120	4.37
I	Laboratory Studies of Core Samples	50,76,910	0.51
J	Data interpretation using AI/ML	13,50,000	0.14
K	Geological report preparation	31,50,541	0.32
L	Report Peer Review	30,000	0.003
M	Exploration Proposal Preparation	5,00,000	0.05
	SUB-TOTAL (Phase-IV)	**5,37,59,571**	**5.38**
	TOTAL (Phase I+II+III+IV)	**10,86,98,566**	**10.87**
N	GST (18%)	1,95,65,742	1.96
	GRAND TOTAL	**12,82,64,308**	**12.83**

8. Manpower deployment

Manpower deployment List shall be provided prior to the commencement of work.

9. Break-up of expenditure

Detailed estimated cost for RMT Project over an area of 2887.20 sq.km. is given in Table V.

Table-V: Cost Estimate for RMT Project located in Chandrapur, Wardha & Nagpur Districts of Maharashtra

Title of Project - Regional Mineral Targeting (RMT) Project located in Chandrapur, Wardha & Nagpur Districts of Maharashtra for Base-Metals, REE, RM and Other Associated Mineralization
Total Area – 2887.20 sqkm; No. of Borehole: 15; Scout drilling: 3000m; Completion Time - 24 months; Review: Completion of each Phase

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
	PHASE I ***Timeline: 4 months, Review after completion of Phase I***						
A	**Data Integration & Gap Identification**						
1	Charge for procurement of Satellite Imagery (CartoDEM, 2.5m posting, DSM, 14km x 14km scene) for Remote sensing, multispectral and DEM data analysis	Lumpsum	1.1	6,290	16	1,00,640	As per actuals cost incurred on procurement from NRSC. No charges will be paid for data freely available from website
2	Data Integration, interpretation & gap identification by Geologist (HQ)	day	1.1b	9,000	150	13,50,000	Involvement of 2 geologists
3	Data Integration & interpretation by Geophysicist (HQ)	day	3.18	9,000	30	2,70,000	
				Cost for Phase I		**17,20,640**	
	Progress Report / Outcome delineating potential and gap area to be submitted after Phase I for Review						

