

THE MINING PLAN

(Prepared Under Rule 13 of MCR, 2016 & submitted under Rule 16, of MCR, 2016)

WITH

PROGRESSIVE MINE CLOSURE PLAN

(Submitted Under Rule 23 of MCDR, 2017)

In respect of

CHANDIPOSHI IRON ORE BLOCK

OVER 131.58 HA

IN BADAINDUPUR, SANUA, SARGIGARH AND TEHREI VILLAGE

OF KOIRA TEHSIL

OF SUNDERGARH DISTRICT ODISHA STATE

FOR THE FINANCIAL YEAR

(2024-25 TO 2028-29)

LOI NO. -IV(B)SM-50/2021/8719/SM, Bhubaneswar, Date : 28.10.2021

NON-FOREST AREA - 47.979 HA

AND FOREST AREA - 83.601 HA

CATEGORY OF MINE - "A" category

M/s. Rungta Mines Limited

Main Road, Barbil, Keonjhar, Odisha-758035

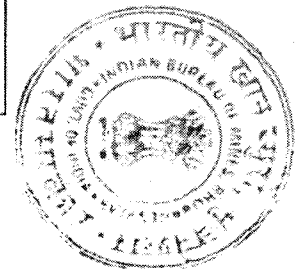
Email ID: bbloffice@runtamines.com

Prepared By

Abhijit Sen, [M.Sc. (Tech) Applied Geology],

B. K. Jha [M. Sc (Geology)]

Dr. Bal Bandhu [M.Sc (Geology), Ph.D]



Approved vide Letter No-
MP/14/19-ORE/BHU/2021-22 dated 24.11.21

Chapter 1: General Information

Add Row

1.1 : Lease Details

IBM Registration Number:	Not Applicable
Lease Code:	Not Applicable
Mine Code:	Not Applicable
Name of Lessee:	M/s Rungta Mines Limited.
Address of Lessee:	Rungta House, Chaibasa -
Type of Lessee :	833201, West Singhbhum
Name of Mining Lease:	(Jharkhand)
State:	Private
District:	Chandiposhi Iron ore Block
Tehsil/ Taluk/ Mandal:	Odisha
Village:	Sundargarh
Lease Area (Ha):	Koira
Forest Area (Ha):	Badaidupur, Sarua, Sargigarh
Name of Minerals:	and Tehri
Name of associated minerals:	131.58
Type :	83.601
Five Year Block (Financial Year):	Iron Ore
Type of working:	NA
Nature of Use:	Fresh grant
Category of Mine:	2024-25
	Opencast
	Captive as well as outside sale
	Category A

TO

2028-29

1.1.1: Initial/subsequent Lease grant details

Grant	From	To	Lease deed execution date	Lease registration date
* Details given below				
Column1	Column2	Column3	Column4	Column5

* Government of Odisha, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 and the Mineral (Auction) Rules, 2015 as amended from time to time, issued the notice inviting tender dated 07.07.2021 to commence the auction process for grant of mining lease for Chandiposhi Iron ore block over an area of 131.580 Hectare for Iron Ore located in Koira Mining circle, district Sundergarh, Odisha. The e-auction process was conducted in accordance with the tender document for the said mineral block on 26.09.2021 and Rungta Mines Ltd. was declared as the 'Preferred Bidder' under Rule 9(9)(iii) or Rule 10 (1A) of Auction Rules, having quoted highest Final Price Offer vide letter No. MXIII(b) 48/2021/7743/DM Dated 05.10.2021 issued by Director of Mines Government of Odisha, copy of which is enclosed as Annexure - 1A. As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, Rungta Mines Ltd. has made payment of the first installment, being 20% (twenty percent) of the upfront payment of Rs.12,90,68,460/- (Twelve Crore Ninety lakh Sixty Eight Thousand Four Hundred Sixty) only through Treasury Challan vide e- Challan no. 0853/L870 dated 08.10.2021 at Cyber Treasury, Dist- Sundergarh. Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Odisha is pleased to issue Letter of Intent (LOI) bearing no. IV(B)SM-50/2021/8719/SM, Bhubaneswar dated 28.10.2021 for grant of Mining Lease for Chandiposhi Iron ore block for Iron ore located in 8 km from Koira village, Koira tahasil, Sundergarh district on 131.580 Hectare Area to Rungta Mines Ltd. for a period of 50 (fifty) years. Copy of the LOI is enclosed as Annexure -1.

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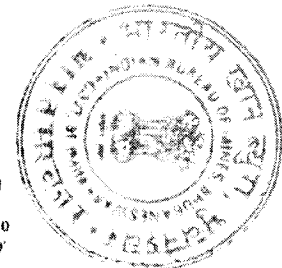
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Rungta Mines Ltd. shall be considered to be the "successful bidder" upon continuing to be in compliance with all the terms and conditions of eligibility; payment of the second installment being 20% (twenty per cent.) of the upfront payment; furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Bhubaneswar, Odisha, pursuant to the Auction Rules; satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and signing of the Mine Development and Production Agreement upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

The Validity of LOI is for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the Rungta Mines Ltd. and the Government of Odisha. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Odisha, requesting for further extension. If the Government of Odisha is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Odisha may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Thus, on issuance of LOI, process for grant mining lease has been started. According to this process calendar for grant of mining lease the last date of execution of mining lease deed will be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI). Accordingly M/s Rungta Mines Limited, only on execution of mining lease deed will be entitled to start the mining operation. Here, it is pertinent to refer the clause 10 of the Format of Mine Development and Production Agreement (MDPA) as a part of tender document of Chandiposhi Iron ore block, the provisions of which are quoted below:

10. MINING PLAN AND COMPLIANCE WITH APPLICABLE LAW

10.1 The Mining Plan applicable pursuant to clause (b) of sub-section (2) of the Section 5 of the Act shall be complied with by the Successful Bidder at all times. The Successful Bidder shall also comply with Applicable Law in relation to conduct of mining operations.

10.2 The Successful Bidder shall implement an annual production and dispatch plan to ensure that the estimated quantity of mineral resources in the Mineral Block are fully exploited during the period of the Mining Lease, failing which appropriate actions in accordance with this Agreement shall be initiated. In this regard, the Successful Bidder shall make an application for approval of a Mining Plan to the competent authority contemplating an annual production and dispatch in each year commencing from year 3 (three), which should be equal to or more than the quantity arrived at by dividing the estimated quantity of resources of the Mineral Block by 48 (forty eight)."

In view of the above, during 1st two years of mining lease period which will start from the date of execution of lease deed, we are assuming the last date of execution of mining lease deed to be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI), there will be no production during first 2 years i.e. from 27.10.2024 of financial year 2024-25 up to 26.10.2026 of financial year 2026-27. Thus, Production may start from 27.10.2026 of financial year 2026-27. Accordingly, the production proposal for this Mining Plan of 1st Five years will be as follows:-

Year Production proposal (MTPA)		
1st year	(2024-25)	0
2nd year	(2025-26)	0
3rd year	(2026-27)	0.427
(From 27.10.2026 to 31.03.2027)		

4th year	(2027-28)	1.00
5th year	(2028-29)	1.00

During proposed period of mining operation, the mining operation will be fully mechanized opencast with development of benches of height upto 9m and width upto 15m. The conventional opencast method with utilization of excavator of capacity upto 4.5m³, dumpers of capacity upto 50MT, rock-breakers, deep-hole drilling blasting will be adopted. During mining operation period from 2026-27 (From 27.10.2026 to 31.03.2027) to 2028-29, mining operation will be done in only one quarry. The proposed mining area and other area of the lease is already proved mineralized at G2 level by 25 no. of boreholes completed by GSI, MECL as per G.R. provided with the Tender Document.

1.1.2: Mining Plan Submission Criteria Details

Type of Document	Mining Plan (under Rule 13 of Minerals (other than Atomic & Hydrocarbons) (Energy Minerals) concession Rule, 2016 and Progressive Mine Closure Plan under Rule 23 of Mineral Conservation & Development Rules 2017
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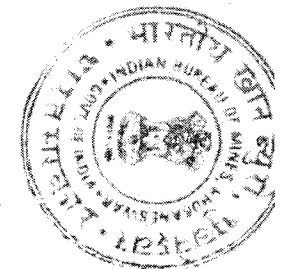
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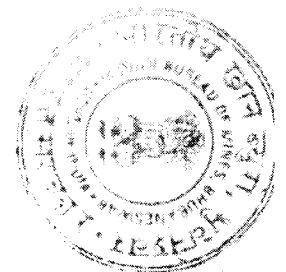
PART A:	CHAPTER 1	GENERAL INFORMATION
	CHAPTER 2	GEOLOGY & EXPLORATION
	CHAPTER 3	MINERAL PROCESSING
	CHAPTER 4	MINING OPERATIONS
	CHAPTER 5	SUSTAINABLE MINING
	CHAPTER 6	PROGRESSIVE MINE CLOUSER PLAN
	CHAPTER 7	FINANCIAL ASSURANCE/ PERFORMANCE SURETY
	CHAPTER 8	REVIEW OF PREVIOUS PROPOSALS
	CHAPTER 9	IMPACT ASSESSMENT

PART B: ANNEXXURES

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PART C: PLANS & SECTIONS



Reason/s for modification Period for which modification is proposed	N.A.
LOI Number:	N.A. (V/BSM/50/2021/8715/SM, Bhubaneswar
Date:	28.10.2021

1.2: Land Ownership Details (Copy of Land Schedule is enclosed as Annexure -10)

S.N.	Village	Taluka	Area (Ha)	Khasra No	Type of Land	Nature of Land
1	Badandupur-39	Koira	0.997471	190P	G.Jungle	REV/FOREST
2	Badandupur-39	Koira	0.365919	189	Goda-II	Govt. Land
3	Badandupur-39	Koira	1.010460	187	Goda-I	Govt. Land
4	Badandupur-39	Koira	0.222866	186P	G.Jungle	REV/FOREST
5	Badandupur-39	Koira	0.001599	196P	Jungle	REV/FOREST
6	Badandupur-39	Koira	0.902118	188P	Nala	Govt. Land
7	Sanua-41	Koira	0.221003	2P	Jungle	REV/FOREST
8	Sanua-41	Koira	2.149670	202P	Pahad	DLC
9	Sanua-41	Koira	6.401200	201P	Pahad	DLC
10	Sanua-41	Koira	2.935960	60P	Pahad	DLC
11	Sargigarh-40	Koira	0.218369	659/779	Ghara Bari	Pvt. Land
12	Sargigarh-40	Koira	0.114845	648/866P	Goda-I	Pvt. Land
13	Sargigarh-40	Koira	0.717325	622/782	Goda-II	ST
14	Sargigarh-40	Koira	0.302350	590P	Goda-I	ST
15	Sargigarh-40	Koira	0.003005	638P	Mai.Soda	SC
16	Sargigarh-40	Koira	0.025331	648P	Mai.Soda	Pvt. Land
17	Sargigarh-40	Koira	0.058257	687P	Mai.Soda	Pvt. Land
18	Sargigarh-40	Koira	0.135048	686	Goda-I	Govt. Land
19	Sargigarh-40	Koira	0.113196	685P	Rasta	Govt. Land
20	Sargigarh-40	Koira	0.062017	684	Ghara Bari	Pvt. Land
21	Sargigarh-40	Koira	0.369690	683	Ghara Bari	Pvt. Land
22	Sargigarh-40	Koira	0.016050	682	Ghara Bari	ST
23	Sargigarh-40	Koira	0.104294	681	Ghara Bari	ST
24	Sargigarh-40	Koira	0.157414	680	Ghara Bari	ST
25	Sargigarh-40	Koira	0.017502	679	Ghara Bari	ST
26	Sargigarh-40	Koira	0.012937	678	Ghara Bari	ST
27	Sargigarh-40	Koira	0.159676	677	Ghara Bari	ST
28	Sargigarh-40	Koira	0.111754	676	Ghara Bari	ST
29	Sargigarh-40	Koira	0.012786	675	Ghara Bari	ST
30	Sargigarh-40	Koira	0.082405	674	Ghara Bari	ST
31	Sargigarh-40	Koira	0.055933	673P	Mai.Soda	ST
32	Sargigarh-40	Koira	0.280355	672	Ghara Bari	ST
33	Sargigarh-40	Koira	0.044152	671	Ghara Bari	ST
34	Sargigarh-40	Koira	0.082086	670	Goda-I	ST
35	Sargigarh-40	Koira	0.142861	669	Goda-I	ST
36	Sargigarh-40	Koira	0.050799	668	Goda-I	ST
37	Sargigarh-40	Koira	0.038892	667	Goda-I	ST
38	Sargigarh-40	Koira	0.114923	666	Goda-II	Govt. Land
39	Sargigarh-40	Koira	0.349956	665	Goda-II	ST

