

MINUTES OF THE 108TH MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE (SEAC), JHARKHAND HELD ON 19TH, 20TH, 21ST, 22ND, 23RD, 24TH and 25TH SEPTEMBER, 2023.

The 108th meeting of State Level Expert Appraisal Committee (SEAC), Jharkhand was held on 19th, 20th, 21st, 22nd, 23rd, 24th and 25th September, 2023 under the Chairmanship of Shri Ashok Kumar Singh, IFS (Retd.) in the Conference Room at SEAC, Ranchi.

The following members were present:

1. Shri Ashok Kumar Singh, IFS (Retd.) - Chairman
2. Dr. Kirti Avishek - Absent
3. Shri Niranjana Lal Agarwalla - Member
4. Dr. Raju Kumar - Member
5. Dr. Ajay Govind Bhatt - Member
6. Shri Srikant Verma, IFS - Secretary

SEIAA forwarded various projects to the SEAC for the technical appraisal after the last SEAC meeting held on 16th, 17th, 18th, 19th and 20th August, 2023. These projects have been put up for discussions. Besides, these Projects, wherein PP's were asked to provide requisite information / clarifications in the earlier meeting of SEAC, were also considered for appraisal. The Project Proponents have been asked to make technical presentation for the appraisal of their projects before the committee.

The following observations / recommendations were made during the presentation (Project - wise), as under :-

Day 1 : September 19th, 2023 [Tuesday]

- A. Site Visit of Dandatand Stone Mine of M/s Mor Mukoot Stone Mines (Partners : (i) Shri Anil Kumar (ii) Shri Sabir Ansari (iii) Shri Ravi Kumar), Village : Dandatand, Thana : Bengabad (366), Block Office : Bengabad, Distt. : Giridih, Jharkhand (0.61 Ha).**

As required by SEIAA vide letter no. 262, dated 05.09.2023, the Members of SEAC visited the site of Dandatand Stone Mine of M/s Mor Mukoot Stone Mines, Village : Dandatand, Thana: Bengabad (366), Block Office : Bengabad, Distt. : Giridih, Jharkhand on 19.09.2023. The detailed report of site visit has been submitted to SEIAA.

Day 2 : September 20th, 2023 [Wednesday]

A. Deputy Commissioner –cum- District Magistrate, Gumla or through authorized representative.

i. Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Stone), Distt. Gumla.

The Final DSR was submitted by Deputy Commissioner, Gumla. He was represented by District Mining Officer, Gumla Shri Ramnath Ray and Assistant Director, Geology, Gumla Shri Rakesh Roshan Panna at the SEAC meeting on 20.09.2023.

During the meeting the DMO, Gumla and Assistant Director, Geology, Gumla presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

The final DSR had been placed in the public domain for 21 days from the 21.07.2023. As per the Sub Divisional Committee no comments / observations were obtained.

During appraisal the DMO, Gumla and Assistant Director, Geology, Gumla were required to incorporate the following details :

- i. Block wise impact on the environment w.r.t. Air, Water, Noise, Soil, Flora & Fauna, Land use, Agriculture, Forest etc. due to the mining activities alongwith the corresponding remedial measures to mitigate the identified impacts.
- ii. Proposal for reclamation of the mined out area.
- iii. Details of risk assessment and disaster management plan due to the mining activities.
- iv. To include the data of the primary study carried out for preparation of DSR.

The above requirements incorporated in the DSR which was again taken up for consideration on 23.09.2023.

The DSR has been prepared as per the format provided in the above notification. The DSR submitted has been approved by the Sub-Divisional Committee. All the aspects of the notification dated 25.07.2018 are incorporated in the DSR and found to be satisfactory.

Hence, the final DSR for Minor Minerals other than Sand Mining or River Bed Mining (Stone) of District Gumla is recommended to SEIAA for approval.

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ii. **Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Earthwork), Distt. Gumla.**

The Final DSR was submitted by Deputy Commissioner, Gumla. He was represented by District Mining Officer, Gumla Shri Ramnath Ray and Assistant Director, Geology, Gumla Shri Rakesh Roshan Panna at the SEAC meeting on 20.09.2023.

During the meeting the DMO, Gumla and Assistant Director, Geology, Gumla presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

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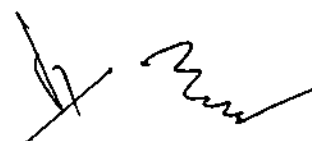
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B. Deputy Commissioner, Lohardaga or through authorized representative.

i. Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Stone), Distt. Lohardaga.

The Final DSR was submitted by Deputy Commissioner, Lohardaga. He was represented by District Mining Officer, Lohardaga Shri Rajaram Prasad and Assistant Director, Geology, Gumla Shri Rakesh Roshan Panna at the SEAC meeting on 20.09.2023.

During the meeting the DMO, Lohardaga and Assistant Director, Geology, Gumla presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

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ii. **Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Earthwork), Distt. Lohardaga.**

The Final DSR was submitted by Deputy Commissioner, Lohardaga. He was represented by District Mining Officer, Lohardaga Shri Rajaram Prasad and Assistant Director, Geology, Gumla Shri Rakesh Roshan Panna at the SEAC meeting on 20.09.2023.

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C. Consideration of Proposals

1. **North-West Quarry of Pakri Barwadih Opencast Coal Mine of M/s NTPC Limited, Village : Bariatu, Basaria, Beltu, Jabra, Kandaber, Nawadih, Sirma & Urub, Tehsil : Keredari and Barkagaon, Distt. : Hazaribagh, Jharkhand (485.159 Ha).**

(Proposal No. : SIA/JH/CMIN/ 426263/2023).

Name of the consultant : Creative Engineers & Consultants, Chennai.

This is a new (Greenfield) project which has been taken for appraisal on 20.09.2023.

North-West (NW) Quarry of Pakri Barwadih Opencast Coal Mine Project of NTPC Ltd. is a Greenfield project with a targeted coal production of 3.0 MTPA within the lease area of 485.159 Ha in Bariatu, Basaria, Beltu, Jabra, Kandaber, Nawadih, Sirma and Urub Villages of Keredari and Barkagaon Tehsil in Hazaribagh District of Jharkhand State.

Considering that this is a coal mining project with a lease area of 485.159 Ha, as per MoEF&CC notification S.O.1866(E) dated 20.04.2022, it is classified under Category B which necessitates environmental clearance from SEIAA, Jharkhand.

This quarry is a part of the Pakri Barwadih Coal Mine Block of NTPC Ltd. which comprises three distinct quarries namely, Pakri Barwadih West (PB-West), Pakri Barwadih East (PB-East) and the subject project. The entire Pakri Barwadih Coal Block is designed to produce 18 MTPA of coal (15 MTPA from PB-West & PB-East + 3 MTPA from PB North west) for captive use at the power plants of NTPC Ltd. located at different parts of country. Mining operations at PB-West and PB-East Quarry have already commenced subsequent to obtaining the necessary statutory clearances.

North West Quarry of Pakri Barwadih Coal Mine Project is bound by latitudes 23° 54'13.04" to 23° 55'43.25" North and Longitudes 85° 09' 09.79" to 85° 11' 02.40" East. Out of the total lease area of 485.159Ha, private tenancy is 113.557Ha, Government Land is 19.713 Ha and balance 351.89Ha is forest land. 20.692Ha of forest land was already transferred to NTPC vide MoEF&CC letter dated 17.09.2010. For the balance 331.198Ha, Stage-I forest clearance was obtained on 26.05.2023 vide MoEF&CC letter 8-56/2009-FC-(vol). In absence of Khatian copy at CO office, DC, Hazaribag has issued land certification for private tenancy and Government land vide letter no. 3070 dt 05.09.2023 in Form-I (as per Jharkhand Govt. circular 4792 dt 04.12.2018)

Topographically the area is rather hilly, rugged and undulating and the elevation varies from 430m to 460m above MSL. The two sides are defined by Khora Nala west and Khora nala east on the western and eastern side respectively, which discharges its load in Lathorwa Nala which in-turn joins Haharo Nadi. Besides these there are many small streams & streamlets,

which discharge their load into this nala. All the nalas of the block are seasonal and become dry during summers.

Khora Nala West enters the mining lease from North Western boundary and flows towards West Central boundary of the mining lease. It traverses path of 1.65 Kms inside the mining lease boundary. The other seasonal nala locally termed as Khora nala east is passing on the eastern side of lease. As per the approved mining plan, for Khora Nala West it is proposed for a realignment around the mine boundary in the NW corner which is to be carried out in the initial phase of mining. As far as Khora nala east is concerned, it is passing in between the PB-W and PB NW block and about 33.18 Mil.T of coal is available as barrier and batter coal between both. No diversion of Khora nala east will be carried out in the initial phase of mining, though it is proposed to mine 33.18 Mil.T of coal in the batter and barrier from year 41 to 52. A detailed study in this regard will be conducted later at an appropriate time and ensured undisturbed water flow for the downstream users.

Barkagaon R.F is located 6.5Km from the lease area. There are no sanctuaries within 10.0 km from the mine lease boundary. Hazaribagh wildlife sanctuary is located about 16.2 kms from the lease. As per the Eco-sensitive zone as per Final Notification S.O 2775(E) dated 01.08.2019 of MOEF & CC. The ESZ is located at a distance of 9.6 km from the lease area. As such NBWL clearance is not applicable.

The method of mining proposed to be adopted to extract coal and OB in PBNW Opencast mine will be proven mechanized opencast method of mining with conventional shovel – Dumper combination technology. There are total 10 nos. of coal seams, 5 each coal bearing horizons belonging to Barakar & Karharbari formation respectively. In ascending order these are seam K-1, K-2, K-3, K-4, K-5 in Karharbari Formation and Local(L), I, II, IV & V in Barakar Formation. Seam I splits into 3 sections viz. I Top, I Middle & I Bottom. At places Seam I Bottom and I Middle combined and form single seam namely I Bottom + Middle. Similarly, Seam II also splits into 3 sections viz. II Top, II Middle and II Bottom. Seam II Top and II Middle coalesce to form single seam as II Top + II Middle in eastern part. Seam V & IV occur as a combined seam. In the approved Mining Plan, the entire property is envisaged to be mined by opencast method from the view of conservation of coal. The North West quarry is divided in to 2 pits namely Pit-1 & Pit – 2.

Total geological coal reserve of PB NW Quarry as per GR is estimated to be about 137.584 Million Tonnes. It is estimated that 105.78 Million Tonnes of mineable coal would be available against overburden of 348.24 Mm³ within the mine boundaries. Additional reserves of barrier 33.18 Million Tonnes can be mined by removal of batter. The total extractable reserves including the reserves blocked in the common boundary of PB-W and PB-NW is 138.96 Million Tonnes. The average stripping ratio works out to 3.15 m³/T.

Out of 438.24 Mil.m³ of waste to be generated, 74.25 Mil.m³ will be stored in temporary external dump (Out of which 9.13 Mil.m³ will remain as embankment and the remaining will

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be rehandled in the later stage) and the remaining will be simultaneously back filled. As such there will be no external dump.

Power requirement for the mine is estimated as 8.5 MVA which shall be sourced from JUSNL (Jharkhand Urja Sanchar Nigam Ltd.) Patratu at 220 KV, at Main receiving Substation of 220/33/11 KV at Pakri Barwadih. Study is under process for installation of solar panels at Overburden Dump of Pakri Barwadih West mine having a potential of generating around 13 MW solar power. Feasibility shall also be explored for installation of rooftop solar panels on office building to reduce the power requirement. **Total project cost is 91232 Lakh.**

The Peak water requirement for PB North west quarry is estimated as 745.5 m³/day. Potable water requirement will be met from borewell. Industrial, water sprinkling and greenbelt and plantation water requirements will be met from mine sump water and treated ETP/STP water. Additional mine sump water will be discharged to Khora Nala for gainful use.

Purpose	Total Water Requirement (KLD)	Quantity Reused (KLD)	Balance water Requirement (KLD)	Remarks
Water Sprinkling / Dust Suppression	500.0	--	500.0	--
Industrial / Mining Use	124.0	96.0	76.0	Treated in ETP
Greenbelt Development	55.0		7.0	Treated in STP
Domestic Use	66.5	--	66.5	--
Total	745.5	96.0	649.5	Source: a) Treated Water - 96.0 KLD b) Mine sump water- 533.0 KLD c) Borewell water - <u>116.5 KLD</u> Total - 745.5 KLD

LAND USE DURING MINING:

Particulars	Area (Ha.)
Excavation Area	440.74
Top Soil Dump	2.00
External Dump	14.45
Road diversion	1.24
Safety zone/ Rationalisation area	4.85

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Area under nala/river	16.00
Settling pond	1.03
Infrastructure area	4.85
Total	485.16

POST MINING LAND USE:

Type	Land Use (End of Life)	Land Use (Post Closure)				
		Plantation	Water body	Public/ Company Use	Forest Land (Returned)	Total
Backfilled mine Area	335.43	--	--	--	335.43	335.43
Excavated Void	105.31	--	105.31	--	--	105.31
Top Soil Dump	2.00	2.00	--	--	--	2.00
External Dump	14.45	14.45	--	--	--	14.45
Safety zone/ Rationalisation area	4.85	4.85	--	--	--	4.85
Road diversion	1.24	--	--	1.24	--	1.24
Area under nala/river	16.00	--	16.00	--	--	16.00
Settling pond	1.03	--	--	1.03	--	1.03
Infrastructure area	4.85	4.85	--	--	--	4.85
Total	485.16	26.15	121.31	2.27	335.43	485.16

Coal Production Plan:

Coal Production plan of Pakri Barwadih North West Coal Mining Project is as given below:

YEAR	Scheduled Coal Production
1	0.5
2	1
3	2
4	3

A *U* *R* *S* *M*

5	3
6	3
7	3
8	3
9	3
10	3
11	3
12	3
13	3
14	3
15	3
16	3
17	3
18	3
19	3
20	3
21	3
22	3
23	3
24	3
25	3
26	3
27	3
28	3
29	3
30	3
31	3
32	3
33	3
34	3
35	3
36	3
37	3
38	3
39	3
40	3
41	3
42	3
43	3

A

UWA

B

17

ms

44	3
45	3
46	3
47	3
48	2
49	1.46
Total	138.96

Geological and Mining Characteristics of PBNW Coal Mining Project:

Geological reserve	137.584 Million tonnes	
Mineable reserve	138.96 Million tonnes including PB-North West and PB-West batter	
Total waste/Overburden	438.24 Million m ³	
Waste/Overburden management	Waste (Mil m3)	Management
	74.25	Stored in temporary external dump
	363.99	Simultaneously back filled
	438.24	Total
Bench Dimensions	Maximum bench height of 15 m in top OB and 5-15 m in coal and intervening parting. Overall ultimate pit slope of 43°.	
Stripping ratio	1:3.15 T:m3	
Method of Mining	Open cast mechanized mining method	
Production	3.0 MTPA of Coal	
Life of Mine	52 years including 3 years of construction period.	
Method of Mining	Open cast mechanized mining method	

Seam wise thickness details

Sl. No.	Particulars	Minimum	Maximum
1	V COMB	3.24	5.9

2	Parting	3.72	27.16
3	IV COMB	5.15	10.04
4	Parting	0.98	30.55
5	II TOP	6.96	10.61
6	Parting	1.09	5.12
7	II MID	7.17	11.68
8	Parting	0	0
9	II T+M	15.97	20.26
10	Parting	1.4	24.22
11	II BOT	2.85	6.3
12	Parting	5.89	15
13	I TOP	0.42	3.79
14	Parting	0.52	4.51
15	I MID	1.15	8.73
16	Parting	0.17	4.19
17	I BOT	1.01	4.17
18	Parting	0	0
19	I M+B	4.7	11.88
20	Parting	16.8	27.68
21	LOCAL	0.06	2.35
22	Parting	16.39	29.67
23	K- 5	0.08	1.32
24	Parting	4.74	12.65
25	K - 4	0.28	1.74
26	Parting	4.4	9.85
27	K - 3	0.45	1.96
28	Parting	8.45	19.58
29	K - 2	0.06	2.99
30	Parting	1.95	13.84
31	K - 1	1.19	4.68

Land Details (Plot wise)

Khata No.:-

Thana Name	Barkagaon & Keredari	Thana No.	41, 32, 33, 42, 45, 46, 43, 44
Khata	Urub- 15, 8, 7, 12, 28, 16, 10, 13,	Khesra	Urub- 2, 3, 4, 5, 6, 7, 8, 96, 640, 648, 649, 650, 654,

A UMA

B

C

D




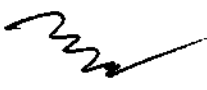
No.	14, 18, 19, 20, 21, 25, 49, Beltu- 4, 14, 18, 20, 31, 37, 52, 53, 56, 58, 60, 61, 65, 67, 70, 74, 78, 87, 88, 90, 94, 96, 98, 100, 106, 124, 128, 143, 150, 152, 160, 161, 166, 168, 178, 190, Kandaber- 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 36, 12, 13, 14, 21, 23, 24, 25, 27, 28, 29, 30, 85, 31, 34, 35, 36, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 57, 58, 49, 59, 60, 62, 63, 64, 89, 66, 67, 68, 70, 72, 74, 75, 76, 77, 78, 79, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 92, 93, 95, 97, 98, 99, 100, 112, 51, 54, 110, 111, Bareatu- 21, 42, 69, 106, 133, 138, 143, 144, 145, 154, 131, 135, 62, 39, 61, 60, 1, 95, 124, 16, 41, 85, 95, 124, 108, 107, 155, 156, Nawadih- 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35, 3, Sirma- 2, 3, 7, 4, 5, 6, 8, 9, 10, 11, 12, 13, Jabra- 1, 2, 3, 4, 5, Basaria- 2, 1, 3, 4, 5, 6	No.	657, 670, 638, 646, 653, 659, 664, 667, 669, 671, 636p, 651, 656, 676p, 637, 639, 644, 647, 652, 658, 668, 691p, 662, 643, 660, 663, 690p, 641, 655, 665, 672p, 95, 97, 634p, 642, 645, 728p, 635p, 661, 666, 677p, 689p, Beltu- 207, 66, 65, 67, 116, 76, 208, 85, 70, 72p, 102, 103, 108, 109, 121, 124, 199p, 206, 113, 141, 63, 77, 125, 129, 134, 115, 210, 73, 75, 205p, 111, 151p, 64, 122, 126, 78p, 127, 88, 91, 94, 95, 118, 79, 97, 106, 139, 93, 99, 130, 136, 96, 69, 80p, 89, 98, 101, 132, 150p, 114, 133, 142, 107, 137, 140, 86, 215, 71, 110, 212p, 216p, 135, 128, 112, 119, 211, 209, 117, 213, 131, 74, 123, 104, 105, 138, 59, 60p, 68, 90, 92, 100, 120, 267p, 81p, 143p, 198p, 214, 222p, 58p, 62p, 87, 84p, Kandaber- 215, 509, 513, 656, 665, 674, 189, 190, 191, 193, 242, 243, 244, 250, 251, 538, 563, 675, 677, 678, 679, 457, 627, 229, 592, 578, 584, 174, 175, 184, 185, 245, 246, 479, 662, 672, 279p, 145, 458, 438p, 149, 225, 241, 428, 487, 530, 541, 596, 661, 455, 488, 497, 153, 182, 265, 580, 181, 233, 238, 471, 204, 211, 198, 199, 201, 202, 216, 217, 491, 495, 496, 591, 594, 600, 601, 196, 427p, 160, 169, 486, 593, 138p, 278p, 621, 178, 213, 247, 249, 499, 521, 523, 557, 598, 628, 649, 441, 537, 210, 252, 474, 475, 515, 177, 214, 239, 248, 443, 490, 498, 508, 519, 522, 558, 560, 597, 650, 460, 612, 615, 668, 206, 573, 581, 582, 583, 585, 646, 647, 653, 659, 236, 259, 430, 481, 638, 643, 651, 156, 234, 270, 619, 671, 440, 575, 260, 227, 254, 476, 589, 611, 253, 256, 235, 472, 173, 205, 514, 607, 237, 637, 506, 510, 520, 533, 535, 542, 547, 550, 553, 562, 569, 654, 660, 224, 586, 572, 624, 194, 231, 500, 501, 502, 507, 157, 195, 574, 639, 658, 141, 218, 208, 459, 605, 482, 635, 667, 203, 465, 666, 186, 432p, 226, 588, 590, 613, 616, 670, 154, 579, 617, 180, 263, 534, 524, 429, 599, 147, 148, 209, 462, 463, 477, 540, 645, 146, 275, 276, 602, 603, 604, 618, 652, 504, 505, 511, 512, 525, 526, 528, 529, 531, 532, 536, 539, 543, 544, 546, 548, 549, 551, 552, 554, 555, 556, 561, 570, 571, 626, 655, 641, 642, 503, 576, 577, 622, 623, 451, 452, 453, 464, 566, 567, 568, 223, 456, 644, 663, 673, 676, 158, 478, 150, 151, 152, 163, 164, 165, 166, 167, 187, 188, 192,
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Type wise Land details of Pakri Barwadih North West Mine								
Sl.No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
Tenancy Land								
1	Tenancy	113.557		4	207	0.15	0.061	Certification has been taken for this area from DC, Hazaribagh in Form-I (as per Jharkhand Govt. circular 4792 dt 04.12.2018) vide letter no. 3070 dt 05.09.2023
2				14	66	0.11	0.045	
3				14	65	0.06	0.024	
4				14	67	0.07	0.028	
5				14	116	0.06	0.024	
6				14	76	0.15	0.061	
7				14	208	0.06	0.024	
8				18	85	0.48	0.194	






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20	70	0.13	0.053
20	72p	0.23	0.093
31	102	0.84	0.340
37	103	0.24	0.097
37	108	0.17	0.069
37	109	0.08	0.032
52	121	0.49	0.198
52	124	0.38	0.154
53	199p	0.02	0.008
53	206	0.05	0.020
56	113	0.38	0.154
56	141	0.10	0.040
58	63	0.20	0.081
58	77	0.10	0.040
58	125	0.25	0.101
60	129	0.07	0.028
60	134	0.05	0.020
61	115	0.09	0.036
61	210	0.14	0.057
65	73	0.07	0.028
67	75	0.05	0.020
70	205p	0.01	0.004
74	111	0.03	0.012
74	151p	0.04	0.016
78	64	0.13	0.053
78	122	0.22	0.089
78	126	0.25	0.101

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36			78	78p	0.06	0.024
37		Beltu	78	127	0.53	0.214
38			87	88	0.23	0.093
39			87	91	0.20	0.081
40			87	94	0.06	0.024
41			87	95	0.03	0.012
42			87	118	0.13	0.053
43			87	79	0.15	0.061
44			87	97	0.05	0.020
45			88	106	0.14	0.057
46			88	139	0.13	0.053
47			90	93	0.26	0.105
48			90	99	0.18	0.073
49			90	130	0.24	0.097
50			90	136	0.19	0.077
51			90	96	0.04	0.016
52			94	69	0.37	0.150
53			94	80p	0.21	0.085
54			94	89	0.24	0.097
55			94	98	0.33	0.134
56			94	101	0.16	0.065
57			94	132	0.13	0.053
58			96	150p	0.10	0.040
59			98	114	0.32	0.130
60			98	133	0.32	0.130
61			98	142	0.11	0.045
62			100	107	0.14	0.057
63			100	137	0.02	0.008
64			100	140	0.14	0.057
65			106	86	0.19	0.077
66			106	215	0.16	0.065
67			124	71	0.16	0.065
68			128	110	0.10	0.040
69			128	212p	0.07	0.028

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Type wise Land details of Pakri Barwadih North West Mine								
Sl No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
70				128	216p	0.08	0.032	
71				143	135	0.08	0.032	
72				143	128	0.04	0.016	
73				150	112	0.03	0.012	
74				150	119	0.05	0.020	
75				150	211	0.19	0.077	
76				152	209	0.07	0.028	
77				152	117	0.03	0.012	
78				160	213	0.19	0.077	
79				161	131	0.26	0.105	
80				166	74	0.08	0.032	
81				168	123	0.24	0.097	
82				178	104	0.08	0.032	
83				178	105	0.07	0.028	
84				178	138	0.20	0.081	
1				21	1692	0.42	0.170	
2				42	49	0.13	0.053	
3				42	60	0.25	0.101	
4				69	57	0.22	0.089	
5				106	1693	1.69	0.684	
6				133	51	0.04	0.016	
7				133	55	0.04	0.016	
8				133	56	0.15	0.061	
9				138	47	0.52	0.210	
10				138	54	0.02	0.008	
11				143	1690	0.72	0.291	
12				144	19	0.62	0.251	
13				145	53	0.07	0.028	
14				154	22	2.17	0.878	
15				154	30	0.02	0.008	
16				154	32	0.04	0.016	
17				154	35	0.16	0.065	
18				154	37	0.23	0.093	
19				154	41	0.51	0.206	
20				154	61	0.84	0.340	
21				154	62	0.52	0.210	

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131	5	0.09	0.036
131	6	0.42	0.170
131	7	1.68	0.680
131	11	0.15	0.061
135	12	0.20	0.081
131	13	1.13	0.457
131	14	0.40	0.162
62	15	0.28	0.113
39	16	0.20	0.081
61	17	0.19	0.077
60	18	0.24	0.097
1	20	1.08	0.437
95	23	0.19	0.077
95	24	0.07	0.028
124	25	0.06	0.024
124	26	0.12	0.049
124	27	0.12	0.049
124	28	0.42	0.170
16	31	0.78	0.316
41	33	0.40	0.162
85	34	0.22	0.089
85	36	0.11	0.045
85	38	0.80	0.324
85	39	0.11	0.045
95	42	0.33	0.134
95	43	0.09	0.036
124	44	0.10	0.040
124	45	0.10	0.040
124	46	0.15	0.061
124	48	1.60	0.648
124	52	0.05	0.020
108	58	0.20	0.081

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Type wise Land details of Pakri Barwadih North West Mine								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
54				107	1688	0.56	0.227	
55				107	1689	0.58	0.235	
56				107	1691	1.08	0.437	
1			Basaria	2	17	0.02	0.008	
2				2	18	0.39	0.158	
3				1	22	0.32	0.130	
4				1	23	6.21	2.513	
5				2	24	0.40	0.162	
6				2	25	2.17	0.878	
7				1	28	7.26	2.938	
8				1	31	2.21	0.894	
9				2	33	2.70	1.093	
10				2	36	0.22	0.089	
11				2	1	0.20	0.081	
12				2	3	1.41	0.571	
13				2	4	0.17	0.069	
14				2	6	0.07	0.028	
15				2	8	0.22	0.089	
16				2	9	0.82	0.332	
17				2	11	1.60	0.648	
18				2	13	1.17	0.473	
19				2	14	0.07	0.028	
20				2	15	0.03	0.012	
21				2	35	0.04	0.016	
22				2	37	0.53	0.214	
23				3	19	0.87	0.352	
24				3	20	0.43	0.174	
25				4	30	1.23	0.498	
1				4	293	0.02	0.008	
2				4	333	0.04	0.016	
3				4	334	0.56	0.227	
4				4	411	0.22	0.089	
5				4	414	0.15	0.061	
6				4	495	0.20	0.081	
7				5	504	0.49	0.198	
8				6	410	0.93	0.376	
9				7	298	0.06	0.024	
10				7	203p	0.71	0.287	
11				7	230p	0.02	0.008	
12				7	295p	0.06	0.024	
13				8	182	0.50	0.202	
14				8	212	0.29	0.117	
15				8	305	0.03	0.012	
16				8	335	0.07	0.028	
17				8	337	0.06	0.024	
18				8	416	0.39	0.158	
19				8	417	0.02	0.008	
					0			

20			7	482	0.28	0.113
21			7	438p	0.15	0.061
22			9	350	0.11	0.045
23			9	412	0.19	0.077
24			9	415	0.16	0.065
25			9	432p	0.11	0.045
26			10	322	0.09	0.036
27			10	323	0.03	0.012
28				0		
29			10	441	0.36	0.146
30			10	216p	0.04	0.016
31			11	166	0.42	0.170
32			11	209	0.31	0.125
33			11	210	0.19	0.077
34			11	292	0.04	0.016
35			11	302	0.13	0.053
36			11	303	0.04	0.016
37				0		
38			11	306	0.02	0.008
39			11	307	0.04	0.016
40			11	308	0.22	0.089
41			11	309	0.14	0.057
42			11	310	0.12	0.049
			11	311	0.20	0.081
			11	312	0.06	0.024

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
43				11	313	0.08	0.032	
44				11	314	0.21	0.085	
45					0			
46				11	325	0.05	0.020	
47				11	326	0.71	0.287	
48				11	327	0.04	0.016	
49					0			
50				11	338	0.03	0.012	
51					0			
52				11	451	0.19	0.077	
53				11	452	0.22	0.089	
54				11	453	0.24	0.097	
55				11	454	0.27	0.109	
56				11	455	0.31	0.125	
57				11	456	0.17	0.069	
58				11	460	0.11	0.045	
59				11	461	0.11	0.045	
60				11	462	0.18	0.073	
				11	463	0.02	0.008	
				11	464	0.05	0.020	
				11	465	0.02	0.008	

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11	483	0.27	0.109
11	490	0.20	0.081
11	491	0.19	0.077
11	499	0.10	0.040
11	500	0.18	0.073
11	167	0.03	0.012
	p		
11	339	0.08	0.032
	p		
11	428	0.01	0.004
	p		
11	436	0.10	0.040
	p		
11	437	0.12	0.049
	p		
12	353	0.18	0.073
13	429	0.26	0.105
	p		
14	496	0.16	0.065
14	213	0.33	0.134
	p		
15	183	0.35	0.142
	o		
15	185	0.33	0.134
15	186	0.59	0.239
	p		
15	234	0.02	0.008
	p		
16	204	0.47	0.190
16	296	0.04	0.016
	o		
16	297	0.01	0.004
16	299	0.06	0.024
16	301	0.08	0.032
16	304	0.07	0.028
16	439	0.08	0.032
	p	o	
16	442	0.64	0.259
16	445	0.19	0.077
16	467	0.04	0.016
16	472	0.29	0.117
16	484	0.26	0.105
16	493	0.17	0.069
16	498	0.10	0.040
17	231	0.13	0.053
17	347	0.02	0.008
17	348	0.19	0.077

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96				17	421	0.20	0.081	
97				17	476	0.02	0.008	
98				17	477	0.15	0.061	
99				17	480	0.09	0.036	
100				17	503	0.24	0.097	
101				18	184	0.11	0.045	
102				18	205	0.54	0.219	
103				18	300	0.07	0.028	
104				18	324	0.26	0.105	
105				18	466	0.02	0.008	
106				18	440 p	0.15	0.061	
107				18	502 0	0.16 0	0.065	
108				19	206	0.51	0.206	
109				19	317	0.60	0.243	
110				19	319	0.36	0.146	
111				19	330	0.22	0.089	
112				19	331	0.32	0.130	
Type wise Land details of Pakri Barwadih North West Mine								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
113				19	332	0.04	0.016	
114				19	494	0.21	0.085	
115				19	434p	0.28	0.113	
116				20	336	0.07	0.028	
117				20	341	0.09	0.036	
118				20	342	0.45	0.182	
119				20	345	0.21	0.085	
120				20	346	0.03	0.012	
121				20	349	0.02	0.008	
122				20	413	0.20	0.081	
123				20	418	0.18	0.073	
124				20	501	0.25	0.101	
125				20	340p	0.01	0.004	
126				20	356p	0.02	0.008	
127				20	433p	0.12	0.049	
128				21	315	0.36	0.146	
129				21	320 0	0.02 0	0.008	
130				21	321	0.54	0.219	
131				21	459	0.39	0.158	
132				21	468	0.05	0.020	
133				21	471	0.08	0.032	
134				21	473	0.32	0.130	

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21	475	0.09	0.036
21	492	0.18	0.073
21	497	0.06	0.024
21	435p	0.25	0.101
22	294p	0.02	0.008
23	344	0.21	0.085
23	407	0.07	0.028
23	420	0.10	0.040
23	479	0.36	0.146
23	405p	0.03	0.012
23	409p	0.14	0.057
24	448	0.11	0.045
24	470	0.17	0.069
24	359p	0.16	0.065
25	180	0.03	0.012
25	181	0.06	0.024
25	318	0.29	0.117
25	478	0.24	0.097
26	211	0.42	0.170
26	179p	0.06	0.024
26	235p	0.02	0.008
27	352	0.22	0.089
27	419	0.30	0.121
28	233p	0.01	0.004
29	444	0.22	0.089
29	469	0.02	0.008
29	474	0.19	0.077
30	354	0.23	0.093
30	449	0.13	0.053
30	486	0.41	0.166
30	487	0.20	0.081
30	488	0.19	0.077
30	489	0.12	0.049
30	431p	0.21	0.085
31	291	0.05	0.020
31	351	0.09	0.036
31	447	0.27	0.109
31	485	0.05	0.020
31	290p	0.03	0.012
31	430p	0.20	0.081
32	446	0.42	0.170
32	164p	0.23 0	0.093
32	165	0.66 0	0.267
2	149	0.38	0.154

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2			2	169	0.30	0.121
3			2	198	0.14	0.057
4			2	202	0.37	0.150
5			2	237	0.35	0.142

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
6				2	241	1.08	0.437	
7				2	263	0.13	0.053	
8				2	264	0.05	0.020	
9				2	274	0.04	0.016	
10				2	284	0.31	0.125	
11				2	103p	0.21	0.085	
12				2	64p	0.03	0.012	
13				3	28	0.93	0.376	
14				3	29	0.07	0.028	
15				3	31	0.04	0.016	
16				3	69	0.04	0.016	
17				3	70	0.06	0.024	
18				3	72	0.07	0.028	
19				3	108	0.19	0.077	
20				3	116	0.09	0.036	
21				3	121	0.14	0.057	
22				3	124	0.11	0.045	
23				3	127	0.04	0.016	
24				3	129	0.42	0.170	
25				3	132	0.04	0.016	
26				7	136	0.07	0.028	
27				3	140	0.08	0.032	
28				3	142	0.17	0.069	
29				3	160	0.09	0.036	
30				3	162	0.85	0.344	
31				3	163	0.40	0.162	
32				3	171	0.25	0.101	
33				3	177	2.15	0.870	
34				3	181	0.80	0.324	
35				3	183	0.05	0.020	
36				3	184	0.10	0.040	
37				3	188	0.36	0.146	
38				3	192	0.41	0.166	
39				3	205	0.16	0.065	
40				3	211	0.30	0.121	
41				3	214	0.17	0.069	
42				3	220	0.10	0.040	
43				3	239	0.29	0.117	

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44				3	253	0.11	0.045	
45				3	268	0.36	0.146	
46				3	277	0.80	0.324	
47				3	286	1.46	0.591	
48				3	289	0.14	0.057	
49				3	68p	0.26	0.105	
50				4	109	0.11	0.045	
51				4	112	0.26	0.105	
52				4	170	0.44	0.178	
53				4	178	0.08	0.032	
54				4	182	0.53	0.214	
55				4	197	0.20	0.081	
56				4	204	0.13	0.053	
57				4	236	0.03	0.012	
58				4	238	0.30	0.121	
59				4	252	0.13	0.053	
60				4	107p	0.11	0.045	
61				4	63p	0.01	0.004	
62				4	81p	0.01	0.004	
63				5	150	0.15	0.061	
64				5	199	0.17	0.069	
65				5	230	0.02	0.008	
66				5	231	0.25	0.101	
67				5	290	0.13	0.053	
68				6	114	0.15	0.061	
69				6	122	0.08	0.032	
70				6	123	0.26	0.105	
71				6	130	0.10	0.040	
72				6	131	0.62	0.251	
73				6	139	0.13	0.053	
74				6	141	0.21	0.085	
75				6	143	0.15	0.061	
Type wise Land details of Pakri Barwadih North West Mine								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
76				6	152	0.21	0.085	
77				6	157	0.20	0.081	
78				6	161	0.06	0.024	
79				6	168	0.33	0.134	
80				6	172	0.26	0.105	
81				6	175	0.57	0.231	
82				6	186	0.38	0.154	
83				6	191	0.38	0.154	
84				6	213	0.17	0.069	

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6	217	0.64	0.259
6	219	0.09	0.036
6	223	0.14	0.057
6	227	0.04	0.016
6	228	0.57	0.231
6	229	0.05	0.020
6	232	0.28	0.113
6	254	0.29	0.117
6	257	0.20	0.081
6	265	0.08	0.032
6	266	0.17	0.069
6	273	0.10	0.040
2	275	1.06	0.429
6	282	0.10	0.040
6	288	0.16	0.065
6	295	0.54	0.219
6	33p	0.01	0.004
6	73p	0.08	0.032
7	98	0.27	0.109
7	100	0.20	0.081
7	115	0.09	0.036
7	120	0.72	0.291
7	134	0.07	0.028
7	137	0.12	0.049
7	147	0.28	0.113
7	167	0.36	0.146
7	173	0.14	0.057
7	174	0.43	0.174
7	179	0.21	0.085
7	187	0.71	0.287
7	190	0.24	0.097
7	201	0.23	0.093
7	207	0.75	0.304
7	209	0.05	0.020
7	210	0.48	0.194
7	215	0.09	0.036
7	221	0.06	0.024
7	222	0.56	0.227
7	226	0.13	0.053
7	249	0.19	0.077
7	255	0.30	0.121
7	283	0.13	0.053
7	287	0.14	0.057
7	293	0.43	0.174
7	101p	0.21	0.085
7	32p	0.12	0.049

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131			7	83p	0.10	0.040
132			8	74	0.13	0.053
133			8	102	0.04	0.016
134			8	118	0.19	0.077
135			8	126	0.09	0.036
136			8	128	0.47	0.190
137			8	135	0.29	0.117
138			8	145	0.48	0.194
139			8	151	0.28	0.113
140			8	165	0.20	0.081
141			8	166	0.31	0.125
142			8	180	0.07	0.028
143			8	193	0.17	0.069
144			8	196	0.48	0.194
145			8	203	0.24	0.097

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
146				8	206	0.12	0.049	
147				8	208	0.42	0.170	
148				8	233	0.04	0.016	
149				8	234	0.96	0.389	
150				8	246	0.37	0.150	
151				8	258	0.15	0.061	
152				8	261	0.07	0.028	
153				8	262	0.18	0.073	
154				8	267	0.12	0.049	
155				8	279	0.25	0.101	
156				8	285	0.24	0.097	
157				8	294	0.70	0.283	
158				8	67p	0.11	0.045	
159				9	110	0.12	0.049	
160				9	113	0.51	0.206	
161				9	117	0.34	0.138	
162				9	119	0.22	0.089	
163				9	133	0.38	0.154	
164				9	146	0.30	0.121	
165				9	155	0.10	0.040	
166				9	158	0.03	0.012	
167				9	248	0.36	0.146	
168				9	256	0.26	0.105	
169				9	259	0.40	0.162	
170				9	269	0.12	0.049	
171				9	270	0.94	0.380	
172				9	271	0.03	0.012	

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173				9	281	0.16	0.065	
174				10	164	0.25	0.101	
175				10	176	0.03	0.012	
176				11	260	0.09	0.036	
177				11	276	0.15	0.061	
1				1	5	1.22	0.494	
2				1	10	0.13	0.053	
3				1	13	0.03	0.012	
4				1	16	0.33	0.134	
5				1	19	0.08	0.032	
6				1	22	0.07	0.028	
7				1	28	1.06	0.429	
8				1	33	0.06	0.024	
9				1	37	0.06	0.024	
10				1	40	0.12	0.049	
11				1	44	0.09	0.036	
12				1	47	0.18	0.073	
13				1	54	0.13	0.053	
14				1	57	0.40	0.162	
15				1	59	0.99	0.401	
16				1	71	0.19	0.077	
17				1	73	0.04	0.016	
18				1	76	0.05	0.020	
19				1	77	0.08	0.032	
20				1	83	0.03	0.012	
21				1	89	0.32	0.130	
22				1	93	0.11	0.045	
23				1	96	0.07	0.028	
24				1	38	0.32	0.130	
25				1	68	0.13	0.053	
26				2	4	0.15	0.061	
27				2	7	1.11	0.449	
28				2	9	0.16	0.065	
29				2	12	0.04	0.016	
30				2	18	1.04	0.421	
31				2	21	0.06	0.024	
32				2	26	0.10	0.040	
33				2	29	0.25	0.101	
34				2	34	0.29	0.117	
35				2	35	0.02	0.008	
36				2	39	0.13	0.053	
37				2	41	0.10	0.040	
38				2	43	0.08	0.032	
Type wise Land details of Pakri Barwadih North West Mine								
Sl.	Land	Total Area	Village	Khata	Plot	Area of Plot	Area of Plot	Remarks

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No.	Type	(Ha)				(Acre)	(Ha.)	
39				2	46	0.25	0.101	
40				2	52	0.53	0.214	
41				2	55	0.09	0.036	
42				2	58	0.04	0.016	
43				2	61	0.39	0.158	
44			Jabra	2	63	0.14	0.057	
45				2	67	0.09	0.036	
46				2	69	0.08	0.032	
47				2	72	0.16	0.065	
48				2	75	0.06	0.024	
49				2	79	0.04	0.016	
50				2	81	0.03	0.012	
51				2	84	0.16	0.065	
52				2	86	0.27	0.109	
53				2	90	0.60	0.243	
54				2	92	0.03	0.012	
55				2	94	0.16	0.065	
56				2	97	0.16	0.065	
57				3	3	1.22	0.494	
58				3	8	0.45	0.182	
59				3	11	0.14	0.057	
60				3	14	0.06	0.024	
61				3	15	0.06	0.024	
62				3	17	0.20	0.081	
63				3	20	0.16	0.065	
64				3	23	0.08	0.032	
65				3	25	0.64	0.259	
66				3	27	0.16	0.065	
67				3	30	0.43	0.174	
68				3	36	0.23	0.093	
69				3	45	0.60	0.243	
70				3	53	0.54	0.219	
71				3	56	0.04	0.016	
72				3	60	0.21	0.085	
73				3	62	0.24	0.097	
74				3	64	0.17	0.069	
75				3	65	0.59	0.239	
76				3	66	0.10	0.040	
77				3	70	0.37	0.150	
78				3	74	0.10	0.040	
79				3	78	0.02	0.008	
80				3	80	0.02	0.008	
81				3	82	0.07	0.028	
82				3	85	0.18	0.073	
83				3	88	0.11	0.045	

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3	91	0.21	0.085
3	95	0.11	0.045
4	48	0.39	0.158
4	50	0.14	0.057
2	215	0.32	0.130
2	509	0.88	0.356
2	513	1.08	0.437
2	656	0.23	0.093
2	665	0.74	0.299
2	674	0.68	0.275
3	189	0.24	0.097
3	190	0.11	0.045
3	191	0.11	0.045
3	193	0.20	0.081
3	242	0.10	0.040
3	243	0.17	0.069
3	244	0.19	0.077
3	250	0.11	0.045
3	251	0.13	0.053
3	538	0.06	0.024
3	563	0.45	0.182
3	675	0.12	0.049
3	677	0.24	0.097
3	678	0.13	0.053
3	679	0.09	0.036

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**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
22				4	457	0.55	0.223	
23				4	627	0.30	0.121	
24				5	229	0.17	0.069	
25				5	592	0.29	0.117	
26				6	578	0.53	0.214	
27				6	584	0.10	0.040	
28				7	174	0.18	0.073	
29				7	175	0.17	0.069	
30				7	184	0.41	0.166	
31				7	185	0.36	0.146	
32				7	245	0.23	0.093	
33				7	246	0.23	0.093	
34				7	479	0.28	0.113	
35				8	662	0.29	0.117	
36				8	672	0.45	0.182	
37				8	279p	0.01	0.004	
38				9	145	0.14	0.057	
39					0			
40				9	458	0.26	0.105	
41				10	438p	0.38	0.154	
42				11	149	0.20	0.081	
43					0			
44				36	225	0.05	0.020	
45				11	241	0.26	0.105	
46				11	428	0.18	0.073	
47					0			
48				11	487	0.78	0.316	
49				11	530	0.59	0.239	
50				11	541	0.33	0.134	
51				11	596	0.06	0.024	
52				11	661	0.27	0.109	
53				12	455	0.41	0.166	
54				12	488	0.40	0.162	
55				12	497	0.09	0.036	
56				13	153	0.14	0.057	
57					0			
58				13	182	0.22	0.089	
59				13	265	0.26	0.105	
60				13	580	0.23	0.093	
61				14	181	0.32	0.130	
				14	235	0.19	0.077	
				14	238	0.07	0.028	
				14	471	0.34	0.138	
				21	204	0.28	0.113	

62				21	211	0.37	0.150	
63				23	198	0.07	0.028	
64				23	199	0.05	0.020	
65				23	201	0.11	0.045	
66				23	202	0.06	0.024	
67				23	216	0.11	0.045	
68				23	217	0.07	0.028	
69				23	491	0.45	0.182	
70				23	495	0.09	0.036	
71				23	496	0.04	0.016	
72				23	591	0.33	0.134	
73				23	594	0.23	0.093	
74				23	600	0.09	0.036	
75				23	601	0.06	0.024	
76				24	196	0.58	0.235	
77				24	427p	0.30	0.121	
78						0		
79				25	160	0.66	0.267	
80						0		
81				25	169	0.24	0.097	
82						0		
83				25	486	1.46	0.591	
84				25	593	0.26	0.105	
85				25	138p	0.27	0.109	
86				25	278p	0.07	0.028	
87						0		
88				27	621	0.34	0.138	
89				28	178	0.17	0.069	
90				28	213	0.05	0.020	
91				28	247	0.14	0.057	
				28	249	0.39	0.158	
				28	499	0.05	0.020	
				28	521	0.18	0.073	
				28	523	0.08	0.032	
Type wise Land details of Pakri Barwadih North West Mine								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
92				28	557	0.28	0.113	
93				28	598	0.14	0.057	
94				28	628	0.36	0.146	
95				28	649	0.23	0.093	
96				29	441	0.72	0.291	
97				29	537	0.30	0.121	
98				30	210	0.10	0.040	
99				30	252	0.17	0.069	
100				85	474	0.17	0.069	
101				30	475	0.17	0.069	