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
	PHASE II ***Timeline: 6 months, Review after completion of Phase II***						
B	**Traverse Mapping (1:50000/ 1:25000 scale) and associated works**						
1	Geologist (Field) (Traverse mapping & pitting/trenching work)	day	1.2b	11,000	150	16,50,000	600 sq.km., Considering 20% area with data gaps; deployment of 2 geologists @ 75 days each
2	Labor (Field) - 2 No per Geologist	day	5.7	541	300	1,62,300	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.
3	Sampler - 1 No (For BRS, PS & TS)	day	1.5.2	5,100	60	3,06,000	About 300 BRS/ SSS and 75 PTS
4	Labor (Sampling) - 4 Nos	day	5.7	541	240	1,29,840	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.
5	Geologist (HQ)	day	1.2a	9,000	60	5,40,000	
				Sub-Total B		**27,88,140**	
C	**Pitting & Trenching**						
1	Pitting (2m depth)	cum	2.1.2	3,800	50	1,90,000	
2	Trenching (2m depth)	cum	2.1.1	3,300	100	3,30,000	
				Sub-Total C		**5,20,000**	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
D	**LABORATORY STUDIES OF FIELD SAMPLES**						
1	**Bedrock Samples (Chip/ Channel Samples)**						
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	66	1,57,080	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	220	17,00,820	
c	Ni Sulphide Fire Assay (PGE): Primary + 10% Check Samples	Nos	4.1.5d	11,800	66	7,78,800	
d	XRF Analysis (Major Oxides): Primary + 10% Check Samples	Nos	4.1.15a	4,200	220	9,24,000	
2	**Stream Sediment/ Soil /Regolith Samples**						
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	22	52,360	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	110	8,50,410	
3	**Pit/Trench Samples**						
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	28	66,640	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	40	3,09,240	
c	Ni Sulphide Fire Assay (PGE): Primary + 10% Check Samples	Nos	4.1.5d	11,800	28	3,30,400	
4	**Whole Rock Analysis**						
a	XRF (Major Oxides)	Nos	4.1.15a	4,200	40	1,68,000	
b	ICP MS (Trace Elements)	Nos	4.1.14	7,731	40	3,09,240	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
c	Preparation of Thin Polished section	Nos	4.3.1	2,353	40	94,120	
d	Study of Thin Polished section	Nos	4.3.4	4,232	40	1,69,280	
e	Digital Photograph	Nos	4.3.7	280	40	11,200	
5	**Mineralogical Study**						
a	XRD	Nos	4.5.1	4,000	20	80,000	
b	EPMA	Hours	4.4.1	8,540	20	1,70,800	
				Sub-Total D		**61,72,390**	
				Cost for Phase II		**94,80,530**	
	PHASE III ***Timeline: 6 months, Review after completion of Phase III***						
E	**Geophysical Survey**						
1	Gravity Magnetic Survey	station	3.1b	4,500	800	36,00,000	
2	I.P. cum-resistivity, S.P. Magnetic Survey	LKm.	3.4b	14,48,693	10	1,44,86,930	Rs 14,48,693 per 8-10 Lkm, 100 LKm is considered
3	MT Survey	station	3.8	11,90,313	13	1,58,70,840	
4	Radiometric Survey	station	NA	2,500	140	3,50,000	As per Actuals
5	Geophysicist (HQ)	day	3.18	11,000	45	4,95,000	
				Sub-Total E		**3,48,02,770**	
F	**Pitting & Trenching**						
1	Pitting (2m depth)	cum	2.1.2	3,800	100	3,80,000	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
2	Trenching (2m depth)	cum	2.1.1	3,300	200	6,60,000	
3	Geologist (Field)	day	1.2b	11,000	60	6,60,000	
4	Labor (Field) - 2 No per Geologist	day	5.7	541	120	64,920	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.
5	Sampler - 1 No	day	1.5.2	5,100	30	1,53,000	
6	Labor (Sampling) - 4 Nos	day	5.7	541	120	64,920	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.
7	Geologist (HQ) (For Preparation of Interim Progress Report)	day	1.2a	9,000	30	2,70,000	
					Sub-Total F	**22,52,840**	
G	**LABORATORY STUDIES OF BRS/PIT/TRENCH SAMPLES**						
1	**Bedrock Samples (Chip/ Channel Samples)**						
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	55	1,30,900	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	110	8,50,410	
c	Ni Sulphide Fire Assay (PGE): Primary + 10% Check Samples	Nos	4.1.5d	11,800	28	3,30,400	
d	XRF Analysis (Major Oxides): Primary + 10% Check Samples	Nos	4.1.15a	4,200	110	4,62,000	
2	**Pit/Trench Samples**						

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	40	95,200	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	165	12,75,615	
c	Ni Sulphide Fire Assay (PGE): Primary + 10% Check Samples	Nos	4.1.5d	11,800	40	4,72,000	
3	**Whole Rock Analysis (Petrochemical Samples)**						
a	XRF (Major Oxides)	Nos	4.1.15a	4,200	20	84,000	
b	ICP MS (Trace Element)	Nos	4.1.14	7,731	20	1,54,620	
c	Preparation of Thin Polished section	Nos	4.3.1	2,353	20	47,060	
d	Study of Thin Polished section	Nos	4.3.4	4,232	20	84,640	
e	Digital Photograph	Nos	4.3.7	280	15	4,200	
4	**Mineralogical Study**						
a	XRD	Nos	4.5.1	4,000	30	1,20,000	
b	EPMA	Hours	4.4.1	8,540	20	1,70,800	
5	**Fluid Inclusion Study**	Nos	4.3.9	12,600	10	1,26,000	
6	**Physical Property Study**						
a	Geophysical property of rock samples, magnetic, susceptibility etc.	Nos	NA	5,000	50	2,50,000	As per actuals
7	**Hydro-geological Studies**						
a	Complete analysis for 14 elements (Hydro-geological analysis)	Nos	4.1.8a	3,680	20	73,600	
b	Boron analysis (Hydro-geological analysis)	Nos	4.1.8b	1,180	10	11,800	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
c	Mercury analysis (Hydro-geological analysis)	Nos	4.1.8c	1,247	10	12,470	
d	Fluoride analysis (Hydro-geological analysis)	Nos	4.1.8d	1,160	10	11,600	
8	**GEOCHRONOLOGY STUDIES**						
a	Sulphur/carbon isotope analysis by Mass Spectrometer per sample	Nos.	4.6.1	25,340	25	6,33,500	
b	Carbon/oxygen isotopic analysis by Mass Spectrometer per sample	Nos.	4.6.2	24,360	25	6,09,000	
c	Isotopic analysis of one sample by LA-MC-ICPMS	Nos	4.6.3	8,540	10	85,400	
d	Zircon isotope analysis	Nos	NA	20,000	10	2,00,000	As per actuals
e	Rb-Sr isotope analysis	Nos	As per Govt Org	38,700	10	3,87,000	As per actuals
					Sub-Total G	**66,82,215**	
					Cost for Phase III	**4,37,37,825**	
	PHASE IV ***Timeline: 8 months, Review after completion of Phase IV***						
H	**SCOUT DRILLING**						
1	Drilling (Hard rock)	m	2.2.1.4b	12,420	3000	3,72,60,000	15 boreholes considered with 200m depth for each borehole
2	Fixation of Borehole and determination of co-ordinates and RL of BH by DGPS	per point	1.6.2	19,200	15	2,88,000	
3	BH deviation survey by multishot camera	per m	2.2.6	330		-	
4	Borehole Plugging by Cement	per m	2.2.7.b	150	900	1,35,000	For HQ Size
		per m	2.2.7.b	200	2100	4,20,000	For NQ Size