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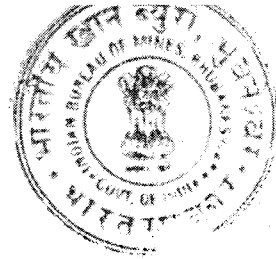
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40	Sargish-40	Koira	0.734500	664	Goda-I	Pvt Land
41	Sargish-40	Koira	1.469190	663	Goda-II	Govt Land
42	Sargish-40	Koira	0.160007	662	Ghara Bari	Pvt Land
43	Sargish-40	Koira	0.102757	661	Ghara Bari	Pvt Land
44	Sargish-40	Koira	0.246730	660	Gogostha	Pvt Land
45	Sargish-40	Koira	0.703489	659	Ghara Bari	Pvt Land
46	Sargish-40	Koira	0.114814	658	Ghara Bari	Pvt Land
47	Sargish-40	Koira	0.654384	657	Ghara Bari	Pvt Land
48	Sargish-40	Koira	0.067819	656	Ghara Bari	Pvt Land
49	Sargish-40	Koira	0.062265	655	Ghara Bari	Pvt Land
50	Sargish-40	Koira	0.737641	654	Ghara Bari	Pvt Land
51	Sargish-40	Koira	0.279175	653	Ghara Bari	Pvt Land
52	Sargish-40	Koira	0.027742	652	Goda-I	ST
53	Sargish-40	Koira	0.154836	651P	Rasta	Govt Land
54	Sargish-40	Koira	0.268196	650	Goda-I	ST
55	Sargish-40	Koira	0.630213	649	Goda-II	Pvt Land
56	Sargish-40	Koira	0.026263	648	Goda-II	Pvt Land
57	Sargish-40	Koira	0.034940	647	Goda-I	Pvt Land
58	Sargish-40	Koira	0.166113	646P	Goda-I	Pvt Land
59	Sargish-40	Koira	0.149977	645P	Goda-I	Pvt Land
60	Sargish-40	Koira	0.317717	644P	Mal Sada	SC
61	Sargish-40	Koira	0.028550	643P	Mal Sada	Pvt Land
62	Sargish-40	Koira	0.048817	642P	Mal Sada	Pvt Land
63	Sargish-40	Koira	0.043049	641P	Goda-I	Pvt Land
64	Sargish-40	Koira	0.148940	639P	Rasta	Govt Land
65	Sargish-40	Koira	0.865505	638P	Jungle	REV/FOREST
66	Sargish-40	Koira	0.706283	635	Goda-I	Pvt Land
67	Sargish-40	Koira	7.122000	634	Pathar Chatar	Govt Land
68	Sargish-40	Koira	1.090510	633	Goda-II	ST
69	Sargish-40	Koira	0.740816	632	Goda-II	ST
70	Sargish-40	Koira	1.160710	631	Goda-II	ST
71	Sargish-40	Koira	0.421255	630	UJJ	Govt Land
72	Sargish-40	Koira	10.745600	629	Jungle	REV/FOREST
73	Sargish-40	Koira	4.683510	628	Badi Yogra	Govt Land
74	Sargish-40	Koira	0.561911	627	Goda-I	ST
75	Sargish-40	Koira	0.948959	626	Goda-II	ST
76	Sargish-40	Koira	0.697750	625	Goda-II	ST
77	Sargish-40	Koira	4.992050	624P	Palah	DLC
78	Sargish-40	Koira	0.588403	623	Goda-II	ST
79	Sargish-40	Koira	1.573040	622	Gochar	Govt Land
80	Sargish-40	Koira	0.896512	620	Goda-II	Govt Land
81	Sargish-40	Koira	1.756600	619	UJJ	Govt Land
82	Sargish-40	Koira	13.049000	618P	Jungle	REV/FOREST
83	Sargish-40	Koira	18.790700	617P	Palah	DLC
84	Sargish-40	Koira	0.772597	611P	Goda-II	ST
85	Sargish-40	Koira	0.585635	610	Gochar	Govt Land
86	Sargish-40	Koira	1.579590	609	Gochar	Govt Land
87	Sargish-40	Koira	1.161340	608P	Gochar	Govt Land
88	Sargish-40	Koira	0.418804	607	Gochar	Govt Land
89	Sargish-40	Koira	0.868841	606	Goda-II	ST

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90	Sargisari-40	Koira	1.120730	665	Gochar	Govt. Land
91	Sargisari-40	Koira	1.482050	604	Bagayat-II	Govt. Land
92	Sargisari-40	Koira	0.052660	603	Gochar	Govt. Land
93	Sargisari-40	Koira	2.102510	601	Gochar	Govt. Land
94	Sargisari-40	Koira	0.002112	594/P	Goda-II	Pvt. Land
95	Sargisari-40	Koira	0.027953	614/P	Nala	Govt. Land
96	Sargisari-40	Koira	0.553558	602	Nala	Govt. Land
97	Sargisari-40	Koira	0.890788	600/P	Nala	Govt. Land
98	Sargisari-40	Koira	22.445400	521/P	Pahad	DLC
99	Sargisari-40	Koira	1.335890	667/P	Patita	Govt. Land
100	Teheral-25	Koira	0.022991	665/P	Patra Jungle	REV.FOREST
101	Teheral-25	Koira	0.052024	663	Goda-II	Govt. Land
102	Teheral-25	Koira	0.057595	662	Patra Jungle	REV.FOREST
103	Teheral-25	Koira	0.069785	661	Goda-II	ST
104	Teheral-25	Koira	0.060162	660	Goda-II	ST
105	Teheral-25	Koira	0.497471	658	Pathar Chatar	Govt. Land
106	Teheral-25	Koira	0.191039	649/P	Patra Jungle	REV.FOREST
107	Teheral-25	Koira	1.005070	664/P	Nala	Govt. Land
108	Teheral-25	Koira	0.053066	659	Goda-II	ST
109	Teheral-25	Koira	0.004798	668/P	Goda-II	Govt. Land
			131.580			

1.3: Existing Lease

Date of Execution	NA
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1.3.1: Approval of earlier Mining Plan & Its Subsequent Review in Chronological Order

S.N.	Letter Number	Date	Period		Type Of Approved Document
			From	To	
1	NA	NA	NA	NA	NA

1.3.2: Partial Surrenderd Area During Stages of Operations in Chronological Order

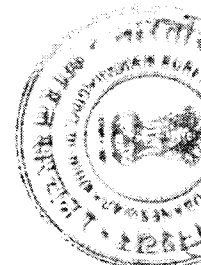
S.N.	Date	Supplementary Surrender order/ Letter Number	Supplementary Lease Deed Date	Final Retained Area over which current Mining Plan is Prepared (ha)
1	NA	NA	NA	NA

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1.3.3: Transfer of Lease Area Subsequent to Grant

S.N.	Transfer of lease deed Number	Date of execution of Transfer lease deed	Name of Transferor	Nature of block transferred	
				Granted through auction	other than through auction for captive use
NA	NA	NA	NA	NA	NA

1.3.4: Statutory Compliances

1.3.4.1: Environment Clearance

Applicable	Yes
Letter No	It is a new iron ore block, where, M/s Rungta Mines Limited was declared preferred bidder through auction. After the approval of mining plan, M/s Rungta Mines Limited will take environment clearance.
Date	NA
Validity	NA
ROM Mineral in tonnes	NA

1.3.4.2: SPCB Approvals

Letter No	It is a new iron ore block, where M/s Rungta Mines Limited was declared preferred bidder through auction. After approval of mining plan and Environmental clearance, M/s Rungta Mines limited will take SPCB approvals.
Approval of	NA
Date	NA
Validity	NA
ROM Mineral in tonnes	NA

1.3.4.3: Forest Clearance

Applicable	Yes
Letter No	It is a new iron ore block, where M/s Rungta Mines Limited was declared preferred bidder through auction. M/s Rungta Mines Limited will go for forest clearance, immediately after approval of mining plan.
Date	NA
Validity	NA
Area (Ha)	NA

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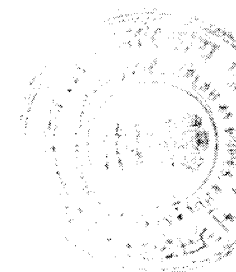
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1.3.4.4: Land Acquisition Details

Total Area acquired/purchased so far	Nil
Total Amount Paid (INR)	Nil

1.3.5: Mine Location Details

Toposheet Number:	73G/5 on 1:50000
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1.3.5.1: Location of Boundary Pillars

Pillar No.	Pillar Latitude (dd:mm:ss.ss)	Pillar Longitude (dd:mm:ss.ss)
1	21°54'14.12851"	85°17'34.20567"
2	21°53'30.88580"	85°17'16.48253"
3	21°53'28.85230"	85°17'23.10715"
4	21°53'20.76434"	85°17'47.05771"
5	21°53'58.04511"	85°18'01.99921"
6	21°54'04.17895"	85°18'04.32181"

1.3.6: Owner/Nominated Owner Details

Name	PAN of Nominated Owner	Address of Nominated Owner	Mobile Number	Email	Please attach Minutes of Board Resolution in case of Nominated Owner
SHRI HIRAK MAZUMDER	ABFPMHS16K	M/s Rungta Mines Limited, At/PO - Barbil, Main Road, Keonjhar, Odisha - 758035	9437074501	abhi@rmt.com	Enclosed as Annexure - 3 to Board Resolution of nominated owner and Annexure - 5 & 5A for Address proof/ photo ID of Nominated Owner.