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30	515	0.33	0.134
31	177	0.18	0.073
31	214	0.21	0.085
31	239	0.07	0.028
31	248	0.48	0.194
31	443	0.13	0.053
31	490	0.64	0.259
31	498	0.06	0.024
31	508	0.14	0.057
31	519	0.40	0.162
31	522	0.26	0.105
31	558	0.08	0.032
31	560	0.74	0.299
31	597	0.05	0.020
31	650	0.29	0.117
34	460	0.18	0.073
35	612	0.12	0.049
35	615	0.24	0.097
35	668	0.05	0.020
36	206	0.31	0.125
36	573	0.14	0.057
36	581	0.16	0.065
36	582	0.26	0.105
36	583	0.22	0.089
36	585	0.09	0.036
36	646	0.35	0.142
36	647	0.46	0.186
36	653	0.16	0.065
36	659	0.32	0.130
38	236	0.04	0.016
38	259	0.08	0.032
39	430	0.34	0.138
39	481	0.48	0.194
39	638	0.10	0.040
39	643	0.30	0.121
39	651	0.48	0.194
40	156	0.17	0.069
40	234	0.16	0.065
40	270	0.20	0.081
42	619	0.16	0.065
42	671	0.18	0.073
42	440	0.42	0.170
43	575	0.49	0.198
44	260	0.07	0.028
45	227	0.04	0.016
45	254	0.25	0.101
45	476	0.18	0.073
45	589	0.14	0.057

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150			46	611	0.30	0.121
151			47	253	0.90	0.364
152			47	256	0.10	0.040
153			48	235	0.24	0.097
154			48	472	0.62	0.251
155			49	173	0.23	0.093
156			50	205	0.18	0.073
157			50	514	0.20	0.081
158			50	607	0.20	0.081
159			51	237	0.06	0.024
160			52	637	0.34	0.138
161			53	506	0.05	0.020

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
162				53	510	0.13	0.053	
163				53	520	0.26	0.105	
164				53	533	0.56	0.227	
165				53	535	0.34	0.138	
166				53	542	0.14	0.057	
167				53	547	0.60	0.243	
168				53	550	0.72	0.291	
169				53	553	0.22	0.089	
170				53	562	0.52	0.210	
171				53	569	0.16	0.065	
172				53	654	0.18	0.073	
173				53	660	0.24	0.097	
174				57	224	0.05	0.020	
175				57	586	0.13	0.053	
176				58	572	0.42	0.170	
177				58	624	0.19	0.077	
178				49	194	0.30	0.121	
179				49	231	0.12	0.049	
180				59	500	0.30	0.121	
181				59	501	0.73	0.295	
182			Kandaber	59	502	0.12	0.049	
183				59	507	0.60	0.243	
184				60	157	0.19	0.077	
185				60	195	0.05	0.020	
186				60	574	0.17	0.069	
187				60	639	0.21	0.085	
188				60	658	0.08	0.032	
189				62	141	0.50	0.202	
190				62	218	0.14	0.057	
191				63	208	0.25	0.101	

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192			63	459	0.17	0.069
193			63	605	0.21	0.085
194			64	482	0.08	0.032
195			64	635	0.16	0.065
196			64	667	0.14	0.057
197			89	203	0.16	0.065
198			66	465	0.32	0.130
199			66	666	0.20	0.081
200			67	186	0.12	0.049
201			67	432p	0.42	0.170
202			68	226	0.05	0.020
203			68	588	0.06	0.024
204			68	590	0.07	0.028
205			68	613	0.10	0.040
206			68	616	0.30	0.121
207			68	670	0.09	0.036
208			70	154	0.18	0.073
209			70	579	0.16	0.065
210			70	617	0.32	0.130
211			72	180	0.24	0.097
212			72	263	0.25	0.101
213			72	534	0.65	0.263
214			74	524	0.28	0.113
215			75	429	0.25	0.101
216			75	599	0.54	0.219
217			76	147	0.14	0.057
218			76	148	0.05	0.020
219			76	209	0.11	0.045
220			76	462	0.25	0.101
221			76	463	0.49	0.198
222			76	477	0.05	0.020
223			76	540	0.29	0.117
224			76	645	0.18	0.073
225			77	146	0.10	0.040
226			77	275	0.05	0.020
227			77	276	0.11	0.045
228			77	602	0.11	0.045
229			77	603	0.13	0.053
230			77	604	0.28	0.113
231			78	618	0.34	0.138

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
232				78	652	0.20	0.081	
233				79	504	0.03	0.012	
234				79	505	0.05	0.020	

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79	511	0.14	0.057
79	512	0.16	0.065
79	525	0.07	0.028
79	526	0.04	0.016
79	528	0.10	0.040
79	529	0.08	0.032
79	531	0.02	0.008
79	532	0.02	0.008
79	536	0.30	0.121
79	539	0.28	0.113
79	543	0.08	0.032
79	544	0.22	0.089
79	546	0.12	0.049
79	548	0.96	0.389
79	549	0.55	0.223
79	551	0.20	0.081
79	552	0.10	0.040
79	554	0.12	0.049
79	555	0.16	0.065
79	556	0.19	0.077
79	561	0.18	0.073
79	570	0.10	0.040
79	571	0.10	0.040
79	626	0.22	0.089
79	655	0.16	0.065
81	641	0.77	0.312
81	642	0.02	0.008
82	503	0.08	0.032
82	576	0.28	0.113
82	577	0.26	0.105
82	622	0.22	0.089
82	623	0.32	0.130
83	451	0.28	0.113
83	452	0.45	0.182
83	453	0.12	0.049
83	464	0.20	0.081
83	566	0.10	0.040
83	567	0.11	0.045
83	568	0.14	0.057
84	223	0.08	0.032
84	456	0.35	0.142
84	644	0.28	0.113
84	663	0.30	0.121
84	673	0.25	0.101
84	676	0.10	0.040
85	158	0.30	0.121
85	478	0.17	0.069
86	150	0.16	0.065

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283			86	151	0.14	0.057
284			86	152	0.15	0.061
285			86	163	0.05	0.020
286			86	164	0.14	0.057
287			86	165	0.14	0.057
288			86	166	0.14	0.057
289			86	167	0.15	0.061
290			86	187	0.08	0.032
291			86	188	0.08	0.032
292			86	192	0.06	0.024
293			86	220	0.05	0.020
294			86	221	0.08	0.032
295			86	222	0.09	0.036
296			86	230	0.05	0.020
297			86	232	0.06	0.024
298			86	255	0.28	0.113
299			86	447	0.15	0.061
300			86	448	0.16	0.065
301			86	449	0.10	0.040

**Type wise Land details of Pakri
Barwadih North West Mine**

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
302				86	450	0.56	0.227	
303				86	467	0.31	0.125	
304				86	468	0.28	0.113	
305				86	469	0.22	0.089	
306				86	470	0.25	0.101	
307				86	219	0.11	0.045	
308				87	228	0.09	0.036	
309				87	587	0.26	0.105	
310				88	606	0.05	0.020	
311				88	610	0.30	0.121	
312				89	155	0.27	0.109	
313				89	262	0.18	0.073	
314				89	264	0.34	0.138	
315				89	516	0.20	0.081	
316				89	608	0.07	0.028	
317				90	480	0.22	0.089	
318				90	636	0.20	0.081	
319				92	207	0.28	0.113	
320				92	461	0.28	0.113	
321				92	609	0.40	0.162	
322				93	614	0.08	0.032	
323				93	620	0.20	0.081	
324				93	669	0.05	0.020	
325				95	595	0.74	0.299	

326			95	657	0.34	0.138
327			97	632	0.64	0.259
328			98	631	0.16	0.065
329			99	630	1.78	0.720
330			100	648	0.42	0.170
331			112	269	0.77	0.312
332			51	140	0.36	0.146
333			51	143	0.16	0.065
334			51	144	0.17	0.069
335			51	159	0.62	0.251
336			51	161	0.09	0.036
337			51	162	0.07	0.028
338			51	168	0.29	0.117
339			51	170	0.37	0.150
340			51	171	0.22	0.089
341			51	172	0.16	0.065
342			51	179	0.27	0.109
343			51	183	0.20	0.081
344			51	258	0.06	0.024
345			54	261	0.08	0.032
346			54	266	0.08	0.032
347			54	267	0.11	0.045
348			54	268	0.07	0.028
349			54	272	0.12	0.049
350			54	274	0.07	0.028
351			54	439	0.65	0.263
352			54	445	0.21	0.085
353			54	446	0.60	0.243
354			54	483	0.27	0.109
355			54	489	0.29	0.117
356			54	492	0.80	0.324
357			54	494	0.38	0.154
358			54	517	0.30	0.121
359			54	518	0.08	0.032
360			54	136p	0.12	0.049
361			54	142p	0.12	0.049
362			54	273p	0.53	0.214
1			15	2	1.55	0.627
2			8	3	1.12	0.453
3			7	4	0.82	0.332
4			12	5	0.94	0.380
5			28	6	1.13	0.457
6			16	7	1.02	0.413
7			15	8	0.63	0.255
8			10	96	1.21	0.490
9			10	640	0.21	0.085
Type wise Land details of Pakri Barwadih North West Mine						

Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
10				10	648	0.13	0.053	
11				10	649	0.40	0.162	
12				10	650	0.51	0.206	
13				13	654	0.15	0.061	
14				13	657	0.16	0.065	
15				13	670	0.13	0.053	
16				14	638	0.49	0.198	
17				14	646	1.03	0.417	
18				14	653	0.16	0.065	
19				14	659	0.12	0.049	
20				14	664	0.34	0.138	
21				14	667	0.36	0.146	
22			Urub	14	669	0.46	0.186	
23				14	671	0.34	0.138	
24				14	636p	0.95	0.384	
25				18	651	0.43	0.174	
26				18	656	0.14	0.057	
27				18	676p	0.10	0.040	
28				19	637	0.20	0.081	
29					639	0.19	0.077	
30				19	644	0.17	0.069	
31				19	647	0.07	0.028	
32				19	652	0.17	0.069	
33				19	658	0.30	0.121	
34				19	668	0.36	0.146	
35				19	691p	0.04	0.016	
36				20	662	1.03	0.417	
37				21	643	0.39	0.158	
38				21	660	0.11	0.045	
39				21	663	0.37	0.150	
40				21	690p	0.08	0.032	
41				25	641	0.66	0.267	
42				25	655	0.85	0.344	
43				25	665	0.45	0.182	
44				25	672p	1.23	0.498	
Gair Majurwa Land								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
1				190	59	0.28	0.113	
2				190	60p	3.53	1.429	
3				190	68	0.32	0.130	
4				190	90	0.10	0.040	

5			Beltu	190	92	0.01	0.004	
6				190	100	0.05	0.020	
7				190	120	0.22	0.089	
8				190	267p	1.67	0.676	
1			Bariyatu	155	8	0.35	0.142	
2				155	9	2.31	0.935	
3				155	10	0.05	0.020	
4				155	29	0.04	0.016	
5				155	40	0.02	0.008	
6				155	59	0.04	0.016	
7				155	1685	1.53	0.619	
8				156	1687	2.35	0.951	
1			Basaria	5	5	0.53	0.214	
2				5	7	0.03	0.012	
3				5	21	0.03	0.012	
4				5	26	0.01	0.004	
5				5	29	1.18	0.478	
6				6	16	0.07	0.028	
1				34	208	0.10	0.040	
2				34	329	0.04	0.016	
3				34	406	0.02	0.008	
4				34	443	0.02	0.008	
5				34	457	0.03	0.012	
6				34	481	0.13	0.053	
Type wise Land details of Pakri Barwadih North West Mine								
Sl. No.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
7			Nawad	34	229p	0.05	0.020	
8			ih	34	280p	0.23	0.093	
9				34	355p	0.04	0.016	
10				34	458	0.16	0.065	
11				34	408p	0.05	0.020	
12				35	328	0.14	0.057	
13				35	343	0.09	0.036	
14				35	450p	0.34	0.138	
1				12	71	0.16	0.065	
2				12	99	0.04	0.016	
3				12	111	0.04	0.016	
4				12	125	0.09	0.036	
5				12	138	0.01	0.004	
6				12	148	0.08	0.032	
7				12	153	0.07	0.028	
8				12	154	0.02	0.008	
9				12	156	0.19	0.077	
10				12	159	0.17	0.069	

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Sirma	12	185	0.03	0.012
	12	189	0.22	0.089
	12	194	0.06	0.024
	12	200	0.02	0.008
	12	212	0.11	0.045
	12	216	0.04	0.016
	12	224	0.03	0.012
	12	235	0.81	0.328
	12	242	0.31	0.125
	12	243	1.18	0.478
	12	244	0.12	0.049
	12	251	0.10	0.040
	12	278	0.08	0.032
	12	280	0.08	0.032
	12	292	0.05	0.020
	13	218	0.02	0.008
	13	225	0.37	0.150
	13	250	0.06	0.024
	13	272	0.13	0.053
Jabra	5	1	0.13	0.053
	5	6	0.07	0.028
	5	24	0.46	0.186
	5	31	0.07	0.028
	5	32	0.15	0.061
	5	42	0.10	0.040
	5	49	0.27	0.109
	5	51	2.30	0.931
	5	87	0.04	0.016
Kandaber	110	48p	3.40	1.376
	110	139	0.04	0.016
	110	176	0.01	0.004
	110	200	0.32	0.130
	111	240	0.87	0.352
	110	257	0.09	0.036
	110	277	0.28	0.113
	110	437p	0.01	0.004
	110	442	0.04	0.016
	110	454	4.42	1.789
	110	466	0.04	0.016
	110	473	1.73	0.700
	110	484	4.55	1.841
	110	485	0.41	0.166
	110	564	1.14	0.461
	111	565	0.46	0.186
	110	629	0.02	0.008

Certification has been
taken for this area from
DC, Hazaribagh in Form-
I (as per Jharkhand
Govt. circular 4792 dt
04.12.2018) vide letter
no. 3070 dt 05.09.2023

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18				110	633	0.14	0.057		
19				110	664	0.03	0.012		
20				110	680	0.39	0.158		
1				49	95	0.22	0.089		
Type wise Land details of Pakri Barwadih North West Mine									
Sl.N o.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks	
2			Urub	49	97	0.81	0.328		
3				49	634p	1.35	0.546		
4				49	642	0.66	0.267		
5				49	645	0.27	0.109		
6				49	728p	2.57	1.040		
Forest Land									
Sl.N o.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks	
1	Forest	327.058	Beltu	190	58p	5.58	2.258	Stage-I FC has been granted by MoEF&CC vide 8-56/2009-FC-(vol) Dt 26.05.2023	
2				190	62p	1.34	0.542		
3				190	84p	4.72	1.910		
4				190	87	1.16	0.469		
1			Bariyat u	155	1	24.00	9.713		
2				155	2	109.75	44.415		
3				155	3	70.50	28.531		
4				155	4	75.00	30.352		
5				155	63p	20.41	8.260		
6				155	232p	126.12	51.040		
7				155	1686	67.50	27.317		
1			Basari a	5	27	24.00	9.713		
2				5	32	26.75	10.826		
3				5	34	31.75	12.849		
1			Nawad ih	3	162p	3.27	1.323		
2				3	276p	0.15	0.061		
3				3	399p	3.81	1.542		
4				3	422	21.00	8.499		
5				3	505	33.50	13.557		
1			Sirma	12	30p	50.80	20.558		
1			Jabra	5	2	9.10	3.683		
1			Kandaber	110	212	10.13	4.100		
2				110	375	6.050	2.448		
3				110	559	1.96	0.793		
4				110	625	9.02	3.650		
5				110	634	15.00	6.070		
6				110	640	4.66	1.886		
1				49	9p	18.07	7.313		
2				49	10p	7.02	2.841		

3			Urub	49	12p	4.72	1.910	Stage-II FC has been granted by MoEF&CC vide 8-56/2009-FC-(vol) Dt 17.09.2010
4			Urub	49	13p	4.21	1.704	
5			Urub	49	85p	9.10	3.683	
6			Urub	49	94p	7.20	2.914	
7			Urub	49	105p	0.81	0.328	

Jungle Jhari Land

Sl.N o.	Land Type	Total Area (Ha)	Village	Khata	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
1	Jungle Jhadi	24.832	Beltu	190	81p	0.52	0.210	Stage-I FC has been granted by MoEF&CC vide 8-56/2009-FC-(vol) Dt 26.05.2023
2				190	143p	5.83	2.359	
3				190	198p	0.46	0.186	
4				190	214	1.64	0.664	
5				190	222p	0.07	0.028	
1			Bariyatu	155	21	0.09	0.036	
2				155	50	0.49	0.198	
1			Basaria	5	2	1.07	0.433	
2				5	10	1.33	0.538	
3				5	12	1.42	0.575	
1			Nawadih	3	152p	0.80	0.324	
2				3	174p	3.54	1.433	
3				3	187p	0.39	0.158	
4				3	207	2.14	0.866	
5				3	218p	0.73	0.295	
6				3	237p	0.06	0.024	
7				3	316	1.32	0.534	
1				12	97p	1.01	0.409	
2				12	144	2.68	1.085	

Type wise Land details of Pakri Barwadih North West Mine

Sl.N o.	Land Type	Total Area (Ha)	Village	Khat a	Plot	Area of Plot (Acre)	Area of Plot (Ha.)	Remarks
3			Sirma	12	195	2.47	1.000	
4				12	240	1.82	0.737	
5				12	245	0.30	0.121	
6				12	247	0.74	0.299	
7				12	291	0.33	0.134	
8				12	296	0.41	0.166	
1			Kandaber	110	197	0.72	0.291	
2				110	271	0.27	0.109	
3				110	431	1.90	0.769	
4				110	444	0.13	0.053	
5				110	493	2.07	0.838	

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6			110	527	0.59	0.239
7			110	545	0.47	0.190
1			49	635p	1.00	0.405
2			49	661	9.82	3.974
3		Urub	49	666	7.95	3.217
4			49	677p	4.75	1.922
5			49	689p	0.03	0.012
	TOTAL AREA	485.16				

Statutory Clearances:

1	LOI/Lease docs	:	Land has been Transferred to National Thermal Power Corporation (NTPC)
2	CO	:	<p>The CO, Keredari Block vide letter no. 572, dated 03.07.2023 has clarified that Khatiyan /Revenue record is not available in the Keredari block.</p> <p>The CO, Barkagaon Block vide letter no. 613, dated 03.07.2023 has clarified that Khatiyan /Revenue record is not available in the Keredari block.</p> <p>In the absence of Khatiyan, the Deputy Commissioner, Hazaribagh has issued certificate vide letter no. 3070/Ra, dated 05.09.2023 in the light of Land, Revenue and Reforms Deptt., Govt. of Jharkhand notification no. 4792, dated 04.12.2018.</p>
3	DFO Wild Life	:	DFO, Wildlife Hazaribag vide letter no. 1219, dated 26.06.2023 certified that the said project is outside Eco Sensitive Zone of Hazaribag Wildlife Sanctuary
4	DFO Forest Distance	:	<p>DFO, Hazaribag West Division vide letter no. 3724, dated 08.07.2023 certified that the proposal includes forest land.</p> <p>Out of 485.16 Ha of lease area, 351.89 Ha is forest land.</p> <ul style="list-style-type: none"> • 20.692 ha of forest land is already transferred to NTPC vide Stage-II FC no. 8-56/2009-FC-(vol) dt 17.09.2010. • FC Stage-I for 331.198 Ha is granted vide letter no.- 8-56/2009-FC-(VOI) – I/44905/23, dated 26.05.2023.
5	Mine Plan Approved	:	Mine Plan approved by Ministry of Coal, Govt. of India vide no. 13016/29/2003-CA-I(Part), Dated-07.03.2016

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6	Public Hearing	:	Public hearing conducted on 11.11.2022																																	
7	Terms of Reference (ToR)	:	Terms of Reference (ToR) granted by MOEF&CC, Govt. of India vide J-11015/60/2019-IA-II(M), dated 26.06.2019																																	
8	CGWA	:	No. Objection Certificate (NOC) for Ground Water Abstraction issued by CGWA vide NOC no. : CGWA/ NOC/ MIN/ORIG/2021/12198, dated 22.08.2023 valid up to 01.07.2025																																	
9	Diversion of Forest Land	:	<p>Out of 485.16Ha of lease area, 351.89 Ha is forest.</p> <ul style="list-style-type: none">• 20.692 ha of forest land is already transferred to NTPC vide Stage-II FC no. 8-56/2009-FC-(vol) dt 17.09.2010.• FC Stage-I for 331.198 Ha is granted vide letter no.- 8-56/2009-FC-(VOI) -- I/44905/23, dated 26.05.2023. <table><tr><th colspan="4">DETAILS OF PRESENT STATUS OF LAND</th></tr><tr><th>S.No</th><th colspan="2">Type</th><th>Area (Ha)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">Tenancy</td><td>Agricultural</td><td rowspan="4">113.557</td></tr><tr><td>Habitation</td></tr><tr><td>Grazing</td></tr><tr><td>Barren</td></tr><tr><td rowspan="4">2</td><td rowspan="4">Government Non Forest</td><td>Agricultural</td><td rowspan="4">19.713</td></tr><tr><td>Habitation</td></tr><tr><td>Grazing</td></tr><tr><td>Barren</td></tr><tr><td>3</td><td>Gair Majarua Jungle Jhari (GMJJ)</td><td rowspan="2">Forest</td><td>24.832</td></tr><tr><td>4</td><td>Forest</td><td>327.058</td></tr><tr><td colspan="3">Total</td><td>485.16</td></tr></table>	DETAILS OF PRESENT STATUS OF LAND				S.No	Type		Area (Ha)	1	Tenancy	Agricultural	113.557	Habitation	Grazing	Barren	2	Government Non Forest	Agricultural	19.713	Habitation	Grazing	Barren	3	Gair Majarua Jungle Jhari (GMJJ)	Forest	24.832	4	Forest	327.058	Total			485.16
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- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such

as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

IMPACT AND MITIGATION MEASURES:

- ❖ **Air:** The principal sources of air pollution due to mining and allied activities are drilling, blasting, movement of HEMM, wind erosion of dumps, CHP operation etc. It is proposed to adopt various control measures such wet drilling, controlled blasting, fixed water sprinkling of 2km length, mobile water sprinkler, covering transport vehicles with tarpaulin, avenue plantation, etc.
- ❖ **Water:** Effluents generated from the workshop building will be treated in ETP with oil and grease trap of 60 KLD capacity. The treated water will be reused within the workshop. Domestic effluent will be treated in Sewage treatment plant with 60KLD capacity is proposed to be installed for treatment of domestic waste water. The treated water will be used for greenbelt and plantation. Rainwater runoff from waste dump and coal stock will be collected through surface runoff management structures such as 6550m of garland drain, 4700m of retaining wall, check dam etc. Dumps will be stabilized by means of plantation of native species with geo textile matting.
 - a) **Surface Water:** To analyse change in hydraulic pattern of Khora nala east under existing as well as diverted conditions, a detailed study was carried out through "Think Innovative Solutions, Ranchi". The conducted study suggests that diversion of both nalas seems technically feasible as the desired cross section and flow can be maintained even after diversion. Besides, to ensure the surface water quality various measures are planned such as construction of retaining wall, peripheral garland drain, settling ponds, embankment between the mine pit and the nala on either side, check dam / check weirs at vulnerable places, etc., letting out supernatant clearwater from mine sump conforming discharge limits into Khora Nala for gainful use by downstream users.
 - b) **Ground Water:** Think Innovative Solutions, Ranchi carried out a detailed Hydrological study. Water level monitoring was carried out in 19 locations and it is seen that the water level in the pre monsoon is ranging from 1.5 – 10.4m BGL and the post monsoon water level ranges from 2.35 – 9.8m BGL. Two VES have been conducted within the mining lease area. There are 5 (five) different layers i.e., top soil, clay/weathered and fractured formation. Pumping test was conducted on the bore well-constructed in the mine periphery with the aquifer thickness of 7 meters. The hydraulic conductivity (k) calculated is 0.984 meter /day and transmissivity is 6.89 m²/day. Due to the low permeability of the aquifer units, the impact of pumping on local water regime will be minimal and the radius of influence will be limited.

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- c) **Rainwater Harvesting:** In the 5 years, maximum of 17,32,701.30cum of total rainfall runoff will be generated in year 5. Rainwater harvesting by means of artificial recharge and rainwater storage structures is proposed in order to effectively utilize the above mentioned quantum of rainfall.
- ❖ **Noise:** The main sources of noise are drilling, excavation, dumpers, dozers, etc. Various control measures such as acoustic enclosures, avenue plantation, providing PPEs to workers, plantation around CHPs, proper maintenance of equipments.
- ❖ **Vibrations:** Mining activity in the adjacent Pakribarwadih West quarry is in place for the last 5 years. The Rock Excavation Engineering Division of CSIR-CIMFR, Dhanbad carried out field investigations at the Pakribarwadih West quarry. During this period, ten trial blasts were conducted at various locations of the mine. For controlled blasting operations using SME explosive within the blasting zone of 100 -150 m, blasthole diameter of 100-115 mm have been suggested to contain ground vibration within the safe level. However, for controlled blasting beyond 150 m from the residential houses, 160 mm blasthole diameter have been recommended.
- ❖ **Biological Environment:** Schedule-I species are Elephant, Indian Pangolin, Sloth Bear, Python, Indian Flapshell Turtle, White-Rumped Vulture, Indian Vulture, Indian Peafowl based on the letter obtained from DFO vide Lr.No.122 dated 27.03.2023. Site specific conservation plan has been approved by PCCF Wildlife & Chief Wildlife Warden, Jharkhand vide Office Order No.32 dated 03.08.2023. Rs 45.31 Crores has been allocated for a period of 10 years for implementation of various activities under Site Specific Wildlife Conservation Plan.
- ❖ **Green Belt Development:** Consultation with State forest department and State soil conservation department shall be made to select the species required for green belt / vegetation cover development. Species commonly found in Sal forest should be planted along the rows of sal saplings. Species serving the role of commercially valuable timber, NTFP and nurse trees/wildlife trees which attract wildlife, nitrogen fixation are considered to achieve the multiple uses. With regards to greenbelt and plantation, it is proposed to carry out plantation inside the lease area, avenue plantation and also outside wherein a total of about 5,37,650 trees will be planted through the life of the mine with a total budget of Rs. 1075.30 Lakhs.
- ❖ **Dump stabilization:** Proper levelling, grading, spreading of top soil in the inactive dump slopes, geotextiling, coir matting for dump slope stabilization. Plantation of hardwood species and other leguminous trees and shrubs, and hardwood species that can tolerate a wide range of acidity, fertility, moisture, and temperature will be established. The tree species that are best-suited to the soil properties and landscape conditions shall be planted on the site. Species of trees, shrubs, herbs, grasses with multiple use value like fuel, fodder, fruit, medicine will be used during the process of ecological restoration.

❖ **Socio Economy:**

Comprehensive need-based assessment was carried out by Asia Institute of Sustainable Development wherein the needs of the villagers were assessed. Based on the need requirement captured through FGDs, a CSR perspective Plan has been prepared for duration of 5 years. An amount of Rs.1.5 Crores has been allocated towards the implementation of the needs assessed.

❖ **Rehabilitation & Resettlement:**

Need Assessment study for villages around the quarry was conducted by the Asia Institute for Sustainable Development, Ranchi. 18 project affected area in this project of which 8 core villages falling within the lease area are directly affected by the PB NW Project namely Bariatu, Basaria, Beltu, Jabra, Kandaber, Nawadih, Sirma and Urub. 791 PAFs (Project Affected Families) in the 8 villages, who are losing land, or both land and home (204- Home oustees alone). Out of the 8 villages, Basaria, Nawadih and Sirma villages will be rehabilitated in PB North West Quarry. For the Pakri Barwadih North West Block, 485.159Ha of land from 8 project affected villages, (113.557Ha Tenancy Land) namely Basaria, Bariyartu, Beltu, Kandaber, Nawadih, Sirma, Jabra and Urub, has been notified by the Govt. and compensation disbursement is under progress. NTPC shall ensure all payments towards land compensation, R&R benefits and other benefits are being made as per State Government resolution.

The above measures will be implemented by the Environmental Management Group of the proponent. The total capital cost of environmental control measures works out to Rs.30.75 Crores and recurring cost works out Rs.1.43 Crores per annum (which is inclusive of public hearing action plan budget).

Public hearing for this project was conducted on 11.11.2022 under the chairmanship of representative of Dy. Commissioner, Hazaribag (District Land Acquisition Officer, Hazaribagh). About 1145 people participated in the public hearing and 23 people expressed their views during the meeting. Public had expressed their concerns about compensation, employment, education, health facilities, pollution due to mining operations, training to locals, etc.

❖ **Risk & Hazard Mitigation:**

NTPC is committed to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification of workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community.

Mining and allied activities will be carried out in conformation with the prevailing statutory provisions as per Mines Act 1952 and CMR 1957 applicable for safety in opencast mines, DGMS Circular 03 of 2019 on Risk Management plan, all statutory rules, regulations, applicable laws etc, rules imposed by local/State/Central authorities if any. Factors of risks involved due to human induced activities in connection with mining & allied Operations are Failure of Slope of mine benches and dumps, Operation of main mining & other equipments, Drilling, Storage & handling

of explosives and Blasting. Other risk factors due to natural activities are Fire due to electricity and Oil, Flooding of mine/Mine Inundation and Natural calamities. Elaborate procedures and SOP's will be made and followed to mitigate the risks involved in the mining activity.

The description given above on predictions of anticipated impacts and various mitigative measures for each environmental parameter brings out the fact that systematic and scientific mining of coal with proper and timely execution of various environment management measures suggested in the report will ensure maintenance of future environmental quality within statutory limits. The impacts due to project will be suitably compensated by the liberal packages of rehabilitation and resettlement plan for the home and land oustees. By judicious implementation of the well laid Environmental Management System (EMS) as given in the report, it will be possible to achieve an environmentally sustainable industrial growth.

During the presentation the following documents were sought :

- i. Details regarding forest clearance, compensatory afforestation, NOC for ground water withdrawal, status of wildlife conservation plan, EMP cost.
- ii. Time bound action plan alongwith budget to address the issues raised during public hearing.
- iii. Budgets involved in the EC application of this project.
- iv. Details of utilization of excess water from the mine pit.
- v. Management of safety zone, surface water quality, energy conservation.
- vi. Undertaking regarding the diversion of Khora Nallah.

The Project Authorities have submitted the above mentioned documents.

Based on the presentation made and information provided, the Committee decided that the proposal for North-West Quarry of Pakri Barwadih Opencast Coal Mine of M/s NTPC Limited, Village : Bariatu, Basaria, Beltu, Jabra, Kandaber, Nawadih, Sirma & Urub, Tehsil : Keredari and Barkagaon, Distt. : Hazaribagh, Jharkhand (485.159 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure - I alongwith following specific condition :

- I. The Project Authorities shall take all necessary measures to ensure that the quality of the Khora Nallah water is not affected due to the mining activities.

Day 3 : September 21st, 2023 [Thursday]

Consideration of Proposals

1. Chhutupalu Stone Mine of M/s Navratan Mines (Shri Gopal Kumar Singh & Partners), Village : Chhutupalu, Block : Ormanjhi, Thana : Ormanjhi (47), Distt. : Ranchi, Jharkhand (0.485 Ha).

(Proposal No. SIA/JH/MIN/ 444690/2023).

Project Category : B2 – Application for Environment Clearance (New EC)

EC Application for : 3331 Cum / year (max)

Overburden: 2253 Cum. during plan period.

DG Set: NA

Crusher- Notproposed

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 21.09.2023.

Project and Location Details:

Sl.	Parameter	Details
1	Project Name	: Chhutupalu Stone Mine Project Type – Stone Mine
2	Lessee:	: M/S Navratan Mines Partner- 1) Gopal Kumar Singh 2) Shri Akhasat Kumar Bhardwaj 3) Sri Rohit Kumar Sahu 4) Shri Umesh Kumar Gupta
3	Lease Address	: Village- Chhutupalu, Block Office .-Ormanjhi, Thana- Ormanjhi (47) , District-Ranchi, Jharkhand
4	Lease Area	: Ha: 0.485 Acres: 1.20
5	Type of Land	: Non-Forest – Raiyati Land
6	Project Cost	: 94.71 Lakhs
7	EMP Budget	: Capital: Rs. –3.875 Lakhs Recurring: Rs. 1.64 Lakhs/ year
8	CSR / CER Budget	: NA
9	New or Expansion	: New
10	Mineable Reserves	: Cu.M.: 11,861 Tonnes: 32,025 Tonnes
11	Mine Life	: 5.08 say 5 years only.
12	Manpower	: 14 Person
13	Water Requirement	: 8.48 KLD (Drinking: 0.21 KLD, Dust Suppression: 4.4 KLD, Plantation: 3.87 KLD)
14	Water Source	: Water will be sourced from abandoned Mine through Water Tanker for Dust Suppression and Plantation and permission

			from gram panchayat will be taken to fulfill water requirement for mining operation after the grant of Environment clearance.
15	DG Set / power	:	Nil.
16	Crusher	:	Not Applicable
17	Nearest Water Body	:	Barki Nadi – 4.95 km- East
18	Nearest Habitation	:	Chhutupalu Village- 0.52 km South
19	Nearest Rail Station	:	Ramgarh Cant Railway station – 5.20 km in N direction
20	Nearest Airport	:	Ranchi Airport at 35 km in South Direction.
21	Nearest Forest	:	DFO Ranchi Division letter no.-3138 Dated- 12.08.2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
22	Road & Highways	:	National Highway-20 (Ranchi-Patna Road) is at about 0.78 km in East direction.

CO-ORDINATES

POINT	LATITUDE	LONGITUDE
1	23°34'09.56" N	85°31'09.13" E
To		
2	23°34'14.20" N	85°31'09.08" E

LAND DETAILS :

Khata No.	Plot No.
94	703

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Ranchi vide letter no. 1079/M, dated 08.09.2023.
2	CO	:	The CO, Ormanjhi (Ranchi) vide letter no. 724 (ii), dated 21.08.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Ranchi vide memo no. 1092/M, dated 09.09.2023 certified that no other mining lease area exists within 500 m radius from proposed

			project site.
4	DFO Wild Life	:	DFO, Wildlife Ranchi vide letter no. 767, dated 18.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Ranchi Forest Division vide letter no. 3138, dated 12.08.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	The DC-cum-District Magistrate, Ranchi vide letter no. 1111 / M, dated 15.09.2023 has informed that this project is part of District Survey Report (DSR) of Ranchi district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	BDO, Ormanjhi (Ranchi) vide letter no. 1086 (ii), dated 26.08.2023 informed that Gram Sabha conducted on 17.08.2023.
8	Mine Plan Approval	:	AMO, Ranchi vide Memo No. 1099/M, dated 11.09.2023.

WORKING DETAILS

1	Mining Method	:	Opencast Mechanized Mining
2	Quarry Area	:	Plan period – 0.206 Ha. Conceptual stage – 0.206 Ha.
3	Waste Generation	:	Plan Period :2253 Cum. Conceptual Stage –0 Cum.
4	Stripping Ratio	:	10:07
5	Working Days	:	300 days/year
6	Bench: size & No	:	3m x 3m, No. of benches -3
7	Elevation of Mine	:	648-644 AMSL
8	Ground Level Elevation	:	644 AMSL
9	Ultimate Working Depth	:	10m (including 1m O.B.)
10	Water Table	:	619m AMSL and
11	Topography of Mine	:	Gently sloping area
12	Explosive Requirement	:	1.68 Kg Slurry explosives/day
13	Diesel/Fuel requirement	:	1084 liters / day (325.2 KL/year)

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PRODUCTION DETAILS

Summary of Yearwise Production						
Years	Production In Cum/Year	Production In Cum/Day	O.B Production in Cum/Year	Production In Tons/Year	Prod. In Tons./Day	Bench RL in meters
1st	3331	11	1389	8994	30	A-A' (591-588 m R.L); B-B' (589-586 m R.L)
2nd	2016	7	864	5443	18	C-C' (588-585 m R.L)
3rd	2431	8	0	6564	22	A-A' (588-585 m R.L); B-B' (586-583 m R.L)
4 th	2877	10	0	7768	26	C-C' (585-582 m R.L); A-A' (585-582 m R.L)
5 th	1184	4	0	3197	11	C-C' (582-579 m R.L)
Total	11839	8 (Avg.)	2253	31965	21 (Avg.)	12

LAND USE

Existing Land Use pattern

SLNo.	Pattern	Existing Land Use (Acres)	Existing Land Use (Ha)
1	Mining Activities	0	0
2	Mining Road	0	0
3	Garland drain	0	0
4	Settling Pond	0	0
5	Green belt/Safety Zone	0	0
6	Unutilized	1.20	0.485
Total		1.20	0.485

Land Use Pattern for Current Plan Period:

SL No.	Pattern	Land Use (Acres)	Land Use (Ha.)
1	Mining Activities	0.51	0.206
2	Mining Road	0.01	0.004
3	Garland drain	0.05	0.020
4	Settling Pond	0.00	0.000

5	Green belt/Safety Zone	0.63	0.255
6	Unutilized	0.00	0.00
Total		1.20	0.485

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Land used at the conceptual stage ie end of mine life in (acres)	Land used at the conceptual stage ie end of mine life in (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.51	0.206	Water body 0.206
2	Mining Road	0.01	0.004	-
3	Garland drain	0.05	0.020	-
4	Settling Pond	0.00	0.000	-
5	Green belt/Safety Zone	0.63	0.255	Plantation
6	Unutilized	0.00	0.00	-
Total		1.20	0.485	

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	Location		Area/Length	No of Trees
1	Green Belt & Other reclaimed area	:	0.251 Ha.	775
2	Haul /Approach Road	:	0.22Km.	147Trees both side approach road.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- There is only 2253 cum overburden will be generated in mining plan period which will be used in maintenance of mine road and village road.

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Water Pollution Control Measures:

- Mining operation will be restricted to the depth of 12 m from surface level.
- Quality of dug well will be monitored, in order to ensure the quality of water is not affected.

Air and Noise Pollution Control Measures:

- Dust suppression measures like spraying / sprinkling of water to keep the surface wet.
- Overloading of the truck / tractor trolleys will not be done.

As the only impact is due to transportation of soil through village roads, emphasis will be given on the following points:

- Carts or tractor-trolleys will be developed on village roads.
- Tractors-trolleys will be well maintained and PUC certified.
- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Minimum use of horns in the village area and silence zone (if any) as applicable.

RISK ASSESSMENT

1.0. HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

The entire mining operation will be done under the supervision of the Mines Engineer/Mines manager having second class mines manager's certificate of competency and supported by a team of competent persons. Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

- Accident due to Blasting / Fly-rock generation
- Slope failure at Mine faces
- Accident due to sliding of Over Burden dumps
- Accident due to Transportation or movement of heavy machineries
- Operation of mining equipment
- Accident due to use of explosive
- Accident due to storage of Fuel
- Filling of Mine due to excessive rain

1.1 RISK AND MITIGATION MEASURES

BLASTING

Risk

- Most of the accidents from blasting occur due to the generation of fly-rocks, as they may sometimes go even beyond the danger zone, mainly due to overcharging of the shot-holes or as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations.
- Vibrations also lead to displacement of adjoining areas. Dust and noise are also problems commonly encountered during blasting operations.

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- Risk associated with storage and use of explosive

Mitigation Measures

- Adequate charge per hole with delay blasting will be used to minimize fly-rock, vibration and noise
- Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.
- Blasting will be done during the lunch interval, i.e. from 1.00 to 2.00 pm.
- Holes will be drilled in square/scattered pattern.
- Shot firing will be usually done with the help of safety fuse & ordinary detonator/ electric shot firing with delay detonators as per requirement.
- Adequate shelters or other protective structures shall be provided to the workers at all times;
- The shot fired shall give sufficient warning by effective signal over the entire area falling within a radius of 500 m
- Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS
- Conventional explosives shall be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- Explosives shall be conveyed in special containers.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

OVER BURDEN

Risk

The overburden dumps may cause landslides. High overburden dumps created at the quarry edge may cause sliding of the overburden dump or may cause failure of the pit slope due to excessive loading, thereby causing loss of life and property. Siltation of surface water may also cause run-off from overburden dumps.

Mitigation Measures

- To prevent the failure of overburden slopes, especially during the rainy season, proper garland drain & bund are constructed around the dump.
- To prevent this, height of overburden dumps will be restricted. Further, no stone or loose rock or loose tree will be allowed to remain within 3 meters of the edge of the quarry. To prevent siltation of surface water, retaining wall will be constructed on the down side of each OB dump.

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ACCIDENTS DUE TO TRANSPORTATION AND MOVEMENT OF MINING MACHINERIES

Risk

Most of the accidents occur during transportation by tippers/ trucks and movement of Mining machineries.

Operations of jackhammers are often attributable to mechanical failures and human errors.

Mitigation Measures

- This can be prevented by regular training of all vehicle/machinery drivers/operators, regular maintenance of equipment and ensuring safe operations.
- All safety precautions and provision of MMR 1961 shall be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- All transportation within the main working area should be carried out under the direct supervision and control of the management;
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point specially for the guidance of the drivers of vehicles.
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

FUEL STORAGE

No major storage of fuel envisaged in the mining lease area

WATER LOGGING

Risk

Filling of mine pit with excessive rain

Mitigation Measures

- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drainage and earthen bunds to avoid any inflow of surface water into the mine pit.
- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water. Suitable garland drain will be provided around pit along with sedimentation pits on each side.

- There is no danger of flood or inundation as the ground level is well below the plateau top, where mining will be carried out.

1.2. SAFETY MEASURES AT THE PROPOSED MINE

- The opencast mines have been planned for working with shovel tipper system which requires proper benching not only for slope stability but also for movement of tippers and other heavy machinery. The inclination of the quarry sides at the final stage i.e. at the dip most point will not exceed 40° to the horizontal. (This angle is measured between the line joining the toe of the bottom most bench to the crest of the top most bench and the horizontal line);
- The gradient of the haul road inside the pit, access trench and on the dumps will not be steeper than 1 in 16
- The slope of the sides of the OB dump to the horizontal will not exceed 30°, and the height of the OB dumps has been restricted to a max of 3 m;
- The quarries will be protected by garland drains around the periphery for storm water drainage;
- A minimum safe distance of 100-m will be kept between the surface edge of the quarry and the nearest public building, roads etc. When the surface edge of the quarry approaches within a limit of 300 m from any road, public building special permission from DGMS will be taken to conduct controlled blasting to prevent damage/injury to public life and property;
- All mining operations both within the quarry and outside will be conducted as per the conditions laid down by DGMS and under the strict supervision of competent persons appointed under Metalliferous Mines Regulations, 1961.

1.3. CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE:

In case of emergency arise as situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances pit will be fenced and locked properly so as no one can enter in pit. All plantation will be protected with all due care for their survival. Maintenance and monitoring of discontinued mining operations i.e. maintenance of haul roads, will be done in view of re-open in near future.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.

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- c. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Chhutupalu Stone Mine of M/s Navratan Mines (Shri Gopal Kumar Singh & Partners), Village : Chhutupalu, Block : Ormanjhi, Thana : Ormanjhi (47), Distt. : Ranchi, Jharkhand (0.485 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

2. Bankishol Stone Mine of M/s A.V.S. Transport (Prop. : Shri Ashish Kumar Agarwal), Village : Bankishol, Thana : Ghatsila, Thana no. : 1574, Distt. : East Singhbhum, Jharkhand (1.69 Ha).

(Proposal No. SIA/JH/MIN/ 440241/2023).

Project Category : B2 – Application for Environment Clearance

EC Application for : 27466 Cum / year (max)

Overburden: 9046 Cum. during plan period.

DG Set: NA

Crusher- Notproposed

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

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This is a new project which has been taken for appraisal on 21.09.2023.

Project and Location Details:

Sl.	Parameter	Details
1	Project Name	: Bankishol Stone Mine Project Type – Stone Mine
2	Lessee:	: M/s A. V. S. Transport Director- Ashish Kumar Agarwal
3	Lease Address	: Village- Bankishol, Thana No.- 1574, Thana- Ghatsila , Dist. – East singbhum, State – Jharkhand
4	Lease Area	: Ha: 1.69 Acres: 4.17
5	Type of Land	: Non-Forest – Raiyati Land
6	Project Cost	: 89.1Lakhs
7	EMP Budget	: Capital: Rs. –7.675Lakhs Recurring: Rs. 1.64Lakhs/ year
8	CSR / CER Budget	: NA
9	New or Expansion	: New
10	Mineable Reserves	: Cu.M.:183713 Tonnes:496026Tonnes
11	Mine Life	: 8.93 Years say 9 years.
12	Manpower	: 19Person
13	Water Requirement	: 5.68 KLD (Drinking:0.28 KLD, Dust Suppression: 0.8 KLD, Plantation:4.60 KLD
14	Water Source	: Water will be sourced from abandoned Mine through Water Tanker for Dust Suppression and Plantation and permission from gram panchayat will be taken to fulfill water requirement for mining operation after the grant of Environment clearance.
15	DG Set / power	: Nil.
16	Crusher	: Not Applicable
17	Nearest Water Body	: Subarnarekha River- 16 km in East direction
18	Nearest Habitation	: BankisholVillage
19	Nearest Rail Station	: Ghatsila Railway Station – 18.55 Km in North-East direction
20	Nearest Airport	: BirsaMunda Airport, Ranchi-115 Km in NW direction.
21	Nearest Forest	: DFO Jamshedpur Division, letter no.-703 Dated- 31.03.2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
22	Road & Highways	: MDR (Ghatsila-Baharagora road) – 7.50KM in East direction.