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
5	Land / Crop Compensation (in case the BH falls in agricultural Land)	per BH	5.6	20,000	15	3,00,000	As per actuals
6	Construction of concrete Pillar (12"x12"x30")	per BH	2.2.7a	2,000	15	30,000	
7	Transportation of Drill Rig & Truck associated per drill	km	2.2.8	36	600	21,600	Transportation of 1 drill rig from Raipur, Chhattisgarh to Nagpur, Maharashtra
8	Accommodation Charges for drilling Camp (1 Rig)	month	2.2.9	50,000	6	3,00,000	Total 6 months considered for completion of drilling
9	Drilling Camp Setting Cost	No	2.2.9a	2,50,000	1	2,50,000	
10	Drilling Camp Winding up Cost	No	2.2.9b	2,50,000	1	2,50,000	
11	Road Making (Flat Terrain)	km	2.2.10a	22,020	20	4,40,400	
12	Drill Core Preservation	m	5.3	1,590	540	8,58,600	
13	Geologist (Field) (For execution of drilling activity)	day	1.2b	11,000	180	19,80,000	
14	Labor (Field) - 2 No per Geologist	day	5.7	541	360	1,94,760	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.
15	Sampler - 1 Party	day	1.5.2	5,100	90	4,59,000	
16	Labor (Sampling) - 4 Nos	day	5.7	541	360	1,94,760	Amount will be reimbursed as per the notified rates by the Central Labor Commission or respective State Govt. whichever is higher.