1.3.7: Qualified Person Details as per M(OAHCEM)CR, 2016 (Copy of qualification and experience certificate is enclosed as Annexure -7, 7A, 7B)

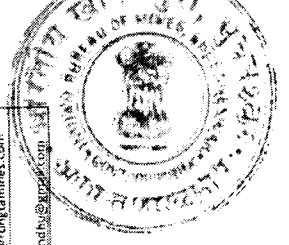
S.N.	Prefix	Name	PAN of QP	Address	Mobile no.	Qualification	Exp in years as prescribed under the rule	Email
1	Mr	Abhijit Sen	AACPS14551	M/s. Rungta Mines Limited, At/PO Barbil, Main Road, Keonjhar, Odisha - 758035	9437579431	M.Sc (Tech), applied Geology	29	abhi@rmt.com
2	Mr	B.K. Jha	ADHP17577K	Rungta Centre, Chalbasa West Singbhum, Jharkhand - 833201	9431704517	B.Sc. (Geology)	29	rmb4@rmtmines.com
3	Dr	Bal Bandhu	AT2104851C	Rungta Centre, Chalbasa West Singbhum, Jharkhand - 833202	6201275046	M.Sc. (Geology), Ph.D.	22	balbandhu@rmt.com

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Chapter 2: Geology & Exploration

2.1: Geology

2.1.1: Topography

Terrain *

The areas of this block represent part of a rugged terrain with small hillocks and intervening valleys, having highest topographical contour value of 678m and lowest at 604m, making the relief of this block 74m. This block is marked by three main small mounds /ridges with elevations of nearly 645m (645.60m.) in the central part with nearly a N-S trend, 654.50m. in the south western part & 679.30m in the south-eastern part of the area and intervening low lying areas covered by soil & partly altered laterite.

Relief

Highest level (m) from MSL *

678

Lowest Level (m) from MSL *

604

Average Level (m) from MSL

641

Drainage Pattern *

Dendritic

Order of Stream *

Order 2

Minimum Distance of Stream from Lease Area (m) *

Seasonal nallah as shown in lease area.

2.1.2: Details of Physiographic features and Infrastructures available in and around the lease/ block area

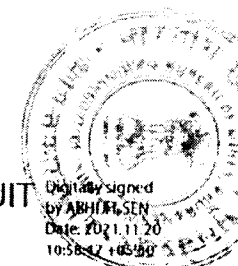
Description	Location if existing Within the lease/block area.	Distance from boundary periphery in kms, if existing outside the lease/block area. (within 5.00Kms)	Remark if any
River/Nallah/Tie service:	Nil	Nil	Nil
Public roads (For road, part road)	Village road connecting Ichhera to Sergigarh.	Nil 520 (Earlier Nil 215) is about 5 Km from the block	Nil 520 (Earlier Nil 215) is about 5 Km from the block
Railway track	Nil	Nil	Nearest rail head is Barbil 30 Km. from the block
Human settlements	Nil	Sanindpur village 2 Km and Koira village 8 Km	--

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Archaeological monuments/ places of worship/public utilities etc.	Nil	Nil	Nil
Wild life sanctuaries/ national parks	Nil	Nil	Nil
Coastal Regulation Zone (CRZ)	Nil	Nil	Nil
Power transmission lines/telephone lines	Nil	2.5	Nil
Fining range	Nil	Nil	Nil
Ordnance factory	Nil	Nil	Nil
grazing land/ burial ground or cremation ground	Nil	1	Nil
Any other specify	Nil	Nil	Nil

Particulars	Distance from lease boundary in kms
Near by village	3 (Koira)
Nearest Railway station	30 (Barbil)
Nearest Port	320 (Paradeep)
Distance of SH/NH from lease area	5 (NH-520)

2.1.3: Regional Geology *

Regional Geology *

The U-shaped synclinorium (Jones, 1934) formed by the Precambrian banded iron formation covering part of erstwhile Bihar, now Jharkhand and erstwhile Orissa, now Odisha is an unique feature of the region in Eastern India. Detachments of the Nolaunur in the north, through Thakurani, Banspani, Dalpaha to Oringbura & Malangtoli in the south form the eastern limb of the synclinorium while almost continuous iron ore deposits of Gua in the north through Kaila, Barman up to Rangtha in the south lie on the western limb of the same. The Chandiposhi and Purhebhahi blocks under study forms a part of the above said structure lying in the low level or valley area of the said region better known as West Singhbhum-Bornai Keonjhar Iron ore Belt.

The Banded Hematite Jasper with iron ore, overlain by Upper Shales with volcanics and underlain by a lower formation of bleached clayey shale/tuff/volcanic forms the Iron Ore Group of Sarkar & Saha (1977) or Koira Group of Murty (1975). The above said unit is disposed in the form of a low northerly plunging U shaped synclinorium (Jones, 1934). The Lower Shale formation is mainly composed of a number of acidic and basic flows which have altered into bleached shale rarely splintery in nature. The Upper Shale is splintery and banded in nature with lenses of green chert, altered tuffs and dolomite beds (Murty & Ghosh 1971).

The litho-stratigraphic succession of the region as worked out by different geoscientists based on field studies is furnished below :-

Litho-Stratigraphic Succession in the Area	
Saha (1994), modified after Sarkar & Saha (1977)	
Iron Ore Group	Singbhum granite
Upper Shale with volcanics	Upper Shale with volcanics
BH with iron ore, ferruginous quartzite	BH with iron ore, ferruginous quartzite
Lower Shale and acid, intermediate tuffs,	Lower Shale and acid, intermediate tuffs,
Unconformity	
Murty & Acharya (1975)	
Koira Group	Mixed Facies Formation
	Upper Shale Formation
	Banded Iron Formation
	Volcanic formation

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Older Dhanwars	Local dolerite
The stratigraphy of the area as modified by Murthy & Acharya at a later stage is also furnished below:- Stratigraphy as modified after Acharya (op.cit)	
KOLHAN GROUP	Unconformity
KOIRA	Upper Shale Formation
GROUP	Banded Iron Formation
	Volcanic Formation
	Basal Sandstone - Quartzite
	Unconformity
Singbhum B. Bonaer Granites and metamorphosed sediments	
The base of the Koira Group is marked by an unconformity over Singhbhum Granite in the east and has an inter-fingering relationship with the Bonaer Granite in the west. The bottom most unit of the Koira Group is marked by gritty siltstone ranging from orthoquartzite to pebbly sandstone and conglomerate. This formation is overlain by volcanic formation, the lower part of which is comprised of mafic volcanic flows and the upper portion is marked by a tuffaceous zone pillowed towards bottom and amygdaloidal at the top, which indicates its sub-aqueous and subsequent sub-aerial character. It grades into purple tuffaceous shale better known as Lower Shale Formation (Murthy and Acharya) towards south-east.	
The Banded Iron Formation (BIF) overlies the Lower Shale (litho-unit) and is marked by the appearance of Jasper and Banded Jasper, interbedded with greenish & black shale towards the top. BIF is represented by Banded Haematite (Banded Haematite Quartzite (BHC)), interbedded with black or green shale and banded ferruginous chert. Owing to its high resistance to erosion, it stands out as high ridges, conspicuously marking the outline of the 'Horse-Shoe' Shale synclinal structure of the belt.	
The Upper Shale Formation lying conformably over the BIF is composed of thick sequence of tuffaceous purple, white and buff coloured shale, black shale, banded ferruginous shale with interbedded chert and BHJ/BHQ bands and litho-unit of the synclinal structure. It is made up of two horizons, one lower manganiferous shale horizon and the other upper ferruginous shale horizon having a conformable relationship with each other. The lower unit, comprising predominantly manganiferous grayish green shale, carbonaceous shale with interbeds of chert locally grading into dolomite acts as host to all the manganese deposits of the area, while the upper unit comprising of banded ferruginous shale with interbeds of BHJ/BHQ and BHC gives rise to isolated iron ore deposits in the core of the synclinal structure.	

2.1.4: Local Geology & Structure

2.1.4.1: Local Geological Set-up *

The block of Chandiposhi falls in the Upper shale formation of the Koira Group. It can be divided into the top Ferruginous Shale unit and underlying Manganiferous Shale unit. The Manganiferous Shale of the Upper Shale formation is gradational contact with underlying litho-units of Banded Iron Formation represented by BHJ, BHQ and BHC. The sequence of litho-units as observed in the boreholes drilled in the area in general is as follows:-

Ferruginous Shale
Laterite/ Iron ore (45-55% Fe) and Blendable Iron ore (45% to 54.9% Fe)
Manganiferous shale and/or Mn ore
BHJ/BHQ/BHC

In the Chandiposhi block, the area is mostly covered by laterite or lateritic soil. Other than laterite there are two isolated iron ore bodies in the central part of the block in the region where GSI drilled BH No. LBH-11 and LBH-12. The south-eastern and south-western corners along with the southern fringe area are covered by soil. The area is represented by rocks of Iron Ore Group which includes shale (manganese bearing), BHJ, BHQ and ferruginous shale collectively known as BIF (Banded Iron Formation). The attitude of the bedding plane of BIF is from N30°W to S30°E, N-S & W30°E to S30°W, dips 20°-45° NW to W. The laterite occurs as capping over the rocks of BIF.

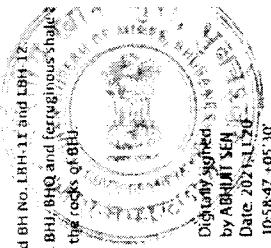
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2.2.1.6.1: Spacing

Min (m) *	Max (m) *	Avg (m) *
Not available	Not available	Not available

N.	Year	Trench ID	Length of Trench (m)	Width of Trench (m)	Depth of Trench	Depth(from)	Depth(to)	Running mtr
	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available

Table continued ..

S. N.	Litho units exposed	Name of the radical	Av. grade	Latitude(from)	Longitude (from)	Latitude(to)	Longitude (to)
	Not available	Not available	Not available	Not available	Not available	Not available	Not available

2.2.1.7 Exploratory Drilling(Core/non Core)

S. N.	Year	Exploration agency	Core holes		Non-core (RC/DTH)		Grand total	
			Number of boreholes drilled	Total metr	Number of boreholes drilled	Total mtrs	Total boreholes	Total mtr
	2003-05	GSI	13	800.45	0	0	13	800.45
	2016-17	MECL	0	0	12	781	12	781
							25	1581.45

2.2.1.8: Exploratory Mining

S. N.	Pit/Adit ID	Length in Mtr	Width in Mtr	Depth in mtrs	Volume (m ³)
	Nil	Nil	Nil	Nil	Nil

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2.2.1.9: Sampling

As per GR :-

On obtaining the sample by dry non coring drilling, systematic sampling was carried out for the entire borehole including mineralized zone. Samples were collected at 1.00 m interval and crushed with mortar & pestle into [-] 60# size initially and collected 1000 gms. by coning and quartering. This material was further crushed to [-] 100 # size. Thus by reducing the size of sample by crushing and quantity by stage wise coning and quartering, final finished samples of 500 gm having -100 # size was prepared. A representative sample weighing about 100 gms was taken from this and sent for analysis to MECL chemical laboratory at Nagpur, in a double polythene packets for primary analysis i.e. determination of three radicals viz. Fe%, Al₂O₃%, SiO₂%. Along with the Chemical analysis, various physical analysis as XRD, petrology etc. of the samples were also done by MECL and is enclosed as annexure as given below.