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary (GPS Co-ordinates) Datum: WGS 84		
Corner Point	Latitude	Longitude
1	22°27'54.02"N	86°21'47.29"E
2	22°27'54.14"N	86°21'46.64"E
3	22°27'54.30"N	86°21'46.22"E
4	22°27'54.72"N	86°21'46.16"E
5	22°27'54.79"N	86°21'45.79"E
6	22°27'55.04"N	86°21'44.03"E
7	22°27'55.73"N	86°21'44.24"E
8	22°27'56.09"N	86°21'42.72"E
9	22°27'58.53"N	86°21'43.40"E
10	22°27'59.80"N	86°21'44.18"E
11	22°27'58.27"N	86°21'47.77"E
12	22°27'57.97"N	86°21'47.87"E
13	22°27'57.78"N	86°21'49.41"E
14	22°27'56.70"N	86°21'49.73"E
15	22°27'55.49"N	86°21'48.63"E
16	22°27'55.07"N	86°21'47.97"E
17	22°27'54.50"N	86°21'47.78"E

LAND DETAILS :

Khata No.	Plot No.
27	193, 194, 195, 210 & 211

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, East Singhbhum, Jamshedpur vide letter no. 435/Khanan, dated 11.05.2023.
2	CO	:	The CO, Dumaria, East Singhbhum vide letter no. 140, dated 27.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyani & Register II.
3	DMO	:	DMO, East Singhbhum, Jamshedpur vide letter no. 663/Khanan, dated 16.06.2023 certified that no other mining lease area exists within 500 m radius from proposed project site.

4	DFO Wild Life	:	DFO, Dalma Elephant Project, Jamshedpur vide letter no. 573, dated 15.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Jamshedpur Forest Division vide letter no. 703, dated 31.03.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	The District Magistrate and DC, East Singhbhum, Jamshedpur vide letter no. 752 /Khanan, dated 20.07.2023 has informed that this project is part of District Survey Report (DSR) of East Singhbhum district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	Gram Sabha conducted on 28.03.2023.
8	Mine Plan Approval	:	Assistant Director, Geology, East Singhbhum, Jamshedpur vide Letter No. 90, dated 15.09.2023.

WORKING DETAILS

1	Mining Method	:	Opencast Mechanized Mining
2	Quarry Area	:	Plan period – 1.13 Ha. Conceptual stage –1.13 Ha.
3	Waste Generation	:	Plan Period :9046 Cum. Conceptual Stage –0 Cum.
4	Stripping Ratio	:	10:07
5	Working Days	:	300 days/year
6	Bench: size & No	:	6m x 6m, No. of benches -3
7	Elevation of Mine	:	152-148AMSL
8	Ground Level Elevation	:	148 AMSL
9	Ultimate Working Depth	:	18 m
10	Water Table	:	70 AMSL
11	Topography of Mine	:	Gently sloping area
12	Explosive Requirement	:	24Kg Slurry explosives/day
13	Diesel/Fuel requirement	:	980 liters / day (294 KL/year)

PRODUCTION DETAILS

Summary of Yearwise Production						
Years	Production In Cum/Year	Production In Cum/Day	O.B Production in	Production In Tons/Year	Prod. In Tons.	Bench RL in meters

			Cum/Year		/Day	
1st	18081	60	3528	48819	163	193-187 (B-B')
2nd	26846	89	5518	72484	242	193-187 (A-A')
3rd	16856	56	0	45511	152	187-181 (B-B')
4 th	27466	92	0	74158	247	187-181 (A-A')
5 th	13328	44	0	35986	120	181-175 (B-B')
Total	102577	68	9046	276958	185	Depth – 18 m

LAND USE

Existing Land Use pattern

SL	Pattern	Existing Land Use (Acres)	Existing Land Use (Ha)
1	Mining Area	0.00	0.00
2	Office	0.00	0.00
3	Dump	0.00	0.00
4	Road	0.00	0.00
5	Garland Drain	0.00	0.00
6	Safety Zone		
7	Settling Tank		
8	Unutilized	4.17	1.69
	TOTAL	4.17	1.69

Land Use Pattern for Current Plan Period:

SL	Pattern	Proposed Current Plan Period (Acres)	Proposed Current Plan Period (Ha)
1	Mining Area	2.79	1.130
2	Offices/ Store /Magazine etc.	0.01	0.004
3	Dump	0.05	0.020
4	Road	0.04	0.016
5	Garland Drain	0.13	0.050
6	Settling Pond	0.02	0.008
7	Green belt/Safety Zone	0.97	0.393
8	Unutilized	0.16	0.065
	TOTAL	4.17	1.69

Land Use Pattern after Life of the Mine:

SL	Pattern	Proposed Land Use at End of Life of Mine (Acres)	Proposed Current Plan Period (Ha)	Land Usage at Conceptual Stage
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1	Mining Area	2.79	1.130	Water Body
2	Offices/ Store /Magazine etc.	0.01	0.004	Plantation
3	Dump	0.05	0.020	Plantation
4	Road	0.04	0.016	Water body
5	Garland Drain	0.13	0.050	-
6	Settling Pond	0.02	0.008	
7	Green belt/Safety Zone	0.97	0.393	Plantation
8	Unutilized	0.16	0.065	Plantation
	TOTAL	4.17	1.69	-

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	Location		Area/Length	No of Trees
1	Green Belt& Other reclaimed area	:	0.47 Ha.	1175
2	Haul /Approach Road	:	0.54Km.	360Trees both side approach road.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- There is only 9046 cum overburden will be generated in mining plan period which will used in maintenance of mine road and village road.

Water Pollution Control Measures:

- Mining operation will be restricted to the depth of 18m from surface level.
- Quality of dug well will be monitored, in order to ensure the quality of water is not affected.

Air and Noise Pollution Control Measures:

- Dust suppression measures like spraying / sprinkling of water to keep the surface wet.
- Overloading of the truck / tractor trolleys will not be done.

As the only impact is due to transportation of soil through village roads, emphasis will be given on the following points:

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- Carts or tractor-trolleys will be developed on village roads.
- Tractors-trolleys will be well maintained and PUC certified.
- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Minimum use of horns in the village area and silence zone (if any) as applicable.

RISK ASSESSMENT

HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

The entire mining operation will be done under the supervision of the Mines Engineer/Mines manager having second class mines manager's certificate of competency and supported by a team of competent persons. Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

- Accident due to Blasting / Fly-rock generation
- Slope failure at Mine faces
- Accident due to sliding of Over Burden dumps
- Accident due to Transportation or movement of heavy machineries
- Operation of mining equipment
- Accident due to use of explosive
- Accident due to storage of Fuel
- Filling of Mine due to excessive rain

RISK AND MITIGATION MEASURES

BLASTING

Risk

- Most of the accidents from blasting occur due to the generation of fly-rocks, as they may sometimes go even beyond the danger zone, mainly due to overcharging of the shot-holes or as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations.
- Vibrations also lead to displacement of adjoining areas. Dust and noise are also problems commonly encountered during blasting operations.
- Risk associated with storage and use of explosive

Mitigation Measures

- Adequate charge per hole with delay blasting will be used to minimize fly-rock, vibration and noise
- Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.

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- Blasting will be done during the lunch interval, i.e. from 1.00 to 2.00 pm.
- Holes will be drilled in square/scattered pattern.
- Shot firing will be usually done with the help of safety fuse & ordinary detonator/ electric shot firing with delay detonators as per requirement.
- Adequate shelters or other protective structures shall be provided to the workers at all times;
- The shot fired shall give sufficient warning by effective signal over the entire area falling within a radius of 500 m
- Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS
- Conventional explosives shall be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- Explosives shall be conveyed in special containers.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

OVER BURDEN

Risk

The overburden dumps may cause landslides. High overburden dumps created at the quarry edge may cause sliding of the overburden dump or may cause failure of the pit slope due to excessive loading, thereby causing loss of life and property. Siltation of surface water may also cause run-off from overburden dumps.

Mitigation Measures

- To prevent the failure of overburden slopes, especially during the rainy season, proper garland drain & bund are constructed around the dump.
- To prevent this, height of overburden dumps will be restricted. Further, no stone or loose rock or loose tree will be allowed to remain within 3 meters of the edge of the quarry. To prevent siltation of surface water, retaining wall will be constructed on the down side of each OB dump.

ACCIDENTS DUE TO TRANSPORTATION AND MOVEMENT OF MINING MACHINERIES

Risk

Most of the accidents occur during transportation by tippers/ trucks and movement of Mining machineries.

Operations of jackhammers are often attributable to mechanical failures and human errors.

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Mitigation Measures

- This can be prevented by regular training of all vehicle/machinery drivers/operators, regular maintenance of equipment and ensuring safe operations.
- All safety precautions and provision of MMR 1961 shall be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- All transportation within the main working area should be carried out under the direct supervision and control of the management;
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point specially for the guidance of the drivers of vehicles.
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

FUEL STORAGE

No major storage of fuel envisaged in the mining lease area.

WATER LOGGING

Risk

Filling of mine pit with excessive rain

Mitigation Measures

- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drainage and earthen bunds to avoid any inflow of surface water into the mine pit.
- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water. Suitable garland drain will be provided around pit along with sedimentation pits on each side.
- There is no danger of flood or inundation as the ground level is well below the plateau top, where mining will be carried out.

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SAFETY MEASURES AT THE PROPOSED MINE

- The opencast mines have been planned for working with shovel tipper system which requires proper benching not only for slope stability but also for movement of tippers and other heavy machinery. The inclination of the quarry sides at the final stage i.e. at the dip most point will not exceed 40° to the horizontal. (This angle is measured between the line joining the toe of the bottom most bench to the crest of the top most bench and the horizontal line);
- The gradient of the haul road inside the pit, access trench and on the dumps will not be steeper than 1 in 16
- The slope of the sides of the OB dump to the horizontal will not exceed 30°, and the height of the OB dumps has been restricted to a max of 3 m;
- The quarries will be protected by garland drains around the periphery for storm water drainage;
- A minimum safe distance of 100-m will be kept between the surface edge of the quarry and the nearest public building, roads etc. When the surface edge of the quarry approaches within a limit of 300 m from any road, public building special permission from DGMS will be taken to conduct controlled blasting to prevent damage/injury to public life and property;
- All mining operations both within the quarry and outside will be conducted as per the conditions laid down by DGMS and under the strict supervision of competent persons appointed under Metalliferous Mines Regulations, 1961.

CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE:

In case of emergency arise as situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances pit will be fenced and locked properly so as no one can enter in pit. All plantation will be protected with all due care for their survival. Maintenance and monitoring of discontinued mining operations i.e. maintenance of haul roads, will be done in view of re-open in near future.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.



- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Bankishol Stone Mine of M/s A.V.S. Transport (Prop. : Shri Ashish Kumar Agarwal), Village : Bankishol, Thana : Ghatsila, Thana no. : 1574, Distt. : East Singhbhum, Jharkhand (1.69 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

3. Bankishol Stone Deposit of M/s S.A. Traders (Prop. : Shri Shivam Agarwal), Village : Bankishol, Thana : Ghatsila, Thana no. : 1574, Distt. : East Singhbhum, Jharkhand (2.30 Ha).

(Proposal No. SIA/JH/MIN/ 444762/2023).

Project Category : B2 – Application for Environment Clearance

EC Application for : 23368 cum / year (max)

Overburden: 13358 Cum. during plan period.

DG Set: NA

Crusher- Not proposed

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 21.09.2023.

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Project and Location Details:

Sl.	Parameter	Details
1	Project Name	: Bankishol Stone Deposit Project Type – Stone Mine
2	Lessee:	: M/s S. A. Traders Director- Shri Shivam Agarwal
3	Lease Address	: Village- Bankishol, Thana No.- 1574, Thana- Ghatsila , Dist. – East singbhum, State – Jharkhand
4	Lease Area	: Ha: 2.30 Acres: 5.69
5	Type of Land	: Non-Forest – Raiyati Land
6	Project Cost	: 79.58 Lakhs
7	EMP Budget	: Capital: Rs. –11.72 1Lakhs Recurring: Rs. 1.24 Lakhs/ year
8	CSR / CER Budget	: NA
9	New or Expansion	: New
10	Mineable Reserves	: Cu.M.:194636 Tonnes:5,25,517 Tonnes
11	Mine Life	: 8.32 Years say 9 years.
12	Manpower	: 32 Person
13	Water Requirement	: 15.05 KLD (Drinking:0.48 KLD, Dust Suppression: 4.2 KLD, Plantation:10.37 KLD
14	Water Source	: Water will be sourced from abandoned Mine through Water Tanker for Dust Suppression and Plantation and permission from gram panchayat will be taken to fulfill water requirement for mining operation after the grant of Environment clearance.
15	DG Set / power	: Nil.
16	Crusher	: Not Applicable
17	Nearest Water Body	: Subarnarekha River- 16.53 km in East direction
18	Nearest Habitation	: Bankishol Village
19	Nearest Rail Station	: Ghatsila Railway Station – 18.25 Km in North-East direction
20	Nearest Airport	: Birsa Munda Airport, Ranchi-145 Km in NW direction.
21	Nearest Forest	: DFO Dalma Division letter no.-574 Dated- 15.04.2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
22	Road & Highways	: MDR (Ghatsila-Baharagora road) – 7.02 KM in East direction.

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary (GPS Co-ordinates) Datum: WGS 84		
Corner Point	Latitude	Longitude
1	22°27'28.53" N	86°22'03.01" E
2	22°27'28.79" N	86°22'01.69" E
3	22°27'28.44" N	86°22'01.48" E
4	22°27'28.96" N	86°22'00.37" E
5	22°27'28.10" N	86°21'59.60" E
6	22°27'28.25" N	86°21'58.87" E
7	22°27'27.39" N	86°21'58.60" E
8	22°27'26.48" N	86°21'59.75" E
9	22°27'26.57" N	86°21'58.18" E
10	22°27'27.43" N	86°21'57.86" E
11	22°27'27.66" N	86°21'58.11" E
12	22°27'28.26" N	86°21'58.44" E
13	22°27'28.83" N	86°21'58.66" E
14	22°27'29.48" N	86°21'58.34" E
15	22°27'28.67" N	86°21'57.85" E
16	22°27'29.22" N	86°21'57.07" E
17	22°27'30.71" N	86°21'56.84" E
18	22°27'31.01"N	86°21'56.95"E
19	22°27'30.92"N	86°21'57.43"E
20	22°27'30.27"N	86°21'57.71"E
21	22°27'31.56"N	86°21'57.96"E
22	22°27'31.30"N	86°21'58.89"E
23	22°27'33.21"N	86°21'59.69"E
24	22°27'34.48"N	86°21'59.38"E
25	22°27'33.44"N	86°22'00.25"E
26	22°27'34.63"N	86°22'01.05"E
27	22°27'35.54"N	86°22'00.82"E
28	22°27'35.90"N	86°21'59.65"E
29	22°27'37.64"N	86°22'00.73"E
30	22°27'37.44"N	86°22'01.14"E
31	22°27'36.21"N	86°22'01.09"E
32	22°27'35.57"N	86°22'02.21"E
33	22°27'33.63"N	86°22'01.37"E
34	22°27'33.47"N	86°22'01.54"E
35	22°27'32.31"N	86°22'00.59"E
36	22°27'31.23"N	86°22'01.62"E
37	22°27'30.16"N	86°22'03.71"E

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LAND DETAILS :

Khata No.	Plot No.
11	1461, 1384, 1385, 1382, 1358, 1372, 1373
226	1459, 1462, 1378, 1379, 1381
320	1452, 1454, 1455
102	1439

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, East Singhbhum, Jamshedpur vide letter no. 361/Khanan, dated 18.04.2023.
2	CO	:	The CO, Dumaria, East Singhbhum vide letter no. 130, dated 22.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyani & Register II.
3	DMO	:	DMO, East Singhbhum, Jamshedpur vide letter no. 664/Khanan, dated 16.06.2023 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Dalma Elephant Project, Jamshedpur vide letter no. 574, dated 15.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Jamshedpur Forest Division vide letter no. 630, dated 25.03.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	The District Magistrate and DC, East Singhbhum, Jamshedpur vide letter no. 752 /Khanan, dated 20.07.2023 has informed that this project is part of District Survey Report (DSR) of East Singhbhum district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	Gram Sabha conducted on 17.03.2023.
8	Mine Plan Approval	:	Assistant Director, Geology, East Singhbhum, Jamshedpur vide Letter No. 91, dated 15.09.2023.

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WORKING DETAILS

1	Mining Method	:	Opencast Mechanized Mining	
2	Quarry Area	:	Plan period ~ 1.21 Ha.	Conceptual stage ~1.23 Ha.
3	Waste Generation	:	Plan Period :13358 Cum.	Conceptual Stage ~0 Cum.
4	Stripping Ratio	:	10:07	
5	Working Days	:	300 days/year	
6	Bench: size & No	:	5m x 5m, No. of benches -3	
7	Elevation of Mine	:	142-139 m RL	
8	Ground Level Elevation	:	142 m RL	
9	Ultimate Working Depth	:	114m RL	
10	Water Table	:	70 AMSL and	
11	Topography of Mine	:	Gently sloping area	
12	Explosive Requirement	:	12.48Kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	740 liters / day (222 KL/year)	

PRODUCTION DETAILS

Summary of Yearwise Production						
Years	Production In Cum/Year	Production In Cum/Day	O.B Production in Cum/Year	Production In Tons/Year	Prod. In Tons./Day	Bench RL in meters
1st	23126	77.09	7194	62439	208.13	A-A' (140-136) CC' (138-134) B-B' (140-136)
2nd	23368	77.89	6164	63094	210.31	B-B' (140-136)
3rd	23013	76.71	-	62135	207.12	A-A' (136-131) C-C' (134-129) B-B' (136-131)
4th	23368	77.89	-	63094	210.31	B-B' (136-131)
5th	23361	77.87	-	63075	210.25	B-B' (136-131) C-C' (129-124) B-B' (131-126)
Total	116236	387.45	13358	313837	1046.12	Depth - 14 m

LAND USE

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dump	0.00
4	Road	0.00
5	Garland Drain	0.00
6	Safety Zone	
7	Settling Tank	
8	Unutilized	2.30
	TOTAL	2.30

Land Use Pattern for Current Plan Period:

SL	Pattern	Proposed Current Plan Period (Ha)
1	Mining Area	1.210
2	Office	0.010
3	Dump	0.050
4	Road	0.020
5	Garland Drain	0.120
6	Safety Zone	0.810
7	Settling Tank	0.020
8	Unutilized	0.060
	TOTAL	2.30

Land Use Pattern after Life of the Mine:

SL	Pattern	Proposed Land Use at End of Life of Mine (Ha)	Land Usage at Conceptual Stage
1	Mining Area	1.210	Water Body
2	Office	0.010	Office
3	Dump	0.050	Plantation
4	Road	0.020	-
5	Garland Drain	0.120	Plantation
6	Safety Zone	0.810	
7	Settling Tank	0.020	
8	Unutilized	0.060	Plantation
	TOTAL	2.30	-

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	Location		Area/Length	No of Trees
1	Green Belt & Other reclaimed area	:	1.06 Ha.	2650
2	Haul /Approach Road	:	1.21Km.	807Trees both side approach road.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- There is only 13358 cum overburden will be generated in mining plan period which will be used in maintenance of mine road and village road.

Water Pollution Control Measures:

- Mining operation will be restricted to the depth of 14m from surface level.
- Quality of dug well will be monitored, in order to ensure the quality of water is not affected.

Air and Noise Pollution Control Measures:

- Dust suppression measures like spraying / sprinkling of water to keep the surface wet.
- Overloading of the truck / tractor trolleys will not be done.

As the only impact is due to transportation of soil through village roads, emphasis will be given on the following points:

- Carts or tractor-trolleys will be developed on village roads.
- Tractors trolleys will be well maintained and PUC certified.
- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Minimum use of horns in the village area and silence zone (if any) as applicable.

RISK ASSESSMENT

HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

The entire mining operation will be done under the supervision of the Mines Engineer/Mines manager having second class mines manager's certificate of competency and supported by a team of competent persons. Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

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- Accident due to Blasting / Fly-rock generation
- Slope failure at Mine faces
- Accident due to sliding of Over Burden dumps
- Accident due to Transportation or movement of heavy machineries
- Operation of mining equipment
- Accident due to use of explosive
- Accident due to storage of Fuel
- Filling of Mine due to excessive rain

RISK AND MITIGATION MEASURES

BLASTING

Risk

- Most of the accidents from blasting occur due to the generation of fly-rocks, as they may sometimes go even beyond the danger zone, mainly due to overcharging of the shot-holes or as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations.
- Vibrations also lead to displacement of adjoining areas. Dust and noise are also problems commonly encountered during blasting operations.
- Risk associated with storage and use of explosive

Mitigation Measures

- Adequate charge per hole with delay blasting will be used to minimize fly-rock, vibration and noise
- Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.
- Blasting will be done during the lunch interval, i.e. from 1.00 to 2.00 pm.
- Holes will be drilled in square/scattered pattern.
- Shot firing will be usually done with the help of safety fuse & ordinary detonator/ electric shot firing with delay detonators as per requirement.
- Adequate shelters or other protective structures shall be provided to the workers at all times;
- The shot fired shall give sufficient warning by effective signal over the entire area falling within a radius of 500 m
- Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS
- Conventional explosives shall be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- Explosives shall be conveyed in special containers.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

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OVER BURDEN

Risk

The overburden dumps may cause landslides. High overburden dumps created at the quarry edge may cause sliding of the overburden dump or may cause failure of the pit slope due to excessive loading, thereby causing loss of life and property. Siltation of surface water may also cause run-off from overburden dumps.

Mitigation Measures

- To prevent the failure of overburden slopes, especially during the rainy season, proper garland drain & bund are constructed around the dump.
- To prevent this, height of overburden dumps will be restricted. Further, no stone or loose rock or loose tree will be allowed to remain within 3 meters of the edge of the quarry. To prevent siltation of surface water, retaining wall will be constructed on the down side of each OB dump.

ACCIDENTS DUE TO TRANSPORTATION AND MOVEMENT OF MINING MACHINERIES

Risk

Most of the accidents occur during transportation by tippers/ trucks and movement of Mining machineries.

Operations of jackhammers are often attributable to mechanical failures and human errors.

Mitigation Measures

- This can be prevented by regular training of all vehicle/machinery drivers/operators, regular maintenance of equipment and ensuring safe operations.
- All safety precautions and provision of MMR 1961 shall be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- All transportation within the main working area should be carried out under the direct supervision and control of the management;
- The vehicles must be maintained in good repairs and checked thoroughly at least once a week by a competent person authorized for this purpose by the management;
- Broad signs should be provided at each and every turning point specially for the guidance of the drivers of vehicles.
- To avoid dangers while reversing the trackless vehicles, especially at the embankment and tripping points, all areas for reversing of lorries should, as far as possible, be made man free, and there should be a light and sound device to indicate reversing of trucks; and
- A statutory provision of the fence, constant education, training etc. will go a long way in reducing the incidence of such accidents.

FUEL STORAGE

No major storage of fuel envisaged in the mining lease area

WATER LOGGING

Risk

Filling of mine pit with excessive rain

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Mitigation Measures

- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drainage and earthen bunds to avoid any inflow of surface water into the mine pit.
- Proper drainage will be maintained to eliminate inundation of working pits during rains from run-off water. Suitable garland drain will be provided around pit along with sedimentation pits on each side.
- There is no danger of flood or inundation as the ground level is well below the plateau top, where mining will be carried out.

SAFETY MEASURES AT THE PROPOSED MINE

- The opencast mines have been planned for working with shovel tipper system which requires proper benching not only for slope stability but also for movement of tippers and other heavy machinery. The inclination of the quarry sides at the final stage i.e. at the dip most point will not exceed 40° to the horizontal. (This angle is measured between the line joining the toe of the bottom most bench to the crest of the top most bench and the horizontal line);
- The gradient of the haul road inside the pit, access trench and on the dumps will not be steeper than 1 in 16
- The slope of the sides of the OB dump to the horizontal will not exceed 30°, and the height of the OB dumps has been restricted to a max of 3 m;
- The quarries will be protected by garland drains around the periphery for storm water drainage;
- A minimum safe distance of 100-m will be kept between the surface edge of the quarry and the nearest public building, roads etc. When the surface edge of the quarry approaches within a limit of 300 m from any road, public building special permission from DGMS will be taken to conduct controlled blasting to prevent damage/injury to public life and property;
- All mining operations both within the quarry and outside will be conducted as per the conditions laid down by DGMS and under the strict supervision of competent persons appointed under Metalliferous Mines Regulations, 1961.

CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE:

In case of emergency arise as situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances pit will be fenced and locked properly so as no one can enter in pit. All plantation will be protected with all due care for their survival. Maintenance and monitoring of discontinued mining operations i.e. maintenance of haul roads, will be done in view of re-open in near future.

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Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Bankishol Stone Deposit of M/s S.A. Traders (Prop. : Shri Shivam Agarwal), Village : Bankishol, Thana : Ghatsila, Thana no. : 1574, Distt. : East Singhbhum, Jharkhand (2.30 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

4. Grain Based Distillery with Cogeneration Plant of M/s Sheonarain Jaiswal Pvt. Ltd., Village : Balsiring, Tehsil : Namkum, Distt. : Ranchi, Jharkhand.

(Proposal No. SIA/JH /IND2 /442593/2023).

Name of the consultant : PARAMARSH Servicing Environment and Development, Lucknow.

This is a case of violation which has been taken for appraisal on 21.09.2023.

The project is a violation case since the project proponent has started the construction without prior Environmental Clearance from State Environment Impact Assessment Authority (SEIAA), Jharkhand.

However, The Honourable Supreme court in its order dated 9th December 2021 In the matter of the Civil appeal No 7576-7577 of 2021 in the Electro steel Steels Limited Vs Union of India and Ors in its para 93 has inter- alia observed the following :

"The interim order passed by the Madras high Court appears to be misconceived. However, this court is not hearing an Appeal from that interim order. The interim stay passed by the Madras High court can have no application of operations of the Standard Operating Procedure to the projects in territories beyond the territorial jurisdiction of Madras High court. However, final decision may have been taken in accordance with the Orders/ Rules prevailing prior to 7th July, 2021."

Thus, the SEIAA, Jharkhand, in the light of Ho'ble Supreme Court order dated 9th December 2021, Office Memorandum no. F.No.22-21/2020-IA.III[E 138949] dated 28.01.2022 of MoEF&CC, Govt. of India and Standard Operating Procedure (SOP) issued by MoEF&CC, Govt. of India vide its file number 22-21/2020-IA-III, dated 07.07.2021, the matter has been taken for consideration & recommendation of EC for violation projects.

Project Category : 5 (g) Distilleries

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101st meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the Violation ToRs in 102nd meeting held on 17th & 18th March, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2737/2023/470, date 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 11.09.2023 and which was forwarded to SEAC on 11.09.2023.

SNJPL proposed to set up an Greenfield Grain based distillery of 60 KLD capacity alongwith 1.775 MW Power Plant with latest technology of Multi Pressure Distillation and MSDH for dehydration to achieve good quality of Fuel grade Ethanol.

Proposed production of 60 KLD distillery with 1.775 MW captive Power Generation plant will be based on grain such as Corn/Maize, Broken rice and the Spoiled Grain as basic raw materials. Other inputs will be water, antifoam agents, Urea, H2SO4 and enzymes. Rice husk/Biomass /Bagasse/Coal will be used as fuel in Boiler.

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The Distillery proposes to achieve Zero Liquid Discharge by Decantation, Multi Effect Evaporation (MEE) followed by dryer to form Distiller's Grain Solids with Solubles (DDGS), which will be used as cattle/fish Feed. The entire spent wash will be used to achieve Zero Liquid Discharge.

Grain Based Distillery of Sheonarain Jaiswal Pvt. Ltd. (SNJPL), is proposed at Plot No. 726 (P), Balsiring, Turka Toli, Tupudana, Near Ring Road, PS- Dhurva, P.O. Hatia, Block Namkum in District Ranchi, Jharkhand having Latitude 23°15'25.89"N & Longitude 85°16'24.30"E at 648 m. above MSL. The Project Site is connected to NH-75 via Ring Road. It is about 10 kms. from district head quarter at Ranchi and is well connected by NH 75. SNJPL is about 7 Km. (SSE) from Hatia Railway Station on Netaji S.C.Bose Gomoh-Hatia Sec. of SER. Total cost of the proposed SNJPL distillery project is estimated to be Rs. 22 Crores.

3.64 Ha. (8.99 Acres) of land of Khata No. 123, Khesra No. 726 will be utilized for proposed grain based distillery project out of total available land of 10.82 ha. (26.74 Acres) in Khata No. 123, Khesra Nos. 726 & 576 of Balsiring, Namkum, Ranchi.

Land Details :

Khata no.	Plot no.
123	726 (P)

Manufacturing & Production Details :

Manufacturing Facilities	Product	Production Capacity
Distillery	Ethanol / ENA	60 KLPD
Power Co-generation	Power	1.775 MW
No. Of Days Operation / Annum	350 days	
Distilleries Dry Grain with Solubles (DDGS), & CO ₂ will be generated as by-product.		
By-Product		Generation Capacity
DDGS		30 TPD
CO ₂		20 TPD
Fusel Oil		90 Ltrs. / day

Raw Material Requirement :

Item	Raw Material Requirement
Maize / Broken Rice	162 TPD / 156 TPD
No. Of Days Operation / Annum	350 days

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Pollution Control Measures :

The proposed Grain based distillery will be based on "Zero Liquid Discharge". Fresh water requirement of the project will be met by Ground Water. Efforts will be made to conserve as much water as possible by recycling and reuse. Spent wash generated during Grain operation, would be decanted by centrifuge decanter to obtain Distiller's Wet Grains with Soluble (DWGS), and the concentrate (Thin Slop) is concentrated (DGSS) in Multi-effect evaporator and then mixed with DWGS and dried in Rotary Dryer to form Dried Distiller's Grain with Soluble (DDGS) and used as Cattle feed/Poultry/Fish. Process condensate from MEE will be treated and recycled back in the process. Closed water recycle system and plant process is designed to minimize fresh water requirement by recycling various effluents after treatment.

Waste Water Generation & Treatment :

The spent wash from proposed grain based distillery will be subjected to decantation to separate out wet cake and 6-7% w/w solid thin slop will be fed to evaporator. The thick syrup @ 35-40 % solids after the evaporation would then fed to DWGS drier to produce DDGS at 88-90% w/w solids which will be sold as Cattle feed. The boiler blow down, DM plant, softener regeneration water will be treated in a neutralization tank and after treatment it will be used as cooling water makeup water.

Process condensate from evaporation section will be partly recycled and balance will be treated in process condensate treatment plant, treated water will be used as dilution water in slurry preparation and as cooling water makeup water and steam condensate will be recycled back to the boiler.

Air Pollution :

To minimize air pollution load due to operation of proposed boilers of SNJPL Bag Filters with stack of adequate height will be installed with the boiler to control the particulate and gaseous emissions due to combustion of fuel. CO₂ produced during the fermentation process will be collected and utilized as an industrial gas or bottled and sold. Diesel Generator (DG) Sets with acoustic enclosures will also have adequate stack height as per Central Pollution Control Board (CPCB) Guidelines. All the internal roads will be asphalted. Development of Green Belt (in 1.21 Ha. 33 % of total project area) around the periphery and within the premises of the plant will help in attenuating the pollutants emitted by the plant.

Solid Waste Management:

Solid waste	Quantity	Disposal
ETP sludge	30 kg/day	Used as manure
Boiler ash	18 TPD	Rice Husk Ash will be sold to cement manufactures/ceramic industry. Ash of Coal will be sold to fly ash bricks manufacturing unit.

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Raw Material required along with estimated Quantity, likely source, marketing area of final products, mode of Transport of raw material & finished product.

S. No.	Particular	Requirements
1.	Grain (MT/day)	Maize : 162 TPD Broken Rice : 156 TPD
2.	Fresh Water (KLPD)	340
3.	Electricity	1.775 MW
4.	Fuel	
5.	Rice husk / Biomass / Coal	90 TPD / 72 TPD
6.	Enzymes -Alpha Amylase (1-4) -Amyloglucosidase(1-6)	45 Kg/day 60 Kg/day
7.	Chemicals	
	Sulphuric Acid	39 Kg /day
	Sodium Hydroxide	51 Kg /day
	NH ₂ -CO-NH ₂ (Nutrients)	45 Kg /day
	Antifoam Agent	75 Kg /day
	Dry Yeast	1 Kg/KL of spirit production

Water Requirement

TOTAL WATER INPUT (KL)		TOTAL WATER OUTPUT (KL)	
Process water in fermentation	350	Steam condensate	145
DM water for boiler feed	215	Water in Spent wash	315
Soft water for vaccum pump and others	35	Thin Slope	80
Soft water makeup for cooling tower	110	CT evaporation and drift losses	150
Water in Grain	15		
		Boiler (Deaerator, Blowdown, drain) Losses	30
Miscellaneous Washing (Provisional)	5	Vaccum pump sealing / purge	5
TOTAL	730	Miscellaneous Washing (Provisional)	5
		TOTAL	730

RECYCLE and UTILIZATION STREAMS (KL)	
Steam Condensate recycle for boiler	125 KLD
Thin slop recycle Slurry preparation and Liquefaction section	50 KLD
Process condensate recycle to process and CT	35 KLD
Vaccum pump water recirculation	30 KLD
Treated WW	175 KLD
Recycling/ re-utilization of water per day (Industrial Purposes)	400 KLD

Recycling/ re-utilization of water per day (Green Belt)	15 KLD
Total Recycling/ re-utilization of water per day	415 KLD
Fresh Water requirement for Distillery	300 KLD
Fresh Water for Cooling Tower Make-up Cogeneration Plant	20 KLD
Total Industrial Fresh Water Requirement	320 KLD
Domestic Use	10 KLD
Overall Fresh Water Requirement	330 KLD

Power Requirement and Source :

The Unit's own Power cogeneration will be 1.775 MW generation which will be used for captive power requirement. DG sets will be used in case of emergency.

Steam Requirement :

Steam requirement will be sourced from proposed 18 TPH Rice husk / Bagasse / Biomass / Coal fired boiler.

S.No.	Steam requirement	Kg/Lit Of Total Spirit
1.	Liquefaction, Distillation, MSDH (Wash to AA mode), Integrated Evaporation, DWGS Dryer	3.5 to 3.8 Kg/Lit of Total Spirit

Boiler Details :

Steam requirement is 15 TPH, which will be sourced from proposed 18 TPH Boiler.

Steam Consumption (Dry Saturated)	Proposed Scheme
1. Cooking and Liquefaction	0.6 Kg/lit of TS
2. Distillation	1.7 Kg/lit of TS
3. Ethanol	0.6 Kg/lit of TS
4. DWGS Dryer	1.6 Kg/lit of TS
5. Total Steam Requirement	4.5 Kg/lit of TS (With Multi Effect Evaporator and dryer)

Proposed Boiler Details :

HP Boiler of 18 TPH capacity alongwith Bag Filter as Air Pollution Control Equipment followed by adequate Stack height will be installed as per CPCB & JSPCB guidelines. Details regarding proposed boiler are mentioned in the table given below :

Proposed Boiler Details

S. No.		Details
1.	Type of Fuel	Rice Husk/Biomass/Coal
2.	Capacity of Boiler	18 TPH
3.	Stack Height	33.7 m
4.	Pollution Control Equipment Measures	Bag Filters

Waste Water Generation & Treatment :

The spent wash from proposed grain based distillery will be subjected to decantation to separate out wet cake and 6-7% w/w solid thin slop will be fed to evaporator. The thick syrup @ 35-40 % solids after the evaporation would then fed to DWGS drier to produce DDGS at 88-90% w/w solids which will be sold as Cattle feed.

The boiler blow down, DM plant, softener regeneration water will be treated in a neutralization tank and after treatment it will be used as cooling water makeup water. Process condensate from evaporation section will be partly recycled and balance will be treated in process condensate treatment plant, treated water will be used as dilution water in slurry preparation and as cooling water makeup water and steam condensate will be recycled back to the boiler.

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Land for SNJPL project is registered in the name of SNJPL.
2	CO	:	The CO, Namkum (Ranchi) vide letter no. 320 (ii), dated 10.02.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatyan & Register II.
3	DFO Wild Life	:	DFO Wildlife Ranchi vide letter no. 1081, dated 06.12.2021 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Ranchi vide letter no. 5286, dated 27.12.2022 certified that the distance of reserved / protected forest is more than 250 metre from project site.
5	CGWA	:	No Objection Certificate for Ground Water Abstraction issued by CGWA vide NOC no. CGWA/NOC/IND/ORIG/2022/15295, dated 21.04.2022
6	Public Hearing	:	Public Hearing conducted by JSPCB on 26.08.2023.

During the presentation the following documents were sought :

- Public Hearing commitments with time bound action plan and fund provision to be provided.
- Revised EMP budget to be provided.
- Revised budget for remediation plan for natural resource and ecological damage assessment to be provided.
- Revised water & Material balance to be provided.

The Project Authorities have submitted the above mentioned documents.

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On the basis of above the State Level Expert Appraisal Committee (SEAC), Jharkhand recommended an amount of rupees 40.70 Lakh as per CPCB guidelines towards remediation plan and natural & community resource augmentation plan to be spent within a period 03 years. The details of summary of Natural resource and Environmental / Ecological Damage assessment with budgetary provision for expenditure under the below mention head for remediation :-

Components	Details	Budgetary Provision (in Rs. Lakhs)
1. Air Environment	Health Camps in Balsiring & Guthiya Villages for checking & Treatment of Respiratory ailments (2 times at the interval of 4 months – upto Mar, 2024)	5.50
2. Soil Environment	To check soil erosion, Tree Plantation around Blue Pond near project site (360 Nos. of Trees @ Rs. 1250 will be planted by Mar, 2024)	4.50
3. Social Environment	Construction of Road in effected area (700 m.) by Mar, 2024.	20.0
4. Energy Conservation	Provision of Solar Panels in Guthiya and Balsiring villages (100 Nos. 75 Watt. Solar Panel @ Rs. 5700/- each – 50 Nos. in each village by Jul, 2024)	5.70
5. Community Development	Skill Development training of local youths (100 Nos. youth @ Rs. 5000/= each) (Computer & IT Skill training for 50 nos. male youths and Stitching & Embroidery training for 50 nos. female youths by Dec, 2024)	5.0
GRAND TOTAL		40.70

- I. The Committee visited the project site on 20.09.2023 to verify the details submitted by PAs.
- II. Total budgetary provision with respect to remediation plan and natural and community resource augmentation plan is Rs. 40.70 Lakh.

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- III. Therefore, PAs shall be required to submit a bank guarantee of an amount of Rs. 40.70 Lakh towards remediation plan and natural and community resource augmentation plan with the Jharkhand State Pollution Control Board and evidence of the same submitted to SEIAA, Jharkhand prior to grant of EC.
- IV. The bank guarantee shall be released after successful completion of remediation plan, duly recommended by the SEAC, Regional Office - MoEF&CC, Govt. of India and approval of regulatory authority. Remediation plan shall be completed in 03 years with the consultation of Local / Urban Bodies / State Govt. Deptt.
- V. Approval / permission from CGWA shall be obtained before drawing ground water for the project activities, if applicable. Jharkhand State Pollution Control Board shall not issue Consent to Operate (CTO) until the PAs obtains such permission.
- VI. PAs shall take necessary other clearances / permissions under various act and rules if any, from the respective authorities / departments.
- VII. STP of adequate capacity shall be established within the project premises.
- VIII. Energy conservation measures adhering to part of ECBC norms shall be complied with.
- IX. The penalty of Rupees 4.125 Lakh being 0.5% (Suo Moto) of the project cost incurred till date (Rs. 8.25 Crore) shall be submitted to Jharkhand State Pollution Control Board in the form of demand draft and evidence of the same to be submitted to SEIAA, Jharkhand prior to grant of EC.
- X. Action will be taken for the violation by the Jharkhand State Pollution Control Board under the provision of section 19 the Environment (Protection) Act, 1986.

Based on the presentation made and information provided, the Committee decided that the proposal for Grain Based Distillery with Cogeneration Plant of M/s Sheonarain Jaiswal Pvt. Ltd., Village : Balsiring, Tehsil : Namkum, Distt. : Ranchi, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – III alongwith following specific condition :

- I. PAs have obtained permission from CGWA for withdrawal of 200 KLD. Total fresh water requirement 315 KLD. The PAs must obtained permission from CGWA for withdrawal of the balance quantity before starting the project.

Day 4 : September 22nd, 2023 [Friday]

Consideration of Proposals

1. Proposed Group Housing Project of M/s Sharda Shelter Pvt. Ltd., Village : Bariyatu, Tehsil : Bargain, Distt. : Ranchi, Jharkhand.

(Proposal No. : SIA/JH/INFRA2/ 444277/2023).

Project Category: 8(a) Category B2 as per EIA Notification as the built-up area is less than 1,50,000 sqm. and development area is less than 50 ha.

EC Application for: Proposed Residential project: Total built-up area 33625.38sq m.

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

Project and Location Details:

Parameters	Description
Plot Area	8096.36 sq. m (0.809 ha/2.00 acres)
Project Cost	INR 65 Crores
Built-up Area (@3.10 F.A.R)	33625.38sq. m.
Green Area (@ 15.66 % of plot area)	1223.18sq m
Population	745
Water Requirement	120 KLD
Fresh Water Requirement	78 KLD
Wastewater Generation	85 KLD
STP Capacity	95 KLD
Total Municipal Waste	373kg/day
Power Requirement	Maximum power demand for the project during operation phase is estimated to be 1500 KW. Source of power will be Jharkhand State Electricity Board.
DG Sets	1 nos. of DG set of 400 kVA
RWH Pits	3nos.
Parking Area	8,462.11sq.m

Connecting road	Bajra-Baratu Road (approx. 970 m, West)
National/State Highway	SH-20 (approx 1.14 km, East)
Nearest Railway Station	Ranchi Junction (approx. 5 km, South)
Airport	Birsa Munda Airport (Ranchi), (approx 38.17km, SSW)
Nearest Hospitals	RIMS (approx. 250 m, West)
Nearest Water Bodies	<ul style="list-style-type: none"> • Potpoto River (3.5 km, North) • Jhumar River (4.9 km, NE)

CO-ORDINATES

Points	Latitude	Longitude
A	23°23'21.41"N	85°21'29.38"E
B	23°23'20.37"N	85°21'32.20"E
C	23°23'17.43"N	85°21'30.91"E
D	23°23'18.49"N	85°21'28.08"E
Centre	23°23'19.29"N	85°21'30.28"E

Khata no.& Plot no. of the project :

Khata no.	Plot no.
27	839
08	840

Area Statement :

S. No.	Description	Area (sq m)
1.	Plot Area	8096.36
2.	Road Widening Area	286.12
3.	Net Plot Area	7810.24
4.	Ground Coverage (@34.76% of net plot area)	2,714.84
5.	FAR (@3.10 of net plot area)	24242.37
6.	Parking Area	8,462.11
	Stilt/GL	2334.89
	Upper basement	4307.78
	Lower Basement	1819.44
7.	Built-up Area	33625.38

8.	Green Area (@15.11% of net plot area)	1223.18
9.	Nos. of Dwelling units	143
10.	Height (m)	36.7 m
11.	Floor details	
	Block 1	B+G+10+Teerace
	Block 2	LB+UB+G+10+Teerace
	Block 3	LB+UB+G+10+Teerace
	Block 4	B+G+10+Teerace

STATUTORY CLEARANCES :

1	DFO Forest Distance		DFO, Ranchi Forest division vide letter no. 4829, dated 28.11.2022 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
2	DFO wildlife	:	DFO, Wildlife Ranchi vide letter no. 1052, dated 25.11.2022 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
3	CO certificate	:	The CO, Baragai, Ranchi vide letter no. 1017 (ii), dated 23.12.2022 has mentioned the plot no. of the project is not recorded as "Jangle Jhari" in R.S. Khatiyar & Register II.
4	Fire Department	:	A fire advisory has been issued by Fire Department, Jharkhand, Ranchi vide Memo No. – 820/Tech./2023, dated 18.02.2023.
5	Building Plan approval	:	Conceptual Plan submitted.
6	AAI	:	Airport Authority of India issued a height clearance NOC vide its NOC ID –RANC/EAST/B/101822/712322, dated 21.10.2022.

Water and waste water Requirement Details

Category	Population/Area (sq m)/Capacity	Standard (LPCD)	Water Requirement- KLD	Fresh Water Requirement- KLD	Recycled Water requirement- KLD
Domestic					
Residents	715	135	96.5	67.6	29.0
Staff	15	45	0.7	0.5	0.2
Visitors	15	15	0.2	0.2	0.1
Total Domestic Water Demand			97.4	68.3	29.3
Landscape	1223.18 sq m	6 l/sq m	7	0	7

DG cooling & Fire fighting	--	--	5	0	5
Swimming Pool			10	10	0
Total	--	-	119.4 120	78.3 78	41.3 42

(D.G. sets operation period is 8 hrs.)