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
17	Geologist (HQ)	day	1.2a	9,000	30	2,70,000	
					Sub-Total H	**4,36,52,120**	
I	**LABORATORY STUDIES OF DRILL CORE SAMPLES**						
1	**Drill Core Samples**						
a	Fire Assay (Gold): Primary + 10% Check Samples	Nos	4.1.5	2,380	55	1,30,900	
b	ICP MS (Base Metal, Critical elements & REE): Primary + 10% Check Samples	Nos	4.1.14	7,731	330	25,51,230	
c	Ni Sulphide Fire Assay (PGE): Primary + 10% Check Samples	Nos	4.1.5d	11,800	40	4,72,000	
d	XRF Analysis (Major Oxides): Primary + 10% Check Samples	Nos	4.1.15a	4,200	165	6,93,000	
e	Sample preparation upto 5kg Coal / Lignite	Nos.	4.2.2	500	100	50,000	
f	Proximate analysis of coal + 10% Check Samples	Nos.	4.2.7	935	110	1,02,850	
g	Total Sulphur + 10% Check Samples	Nos.	4.2.14	1900	110	2,09,000	
2	**Whole Rock Analysis**						
a	XRF (Major Oxides)	Nos	4.1.15a	4,200	30	1,26,000	
b	ICP MS (Minor, Trace & REE)	Nos	4.1.14	7,731	30	2,31,930	
c	Preparation of Thin Polished section	Nos	4.3.1	2,353	30	70,590	
d	Study of Thin Polished section	Nos	4.3.4	4,232	30	1,26,960	
e	Digital Photograph	Nos	4.3.7	280	20	5,600	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
3	**Mineralogical Study**						
a	XRD	Nos	4.5.1	4,000	30	1,20,000	
b	EPMA	Hours	4.4.1	8,540	20	1,70,800	
4	**Bulk density determination**	Nos	4.8.1	1,605	10	16,050	
				Sub-Total I		**50,76,910**	
				Cost for Phase IV		**4,87,29,030**	
J	**Data interpretation using AI/ML**						
	Integration of data, prospectivity analysis using AI & ML technology and generation of mineral prospectivity maps	day	1.2a	9,000	150	13,50,000	2 Geo-scientists for 2 months (HQ) and AI/ML Scientists for 3 months
				Sub-Total J		**13,50,000**	
				Total Cost for Phase I to IV		**10,50,18,025**	
K	**GEOLOGICAL REPORT PREPARATION**						
a	Geological Report Preparation (Data interpretation and Prospectively Analysis, Identification of mineral systems and potential areas for G4 investigation)	Lumpsum	5.2	iv		31,50,541	
				Sub-Total K		**31,47,241**	
L	**PEER REVIEW**						
a	Report Peer Review	Lumpsum	As per EC decision	30,000	1	30,000	

Sl. No.	Item of work	Unit	Rates as per NMET SoC 2020-21		Estimated Cost of the Proposal		Remarks
			SoC-Item -Sl No.	Rates per Unit as per SOC (Rs)	Quantum	Total Amount (Rs)	
				Sub-Total L		**30,000**	
M	**PREPARATION OF RMT EXPLORATION PROPOSAL**						
a	Preparation of Exploration Proposal (5 Hard copies with a soft copy)	Lumpsum	5.1	2% of approved project cost or 5 lakh wherever is lower		5,00,000	
				Sub-Total M		**5,00,000**	
PROJECT COST WITHOUT GST						**10,86,98,566**	
18% GST						**1,95,65,742**	
TOTAL PROJECT COST						**12,82,64,308**	

A. References

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b. R. Krishnan (1969), Preliminary Investigation for the Reported Occurrences of Gold in Bhiwapur-Pauni Areas, Nagpur-Bhandara Districts, Maharshtra State; *Field Season 1968-69*

c. S Sundara Raghavan (1981), Progress Report on Geochemical Survey in Parts of Nagpur and Bhandara Districts, Maharashtra; *Field Season 1974-75*

d. Abhinaba Roy et.al (1990), Geology and Basemetal Mineralisation in Tas-Jogikhera Area,Nagpur District, Maharashtra; *Field Season 1988-89*

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f. M.P. Chawde (2000), Final Report on Search for Gold and Associated Metals in Dongarmouda-Ranmangli-Pahungaon Areas, Nagpur District, Maharashtra; *Field Season 1995-97*

g. P.K. Rout (2002), Final Report on Exploration for Gold in Kosari-1 Block, Nagpur District, Maharashtra; *Field Season 1998-2000*

h. K.C. Mahapatra (2006), Part-I Final Report on Exploration for Gold in Kolari Prospect, Nagpur District, Maharashtra (E-1 Stage) and Prem Babu et.al (2006), Part-II Environmental Appraisal in Respect of Abiotic Parameters Around Exploration Site for Exploration for Gold in Kolari Prospect, Nagpur District, Maharashtra (E-1 Stage); *Field Season 2002-2004*

i. R.H. Chavhan (2010), Report on Investigation for establishing zones of Copper and Associated Gold Mineralisation around Govindpur Copper Prospects, Chandrapur District, Maharashtra; *Field Season 2007-2009*

B. List of Plates

Sl. No.	Description	Scale
I	Location Map of proposed RMT Block	1:2,00,000
II	Geological Map of proposed RMT Block	1:2,50,000
III	Elevation Map of RMT Block (Overlayed with SRTM DEM)	1:2,00,000
IV	Drainage Map of RMT Block	1:2,00,000
V	Land Use Land Cover (LULC) Map of RMT Block	1:2,00,000
VI	Slope Map of RMT Block	1:2,00,000