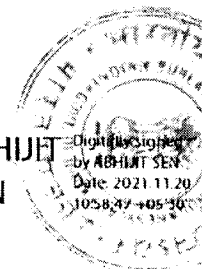
S. N.	Type of sample	No of samples collected	Number of samples analyzed	Location		Remark if any
				Latitude	Longitude	
	Primary samples of the bore holes done by MECL for 3 radicals (Fe%, SiO ₂ , Al ₂ O ₃) (BH series-MNPC)	1224	1224	2421826.808 2422101.745 2422066.327 2422284.219 2422728.410 2422209.849 2422055.406 2421799.464 2421712.275 2422415.835 2422581.843 2422658.467	323438.183 323868.737 323959.754 323948.591 323904.442 323574.899 323430.348 323539.195 323725.764 323622.103 323710.643 324097.399	Analysis Results are enclosed as Annexure- IIIA of the GR
	Drill core sample of the bore holes done by GSI for of 6 radicals (Fe%, S ₂ O ₃ , Al ₂ O ₃ , Na, K, LOI (BH-series-LBH)	189	189	2422506.792 2422320.325 2422132.592 2422171.518 2422358.811 2422544.580 2422393.416 2422470.239 2421951.832 2421914.524 2421983.039 2422021.317 2421768.445	323923.791 323849.407 323774.332 323678.929 323756.017 323830.749 323668.282 324016.180 323699.379 323790.010 323604.931 323513.624 323621.090	Analysis Results are enclosed as Annexure- IIIB of the GR

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- xviii) A 10% of depreciation in the gross tonnage is considered due to unknown geological reasons and not resource were estimated.
 xix) An inter-mining parting (non ore zone) up to 3 m was included in the ore zone till diluted grade of the zone did not come below the cut-off grades 55% Fe and 45% while delineation of the ore zone.
 xx) The minimum workable thickness of 1.00 m is considered for resource estimation.

2.2.4.2: Resource Calculation :- Indicated Resource (332)

S. N.	Cross section/Block	Sectional Area/Block area (sq mtr)	Influence (m)	Depth in mtr	Volume (m ³)	Bulk Density (t/m ³)	Resource Quantity (t)	Level of Exploration
1	N5-N5'	4823.4556	200	NA	964691.120	3.25	3135246.140	G2
2	N3-N3'	7310.1668	200	NA	1462033.360	3.25	4751508.420	G2
3	N3-N3'	3913.2671	200	NA	782653.420	3.25	2543673.615	G2
4	N1-N1'	10564.3731	200	NA	2112874.620	3.25	6866842.515	G2
5	N1-N1'	5219.7422	200	NA	1043948.440	3.25	3392832.430	G2
6	S1-S1'	9591.5674	200	NA	1918313.480	3.25	6234518.810	G2
7	S1-S1'	2092.4446	200	NA	418488.920	3.25	1360008.990	G2
8	S3-S3'	1733.2227	200	NA	346644.540	3.25	1126594.755	G2
9	S5-S5'	10438.8667	190	NA	1983384.673	3.25	6446000.187	G2
Total for Grade >55% Fe							35857355.862	

Table continued...

S. N.	Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
1	Forest Land (Section - N5)	Fe	≥55%	Cross section method
2	Forest Land (Section - N3)	Fe	≥55%	Cross section method
3	Non-forest Land (Section - N3)	Fe	≥55%	Cross section method
4	Forest Land (Section - N1)	Fe	≥55%	Cross section method
5	Non-forest Land (Section - N1)	Fe	≥55%	Cross section method
6	Forest Land (Section - S1)	Fe	≥55%	Cross section method
7	Non-forest Land (Section - S1)	Fe	≥55%	Cross section method
8	Forest Land (Section - S3)	Fe	≥55%	Cross section method
9	Forest Land (Section - S5)	Fe	≥55%	Cross section method

2.2.4.2: Resource Calculation :- Indicated Resource (332)

Cross section/Block	Sectional Area/Block area (sq mtr)	Influence (m)	Depth in mtr	Volume (m ³)	Bulk Density (t/m ³)	Resource Quantity (t)	Level of Exploration
N5-N5'	3786.3971	200	NA	757319.42	3.25	2461288.115	G2
N3-N3'	2134.8225	200	NA	426964.5	3.25	1387634.625	G2
N1-N1'	1256.269	200	NA	251253.8	3.25	816574.850	G2
N1-N1'	3933.3984	200	NA	786679.68	3.25	2556708.960	G2
N1-N1'	1120.2761	200	NA	224055.22	3.25	728179.465	G2
S1-S1'	520.0091	200	NA	104001.82	3.25	338005.915	G2

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S1-S1'	63.9387	200	NA	12787.74	3.25	41560.155	G2
S3-S3'	527.3065	200	NA	105461.3	3.25	342749.225	G2
S5-S5'	4112.9749	150	NA	781465.231	3.25	2539762.001	G2
Total for Grade ≥45 to <55% Fe						11212463.311	

Table continued...

Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
Forest Land (Section - N5)	Fe	≥45 to <55%	Cross section method
Forest Land (Section - N3)	Fe	≥45 to <55%	Cross section method
Non- Forest Land (Section - N3)	Fe	≥45 to <55%	Cross section method
Forest Land (Section - N1)	Fe	≥45 to <55%	Cross section method
Non- Forest Land (Section - N1)	Fe	≥45 to <55%	Cross section method
Forest Land (Section - S1)	Fe	≥45 to <55%	Cross section method
Non- Forest Land (Section - S1)	Fe	≥45 to <55%	Cross section method
Forest Land (Section - S3)	Fe	≥45 to <55%	Cross section method
Forest Land (Section - S5)	Fe	≥45 to <55%	Cross section method

2.2.4.3: Mineral Resource Estimate for Conversion to Mineral Reserve

The total mineral resources as per geological report provided by Govt. of Odisha is 47.07 million tonne (35.86 million tonne 55% Fe & 11.21 million tonne ≥45% to <55% Fe) (Gross resource). The entire resources estimated falls under 332 category as G2 level exploration is carried out in the area by drilling of 25 nos. of holes covering total meterage of 1581.45 mt by GSI and MECL while mentioning the net resource (mineable reserve) 10% depreciation factor was considered in Geological Report. This depreciation factor, may be due to safety zone of lease boundary and also may be due to future quarry benches, mine road etc. However, as per the G.R. provided by State Govt. already 10% of the Gross Resource due to mine benches, safety zone, haulage road etc. after completion of the future exploration program resource and reserve will be re assessed and exact remaining resources/ blocked under various factors will be calculated. In the present document as per G.R. 10% of the depreciation is considered to get the net resources.

Total net resources is 42.36 million tonne (32.27 million tonne 55% Fe and 10.09 million tonne ≥45% to <55% Fe) as per Geological Report provided by Govt. of Odisha.

At present due to want of other data to estimate the mineral reserve properly, the Net Resource of 42.36 Million Tonne (as given in GR) is considered as the Mineral Reserve.

2.2.4.4: Threshold value & Cut off Parameters

Threshold value: As per guide line, threshold value of iron ore is considering as 45% iron ore with grade +45% to 55% Fe is called mineral reject cut off value for usage is +55%

2.2.4.5: Mining Factors or Assumptions

i) The bench height will be maintained with a maximum height of about 9 m. to match the maximum reach of the loading machine. The average width of the bench is about 15 m.

ii) The slope of the individual bench will be kept as 60°

iii) The overall pit slope has been planned to be maintained at maximum 40°

2.2.4.6: Metallurgical Factors or Assumptions

No specific metallurgical factor are assumed.

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2.2.4.7: Cost & Revenue Factors

Part of the ore mined will be consumed in the captive plant of the lessee and part will be despatched to different buyers.

2.2.4.8: Market Assessment

Iron ore is already having a wide spread demands so, no separate market assessment will be required.

2.2.4.9: Other Modifying Factors

Nil

2.2.4.10: Classification

Justification for classification of MEMC rule - 15 is annexed as Annexure - 14.

2.2.4.11: Calculation of blocked resources

2.2.4.11: Calculation of blocked resources

S. N.	Reserves blocked due to	Cross section/Block	Sectional area/ block area (in Sq mrt)	Influence (m)	Depth (m)	Volume (m³)	Bulk Density (t/m³)
1	Ultimate pit limit, safety zone proposed quarry slope etc. 10% depreciation is given in Geological report of state Govt. of Odisha.	N5-N5'	482.34556	200	NA	96469.112	3.25
2		N3-N3'	731.01668	200	NA	146203.336	3.25
3		N3-N3'	391.32671	200	NA	78265.342	3.25
4		N1-N1'	1056.43731	200	NA	211287.462	3.25
5		N1-N1'	521.97422	200	NA	104394.844	3.25
6		S1-S1'	959.15674	200	NA	191831.348	3.25
7		S1-S1'	209.24446	200	NA	41848.892	3.25
8		S3-S3'	173.32227	200	NA	34664.454	3.25
9		S5-S5'	1043.88667	190	NA	198338.4673	3.25
Total						1103303.257	

Table continued...

S. N.	Resource Quantity (t)	UNFC code	Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
1	313524.614	222	Forest Land	Fe	≥55%	Cross section method
2	475160.842	222	Forest Land	Fe	≥55%	Cross section method
3	254362.3615	222	Non- Forest Land	Fe	≥55%	Cross section method
4	686684.2515	222	Forest Land	Fe	≥55%	Cross section method
5	339283.243	222	Non- Forest Land	Fe	≥55%	Cross section method
6	623451.881	222	Forest Land	Fe	≥55%	Cross section method

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7	126008.899	222	Non- Forest Land	Fe	≥55%	Cross section method
8	112659.4755	222	Forest Land	Fe	≥55%	Cross section method
9	644600.0187	222	Forest Land	Fe	≥55%	Cross section method
	3585735.586					

Reserves blocked due to	Cross section/Block	Sectional area/ block area (in Sq mrt)	Influence (m)	Depth (m)	Volume (m³)	Bulk Density (t/m³)
Ultimate pit limit, safety zone proposed quarry slope etc. 10% depreciation is given in Geological report of state Govt. of Odisha.	N5-N5'	378.65971	200	NA	75731.942	3.25
	N3-N3'	213.48225	200	NA	42696.45	3.25
	N3-N3'	125.6269	200	NA	25125.38	3.25
	N1-N1'	393.33984	200	NA	78667.968	3.25
	N1-N1'	112.02761	200	NA	22405.522	3.25
	S1-S1'	52.09091	200	NA	10400.182	3.25
	S1-S1'	6.39387	200	NA	1278.774	3.25
	S3-S3'	52.73065	200	NA	10546.13	3.25
S5-S5'	411.29749	190	NA	78146.5231	3.25	
Total					344998.8711	

Table continued..