Wastewater Calculations

Category	Total Quantity (KLD)
Fresh water Req.(Domestic)	68
Fresh water requirement (swimming pool)	10
Flushing water Req.	30
Sewage generation (@80% of the fresh water consumption(domestic) + 100% flushing water)	85
Capacity of STP	95
Recovered water from STP (90% of Waste water)	77
1. Flushing	30
2. Landscaping	7
3. Firefighting & DG cooling	5
4. Discharge to Sewer	35

Solid Waste Requirement

S. No	Description	Occupancy/Area	kg/capita/day	Total Solid Waste Generation (kg/day)	Non-Recyclable (Kg/day)	Recyclable (kg/day)
1.	Residents	715	0.5	358	250	108
2.	Staff	15	0.25	4	3	1
3.	Visitors	15	0.15	3	2	1
4.	Landscape waste	0.12 acres	~0.2	0.1	0.1	0
7.	STP sludge	95 KLD	--	7	7	0
Total Waste Generated				373	264	110

ENVIRONMENT MANAGEMENT

Green Belt Development

- Combination of local trees and shrubs are planned within the project site.
- Total green area provided at the site is 1223.18 sq m (15.11% of the plot area). Out of which Green belt area is 1214.45 sq.m i.e. 15 % of the plot area and landscape area is 8.726 sq.m i.e. 0.11 % which will enhance the beauty of the site and help combat air and noise pollution.
- The plant species will be selected on the basis of Guidelines for Developing Green Belts, CPCB March 2000.

Solid Waste Management

During Construction Phase

- Construction yards are proposed for storage of construction material.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the project.
- Remaining soil will be utilized for refilling/road work/raising of site level at locations.
- There will be "Refuse Containers" at site for the management of domestic waste generated by the construction labourers and these containers will be emptied at least once daily.
- Cement bags, waste paper and packing material (cardboard) will be sold off to recyclers.

During Operation Phase

- The solid waste will be segregated at source & collected.
- Adequate number of colored bins (green, white & Black) separate for bio-degradable, non-biodegradable and Hazardous waste are proposed to be provided at the strategic location within site.
- Bio-degradable (will be composted through organic waste converter).
- Recyclable wastes will be disposed to govt. or SPCB approved third party vendors.
- Dewatered sludge can be buried underground in a sanitary landfill. It also may be spread on agricultural land in order to make use of its value as a soil conditioner and fertilizer.
- The Hazardous waste generated will be managed as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.
- Horticultural Waste is composted and used for gardening purposes.

Water Quality Management

During Construction Phase

- The site drainage will be planned in such a way that there is no accumulation of water/wastewater within the project premises or in the vicinity of the site.
- Mobile toilets to be provided for construction Laborers.
- Generated waste water will be collected through tankers and dispose to septic tank for treatment.

During Operation Phase

- STP of capacity i.e. 95KLD is proposed for treatment of wastewater.
- Treated waste water would be reused for Horticulture, DG/HVAC cooling, flushing, fire fighting.



- Use of water efficient plumbing fixtures to conserve water.
- Approx. 78 KLD of fresh water is required during operational phase of the project.

Air Quality Management

- Warehouse/stock yard will be provided for storage of construction material
- Covering of stored construction materials with tarpaulin covers which will be resold to authorized construction material handling agency for reuse.
- Covering of trucks carrying construction materials.
- Dust suppression by water sprinkling.
- Adequate maintenance of construction equipment & vehicles.
- Wheel wash facility at the entry/exit of the site to prevent dust emissions.
- Periodical Ambient Air Quality Monitoring.
- PUC Certified vehicles.
- Glow signs Speed Limits to 20 kmph to reduce emissions on site will be displayed at the important junctions.

Energy conservation

- Energy will be conserved via solar power & LED of at least 13% of the total power requirement.

Undertaking

1. An affidavit stating that no construction work.
2. An undertaking that 77m³/day recycles waste water generated at Proposed Group Housing Project at Joda Talab Road, Plot No. 839 & 840, Ward No. 08, Thana-Bariatu, Thana No. 193, Khata No. 08 & 27, District - Ranchi, Jharkhand.
3. An undertaking that 1500 kVA Power requirement in Proposed Group Housing Project at Joda Talab Road, Plot No. 839 & 840, Ward No. 08, Thana-Bariatu, Thana No. 193, Khata No. 08 & 27, District - Ranchi, Jharkhand.

Based on the presentation made and information provided, the Committee decided that the proposal for Proposed Group Housing Project of M/s Sharda Shelter Pvt. Ltd., Village : Bariyatu, Tehsil : Bargain, Distt. : Ranchi, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – IV alongwith the following specific conditions :

- I. Ground water to be drawn for use in the project only after obtaining permission from the Competent Authority.
- II. Environment management system including organization structure to be drawn to ensure compliance of EC conditions stipulated based on principles of Continual Improvement and periodical management review.
- III. All raw material to be stored only under covered shed.
- IV. PAs to offset (upto 20%) consumption of conventional energy sources by promoting use of solar energy, passive energy utilization, optimum fenestration, shading effect and heat islands.

- V. Developers to promote energy conservation measures such that it offsets not less than 02 % of connected load. It is to be achieved by solar panels etc meeting ECBC norms.
- VI. Trees should be developed & maintained not less than 15% of project area.
- VII. Organic Waste Converter (OWC) to be installed of sufficient capacity such that all organic waste (bio degradable) generated is composted at source only.
- VIII. Developers/Company to install STP of sufficient capacity such that all the sewer produced is treated and reused.
- IX. Developers/Company to install Rain water harvesting structures such that all the roof top water runoff is collected and harvested including reuse on 100% basis.
- X. Developers/Company to conduct and submit carbon footprint and carbon sequestration study report including mitigation measures as a part of EC compliance.
- XI. Water runoff originating from open non constructed areas of project premises to be harvested /guided in such a way that it does not create water logging condition outside.
- XII. Sufficient number of EV fast charging points to be installed.
- XIII. MSW Collection centre should be located in isolated and preferably unmanned area. Movement of the vehicle carrying waste should be under tarpaulin covered condition only. Route of vehicle should be such that it avoids residential areas as far as practical.
- XIV. ISO 14k EMS system standard to be followed for implementation of EMPs with MRM in place for feedback to Sr management.
- XV. A cycling tract to be provided in residential complex so as to save on fuel and make in campus movement environment friendly.

2. Proposed Group Housing Residential Project "Green Ville Phase - II" of M/s RG Infra, Village : Muramkala, Tehsil : Ramgarh, Distt. : Ramgarh, Jharkhand.

(Proposal No. : SIA/JH/ INFRA2/ 439945/2023).

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

Project is classified as Category 8(a) as per EIA Notification as the built-up area is less than 1,50,000 sqm. and development area is less than 50 ha.

Project Category: 8(a) Category B2 – Application for Environment Clearance

EC Application for: Proposed Residential project: Total built-up area 32609.44sq m.

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Project and Location Details :

Parameters	Description
Plot Area	7469.15 sq m (0.74 ha/1.85 acres)
Project Cost	INR 45Crores
Built-up Area (@3.26F.A.R)	32609.44sq. m.
Green Area (@ 16% of plot area)	1179.51sq m
Population	896
Water Requirement	100KLD
Fresh Water Requirement	60 KLD
Wastewater Generation	74 KLD
STP Capacity	100 KLD
Total Municipal Waste	439 kg/day
Power Requirement	Maximum power demand for the project during operation phase is estimated to be 1000 KW. Source of power will be Jharkhand State Electricity board.
DG Sets	1 nos. of DG set of 250 kVA
RWH Pits	3no.
Parking Area	5021.86sqm
Connecting road	SH-2 (approx 0.17 km, West)
National Highway	NH-20 (approx 1.00 km, ESE)
Nearest Railway Station	Ramgarh Cantonment Railway Station (approx 1.19 km, NW)
Airport	Birsa Munda Airport (Ranchi), (approx 38.17km, SSW)
Nearest Hospitals	KalyaniHealth Centre (approx 3.63 km , NNW)
Nearest Water Bodies	<ul style="list-style-type: none"> BijuliaTalab(approx 1.44km, NW) Damodar River (approx, 3.63km, NNW)

CO-ORDINATES :

Point	Latitude	Longitude
1	23°24'26.70"N	85°22'18.76"E

2	23°24'27.76"N	85°22'19.06"E
3	23°24'25.93"N	85°22'19.68"E
4	23°24'27.80"N	85°22'19.74"E
5	23°24'27.20"N	85°22'21.25"E
6	23°36'31.89"N	85°31'31.96"E

Khata no.& Plot no. of the project :

Khata no.	Plot no.
04	338
15	332, 333 & 334

Area Summary

S. No.	Description	Area (SQ M)
A.	Total plot area	7469.15
B.	Proposed Ground Coverage (@ 34.52 % of plot area)	2578.11
C.	Proposed FAR (@ 3)	24384.84
D.	Non FAR Area (Strain case, Lift, Balcony, Ramp, Accessory Use, Basement Parking)	8224.6
E.	Built-up Area (C+D)	32609.44
F.	Green Area (@ 16% of plot area)	1179.51
G.	Road/Paved area(@ 20% of plot area)	1493.83
H.	Open Area (@ 65.48 % of plot area)	4891.04
I.	Height (m)	33.48
J.	No of Dwelling Units	186

STATUTORY CLEARANCES :

1	DFO Forest Distance	:	DFO, Ramgarh Forest Division vide letter no. 1438, dated 15.07.2023 certified that the distance of demarcated forest is 400 m from proposed project site.
2	DFO Wild Life	:	DFO, Wildlife Hazaribag vide letter no. 1669, dated 03.08.2023 certified that the proposed project site is outside Eco Sensitive Zone

			of Hazaribagh Wildlife Sanctuary.
3	CO certificate	:	The CO, Ramgarh vide letter no. 1523, dated 18.07.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.
4	AAI NOC	:	Airport Authority of India issued a height clearance NOC vide its NOC ID –OFFDBD/EAST/8/061523/763329, dated 19.07.2023.
5	Fire Department	:	A fire advisory has been issued by Fire Department, Jharkhand, Ranchi vide Memo No. 3455/Tech./2023, dated 17.06.2023.
6	Building Plan	:	Conceptual Plan submitted.

Water and waste water Requirement Details

Category	Population/Area (sq m)/Capacity	Standard (LPCD)	Water Requirement (KLD)	Fresh Water Requirement (KLD)	Recycled Water requirement (KLD)
Domestic					
Residents	837	100	84	59	25
Staff	17	45	1	0.4	0.6
Visitors	42	15	1	0.4	0.6
Total Domestic Water Demand			86	60	26
Landscape	1179.51sqm	6 ltr/sqm	8	-	8
Fire Fighting			2	-	2
DG cooling	250 KVA	0.9 l/kVA/hr	4	-	4
Total		-	100	60	40

(D.G. sets operation period is 8 hrs.)

Wastewater Calculations

Category	Total Quantity (KLD)
Domestic (fresh) water Req.	60

Flushing water Req.	26
Sewage generation (@80% of the Domestic + 100% flushing water requirement)	74
Capacity of STP	100
Recovered water from STP (90% of Waste water)	67
1. Flushing	26
2. Landscaping	8
3. Fire Fighting	2
4. DG cooling	4
5. sewer	27

Solid Waste Requirement

S. No	Description	Occupancy/Area	kg/capita/day	Total Solid Waste Generation (kg/day)	Recyclable (kg/day)	Non-Recyclable (kg/day)
1.	Residents	837	0.5	419	335	84
2.	Staff	17	0.25	5	4	1
3.	Visitors	42	0.15	7	6	1
5.	Landscape waste	0.29 acres	2 kg/acres	2	2	-
5.	STP sludge	100 KLD	--	6	6	-
Total Waste Generated				439	353	86

ENVIRONMENT MANAGEMENT

Green Belt Development

- Combination of local trees and shrubs are planned within the project site.
 - Total green area provided at the site is 1179.51 sq m (16 % of the net plot area) which will enhance the beauty of the site and help combat air and noise pollution.
- The plant species will be selected on the basis of Guidelines for Developing Green Belts, CPCB March 2000.

Solid Waste Management

During Construction Phase

- Construction yards are proposed for storage of construction material.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the project.
- Remaining soil will be utilized for refilling/road work/raising of site level at locations.
- There will be "Refuse Containers" at site for the management of domestic waste generated by the construction labourers and these containers will be emptied at least once daily.

- Cement bags, waste paper and packing material (cardboard) will be sold off to recyclers.

During Operation Phase

- The solid waste will be segregated at source & collected.
- Adequate number of colored bins (green, white & Black) separate for bio-degradable, non-biodegradable and Hazardous waste are proposed to be provided at the strategic location within site.
- Bio-degradable (will be composted through organic waste converter).
- Recyclable wastes will be disposed to govt. or SPCB approved third party vendors.
- Dewatered sludge can be buried underground in a sanitary landfill. It also may be spread on agricultural land in order to make use of its value as a soil conditioner and fertilizer.
- The Hazardous waste generated will be managed as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.
- Horticultural Waste is composted and used for gardening purposes.

Water Quality Management

During Construction Phase

- The site drainage will be planned in such a way that there is no accumulation of water/wastewater within the project premises or in the vicinity of the site.
- Mobile toilets to be provided for construction Laborers.
- Generated waste water will be collected through tankers and dispose to septic tank for treatment.

During Operation Phase

- STP of capacity i.e. 100 KLD is proposed for treatment of wastewater.
- Treated waste water would be reused for Horticulture, DG/HVAC cooling, flushing, fire fighting.
- Use of water efficient plumbing fixtures to conserve water.
- Approx. 60 KLD of fresh water is required during operational phase of the project.

Air Quality Management

- Warehouse/stock yard will be provided for storage of construction material
- Covering of stored construction materials with tarpaulin covers which will be resold to authorized construction material handling agency for reuse.
- Covering of trucks carrying construction materials.
- Dust suppression by water sprinkling.
- Adequate maintenance of construction equipment & vehicles.
- Wheel wash facility at the entry/exit of the site to prevent dust emissions.

A U L A

B J M

- Periodical Ambient Air Quality Monitoring.
- PUC Certified vehicles.
- Glow signs Speed Limits to 20 kmph to reduce emissions on site will be displayed at the important junctions.

Energy conservation

- Energy will be conserved via solar power & LED of at least 5 % of the total power requirement.

Undertaking

- An affidavit stating that no construction work.
- An undertaking that 67m³/day recycles waste water generated at Proposed Group Housing Residential Project “Green Ville Phase II” located at Plot No. 332,333,334 & 338, Khata No. 4 & 15, Ward no. 30, Mauza (Village) - Muramkala, Tehsil-Ramgarh, District-Ramgarh, Jharkhand.
- An undertaking that 1000 KW Power requirement in Proposed Group Housing Residential Project “Green Ville Phase II” located at Plot No. 332,333,334 & 338, Khata No. 4 & 15, Ward no. 30, Mauza (Village) - Muramkala, Tehsil-Ramgarh, District-Ramgarh, Jharkhand.

Site visit conducted on 21.09.2023 to verify the “Green Ville Phase - II” is not a part of “Green Ville Phase - I” and that it is an independent project.

Based on the presentation made and information provided, the Committee decided that the proposal for Proposed Group Housing Residential Project “Green Ville Phase - II” of M/s RG Infra, Village : Muramkala, Tehsil : Ramgarh, Distt. : Ramgarh, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – IV alongwith the following specific conditions :

- I. Ground water to be drawn for use in the project only after obtaining permission from the Competent Authority.
- II. Environment management system including organization structure to be drawn to ensure compliance of EC conditions stipulated based on principles of Continual Improvement and periodical management review.
- III. All raw material to be stored only under covered shed.
- IV. PAs to offset (upto 20%) consumption of conventional energy sources by promoting use of solar energy, passive energy utilization, optimum fenestration, shading effect and heat islands.
- V. Developers to promote energy conservation measures such that it offsets not less than 02 % of connected load. It is to be achieved by solar panels etc meeting ECBC norms.
- VI. Trees should be developed & maintained not less than 15% of project area.

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- VII. Organic Waste Converter (OWC) to be installed of sufficient capacity such that all organic waste (bio degradable) generated is composted at source only.
- VIII. Developers/Company to install STP of sufficient capacity such that all the sewer produced is treated and reused.
- IX. Developers/Company to install Rain water harvesting structures such that all the roof top water runoff is collected and harvested including reuse on 100% basis.
- X. Developers/Company to conduct and submit carbon footprint and carbon sequestration study report including mitigation measures as a part of EC compliance.
- XI. Water runoff originating from open non constructed areas of project premises to be harvested /guided in such a way that it does not create water logging condition outside.
- XII. Sufficient number of EV fast charging points to be installed.
- XIII. MSW Collection centre should be located in isolated and preferably unmanned area. Movement of the vehicle carrying waste should be under tarpaulin covered condition only. Route of vehicle should be such that it avoids residential areas as far as practical.
- XIV. ISO 14k EMS system standard to be followed for implementation of EMPs with MRM in place for feedback to Sr management.
- XV. A cycling tract to be provided in residential complex so as to save on fuel and make in campus movement environment friendly.

3. Proposed Residential and Commercial Project "Illika Paradise" of M/s Big Realtors JV, Village : Jagarnathpur and Kalyanpur, Tehsil : Namkum, Distt. : Ranchi, Jharkhand.

(Proposal No. : SIA/JH/INFRA2/ 444580/2023).

Project Category: 8(b) Townships and Area Development projects : Category B1 – Application for Terms of Reference

TOR Application for: Proposed Residential project: Total built-up area 2, 21, 589 sq m.

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

PROJECT and LOCATION Details:

Parameters	Description
Plot Area	44,515.4sq.m (4.45 ha / 11.00 acres)
Project Cost	INR 400Crores

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Built-up Area (@3.45F.A.R)	221589sq. m.
Green Area (@ 20% of plot area)	8903.14sq m
Population	6677
Water Requirement	695KLD
Fresh Water Requirement	443 KLD
Wastewater Generation	355 KLD
STP Capacity	400 KLD
Total Municipal Waste	3285kg/day
Power Requirement	Maximum power demand for the project during operation phase is estimated to be 2800 kVA respectively. Source of power will be Jharkhand State Electricity Board.
DG Sets	3 nos. of DG sets of total capacity 750kVA (3*250)
RWH Pits	14nos.
Parking Area	9815sq.m
Connecting road	Dhurwa Road (Adjacent, North)
National/State Highway	NH 39 (approx. 5 km, SSW)
Nearest Railway Station	Ranchi Junction (approx. 6.10 km, NE)
Airport	Birsa Munda Airport (approx. 3.1 km, South)
Nearest Hospitals	Paras Bliss - Mother & Child Hospital (approx. 1.15km , WNW)
Nearest Water Bodies	HEC Talab (approx 2.88 km, SSW) Dhurwa Dam (approx 4.50 km, WSW) Ranchi Lake (approx 7.20 km, NNE)

CO-ORDINATES

Points	Latitude	Longitude
A	23°18'19.31"N	85°17'49.28"E
B	23°18'21.47"N	85°17'49.11"E
C	23°18'21.46"N	85°17'58.52"E
D	23°18'12.67"N	85°18'3.21"E

E	23°18'12.80"N	85°17'56.97"E
F	23°18'18.88"N	85°17'56.86"E
Centre	23°18'18.57"N	85°17'58.17"E

Khata no.& Plot no. of the project :

Plot no. 22	
Khata no.	Plot no.
15	1254 (P)
3	1258 (P), 1259 (P), 1260 (P) & 1701 (P)
73	1261 (P), 1262 (P), 1263 (P), 1264, 1280 (P) & 1703 (P)
156	1265 (P) & 1267 (P)
75	1368 (P) & 1369 (P)
167	1370
10	1371 (P), 1374 (P), 1375 (P), 1376 (P), 1679 (P) & 1683 (P)
72	1672 (P), 1691, 1692 (P) & 1700
171	1678 (P)
168	1680
54	1681 (P), 1698 & 1699
8	1682 (P)
56	1690 (P)
23	1693
130	1694 (P), 1705 (P) & 1708 (P)
108	1695, 1696, 1697 & 1729
129	1702 (P)
58	1704 (P)
7	1713 (P)
38	153 (P)

STATUTORY CLEARANCES :

1	DFO Forest Distance	:	DFO, Ranchi Forest division vide letter no. 4273, dated 27.12.2018 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
2	DFO wildlife	:	DFO, Wildlife Ranchi vide letter no. 836, dated 10.09.2022 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
3	CO certificate	:	The CO, Namkum (Ranchi) vide letter no. 29 (ii), dated 07.01.2019 has mentioned the plot no. of the project is not recorded as "Jangle Jhari" in R.S. Khatiyani.
4	Fire Department	:	Project Authority undertake that after getting permission from Fire Department same should be submitted to SEIAA/SEAC.
5	Building Plan approval	:	Conceptual Plan submitted.
6	AAI	:	Airport Authority of India issued a height clearance NOC vide its NOC ID -RANC/EAST/B/071322/683099, dated 05.01.2023 valid up to 04.01.2031.

AREA STATEMENT :

S. NO.	DESCRIPTION	AREA (SQ M)
A.	Total plot area	44515.4
B.	Permissible Ground Coverage (@ 35% of plot area)	15,580
C.	Proposed Ground Coverage (@ 31.7 % of plot area)	14,105
D.	Proposed FAR (@ 3.45)	146900.88
E.	Non FAR Area (Strain case, Lift, Balcony, Ramp, Accessory Use, 2 Basement Parking)	74689
F.	Built-up Area (D+E)	221589
G.	Green Area (@20% of plot area)	8903.14
H.	Paved area(@ 38.6 % of plot area)	17205
I.	Open Area	4302.4
J.	Height (m)	70 m
K.	No of Dwelling Units	1100

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Water and waste water Requirement Details

Category	Population/Area (sq m)/Capacity	Standard (LPCD)	Water Requirement (KLD)	Fresh Water Requirement (KLD)	Recycled Water requirement (KLD)
Domestic					
Residents	6240	100	624	437	187
Staff	125	45	6	2	4
Visitors	312	15	5	4	1
Total Domestic Water Demand			635	443	192
Landscape	8903.14 sqm	6ltr/sqm	54	-	54
Fire Fighting			1	-	1
DG cooling	750KVA(1*250-+1*250+1*250)	0.9 l/kVA/hr	5	-	5
Total		-	695	443	252

(D.G. sets operation period is 8 hrs.)

Wastewater Calculations

Category	Total Quantity (KLD)
Domestic(fresh) water Req.	443
Flushing water Req.	192
Sewage generation (@80% of the Domestic + 100% flushing water requirement)	355
Capacity of STP	400
Recovered water from STP (90% of Waste water)	320
1. Flushing	192
2. Landscaping	54
3. Fire Fighting	1
4. DG cooling	5
5. Sewer	68

Solid Waste Requirement

S. No	Description	Occupancy/Area	kg/capita/day	Total Solid Waste Generation (kg/day)	Recyclable (kg/day)	Non-Recyclable (kg/day)
1.	Residents	6240	0.5	3120	2496	504
2.	Staff	125	0.25	32	26	6
3.	Visitors	312	0.15	47	38	9
5.	Landscape waste	1.31 acres	2.74 kg/acres	1	1	-
5.	STP sludge	400 KLD	--	85	85	-
Total Waste Generated				3285	2560	519

ENVIRONMENT MANAGEMENT

Green Belt Development

- Combination of local trees and shrubs are planned within the project site.
- Total green area provided at the site is 8903.14 sq m (20% of the plot area) which will enhance the beauty of the site and help combat air and noise pollution.
- The plant species will be selected on the basis of Guidelines for Developing Green Belts, CPCB March 2000.

Solid Waste Management

During Construction Phase

- Construction yards are proposed for storage of construction material.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the project.
- Remaining soil will be utilized for refilling/road work/raising of site level at locations.
- There will be "Refuse Containers" at site for the management of domestic waste generated by the construction labourers and these containers will be emptied at least once daily.
- Cement bags, waste paper and packing material (cardboard) will be sold off to recyclers.

During Operation Phase

- The solid waste will be segregated at source & collected.
- Adequate number of colored bins (green, white & Black) separate for bio-degradable, non-biodegradable and Hazardous waste are proposed to be provided at the strategic location within site.
- Bio-degradable (will be composted through organic waste converter).
- Recyclable wastes will be disposed to govt. or SPCB approved third party vendors.
- Dewatered sludge can be buried underground in a sanitary landfill. It also may be spread on agricultural land in order to make use of its value as a soil conditioner and fertilizer.

- The Hazardous waste generated will be managed as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.
- Horticultural Waste is composted and used for gardening purposes.

Water Quality Management

During Construction Phase

- The site drainage will be planned in such a way that there is no accumulation of water/wastewater within the project premises or in the vicinity of the site.
- Mobile toilets to be provided for construction Laborers.
- Generated waste water will be collected through tankers and dispose to septic tank for treatment.

During Operation Phase

- STP of capacity i.e. 400KLD is proposed for treatment of wastewater.
- Treated waste water would be reused for Horticulture, DG/HVAC cooling, flushing, fire fighting.
- Use of water efficient plumbing fixtures to conserve water.
- Approx. 443 KLD of fresh water is required during operational phase of the project.

Air Quality Management

- Warehouse/stock yard will be provided for storage of construction material
- Covering of stored construction materials with tarpaulin covers which will be resold to authorized construction material handling agency for reuse.
- Covering of trucks carrying construction materials.
- Dust suppression by water sprinkling.
- Adequate maintenance of construction equipment & vehicles.
- Wheel wash facility at the entry/exit of the site to prevent dust emissions.
- Periodical Ambient Air Quality Monitoring.
- PUC Certified vehicles.
- Glow signs Speed Limits to 20 kmph to reduce emissions on site will be displayed at the Important junctions.

Energy conservation

- Energy will be conserved via solar power & LED of at least 25% of the total power requirement.

Undertaking

- An affidavit stating that no construction work.
- An undertaking that 320m³/day recycles waste water generated at Proposed Residential and Commercial Project "Illika Paradise" located in Ranchi Smart City at Plot No. 22, Halka No.-01 – Mauza (village) and Thana No. Jagarnathpur-244; Halka No. 04, - Mauza (village) and Thana No.- kalyanpur-245, Block - Namkum -04, District – Ranchi, Jharkhand.
- An undertaking that 2800 kVA Power requirement in Proposed Residential and Commercial Project "Illika Paradise" located in Ranchi Smart City at Plot No. 22, Halka No. 01 – Mauza

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(village) and Thana No. Jagarnathpur-244; Halka No. 04, - Mauza (village) and Thana No.- kalyanpur-245, Block - Namkum -04, District – Ranchi, Jharkhand.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure V.

4. Kunhara Kalan Stone Deposit of M/s Saroj Stone (Partners : Sri Sanjay Kumar & Sri Minhaj Alam), Village : Kunhara Kalan, Thana : Barkatta, Distt. : Hazaribagh, Jharkhand (0.919 Ha).
(Proposal No. SIA/JH/MIN/443213 /2023).

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

Project Category: B1 – The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101st meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the ToRs in 102nd meeting held on 17th & 18th March, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2736/2023/458, date 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 11.09.2023 and which was forwarded to SEAC on 11.09.2023.

EC Application for: Proposed Capacity - 19545.0 cum/annum or 52771.50 TPA.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Kunhara Kalan Stone Deposit
2	Lessee:	: M/S SAROJ STONE (Partner- Sri Sanjay Kumar, S/O Sri Bandhan Ram, Village- Chandwara, District- Koderma, Jharkhand Sri Minhaj Alam, S/O Mohammad Atual Rehman, Kamalpur, District- Nawada, Bihar)
3	Lease Address	: Village – Kunhara Kalan , P.S.- Barkatta, District – Hazaribagh, Jharkhand
4	Lease Area	: 0.919 ha Acres- 2.27 Acres
5	Type of Land	: Non Forest – Raiyati Land
6	Project Cost	: Rs. 20 Lakhs
7	EMP Budget	: Capital: 4.19 Lakhs Recurring: 3.27 Lakh / year
8	New or Expansion	: New
9	Mineable	: Cu.m.: 97635.00 cum Tonnes: 263614.50 tons

	Reserves		
10	Mine Life	:	4.99 ~ 5.0 years
11	Man power	:	17
12	Water Requirement	:	6.30 KLD(Drinking: 0.17 KLD, Dust Suppression: 3.605 KLD, Plantation: 2.49 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	40 KVA
15	Crusher	:	Nil
16	Nearest Water Body	:	Pond near Tilaia Pachrukhi, at approx. 2.40 km towards W direction of mine site. Barsoti Nadi, at approx. 4.40 km towards NW direction of mine site. Baradbohi Nadi, at approx. 0.50 km towards N direction of mine site. Barhoiya Nadi, at approx. 1.15 km towards S direction of mine site.
17	Nearest Habitation	:	Kunhara Kalan, 0.71 km
18	Nearest Rail Station	:	Sarmatanr Railway station, approx. 20.50 km in NE direction
19	Nearest Air Port	:	Birsa Munda Airport, approx. 98.60 km towards SSW direction.
20	Nearest Forest	:	Protected Forest near Jhurjhuri, Approx. 3.60 km towards N direction of mine site. Fairly Densed Mixed Jungle near Turukdiha, Approx 7.10 km towards SE direction of mine site. Protected Forest near Tilaia Pachrukhi, Approx 3.50 km towards West direction of mine site.
21	Road & Highways	:	NH-19 , Approx. 1.05 km, North East direction

CO-ORDINATES

1	Latitude	From 24°10'10.2"N	To 24°10'15.5"N
2	Longitude	From 85°35'02.7"E	To 85°35'06.2"E

Land Details :

Khata No	Plot No
46	940
04	942
19	926, 929
16	933
63	928, 932
55	491

Statutory Clearances :

1	LOI/Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Hazaribagh vide memo no. 195/Khanan, dated 24.02.2022.
2	CO	:	The CO, Barkatha, Hazaribagh vide letter no. : 718/Ra, dated 19.10.2022 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in Khatiyani.
3	DMO	:	DMO, Hazaribagh vide memo no. 1335/Khanan, dated 18.10.2022 certified that 03 other mining lease area (4.50 acre, 3.145 acre & 4.00 acre) exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. : 1971, dated 14.11.2021 certified that the proposed project site is outside Eco Sensitive Zone of Hazaribagh Wildlife Sanctuary.
5	DFO Forest Distance	:	DFO, Hazaribagh West Division vide letter no. : 2674, dated 02.08.2021 certified that the distance of Notified / Demarcated forest is 260 m from proposed project site.
6	DSR	:	The DC, Hazaribagh vide letter no. 1273/Khanan, dated 28.09.2022 has informed that this project is part of District Survey Report (DSR) of Hazaribagh district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	Gram Sabha conducted on 07.08.2021.
8	Mine Plan Approval	:	Approved by DMO, Hazaribagh vide letter no. 1340/Mining, dated 20.09.2023.
9	Public Hearing	:	Public Hearing conducted by JSPCB on 11.08.2023.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Mining method	
2	Quarry Area	:	0.919 ha	Life of Mine – 4.99 ~ 5.0 years
3	Waste Generation	:	3130 cu.m	8451 tons
4	Stripping Ratio	:	1: 0.03	
5	Working Days	:	300	
6	Benches: size & No	:	6m x not less than 10m	
7	Elevation of Mine	:	380 AMSL to 382 AMSL	
8	Ground Level Elevation	:	382 AMSL	

9	Ultimate Working Depth	:	362 AMSL (18mbgl)
10	Water Table	:	355 AMSL (25mbgl)
11	Topography of Mine	:	Area represents a small hillock
12	Explosive Requirement	:	8 Kg/day
13	Diesel/Fuel requirement	:	80 litre/day

Production Details

Year	Production of stone (Tonnes)	Production of stone (Cum)	Waste Generation (CuM)	Bench RL in Meters
1 st	52744.50	19535.00	1220.00	374mRL - 380mRL
2 nd	52731.00	19530.00	500.00	368mRL - 374mRL
3 rd	52717.50	19525.00	850.00	368mRL - 374mRL
4 th	52650.00	19500.00	-	362mRL - 374mRL
5 th	52771.50	19545.00	560.00	362mRL - 368mRL
Total	263614.50	97635.00	3130.0	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Excavation	-	0.534	0.534 ha
Road	-	-	-
Waste Dump	-	-	-
Infrastructure	-	-	-
Safety Zone (Plantation)	-	0.385 (Within Safety Zone)	0.385 (Within Safety Zone)
Total	-	0.919	0.919
Balance Area	0.919	-	-
Lease Hold Area	0.919	0.919	0.919

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	LOCATION		Area/Length	No of Trees
1	Safety Zone	:	0.077 ha	965
2	Haul /Approach Road	:	0.280 km	280

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- Waste Generation will be 3130.0 cum or 8451.0 tons during the plan period which will be used for maintenance of Haul Road.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation.Excess water, if any shall be discharged in natural stream after settling of suspendedparticles in the pit. Pump having required capacity will be installed to liftaccumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall becollected in garland drain and allowed to settle in a small pit for settling suspendedparticles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, dischargefrom Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and goodsanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

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RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard Identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

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The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

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- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.

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- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

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- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

### **Transportation**

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

### **Undertaking submitted affirming:**

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

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- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Kunhara Kalan Stone Deposit of M/s Saroj Stone (Partners : Sri Sanjay Kumar & Sri Minhaj Alam), Village : Kunhara Kalan, Thana : Barkatta, Distt. : Hazaribagh, Jharkhand (0.919 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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5. Kunhara Kalan Stone Deposit of M/s Hill View Mining (Prop. : Sri Nilesh Ranjan) Village : Kunhara Kalan, Thana : Barkatha, Distt. : Hazaribagh, Jharkhand (1.70 Ha).

(Proposal No. SIA/JH/MIN/443173 /2023).

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

**Project Category:** B1 – The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101<sup>st</sup> meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the ToRs in 102<sup>nd</sup> meeting held on 17<sup>th</sup> & 18<sup>th</sup> March, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2744/2023/465, date 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 11.09.2023 and which was forwarded to SEAC on 11.09.2023.

**EC Application for:** Proposed Capacity - 47300.0 cum/annum or 127710.0 TPA

**Project and Location Details :**

| Sl | Parameter     | Details                                                    |
|----|---------------|------------------------------------------------------------|
| 1  | Project Name  | : Kunhara Kalan Stone Deposit                              |
| 2  | Lessee:       | : M/S HILL VIEW MINING<br>(Proprietor - Sri Nilesh Ranjan) |
| 3  | Lease Address | : M/S HILL VIEW MINING<br>(Proprietor - Sri Nilesh Ranjan) |

|    |                      |                                                                                                                                                                                                                                                                                                          |                             |
|----|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
|    |                      | S/O Sri Saryoo Prasad Mehta,<br>AT + P.O. - Behradih, P.S. – Domchanch, District - Koderma, State - Jharkhand.                                                                                                                                                                                           |                             |
| 4  | Lease Area           | : 1.70 ha                                                                                                                                                                                                                                                                                                | Acres- 4.20 Acres           |
| 5  | Type of Land         | Non Forest – Raiyati Land                                                                                                                                                                                                                                                                                |                             |
| 6  | Project Cost         | Rs. 40 Lakhs                                                                                                                                                                                                                                                                                             |                             |
| 7  | EMP Budget           | : Capital: 5.315 Lakhs                                                                                                                                                                                                                                                                                   | Recurring: 3.27 Lakh / year |
| 8  | New or Expansion     | New                                                                                                                                                                                                                                                                                                      |                             |
| 9  | Mineable Reserves    | : Cu.m.: 473000 cum                                                                                                                                                                                                                                                                                      | Tonnes: 1277100 tons        |
| 10 | Mine Life            | : 10.0 years                                                                                                                                                                                                                                                                                             |                             |
| 11 | Man power            | : 20                                                                                                                                                                                                                                                                                                     |                             |
| 12 | Water Requirement    | : 8.335 ~ 8.50 KLD(Drinking: 0.20 KLD, Dust Suppression: 5.095 KLD, Plantation: 3.04 KLD)                                                                                                                                                                                                                |                             |
| 13 | Water Source         | : From Nearby villages by tankers                                                                                                                                                                                                                                                                        |                             |
| 14 | DG Set / power       | : 60 KVA                                                                                                                                                                                                                                                                                                 |                             |
| 15 | Crusher              | : Nil                                                                                                                                                                                                                                                                                                    |                             |
| 16 | Nearest Water Body   | : Pond near Tilaia Pachrukhi, at approx. 2.60 km towards W direction of mine site.<br>Barsoti Nadi, at approx. 1.77 km towards NNE direction of mine site.<br>Baradbohi Nadi, at approx. 0.50 km towards N direction of mine site.<br>Barhoiya Nadi, at approx. 1.0 km towards S direction of mine site. |                             |
| 17 | Nearest Habitation   | : Kunhara Kalan, 0.40 km                                                                                                                                                                                                                                                                                 |                             |
| 18 | Nearest Rail Station | : Sarmatanr Railway station, approx. 20.50 km in NE direction                                                                                                                                                                                                                                            |                             |
| 19 | Nearest Air Port     | : Birsa Munda Airport, approx. 98.20 km towards SSW direction.                                                                                                                                                                                                                                           |                             |
| 20 | Nearest Forest       | : Protected Forest Open Scrub , Approx. 3.90 km towards N direction.<br>Open jungle , Approx. 4.50 km towards NE direction of mine site.<br>Fairly Densed Mixed Jungle , Approx 0.50 km towards SW direction.                                                                                            |                             |
| 21 | Road & Highways      | : NH-19 , Approx. 0.90 km, North East direction                                                                                                                                                                                                                                                          |                             |

#### CO-ORDINATES

|   |           |                    |                  |
|---|-----------|--------------------|------------------|
| 1 | Latitude  | From 24°10'06.77"N | To 24°10'13.18"N |
| 2 | Longitude | From 85°35'09.27"E | To 85°35'15.73"E |

#### LAND DETAILS :

| Khata No. | Plot No. |
|-----------|----------|
| 14        | 1020     |
| 18        | 1021     |
| 36        | 1026     |
| 45        | 1018     |

|    |                                  |
|----|----------------------------------|
| 38 | 974 (P) & 1032                   |
| 46 | 990 (P), 994 (P), 1023<br>& 1029 |
| 41 | 1033                             |
| 35 | 977                              |
| 17 | 1014                             |
| 26 | 1015 & 1017                      |
| 15 | 985 (P), 992 (P) &<br>1027       |
| 39 | 1025 & 1030                      |
| 24 | 978                              |
| 32 | 1019                             |
| 65 | 987 (P) & 988 (P)                |
| 48 | 993 (P)                          |
| 44 | 1022                             |
| 27 | 975                              |
| 54 | 984 (P) & 1028                   |
| 08 | 986 (P) & 991 (P)                |
| 28 | 976                              |

#### STATUTORY CLEARANCES :

|   |                     |   |                                                                                                                                                                                                                                |
|---|---------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI/Lease docs      | : | The Letter of Intent (LoI) has been issued by District Mining Officer, Hazaribagh vide memo no. 382/Khanan, dated 08.04.2022.                                                                                                  |
| 2 | CO                  | : | The CO, Barkatha (Hazaribagh) vide letter no. : 177, dated 24.03.2022 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.                                             |
| 3 | DMO                 | : | DMO, Hazaribagh vide memo no. 1336/Khanan, dated 18.10.2022 certified that 03 other mining lease area (4.50 acre, 3.145 acre & 4.00 acre) exists within 500 m radius from proposed project site and total area is 11.645 acre. |
| 4 | DFO Wild Life       | : | DFO, Wildlife Hazaribagh vide letter no. : 440, dated 07.03.2022 certified that the proposed project site is outside Eco Sensitive Zone of Hazaribagh Wildlife Sanctuary.                                                      |
| 5 | DFO Forest Distance | : | DFO, Hazaribagh West Division vide letter no. : 3059, dated 01.09.2022 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.                                               |
| 6 | DSR                 | : | The DC, Hazaribagh vide letter no. 1317/Khanan, dated 13.10.2022 has informed that this project is part of District Survey Report (DSR)                                                                                        |

|   |                    |   |                                                                                                              |
|---|--------------------|---|--------------------------------------------------------------------------------------------------------------|
|   |                    | : | of Hazaribagh district and accordingly necessary action with regard to Environmental Clearance can be taken. |
| 7 | Gram Sabha         | : | Gram Sabha conducted on 06.10.2021.                                                                          |
| 8 | Mine Plan Approval | : | Approved by DMO, Hazaribagh vide letter no. 1339/Mining, dated 20.09.2023.                                   |
| 9 | Public Hearing     | : | Public Hearing conducted by JSPCB on 11.08.2023.                                                             |

### Working Details

|    |                         |   |                                                           |                           |
|----|-------------------------|---|-----------------------------------------------------------|---------------------------|
| 1  | Mining Method           | : | Opencast other than fully mechanized (OTFM) Mining method |                           |
| 2  | Quarry Area             | : | 5 years – 1.70 ha                                         | Life of Mine – 10.0 years |
| 3  | Waste Generation        | : | 5 years– 3500 cu.m                                        |                           |
| 4  | Stripping Ratio         | : | 1: 0.05                                                   |                           |
| 5  | Working Days            | : | 300                                                       |                           |
| 6  | Benches: size & No      | : | 6m x 6m                                                   |                           |
| 7  | Elevation of Mine       | : | 388 AMSL to 390 AMSL                                      |                           |
| 8  | Ground Level Elevation  | : | 390 AMSL                                                  |                           |
| 9  | Ultimate Working Depth  | : | 360 AMSL                                                  |                           |
| 10 | Water Table             | : | 350 AMSL (15mbgl)                                         |                           |
| 11 | Topography of Mine      | : | Undulating topography.                                    |                           |
| 12 | Explosive Requirement   | : | 8 kg/day                                                  |                           |
| 13 | Diesel/Fuel requirement | : | 70 litre/day                                              |                           |

### Production Details

| Year            | Production of stone (Tonnes) | Production of stone (Cum) | Waste Generation (CuM) | Bench RL in Meters |
|-----------------|------------------------------|---------------------------|------------------------|--------------------|
| 1 <sup>st</sup> | 117450.00                    | 43500.00                  | 3500                   | 390mRL - 384mRL    |
| 2 <sup>nd</sup> | 120150.00                    | 44500.00                  | -                      | 384mRL - 378mRL    |
| 3 <sup>rd</sup> | 124200.00                    | 46000.00                  | -                      | 382mRL - 378mRL    |
| 4 <sup>th</sup> | 127710.00                    | 47300.00                  | -                      | 378mRL - 372mRL    |
| 5 <sup>th</sup> | 127710.00                    | 47300.00                  | -                      | 378mRL - 372mRL    |
| <b>Total</b>    | <b>617220.00</b>             | <b>228600.00</b>          | <b>3500</b>            |                    |

## Land Use

| Pattern of Utilization   | Existing Land Use (Ha) | At the end of Plan period (Ha) | Conceptual stage (Ha) (after life of mine) |
|--------------------------|------------------------|--------------------------------|--------------------------------------------|
| Quarry                   | 0.968                  | 1.293                          | 1.293 ha                                   |
| Road                     | 0.026                  | Comes under qry                | -                                          |
| Safety Zone (Plantation) | -                      | 0.407 (Within Safety Zone)     | 0.407 (Within Safety Zone)                 |
| Total                    | 0.994                  | 1.70                           | 1.70                                       |
| Balance Area             | 0.706                  | -                              | -                                          |
| Lease Hold Area          | 1.70                   | 1.70                           | 1.70                                       |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| S. No. | LOCATION            |   | Area/Length | No of Trees |
|--------|---------------------|---|-------------|-------------|
| 1      | Safety Zone         | : | 0.407 ha    | 1010        |
| 2      | Haul /Approach Road | : | 0.51 km     | 510         |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### Solid Waste Management

- Waste Generation will be 3500.0 cum tons during the plan period which will be used for maintenance of Haul Road.

### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation.Excess water, if any shall be discharged in natural stream after settling of suspendedparticles in the pit. Pump having required capacity will be installed to liftaccumulated rain water from working pit and pumped to the settling tank.



- Garland drain shall be made around the Waste dump and the rain water shall be collected in a garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

#### **Air Quality Management**

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done.
- Use of personal protective equipment like dust mask e.t.c shall be put in practice.
- Ambient air pollution monitoring shall be carried out every six months.