Resource Quantity (t)	UNFC code	Type of Land	Name of the radical	Grade (%)	Method used for resource estimation
246128.8115	222	Forest Land	Fe	≥45 to <55%	Cross section method
138763.4625	222	Forest Land	Fe	≥45 to <55%	Cross section method
81657.485	222	Non- Forest Land	Fe	≥45 to <55%	Cross section method
255670.896	222	Forest Land	Fe	≥45 to <55%	Cross section method
72817.9465	222	Non- Forest Land	Fe	≥45 to <55%	Cross section method
33803.5915	222	Forest Land	Fe	≥45 to <55%	Cross section method
4156.0155	222	Non- Forest Land	Fe	≥45 to <55%	Cross section method
34274.9225	222	Forest Land	Fe	≥45 to <55%	Cross section method
253976.2001	222	Forest Land	Fe	≥45 to <55%	Cross section method
1121246.331					

2.2.4.12: Calculation of Reserves

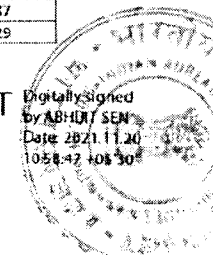
S. N.	Cross Section/Block	Sectional area/block area in Sq mtr	Influence (m)	Depth (m)	Volume (m³)	Bulk Density (t/m³)	Reserves Quantity (t)
1	N5-N5'	4341.11004	200	NA	868222.008	3.25	2821721.526
2	N3-N3'	6579.15012	200	NA	1315830.024	3.25	4276447.578
3	N3-N3'	3521.94039	200	NA	704388.078	3.25	2289261.254
4	N1-N1'	9507.93579	200	NA	1901587.158	3.25	6180158.264
5	N1-N1'	4697.76798	200	NA	939553.596	3.25	3053549.187
6	S1-S1'	8632.41066	200	NA	1726482.132	3.25	5611066.929

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7	51-51'	1883.20014	200	NA	376640.028	3.25	1224080.091
8	53-53'	1559.90043	200	NA	311980.086	3.25	1013935.28
9	55-55'	9394.98003	190	NA	1785046.206	3.25	5801400.169
Total							32271620.28

Table continued...

S. N.	UNFC code	Type of Land	Name of the of radical	Grade (%)	Method used for resource estimation
	122	Forest Land	Fe	≥55%	Cross section method
	122	Forest Land	Fe	≥55%	Cross section method
	122	Non- Forest Land	Fe	≥55%	Cross section method
	122	Forest Land	Fe	≥55%	Cross section method
	122	Non- Forest Land	Fe	≥55%	Cross section method
	122	Forest Land	Fe	≥55%	Cross section method
	122	Non- Forest Land	Fe	≥55%	Cross section method
	122	Forest Land	Fe	≥55%	Cross section method
	122	Forest Land	Fe	≥55%	Cross section method

Cross Section/Block	Sectional area/block	Influence (m)	Depth (m)	Volume (m³)	Bulk Density (t/m³)	Reserves Quantity
N5-N5'	3407.93739	200	NA	681587.478	3.25	2215159.304
N3-N3'	1921.34025	200	NA	384268.05	3.25	1248871.163
N3-N3'	1130.6421	200	NA	226128.42	3.25	734917.365
M1-N1'	3540.05856	200	NA	708031.712	3.25	2301038.064
M1-N1'	1008.24849	200	NA	201649.698	3.25	655361.5185
S1-S1'	468.00819	200	NA	93601.638	3.25	304205.3235
S1-S1'	57.54483	200	NA	11508.966	3.25	37404.1395
S3-S3'	474.57585	200	NA	94915.17	3.25	308474.3025
S5-S5'	3701.67741	190	NA	703318.7079	3.25	2285785.801
Total						10091216.98

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UNFC code	Type of Land	Name of the of	Grade (%)	Method used for
122	Forest Land	Fe	≥45 to <55%	Cross section method
122	Forest Land	Fe	≥45 to <55%	Cross section method
122	Non- Forest Land	Fe	≥45 to <55%	Cross section method
122	Forest Land	Fe	≥45 to <55%	Cross section method
122	Non- Forest Land	Fe	≥45 to <55%	Cross section method
122	Forest Land	Fe	≥45 to <55%	Cross section method
122	Non- Forest Land	Fe	≥45 to <55%	Cross section method
122	Forest Land	Fe	≥45 to <55%	Cross section method

2.2.4.13:

Mineral	Iron
Reserves/ Resources estimated at on	As per GR
UNIT of estimation	MT

Classification	Code	Forest	Non-Forest	Total	Grade
A. Mineral Reserve					
1. Proved Mineral Reserve (A)	111	--	--	42362837.252	Forest
2. Probable Mineral Reserve (A)	121	--	--	--	Non-Forest
3. Probable Mineral Reserve (A)	122	25704729.740	6566890.532	32271620.272	55% Fe
	122	8663533.957	1427683.023	10091216.980	≥45% Fe to <55% Fe
				4706981.918	≥45% Fe to <55% Fe

B. Remaining Resources

1. Feasibility Mineral Resource (B)	211	--	--	--	--
2. Prefeasibility Mineral Resource (B)	221	--	--	--	--
3. Prefeasibility Mineral Resource (B)	222	2856081.083	729654.504	3585735.587	55% Fe
	222	962614.884	158631.447	1121246.331	≥45% Fe to <55% Fe
4. Measured Mineral Resource (B)	331	--	--	--	--
5. Indicated Mineral Resource (B)	332	--	--	--	--
6. Inferred Mineral Resource (B)	333	--	--	--	--
7. Reconnaissance Mineral Resource (B)	334	--	--	--	--
				4706981.918	--

Total Mineral Resources (A+B)

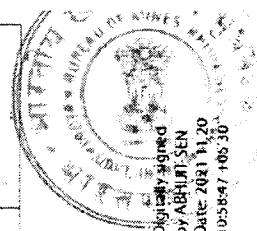
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Associated Mineral (A1)

Reserves/ Resources estimated as on	NIL
Mineral	
UNIT of estimation	
Classification	Code
	Quantity
	Forest
	Non-Forest
	Total
	Grade
	Forest
	Non-forest

A. Mineral Reserve				
1. Proved Mineral Reserve (A)	111	Not Applicable	Not Applicable	Not Applicable
2. Probable Mineral Reserve (A)	121	Not Applicable	Not Applicable	Not Applicable
3. Probable Mineral Reserve (A)	122	Not Applicable	Not Applicable	Not Applicable

B. Remaining Resources				
1. Feasibility Mineral Resource (B)	211	Not Applicable	Not Applicable	Not Applicable
2. Pre-feasibility Mineral Resource (B)	221	Not Applicable	Not Applicable	Not Applicable
3. Pre-feasibility Mineral Resource (B)	222	Not Applicable	Not Applicable	Not Applicable
4. Measured Mineral Resource (B)	331	Not Applicable	Not Applicable	Not Applicable
5. Indicated Mineral Resource (B)	332	Not Applicable	Not Applicable	Not Applicable
6. Inferred Mineral Resource (B)	333	Not Applicable	Not Applicable	Not Applicable
7. Reconnaissance Mineral Resource (B)	334	Not Applicable	Not Applicable	Not Applicable

Total Mineral Resources (A+B)

Not Applicable

2.2.5: Future Exploration Proposal

2.2.5.1: Geological Mapping

S. N.	Year	Scale	Area Covered (ha)
1	2025-26	1 : 1000	131.58

2.2.5.2: Ground Geophysical Survey

S. N.	Type of Survey	Spacing (m)	Total line (km)	Area Covered (ha)	Latitude	Longitude
1	NIL	NIL	NIL	NIL	NIL	NIL

There is no proposal for carrying out Ground Geo physical survey as the area will be explored by drilling.

2.2.5.3: Pitting

Number of pits *

NIL

S. N.	Year	Land type	Pit ID	Length of Pit (m)	Width of Pit (m)	Depth of Pit (m)	Latitude	Longitude
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1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
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There is no proposal for carrying out Pitting as the area will be explored by drilling.

2.2.5.4: Trenching

Number of Trenches *

Nil

2.2.5.4.1: SPACING

Min (m) *

Nil

Max (m) *

Nil

Avg (m) *

Nil

2.2.5.4.2: Area Covered Under Trenching

Coordinates

S. N.	Year	Land type	Trench ID	Length of Trench (m)	Width of Trench (m)	Depth of Trench (m)
1	Nil	Nil	Nil	Nil	Nil	Nil

Table continued..

S. N.	From Latitude	From Longitude	To Latitude	To Longitude
1	Nil	Nil	Nil	Nil

There is no proposal for carrying out Trenching as the area will be explored by drilling.

2.2.5.5: Exploratory Drilling

2.2.5.5.1: Core Drilling & Non-Core Drilling

S. N.	Year	In forest area			
		No. of boreholes	Total mtr	Type of borehole	Grid interval
1	1st Year (2024-25)	NA	NA	NA	NA
2	2nd Year (2025-26)	NA	NA	NA	NA
3	3rd Year (2026-27 (27.10.2026 to 31.03.27))	38	3800	Core	100x100 m.
4	4th Year (2027-28)	18	1800	Core	100x100 m.
5	5th Year (2028-29)	3	300	Core	100x100 m.

Table continued..

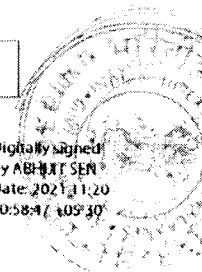
S. N.	In Non-forest				Total borehole	Total Mtr	Attachment
	No. of boreholes	Total mtr	Type of borehole	Grid interval			

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Chapter 4: Mining Operations

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4.1: Mining Method (Opencast)

4.1.1: Existing Method of Mining

☐ Manual

☐ Mechanized

Choose one or more

Not applicable		
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4.1.2: Proposed Method of Mining

☐ Manual

☐ Mechanized

Choose one or more

Mechanized	HEMM	Deep hole drilling & blasting with combination of excavator and dumper, loader, rock breaker, dozer etc
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Reasons for Proposed Changes

Government of Odisha, pursuant to the Mines and Minerals (Development and Regulation) Act, 1957 and the Mineral (Auction) Rules, 2015 as amended from time to time, issued the notice inviting tender dated 07.07.2021 to commence the auction process for grant of mining lease for Chandiposhi Iron ore block over an area of 131.580 Hectare for Iron Ore located in Koira Mining circle, district Sundergarh, Odisha. The e-auction process was conducted in accordance with the tender document for the said mineral block on 26.09.2021 and Rungta Mines Ltd. was declared as the 'Preferred Bidder' under Rule 9(9)(iii) or Rule 10 (1A) of Auction Rules, having quoted highest Final Price Offer vide letter No. MXIII(b) 48/2021/7741/DM Dated 05.10.2021 issued by Director of Mines Government of Odisha.

As required under Rule 10(1) of the Auction Rules and the tender document for the said mineral block, Rungta Mines Ltd. has made payment of the first installment, being 20% (twenty percent) of the upfront payment of Rs.12,90,68,460/- (Twelve Crore Ninety Lakh Sixty Eight Thousand Four Hundred Sixty) only through Treasury Challan vide e- Challan no. 0853/1870 dated 08.10.2021 at Cyber Treasury, Dist- Sundergarh.

Accordingly, pursuant to Rule 10(2) of the Auction Rules and the terms of the Tender Document, the Government of Odisha is pleased to issue Letter of Intent (LOI) bearing no. IV(B)SM-50/2021/8719/SM, Bhubaneswar dated 28.10.2021 for grant of Mining Lease for Chandiposhi Iron ore block for Iron ore located in 8 km from Koira village, Koira tahasil, Sundergarh district on 131.580 Hectare Area to Rungta Mines Ltd. for a period of 50 (fifty) years.

Rungta Mines Ltd. shall be considered to be the "successful bidder" upon continuing to be in compliance with all the terms and conditions of eligibility; payment of the second installment being 20% (twenty per cent.) of the upfront payment; furnishing an irrevocable and unconditional performance security to the State Government from an Acceptable Bank and payable at Bhubaneswar, Odisha, pursuant to the Auction Rules; satisfying the conditions specified in clause (b) of sub-section (2) of Section 5 of the Act with respect to a mining plan; and signing of the Mine Development and Production Agreement upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

The Validity of LOI is for a period of 3 (three) years from the date of its issuance, within which time all the above conditions must be fulfilled and the Mining Lease deed must be executed between the Rungta Mines Ltd. and the Government of Odisha. In case there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder, then it may submit an application to Government of Odisha, requesting for further extension. If the Government of Odisha is satisfied that there is a delay in execution of Mining Lease Deed due to reasons beyond the control of the Preferred Bidder and a longer period is required to enable the Preferred Bidder to satisfy all or any of the above conditions, it may extend the validity of this letter of intent for such period or periods as the Government of Odisha may specify. Provided that: (a) this letter of intent shall be extended for a maximum period of 2 (two) years; and (b) the total period for which this letter of intent would remain valid must not exceed 5 (five) years from the date of issuance.

Thus, on issuance of LOI, process for grant mining lease has been started. According to this process calendar for grant of mining

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10. MINING PLAN AND COMPLIANCE WITH APPLICABLE LAW		
10.1 The Mining Plan applicable pursuant to clause (b) of sub-section (2) of the Section 5 of the Act shall be complied with by the Successful Bidder at all times. The Successful Bidder shall also comply with Applicable Law in relation to conduct of mining operations.		
10.2 The Successful Bidder shall implement an annual production and dispatch plan to ensure that the estimated quantity of mineral resources in the Mineral Block are fully exploited during the period of the Mining Lease, failing which appropriate actions in accordance with this Agreement shall be initiated. In this regard, the Successful Bidder shall make an application for approval of a Mining Plan to the competent authority contemplating an annual production and dispatch in each year commencing from year 3 (three), which should be equal to or more than the quantity arrived at by dividing the estimated quantity of resources of the Mineral Block by 48 (forty eight)."		
In view of the above, during 1st two years of mining lease period which will start from the date of execution of lease deed; we are assuming the last date of execution of mining lease deed to be 27.10.2024 i.e. 3 years from date of issuance of letter of intent (LOI), there will be no production during first 2 years i.e. from 27.10.2024 of financial year 2024-25 up to 26.10.2026 of financial year 2026-27. Thus, Production may start from 27.10.2026 of financial Year 2026-27. Accordingly, the production proposal for this Mining Plan of 1st Five years will be as follows:-		
Year Production proposal(MTPA)		
1st year	(2024-25)	0
2nd year	(2025-26)	0
3rd year	(2026-27)	
	(From 27.10.2026 to 31.03.2027)	0.427
4th year	(2027-28)	1.00
During proposed period of mining operation the mining operation will be fully mechanized opencast with development of benches of height upto 9m and width up to 15m. The conventional opencast method with utilization of excavator of capacity up to 4.5m ³ , dumpers of capacity up to 50MT, rock-breakers, deep-hole drilling blasting will be adopted. During mining operation period from 2026-27 (From 27.10.2026 to 31.03.2027) to 2028-29, mining operation will be done in only one quarry. The proposed mining area and other area of the lease is already proved mineralized at G2 level by 25 no. of boreholes completed by GSI, MECL as per G.R. provided with the Tender Document.		
During the proposed mechanised mining operation, ROM iron ore will be produced as an admixture of high grade (55% Fe) and low grade (Mineral Reject) ore. During ROM ore excavation, different ore type will be judiciously blended before dry processing to produce different grade and sizes of products as per buyer requirement.		

4.2: Operational Parameters

4.2.1: Inventory of Existing Pits & Dumps

4.2.1.1: Pits

S.N.	Pit ID	Pit Status	Area Covered by Pit (Ha)	Pit Dimension (m x m x m)
1	Nil	Nil	Nil	Nil

4.2.1.2: Dumps and Stacks

4.2.1.2.1: Dump Details

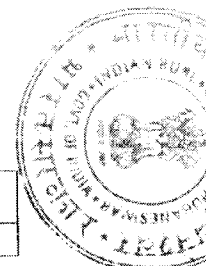
S.N	Dump ID	Dump Status	Type of Dump	Total Dump Quantity (t)	Area covered by Dump (Ha)	Height (m)	Location
1	NA	NA	NA	NA	NA	NA	NA

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4.2.1.2.2: Stack Details

S.N	Stack ID	Type of Stack	Total Stack Quantity (t)	Area covered by Stack (Ha)	Height (m)
1	NA	NA	NA	NA	NA

4.2.1.3: Details of stabilised dumps

S.N	Dump ID	Number of Terraces	Average Height of Terraces (m)	Length of Toe Wall (m)	Length of Garland Drain (m)	Area Stabilized (ha)	Method of Stabilization
1	Nil	Nil	Nil	Nil	Nil	Nil	Nil

4.2.2: Opencast Mining

4.2.2.1: Bench Parameters

Pit Id	Year	Max Height of the Benches in Over Burden (m)	Min Width of the Benches in Over Burden (m)	Slope of the Bench in Over Burden (degree)	Max Height of the Benches in Mineral (m)	Minimum Width of the Benches in Mineral (m)	Slope of the Bench in Mineral (degree)	Overall Slope of Pit (degree)
CP-1	1st Year (2024-25)	0	0	0	0	0	0	0
CP-1	2nd Year (2025-26)	0	0	0	0	0	0	0
CP-1	3rd Year (2026-27) (27.10.2026 to 31.03.27)	5.9	15	75	9	15	90°	40°
CP-1	4th Year (2027-28)	7.05	15	75	9	15	90°	40°
CP-1	5th Year (2028-29)	9	15	75	9	15	90°	40°

Table continued...

Pit Id	Number of Benches in Top Soil	Number of Benches in Over Burden	Number of Benches in Mineral	Max Depth of Workings (m)	Depth of Water Table (m)	Max Slope Angle of Haul Roads (1 in)	Year-Wise Development & Production Plan	Year-Wise Development & Production Section
CP1	0	0	0	0		0	0	0
CP1	0	0	0	0		0	0	0
CP1	0	2	1	7.05		16	Production Plan enclosed as Plate No. 6	Production section enclosed as Plate no. - 6A

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CP1	0	2	2	8.25			Production Plan enclosed as Plate No. - 7	Production section enclosed as Plate no. - 7A
CP1	0	0	2	11.7		16	Production Plan enclosed as Plate no. - 8	Production section enclosed as Plate no. - 8A
						16		

4.2.2.2: Yearwise Opencast Development

S.N	Year	Pit ID	Bench	Direction	Bulk Density of Overburden (BD1) (ton/m ³)	Bulk Density of Mineral (BD2) (tonn/m ³)	Top Soil Volume (Length x Width x Height) (m ³)	Over Burden Volume (Length x Width x Height) (m ³)	Over Burden Quar (t)
1	1st Year (2024-25)	NA	NA	NA	NA	NA	NA	NA	NA
2	2nd Year (2025-26)	NA	NA	NA	NA	NA	NA	NA	NA
3	3rd Year (2026-27) (27.10.2026 to 31.03.27)	CP1	2	N-S	2	3.25	0	261025	5220
4	4th Year (2027-28)	CP1	2	NE	2	3.25	0	47250	9450
5	5th Year (2028-29)	CP1	2	NE	2	3.25	0	0	0

Table continued...

S.N	ROM Volume (Length x Width x Height) (m ³)	ROM Quantity (t)	Recovery	(+) 45% to (-) 55% Mineral Reject (t)	(+) 55% Production Main (t)	Production Associated (t)	Location of Advancement	OB to Ore Ratio (ton/m ³)
1	NA	0	NA	NA	NA	NA	NA	NA
2	NA	0	NA	NA	NA	NA	NA	NA
3	427000.0	427000.0	90% (+55% Fe) 10% (+45 to 55% Fe)	42700.00	384300.0	NA	N-S	0.68:1
4	1000000.0	1000000.0	90% (+55% Fe) 10% (+45 to 55% Fe)	100000.00	900000.0	NA	NE	0.05:1
5	1000000.0	1000000.0	90% (+55% Fe) 10% (+45 to 55% Fe)	100000.00	900000.0	NA	NE (Vertically Down)	0.00

N.B. - As the mining operation will be fully mechanised, mineral rejects (45-55% Fe) will not be produced separately. The mineral reject (45-55%) and Iron ore (+55% Fe) will be produces as a blended iron ore. of +55% Fe.
The detailed calculation is annexed as Annexure - 17
The percentage of mineral rejects (45-55% Fe) will be 10% of total ROM.

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S.N	Pit ID	Total Topsoil Volume (m ³)	Total Over Burden Volume (m ³)	Total Over Burden Quantity (t)	Total ROM Volume (m ³)	Total ROM Quantity (t)
1	NH	0	0	0	0	0.0
2	NH	0	0	0	0	0.0
3	CP-1	0	261025	522050	131384.6	427000.0
4	CP-1	0	47250	94500	307692.4	1900000.0
5	CP-1	0	0	0	307692.3	1900000.0

4.2.2.3: Transportation & Hauling Equipment

S.N	Type	Make	Capacity (m ³)	No. of Equipments
1	Dumper	Volvo	40MT	9
2	Dumper	Volvo	30MT	5

4.3: Material Handling Summary

4.3.1: Studies Undertaken

Blast Vibration Study Report	No	will be carried out after commencement of Mining operation.
Slope Stability Study Report	No	will be carried out after commencement of Mining operation.
Recovery Study Report	No	will be carried out after commencement of Mining operation.
Hydrological Study Report	No	will be carried out after commencement of Mining operation.
Mineral Beneficiation Study Report	No	will be carried out after commencement of Mining operation.
Subsidence Study Report	No	will be carried out after commencement of Mining operation.
Geotechnical Study Report	No	will be carried out after commencement of Mining operation.
Any Other Study Report	No	will be carried out after commencement of Mining operation.
Bulk Density Study Report	No	will be carried out after commencement of Mining operation.

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4.3.2: Insitu Mining

S.N.	Year	Total Handling (t)	Waste Quantity (t)	ROM Quantity (t)	(+)55% Fe ROM Quantity Saleable Mineral (t)	(+) 45% to (-) 55% Mineral Reject (t)	Ore to OB Ratio (ROM Quantity / Waste Quantity) (t:t)	Grade Range (%)
1	1st Year (2024-25)	NA	NA	NA	NA	NA	NA	NA
2	2nd Year (2025-26)	NA	NA	NA	NA	NA	NA	NA
3	3rd Year (2026-27) (27.10.2026 to 31.03.27)	949050.0	522050	427000.0	384300.0	42700.00	1.22	+45% to 65% Fe
4	4th Year (2027-28)	1094500.0	94500	1000000.0	900000.0	100000.00	0.09	+45% to 65% Fe
5	5th Year (2028-29)	1000000.0	0	1000000.0	900000.0	100000.00	--	+45% to 65% Fe

N.B. - As the mining operation will be fully mechanised, mineral rejects (45-55% Fe) will not be produced separately. The mineral reject (45-55%) and Iron ore (+55% Fe) will be produces as a blended iron ore. The detailed calculation is annexed as Annexure - 17

The percentage of mineral rejects (45-55% Fe) will be 10% of total ROM.