#### **RISK ASSESSMENT**

The hazard identification and risk analysis is done using qualitative method:

##### **Probability/Likelihood of Occurrence of Hazard**

| <b>Likelihood Level</b> | <b>Probability</b> | <b>Description</b>                                                     |
|-------------------------|--------------------|------------------------------------------------------------------------|
| L5                      | Very Unlikely      | Has not occurred/reported within last 5 years.                         |
| L4                      | Remote / Moderate  | May occur if conditions exist. Has occurred within last 3 years.       |
| L3                      | Occasional         | Likely to occur if conditions exist. Has occurred within last 2 years. |

|    |          |                                                                       |
|----|----------|-----------------------------------------------------------------------|
| L2 | Probable | Very likely to occur. Has occurred within last year.                  |
| L1 | Frequent | Almost certain to occur. Has occurred more than one within last year. |

### Severity/Impact Intensity

| Severity Level | Severity      | Description                                                                                                               |
|----------------|---------------|---------------------------------------------------------------------------------------------------------------------------|
| C1             | Catastrophic  | May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation. |
| C2             | Major         | May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.         |
| C3             | Moderate      | Minor injury to personnel or environment                                                                                  |
| C4             | Minor         | Minor damage but does not cause injury to personnel                                                                       |
| C5             | Insignificant | May result in no, or less minor, illness, injury or system damage                                                         |

### Risk Assessment Chart (Qualitative Method)

| Risk Rank<br>(Likelihood x<br>Consequence) | L5 (Very<br>Unlikely) | L4 (Remote) | L3<br>(Occasional) | L2<br>(Probable) | L1<br>(Frequent) |
|--------------------------------------------|-----------------------|-------------|--------------------|------------------|------------------|
| C1<br>(Catastrophic)                       | 5                     | 4           | 3                  | 2                | 1                |
| C2 (Major)                                 | 10                    | 8           | 6                  | 4                | 2                |
| C3 (Moderate)                              | 15                    | 12          | 9                  | 6                | 3                |
| C4 (Minor)                                 | 20                    | 16          | 12                 | 8                | 4                |
| C5<br>(Insignificant)                      | 25                    | 20          | 15                 | 10               | 5                |

## Risk Rating Scale

| S.No. | Rating      | Scale |
|-------|-------------|-------|
| 1     | High Risk   | 1-4   |
| 2     | Medium Risk | 5-12  |
| 3     | Low Risk    | 13-25 |

### Hazard identification & Risk Analysis in Stone Mining operation

| S.No. | Activity                        | Hazard                                                         | Probability   | Severity      | Score |
|-------|---------------------------------|----------------------------------------------------------------|---------------|---------------|-------|
| 1     | Temporary Storage of Explosives | Unintended Explosion                                           | Very Unlikely | Catastrophic  | 5     |
| 2     | Charging of Explosives          | Unwanted Explosion                                             | Very Unlikely | Catastrophic  | 5     |
| 3     | Blasting                        | Hit by fly rock (Bodily Injury)                                | Occasional    | Major         | 6     |
| 4     | Drilling                        | Exposure to Dust                                               | Frequent      | Insignificant | 5     |
| 5     | Bench Formation                 | Fall/Slide/Tripping (Bodily Injury)                            | Probable      | Moderate      | 6     |
| 6     | Loading/Unloading               | Bodily injury by hitting by loading material, Exposure to Dust | Very Unlikely | Minor         | 20    |
| 7     | Transportation                  | Vehicle Accident, Exposure to Dust                             | Remote        | Minor         | 16    |

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

### Preventive Measures:

#### Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

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## Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

### Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

### Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

### Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

### Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

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The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

### **Blasting Operations**

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

### **Handling of Explosives**

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine

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- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

### Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

### Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

### Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.

- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

**Undertaking submitted affirming:**

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- If any tree felling than necessary permission shall be taken from the competent authority.
- Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

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- I. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Kunhara Kalan Stone Deposit of M/s Hill View Mining (Prop. : Sri Nilesh Ranjan) Village : Kunhara Kalan, Thana : Barkatha, Distt. : Hazaribagh, Jharkhand (1.70 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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6. Taratanr Stone Mine of Smt. Bimli Devi, Village : Taratanr, P.S. : Domchanch, Distt. : Koderma, Jharkhand (2.78 Ha).

(Proposal No. SIA/JH/MIN/443967/2023).

Project Category: B2 – Application for Environment Clearance

EC Application for: Proposed Capacity- 49580.50 cum/annum or 133867.35 TPA.

Name of the consultant : P & M Solution, Noida, U.P.

This is a expansion project which has been taken for appraisal on 22.09.2023.

**Project and Location Details :**

| Sl | Parameter         | Details                                                                                            |
|----|-------------------|----------------------------------------------------------------------------------------------------|
| 1  | Project Name      | : Taratanr Stone Mine                                                                              |
| 2  | Lessee:           | : Smt. Bimli Devi<br>Village- Purnadih, PO-Fulwaria, Thana- Nawalsahi, Dist. - Koderma, Jharkhand. |
| 3  | Lease Address     | : Village – Taratanr, PS- Domchanch, District – Koderma, State- Jharkhand                          |
| 4  | Lease Area        | : 2.78 ha Acres- 6.88 Acres                                                                        |
| 5  | Type of Land      | : Non- Forest (Raiyati Land)                                                                       |
| 6  | Project Cost      | : Rs. 50 Lakhs                                                                                     |
| 7  | EMP Budget        | : Capital: 3.85 Lakhs Recurring: 4.27 Lakh / year                                                  |
| 8  | New or Expansion  | : Expansion                                                                                        |
| 9  | Mineable Reserves | : cum.: 217274.5 cum Tonnes: 586641.15 tons                                                        |
| 10 | Mine Life         | : 4 years 7 months                                                                                 |
| 11 | Man power         | : 19                                                                                               |
| 12 | Water Requirement | : 7.29 ~ 7.30 KLD (Drinking: 0.19 KLD, Dust Suppression: 4.25 KLD, Plantation: 2.85 KLD)           |



|    |                      |   |                                                                                                                                                                                                                                                                                                                       |
|----|----------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13 | Water Source         | : | From Nearby villages by tankers                                                                                                                                                                                                                                                                                       |
| 14 | DG Set / power       | : | 500 KVA                                                                                                                                                                                                                                                                                                               |
| 15 | Crusher              | : | No crusher                                                                                                                                                                                                                                                                                                            |
| 16 | Nearest Water Body   | : | Chando or Keso Nadi, Approx. 4.70 km towards South direction of mine site.                                                                                                                                                                                                                                            |
| 17 | Nearest Habitation   | : | Guhdar (Gulab Nagar), approx 0.70 km towards west direction.                                                                                                                                                                                                                                                          |
| 18 | Nearest Rail Station | : | Maheshpur Railway station, approx. 2.25 km toward WSW direction.                                                                                                                                                                                                                                                      |
| 19 | Nearest Air Port     | : | Birsa Munda Airport, approx. 134 km towards SSW direction.                                                                                                                                                                                                                                                            |
| 20 | Nearest Forest       | : | Open Jungle mainly Sal - Approx. 4.80 km towards NE direction of mine site.<br>Masmohana Protected Forest- Approx. 4.60 km towards South direction of mine site.<br>Kharauna Protected Forest- Approx. 4.70 km towards SE direction of mine site.<br>Partango RF - Approx. 3.50 km towards SW direction of mine site. |
| 21 | Road & Highways      | : | SH-13, Approx. 0.60 km. in south direction.                                                                                                                                                                                                                                                                           |

#### CO-ORDINATES

|   |           |                      |                    |
|---|-----------|----------------------|--------------------|
| 1 | Latitude  | From 24°28'03.6608"N | To 24°28'13.5749"N |
| 2 | Longitude | From 85°43'06.4538"E | To 85°43'22.1569"E |

#### LAND DETAILS :

| Khata No. | Plot No. |
|-----------|----------|
| 133       | 1058     |

#### STATUTORY CLEARANCES

|   |                  |   |                                                                                                                                                 |
|---|------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI / Lease docs | : | Lease deed : 23.05.2023 to 25.12.2027.                                                                                                          |
| 2 | CO               | : | The CO, Domchanch vide letter no. 73, dated 02.02.2015 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in Khatian. |

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|----|----------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3  | DMO                              | : | DMO, Koderma vide memo no. 1330/M, dated 12.07.2023 certified that 01 other mining lease area (1.51 Acre) exists within 500 m radius from proposed project site and total area is 8.39 acre.                                                                                                                                                                                                                                                                                                                                                     |
| 4  | DFO Wild Life                    | : | DFO, Wildlife Hazaribag vide letter no. 2188, dated 06.12.2021 certified that the proposed project site is outside Eco Sensitive Zone of Koderma Wildlife Sanctuary.                                                                                                                                                                                                                                                                                                                                                                             |
| 5  | DFO Forest Distance              | : | Division Forest Officer, Koderma Forest Division vide letter no. 2237, dated 27.07.2015 certified that the distance of forest is 500 meter from proposed project site.                                                                                                                                                                                                                                                                                                                                                                           |
| 6  | DSR                              | : | This project is mentioned in District Survey Report (DSR) of Koderma district.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 7  | Gram Sabha                       | : | Gram Sabha conducted on 11.07.2023.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 8  | Mine Plan Approval               | : | District Mining Office, Koderma vide Memo No. 1556/M, dated 12.08.2023.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 9  | Production Report                | : | Production figure issued by DMO, Koderma vide memo no. 1331/M, dated 12.07.2023.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 10 | Compliance report of previous EC | : | <p>The PAs have applied to the Regional Office, MoEF&amp;CC, Govt. of India, Ranchi vide letter dated 13.06.2023 to conduct site visit and issue status of compliance of previous EC conditions. However, there was no response to the application by Regional Office, MoEF&amp;CC, Govt. of India, Ranchi.</p> <p>As per MoEF&amp;CC, Govt. of India OM no. J-11013/6/2010-IA.II(part), dated 07.09.2017, the PAs have obtained the certified compliance report by Regional Office, JSPCB, Hazaribagh vide memo no. 1014, dated 15.09.2023.</p> |
| 11 | Consent to Operate (CTO)         | : | CTO issued by JSPCB vide Ref. no. : JSPCB/RO/HZB/CTO-1009096 /2016/135, dated 03.12.2016.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

#### Working Details

|   |                  |   |                                 |
|---|------------------|---|---------------------------------|
| 1 | Mining Method    | : | Opencast Semi-mechanised method |
| 2 | Quarry Area      | : | 2.78 Ha                         |
|   |                  |   | Life of Mine – 4 years 7 months |
| 3 | Waste Generation | : | 22052.25 cum or 59541.07 tons   |
| 4 | Stripping Ratio  | : | 1: 0.09                         |
| 5 | Working Days     | : | 300                             |

|    |                         |   |                                  |
|----|-------------------------|---|----------------------------------|
| 6  | Benches: size & No      | : | 6m to 6m                         |
| 7  | Elevation of Mine       | : | 366 AMSL to 374 AMSL             |
| 8  | Ground Level Elevation  | : | 350 AMSL                         |
| 9  | Ultimate Working Depth  | : | 350 AMSL                         |
| 10 | Water Table             | : | 330 AMSL (20mbgl)                |
| 11 | Topography of Mine      | : | Area represents a small hillock. |
| 12 | Explosive Requirement   | : | 110 kg/day                       |
| 13 | Diesel/Fuel requirement | : | 110 litre/day                    |

#### Production Details

| Year            | Production of stone (Cum) | Production of stone (Tonnes) | Total Waste in (cum) | Bench RL in Meters  |
|-----------------|---------------------------|------------------------------|----------------------|---------------------|
| 1 <sup>st</sup> | 45904.00                  | 123940.80                    | 2416                 | 360 m RL – 350 m RL |
| 2 <sup>nd</sup> | 46084.50                  | 124428.15                    | 2673                 | 365 m RL – 355 m RL |
| 3 <sup>rd</sup> | 47428.75                  | 128057.63                    | 10996.25             | 360 m RL – 350 m RL |
| 4 <sup>th</sup> | 49580.50                  | 133867.35                    | 4479.5               | 360 m RL – 355 m RL |
| 5 <sup>th</sup> | 28262.50                  | 76308.75                     | 1487.5               | 355 m RL – 350 m RL |
| <b>Total</b>    | <b>217260.25</b>          | <b>586602.68</b>             | <b>22052.25</b>      |                     |

#### Land Use

| Pattern of Utilization | Existing Land Use (Ha) | At the end of Plan period (Ha)                                                                                                       | Conceptual stage (Ha) (after life of mine)                                                                                           |
|------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Quarry                 | 1.580                  | 2.410<br>(0.160 ha area shall be backfilled, 1.77 ha area shall be left as water reservoir & 0.480 ha shall be left as dead benches) | 2.410<br>(0.160 ha area shall be backfilled, 1.77 ha area shall be left as water reservoir & 0.480 ha shall be left as dead benches) |
| Road                   | 0.090                  | 0.0                                                                                                                                  | 0.0                                                                                                                                  |

|                        |              |                       |                       |
|------------------------|--------------|-----------------------|-----------------------|
| Safety Zone            | --           | 0.370<br>(Plantation) | 0.370<br>(Plantation) |
| <b>Total</b>           | <b>1.670</b> | <b>2.780</b>          | <b>2.780</b>          |
| <b>Balance</b>         | <b>1.110</b> | --                    | --                    |
| <b>Lease Hold Area</b> | <b>2.78</b>  | <b>2.780</b>          | <b>2.780</b>          |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| S. No. | Location                        | Area/Length | No of Trees |
|--------|---------------------------------|-------------|-------------|
| 1      | Safety Zone                     | 0.370 ha    | 925         |
| 2      | Along Approach Road             | 0.40 km     | 400         |
| 3      | In consulting local authorities | -           | 100         |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### Solid Waste Management

Total 22052.25 cum or 59541.07 tons waste shall be generated during this plan period. It has been calculated that total 22052.25 cum in-situ waste shall be generated. The 50% of waste generated during the plan period i.e. 11026.13 cum waste (insitu) shall be utilized for approach & haul road maintenance and rest 11026.13 cum waste (insitu), 13782.66 cum loose & 11715.26 cum compact waste shall be temporarily dumped and then used for backfilling. During the 1st and 2nd year the generated waste shall be dumped in south eastern part of the lease area, the maximum height of dump shall be 2.81 m, 3rd year onwards the generated waste and waste materials of previous year dump shall be used for backfilling of exhausted portion of quarry in north western portion and it will cover 0.16ha area.

### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of

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suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.

- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

#### **Air Quality Management**

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

#### **RISK ASSESSMENT**

The hazard identification and risk analysis is done using qualitative method:

##### **Probability/Likelihood of Occurrence of Hazard**

| <b>Likelihood Level</b> | <b>Probability</b> | <b>Description</b>                                                     |
|-------------------------|--------------------|------------------------------------------------------------------------|
| L5                      | Very Unlikely      | Has not occurred/reported within last 5 years.                         |
| L4                      | Remote / Moderate  | May occur if conditions exist. Has occurred within last 3 years.       |
| L3                      | Occasional         | Likely to occur if conditions exist. Has occurred within last 2 years. |
| L2                      | Probable           | Very likely to occur. Has occurred within last year.                   |
| L1                      | Frequent           | Almost certain to occur. Has occurred more than one within last year.  |

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## Severity/Impact Intensity

| Severity Level | Severity      | Description                                                                                                               |
|----------------|---------------|---------------------------------------------------------------------------------------------------------------------------|
| C1             | Catastrophic  | May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation. |
| C2             | Major         | May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.         |
| C3             | Moderate      | Minor injury to personnel or environment                                                                                  |
| C4             | Minor         | Minor damage but does not cause injury to personnel                                                                       |
| C5             | Insignificant | May result in no, or less minor, illness, injury or system damage                                                         |

## Risk Assessment Chart (Qualitative Method)

| Risk Rank<br>(Likelihood x<br>Consequence) | L5 (Very<br>Unlikely) | L4 (Remote) | L3<br>(Occasional) | L2<br>(Probable) | L1<br>(Frequent) |
|--------------------------------------------|-----------------------|-------------|--------------------|------------------|------------------|
| C1<br>(Catastrophic)                       | 5                     | 4           | 3                  | 2                | 1                |
| C2 (Major)                                 | 10                    | 8           | 6                  | 4                | 2                |
| C3 (Moderate)                              | 15                    | 12          | 9                  | 6                | 3                |
| C4 (Minor)                                 | 20                    | 16          | 12                 | 8                | 4                |
| C5<br>(Insignificant)                      | 25                    | 20          | 15                 | 10               | 5                |

## Risk Rating Scale

| S.No. | Rating      | Scale |
|-------|-------------|-------|
| 1     | High Risk   | 1-4   |
| 2     | Medium Risk | 5-12  |
| 3     | Low Risk    | 13-25 |

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### Hazard identification & Risk Analysis in Stone Mining operation

| S.No. | Activity                        | Hazard                                                         | Probability   | Severity      | Score |
|-------|---------------------------------|----------------------------------------------------------------|---------------|---------------|-------|
| 1     | Temporary Storage of Explosives | Unintended Explosion                                           | Very Unlikely | Catastrophic  | 5     |
| 2     | Charging of Explosives          | Unwanted Explosion                                             | Very Unlikely | Catastrophic  | 5     |
| 3     | Blasting                        | Hit by fly rock (Bodily Injury)                                | Occasional    | Major         | 6     |
| 4     | Drilling                        | Exposure to Dust                                               | Frequent      | Insignificant | 5     |
| 5     | Bench Formation                 | Fall/Slide/Tripping (Bodily Injury)                            | Probable      | Moderate      | 6     |
| 6     | Loading/Unloading               | Bodily injury by hitting by loading material, Exposure to Dust | Very Unlikely | Minor         | 20    |
| 7     | Transportation                  | Vehicle Accident, Exposure to Dust                             | Remote        | Minor         | 16    |

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is **"Acceptable"**

#### Preventive Measures:

##### **Face Stability**

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

##### **Drilling Operations**

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

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### **Falls from the edge of a bench**

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

### **Control Measures**

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

### **Dust generation during drilling**

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

### **Noise Generation during drilling**

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

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Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

### **Blasting Operations**

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

### **Handling of Explosives**

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

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## Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

## Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

## Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

**Undertaking submitted affirming:**

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- If any tree felling than necessary permission shall be taken from the competent authority.
- Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

**Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Taratanr Stone Mine of Smt. Bimli Devi, Village : Taratanr, P.S. : Domchanch, Distt. : Koderma, Jharkhand (2.78 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.**

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7. Umedanda Stone Deposit of M/s Kanchan Savitri and Sons (Partners : Shri Jay Shankar Kumar & Shri Rangnath Choubey), Village : Umedanda, Thana : Burmu, Thana no. : 43, Distt. : Ranchi, Jharkhand (1.85 Ha).

(Proposal No. SIA/JH/MIN/444544/2023).

**Project Category: B2 – Application for Environment Clearance**

**EC Application for: Stone: 69,910 Cu.M. / year i.e 1,95,748 Tonnes / year**

**Name of the consultant : P & M Solution, Noida, U.P.**

This is a new project which has been taken for appraisal on 22.09.2023.

**Project and Location Details:**

| Sl | Parameter              | Details                                                                                                                                                                                                                                                                                                                                                                 |
|----|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name           | : Umedanda Stone Deposit of M/s Kanchan Savitri and Sons                                                                                                                                                                                                                                                                                                                |
| 2  | Applicant Address:     | : M/s Kanchan Savitri And Sons<br>Partner : 1) Sri Jay Shankar Kumar<br>At – Flat No. C-1, Block B, Bhaskar Complex,<br>Tagore Hill Road, Near Karam Toli Chowk,<br>Morabadi, District - Ranchi, State - Jharkhand, Pin Code - 834008.<br>Partner : 2) Sri Rangnath Choubey<br>At – Nauj, Gurgain, Gurgaon, District – Ranchi,<br>State – Jharkhand, Pin Code - 835205. |
| 3  | Applied Area Address : | : In Mouza - Umedanda, Thana – Burmu,<br>Thana No - 43, District - Ranchi, Jharkhand.                                                                                                                                                                                                                                                                                   |
| 4  | Applied Area           | : Ha: 1.85 Hectares Acres: 4.56 Acres                                                                                                                                                                                                                                                                                                                                   |
| 5  | Type of Land           | : Non Forest – Raiyati Land                                                                                                                                                                                                                                                                                                                                             |
| 6  | Project Cost           | : 64 Lakhs                                                                                                                                                                                                                                                                                                                                                              |
| 7  | EMP Budget             | : Capital: 7.17 Lakhs Recurring: 7.34 Lakh / year                                                                                                                                                                                                                                                                                                                       |
| 8  | CSR / CER Budget       | : Rs. 1.28 Lakhs                                                                                                                                                                                                                                                                                                                                                        |
| 9  | New or Expansion       | : New                                                                                                                                                                                                                                                                                                                                                                   |
| 10 | Mineable Reserves      | : Cu.M.: 3,49,524 Cu. M. Tonnes: 9,78,667 Tonnes                                                                                                                                                                                                                                                                                                                        |
| 11 | Mine Life              | : 5 years                                                                                                                                                                                                                                                                                                                                                               |
| 12 | Man power              | : 48                                                                                                                                                                                                                                                                                                                                                                    |
| 13 | Water Requirement      | : 10.52 KLD<br>Drinking: 0.48 KLD, Dust Suppression: 4.2 KLD, Plantation: 5.84 KLD                                                                                                                                                                                                                                                                                      |
| 14 | Water Source           | : From nearby authorized sources.                                                                                                                                                                                                                                                                                                                                       |
| 15 | DG Set / power         | : No                                                                                                                                                                                                                                                                                                                                                                    |
| 16 | Crusher                | : No                                                                                                                                                                                                                                                                                                                                                                    |
| 17 | Nearest Water Body     | : Damodar River is flowing near about 6.76 Km aerial away in the North-East direction from the applied area.                                                                                                                                                                                                                                                            |
| 18 | Nearest Habitation     | : Umedanda village is situated approx. 2.32 Km aerial distance away                                                                                                                                                                                                                                                                                                     |

|    |                      |   |                                                                                                                                                                  |
|----|----------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                      | : | in South West direction.                                                                                                                                         |
| 19 | Nearest Rail Station | : | Hendegir Railway Station is situated approx. 6.18 Km aerial distance away in North direction.                                                                    |
| 20 | Nearest Air Port     | : | Birsa Munda International Airport, Ranchi, Jharkhand is situated approx. 38.82 Km aerial distance away in South-East direction.                                  |
| 21 | Nearest Forest       | : | Nearest forest land is more than 250m away from the proposed project.                                                                                            |
| 22 | Road & Highways      | : | Highway: SH-2 is about 10.79 Km aerial distance away from the applied area in South East direction<br>Approach Road: Umedanda – Arid Road is about 0.60 Km away. |

#### CO-ORDINATES

|   |           |   |                    |                  |
|---|-----------|---|--------------------|------------------|
| 1 | Latitude  | : | From N23°38'24.50" | To N23°38'30.85" |
| 2 | Longitude | : | From E85°10'34.20" | To E85°10'40.43" |

#### LAND DETAILS :

|                    |                                     |
|--------------------|-------------------------------------|
| <b>Khata No -</b>  | 157                                 |
| <b>Plot Nos. –</b> | 184(P), 185, 186, 189, 192 & 193(P) |

#### STATUTORY CLEARANCES

|   |                     |   |                                                                                                                                                                                                       |
|---|---------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI / Lease docs    | : | The Letter of Intent (LoI) has been issued by District Mining Office, Ranchi vide letter no. 1074/M dated 05.09.2023.                                                                                 |
| 2 | CO                  | : | The CO, Burmu, Ranchi vide letter no. 471 (ii), dated 03.08.2023 has mentioned the plot no. of the project is not recorded as "Jangle Jhari" in R.S. Khatyan or Register II.                          |
| 3 | DMO                 | : | DMO, Ranchi vide memo no. 1093/M, dated 09.09.2023 certified that there is no other lease area exists within 500 m radius from proposed project site.                                                 |
| 4 | DFO Wild Life       | : | DFO, Wildlife, Ranchi vide letter no. 749, dated 14.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.                                      |
| 5 | DFO Forest Distance | : | Division Forest Officer, Ranchi Forest Division, vide letter no. 2906, dated 02.08.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site. |

|   |                    |   |                                                                                                                                                                                                                                                                     |
|---|--------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | DSR                | : | The DC – cum - District Magistrate, Ranchi vide letter no. 1111/M, dated 15.09.2023 has informed that this project is part of District Survey Report (DSR) at Ranchi district and accordingly necessary action with regard to Environmental Clearance can be taken. |
| 7 | Gram Sabha         | : | BDO, Burmu, Ranchi Vide letter no 687(ii) dated 25.07.2023 has informed that Gram Sabha conducted on 22.07.2023.                                                                                                                                                    |
| 8 | Mine Plan Approval | : | Approved by the Assistant Mining Officer, Ranchi vide Memo No. 1095/M dated 11.09.2023.                                                                                                                                                                             |

#### Working Details :

|    |                         |   |                                                           |                                                                  |
|----|-------------------------|---|-----------------------------------------------------------|------------------------------------------------------------------|
| 1  | Mining Method           | : | Opencast Mechanized Mining.                               |                                                                  |
| 2  | Quarry Area             | : | 5 years – 1.34 Ha                                         | Life of Mine – 1.34 Ha                                           |
| 3  | Waste Generation        | : | 5 years–24,906 Cu.M<br>(Gritty Soil & Intercalated Waste) | Life of Mine – 24,906 Cu.M<br>(Gritty Soil & Intercalated Waste) |
| 4  | Stripping Ratio         | : | 1 : 0.07                                                  |                                                                  |
| 5  | Working Days            | : | 300 Days                                                  |                                                                  |
| 6  | Bench: size & No        | : | Size: 6m x 6m, No. – 7.                                   |                                                                  |
| 7  | Elevation of Mine       | : | Highest RL 679m AMSL, Lowest RL 674m AMSL                 |                                                                  |
| 8  | Ground Level Elevation  | : | 674m AMSL                                                 |                                                                  |
| 9  | Ultimate Working Depth  | : | 637m AMSL                                                 |                                                                  |
| 10 | Water Table             | : | 627m AMSL                                                 |                                                                  |
| 11 | Topography of Mine      | : | Gently sloping land.                                      |                                                                  |
| 12 | Explosive Requirement   | : | 28.35 Tons/year                                           |                                                                  |
| 13 | Diesel/Fuel requirement | : | 42 KL/year ( 140 Litres/day)                              |                                                                  |

#### Production Details

| Year         | Production of stone |                 | Removal of Gritty Soil (Cum) | Intercalated Waste Generation (CuM) | Bench RL in Meters         |
|--------------|---------------------|-----------------|------------------------------|-------------------------------------|----------------------------|
|              | (Cum)               | (Tonne)         |                              |                                     |                            |
| 1st Year     | 69,910              | 1,95,748        | 3990                         | 3680                                | 679m – 667m                |
| 2nd Year     | 69,904              | 1,95,730        | Nil                          | 3679                                | 673m – 655m                |
| 3rd Year     | 69,910              | 1,95,748        | 2520                         | 3680                                | 679m – 667m<br>661m – 655m |
| 4th Year     | 69,904              | 1,95,730        | Nil                          | 3679                                | 673m – 655m                |
| 5th Year     | 69,884              | 1,95,676        | Nil                          | 3678                                | 661m – 637m                |
| <b>Total</b> | <b>3,49,512</b>     | <b>9,78,632</b> | <b>6510</b>                  | <b>18,396</b>                       |                            |

## Land Use

| SL | Pattern                          | Existing Land Use (Ha) | Proposed Current Plan Period (Ha)       | Proposed Land Use at End of Life of Mine (Ha) | Proposed Land Use at End of Life of Mine (Ha) | Land Usage at Conceptual Stage |
|----|----------------------------------|------------------------|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|--------------------------------|
| 1  | Mining Area (Quarry)             | Nil                    | 1.34<br>(including backfilling 0.19 Ha) | 1.34<br>(including backfilling 0.19 Ha)       | 0.06                                          | Back fill                      |
|    |                                  |                        |                                         |                                               | 1.28                                          | Water body                     |
| 2  | Green Belt Within Safety Barrier | Nil                    | 0.51                                    | 0.51                                          | 0.51                                          | Plantation                     |
| 3  | Road                             | 0.02                   | --                                      | --                                            | --                                            | --                             |
| 4  | Unutilized                       | 1.83                   | Nil                                     | Nil                                           | Nil                                           | --                             |
|    | <b>TOTAL</b>                     | <b>1.85</b>            | <b>1.85</b>                             | <b>1.85</b>                                   | <b>1.85</b>                                   |                                |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| SL | Location             |   | Area / Length                                | No of Trees                                                              |
|----|----------------------|---|----------------------------------------------|--------------------------------------------------------------------------|
| 1  | Safety Zone          | : | 0.51 Ha                                      | 1275 trees @ 2500 trees per Ha                                           |
| 2  | Haul / Approach Road | : | 0.11 Ha                                      | 184 trees on both sides – 334 plan per km or 3m center to center spacing |
|    |                      |   | i.e. Length 0.275 Km<br>width 2m X both side |                                                                          |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### Solid Waste Management

- Waste (Gritty Soil & Intercalated Waste) Generation will be 24,906 Cu.M. during the life of Mine.
- The area is covered with a layer of gritty soil. During quarry development in 1st & 2nd gritty soil and intercalated waste will be removed and this will be temporarily dumped [{Area – 0.19 Ha, (L x W x H = 56m x 30m x 5m),} {Area – 0.07 Ha, (L x W x H = 45m x 24m x 5m)}] at the south-east part of the area with suitable precautions like constructing parapet wall, garland drain & in 3rd year removed gritty soil & intercalated waste & existing dumped materials will be backfilled within the exhausted quarry, after in 4th & 5th year removed intercalated waste will be backfilled within the exhausted quarry.

### **Water Quality Management**

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the applied area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

### **Air Quality Management**

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha' road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

### **Risk & Hazards**

Following are the associated Risk and Hazards associated with the stone mining process

- Accident due to explosives.
- Accident due to operation of heavy mining equipment.
- Fall of animal in to abundant pit.

### **Mitigation Measures**

In order to take care of above hazard/disasters, the following control measures will be adopted:

- Opencast mechanized method of mining will be adopted.
- Working will be carried out in one shift of 8 hours during day time only.

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- No explosive will be stored at mine site.
- All applicable rules of MMR 1961, Mines Act-1952, Mines Rules 1955, MCR-1960, MCDR-1988 will be followed for safe, scientific & systematic working.
- The working will be done under the supervision of a Qualified Mines Manager.
- The height and width of the benches maintain properly.
- Working of mine will be done as per approved plans.
- Permanent fencing will be provided at the top edge of opencast working.
- All protective equipment of a type approved by the DGMS will be provided to the workers viz, foot wear, helmets, ear plug, dust mask, gloves, goggles, shin guards etc.

#### **Water Reservoir Safety Management**

- Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.

**Mitigation Measures for Umedanda Stone Deposit of M/s Kanchan Savitri and Sons, in Mouza - Umedanda, Thana – Burmu, Thana No - 43, District - Ranchi, Jharkhand, over an area of 4.56 Acres (1.85 Ha).**

Settling tank and garland drain will be provided in the South East direction. Calculation for settling tank has been given below

**Settling Tank Design calculation for the proposed project:-**

**Total water accumulates in the mine is as follows:**

|                                                                    |          |
|--------------------------------------------------------------------|----------|
| Total Area :-                                                      | 1.85 Ha  |
| Water reservoir at ultimate stage :-                               | 1.28 Ha  |
| Rest of the area :-                                                | 0.57 Ha  |
| Direct catchment area is :-                                        | 1.28 Ha  |
| Considered only 60% area from the Rest area as a catchment area :- | 0.342 Ha |
| Total area available                                               | 1.622 Ha |

**Surface runoff in the pit  $Q_z = CIA$**

Where C= runoff co efficient = 0.195

I = Monsoon annual rainfall = 1.12 m

A = Area in Ha = 1.622 Ha

**Total surface runoff from the catchment area (q) =  $0.195 \times 1.12 \times 1.622 \text{ Ha} \times 10000 = 3542 \text{ cum}$**

**Design of sedimentation tank**

Total annual yield is 3542 cum

Hence per day yield is  $3542 \text{ cum} / 120 \text{ (rainy days)} = 30 \text{ cum}$

Garland drain along with settling tank will be maintained in the boundary side to prevent siltation of low lying areas and in rush of water into the mine. The size of the drain will be 760 m x 2.0 m x 1.5 m. The settling tank will be 1 in number of size 5 m in length, 5 m in width and 2 m in depth separated into two chambers

Hence the drain, settling tank and sump is of sufficient capacity.

Check dam will be also constructed. It will be worked as small barriers built across the direction of water flow.

In this condition zero discharge will be maintained. Hence there will be no damages caused due to mining in the catchment area of the river / nalla falling in study area as the ground water recharge rate is higher than the extraction rate of mining region.

Water accumulated in the mine pit will be used for dust suppression. This water will also be made available to villagers on demand for irrigation purpose after testing. No discharge of water will be made to any surface water course.

Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.

**Undertaking submitted affirming:**

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The water required for the mining activities shall be supplied by the tanker from nearby authorized sources.
- c. The letter issued in respect of District Survey Report (DSR), is issued by the competent authority. I will abide by any directives issued by any court of law in future.
- d. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- e. The Boundary Pillars of the proposed mine applied area will be maintained properly.
- f. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- g. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- h. Sufficient water spray using water tankers will be done for effective dust suppression within the mine applied area and on haul roads.
- i. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- j. If any tree felling than necessary permission shall be taken from the competent authority.

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- k. Slope of the water bodies to be stabilized using gabion plantation crated at the end of the life of the mine.
- l. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.
- m. Personal protective equipments such as protecting clothing, helmet, goggles or other garments for equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Umedanda Stone Deposit of M/s Kanchan Savitri and Sons (Partners : Shri Jay Shankar Kumar & Shri Rangnath Choubey), Village : Umedanda, Thana : Burmu, Thana no. : 43, Distt. : Ranchi, Jharkhand (1.85 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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- 8. Singari Stone Deposit of M/s RB Engicon Private Limited, Village : Singari, Thana : Angara, Thana no. : 70, Distt. : Ranchi, Jharkhand (2.02 Ha).

(Proposal No. SIA/JH/MIN /444549/2023).

Project Category: B2 – Application for Environment Clearance

EC Application for: Stone: 74,088 Cu.M. / year i.e 2,07,447 Tonnes / year

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 22.09.2023.

**Project and Location Details:**

| Sl | Parameter              | Details                                                                                                                                                                                                                                                                                |
|----|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name           | : Singari Stone Deposit of M/s RB Engicon Private Limited                                                                                                                                                                                                                              |
| 2  | Applicant Address:     | : M/s RB Engicon Private Limited<br>Directors: Sri Rahul Kumar Shah & Sri Jyoti Bhushan Kumar<br>At – House no. F-82, P. C. Colony, Kankarbagh,<br>Near Madhuban Apartment, sampatchak, P.O. – Lohia Nagar,<br>Thana - Kankarbagh, District - Patna, State - Bihar, Pin code - 800020. |
| 3  | Applied Area Address : | : In Mouza - Singari, Thana – Angara, Thana No. - 70, District - Ranchi, Jharkhand                                                                                                                                                                                                     |

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|    |                      |   |                                                                                                                                                                                                        |                             |
|----|----------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 4  | Applied Area         | : | Ha: 2.02 Hectares                                                                                                                                                                                      | Acres: 5.00 Acres           |
| 5  | Type of Land         | : | Non Forest – Raiyati Land                                                                                                                                                                              |                             |
| 6  | Project Cost         | : | 68 Lakhs                                                                                                                                                                                               |                             |
| 7  | EMP Budget           | : | Capital: 8.94 Lakhs                                                                                                                                                                                    | Recurring: 7.87 Lakh / year |
| 8  | CSR / CER Budget     | : | Rs. 1.36 Lakhs                                                                                                                                                                                         |                             |
| 9  | New or Expansion     | : | New                                                                                                                                                                                                    |                             |
| 10 | Mineable Reserves    | : | Cu.M.: 3,70,144 Cu. M.                                                                                                                                                                                 | Tonnes: 10,36,403 Tonnes    |
| 11 | Mine life            | : | 5 years                                                                                                                                                                                                |                             |
| 12 | Man power            | : | 51                                                                                                                                                                                                     |                             |
| 13 | Water Requirement    | : | 14.43 KLD<br>Drinking: 0.51 KLD, Dust Suppression: 5.93 KLD, Plantation: 7.99 KLD                                                                                                                      |                             |
| 14 | Water Source         | : | From nearby authorized sources.                                                                                                                                                                        |                             |
| 15 | DG Set / power       | : | No                                                                                                                                                                                                     |                             |
| 16 | Crusher              | : | No                                                                                                                                                                                                     |                             |
| 17 | Nearest Water Body   | : | Daro Nadi is flowing near about 3.08 Km away in the North West direction from the applied area.<br>Subarnarekha River is flowing near about 3.58 Km away in the North direction from the applied area. |                             |
| 18 | Nearest Habitation   | : | Singari village is situated approx. 0.68 Km aerial distance away in South direction.<br>Pahartoli village is situated approx. 0.72 Km aerial distance away in North East direction.                    |                             |
| 19 | Nearest Rail Station | : | Gautamdihara Railway Station is situated approx. 8.16 Km aerial distance away in South West direction.                                                                                                 |                             |
| 20 | Nearest Air Port     | : | Birsamunda Airport, Ranchi, Jharkhand is situated approx. 36.65 Km aerial distance away in South-West direction.                                                                                       |                             |
| 21 | Nearest Forest       | : | Nearest forest land is more than 250m away from the proposed project.                                                                                                                                  |                             |
| 22 | Road & Highways      | : | Highway: SH-1 is about 6.14 Km aerial distance away from the applied area in South West direction.<br>Approach Road: Singari – Kuchu Road is about 0.48 Km away.                                       |                             |

**CO-ORDINATES :**

|   |           |   |                    |                  |
|---|-----------|---|--------------------|------------------|
| 1 | Latitude  | : | From N23°24'56.40" | To N23°25'03.30" |
| 2 | Longitude | : | From E85°40'04.06" | To E85°40'10.01" |

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**LAND DETAILS :**

|                    |                           |                                               |
|--------------------|---------------------------|-----------------------------------------------|
| <b>Khata No. -</b> | <b>41</b>                 | <b>40</b>                                     |
| <b>Plot Nos. -</b> | <b>125, 135(P),136(P)</b> | <b>126, 127, 128, 129, 130, 131, 139, 140</b> |

**STATUTORY CLEARANCES**

|   |                     |   |                                                                                                                                                                                                                                                                      |
|---|---------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI / Lease docs    | : | The Letter of Intent (LoI) has been issued by District Mining Office, Ranchi vide letter no. 1081/M dated 08.09.2023.                                                                                                                                                |
| 2 | CO                  | : | The CO, Angara, Ranchi vide letter no. 500 (ii), dated 07.08.2023 has mentioned the plot no. of the project is not recorded as "Jangle Jhari" in R.S. Khatyan or Register II.                                                                                        |
| 3 | DMO                 | : | DMO, Ranchi vide memo no. 1091/M, dated 09.09.2023 certified that one other LoI (7.26 Acres) has been issued within 500 m radius from proposed project site & total lease area is $(5.00+7.26) = 12.26$ acres / 4.96 Ha, which is not more than 5 Ha.                |
| 4 | DFO Wild Life       | : | DFO, Wildlife Ranchi vide letter no. 802, dated 28.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.                                                                                                      |
| 5 | DFO Forest Distance | : | Division Forest Officer, Ranchi Forest Division vide letter no. 3218, dated 21.08.2023 certified that the distance of reserved / protected forest is more than 250m from proposed project site.                                                                      |
| 6 | DSR                 | : | The DC – cum - District Magistrate, Ranchi, vide letter no. 1111/M, dated 15.09.2023 has informed that this project is part of District Survey Report (DSR) at Ranchi district and accordingly necessary action with regard to Environmental Clearance can be taken. |
| 7 | Gram Sabha          | : | BDO, Angara, Ranchi Vide letter no 1024(ii) dated 24.08.2023 has informed that Gram Sabha conducted on 11.08.2023.                                                                                                                                                   |
| 8 | Mine Plan Approval  | : | Approved by the Assistant Mining Officer, Ranchi vide Memo No. 1103/M dated 14.09.2023.                                                                                                                                                                              |

**Working Details**

|   |                  |   |                                                           |                                                                  |
|---|------------------|---|-----------------------------------------------------------|------------------------------------------------------------------|
| 1 | Mining Method    | : | Opencast Mechanized Mining.                               |                                                                  |
| 2 | Quarry Area      | : | 5 years – 1.35 Ha                                         | Life of Mine – 1.35 Ha                                           |
| 3 | Waste Generation | : | 5 years–26,010 Cu.M<br>(Gritty Soil & Intercalated Waste) | Life of Mine – 26,010 Cu.M<br>(Gritty Soil & Intercalated Waste) |

|    |                         |   |                                           |
|----|-------------------------|---|-------------------------------------------|
| 4  | Stripping Ratio         | : | 1 : 0.07                                  |
| 5  | Working Days            | : | 300 Days                                  |
| 6  | Bench: size & No        | : | Size: 6m x 6m, No. – 7.                   |
| 7  | Elevation of Mine       | : | Highest RL 576m AMSL, Lowest RL 572m AMSL |
| 8  | Ground Level Elevation  | : | 572m AMSL                                 |
| 9  | Ultimate Working Depth  | : | 534m AMSL                                 |
| 10 | Water Table             | : | 524m AMSL                                 |
| 11 | Topography of Mine      | : | moderately sloping land.                  |
| 12 | Explosive Requirement   | : | 37.8 Tons/year                            |
| 13 | Diesel/Fuel requirement | : | 42 KL/year ( 140 Litres/day)              |

### Production Details

| Year         | Production of stone |                  | Removal of Gritty Soil (Cum) | Intercalated Waste Generation (CuM) | Bench RL in Meters |
|--------------|---------------------|------------------|------------------------------|-------------------------------------|--------------------|
|              | (Cum)               | (Tonne)          |                              |                                     |                    |
| 1st Year     | 74,020              | 2,07,257         | 4066                         | 3896                                | 576m – 564m        |
| 2nd Year     | 73,939              | 2,07,030         | 2461                         | 3892                                | 576m – 564m        |
| 3rd Year     | 74,088              | 2,07,447         | Nil                          | 3900                                | 570m – 558m        |
| 4th Year     | 74,021              | 2,07,257         | Nil                          | 3896                                | 564m – 552m        |
| 5th Year     | 74,076              | 2,07,412         | Nil                          | 3899                                | 558m – 534m        |
| <b>Total</b> | <b>3,70,144</b>     | <b>10,36,403</b> | <b>6527</b>                  | <b>19483</b>                        |                    |

### Land Use

| SL | Pattern                          | Existing Land Use (Ha) | Proposed Current Plan Period (Ha)                                   | Proposed Land Use at End of Life of Mine (Ha)                       | Proposed Land Use at End of Life of Mine (Ha) | Land Usage at Conceptual Stage |
|----|----------------------------------|------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------|--------------------------------|
| 1  | Mining Area (Quarry)             | Nil                    | 1.35 (including backfilling 0.22 Ha & stone pitching wall 0.003 Ha) | 1.35 (including backfilling 0.22 Ha & stone pitching wall 0.003 Ha) | 0.001                                         | Stone pitching wall            |
|    |                                  |                        |                                                                     |                                                                     | 0.129                                         | Back fill                      |
|    |                                  |                        |                                                                     |                                                                     | 1.22                                          | Water body                     |
| 2  | Green Belt Within Safety Barrier | Nil                    | 0.61                                                                | 0.61                                                                | 0.61                                          | Plantation                     |
| 3  | Road                             | 0.15                   | --                                                                  | --                                                                  | --                                            | --                             |
| 4  | Blocked area due to road safety  | 0.06                   | 0.06                                                                | 0.06                                                                | 0.06                                          | Plantation                     |
| 5  | Unutilized                       | 1.81                   | Nil                                                                 | Nil                                                                 | Nil                                           | --                             |
|    | <b>TOTAL</b>                     | <b>2.02</b>            | <b>2.02</b>                                                         | <b>2.02</b>                                                         | <b>2.02</b>                                   |                                |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| SL | Location                |   | Area / Length                                           | No of Trees                                                              |
|----|-------------------------|---|---------------------------------------------------------|--------------------------------------------------------------------------|
| 1  | Safety Zone             | : | 0.61 Ha                                                 | 1525 trees @ 2500 trees per Ha                                           |
| 2  | Haul / Approach Road    | : | 0.192 Ha<br>i.e. Length 0.48 Km<br>width 2m X both side | 322 trees on both sides – 334 plan per km or 3m center to center spacing |
| 3  | Blocked Area Plantation |   | 0.06 Ha                                                 | 150 trees @ 2500 trees per Ha                                            |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### Solid Waste Management

- Waste (Gritty Soil & Intercalated Waste) Generation will be 26,010 Cu.M. during the life of Mine.
- The area is covered with a layer of gritty soil. During quarry development in 1st year gritty soil and intercalated waste will be removed and this soil will be temporarily dumped [Area – 0.16 Ha, (L x W x H = 46m x 37m x 5m)] at the North part of the area with suitable precautions like constructing parapet wall, garland drain & in 2nd year removed gritty soil, intercalated waste & existing dumped materials will be backfilled within the exhausted quarry & in 3rd, 4th & 5th year remove intercalated waste will be backfilled within the exhausted quarry.

### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the applied area from outside or from inside the lease area to the outside

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- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

#### **Air Quality Management**

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha' road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

#### **Risk & Hazards**

Following are the associated Risk and Hazards associated with the stone mining process

- Accident due to explosives.
- Accident due to operation of heavy mining equipment.
- Fall of animal in to abundant pit.

#### **Mitigation Measures**

In order to take care of above hazard/disasters, the following control measures will be adopted:

- Opencast mechanized method of mining will be adopted.
- Working will be carried out in one shift of 8 hours during day time only.
- No explosive will be stored at mine site.
- All applicable rules of MMR 1961, Mines Act-1952, Mines Rules 1955, MCR-1960, MCDR-1988 will be followed for safe, scientific & systematic working.
- The working will be done under the supervision of a Qualified Mines Manager.
- The height and width of the benches maintain properly.
- Working of mine will be done as per approved plans.
- Permanent fencing will be provided at the top edge of opencast working.
- All protective equipment of a type approved by the DGMS will be provided to the workers viz, foot wear, helmets, ear plug, dust mask, gloves, goggles, shin guards etc.

#### **Water Reservoir Safety Management**

- Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.

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- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.

**Mitigation Measures for Singari Stone Deposit of M/s RB Engicon Private Limited, in Mouza - Singari, Thana – Angara, Thana No. - 70, District - Ranchi, Jharkhand, over an area of 5.00 Acres (2.02 Ha).**

Settling tank and garland drain will be provided in the North West direction. Calculation for settling tank has been given below

Settling Tank Design calculation for the proposed project:-

**Total water accumulates in the mine is as follows:**

|                                                                    |         |
|--------------------------------------------------------------------|---------|
| Total Area :-                                                      | 2.02 Ha |
| Water reservoir at ultimate stage :-                               | 1.22 Ha |
| Rest of the area :-                                                | 0.80 Ha |
| Direct catchment area is :-                                        | 1.22 Ha |
| Considered only 60% area from the Rest area as a catchment area :- | 0.48 Ha |
| Total area available                                               | 1.70 Ha |

Surface runoff in the pit  $Q_z = CIA$

Where  $C$  = runoff co efficient = 0.195

$I$  = Monsoon annual rainfall = 1.12 m

$A$  = Area in Ha = 1.70 Ha

Total surface runoff from the catchment area ( $q$ ) =  $0.195 \times 1.12 \times 1.70 \text{ Ha} \times 10000 = 3713 \text{ cum}$

Design of sedimentation tank

Total annual yield is 3713 cum

Hence per day yield is  $3713 \text{ cum} / 120 \text{ (rainy days)} = 31 \text{ cum}$

Garland drain along with settling tank will be maintained in the boundary side to prevent siltation of low lying areas and in rush of water into the mine. The size of the drain will be 840 m x 2.0 m x 1.5 m. The settling tank will be 1 in number of size 5 m in length, 5 m in width and 2 m in depth separated into two chambers

Hence the drain, settling tank and sump is of sufficient capacity.

Check dam will be also constructed. It will be worked as small barriers built across the direction of water flow.

In this condition zero discharge will be maintained. Hence there will be no damages caused due to mining in the catchment area of the river / nalla falling in study area as the ground water recharge rate is higher than the extraction rate of mining region.

Water accumulated in the mine pit will be used for dust suppression. This water will also be made available to villagers on demand for irrigation purpose after testing. No discharge of water will be made to any surface water course.

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Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.

**Undertaking submitted affirming:**

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The water required for the mining activities shall be supplied by the tanker from nearby authorized sources.
- c. The letter issued in respect of District Survey Report (DSR), is issued by the competent authority. I will abide by any directives issued by any court of law in future.
- d. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- e. The Boundary Pillars of the proposed mine applied area will be maintained properly.
- f. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- g. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- h. Sufficient water spray using water tankers will be done for effective dust suppression within the mine applied area and on haul roads.
- i. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- j. If any tree felling than necessary permission shall be taken from the competent authority.
- k. Slope of the water bodies to be stabilized using gabion plantation crated at the end of the life of the mine.
- l. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.
- m. Personal protective equipments such as protecting clothing, helmet, goggles or other garments for equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Singari Stone Deposit of M/s RB Engicon Private Limited, Village : Singari, Thana : Angara, Thana no. : 70, Distt. : Ranchi, Jharkhand (2.02 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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9. Bagiari Stone Deposit of Shri Amit Kumar, Village : Bagiari, Thana : Kasmar, Thana no. : 100, Distt. : Bokaro, Jharkhand (1.07 Ha).

(Proposal No. SIA/JH/MIN/444688/2023).

**Project Category: B2 – Application for Environment Clearance**

**EC Application for: Stone: 34,445 Cu.M. / year i.e 96,446 Tonnes / year**

**Name of the consultant : P & M Solution, Noida, U.P.**

This is a new project which has been taken for appraisal on 22.09.2023.

**Project and Location Details:**

| Sl | Parameter              | Details                                                                                                                                                      |
|----|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name           | : Bagiari Stone Deposit of Sri Amit Kumar                                                                                                                    |
| 2  | Applicant Address:     | : Sri Amit Kumar<br>At – Shantinagar, Near Rangoli Sweets House, Ratu Road, Thana. – Sukhdeb Nagar, District – Ranchi, State – Jharkhand, Pin code - 834005. |
| 3  | Applied Area Address : | : In Mouza - Bagiari, Thana – Kasmar, Thana No. - 100, District - Bokaro, Jharkhand                                                                          |
| 4  | Applied Area           | : Ha: 1.07 Hectares      Acres: 2.64 Acres                                                                                                                   |
| 5  | Type of Land           | : Non Forest – Raiyati Land                                                                                                                                  |
| 6  | Project Cost           | : 48 Lakhs                                                                                                                                                   |
| 7  | EMP Budget             | : Capital: 6.40 Lakhs      Recurring: 7.35 Lakh / year                                                                                                       |
| 8  | CSR / CER Budget       | : Rs. 0.96 Lakhs                                                                                                                                             |
| 9  | New or Expansion       | : New                                                                                                                                                        |
| 10 | Mineable Reserves      | : Cu.M.: 1,72,214 Cu. M.      Tonnes: 4,82,199 Tonnes                                                                                                        |
| 11 | Mine Life              | : 5 years                                                                                                                                                    |
| 12 | Man power              | : 32                                                                                                                                                         |
| 13 | Water Requirement      | : 11.33 KLD<br>Drinking: 0.32 KLD, Dust Suppression: 5.5 KLD, Plantation: 5.51 KLD                                                                           |
| 14 | Water Source           | : From nearby authorized sources.                                                                                                                            |
| 15 | DG Set / power         | : No                                                                                                                                                         |
| 16 | Crusher                | : No                                                                                                                                                         |
| 17 | Nearest Water Body     | : Kadma Nadi is flowing near about 3.40 Km aerial away in the West direction from the applied area.                                                          |
| 18 | Nearest Habitation     | : Bagiari village is situated approx. 0.64 Km aerial distance away in North West direction.                                                                  |
| 19 | Nearest Rail Station   | : Radhagaon Railway Station is situated approx. 14.74 Km aerial distance away in North East direction.                                                       |
| 20 | Nearest Air Port       | : Birsu Munda International Airport, Ranchi, Jharkhand is situated approx. 69.17 Km aerial distance away in South-West direction.                            |
| 21 | Nearest Forest         | : Nearest forest land is 360m away from the proposed project.                                                                                                |

|    |                 |   |                                                                                                                                                                       |
|----|-----------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22 | Road & Highways | : | Highway: NH-320 is about 10.04 Km aerial distance away from the applied area in North direction<br>Approach Road: Khairachatar – Jamkudar Road is about 0.60 Km away. |
|----|-----------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### CO-ORDINATES (as per DGPS survey report)

|   |           |   |                     |                   |
|---|-----------|---|---------------------|-------------------|
| 1 | Latitude  | : | From N23°33'35.345" | To N23°33'41.031" |
| 2 | Longitude | : | From E85°56'56.143" | To E85°56'59.962" |

#### LAND DETAILS

|                    |                        |      |      |                    |
|--------------------|------------------------|------|------|--------------------|
| <b>Khata No. -</b> | 207                    | 206  | 18   | 173                |
| <b>Plot Nos. -</b> | 1954, 1999(P),<br>2001 | 2003 | 2004 | 2005, 2006 2007(P) |

#### STATUTORY CLEARANCES

|   |                     |   |                                                                                                                                                                                                     |
|---|---------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI / Lease docs    | : | The Letter of Intent (LoI) has been issued by District Mining Office, Bokaro vide memo no. 1429/M dated 08.08.2023.                                                                                 |
| 2 | CO                  | : | The CO, Kasmar, Bokaro vide letter no. 215, dated 26.04.2023 has mentioned the plot no. of the project is not recorded as "Jangle Jhari" in R.S. Khatyan or Register II.                            |
| 3 | DMO                 | : | DMO, Bokaro vide memo no. 1550/M, dated 04.09.2023 certified that there is no other mining lease area exists 500 m radius from proposed project site.                                               |
| 4 | DFO Wild Life       | : | DFO, Wildlife Hazaribagh, vide letter no. 1400, dated 10.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.               |
| 5 | DFO Forest Distance | : | Division Forest Officer, Bokaro Forest Division vide letter no. 1221, dated 24.05.2023 certified that the distance of notified forest is 360 meter from proposed project site.                      |
| 6 | DSR                 | : | This project mentioned in the DSR of Bokaro District.<br>Further the DMO, Bokaro vide letter no. 1619/M, dated 15.09.2023 has clarified that the project site is part of potential zone in the DSR. |
| 7 | Gram Sabha          | : | Gram Sabha conducted on 27.05.2023.                                                                                                                                                                 |
| 8 | Mine Plan Approval  | : | Approved by the District Mining Officer, Bokaro vide Memo No. 1609/M dated 14.09.2023.                                                                                                              |

### Working Details

|    |                         |   |                                                           |                                                                  |
|----|-------------------------|---|-----------------------------------------------------------|------------------------------------------------------------------|
| 1  | Mining Method           | : | Opencast Mechanized Mining.                               |                                                                  |
| 2  | Quarry Area             | : | 5 years – 0.68 Ha                                         | Life of Mine – 0.68 Ha                                           |
| 3  | Waste Generation        | : | 5 years–13,483 Cu.M<br>(Gritty Soil & Intercalated Waste) | Life of Mine – 13,483 Cu.M<br>(Gritty Soil & Intercalated Waste) |
| 4  | Stripping Ratio         | : | 1 : 0.07                                                  |                                                                  |
| 5  | Working Days            | : | 300 Days                                                  |                                                                  |
| 6  | Bench: size & No        | : | Size: 6m x 6m, No. – 5.                                   |                                                                  |
| 7  | Elevation of Mine       | : | Highest RL 390m AMSL, Lowest RL 388m AMSL                 |                                                                  |
| 8  | Ground Level Elevation  | : | 388m AMSL                                                 |                                                                  |
| 9  | Ultimate Working Depth  | : | 360m AMSL                                                 |                                                                  |
| 10 | Water Table             | : | 353m AMSL                                                 |                                                                  |
| 11 | Topography of Mine      | : | Gently sloping land.                                      |                                                                  |
| 12 | Explosive Requirement   | : | 18.9 Tons/year                                            |                                                                  |
| 13 | Diesel/Fuel requirement | : | 42 KL/year ( 140 Litres/day)                              |                                                                  |

### Production Details

| Year         | Production of stone |                 | Removal of Gritty Soil (Cum) | Intercalated Waste Generation (CuM) | Bench RL in Meters         |
|--------------|---------------------|-----------------|------------------------------|-------------------------------------|----------------------------|
|              | (Cum)               | (Tonne)         |                              |                                     |                            |
| 1st Year     | 34,445              | 96,446          | 2442                         | 1813                                | 390m – 384m                |
| 2nd Year     | 34,437              | 96,423          | Nil                          | 1812                                | 384m – 372m                |
| 3rd Year     | 34,445              | 96,446          | 1980                         | 1813                                | 378m – 372m<br>390m – 384m |
| 4th Year     | 34,437              | 96,423          | Nil                          | 1812                                | 384m – 378m                |
| 5th Year     | 34,415              | 96,361          | Nil                          | 1811                                | 378m – 360m                |
| <b>Total</b> | <b>1,72,179</b>     | <b>4,82,099</b> | <b>4422</b>                  | <b>9061</b>                         |                            |

## Land Use

| SL | Pattern                          | Existing Land Use (Ha) | Proposed Current Plan Period (Ha)                                  | Proposed Land Use at End of Life of Mine (Ha)                      | Proposed Land Use at End of Life of Mine (Ha) | Land Usage at Conceptual Stage |
|----|----------------------------------|------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------|--------------------------------|
| 1  | Mining Area (Quarry)             | Nil                    | 0.68 (including backfilling 0.18 Ha & stone pitching wall 0.01 Ha) | 0.68 (including backfilling 0.18 Ha & stone pitching wall 0.01 Ha) | 0.009                                         | Stone pitching wall            |
|    |                                  |                        |                                                                    |                                                                    | 0.124                                         | Back fill                      |
|    |                                  |                        |                                                                    |                                                                    | 0.547                                         | Water body                     |
| 2  | Green Belt Within Safety Barrier | Nil                    | 0.38                                                               | 0.38                                                               | 0.38                                          | Plantation                     |
| 3  | Road                             | 0.015                  | --                                                                 | --                                                                 | --                                            | --                             |
| 4  | Blocked area due to road safety  | 0.01                   | 0.01                                                               | 0.01                                                               | 0.01                                          | Plantation                     |
| 5  | Unutilized                       | 1.045                  | Nil                                                                | Nil                                                                | Nil                                           | --                             |
|    | <b>TOTAL</b>                     | <b>1.07</b>            | <b>1.07</b>                                                        | <b>1.07</b>                                                        | <b>1.07</b>                                   |                                |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| SL | Location                |   | Area / Length                               | No of Trees                                                              |
|----|-------------------------|---|---------------------------------------------|--------------------------------------------------------------------------|
| 1  | Safety Zone             | : | 0.38 Ha                                     | 950 trees @ 2500 trees per Ha                                            |
| 2  | Haul / Approach Road    | : | 0.24 Ha                                     | 402 trees on both sides – 334 plan per km or 3m center to center spacing |
|    |                         |   | i.e. Length 0.60 Km<br>width 2m X both side |                                                                          |
| 3  | Blocked Area Plantation |   | 0.01 Ha                                     | 25 trees @ 2500 trees per Ha                                             |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### **Solid Waste Management**

- Waste (Gritty Soil & Intercalated Waste) Generation will be 13,483 Cu.M. during the life of Mine.
- The area is covered with a layer of gritty soil. During quarry development in 1st & 2nd year gritty soil and intercalated waste will be removed and this soil & waste will be temporarily dumped [Area – 0.085 Ha, (L x W x H = 36m x 26m x 5m), Area – 0.036 Ha, (L x W x H = 36m x 14m x 5m)] at the west part of the area with suitable precautions like parapet wall, garland drain & in 3rd year removed gritty soil, intercalated waste & existing dumped soil will be backfilled within the exhausted quarry & in 4th & 5th year removed intercalated waste will be backfilled within the exhausted quarry.

### **Water Quality Management**

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the applied area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

### **Air Quality Management**

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha' road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

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## **Risk & Hazards**

Following are the associated Risk and Hazards associated with the stone mining process

- Accident due to explosives.
- Accident due to operation of heavy mining equipment.
- Fall of animal in to abundant pit.

## **Mitigation Measures**

In order to take care of above hazard/disasters, the following control measures will be adopted:

- Opencast mechanized method of mining will be adopted.
- Working will be carried out in one shift of 8 hours during day time only.
- No explosive will be stored at mine site.
- All applicable rules of MMR 1961, Mines Act-1952, Mines Rules 1955, MCR-1960, MCDR-1988 will be followed for safe, scientific & systematic working.
- The working will be done under the supervision of a Qualified Mines Manager.
- The height and width of the benches maintain properly.
- Working of mine will be done as per approved plans.
- Permanent fencing will be provided at the top edge of opencast working.
- All protective equipment of a type approved by the DGMS will be provided to the workers viz, foot wear, helmets, ear plug, dust mask, gloves, goggles, shin guards etc.

## **Water Reservoir Safety Management**

- Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.

**Mitigation Measures for Bagiari Stone Deposit of Sri Amit Kumar, in Mouza - Bagiari, Thana – Kasmar, Thana No. - 100, District - Bokaro, Jharkhand, over an area of 2.64 Acres (1.07 Ha).**

Settling tank and garland drain will be provided in the South West direction. Calculation for settling tank has been given below

Settling Tank Design calculation for the proposed project:-

**Total water accumulates in the mine is as follows:**

|                                                                   |           |
|-------------------------------------------------------------------|-----------|
| Total Area :-                                                     | 1.07 Ha   |
| Water reservoir at ultimate stage :-                              | 0.547 Ha  |
| Rest of the area :-                                               | 0.523 Ha  |
| Direct catchment area is :-                                       | 0.547 Ha  |
| Considered only 60% area from the Rest area as a catchment area : | 0.3138 Ha |
| Total area available                                              | 0.8608 Ha |

**Surface runoff in the pit  $Q_z = CIA$**

Where C= runoff co efficient = 0.195

I = Monsoon annual rainfall =1.03 m

A = Area in Ha = 0.8608 Ha



**Total surface runoff from the catchment area (q) =  $0.195 \times 1.03 \times 0.8608 \text{ Ha} \times 10000 = 1729 \text{ cum}$**

**Design of sedimentation tank**

Total annual yield is 1729 cum

Hence per day yield is  $1729 \text{ cum} / 120 \text{ (rainy days)} = 14 \text{ cum}$

Garland drain along with settling tank will be maintained in the boundary side to prevent siltation of low lying areas and in rush of water into the mine. The size of the drain will be 530 m x 2.0 m x 1.5 m. The settling tank will be 1 in number of size 5 m in length, 5 m in width and 2 m in depth separated into two chambers

Hence the drain, settling tank and sump is of sufficient capacity.

Check dam will be also constructed. It will be worked as small barriers built across the direction of water flow.

In this condition zero discharge will be maintained. Hence there will be no damages caused due to mining in the catchment area of the river / nalla falling in study area as the ground water recharge rate is higher than the extraction rate of mining region.

Water accumulated in the mine pit will be used for dust suppression. This water will also be made available to villagers on demand for irrigation purpose after testing. No discharge of water will be made to any surface water course.

Proper Barbed wire fencing will be done all around the project site to restrict the common animals to enter into the area.

**Undertaking submitted affirming:**

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The water required for the mining activities shall be supplied by the tanker from nearby authorized sources.
- c. The letter issued in respect of District Survey Report (DSR), is issued by the competent authority. I will abide by any directives issued by any court of law in future.
- d. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- e. The Boundary Pillars of the proposed mine applied area will be maintained properly.
- f. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- g. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- h. Sufficient water spray using water tankers will be done for effective dust suppression within the mine applied area and on haul roads.
- i. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- j. If any tree felling than necessary permission shall be taken from the competent authority.

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- k. Slope of the water bodies to be stabilized using gabion plantation created at the end of the life of the mine.
- l. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of the life of the mine.
- m. Personal protective equipments such as protecting clothing, helmet, goggles or other garments for equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Bagiari Stone Deposit of Shri Amit Kumar, Village : Bagiari, Thana : Kasmar, Thana no. : 100, Distt. : Bokaro, Jharkhand (1.07 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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10. Suraidih Stone Mine of M/s Bajrang Stone Works (Prop. : Shri Somraj Bhagat), Village : Suraidih, Thana : Hiranpur, Distt. : Pakur, Jharkhand (2.60 Ha).

(Proposal No. SIA/JH/MIN/444525/2023).

Name of the consultant : P & M Solution, Noida, U.P.

The project has been granted EC by DEIAA, Pakur vide letter no. 166/DEIAA, dated 09.09.17.

As per O.M. dated 28<sup>th</sup> April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Pakur which has been taken up for consideration on 22.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM<sub>10</sub> -83.6  $\mu\text{g}/\text{m}^3$  PM 2.5-48.7  $\mu\text{g}/\text{m}^3$  SO<sub>2</sub>-19.5 NO<sub>2</sub>-  $\mu\text{g}/\text{m}^3$  40.8  $\mu\text{g}/\text{m}^3$  All the data are within the permissible limit.

Data generated by JSPCB empanelled laboratory has been also submitted by PP. All the data are within prescribed limit.

Dust suppression is being carried out on regular basis.

Plantation has been done on along with safety zone and haul road of the mine lease area.

Production detail as per letter no. 2087/ M dated 13.09.2023 by D.M.O. Pakur is within the permissible limit of EC.

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**Project and Location Details :**

| Sl | Parameter            | Details                                                                                                                                                                                                                    |
|----|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name         | : Suraidih Stone Mine                                                                                                                                                                                                      |
| 2  | Lessee:              | : M/s Bajrang Stone Works<br>Prop. - Sri Somraj Bhagat,<br>S/o Sri Dilip Bhagat<br>Address:-Bhagatpara, P.O+P.S+Dist.- Pakur, Jharkhand.                                                                                   |
| 3  | Lease Address        | : Village- Suraidih, Thana- Hiranpur , District – Pakur,, Jharkhand                                                                                                                                                        |
| 4  | Lease Area           | : 2.60ha Acres- 6.43Acres                                                                                                                                                                                                  |
| 5  | Type of Land         | : Non- Forest (Raiyati Land)                                                                                                                                                                                               |
| 6  | Project Cost         | : Rs. 50Lakhs                                                                                                                                                                                                              |
| 7  | EMP Budget           | : Capital: 7.32Lakhs Recurring:4.27 Lakh / year                                                                                                                                                                            |
| 8  | New or Expansion     | : New                                                                                                                                                                                                                      |
| 9  | Mineable Reserves    | : cum.: 331089.31cum Tonnes: 960159 tons                                                                                                                                                                                   |
| 10 | Mine Life            | : 8.06 or 8years                                                                                                                                                                                                           |
| 11 | Man power            | : 33                                                                                                                                                                                                                       |
| 12 | Water Requirement    | : 13.83~ 13.90 KLD(Drinking: 0.33 KLD, Dust Suppression: 8.53KLD, Plantation:4.97KLD)                                                                                                                                      |
| 13 | Water Source         | : From Nearby villages by tankers                                                                                                                                                                                          |
| 14 | DG Set / power       | : 500 KVA                                                                                                                                                                                                                  |
| 15 | Crusher              | : Yes                                                                                                                                                                                                                      |
| 16 | Nearest Water Body   | : Torai Nadi,Approx. 1.98 km towards SW direction of mine site.                                                                                                                                                            |
| 17 | Nearest Habitation   | : Suraidih, Approx 0.75 km towards SE direction.                                                                                                                                                                           |
| 18 | Nearest Rail Station | : Kotalpukur Railway station, approx. 9.82 km towards ENE direction.                                                                                                                                                       |
| 19 | Nearest Air Port     | : Birsa Munda Airport, approx. 289.16 km towards SW direction.                                                                                                                                                             |
| 20 | Nearest Forest       | : Protected Forest- - Approx. 0.58 km towards ENE direction of mine site.<br>Protected Forest- Approx 1.00 km towards NNW direction of mine site.<br>Protected Forest- Approx. 2.18 km towards NNE direction of mine site. |
| 21 | Road & Highways      | : NH- 133A, Approx. 0.77km in SW direction.                                                                                                                                                                                |

**CO-ORDINATES**

|   |           |                     |                   |
|---|-----------|---------------------|-------------------|
| 1 | Latitude  | From 24°41'58.22" N | To 23°42'04.00" N |
| 2 | Longitude | From 87°44'09.80" E | To 87°44'18.22" E |

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**LAND DETAILS :**

| Khata No. | Plot No.                |
|-----------|-------------------------|
| 03        | 104 (P), 105 & 109 (P)  |
| 11        | 103 (P)                 |
| 14        | 98, 100, 102, 106 & 107 |

**STATUTORY CLEARANCES**

|    |                                       |   |                                                                                                                                                                                            |
|----|---------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | LOI / Lease docs                      | : | Lease deed : 01.10.2019 to 30.09.2029.                                                                                                                                                     |
| 2  | CO                                    | : | The CO, Hiranpur vide letter no. 63/Ra, dated 07.10.2015 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyani & Register II.                     |
| 3  | DMO                                   | : | DMO, Pakur vide memo no. 1962/M, dated 01.09.2023 certified that no other mining lease area exists within 500 m radius from proposed project site.                                         |
| 4  | DFO Wild Life                         | : | DFO, Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no. 2791, dated 17.11.2022 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary. |
| 5  | DFO Forest Distance                   | : | Division Forest Officer, Pakur Forest Division vide letter no. 924, dated 29.08.2015 certified that the distance of notified forest is more than 500 meter from proposed project site.     |
| 6  | DSR                                   | : | This project falls under potential area of District Survey Report (DSR) of Pakur.                                                                                                          |
| 7  | Gram Sabha                            | : | BDO, Hiranpur vide letter no. 971/Vi, dated 26.08.2017 informed that Gram Sabha conducted on 23.08.2017.                                                                                   |
| 8  | Mine Plan Approval                    | : | Deputy Director Mines, Santhal Pargana Circle, Dumka vide Memo No. 358/DDM, dated 19.07.2023.                                                                                              |
| 9  | Production Report                     | : | Production figure issued by DMO, Pakur vide memo no. 1961/M, dated 01.09.2023.                                                                                                             |
| 10 | Previous Environmental Clearance (EC) | : | Previous EC granted by DEIAA, Pakur vide letter no. 166/DEIAA, dated 09.09.2017.                                                                                                           |

|    |                                  |   |                                                                                                                                                   |
|----|----------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Compliance report of previous EC | : | The Regional Office –cum- Laboratory, Dumka vide Ref. no. : 1935, dated 13.09.2023 has certified compliance of the EC conditions issued by DEIAA. |
|----|----------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------|

#### Working Details

|    |                         |   |                                        |                                |
|----|-------------------------|---|----------------------------------------|--------------------------------|
| 1  | Mining Method           | : | Opencast Semi-mechanised method        |                                |
| 2  | Quarry Area             | : | 2.60 Ha                                | Life of Mine – 8.06 or 8 years |
| 3  | Waste Generation        | : | 360 .0 cum or1044 tons                 |                                |
| 4  | Stripping Ratio         | : | 1: 0.006                               |                                |
| 5  | Working Days            | : | 300                                    |                                |
| 6  | Bench: size & No        | : | 6m to 6m                               |                                |
| 7  | Elevation of Mine       | : | 72 AMSL to 80 AMSL                     |                                |
| 8  | Ground Level Elevation  | : | 72 AMSL                                |                                |
| 9  | Ultimate Working Depth  | : | 35 AMSL                                |                                |
| 10 | Water Table             | : | 30 AMSL (15 mbgl)                      |                                |
| 11 | Topography of Mine      | : | Area represents undulating topography. |                                |
| 12 | Explosive Requirement   | : | 110kg/day                              |                                |
| 13 | Diesel/Fuel requirement | : | 110 litre/day                          |                                |

#### Production Details

| Year            | Production of stone (Cum) | Production of stone (Tonnes) | Total Waste in (cum) | Bench RL in Meters |
|-----------------|---------------------------|------------------------------|----------------------|--------------------|
| 1 <sup>st</sup> | 32152.76                  | 93243.00                     | 360.00               | 80mRL-66mRL        |
| 2 <sup>nd</sup> | 33205.17                  | 96295.00                     | -                    | 71mRL-66mRL        |
| 3 <sup>rd</sup> | 40153.79                  | 116446.00                    | -                    | 66mRL-61mRL        |
| 4 <sup>th</sup> | 37695.52                  | 109317.00                    | -                    | 66mRL-56mRL        |
| 5 <sup>th</sup> | 41057.24                  | 119066.00                    | -                    | 61mRL-51mRL        |
| <b>Total</b>    | <b>184264.48</b>          | <b>534367.00</b>             | <b>360.00</b>        |                    |

## Land Use

| Pattern of Utilization | Existing Land Use (Ha) | At the end of Plan period (Ha) | Conceptual stage (Ha) (after life of mine)                  |
|------------------------|------------------------|--------------------------------|-------------------------------------------------------------|
| Quarry                 | 1.132                  | 1.472                          | 2.019 (Entire area will be converted into water reservoir ) |
| Road                   | 0.006                  | 0.003                          | 0.003                                                       |
| Safety Zone            | --                     | 0.578<br>(Plantation)          | 0.578<br>(Plantation)                                       |
| Proposed Crusher       | --                     | 0.030                          | --                                                          |
| <b>Total</b>           | <b>1.138</b>           | <b>2.083</b>                   | <b>2.60</b>                                                 |
| <b>Balance</b>         | <b>1.462</b>           | <b>0.517</b>                   | <b>--</b>                                                   |
| <b>Lease Hold Area</b> | <b>2.60</b>            | <b>2.60</b>                    | <b>2.60</b>                                                 |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| S. No. | Location                        | Area/Length | No of Trees |
|--------|---------------------------------|-------------|-------------|
| 1      | Safety Zone                     | 0.578 ha    | 1445        |
| 2      | Along Approach Road             | 0.94km      | 940         |
| 3      | In consulting local authorities | -           | 100         |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

### Solid Waste Management

Total 360.0 cum or 1044 tons waste during the plan period will be generated. Part of the waste shall be utilized for maintenances of the village road and making of approach road, haul road etc.

### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation.Excess water, if any shall be discharged in natural stream after settling of suspendedparticles in the pit. Pump having required capacity will be installed to liftaccumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall becollected in garland drain and allowed to settle in a small pit for settling suspendedparticles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, dischargefrom Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and goodsanitation system shall be made available.

### Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

### RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

#### Probability/Likelihood of Occurrence of Hazard

| Likelihood Level | Probability       | Description                                                      |
|------------------|-------------------|------------------------------------------------------------------|
| L5               | Very Unlikely     | Has not occurred/reported within last 5 years.                   |
| L4               | Remote / Moderate | May occur if conditions exist. Has occurred within last 3 years. |

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|    |            |                                                                        |
|----|------------|------------------------------------------------------------------------|
| L3 | Occasional | Likely to occur if conditions exist. Has occurred within last 2 years. |
| L2 | Probable   | Very likely to occur. Has occurred within last year.                   |
| L1 | Frequent   | Almost certain to occur. Has occurred more than one within last year.  |

#### Severity/Impact Intensity

| Severity Level | Severity      | Description                                                                                                               |
|----------------|---------------|---------------------------------------------------------------------------------------------------------------------------|
| C1             | Catastrophic  | May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation. |
| C2             | Major         | May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.         |
| C3             | Moderate      | Minor injury to personnel or environment                                                                                  |
| C4             | Minor         | Minor damage but does not cause injury to personnel                                                                       |
| C5             | Insignificant | May result in no, or less minor, illness, injury or system damage                                                         |

#### Risk Assessment Chart (Qualitative Method)

| Risk Rank<br>(Likelihood x Consequence) | L5 (Very Unlikely) | L4 (Remote) | L3 (Occasional) | L2 (Probable) | L1 (Frequent) |
|-----------------------------------------|--------------------|-------------|-----------------|---------------|---------------|
| C1 (Catastrophic)                       | 5                  | 4           | 3               | 2             | 1             |
| C2 (Major)                              | 10                 | 8           | 6               | 4             | 2             |
| C3 (Moderate)                           | 15                 | 12          | 9               | 6             | 3             |
| C4 (Minor)                              | 20                 | 16          | 12              | 8             | 4             |
| C5 (Insignificant)                      | 25                 | 20          | 15              | 10            | 5             |



### Risk Rating Scale

| S.No. | Rating      | Scale |
|-------|-------------|-------|
| 1     | High Risk   | 1-4   |
| 2     | Medium Risk | 5-12  |
| 3     | Low Risk    | 13-25 |

### Hazard identification & Risk Analysis in Stone Mining operation

| S.No. | Activity                        | Hazard                                                            | Probability   | Severity      | Score |
|-------|---------------------------------|-------------------------------------------------------------------|---------------|---------------|-------|
| 1     | Temporary Storage of Explosives | Unintended Explosion                                              | Very Unlikely | Catastrophic  | 5     |
| 2     | Charging of Explosives          | Unwanted Explosion                                                | Very Unlikely | Catastrophic  | 5     |
| 3     | Blasting                        | Hit by fly rock<br>(Bodily Injury)                                | Occasional    | Major         | 6     |
| 4     | Drilling                        | Exposure to Dust                                                  | Frequent      | Insignificant | 5     |
| 5     | Bench Formation                 | Fall/Slide/Tripping<br>(Bodily Injury)                            | Probable      | Moderate      | 6     |
| 6     | Loading/Unloading               | Bodily injury by hitting by loading material,<br>Exposure to Dust | Very Unlikely | Minor         | 20    |
| 7     | Transportation                  | Vehicle Accident,<br>Exposure to Dust                             | Remote        | Minor         | 16    |

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

#### Preventive Measures:

##### Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

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loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

### **Drilling Operations**

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- I. Falls from the edge of a bench
  - II. Dust generation during drilling
  - III. Noise Generation due to drilling
  - IV. Entrapment in by moving part of the drilling equipment
- I. Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

### **Control Measures**

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

### **II. Dust generation during drilling**

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation

- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

### **III. Noise Generation during drilling**

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

### **Blasting Operations**

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

### **Handling of Explosives**

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

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- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

#### **Health Hazards**

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept. The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

#### **Accident at Site**

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

## Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

## Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.

- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Suraidih Stone Mine of M/s Bajrang Stone Works (Prop. : Shri Somraj Bhagat), Village : Suraidih, Thana : Hiranpur, Distt. : Pakur, Jharkhand (2.60 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

\*\*\*\*\*

**11. Rola Stone Deposit of M/s New India Industries, Village : Rola, Thana : Gola, Distt. : Ramgarh, Jharkhand (2.812 Ha).**

(Proposal No. SIA/JH/MIN/443749 /2023).

**Project Category: B2 – Application for Environment Clearance**

**EC Application for: Proposed Capacity- 88889.22 cum/annum or 240000.89 TPA .**

**Name of the consultant : P & M Solution, Noida, U.P.**

This is a new project which has been taken for appraisal on 22.09.2023.

**Project and Location Details :**

| Sl | Parameter     | Details                                                                                                                                                                                                                                 |
|----|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Project Name  | : Rola Stone Deposit                                                                                                                                                                                                                    |
| 2  | Lessee:       | : M/S NEW INDIA INDUSTRIES<br>Partners-<br>1) Md. Abid Husain<br>Address- At- Gandhoniya, P.O.- Beko, P.S.- Bagodar<br>2) Sri Shekhar Mishra<br>Address- At- Pathaldiha, P.O.- Barwadih, P.S.- Bagodar,<br>District- Giridih, Jharkhand |
| 3  | Lease Address | : Village – Rola, Thana - Gola, District – Ramgarh, Jharkhand                                                                                                                                                                           |
| 4  | Lease Area    | : 2.812 ha Acres- 6.95 Acres                                                                                                                                                                                                            |
| 5  | Type of Land  | : Non- Forest (Raiyati Land)                                                                                                                                                                                                            |
| 6  | Project Cost  | : Rs. 50 Lakhs                                                                                                                                                                                                                          |

|    |                      |   |                                                                                                                                                                                                                              |                            |
|----|----------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 7  | EMP Budget           | : | Capital: 3.35 Lakhs                                                                                                                                                                                                          | Recurring: 4.27Lakh / year |
| 8  | New or Expansion     | : | New                                                                                                                                                                                                                          |                            |
| 9  | Mineable Reserves    | : | cum.: 535358.25 cum                                                                                                                                                                                                          | Tonnes: 1445467.28 tons    |
| 10 | Mine Life            | : | 6.02 ~ 6.0 years                                                                                                                                                                                                             |                            |
| 11 | Man power            | : | 22                                                                                                                                                                                                                           |                            |
| 12 | Water Requirement    | : | 6.58 ~ 6.60 KLD (Drinking: 0.22 KLD, Dust Suppression: 3.38 KLD, Plantation: 2.98 KLD)                                                                                                                                       |                            |
| 13 | Water Source         | : | From Nearby villages by tankers                                                                                                                                                                                              |                            |
| 14 | DG Set / power       | : | 500 KVA                                                                                                                                                                                                                      |                            |
| 15 | Crusher              | : | Yes                                                                                                                                                                                                                          |                            |
| 16 | Nearest Water Body   | : | Gomti Nala -Approx 3.90 km towards South direction of mine site.                                                                                                                                                             |                            |
| 17 | Nearest Habitation   | : | Rola, Approx 1.0 km towards NE direction.                                                                                                                                                                                    |                            |
| 18 | Nearest Rail Station | : | Gola Road Railway station, approx. 7.0 km towards SW direction.                                                                                                                                                              |                            |
| 19 | Nearest Air Port     | : | Birsa Munda Airport, approx. 52.80 km towards SW direction.                                                                                                                                                                  |                            |
| 20 | Nearest Forest       | : | Fairly Dense Mixed Jungle- Approx 4.30 km towards NE direction of mine site.<br>Protected Forest- Approx 4.50 km towards SW direction of mine site.<br>Protected Forest- Approx 4.60 km towards West direction of mine site. |                            |
| 21 | Road & Highways      | : | NH-320, Approx. 1.50 km. in SE direction.                                                                                                                                                                                    |                            |

#### CO-ORDINATES

|   |           |                     |                    |
|---|-----------|---------------------|--------------------|
| 1 | Latitude  | From 23°34'14.88" N | To 23°34'22.18" N  |
| 2 | Longitude | From 85°45'41.13" E | To 85°45'49. 15" E |

#### LAND DETAILS :

| Khata No. | Plot No.                                    |
|-----------|---------------------------------------------|
| 13        | 617 (P), 619 (P), 633 (P),<br>634 & 638 (P) |
| 16        | 616                                         |
| 23        | 615 (P)                                     |

## STATUTORY CLEARANCES

|   |                     |   |                                                                                                                                                                                                                                                                         |
|---|---------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | LOI / Lease docs    | : | The Letter of Intent (LoI) has been issued by District Mining Officer, Ramgarh vide letter no. 590/khanan, dated 05.06.2023.                                                                                                                                            |
| 2 | CO                  | : | The CO, Gola (Ramgarh) vide letter no. 1206, dated 30.08.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in Khatyan.                                                                                                                  |
| 3 | DMO                 | : | DMO, Ramgarh vide memo no. 645/Khanan, dated 21.06.2023 certified that no other mining lease area exists within 500 m radius from proposed project site.                                                                                                                |
| 4 | DFO Wild Life       | : | DFO, Wildlife Hazaribag vide letter no. 1911, dated 25.09.2022 certified that the proposed project site is outside Eco Sensitive Zone of Hazaribagh Wildlife Sanctuary.                                                                                                 |
| 5 | DFO Forest Distance | : | Division Forest Officer, Ramgarh Forest Division vide letter no. 2040, dated 17.10.2022 certified that the distance of demarcated forest is 310 meter from proposed project site.                                                                                       |
| 6 | DSR                 | : | The DC-cum-District Magistrate, Ramgarh vide letter no. 659 / Khanan, dated 26.06.2023 has informed that this project is part of District Survey Report (DSR) of Ramgarh district and accordingly necessary action with regard to Environmental Clearance can be taken. |
| 7 | Gram Sabha          | : | BDO, Gola (Bokaro) vide letter no. 1273, dated 05.09.2022 informed that Gram Sabha conducted on 05.09.2022.                                                                                                                                                             |
| 8 | Mine Plan Approval  | : | District Mining Officer, Ramgarh vide Letter No. 908/Mining, dated 25.08.2023.                                                                                                                                                                                          |

## Working Details

|   |                        |   |                                                    |                                 |
|---|------------------------|---|----------------------------------------------------|---------------------------------|
| 1 | Mining Method          | : | Opencast other than fully mechanized (OTFM) method |                                 |
| 2 | Quarry Area            | : | 2.812 Ha                                           | Life of Mine – 6.02 ~ 6.0 years |
| 3 | Waste Generation       | : | 42909.90 cum or 115856.73 tons                     |                                 |
| 4 | Stripping Ratio        | : | 1: 0.036                                           |                                 |
| 5 | Working Days           | : | 300                                                |                                 |
| 6 | Bench: size & No       | : | 6m to 6m                                           |                                 |
| 7 | Elevation of Mine      | : | 346 AMSL to 356 AMSL                               |                                 |
| 8 | Ground Level Elevation | : | 346 AMSL                                           |                                 |



|    |                         |   |                                        |
|----|-------------------------|---|----------------------------------------|
| 9  | Ultimate Working Depth  | : | 324 AMSL                               |
| 10 | Water Table             | : | 309 AMSL (15mbgl)                      |
| 11 | Topography of Mine      | : | Area represents undulating topography. |
| 12 | Explosive Requirement   | : | 110 kg/day                             |
| 13 | Diesel/Fuel requirement | : | 110 litre/day                          |

#### Production Details

| Year            | Production of stone (Cum) | Production of stone (Tonnes) | Total Waste in (cum) | Bench RL in Meters |
|-----------------|---------------------------|------------------------------|----------------------|--------------------|
| 1 <sup>st</sup> | 88889.22                  | 240000.89                    | 16108.38             | 348 mRL - 342 mRL  |
| 2 <sup>nd</sup> | 88889.22                  | 240000.89                    | 4678.38              | 342 mRL – 330 mRL  |
| 3 <sup>rd</sup> | 88889.22                  | 240000.89                    | 8566.38              | 348 mRL - 330 mRL  |
| 4 <sup>th</sup> | 88889.22                  | 240000.89                    | 8878.38              | 348 mRL -336 mRL   |
| 5 <sup>th</sup> | 88889.22                  | 240000.89                    | 4678.38              | 336 mRL -324 mRL   |
| <b>Total</b>    | <b>444446.10</b>          | <b>1200004.45</b>            | <b>42909.90</b>      |                    |

#### Land Use

| Pattern of Utilization       | Existing (ha) | During Plan Period (ha) | During Conceptual Period/after closure of mines (ha)                                                                                                    |
|------------------------------|---------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Excavation                   | --            | 1.944                   | 2.316 (0.173 ha. area shall be backfilled, 1.829 ha. area left as water reservoir for rain water harvesting, 0.314 ha. shall be dead bench plantation). |
| Road                         | --            | 0.005                   | --                                                                                                                                                      |
| Waste Dump                   | --            | 0.228                   | --                                                                                                                                                      |
| Proposed Crusher             | --            | 0.120                   | Comes under mining                                                                                                                                      |
| Safety Zone                  | --            | 0.496<br>(Plantation)   | 0.496<br>(Plantation)                                                                                                                                   |
| <b>Total</b>                 | --            | <b>2.793</b>            | <b>2.812</b>                                                                                                                                            |
| Untouched Area               | 2.812         | 0.019                   | --                                                                                                                                                      |
| <b>Total Lease Hold Area</b> | <b>2.812</b>  | <b>2.812</b>            | <b>2.812</b>                                                                                                                                            |

## ENVIRONMENT MANAGEMENT

### Green Belt Development

| S. No. | Location                        | Area/Length | No of Trees |
|--------|---------------------------------|-------------|-------------|
| 1      | Safety Zone                     | 0.496 ha    | 1240        |
| 2      | Along Approach Road             | 0.15 km     | 150         |
| 3      | In consulting local authorities | -           | 100         |

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

#### Solid Waste Management

Total 42909.90 cum or 115856.73 tons waste shall be generated during this plan period. It has been calculated that total 42909.88 cum total waste shall be generated during the plan period. 50% of the waste shall be utilized for maintenances of the village road and making of approach road, haul road etc. and rest 50% of the waste shall be temporary dump in the SW side of the applied area.

#### Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

### Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

### RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

#### Probability/Likelihood of Occurrence of Hazard

| Likelihood Level | Probability       | Description                                                            |
|------------------|-------------------|------------------------------------------------------------------------|
| L5               | Very Unlikely     | Has not occurred/reported within last 5 years.                         |
| L4               | Remote / Moderate | May occur if conditions exist. Has occurred within last 3 years.       |
| L3               | Occasional        | Likely to occur if conditions exist. Has occurred within last 2 years. |
| L2               | Probable          | Very likely to occur. Has occurred within last year.                   |
| L1               | Frequent          | Almost certain to occur. Has occurred more than one within last year.  |

#### Severity/Impact Intensity

| Severity Level | Severity     | Description                                                                                                               |
|----------------|--------------|---------------------------------------------------------------------------------------------------------------------------|
| C1             | Catastrophic | May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation. |

|    |               |                                                                                                                   |
|----|---------------|-------------------------------------------------------------------------------------------------------------------|
| C2 | Major         | May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action. |
| C3 | Moderate      | Minor injury to personnel or environment                                                                          |
| C4 | Minor         | Minor damage but does not cause injury to personnel                                                               |
| C5 | Insignificant | May result in no, or less minor, illness, injury or system damage                                                 |

#### Risk Assessment Chart (Qualitative Method)

| Risk Rank<br>(Likelihood x<br>Consequence) | L5 (Very<br>Unlikely) | L4 (Remote) | L3<br>(Occasional) | L2<br>(Probable) | L1<br>(Frequent) |
|--------------------------------------------|-----------------------|-------------|--------------------|------------------|------------------|
| <b>C1<br/>(Catastrophic)</b>               | 5                     | 4           | 3                  | 2                | 1                |
| <b>C2 (Major)</b>                          | 10                    | 8           | 6                  | 4                | 2                |
| <b>C3 (Moderate)</b>                       | 15                    | 12          | 9                  | 6                | 3                |
| <b>C4 (Minor)</b>                          | 20                    | 16          | 12                 | 8                | 4                |
| <b>C5<br/>(Insignificant)</b>              | 25                    | 20          | 15                 | 10               | 5                |

#### Risk Rating Scale

| S.No. | Rating      | Scale |
|-------|-------------|-------|
| 1     | High Risk   | 1-4   |
| 2     | Medium Risk | 5-12  |
| 3     | Low Risk    | 13-25 |

#### Hazard identification & Risk Analysis in Stone Mining operation

| S.No. | Activity                        | Hazard               | Probability   | Severity     | Score |
|-------|---------------------------------|----------------------|---------------|--------------|-------|
| 1     | Temporary Storage of Explosives | Unintended Explosion | Very Unlikely | Catastrophic | 5     |
| 2     | Charging of Explosives          | Unwanted Explosion   | Very Unlikely | Catastrophic | 5     |

|   |                   |                                                                         |               |               |    |
|---|-------------------|-------------------------------------------------------------------------|---------------|---------------|----|
| 3 | Blasting          | Hit by fly rock<br>(Bodily Injury)                                      | Occasional    | Major         | 6  |
| 4 | Drilling          | Exposure to Dust                                                        | Frequent      | Insignificant | 5  |
| 5 | Bench Formation   | Fall/Slide/Tripping<br>(Bodily Injury)                                  | Probable      | Moderate      | 6  |
| 6 | Loading/Unloading | Bodily injury by<br>hitting by loading<br>material,<br>Exposure to Dust | Very Unlikely | Minor         | 20 |
| 7 | Transportation    | Vehicle Accident,<br>Exposure to Dust                                   | Remote        | Minor         | 16 |

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

### Preventive Measures:

#### **Face Stability**

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

#### **Drilling Operations**

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

#### **Falls from the edge of a bench**

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

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While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

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Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- If any tree felling than necessary permission shall be taken from the competent authority.
- Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Rola Stone Deposit of M/s New India Industries, Village : Rola, Thana : Gola, Distt. : Ramgarh, Jharkhand (2.812 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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12. Bastadih Stone Mine of M/s Mor Mukat Marketing Pvt. Ltd., Village : Bastadih, Thana : Hiranpur, Thana no. : 86, Distt. : Pakur, Jharkhand (2.87 Ha).