4.3.3: Dump workings

S.N.	Year	Dump Id	Location Latitude	Location Longitude	Area (m ²)	Avg Height of Dump (m)	Volume (m ³)	Total Dump Quantity (t)
1	NA	NA	NA	NA	NA	NA	NA	NA

Table continued...

S.N.	Proposed Dump Handling Quantity (t) (A)	Proposed Recovery of Saleable Mineral (t)(B)	Proposed Waste Quantity (t) (A-B)	Grade Range (%)	Justification
1	NA	NA	NA	NA	NA

4.3.4: Calculation Summary

Year	2024-25	2025-26	27.10.26 to 31.03.27	2027-28	2028-29	Total
(A) Total ROM quantity (t)	NA	NA	427000.0	1000000.0	1000000.0	2427000.0
(B) Saleable ore from ROM (t)	NA	NA	427000.0	1000000.0	1000000.0	2427000.0
(C) Proposed Dump Handling Quantity (t)	NA	NA	0.0	0.0	0.0	0.0
(D) Saleable Ore recovered from dump workings (t)	NA	NA	0.0	0.0	0.0	0.0

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(E) Total Saleable Ore (t) (=B+D)	NA	NA	427000.0	1000000.0	1000000.0	2427000.0
(F) Total Quantity Handled (t) (=A+C)	NA	NA	427000.0	1000000.0	1000000.0	2427000.0

N.B. - As the mining operation will be fully mechanised, mineral rejects (45-55% Fe) will not be produced separately. The mineral reject (45-55%) and Iron ore (+55% Fe) will be produces as a blended iron ore. Tt calculation is annexed as Annexure - 17

The percentage of mineral rejects (45-55% Fe) will be 10% of total ROM.

4.4: Machine Calculation

4.4.1: Machine Requirement Summary

Number of Average Working Days in One Year (A)	300
Number of Shifts per Day (B)	1
Material Handling Required per Day (t) ((D) =Largest of (Q1,Q5)/(A))	3648.34 Tonne per day
Material to be Handled per Shift (t) ((E) =(D)/(B))	3648.34 Tonne per day
Handling Required per Hour (t) ((F) = (E)/8 hours)	456.04
Effective Shift Time	6.8 hrs.

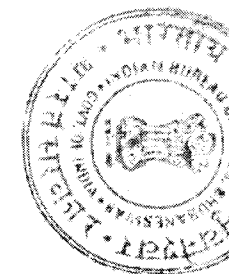
4.4.2: Shovel / Excavator Requirement

Effective Shift Time:	6	48
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S.N.	Type	Bucket Capacity (m³)(A)	Bucket Fill Factor (B)	Swell Factor (C)	Tonnage Factor (m³/t) (D)	Machine Utilization Factor (%) (U)	Efficiency (%) (E)	Cycle time (sec) (F)
1	Tata Hitachi	4.2	0.8	-	3.25	0.85	0.85	47

Table continued...

S.N.	(G) TPH =TPH (G) =((3600 x A x B x C x D x E x U) / F)/1000	Total Hours (H) =Number of working days x Number of shifts/day x Effective shift hours	Yearly handling by one Excavator (t) (I)=(G x H)	Maximum handling of the material by this machine during the block period (t) (J)	Number of excavator machines required (K) = (J / I)	Standby excavator (L)
1	604.32	2040	1232812.3	1094500	0.88 say 1	1



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4.4.3: Dumper Requirement

Effective Shift Time:	6hr	48min.
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S.N.	Hours=Number of working days (W)x Number of shifts/day x Effective shift hours (Machine Requirement Summary) (A)	Capacity of Dumpers (t) (B)	Speed of the dumper (KMPH) (i)	Lead Distance (KM) (ii)	Time taken to cover distance in minutes(iii) = (ii/i) x 60	Queuing, Loading Time at Shovel (min) (iv)	Queuing, Unloading Time during unloading (min) (v)	Total Time to complete one trip(vi) = (iii + iv + v)
1	2040	40 MT	15	1.3	11.54 say 12	8	6	25

Table continued..

S.N.	No. of Trips / hr = (60 / vi)	Total transportation per hour = (B X vii)	Yearly handling by one dumper (ix) = A x TPH	Maximum handling of the material by this machine during the block period (t) (x)	Number of dumpers will be (xi) = (x / ix)	Plus Standby dumper (xii)
1	2.4 say 3	96	195840	1094500	5.58 or 6	5

* Note - Total 11 nos. of Dumpers of capacity 40 MT will be required

4.4.4: Drill Machine Requirement

Effective Shift Time:	6	48 min.
-----------------------	---	---------

S.N.	Type of Drill	Depth of Hole(including Sub grade Drilling (m)	Spacing (m)	Burden (m)	Bulk Density of Waste (t/m ³)	Bulk Density of Mineral (t/m ³)	Yield per Hole (t)	Yield per Meter (t/m)
1	Hydraulic	10	2.5	3	2	3.25	243.71	24.375

Note: 02nos/Day needs drilling

Table continued..

S.N.	Annual Target Known (t)	Drilling Requirement per Day (m)	Drilling Requirement per Shift (m)	Rate of Drilling per Hours (m/hr)	Required Number of Drills (m/c)	Stand by Drill
1	875600	131.71	131.71	10.97	1	1

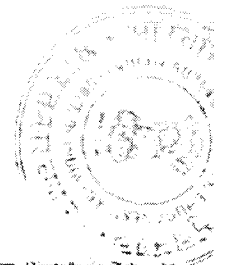
Note: Total 02nos. Of drill Machine is required.

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4.4.5: Machine Deployment Details

4.4.5.1: Excavator & Loading Equipment

S.N.	Type	Make	Capacity (m ³)	No. of Equipments
1	Excavator	Hitachi	4.2 3.9 2	7

Note: 5 nos. of excavator will be required for screening plant

4.4.5.2: Dozers Details

S.N.	Type	Make	Capacity (hp)	No. of Equipments
1	Dozer	Komatsu	354	1

4.4.5.3: Drilling Details

S.N.	Type	Make	Capacity (t)	Diameter of Hole (mm)
1	Hydraulic	Atlas Copco	12 m/hr	110

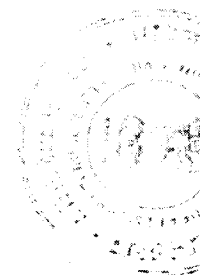
4.5 Blasting Requirement

4.5.1: Blasting & Explosive Requirement in Waste/Development

S.N.	Drill Pattern / Spacing of Holes (m)	Burden of Holes (m)	Number of Rows / Rings	Yield per Holes in Waste (m ³)	Frequency of Blasting in a Week	Maximum Number of Holes Blasted in a Round	Charge per Hole (kg)	Charge per Round (kg)
1	2.5	3	3	67.5 (For 9m Hole)	1	22	40	880

Table continued...

S.N.	Explosive Requirement Per Month in Development (kg)	Powder Factor in Development / Waste (kg/t)	Depth Of Hole
1	3520	3.380	10m



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4.5.2: Blasting & Explosive Requirement in Mineral / Ore

Type of Explosive	Type of Explosives used / to be Used
	Emul Booster as base charge with proper ratio to site mixed emulsion as column charge to ensure complete detonation of each holes

S.N.	Total ROM proposed to be handled in CUM/annum	Total ROM proposed to be handled in CUM/day	Spacing of Holes (m)	Burden of Holes (m)	Number of Rows	Yield per Holes in ROM Zone (m ³)	Frequency of Blasting in a Week	Maximum Number of Holes Blasted in a Round	No of Holes Required to be Blasted per Round	Cl
1	246154	820.51	2.5	3	3	67.5 (For 9m Hole)	1	68	17	

Table continued.

S.N.	Charge per Round (kg)	Explosive Requirement Per Month for ROM Zone Blasting (kg)	Powder Factor in Ore (kg/t)	Pop Shooting (no of Boulders)	Plaster Shooting (no of Boulders)	Use of Rockbreaker	Capacity	Secondary Blasting Requirements	Depth Of Hole
1	680	2720	5.48	-	-	Yes	90 TPH	No	10m.

Note : 80% of Ore/OB needs for blasting.

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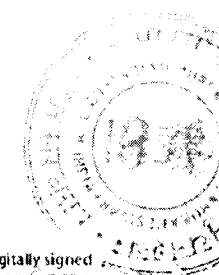
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4.6: Man Power Deployment

4.6.1: Managerial

S.N.	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	1st class Manager	0	0	0	1	1
2	2nd class Manager	0	0	0	1	1
3	Mining Engineer	0	0	0	1	1
4	Geologist	0	0	0	2	2
5	Surveyor	0	0	0	1	1
6	Mechanical Engineer	0	0	0	1	1
7	Electrical Engineer	0	0	0	1	1
8	Environment Engineer	0	0	0	1	1
9	HR Personnel	0	0	0	1	1
10	Total	0	0	0	10	10

* Estimation of all Statutory person will be given to IBM before commencement of mining operation.

4.6.2: Supervisory

S.N.	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	Foremen	0	0	0	2	2
2	Mining Mate	0	0	0	2	2
3	Blaster	0	0	0	1	1
4	Others	0	0	0	5	5
	Total				10	10

4.6.3: Skilled Workers / Operators

S.N.	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	Operator	0	0	0	11	11
2	Dumper Operator	0	0	0	15	15
3	Pump Operator	0	0	0	2	2
4	Technician	0	0	0	5	5
5	Drill Operator	0	0	0	7	7
6	Dorer/Grader Operator	0	0	0	5	5
8	Other				10	10
	Total	0	0	0	55	55

4.6.4: Semi-skilled Workers

S.N.	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	0	0	0	6	6

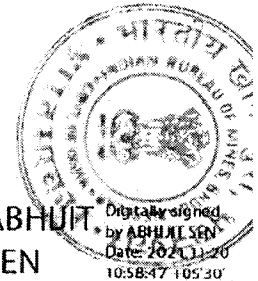
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4.6.5. Unskilled Workers

S.N.	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	0	0	0	30	30

4.6.6: Others Specify

S.N.	Particulars	Number of Persons in Shift 1	Number of Persons in Shift 2	Number of Persons in Shift 3	Number of Persons in General Shift	Total No. of Persons per day
1	Security	20	20	20	5	65

4.6.7: No of Persons Engaged Per Day

Particulars	Column1	Column2	Column3	Column4
Mine worker	0	0	0	111
Security	20	20	20	5

No of Shifts per Day ((A) = Machine Requirement Summary (B))	1
Average Daily Employment per Shift ((B) = (Total Number of Person per Day) / (A))	176
Material to be Handled per Shift ((C) = Machine Requirement Summary (E))	3648.34

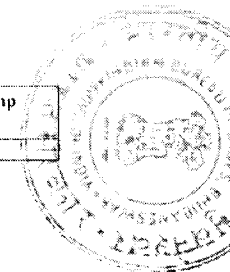
4.6.8: Supervision

S.N.	Particulars	Qualification	Requirement / Proposed	In Position / Existing Strength	(-) Shortage / (+) Excess	Remarks
1	Mines Manager	1st class Managers Certificate from a recognised institute with minimum 10 years experience	1	Nil	NA	
2	Geologist	Masters degree Certificate from a recognised institute with minimum 10 years experience	2	Nil	NA	

4.7: Waste Management

4.7.1: Existing Dump

S.N.	Year	Dump Id	Type of Dump	Proposed Area (ha)	Height (m)	Total Dump Quantity (m³)	Existing Dump Location
1	NA	NA	NA	NA	NA	NA	NA



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Chapter 6: Progressive Mine Closure Plan

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6.1: Status of Land

Total Area Degraded					Total mined out area Reclaimed and Rehabilitated			Other Areas Reclaimed and Rehabilitated	
Total area under excavation in the lease		Area under Dumps(in hect)	Area under utility services(in hect)	Area under Stack yards(in hect)	Mined out Area Reclaimed but not rehabilitated(in hect)	Mined outArea fully Rehabilitated from Reclaimed area(in hect)	Area under Water Reservoir considered Rehabilitated (in hect)	Stabilized Waste dump Rehabilitated (in hect)	Virgin area under Green Belt (in hect)
Area under mining operation	Mined Out area in the lease								
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

6.2: Progressive Reclamation and Rehabilitation Plan

6.2.1: Backfilling

Quantity of Waste / Fill Material Available at Site (m ³)	NA
Availability of Top Soil for Spreading (m ³)	NA
Spread Area (m ²)	NA

6.2.1.1: Year Wise Proposal

During initial stage of mining operation no backfilling proposal is given as the reserve of iron ore in the proposed quarry will not be exhausted.

S. N.	Year	Pit ID	Area (m ²)	Top RL	Bottom RL	Estimated Expenditure (INR)
1	1st Year (2024-25)	NA	NA	NA	NA	NA
2	2nd Year (2025-26)	NA	NA	NA	NA	NA
3	3rd Year (2026-27) (27.10.2026 to 31.03.27)	CP-1	NA	NA	NA	NA
4	4th Year (2027-28)	CP-1	NA	NA	NA	NA
5	5th Year (2028-29)	CP-1	NA	NA	NA	NA

6.2.2: Water Reservoir

Average Rainfall of The Area (mm)	1342.5
Proposed Area under Water Storage	0.16 Ha

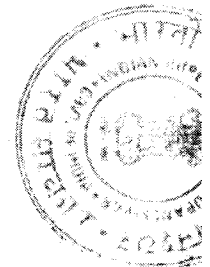
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6.2.2.1: Preparations For Ground Water Recharging

6.2.2.1.1: Drilling Holes		6.2.2.1.2: Preparation of Course Gravel Bed	
Year	Proposed no of Holes to be Drilled	Year	Proposed Area of Bed (LxW)
1st Year (2024-25)	0	2024-24	0
2nd Year (2025-26)	0	2025-26	0
3rd Year (2026-27) (27.10.2026 to 31.03.27)	1	2026-27 (27.10.26 to 31.03.27)	0
4th Year (2027-28)	1	2027-28	0
5th Year (2028-29)	1	2028-29	0

Please specify, if others

Proposed settling tank at the toe of the dump and rain water harvesting pond (Total area 0.16 Ha.) will act as gr. Water recharging pond.

6.2.2.2: Protective measures (Please specify running meter)

6.2.2.2.1: Fencing			
Year	Proposed Fencing Length (m)	Co-ordinates from	Co-ordinates to
1st Year (2024-25)	NA	NA	NA
2nd Year (2025-26)	NA	NA	NA
3rd Year (2026-27) (27.10.2026 to 31.03.27)	Nil	Nil	Nil
4th Year (2027-28)	Nil	Nil	Nil
5th Year (2028-29)	Nil	Nil	Nil

6.2.2.2.2: Retaining Wall			
Year	Proposed Wall Length (m)	Co-ordinates from	Co-ordinates to
1st Year (2024-25)	-	-	-
2nd Year (2025-26)	-	-	-
3rd Year (2026-27) (27.10.2026 to 31.03.27)	569.5	E324209.417, N2422785.44	E324366.32, N2422785.326
4th Year (2027-28)	0	0	0
5th Year (2028-29)	0	0	0

6.2.2.2.3: Garland Drains			
Year	Proposed Bund Length (m)	Co-ordinates from	Co-ordinates to
1st Year (2024-25)	-	-	-
2nd Year (2025-26)	-	-	-
3rd Year (2026-27) (27.10.2026 to 31.03.27)	569.5	E324208.78, N2422788.36	E324358.44, N2422799.89
4th Year (2027-28)	0	0	0
5th Year (2028-29)	0	0	0

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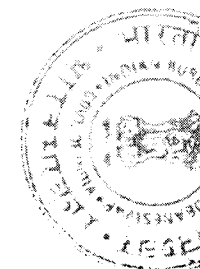
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6.2.3: Green Belt Development

6.2.3.1: Cumulative work done (upto end of previous block of five years)

S. N.	Total Expenditure Incurred up to Last Year (INR)	Area Covered (Ha)	Number of Plants	Survival Rate (%)
1	NA	NA	NA	NA

6.2.3.2: Year Wise Proposal

S. N.	Year	Green Belt Location (s)	Area Proposed to be Covered (Ha)	Number of Plants Proposed	Expected Survival Rate (%)	Estimated Expenditure (INR)
1	1st Year (2024-25)	0	0	0	0	0
2	2nd Year (2025-26)	0	0	0	0	0
3	3rd Year (2026-27) (27.10.2026 to 31.03.27)	Along Safety zone	1.75	4375	3938	437500
4	4th Year (2027-28)	Along Safety zone	1.75	4375	3938	437500
5	5th Year (2028-29)	Along Road Barrier	2.35	5875	5287.5	587500

6.2.4: Use of shallow pits

6.2.4.1: Cumulative work done (upto end of previous block of five years)

S. N.	Pit ID	Work Done	Area covered (m ²)	Total Expenditure Incurred (up to last five year block) (INR)
1	NA	NA	NA	NA

6.2.4.2: Year Wise Proposal

S. N.	Year	Pit ID	Total Area (Ha)	Area Proposed for Crops (Ha)	Suitable Crops	Area Proposed for Grass (Ha)	Total Proposed Expenditure (INR)	Location (s)	Remarks
1	NA	NA	NA	NA	NA	NA	NA	NA	NA

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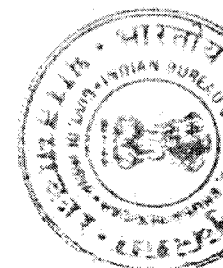
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6.2.5: PISCICULTURE

6.2.5.1: Total Expenditure incurred as on Date (INR)

NA

6.2.5.2: Cumulative work done as on Date

S. N.	Pit ID	Area (m ²)	Expenditure (INR)
1	NA	NA	NA

6.2.5.3: Year Wise Proposal

S. N.	Year	Pit ID	Area (m ²)	Estimated Expenditure (INR)
1	NA	NA	NA	NA

6.2.5.4: Source of Water for Pisciculture

NA

6.2.5.5: Whether the quality of water has been assessed & found to be suitable for Pisciculture

NA

6.2.6: Recreational Facility

6.2.6.1: Total Expenditure Incurred (up to last five year block) (INR)

NA

6.2.6.2: Cumulative work done as on Date

S. N.	Pit ID	Area (m ²)	Expenditure (INR)
1	NA	NA	NA

6.2.6.3: Year Wise Proposal

S. N.	Year	Type of Recreational Facility	Area Covered (Ha)	Location	Estimated Expenditure (INR)
1	NA	NA	NA	NA	NA

6.2.7: Dump Area Stabilization & Development

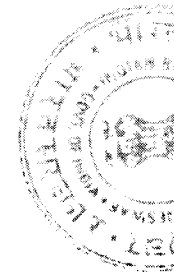
S. N.	Year	Dump ID	No of Terraces	Average Height of Terraces (m)	Length of Toe Wall (m)	Length of Garland Drain (m)	Area Stabilized (Ha)	Method of Stabilization	Estimated Expenditure (INR)	No of Check Dams
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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6.2.8: Other Form of Reclaiming the Area

6.2.8.1: Cumulative work done as on Date

S. N.	Total Expenditure incurred as on Date (INR)	Work Done
1	NA	NA

6.2.8.2: Year Wise Proposal

S. N.	Year	Work Proposals	Estimated Expenditure (INR)
1	NA	NA	NA

6.2.9: TOPSOIL MANAGEMENT

6.2.9.1: Cumulative Work Done as on

S. N.	Top Soil Generated (m ³)	Top Soil Utilized (m ³)	Topsoil Stored (m ³)	Total expenditure incurred as on date (₹)
1	NA	NA	NA	NA

6.2.9.2: Year Wise Proposal

Year	Topsoil Generated (m ³) (A)	Topsoil Utilized (m ³) (B)	Topsoil Stored (m ³) (A-B)	Estimated Expenditure (INR)
NA	NA	NA	NA	NA

6.2.10: Tailings Dam Management

Year	Yearly generation of Tailing (m ³) (A)	Total capacity of Tailing Pond (m ³)	Measures Proposed for Periodic Desilting	Yearly Utilization of Tailing (m ³) (B)	Disposal of Tailing to Tailing Pond (m ³) (A-B)	Tailing Dam Design	Structural Stability Studies
NA	NA	NA	NA	NA	NA	NA	NA

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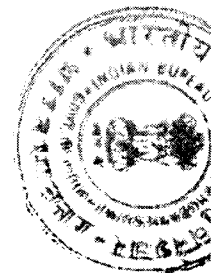
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6.2.11: LAND USE OF LEASE AREA AT THE EXPIRY OF LEASE PERIOD (CONCEPTUAL STAGE)

Total Area Degraded				Non Degraded area	Total mined out area Reclaimed and Rehabilitated			Other Areas Reclaimed and Rehabilitated			
Mined Out area in the lease	Area under Dumps(in hect)	Area under the Tailing Dam	Area under utility services(in hect)	Area undisturbed /virgin	Mined out Area Reclaimed but not rehabilitated(in hect)	Mined outArea fully Rehabilitated from Reclaimed area(in hect)	Area under Water Reservoir considered Rehabilitated (in hect)	Stabilized Waste dump Rehabilitated (in hect)	Virgin area under Green Belt (in hect)	Rehabilitated Area under utility services(in hect)	Rehabilitated Area under Tailing dam (in hect)
121.52	4.05	0	*21.343 (Road-4.7 Ha., Office, Rest Shelter Weigh bridge etc.-1.13 Ha., Ore Processing -7.031 Ha., Ore stock Yard -8.482 Ha.)	** 5.85 Ha. (3.5 Ha. Safety zone and 2.35 Ha. vill. Road safety barrier)	0	121.52 Ha. which include reclaimed & nrehabilitated backfilled quarry, bench plantation and utility service area.	0.16	4.05	5.85 (3.5 Ha. Safety zone and 2.35 Ha. vill. Road safety barrier)	21.343	0

* 21.343 Ha. area under utility services are all temporary features and all these features will come under active mining operation to mine out the total iron ore resource at the expiry of lease period.

** 5.85 Ha. (3.5 Ha. safety zone and 2.35 Ha. village road safety barrier) of safety zone will be covered by plantation.

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