(Proposal No. SIA/JH/MIN/ 438987/2023).

Project Category: B2 – Application for Environment Clearance

EC Application for: Stone Mining (96993 Cum Per Annum/ 271580 Ton Per Annum)

Name of the consultant : Rian Enviro Pvt. Ltd., Patna, Bihar.

This is an expansion project which has been taken for appraisal on 22.09.2023.

Project and Location Details:

Sl	Parameter	Details
1	Project Name	: Bastadih Stone Mine at Mauza- Bastadih, Thana No.-86, Thana- Hiranpur, District- Pakur Jharkhand.
2	Lessee:	: M/s Mor Mukat Marketing Pvt. Ltd. CEO-Sri Prakash Kumar Singh
3	Lease Address	: R/O-Azad Nagar, (Near Primary School, Bhuli) P.S+ District - Dhanbad (Jharkhand).
4	Lease Area	: 2.87 HA. Acres: 7.09 Acres
5	Type of Land	: Non Forest – Rayati Land
6	Project Cost	: 134.15 Lakhs
7	EMP Budget	: Capital: 6.07 Lakhs Recurring: 3.0 Lakh / year
8	CSR / CER Budget	: -
9	New or Expansion	: Expansion Project
10	Mineable Reserves	: Cu.M.: 484800 Cum Tonnes: 1357439
11	Mine Life	: 05 years
12	Man power	: 18
13	Water Requirement	: 7.0 KLD=1.0 KLD (Drinking & Domestic Uses) + 2.0 (Plantation) KLD + 4.0 KLD (Dust Suppression).
14	Water Source	: From nearby villages/Nearest Canal by tankers
15	DG Set / power	: 60 KVA
16	Crusher	: --
17	Nearest Water Body	: River, Approx. 11.21 Km towards South direction
18	Nearest Habitation	: Bastadih Approx. 1.33 km towards SE
19	Nearest Rail Station	: Pakur Railway Station, approx. 14.0 km towards ENE.
20	Nearest Air Port	: Deoghar Airport, approx. 103.63 km towards WSW.
21	Nearest Forest	: Protected Forest- Approx. 4.64 Km towards NE. Approx. 2.29 Km towards ESE. Approx. 5.26 Km towards WNW.
22	Road & Highways	: National Highway 133A - Approx 8.0 km towards NE. MDR (Sahargao- Hiranpur), Approx. 0.10 km. towards SW

CO-ORDINATES

1	Latitude	From 24°35'31.56"N	To 24°35'38.30"N
2	Longitude	From 87°42'58.88"E	To 87°43'8.73"E

LAND DETAILS :

Khata No.	Plot No.
05	197 (P)
12	198
17	200
18	201 (P)
23	199

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Pakur vide letter no. 595/M, dated 25.04.2020. ii. Lease Deed : 08.01.2022 to 14.07.2031
2	CO	:	The CO, Hiranpur vide letter no. 517/Ra, dated 09.10.2019 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatyan & Register II.
3	DMO	:	DMO, Pakur vide memo no. 1202/M, dated 29.07.2020 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Hazaribag vide letter no. 2174, dated 10.10.2019 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Lake Bird Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Pakur Forest Division vide letter no. 1164, dated 28.09.2019 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.

6	DSR	:	This project is mentioned in District Survey Report (DSR) of Pakur district in Page No. 68 at Sl. No. 48.
7	Gram Sabha	:	Gram Sabha conducted on 11.09.2019.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Dumka vide Letter No. 287/DDM, dated 10.06.2023.
9	Compliance report of previous EC	:	Compliance report certified by Regional Office cum Laboratory, JSPCB, Dumka vide Ref. no. : 1833, dated 28.08.2023..
10	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-13275603/2022/305, dated 24.07.2022.
11	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/RO/DMK/CTO-16065049/2023/98, dated 20.05.2023.
12	Previous Environmental Clearance (EC)	:	Previous EC granted by SEIAA vide letter no. EC/SEIAA/2020-21/2293/2020/134, dated 15.01.2021.
13	Transfer of Environmental Clearance (EC)	:	Transfer of EC issued by SEIAA vide letter no. : 90, dated 16.04.2022.
14	Earlier production figure	:	Earlier Production figure issued by DMO, Pakur vide memo no. 1148/M, dated 10.06.2023.

Working Details

1	Mining Method	:	Opencast Method, Mechanized Mine, Wagon Drilling & Control Blasting will be deployed.
2	Quarry Area	:	5 years – 2.87 ha. Life of Mine – 5 Year
3	Waste Generation	:	5 years–4847 cum Life of Mine – 5 Year
4	Stripping Ratio	:	1:0.01
5	Working Days	:	300
6	Bench: size & No	:	6m x 6m
7	Elevation of Mine	:	Highest elevation: 136 AMSL Lowest elevation: 112 AMSL
8	Ground Level Elevation	:	112 mRL
9	Ultimate Working Depth	:	24 mbgl (136 m AMSL to 112 m AMSL)
10	Water Table	:	96 m in AMSL
11	Topography of Mine	:	Undulatory

12	Explosive Requirement	:	-
13	Diesel/Fuel requirement	:	636 Litres/day

Production Details

Year	Production of stone (Cum)	Production of stone (Tonne)	Removal of gritty soil & Weathered rock in cum	Bench RL in Meters
1 st	96936	271421	4847	136-130
2 nd	96928	271399	Nil	130-124
3 rd	96937	271424	Nil	130-124
4 th	96948	271454	Nil	124-118
5 th	96993	271580	Nil	118-112
Total	484742	1357277	4847	

Land Use

LAND USE PATTERN			
	Existing	First to Fifth Years	After Life of Mine
Category	Area in Hectares	Area in Hectares	Area in Hectares
Quarry	0.98	2.21	2.21 (rain water harvesting water accumulate in existing pit 1357439 cum)
Haul Road	0.01	0.02	0.02
Proposed Crusher	0.00	0.00	00
Green belt in Safety Barrier	0.64	0.64	0.64
Dump with Parapet wall & Garland drain	0.00	0.00	00
Total area in use	1.63	2.87	2.87
Balance unused area	1.24	0.00	0.00
Balance used area	0.00	0.00	0.00
Total Existing Lease Area	2.87	2.87	2.87

Protection Measures for Post Mine Closure Action Plan

The mine site will be properly fenced properly. A board of Do Not Enter, Only Authorized Access will be fixed near the water reservoir area and at the gate of the mine site.

1. A warning sign board will be erected at the site giving general information about the hazards at the site.
2. The periphery of the water reservoir pit will be secured by constructing a parapet wall or gabion walls.
3. Plantation is also proposed at the backfilled area along with around the benches.

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Total Ware Reservoir Potential in Post Mine Closure = Area x Ultimate Depth
 = 2.21x100x100 sqm x 24 m
 =5,30,400 cum.

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	LOCATION		Area/Length	No. of Trees
1	Safety Zone	:	0.64 ha.	1024 trees @ 1600 trees per ha
2	Other Reclaimed Area	:	NIL	NIL
3	Safety Zone	:	0.64	1024 tree

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

The entire produce of boulder stone will be used as building material.

During plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible. During rainy season to prevent dump failure/soil erosion, toe-wall with weep-holes and garland drains will be constructed.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be used for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside

- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha' road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc. shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

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- I. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Quantity of HSD/ Fuel consumption per day of Bastadih Stone mine

S. No	Machine	Details of fuel (Diesel) requirements	Consumption of Diesel (in liters/day.)
1	Jack Hammer Drill	Number of Machine=2 Diesel consumption in one shift working. (i.e-10 liters) $=2*8*10=160$ liters	160 liters
2	Excavator	Number of Machine=1 Diesel consumption in one shift working. (i.e- 07litre/hr) $=1*8*7=56$ liters	56 liters
3	Tippers	Number of Tippers= 03 Diesel consumption in one shift working. (i.e-4ltr/hr.) $=3*10*4=120$ Ltr.	120 liters
4	DG Set	Number of DG Set =1(60 KVA) Diesel consumption by one in one shift working.(i.e-16 liter/hr) $=1*10*16=220$ liters	160 liters
5	Water Sprinkler	Number of Sprinkler=02 Diesel consumption by Sprinkler in one shift working (i.e-2ltr/hr). $=2*10*2=40$ liters.	40 ltr.
6	Extra	Transport vehicle, super vision vehicle, maintenance vehicle	100 liters
Total			636

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.

L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- V. Falls from the edge of a bench
- VI. Dust generation during drilling
- VII. Noise Generation due to drilling
- VIII. Entrapment in by moving part of the drilling equipment

IV. Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

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V. Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

VI. Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Bastadih Stone Mine of M/s Mor Mukat Marketing Pvt. Ltd., Village : Bastadih, Thana : Hiranpur, Thana no. : 86, Distt. : Pakur, Jharkhand (2.87 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

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13. Murgadanga Stone Mine of M/s J.Z. Stone Works (Md Jafar Abbas And Md Zubair Alam) at Village : Murgadanga, Thana no. : 117, Anchal : Hiranpur, Distt. : Pakur, Jharkhand (2.80 Ha).
(Proposal no. : SIA/JH/MIN/443483/2023)

EC Application for: Boulder Stone: 42908 Cum Per Annum /120142 Tonnes Per Annum
DG Set: 100 KVA

Mobile Crusher: Proposed

Name of the consultant : Rian Enviro Pvt. Ltd., Patna, Bihar.

This is a new project which has been taken for appraisal on 22.09.2023.

Project Category: B1 – The State Expert Appraisal Committee, Jharkhand deliberated the project during its 100th meeting held on 09-14.01.2023 and SEIAA, Jharkhand has approved the ToRs in 101st meeting held on 23rd & 24th January, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2720/2023/370, date 30.01.2023. The final EIA / EMP submitted by PP to SEIAA on 15.09.2023 and which was forwarded to SEAC on 16.09.2023.

Project and Location Details:

Sl	Parameter	Details
1	Project Name	: Murgadanga Stone Mine
2	Lessee:	: Partner's- MD JAFAR ABBAS AND MD ZUBAIR ALAM
3	Lease Address	: Mauza- Murgadanga, Thana No.-117, Anchal- Hiranpur, District- Pakur, Jharkhand
4	Lease Area	: Ha: 2.80 Acres: 6.92 Acres
5	Type of Land	: Non-Forest – Rayati Land
6	Project Cost	: 52 Lakhs
7	EMP Budget	: Capital: 7.70 Lakhs Recurring: 3.0 Lakh / year
8	CSR / CER Budget	: Rs. 0.0 Lakhs
9	New or Expansion	: New Project
10	Mineable Reserves	: Cu.M.: 4,51,178.92 Cu. M. Tonnes: 1263301 Tonnes
11	Mine Life	: 10 years five months
12	Man power	: 23
13	Water Requirement	: 7.69 KLD=0.69 KLD (Drinking & Domestic Uses) + 4 (Plantation) KLD + 3.0 KLD (Dust Suppression).
14	Water Source	: From Nearby villages by tankers
15	DG Set / power	: 100 KVA
16	Crusher	: Not Present
17	Nearest Water Body	: Ganga River, approx. 19.0 Km towards East Direction
18	Nearest Habitation	: Bishunpur Village: Appox.0.9 KM;
19	Nearest Rail Station	: Tilbhita Railway Station is about approx. 7.5 km in East direction
20	Nearest Air Port	: Deoghar Airport is approx. 110 km in WSW direction. (Source: Google earth & Aerial Distance)
21	Nearest Forest	: NIL
22	Road & Highways	: NH 133A About 2.15 km in WSW direction

CO-ORDINATES

1	Latitude	From 24°41'2.426"N	To 24°40'57.368"N
2	Longitude	From 87°46'5.179"E	To 87°45'59.707"E

LAND DETAILS

Mouza	J.B. NO.	PLOT NO.
Murgadanga	77	157
	80	102,103
	55	101,148,106/P
	54	77/P
	07	94/P,104
	29	109/P,147
	112	97/P,156
	06	96/P

STATUTORY CLEARANCES

1	LOI/Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Office, Pakur vide letter no. 833/M, Dated 19.06.2021.
2	CO	:	The CO, Hiranpur vide letter No. 108, Dated 04.03.2021 has mentioned the plot nos. of the project is not recorded as "Jangle Jhari" in R.S. Khatiyani & Register II.
3	DMO	:	DMO, Pakur vide memo No. 1184/M, dated 17.07.2021 certified that four lease (6.92 Acres, 5.15 Acres, 5.21 Acres & 2.00 Acres) exists within 500 m radius from proposed project site & Total lease area is 10.32 Ha.
4	DFO Wild Life	:	DFO, Wildlife Hazaribag vide letter no. 1953, dated 14.11.2021 certified that the proposed project site is outside Eco Sensitive Zone of Udhawa Lake Bird Wildlife Sanctuary.
5	Territorial DFO Letter	:	DFO, Pakur Forest Division vide letter no. 747, dated 06.05.2021 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
6	DSR	:	The DC-cum-District Magistrate, Pakur, vide letter no. 1412 / M, dated 12.08.2021 has informed that this project is part of District Survey Report (DSR) at Pakur district and accordingly necessary action with regard to Environmental Clearance can be taken.

7	Gram Sabha	:	BDO, Hiranpur vide letter no. 264/Vi, dated 03.04.2021 informed that Gram Sabha conducted on 24.03.2021.
8	Mine Plan Approval	:	DMO, Pakur vide memo no. 2096/M, dated 07.12.2021
9	Public Hearing	:	Regional Office cum Laboratory, JSPCB, Dumka vide letter no. 1771, dated 17.08.2023 informed that Public Hearing conducted on 14.07.2023.

Working Details

1	Mining Method	:	Opencast Method, Mechanized Mine, Wagon Drilling & Control Blasting will be deploy	
2	Quarry Area	:	1.32 ha.	Life of Mine – 5 years
3	Waste Generation	:	19093 cum	Life of Mine – 2 Years
4	Stripping Ratio	:	1:0.01	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	67 m AMSL to 66 m AMSL	
8	Ground Level Elevation	:	67 In AMSL	
9	Ultimate Working Depth	:	19 m bgl (67 m AMSL to 48 m AMSL)	
10	Water Table	:	26 m	
11	Topography of Mine	:	Flat, milled and undulatory	
12	Explosive Requirement	:	50 Kg/Day	
13	Diesel/Fuel requirement	:	612 Litres/day	

Production Details

Year	Production of stone (Cum)	Production of stone (Tonne)	Generation of Waste/O.B in cum	Bench Amsl
1 st	42840	119952	15242	67-60
2 nd	42908	120142	3851	66-60
3 rd	42822	119902	00	60-54
4 th	42891	120095	00	60-54
5 th	42636	119381	00	66-60
Total	214097	599472	19,093	

Land Use

	Existing	First to Fifth Years	After Life of Mine
Category	Area in Hectares	Area in Hectares	Area in Hectares

Quarry	0.00	1.32	2.14 ha(area will be used as water reservoir)
Haul Road	0.00	0.03	0.02
Proposed Crusher	0.00	0.12	Remove from lease area
Green belt in Safety Barrier	0.00	0.64	0.64
Dump with Parapet wall & Garland drain	0.00	0.21	Nil (Waste dump to be removed and backfilled)
Total area in use	0.00	2.32	2.80
Balance unused area	2.80	0.48	00
Total Applied Lease Area	2.80	2.80	2.80

Protection Measures for Post Mine Closure Action Plan

The mine site will be properly fenced properly. A board of Do Not Enter, Only Authorized Access will be fixed near the water reservoir area and at the gate of the mine site.

1. A warning sign board will be erected at the site giving general information about the hazards at the site.
2. The periphery of the water reservoir pit will be secured by constructing a parapet wall or gabion walls.
3. Plantation is also proposed at the backfilled area along with around the benches.

Total Ware Reservoir Potential in Post Mine Closure =Area x Ultimate Depth
 $= 2.14 \times 100 \times 100 \text{ sqm} \times 18 \text{ m}$
 $= 385200 \text{ cum.}$

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	LOCATION		Area/Length	No. of Trees
1	Safety Zone	:	0.64 ha	1568/0.98=1600 trees per Ha
2	Other Reclaimed Area	:	NIL	NIL
3	Haul /Approach Road	:	640m	256 i.e.s on both sides – 2.5m distance

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3 x 3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- Waste Generation will be 19093 Cum during the life of mine. During Plan period gritty soil removed will be dumped at north- east side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de- stoned area quarry will be reclaimed to the extent possible.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be used for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
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- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

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- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
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- Water sprinkling at loading area shall be done

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- Use of personal protective equipment like dust mask etc. shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
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- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

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L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.

L1	Frequent	Almost certain to occur. Has occurred more than one within last year.
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Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

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Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

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- To avoid danger while reversing the vehicles especially at working place/loading point, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Murgadanga Stone Mine of M/s J.Z. Stone Works (Md Jafar Abbas And Md Zubair Alam) at Village : Murgadanga, Thana no. : 117, Anchal : Hiranpur, Distt. : Pakur, Jharkhand (2.80 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

14. Proposed Common Bio-Medical Waste Treatment Facility (CBWTF) by M/s Royal Waste Management (OPC) Pvt. Ltd., Mouza : Pargodih, Tehsil : Jamua, Distt. : Giridih, Jharkhand.

(Proposal No : SIA/JH/INFRA2/419267/2023).

Name of the consultant : Environmental Management Division of India Glycols Limited

This is a new project which has been taken for appraisal on 22.09.2023.

The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendments thereafter. For this purpose the Project Proponent has submitted the prescribed Form - I & PFR the proposed project falls under item 7 (da) Bio-Medical Waste Treatment Facility as per EIA Notification, 2006 and subsequent amendments dated 1st December, 2009 & 17th April, 2015.

A Common Bio-medical Waste Treatment Facility (CBWTF) is a set up where bio- medical waste, generated from a number of healthcare units, is suitably treated to reduce adverse effects that this waste may pose. The treated waste may finally be sent for disposal in a secured landfill or for recycling purposes.

Proposed project of setting up of the Common Bio-medical Waste Treatment Facility for treatment of 250 kg per hour-based bio medical incineration project, includes Incinerator, Autoclave, Shredder, Storage and Effluent Treatment Facility.

The proposed site is located Thana No. - 328, Mouza - Pargodih, Thana - Jamua, Dist. - Giridih, Jharkhand. The approach road to the site is Jamua Deoghar Road approx. 0.5 Km NW. The nearest Railway station Jamua Railway Station approx. 6.0 KM SSW direction from the site. The cost for Proposed project activity is Rs. 3.10 Crore.

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Salient Features of the Project :

Sr. No.	Parameters	Description																								
1.	Category of Project as per EIA Notification & Amendments	The Proposed project of CBWTF falls under Category B1, schedule 7(da) as per the EIA Notification 14 th Sep, 2006 and subsequent amendments dated 1 st December, 2009 & 17 th April, 2015.																								
2.	Proposed Project	Environment Clearance for Proposed Common Bio Medical Waste Treatment Facility (CBWTF) by M/S Royal Waste Management (OPC) Pvt. Ltd.																								
3.	Name of the Applicant	Name:- Ashok Kumar Designation:- Director																								
4.	Name of the Company	M/S Royal Waste Management (OPC) Pvt. Ltd. Registered Address: C/o Naushad Ali, House No. 82 Near Azad Nursing Home Bhanadrih, Giridih Jharkhnad.																								
5.	Total area of the Plant	1.56 ACRE/0.63 HA																								
6.	Location of Plant	Thana No. - 328, Mouza - Pargodih, Thana - Jamua, Dist. - Giridih, Jharkhand.																								
7.	Coordinates of the Site	<table> <tr> <td>Pillar</td><td>24.408651°</td><td>86.176881°</td></tr> <tr> <td>1.</td><td>24.409173°</td><td>86.176453°</td></tr> <tr> <td>2.</td><td>24.409601°</td><td>86.176810°</td></tr> <tr> <td>3.</td><td>24.409481°</td><td>86.177052°</td></tr> <tr> <td>4.</td><td>24.409939°</td><td>86.177302°</td></tr> <tr> <td>5.</td><td>24.409832°</td><td>86.177519°</td></tr> <tr> <td>6.</td><td>24.409216°</td><td>86.177331°</td></tr> <tr> <td>7.</td><td>24.409180°</td><td>86.177162°</td></tr> </table>	Pillar	24.408651°	86.176881°	1.	24.409173°	86.176453°	2.	24.409601°	86.176810°	3.	24.409481°	86.177052°	4.	24.409939°	86.177302°	5.	24.409832°	86.177519°	6.	24.409216°	86.177331°	7.	24.409180°	86.177162°
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6.	24.409216°	86.177331°																								
7.	24.409180°	86.177162°																								
8.	Environmental Sentivity																									
9.	School	LB Subhas Public School, Kharagdiha, approx.. 0.50 km NW Langata Baba High School, Mirzaganj, approx.. 1.5 km SW Belkundi Middle School, Belkundi, approx.. 1.6 km North SHNP High School, Ananadnagar, approx.. 2 km NW																								
10.	Hospital	Prathmik Swastha Kendra, jarnathdih, approx. 1.3 Km SW Sadar Hospital, Jmaua, approx.. 5.0 SW																								
11.	Temple	Bajranbali mandir, Kharagdiha, approx. 1.3 km NNW Langta Baba Mandir, approx. 2 Km NNW Shiv mandir, Mirzaganj, giridih, approx. 1.6 Km SW																								
12.	Road	SH 13 approx 5.3 Km SSW Jamua Deoghar Road approx. 0.5 Km NW																								
13.	Interstate Boundary	Bihar Jharkhand approx.. 12 Km NE																								

14.	Railway Station	Duriatanr halt, approx. 8 Km West Jamua Railway Station approx.. 6.0 KM SSW
15.	Airport	Giridih Airport approx. 24.5 km SSE Deoghat Airport approx. 54 km East
16.	River	River, approx. 2 km NW River 2.5 KM East

Land details :

Khata no.	Plot no.
97	84 (P)

M/S Royal Waste Management (OPC) Pvt. Ltd. Registered Address: C/o Naushad Ali, House No. 82 Near Azad Nursing Home Bhanadridih, Giridih Jharkhnad.. Due to growing bio medical waste generation and huge demand of its facilities for treatment and safe disposal, the proponent has plans for setting up a Common Bio Medical Waste Treatment Facility with treatment capacity –250 Kg/Hr. based bio medical incineration project which includes Incinerator, Autoclave, Shredder, Storage and ETP (Capacity- 10.0 KLD). The proposed project also requires to install Green insulated DG set of 82.5 KVA along with manpower requirement of 25 Nos. The proposed facility is extended up to 1.42-acre (0.58 ha) land.

Detail of the Proposed Treatment Facilities & their Capacities :

S. No	Equipments	Capacity
1	Incinerator (02 No.) standby	250 Kg/Hr.
2	Autoclave	1000 L per batch
3	Shredder	150 Kg/hr
4.	Chemical Disinfection Tank:	1500 Ltr
5.	ETP	10 KLD

Details of Storage Facilities :

Sl. No.	Storage Facility For	Facility
1.	Raw Materials	An isolated waste storage room shall be provided for Bio Medical Waste storage.
2.	Industrial Effluent	The proposed project shall generate 4.75 KLD of waste water from the Industrial activities & 0.50 KLD of Domestic sewage will be subjected to ETP (Capacity- 10.0 KLD). Treated water (3.90 KLD) will be reused in green belt for irrigation purpose. Zero discharge will be achieved.
3.	Hazardous Waste	TSDF/Authorized recyclers

Water requirement, Waste Water Generation & mode of Disposal (KLD) :

Sr. No.	Particulars	Total water requirement
1.	Incineration Process (Scrubbing)	2.40
2.	Steam Generation (Autoclaving)	0.20
3.	Miscellaneous i.e., Floor washing, Vehicle washing etc.	3.80
4.	Domestic Purpose	0.60
5.	Green Belt	4.00
Total		11.00

Total water requirement: 10.00 KLD**Fresh water requirement: 7.10 KLD****Recycle/reuse water: 3.90 KLD****Water Balance :**

S. No.	Requirement for	Water Consumption	Process Losses	Waste water generation	ETP losses	Recycled/ Reuse
A.	Process (Scrubbing)	2.40	1.40	1.00	0.20	0.80
B.	Steam Generation (Autoclaving)	0.20	0.05	0.15	0.05	0.10
C.	Miscellaneous i.e., Floor washing, Vehicle washing etc.	3.80	0.20	3.60	0.60	3.0
D.	Domestic Purpose	0.60	0.10	0.50	0.00	0.00
E.	Green Belt	4.0	4.0	0.00	0.00	0.00
Total (KL/Day)		11.0 7.10 (Fresh) + 3.90 (Recycle)	5.65	5.25	0.85	3.90

- Waste water (4.75 KLD) is being generated from the Industrial Process and 0.50 KLD of waste water generated from domestic use will be subjected to Proposed ETP (Capacity-10.0 KLD). Treated water from (3.90 KLD) will be reused in Green belt for irrigation purpose.
- Zero discharge will be achieved.

Power: Total power demand of the proposed unit would be 62.5 KVA which is being sourced from Jharkhand Bijli Vitran Nigam Limited. Green insulated DG set of capacity 82.5 KVA (01 No.) is proposed (Proposed DG set to be operated during emergency in case of power failure only).

Air pollution sources, fuel consumption and chimney height details

Sl. No.	Stack attached to	Fuel used	Fuel consumption	No. of stacks	Stack height	Air pollution control Unit	Predicted emissions
1.	Proposed Green insulated DG set of capacity 35.0 KVA (01 No.)	HSD	15.0 Lit/hr Approx.	01	1.5 m above from nearest Building HT	Stack	SO ₂ , NO _x SPM
2.	Incineration Unit	HSD	65.0 Lit/Month Approx.	01	30 m AGL	Venturi Scrubber & Stack	SO ₂ , NO _x SPM, Flue Gas

Solid waste generation during the operation phase :

Total No. of Employees	25
Assuming per capita solid waste generation rate as 0.2 kg/capita/day	
Quantity of solid waste generated	4.0 kg/day
Organic solid waste: 60 % of the total waste	2.40 kg/day
Inorganic solid waste: 40 % of the total waste	1.60 kg/day
Disposal of domestic solid waste	Domestic wastes are segregated at source, collected in bins and composted.

Hazardous waste generation and its management during the manufacturing process :

Hazardous Wastes i.e., spent oil, discarded containers/barrels generated during Operation phase dealt as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Summary of the total quantity of hazardous Waste :

Sl. No.	Source	Quantity of hazardous waste Generated (Approx.)	Category according to Schedule I of hazardous waste	Treatment/ Disposal
1.	Spent Oil from DG sets	5.0 MTPA	5.1	Handed over to authorized Recyclers /re-processors
2.	Discarded Containers /Barrels	100 Nos./Annum	33.1	Handed over to authorized recyclers / re-processors
3.	Sludge from wet scrubbers	1.0 MTPA	37.1	Send to TSDF / Co processing industries.
4.	Ash from incinerator and flue gas cleaning residue	5.0 MTPA	37.2	Send to TSDF / Co processing industries.

Statutory Clearances :

1	CO	:	The CO, Jamua vide letter no. 963, dated 11.10.2021 has mentioned the plot no. of the project is not recorded as "Jangal Jhari" in R.S. Khatiyon & Register II.
2	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 2063, dated 28.11.2021 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
3	DFO Forest Distance	:	DFO, Giridih West Forest Division vide letter no. 1322, dated 22.11.2021 certified that the distance of reserved / protected forest is more than 250 m from the proposed project site.
4	Civil Surgeon –cum- Chief Medical Officer	:	Civil Surgeon –cum- Chief Medical Officer, Giridih vide ref. no. 796, dated 17.03.2023 certified that there is no Common Bio-Medical Waste Treatment Facility available within 75 kms from the applied area.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VI.

Consideration of Proposals

1. Shimaldhav Stone Mine of M/s Noor Stone Works (Partners : (i) Shri Nur Mohammad Sheikh (ii) Shri Rahul Sheikh (iii) Shri Nureman Sheikh), Village : Shimaldhav, Thana : Hiranpur, Distt. : Pakur, Jharkhand (2.31 Ha).

(Proposal No. SIA/JH/MIN/444406/2023).

Project Category: B2 – Application for re-appraisal of Environment Clearance issued by DEIAA, Pakur.

EC Application for: Proposed Capacity- 48,362.06 cum /year or 140250 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

The project has been granted EC by DEIAA, Pakur vide letter no. 71/DEIAA, dated 05.12.2018.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Pakur which has been taken up for consideration on 23.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM₁₀ - 83.8 μ g/m³ PM_{2.5}-51.5 μ g/m³ SO₂-16.1 NO₂- 35.7 μ g/m³ All the data are within the permissible limit.

Data generated by JSPCB empanelled laboratory has been also submitted by PP. All the data are within prescribed limit.

Dust suppression is being carried out on regular basis.

Plantation has been carried in safety zone and all along the haul road of the lease area.

Production detail as per letter no. 1261/ M dated 04.07.2023 by D.M.O. Pakur is within the permissible limit of EC.

Certified compliance report by JSPCB vide reference no. 1934 dated 13.09.2023 has been submitted by PP. Certified compliance report submitted by PP is found to be satisfactory.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Shimaldhav Stone Mine
2	Lessee:	: M/s Noor Stone Works Partners- 1) Nur Mohammad Sheikh 2) Rahul Sheikh & 3) Nureman Sheikh Address:- At- Devtalla, Thana- Pakur, District- Pakur, Jharkhand
3	Lease Address	: Village Shimaldhav, District – Pakur, State- Jharkhand
4	Lease Area	: 2.31 ha Acres- 5.71 Acres

14	220, 223
16	221, 222

STATUTORY CLEARANCES:

1	Deed/Lease docs	:	Lease Deed : 06.10.2017 to 05.10.2027.
2	CO	:	The CO, Hiranpur vide memo no. : 312/Ra, dated 27.06.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatyan & Register II.
3	DMO	:	DMO, Pakur vide memo no. 1998/M, dated 05.09.2023 certified that 01 another mining lease area (3.71 Acre) exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no. : 1289, dated 15.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary.
5	DFO Forest Distance	:	DFO, Pakur Forest Division vide letter no. : 1368, dated 03.09.2016 certified that the distance of notified forest is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Pakur district in Page No. 20 at Sl. No. 15.
7	Gram Sabha	:	Gram Sabha conducted on 09.08.2017.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide memo no. 126/DDM, dated 01.03.2017.
9	Consent to Estblish (CTE)	:	CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-2075926 /2018/285, dated 26.03.2018.
10	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTO-15340656/2023/630, dated 31.03.2023.
11	Earlier production figure	:	Earlier Production figure issued by DMO, Pakur vide memo no. 1997/M, dated 05.09.2023.
12	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Pakur vide letter no. 71/DEIAA, dated 05.12.2018.

13	EC compliance report	:	EC compliance report certified by Regional Office, Jharkhand State Pollution Control Board, Dumka vide letter no. 1934, dated 13.09.2023.
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Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	2.31 Ha	Life of Mine – 5 Years
3	Waste Generation	:	24898.60 cum or 72205.94 tons	
4	Stripping Ratio	:	1 :0.02	
5	Working Days	:	300	
6	Bench: size & No	:	6m to 6m	
7	Elevation of Mine	:	122 AMSL to 127 AMSL	
8	Ground Level Elevation	:	105 AMSL	
9	Ultimate Working Depth	:	94 AMSL	
10	Water Table	:	118 AMSL (20mbgl)	
11	Topography of Mine	:	Area represents a small hillock.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Production of stone (Cum)	Production of stone (Tonnes)	Total Waste in (cum)	Bench RL in Meters
1 st	37816.20	109667.8	4099.09	118-100mRL
2 nd	38515.10	111693.8	3339.27	118-94mRL
3 rd	44325.79	128544.8	3687.39	118-94mRL
4 th	46894.51	135994.1	3708.45	118-94mRL
5 th	48362.24	140250.5	3711.25	118-94mRL
Total	2,15,914.14	6,26,151	18545.45	



Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Quarry	0.734	1.756 (0.069 ha area shall be backfilled & 1.280 ha area shall be left as water reservoir)	1.756 (0.069 ha area shall be backfilled & 1.280 ha area shall be left as water reservoir)
Road	0.037	0.00	0.0
Waste Dump	--	0.00 (waste dump to be removed and backfilled)	0.00 (waste dump to be removed and backfilled)
Crusher	0.360	Nil (moved to quarry bottom)	0.0
Safety Zone	0.0	0.554 (Plantation)	0.554 (Plantation)
Total	1.131	2.310	2.310
Balance	1.179	0.000	0.000
Lease Hold Area	2.310	2.310	2.310

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.554ha	1385
2	Along Approach Road	0.08km	80
3	In consulting local authorities	-	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management


It has been calculated that total 24898.60 cum in-situ, 31123.25 cum loose & 26454.76 cum compact waste shall be generated during this plan period. The 50% of waste generated during the plan period i.e. 13227.38 cum waste (compact) shall be utilized for approach & haul road maintenance. The waste material (50%) generated during 1st & 3rd year shall be temporarily dumped in northern part of the lease area, the maximum height of dump shall be 5.95m, garland drain & retaining wall shall be constructed all along the dump. During the 4th year onwards the 50% of generated waste and waste materials of temporary dump materials shall be used for partial backfilling of exhausted quarry in southern corner of the area it will cover 0.069 ha area.

Water Quality Management

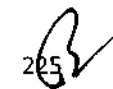
- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 20m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission





- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.






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- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure

- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.





Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

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- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Shimaldhav Stone Mine of M/s Noor Stone Works (Partners : (i) Shri Nur Mohammad Sheikh (ii) Shri Rahul Sheikh (iii) Shri Nureman Sheikh), Village : Shimaldhav, Thana : Hiranpur, Distt. : Pakur, Jharkhand (2.31 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

2. Stone Mine of M/s Cegnet Stone Works (Partners : Shri Nibhash Mishra & Shri Sanjay Kumar Singh), Village : Jiajori, Distt. : Pakur, Jharkhand (2.36 Ha).

(Proposal No. SIA/JH/MIN/443746/2023).

Project Category: B2 – Application for re-appraisal of Environment Clearance issued by DEIAA, Pakur.

EC Application for: Proposed Capacity- 40,302.06 cum/annum or 1,16,876.00 TPA

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

The project has been granted EC by DEIAA, Pakur vide letter no. 167/DEIAA, dated 09.09.17.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Pakur which has been taken up for consideration on 23.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 - 85.9µg/m³ PM 2.5-48.4 µg/m³ SO2-21.7 NO2- 42.3µg/m³. All the data are within the permissible limit.

Data generated by JSPCB empanelled laboratory has been also submitted by PP. All the data are within prescribed limit.

Dust suppression is being carried out on regular basis.

Plantation has been developed all along the safety zone and Haul road of Mine lease area.

Production detail as per memo no. 1261/ M, dated 04.07.2023 by D.M.O. Pakur is within the permissible limit of EC.

Certified compliance report by JSPCB vide reference no. 1911 dated 12.09.2023 has been submitted by PP, which is found to be satisfactory.

Project and Location Details :

SI	Parameter	Details
1	Project Name	: M/S CEGNET STONE WORKS
2	Lessee:	: M/S Cegnet Stone Works Partners- Sri Nibhash Mishra & Sri Sanjay Kumar Singh
3	Lease Address	: At-Bhagatpara, Pakur+ P.O. + P.S.- Pakur District- Pakur, State- Jharkhand
4	Lease Area	: 2.36ha Acres- 5.83Acres
5	Type of Land	: Non- Forest land (Raiyati Land)
6	Project Cost	: Rs. 30 Lakhs
7	EMP Budget	: Capital: 5.43Lakhs Recurring: 4.27 Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: 306910.58cum Tonnes: 890040.7 tons
10	Mine Life	: 7.61 ~ 8.0 years
11	Man power	: 33
12	Water Requirement	: 10.559~ 10.60 KLD(Drinking: 0.33 KLD, Dust Suppression: 5.915KLD, Plantation:4.314KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 500 KVA
15	Crusher	: No crusher
16	Nearest Water Body	: Hurrahi Nadi, approx. 2.80 km towards East direction of mine site. Chando or Keso Nadi, approx. 3.10 km towards SE direction of mine site.
17	Nearest Habitation	: Approx 0.31 km towards NNE direction.
18	Nearest Rail Station	: Pakur Railway station, approx. 7.67 km toward NE direction
19	Nearest Air Port	: Birsa Munda International Airport, approx. 290.53 km towards SW direction
20	Nearest Forest	: Beharabad PF, Approx. 4.10 km towards SSE direction of mine site.

21	Road & Highways	:	NH-133A, Approx. 2.28 km. in SW direction.
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CO-ORDINATES

1	Latitude	From 24°42'43.46"N	To 24°42'43.86"N
2	Longitude	From 87°44'41.72"E	To 87°44'41.88"E

LAND DETAILS:

Khata No	Plot No
7	207(P)
9	205, 206(P), 211
10	203, 204(P)
16	193
18	194

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	Lease Deed : 18.09.2019 to 17.09.2029.
2	CO	:	The CO, Hiranpur vide letter no. : 315/Ra, dated 26.05.2016 has mentioned the plot no. of the project is not recorded as "Jungle Jharl" In R.S. Khatiyani & Register II.
3	DMO	:	DMO, pakur vide memo no. 1693/M, dated - 22.07.2023 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no. : 946 dated 25.05.2023 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary.
5	DFO Forest Distance	:	DFO, Pakur Forest Division vide letter no. : 1196, dated 01.08.2016 certified that the distance of notified forest is more than 250 m from proposed project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Pakur district in Page No. 20 at Sl. No. 9.
7	Gram Sabha	:	Gram Sabha conducted on 05.05.2016.

8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide memo no. 326/DDM, dated 10.07.2023.
9	Earlier production figure	:	Earlier Production figure issued by DMO, Pakur vide memo no. 1261/M, dated 04.07.2023.
10	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Pakur vide letter no. 167/DEIAA, dated 09.09.2017.
11	EC compliance report	:	EC compliance report certified by Regional Office, Jharkhand State Pollution Control Board, Dumka vide letter no. 1911, dated 12.09.2023.
12	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-6883710/2020/92, dated 12.02.2020.
13	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/RO/DMk/CTO-7931956/2022/46, dated 12.03.2022.

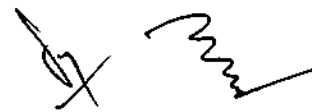
Working Details

1	Mining Method	:	Opencast Semi Mechanized method	
2	Quarry Area	:	16.08 ha	Life of Mine – 7.61 ~ 8.0 years
3	Waste Generation	:	5950.00 cum or 17255 tons	
4	Stripping Ratio	:	1:0:03	
5	Working Days	:	300 days	
6	Benches: size & No	:	5m to 5m	
7	Elevation of Mine	:	69 AMSL to 70 AMSL	
8	Ground Level Elevation	:	69 AMSL	
9	Ultimate Working Depth	:	35 AMSL	
10	Water Table	:	20 AMSL (15mbgl)	
11	Topography of Mine	:	almost flat topography	
12	Explosive Requirement	:	110kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

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Production Details

Year	Production of Stone		Waste (cum)
	(in Tones)	(in cum)	
1st	116233.00	40080.34	1470.00
2nd	116876.00	40302.06	-
3rd	116465.00	40160.34	-
4th	116782.00	40269.65	4480.00
5th	108750.00	37500.00	-
Total	575106.00	198312.39	5950.00

Land Use

Pattern of Utilization	Existing (Ha)
Quarry	0.447
Road	0.012
Safety Zone Plantation	--
Total area in use	0.459
Unused Area	1.901
Lease hold area	2.36

ENVIRONMENT MANAGEMENT**Green Belt Development**

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.643	1607
2	Along Approach Road	0.45	450
3	In consulting local authorities		100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

It has been calculated that total 22172.25 cum in-situ, waste shall be generated during this plan period. The 50% of waste generated during the plan period i.e. 11086.13 cum (In situ) shall be utilized for approach & haul road maintenance. The rest waste material (50%) i.e. 11086.13 cum (In situ), 13857.66 cum (loose) & 11779.01 cum (compact) waste shall be temporarily dumped in south eastern part of the applied lease area, the maximum height of dump shall be 6.67m garland drain & retaining wall be constructed all the dump, and it will cover 0.208ha area.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
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- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

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- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
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- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

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Hazard identification & Risk Analysis in Stone Mining operation

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1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
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Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- I. Falls from the edge of a bench
- II. Dust generation during drilling
- III. Noise Generation due to drilling
- IV. Entrapment in by moving part of the drilling equipment

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While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

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- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

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The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
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- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

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Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers:
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation



The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

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- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Stone Mine of M/s Cegnet Stone Works (Partners : Shri Nibhash Mishra & Shri Sanjay Kumar Singh), Village : Jiajori, Distt. : Pakur, Jharkhand (2.36 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

3. Khurdi Stone Deposit of M/s Mahalaxmi Minerals (Partners : Shri Sudhanshu Prasad & Shri Sarvjeet Singh Rana), Village : Khurdi, Thana : Topchanchi, Distt. : Dhanbad, Jharkhand (1.129 Ha).

(Proposal No. SIA/JH/MIN/444455/2023).

Project Category: B2 – Application for Environment Clearance

EC Application for: Proposed Capacity- 25861.66 cum/year or 74998.81 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

This is a new project which has been taken for appraisal on 23.09.2023.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Khurdih Stone Deposit
2	Lessee:	: M/s Mahalaxmi Minerals Partner- Sri Sudhanshu Prasad, Sri Sarvjeet Singh Rana Address:- Shastri Nagar, P.O. + P.S. - Giridih, District- Giridih, Jharkhand
3	Lease Address	: Village – Khurdih, District – Dhanbad, State- Jharkhand
4	Lease Area	: 1.129 ha Acres- 2.79Acres
5	Type of Land	: Non- Forest (Raiyati Land)
6	Project Cost	: Rs. 30 Lakhs
7	EMP Budget	: Capital: 5.88 Lakhs Recurring: 4.27 Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 258704 cum Tonnes: 750241.60 tons
10	Mine Life	: 10 years
11	Man power	: 25
12	Water Requirement	: 10.97 ~11.00 KLD (Drinking: 0.25 KLD, Dust Suppression: 6.96 KLD, Plantation: 3.76 KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 200 KVA
15	Crusher	: No crusher
16	Nearest Water Body	: Katri Nadi, approx. 2.50 km towards SW direction of mine site.
17	Nearest Habitation	: Khurdih Approx 0.65 km towards WNW direction.
18	Nearest Rail Station	: Nichitpur Railway station, approx. 7.0km towards S direction.
19	Nearest Air Port	: Dhanbad Airport, approx. 15.50 km towards ESE direction.
20	Nearest Forest	: Tundi Reserve Forest- Approx. 1.5 km towards E direction of mine site. Nara Reserve Forest-Approx 3.00 km towards NW direction of mine site.
21	Road & Highways	: AH-1, approx. 0.70 km in S direction.

CO-ORDINATES

1	Latitude	From 23°53'21.048" N To 23°53'28.180" N
2	Longitude	From 86°17'8.129" E To 86°17'12.355" E

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LAND DETAILS:

Khata No.	Plot No.
61	1324, 1333, 1335

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	The Letter of Intent (LoI) has been issued by DMO, Dhanbad vide letter no. 601/M, dated 02.05.2023.
2	CO	:	The CO, Topchanchi (Dhanbad) vide letter no. : 180, dated 22.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatyan & Register II.
3	DMO	:	DMO, Dhanbad vide memo no. 827/M, dated 25.05.2023 certified that one another mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. : 731 dated 10.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Forest Distance	:	DFO, Dhanbad Forest Division vide letter no. : 881, dated 01.04.2023 certified that the distance of reserved / protected forest is 280 meter from proposed project site.
6	DSR	:	The DC, Dhanbad vide letter no. 850/M, dated 30.05.2023 has informed that this project is part of District Survey Report (DSR) of Dhanbad district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	Gram Sabha conducted on 02.04.2023.
8	Mine Plan Approval	:	District Mining Office, Dhanbad vide memo no. 1442/M, dated 08.09.2023.

Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	1.129 Ha	Life of Mine – 10 Years
3	Waste Generation	:	18148.94 cum or 52631.92tons	
4	Stripping Ratio	:	1:0.10	
5	Working Days	:	300	
6	Bench: size & No	:	6m to 6m	

7	Elevation of Mine	:	251 AMSL to 256 AMSL
8	Ground Level Elevation	:	225 AMSL
9	Ultimate Working Depth	:	231 AMSL
10	Water Table	:	221.1 AMSL (3.90mbgl)
11	Topography of Mine	:	Area represents a small hillock.
12	Explosive Requirement	:	90 kg/day
13	Diesel/Fuel requirement	:	90 litre/day

Production Details

Year	Production of stone (Cum)	Production of stone (Tonnes)	Total Waste in (cum)	Bench RL in Meters
1 st	25861.66	74998.81	7525.14	249 mRL
2 nd	25061.00	72676.90	6655.00	249-243 mRL
3 rd	24700.00	71630.00	1300.00	243 mRL
4 th	25513.20	73988.28	1342.80	243 -237 mRL
5 th	25194.00	73062.60	1326.00	237 mRL
Total	126329.86	366356.59	18148.94	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Quarry	-	0.564	0.757 (0.101 ha. area shall be backfilled & 0.491 ha. Area shall be left as water reservoir and 0.165 ha. left as dead benches).
Road	-	0.002	-
Waste Dump	-	0.188	-
Safety Zone	-	0.372 (Plantation)	0.372 (Plantation)
Total	--	1.126	1.129
Balance	1.129	0.003	--
Lease Hold Area	1.129	1.129	1.129

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ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.372ha	930
2	Along Approach Road	0.85km	850
3	In consulting local authorities	-	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

Total 18148.94 cum or 52631.92 tons waste generated during the plan period It has been calculated that total 18148.94 cum in-situ, waste shall be generated during this plan period. The 50% of waste generated during the plan period i.e. 9074.47 cum (In situ) shall be utilized for approach & haul road maintenance. The rest waste material (50%) 9074.47 cum (In situ), 11343.09 cum (loose) & 9641.62 cum (compact) waste shall be temporarily dumped in southern part of the lease area, the maximum height of dump shall be 5.88m and it will cover 0.188ha area. The Garland Drain & Retaining wall shall be constructed all around the waste dump. The dimension of the dump is 94mX20mX5.88m.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.

- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.

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C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor).	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
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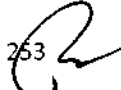


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- Time pressure
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- Untrained drivers
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- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Khurdih Stone Deposit of M/s Mahalaxmi Minerals (Partners : Shri Sudhanshu Prasad & Shri Sarvjeet Singh Rana), Village : Khurdih, Thana : Topchanchi, Distt. : Dhanbad, Jharkhand (1.129 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

4. Tangarjora Stone Deposit of M/s Kolhan Infrastructure and Mining Private Limited, Village : Tangarjora, Thana : Rajnagar, Distt. : Saraikela - Kharsawan, Jharkhand (2.877 Ha).
(Proposal No. SIA/JH/MIN/304001 /2023).

Project Category: B2 – Application for Environmental Clearance (EC Amendment)

EC Application for: Proposed Capacity- 99960.00 cum/annum or 269892.00 MTPA

Name of the consultant : P & M Solution, Noida, U.P.

This is an amendment project which has been taken for appraisal on 23.09.2023.

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Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Tangarjora Stone Deposit
2	Lessee:	: Kolhan Infrastructure and Mining Private Limited (Director- Shri Chiranjeevi Kuchi),
3	Lease Address	: Kolhan Infrastructure and Mining Private Limited (Director- Shri Chiranjeevi Kuchi), S/O Sri Sundaraiah Nagulavellatur Chejaria, Nellore, Andhra Pradesh- 524343
4	Lease Area	: 2.877 ha Acres- 7.11 Acres
5	Type of Land	: Non Forest – Raiyati Land
6	Project Cost	: Rs. 4.50 Crore
7	EMP Budget	: Capital: 9.021 Lakhs Recurring: 3.27 Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 499460 cum Tonnes: 1348542 tons
10	Mine Life	: 5.0 years
11	Man power	: 25
12	Water Requirement	: 5.93 ~ 6.0 KLD(Drinking: 0.25 KLD, Dust Suppression: 1.14 KLD, Plantation: 4.54 KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 400 KVA
15	Crusher	: With crusher
16	Nearest Water Body	: Bhangbanga Nadi Approx 1.90 km towards W direction Kharkhai River Approx 9.0 km towards WNW direction Garra Nadi Approx 8.0 km towards WSW direction of mine site.
17	Nearest Habitation	: Tangarjora village, at 320 meters
18	Nearest Rail Station	: DALBHUMGARH Junction Railway station, approx. 4.50 km towards SSE direction.
19	Nearest Airport	: Birsa Munda Airport Ranchi, approx. 109 km towards NW direction.
20	Nearest Forest	: N and up Protected Forest Approx. 8.5 km towards NE direction of mine site. Kudada Protected Forest Approx. 6.0 km towards NE direction. Morchagora Protected Forest Approx 9.0 km towards ENE direction of mine site.
21	Road & Highways	: NH- 220 Approx. 4.80 km. in South direction. SH- 6 Approx. 5.30 km. in East direction

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CO-ORDINATES

1	Latitude	From 22°39'58.15" N	To 22°40'08.27" N
2	Longitude	From 86°07'16.99" E	To 86°07'25.01" E

LAND DETAILS

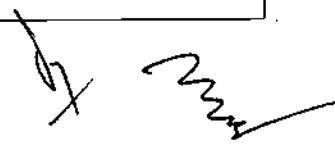
Sl. no.	Khata no.	Plot no.
1.	13	817, 819, 844, 845 & 847
2.	53	820 (P) & 846 (P)

STATUTORY CLEARANCES

1	LOI/Lease docs	:	The LOI has been issued by District Mining Office, Saraikela-Kharsawan vide letter no. 39/M dated 24.01.2023.
2	CO	:	The CO, Rajnagar vide letter no. 171, dated 20.02.2023 has mentioned the plot no. of the project is not recorded as "Jangal Jhari" in Khatian.
3	DMO	:	DMO, Saraikela-Kharsawan vide letter no. 55/M, dated 01.02.2023 certified that no other lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Dalma Elephant Project vide letter no. 1805, dated 13.12.2022 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary. The additional comments given by the DFO, Dalma Elephant Project is not appropriate.
5	DFO Forest Distance	:	DFO, Saraikela Forest Division vide letter no. 2444, dated 09.12.2022 certified that the distance of notified forest is more than 250 m from proposed project site.
6	DSR	:	The DC, Saraikela-Kharsawan vide letter no. 119/M, dated 21.02.2023 has informed that this project is part of District Survey Report (DSR) of Saraikela Kharsawan district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Sabha	:	BDO, Rajnagar vide letter no. 1819, dated 29.12.2022 informed that Gram Sabha conducted on 30.11.2022

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8	Mine Plan Approval	:	DMO, Saraikela-Kharsawan vide Letter No. 562/M, dated 25.08.2023.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by SEIAA vide letter no. EC/SEIAA/2022-23/2761/2023/447, dated 21.03.2023.

Working Details

1	Mining Method	:	Opencast semi-mechanized method.	
2	Quarry Area	:	2.877 ha. or 7.11 Acres	Life of Mine – 5.0 Years
3	Waste Generation	:	5987.00 cum	
4	Stripping Ratio	:	1: 0.004	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	178 AMSL to 182 AMSL	
8	Ground Level Elevation	:	178 AMSL	
9	Ultimate Working Depth	:	150 AMSL (32 mbgl)	
10	Water Table	:	140 AMSL (42 mbgl)	
11	Topography of Mine	:	Area represents a flat topography.	
12	Explosive Requirement	:	90 Kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Production of stone (cum)	Production of stone (tons)	Waste Generation (cum)	Bench RL in Meters
1 st	98260.00	265302.00	5987.00	182mRL - 174mRL
2 nd	99450.00	268515.0	-	174mRL - 168mRL
3 rd	99790.00	269433.00	-	168mRL - 162mRL
4 th	99960.00	269892.00	-	162mRL - 156mRL
5 th	99960.00	269892.00	-	156mRL - 150mRL
Total	497420.00	1343034.00	5987.00	

Land Use

Pattern of Utilization	Existing Land Use(Ha)	At the end of Plan Period	At Conceptual Period
Quarry	Nil	1.959	1.959 Ha (Entire Area Rain Water Harvesting)
Road	0.006	Comes Under Quarry	Nil
Proposed Crusher		0.085	0.085
Plantation (S.Z.)	-	0.833	0.833
Balance	2.871	-	-
Total	2.877	2.877	2.877

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.833 ha	8083
2	Along Approach Road	0.19 km	190

Year	Safety Zone Area (in Hectare)/No. of Plants	Plantation along both sides of Approach road	Location
1 st Year	0.833/2083	190	Approach road – 190 nos – along both sides of approach road at spacing of 2 m.
2 nd year	Care / Protection of Plants		
3 rd year			
4 th year			
5 th Year			
Total	2083	190	
Total no. of plants	2273		

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as

per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

Total 5987.00 cum waste during the plan period will be generated. Part of the waste shall be utilized for maintenances of the village road and making of approach road, haul road etc. and part of the waste shall be temporary dump in the western side of the applied area.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1

C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

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loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation

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- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

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- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the

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vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

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- I. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Tangarjora Stone Deposit of M/s Kolhan Infrastructure and Mining Private Limited, Village : Tangarjora, Thana : Rajnagar, Distt. : Saraikela - Kharsawan, Jharkhand (2.877 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

5. Kasinathpur Stone Mine of M/s Hindustan Stone Works (Prop. : Shri Lal Bahadur Singh), Village : Kashinathpur, Thana : Maheshpur, Distt. : Pakur, Jharkhand (1.655 Ha).
(Proposal No. SIA/JH/MIN/444660/2023).

Project Category: B2 – Application for Environment Clearance

EC Application for: Proposed Capacity- 11,153.75 cum/year or 30115.15 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

This is a new project which has been taken for appraisal on 23.09.2023.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Kasinathpur Stone Mine
2	Lessee:	: M/s Hindustan Stone Works Proprietor- Sri Lal Bahadur Singh, S/o Sri Jawahar Lal Singh Address:- Gram+P.O.- Chatra, Thana- Muraroi, Dist.- Birbhum, West Bengal.
3	Lease Address	: Village – Kasinathpur, District – Pakur, State- Jharkhand
4	Lease Area	: 1.655 ha Acres- 4.09 Acres
5	Type of Land	: Non- Forest (Raiyati Land)
6	Project Cost	: Rs. 35 Lakhs
7	EMP Budget	: Capital: 4.27 Lakhs Recurring: 4.27 Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 111537.6 cum Tonnes: 301151.52 tons

10	Mine Life	:	10 years
11	Man power	:	31
12	Water Requirement	:	8.55 ~9.00 KLD (Drinking: 0.31 KLD, Dust Suppression: 4.72 KLD, Plantation: 3.52 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	200 KVA
15	Crusher	:	No crusher
16	Nearest Water Body	:	There is no Water Body present near by the mine site.
17	Nearest Habitation	:	Approx 0.31 km towards NNE direction.
18	Nearest Rail Station	:	Chatra Railway station, approx. 12.0 km towards East direction.
19	Nearest Air Port	:	Deoghar Airport, approx. 105.0 km towards W direction.
20	Nearest Forest	:	There is no Protected Forest present nearby the mine site.
21	Road & Highways	:	SH-07, approx. 12.22 km in SE direction.

CO-ORDINATES

1	Latitude	From 24°21'43.3638" N	To 24°21'50.0379" N
2	Longitude	From 87°43'49.8383" E	To 87°47'56.2480" E

LAND DETAILS:

Khata No.	Plot No.
26	274
30	275
40	276

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	The Letter of Intent (LoI) has been issued by DMO, Pakur vide letter no. 1905/M, dated 30.10.2019.
2	CO	:	The CO, Maheshpur vide letter no. : 629/Ra, dated 26.08.2019 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatyan & Register II.
3	DMO	:	DMO, Pakur vide memo no. 2051/M, dated 11.09.2023 certified that no another mining lease area exists within 500 m radius from

		proposed project site.
4	DFO Wild Life	: DFO, Wildlife Hazaribagh vide letter no. : 1929 dated 14.9.2019 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Lake Bird Sanctuary.
5	DFO Forest Distance	: DFO, Pakur Forest Division vide letter no. : 1167, dated 28.09.2019 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	: This project is mentioned in District Survey Report (DSR) of Pakur district in Page No. 68 at Sl. No. 42.
7	Gram Sabha	: BDO, Maheshpur vide letter no. 1157/Vi (A), dated 26.08.2019 informed that Gram Sabha conducted on dated 21.08.2019.
8	Mine Plan Approval	: Approve by Deputy Director Mines, Santhal Pargana Circle, Dumka vide memo no. 321/DDM, dated 29.10.2020.

Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	1.655 Ha	Life of Mine – 10 Years
3	Waste Generation	:	2933.28 cum or 7919.85 tons	
4	Stripping Ratio	:	0.01	
5	Working Days	:	300	
6	Bench: size & No	:	6m to 6m	
7	Elevation of Mine	:	92 AMSL to 98 AMSL	
8	Ground Level Elevation	:	75 AMSL	
9	Ultimate Working Depth	:	80 AMSL	
10	Water Table	:	80 AMSL (5.00-12.00 mbgl)	
11	Topography of Mine	:	Area represents the region is covered with undulating hills.	
12	Explosive Requirement	:	90 kg/day	
13	Diesel/Fuel requirement	:	90 litre/day	

Production Details

Year	Production of stone (Cum)	Production of stone (Tonnes)	Total Waste in (cum)	Bench RL in Meters
1 st	11132.1	30056.67	585.90	92

2 nd	11116.72	30015.15	587.04	92 - 86
3 rd	11149.48	30103.61	586.82	86
4 th	11143.5	30087.45	586.50	86
5 th	11153.47	30114.38	587.03	86 - 80
Total	55695.27	150477.26	2933.28	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Quarry	0.403	0.782	0.998
Road	0.045	0.036	0.036
Waste Dump	--	0.213	0.00 (waste dump to be removed and backfilled)
Safety Zone	0.0	0.585 (Plantation)	0.585 (Plantation)
Total	0.448	1.616	1.619
Balance	1.207	0.039	0.04
Lease Hold Area	1.655	1.655	1.655

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.585 ha	1500
2	Along Approach Road	0.30 km	300
3	In consulting local authorities	-	--

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

It has been calculated that total 2933.28 cum, waste shall be generated during this plan period. The waste generated during the plan period shall be utilized for approach & haul road maintenance.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

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Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1	5	4	3	2	1

(Catastrophic)					
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

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loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation

- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

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- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap

between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.



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- I. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Kasinathpur Stone Mine of M/s Hindustan Stone Works (Prop. : Shri Lal Bahadur Singh), Village : Kashinathpur, Thana : Maheshpur, Distt. : Pakur, Jharkhand (1.655 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

6. Sonapose & Databera Stone Block of M/s NNB Engineers Pvt. Ltd., Village : Sonapose & Databera, Block : Potka, Distt. : East Singhbhum, Jharkhand (7.40 Ha).
(Proposal No. SIA/ JH/MIN/ 444684 /2023).

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

This is a new project which has been taken for appraisal on 23.09.2023.

EC Application for : Proposed Capacity- 99987.50 cu.m/annum or 249968.80 TPA.

Project Category: B1 – The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101st meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the ToRs in 102nd meeting held on 17th & 18th March, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2748/2023/459, date 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 18.09.2023 and which was forwarded to SEAC on 18.09.2023.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Sonapose & Databera Stone Block
2	Lessee:	: M/S NNB ENGINEERS PVT. LTD., Director - Sri Naveen Singh
3	Lease Address	: M/S NNB ENGINEERS PVT. LTD., Director - Sri Naveen Singh R/O 1st Floor, Holiday Inn Plaza, Adityapur, Jamshedpur, Jharkhand
4	Lease Area	: 7.40 ha Acres- 18.29 Acres
5	Type of Land	: Non Forest – Raiyati Land

6	Project Cost	:	Rs. 60 Lakhs
7	EMP Budget	:	Capital: 13.21 Lakhs Recurring: 3.27 Lakh / year
8	CSR / CER Budget	:	Rs. 1.20 Lakhs
9	New or Expansion	:	New
10	Mineable Reserves	:	cum.: 1633390.88 cum Tonnes: 4083477.20 tons
11	Mine Life	:	16.33 years
12	Man power	:	25
13	Water Requirement	:	17.26 ~ 18.0 KLD(Drinking: 0.22 KLD, Dust Suppression: 4.78 KLD, Plantation: 12.26 KLD)
14	Water Source	:	From Nearby villages by tankers
15	DG Set / power	:	50 KVA
16	Crusher	:	Yes
17	Nearest Water Body	:	Jharadih River Approx. 2.10 km towards East direction of mine site.
18	Nearest Habitation	:	Sonapose, at 350 meters
19	Nearest Rail Station	:	Haldipokhar Railway station, approx. 4.60 km towards NE direction.
20	Nearest Airport	:	Birsa Munda Airport, approx. 110.90 km towards NW direction.
21	Nearest Forest	:	Open Scrub Jungle Approx. 3.75 km towards SW direction of mine site
22	Road & Highways	:	NH- 220, Approx. 2.10 km. in SE direction.

CO-ORDINATES

1	Latitude	From 22°34'54.10" N	To 22°35'8.94" N
2	Longitude	From 86°06'8.48" E	To 86°06'29.12" E

LAND DETAILS :

Khata No.	Plot No.
60	1, 9, 22
125	484

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	The Letter of Intent (LoI) has been issued by Director of Mines, Deptt. of Mines & Geology, Govt. of Jharkhand vide Letter no. Kha.Ni (Nilami)-66/2022-1949M/Ranchi, dated 14.09.2022.
2	CO	:	The CO, Potka, East Singhbhum vide letter no. 27, dated 11.01.2023 has mentioned the plot no. of the project is not

		recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.
3	DMO	: DMO, East Singhbhum, Jamshedpur vide letter no. 111/Khanan, dated 02.02.2023 certified that the no other mining area exists within 500 m radius from proposed project.
4	DFO Wild Life	: DFO, Dalma Elephant Project Under Sonapose village vide letter no. 1543, dated 22.10.2022 and Under Databera village vide letter no. 1544, dated 22.10.2022 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary. The additional comments given by the DFO, Dalma Elephant Project is not appropriate.
5	DFO Forest Distance	: DFO, Jamshedpur Forest Division under Sonapose village vide letter no. 2624, dated 01.11.2022 and under Databera village vide letter no. 2625 dated 01.11.2022 certified that the distance of reserved / protected forest is more than 250 m from the project site.
6	DSR	: This is an existing project which is already mentioned in page no. 27 of District Survey Report (DSR) of District East Singhbhum.
7	Gram Sabha	: BDO, Potka vide letter no. 82, dated 12.01.2023 informed that Gram Sabha conducted on 10.01.2023.
8	Mine Plan Approval	: Additional Director, Geology, Hazaribag vide memo no. 295/G dated 14.10.2022.
9	Public Hearing	: Public Hearing conducted by JSPCB on 23.08.2023.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) method.	
2	Quarry Area	:	7.40 ha. or 18.29 Acres	Life of Mine – 16.33 Years
3	Waste Generation	:	22088.00 cum	
4	Stripping Ratio	:	1: 0.02	
5	Working Days	:	300	
6	Bench: size & No	:	6m to 6m	
7	Elevation of Mine	:	205 AMSL to 250 AMSL	
8	Ground Level Elevation	:	250 AMSL	
9	Ultimate Working Depth	:	191 AMSL (14 mbgl)	
10	Water Table	:	185 AMSL (20 mbgl)	
11	Topography of Mine	:	Area represents a flat topography.	
12	Explosive Requirement	:	8 kg/day	

13	Diesel/Fuel requirement	:	90 litre/day
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Production Details

Year	Production of stone (cum)	Production of stone (tons)	Waste Generation (cum)	Bench RL in Meters
1 st	40014.00	100035.00	2106.00	239mRL - 221mRL
2 nd	80797.50	201993.75	4252.50	229mRL - 203mRL
3 rd	98990.00	247475.00	5210.00	209mRL - 197mRL
4 th	99883.00	249707.50	5257.00	203mRL - 197mRL
5 th	99987.50	249968.80	5262.50	203mRL - 191mRL
Total	419672.00	1049180.05	22088.00	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Excavation	3.67	4.90	5.98
Waste Dump	---	0.200	---
Road	0.183	0.153	---
Infrastructure (Proposed Crusher)	---	0.150	---
Safety Zone Plantation	---	0.50 (Within Safety Zone)	1.42 (Within Safety Zone)
Total	3.853	5.903	7.40
Balanced Area	3.547	1.497	---
Total Applied Area	7.40	7.40	7.40

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.52 ha	1250
2	Along Approach Road	0.38 km	380

3	Other	-	4500
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- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

Total 22088.00 cum waste during the plan period will be generated. Part of the waste shall be utilized for maintenances of the village road and making of approach road, haul road etc. and part of the waste shall be temporary dump in the western side of the applied area.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done

- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

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L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

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Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench





While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

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Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.





The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

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Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Sonapose & Databera Stone Block of M/s NNB Engineers Pvt. Ltd., Village : Sonapose & Databera, Block : Potka, Distt. : East Singhbhum, Jharkhand (7.40 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

7. Patsi & Darmi Sand Deposit in North Koel River of M/s Jharkhand State Mineral Development Corporation Ltd. (JSMDC Ltd.), Village : Patsi & Damri, Distt. : Garhwa, Jharkhand (16.80 Ha).
(Proposal No. SIA/JH/MIN/444579/2023).

Project Category: B1 – Application for Terms of Refrence

EC Application for: Proposed Capacity- 298237cum/year or 477179 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

This is a new project which has been taken for appraisal on 23.09.2023.

Project and Location Details:

SI	Parameter	Details
1	Project Name	: PATSI & DARMISAND DEPOSIT
2	Lessee:	: M/s Jharkhand State Minerals Development Corporation Limited, Khanij Nigam Bhawan, Doranda, Ranchi - 834002.
3	Lease Address	: Village : Patsi & Damri, Distt. : Garhwa, Jharkhand
4	Lease Area	: 16.08 ha Acres- 41.51 Acres
5	Type of Land	: Non- Forest land (govt. waste land)
6	Project Cost	: Rs. 80Lakhs
7	EMP Budget	: Capital: 1.41 Lakhs Recurring: 3.47 Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 1461948 cum Tonnes: 2339117 tons
10	Mine Life	: -
11	Man power	: 10

12	Water Requirement	:	3.01 ~ 3.00 KLD (Drinking: 0.10 KLD, Dust Suppression: 2.58 KLD, Plantation: 0.33 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	500 KVA
15	Crusher	:	No crusher
16	Nearest Water Body	:	Project lies on North Koel River.
17	Nearest Habitation	:	Approx 0.34 km towards SE direction.
18	Nearest Rail Station	:	Sigsigi Railway Station approx. 2.00 Km in North direction..
19	Nearest Air Port	:	Birsa Munda Airport approx.179.68 Km towards SE direction.
20	Nearest Forest	:	Lohardaga PF in North direction.
21	Road & Highways	:	NH 39 Approx. 9.72 Km in SE direction from mining lease

CO-ORDINATES

1	Latitude	From 24°14'32.09"N	To 24°13'44.02"N
2	Longitude	From 83°51'24.24"E	To 83°52'2.49"E

LAND DETAILS:

Plot no. (Pasti)	Plot no. (Darmi)
1	1054 & 1055

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	Allotment order has been issued by Director Mines, Industry, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha. Ni. -(vividh)- 117/2017/ 2249/M, Dated – 05.10.2017.
2	CO	:	The CO, Garhwa (Sadar) vide letter no. : 855, dated 13.09.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in Khatian.
3	DMO	:	DMO, Garhwa vide memo no. 1000/M, dated 18.07.2023 certified that no another mining lease area exists 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. : 978, dated 06.09.2023 certified that

			the proposed project site is outside Eco Sensitive Zone of Palamu Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary.
5	DFO Forest Distance	:	DFO, Garhwa North Forest Division vide letter no. : 605 & 606, dated 28.03.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Garhwa.
7	Gram Sabha	:	Gram Sabha conducted on 23.06.2023.
8	Mine Plan Approval	:	Assistant Mining Officer, Garhwa vide letter no. 702, dated 30.05.2023.

Working Details

1	Mining Method	:	Opencast manual Method	
2	Quarry Area	:	16.08 ha	Life of Mine: ----
3	Waste Generation	:	Nil, as it is sand mining project.	
4	Stripping Ratio	:	----	
5	Working Days	:	300	
6	Benches: size & No	:		
7	Elevation of Mine	:	379 AMSL to 384 AMSL	
8	Ground Level Elevation	:	370 AMSL	
9	Ultimate Working Depth	:	360 AMSL	
10	Water Table	:	350 AMSL (20mbgl)	
11	Topography of Mine	:	Area represents a small hillock.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand (Cum)	Production of sand –MT (Cum*1.6)
1st Year	2	100%	286600	458560
2nd Year	2	101%	289466	463146
3rd Year	2	101%	292361	467777
4th Year	2	101%	295284	472455
5th Year	2	101%	298237	477179
Total Reserve			1461948	2339117

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	16.80
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	16.80

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	----	50
2	Along Approach Road	0.43 km	68

3	In consulting local authorities	-	50
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- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- As the sand mining will be done from the river bed itself, therefore top soil removal is not required for this proposed project activity. It is also expected that fresh sand will be deposited in rainy season depending on the amount of rain fall received by the area and the rate of river flow. The excavated material will be temporarily stacked within riverbed (allotted area). No waste will also be generated from this activity.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.

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- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VII.

✓. Amar Chhechharia Khajuri Nawadih, Bajudih & Ataula Sand Deposit in North Koel River of M/s Jharkhand State Mineral Development Corporation Ltd. (JSMDCLtd.), Village : Amar Chhechharia, Khajuri Nawadih, Bajudih & Ataula, Distt. : Garhwa, Jharkhand (22.50 Ha).
(Proposal No. SIA/JH/MIN/444479/2023).

Project Category: B1 – Application for Terms of Reference

EC Application for: Proposed Capacity- 409374 cum per annum or 6,54,998 TPA

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

This is a new project which has been taken for appraisal on 23.09.2023.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Amar Chhechharia, Khajuri Nawadih, Bajudih & Ataula Sand Deposit
2	Lessee:	: M/s Jharkhand State Minerals Development Corporation Limited
3	Lease Address	: Village – Khanij Nigam Bhawan, Doranda, District – Ranchi, State- Jharkhand
4	Lease Area	: 22.50 ha Acres- 19.67 Acres
5	Type of Land	: Non- Forest land (govt. waste land)
6	Project Cost	: Rs. 90Lakhs
7	EMP Budget	: Capital: 0.70 lakh Recurring: 3.77 Lakh
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 2006735 cum Tonnes: 3210777 tons
10	Mine Life	: 5 years
11	Man power	: 15
12	Water Requirement	: 1.20 ~ 2.00 KLD (Drinking: 0.15KLD, Dust Suppression: 0.60 KLD, Plantation: 0.45 KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 500 KVA
15	Crusher	: No crusher
16	Nearest Water Body	: Project lies on North Koel River.
17	Nearest Habitation	: Approx 0.34 km towards SE direction.
18	Nearest Rail Station	: Karkatta Railway Station approx. 2.50 Km in East direction.
19	Nearest Air Port	: Birsa Munda Airport approx.186.85 km towards SE direction.
20	Nearest Forest	: Lohardaga PF in North direction.
21	Road & Highways	: NH 39 Approx. 14.80 Km in SE direction from mining lease.

CO-ORDINATES

1	Latitude	From 24°17' 41.726"N	To 24° 16' 48.469"N
2	Longitude	From 83° 48' 52.634"E	To 83° 49' 35.937"E

LAND DETAILS:

Plot no.
2243, 2934, 01 & 1767

STATUTORY CLEARANCES:

1	LOI/Lease docs	: Allotment order has been issued by Director Mines, Industry, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha. Ni. -(vividh)- 117/2017/ 2249/M, Dated - 05.10.2017.
2	CO	: The CO, Majhion vide letter no. : 434, dated 08.08.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in Khatiyon.
3	DMO	: DMO, Garhwa vide memo no. 981/M, dated 17.07.2023 certified that no another mining lease area exists 500 m radius from proposed project site.
4	DFO Wild Life	: Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. : 376, dated 08.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamu Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary.
5	DFO Forest Distance	: DFO, Garhwa North Forest Division vide letter no. : 579, 580, 607 & 608, dated 28.03.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	: This project is mentioned in District Survey Report (DSR) of Garhwa.
7	Gram Sabha	: Majhion Nagar Panchayat, Majhion vide letter no. 794, dated 02.09.2023 informed that Gram Sabha conducted on 12.08.2023.
8	Mine Plan Approval	: Assistant Mining Officer, Garhwa vide letter no. 709, dated 31.05.2023.

Working Details

1	Mining Method	:	Opencast manual Method	
2	Quarry Area	:	22.05 ha	Life of Mine –
3	Waste Generation	:	Nil, as it is sand mining project.	
4	Stripping Ratio	:	-----	
5	Working Days	:	200 Days	
6	Benches: size & No	:		
7	Elevation of Mine	:	--	
8	Ground Level Elevation	:	--	
9	Ultimate Working Depth	:	--	
10	Water Table	:	--	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand(Cum)	Production of sand –MT (Cum*1.6)
1 st Year	2	100%	393400	629440
2 nd Year	2	101%	397334	635734
3 rd Year	2	101%	401307	642092
4 th Year	2	101%	405320	648513
5 th Year	2	101%	409374	654998
Total Reserve			2006735	3210777

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land	22.50

(River)	
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	22.50

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	-	75
2	Along Approach Road	0.10 km	100
3	In consulting local authorities	-	50

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

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Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

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- h. All the transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VII.

9. Belpahari Stone Mine of M/s Black Diamond Stone Works, Village : Belpahari, Thana : Hiranpur, Distt. : Pakur, Jharkhand (4.19 Ha).

(Proposal No. SIA/JH/MIN/443363/2023).

Project Category: B1 – Application for re-appraisal of Environment Clearance issued by DEIAA, Pakur.

EC Application for: Proposed Capacity- 41,047.24 cum/year or 1,19,037 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

The project has been granted EC by DEIAA, Pakur vide letter no. 149/DEIAA, dated 19.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Pakur which has been taken up for consideration on 23.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM₁₀ - 82.0µg/m³ PM_{2.5} - 44.0 µg/m³ SO₂ - 12.10 NO₂ - 27.09µg/m³. All the data are within the permissible limit.

Data generated by JSPCB empaneled Laboratory has been also submitted by PP. All the data are within prescribed limit.

A 







Dust suppression is being carried out on regular basis.

Plantation has been done developed in safety zone along with Haul road of the lease area.

Production detail as per letter no. 1705/ M dated 22.07.2023 by D.M.O. Pakur is within the permissible limit of EC.

Certified compliance report by JSPCB vide reference no. 1933 dated 13.09.2023 has been submitted by PP, which is found to be satisfactory.

Project and Location Details :

SI	Parameter	Details
1	Project Name	: Belpahari Stone Mine
2	Lessee:	: M/s Black Diamond Stone WorksProprietor- Sri Ashish Joshi, Partners- 1. Sri Ajay Kumar Tebriwal, 2. Sri Mahbul Sheikh, 3. Sri RadhesyamNangolia 4. Smt. Chanda Devi Address:-At-Marwari Tola, PO+PS- Pakur, District- Pakur, Jharkhand
3	Lease Address	: Village – Belpahari, District – Pakur, State- Jharkhand
4	Lease Area	: 4.19ha Acres- 10.36Acres
5	Type of Land	: Non- Forest (Raiyati Land)
6	Project Cost	: Rs. 50Lakhs
7	EMP Budget	: Capital: 8.21Lakhs Recurring: 4.27Lakh / year
8	New or Expansion	: New
9	Mineable Reserves	: cum.: 69,80,84.13 cum Tonnes: 2024444 ton
10	Mine Life	: 5.1years
11	Man power	: 28
12	Water Requirement	: 16.02 ~ 16.0 KLD (Drinking: 0.28 KLD, Dust Suppression:8.73KLD, Plantation:7.01KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 500 KVA
15	Crusher	: With crusher
16	Nearest Water Body	: Torai Nadi, approx. 3.0 km towards SW direction of mine site.
	Nearest Habitation	: Tungi - Approx 0.60 km towards NNW direction.
18	Nearest Rail Station	: Kotalpukur Railway station, approx. 9.0 km towards ENE direction.
19	Nearest Air Port	: Deoghar Airport, approx. 109.3km towards SW direction.
20	Nearest Forest	: Protected Forest near Belpahari village -Approx. 0.3 km towards S direction of mine site. Protected Forest near Govindpur village-Approx 1.0km towards

		W direction of mine site. Protected Forest near Bandaro village-Approx. 1.6 km towards N direction of mine site. Protected Forest near Dhapahari village- Approx. 2.5 km towards South direction of mine site. Protected Forest near Maharo village- Approx. 3.0 km. in NE direction of mine site.
21	Road & Highways	: NH-133A, approx. 1.5 km in SW direction.

CO-ORDINATES

1	Latitude	From 24°42'16.16" N	To 24°42'23.09"N
2	Longitude	From 87°44'23.09" E	To 87°44'48.21"E

LAND DETAILS:

Khata No.	Plot No.
18	119 (P)
28	114 (P), 117 (P)
32	113 (P), 115, 118 (P)
39	125
57	116

STATUTORY CLEARANCES:

1	Lease Deed/Lease docs	: Lease deed : 06.10.2017 to 05.10.2027.
2	CO	: The CO, Hiranpur vide memo no. : 343/Ra, dated 11.07.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatyan & Register II.
3	DMO	: DMO, Pakur vide memo no. 1694/M, dated 22.07.2023 certified that 02 other mining area (30.02 Acre & 11.77 Acre) exists within 500 m radius from proposed project site.
4	DFO Wild Life	: DFO -cum- Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no. : 1410, dated 28.07.2023 certified that the proposed project site is outside Eco Sensitive Zone Udhwa Bird Sanctuary.
5	DFO Forest Distance	: DFO, Pakur Forest Division vide letter no. : 1105, dated 20.07.2016 certified that the distance of notified forest is more than 250 m from project site.

6	DSR	:	This project is mentioned in District Survey Report (DSR) of Pakur.
7	Gram Sabha	:	Gram Sabha conducted on 04.06.2016.
8	Mine Plan Approval	:	Deputy Director Mines, Santhal Pargana Circle, Dumka vide memo no. 183/DDM, dated 06.09.2018.
9	Production Report	:	Production figure issued by DMO, Pakur vide memo no. 1705/M, dated 22.07.2023 and memo no. 2077/M, dated 12.09.2023.
10	Compliance report of previous EC	:	Compliance report certified by Regional Office cum Laboratory, JSPCB, Dumka vide Ref. no. : 1933, dated 13.09.2023.
11	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Pakur vide letter no. 149/DEIAA, dated 19.08.2017.
12	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-2095155/2018/276, dated 22.03.2018.
13	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTO-14026237/2022/1444, dated 17.10.2022.

Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	4.19Ha	Life of Mine – 5.1Years
3	Waste Generation	:	22580.00 cum	
4	Stripping Ratio	:	1: 0.01	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	65AMSL to 71 AMSL	
8	Ground Level Elevation	:	40AMSL	
9	Ultimate Working Depth	:	35AMSL	
10	Water Table	:	20 AMSL (20mbgl)	
11	Topography of Mine	:	Area represents a small hillock.	
12	Explosive Requirement	:	110kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Production of stone (Cum)	Production of stone (Tonnes)	Total Waste in (cum)	Bench RL in Meters
1 st	41047.24	119037	4458	65-59-53
2 nd	43187.24	125243	3791	53-47-59-53
3 rd	47760	138504	4039	59-53-47-47-41-65-59-65
4 th	51060.68	148076	4052	59-53-47-41-35
5 th	60175.17	174508	6240	118-112-106-100-94
Total	435855.0	705368	22580	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Quarry	1.507	3.020 (0.95 ha area shall be backfilled & 1.98 ha area shall be left as water reservoir)	3.020 (0.95 ha area shall be backfilled & 1.98 ha area shall be left as water reservoir)
Road	0.128	0.00	0.00
Waste Dump	0.00	0.00 (waste dump to be removed and backfilled)	0.00 (waste dump to be removed and backfilled)
Crusher	0.200	--	--
Safety Zone	0.00	1.170 (Plantation)	1.170 (Plantation)
Total	1.835	4.190	4.190
Balance	2.355	0.00	0.00
Lease Hold Area	4.190	4.190	4.190

ENVIRONMENT MANAGEMENT
Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	1.170ha	2925
2	Along Approach Road	0.48 km	480
3	In consulting local authorities	-	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

It has been calculated that total 26850.00 cum in-situ, 33562.50 cum loose & 28528.13 cum compact waste shall be generated during this plan period. The 50% of waste generated during the plan period i.e. 14264.06 cum waste (compact) shall be utilized for approach & haul road maintenance. The waste material (50%) generated during the 1st & 2nd year shall be temporarily dumped in north western part of the lease area, the maximum height of dump shall be 2.57m, garland drain & retaining wall shall be constructed all along the dump. During the 3rd year onwards the 50% of generated waste and waste materials of temporary dump materials shall be used for partial backfilling of exhausted quarry in south eastern corner of the area and it will cover 0.95ha area.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.

- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or

		major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept. The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only

affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.

- Only trained drivers will be hired.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- If any tree felling than necessary permission shall be taken from the competent authority.
- Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VII.

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10. Mayurkola Stone Mine of M/s R.B. Stone Works (Partner : Shri Ranjit Kumar Tiwary), Village : Mayurkola, Pipaljori & Lohatia, Anchal : Barharwa, Distt. : Sahibganj, Jharkhand (4.55 Ha).
(Proposal No. SIA/JH/MIN/443668 /2023).

Project Category: B1 – Application for Terms of Reference (re-appraisal of Environment Clearance issued by DEIAA, Sahibganj).

EC Application for: Proposed Capacity- 58742.68 cum/year or 1,70,353.77 TPA.

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

The project has been granted EC by DEIAA, Pakur vide letter no. EC/DEIAA/2017-18/111 , dated 19.03.2018.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Pakur which has been taken up for consideration on 23.09.2023. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2

Existing baseline condition as per monitoring report submitted by PP is as follows PM₁₀ - 82.0µg/m³ PM_{2.5}-46.0 µg/m³ SO₂-12.88 NO₂- 28.09µg/m³. All the data are within the permissible limit.

Data generated by JSPCB empanelled Laboratory has been also submitted by PP. All the data are within prescribed limit.

Dust suppression is being carried out on regular basis.

Near about 1300 plantation has been done in safety zone and haul road.

Production detail as per memo no. 712/M dated 11.07.2023 by D.M.O. Sahibganj is within the permissible limit of EC.

Certified compliance report vide reference no. 1931 dated 13.09.23 by JSPCB has been also submitted by PP. All the conditions given in EC letter is also found to be satisfactory.

Project and Location Details :

SI	Parameter	Details
1	Project Name	: Mayurkola Stone Mine
2	Lessee:	: M/s R. B. Stone Works Partner – Shri Ranjit Kumar Tiwary S/o Shri Harihar Parasad Tiwary Address:- At - Harindanga Bazar, P.S. - Pakur, District - Pakur, Jharkhand
3	Lease Address	: Village – Mayurkola, Pipaljori & Lohatia, District – Sahibganj, Jharkhand
4	Lease Area	: 4.55ha Acres- 11.25Acres
5	Type of Land	: Non- Forest (Raiyati Land)
6	Project Cost	: Rs. 50Lakhs
7	EMP Budget	: Capital: 4.92Lakhs Recurring: 4.27 Lakh / year

8	New or Expansion	:	New
9	Mineable Reserves	:	cum.: 641383.10 cum Tonnes: 1860011.00 tons
10	Mine Life	:	6.54years
11	Man power	:	28
12	Water Requirement	:	9.22 ~ 9.20 KLD(Drinking: 0.28 KLD, Dust Suppression: 5.77KLD, Plantation:3.17 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	500 KVA
15	Crusher	:	No crusher
16	Nearest Water Body	:	Kanli nadi, approx. 3.0 km towards North direction of mine site.
17	Nearest Habitation	:	Phulchua Approx 0.57 km towards NE direction.
18	Nearest Rail Station	:	Kotalpukur Railway station, approx. 2.80km towards ESE direction.
19	Nearest Air Port	:	Deoghar Airport, approx. 116.0 km towards WSW direction.
20	Nearest Forest	:	Protected forest -Approx. 0.20 km towards West direction of mine site. Protected Forest-Approx 1.0 km towards N direction of mine site. Protected Forest-Approx. 4.5 km towards E direction of mine site. Protected Forest-Approx. 4.7 km towards SW direction of mine site.
21	Road & Highways	:	NH- 133A, approx. 6.80 km in W direction.

CO-ORDINATES

1	Latitude	From 24°45'13.60" N	To 24°45'0.21"N
2	Longitude	From 87°47'57.23" E	To 87°47'50.70"E

LAND DETAILS:

Mauza	Khata No.	Plot No.
Mayurkola	208	786(P), 787(P), 788(P), 797(P), 798(P)
Pipaljori	211	145, 146(P), 147, 148, 149, 150
Lohatia	210	67(P), 68(P), 69(P), 70(P)

STATUTORY CLEARANCES:

1	Lease Deed/Lease docs	:	Lease Deed 25.01.2019 to ten years.
2	CO	:	The CO, Barwaha (Sahibganj) vide memo no. : 1062/Ra, dated 11.09.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.
3	DMO	:	DMO, Sahibganj, vide memo no. 796/M, dated 05.08.2023 certified that 02 other mining lease area (4.13 Acre & 7.07 Acre) exists within 500 m radius from proposed project site and total area is 23.45 Acre.
4	DFO Wild Life	:	DFO -cum- Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide memo no. : 1442 dated 02.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary.
5	DFO Forest Distance	:	DFO, Sahibganj Forest Division vide memo no. : 1598, dated 03.11.2016 certified that the distance of notified forest is 7.70KM from project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Sahibganj.
7	Gram Sabha	:	Gram Sabha conducted on 02.12.2016.
8	Mine Plan Approval	:	Mine Plan Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide letter no. 435/DDM, dated 20.09.2017.
9	Production Report	:	Production figure issued by DMO, Sahibganj vide memo no. 712/M, dated 11.07.2023.
10	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. : JSPCB/HO/RNC/CTE-4780095/2019/295, dated 01.05.2019.
11	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/RO/DMK/CTO-12441835/2022/56, dated 24.03.2022.
12	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Sahibganj vide letter no. EC/DEIAA/2017-18/111, dated 19.03.2018.
13	Compliance report of previous EC	:	Compliance report certified by Regional Office cum Laboratory, JSPCB, Dumka vide Ref. no. : 1931, dated 13.09.2023 and also certified that the proposed project site situated outside of negative supporting carrying capacity Grid no. 1, 3, 4 and 7.

Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	4.55 Ha	Life of Mine – 6.54Years
3	Waste Generation	:	24477.00 cum	
4	Stripping Ratio	:	1:0.02	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	41AMSL to 49 AMSL	
8	Ground Level Elevation	:	41AMSL	
9	Ultimate Working Depth	:	22 AMSL	
10	Water Table	:	27AMSL (25mbgl)	
11	Topography of Mine	:	Area represents a small hillock.	
12	Explosive Requirement	:	110kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Production of stone (Cum)	Production of stone (Tonnes)	Total Waste in (cum)	Bench RL in Meters
1 st	60208.00	174604.00	5647.00	47-27
2 nd	60622.00	175803.00	4863.00	47-22
3 rd	61391.00	178034.00	4775.00	47-22
4 th	63111.00	183021.00	4389.00	47-17
5 th	62934.00	182510.00	4803.00	32-27
Total	308266.00	893972.00	24477.00	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Quarry	3.284	3.957 (0.109 ha area shall be backfilled)	4.230 (0.109 ha area shall be backfilled & 3.382 ha area shall be left as water reservoir)
Road	0.043	0.009	0.009
Waste Dump	-	-	-
Safety Zone	---	0.314 (Plantation)	0.314 (Plantation)
Total	3.327	4.280	4.553
Balance	1.226	0.273	0.00
Lease Hold Area	4.553	4.553	4.553

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.314ha	785
2	Along Approach Road	0.70 km	700
3	In consulting local authorities	-	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

It has been calculated that total 8392.49cum insitu or 10490.61 cum loose or 8917.02 cum Compact waste shall be generated during this scheme period. The total waste generated during 1st to 3rd year shall be stacked at southern portion of lease area with 5m height and during the fourth & fifth year all the generated waste and waste material of dump shall be removed and used for backfilling of exhausted portion of quarry in western generation of the lease area with 6m height which will cover 0.1 09 ha area.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the plt. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred

		within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injury or system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S.No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator


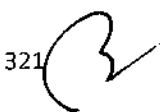


- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

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Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept. The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipments are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

- Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- The Boundary Pillars of the proposed mine lease area will be maintained properly.
- One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- If any tree felling than necessary permission shall be taken from the competent authority.
- Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VII.

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1. Amtipani Bauxite Mine of Shri Shakti Aggarwal, Village : Amtipani, Thana : Bishunpur, Distt. : Gumla, Jharkhand (43.96 Ha).

(Proposal No. SIA/JH/MIN/440176/2023).

Name of the consultant: P & M Solution, Noida, Uttar Pradesh.

EC Application for: Proposed 1,50,000 TPA of Bauxite

This is a violation project which has been taken for appraisal on 23.09.2023 in the light of OM no. F.No.22-21/2020-IA.III[E 138949] dated 28.01.2022 of MoEF&CC, Govt. of India, order passed by Hon'ble Apex Court in the matter of civil appeal no. 7576-7577 of 2021 in Electrosteel Steels Ltd. vs Union of India and SOS vide OM no. F.No. 22-21/2020-IA.III dated 07.07.2021 issued by MoEF&CC, Govt. of India.

The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendments thereafter. For this purpose the Project Proponent has submitted the prescribed Form - I & PFR the proposed project falls under item 1 (a) Mining of minerals as per EIA Notification, 2006.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: Amtipani Bauxite Mine
2	Lessee:	: Shri Shakti Aggarwal, S/o Late Bajrang Prasad Agrawal Address:- At -anglam, Taldanga, Nirsa cum Chirkunda, Dhanbad.
3	Lease Address	: Village – Amtipani, District- Gumla, State- Jharkhand
4	Lease Area	: 43.96 ha Acres- 108.62 Acres
5	Type of Land	: Jungle Jhari Land & Raiyati Land
6	Project Cost	: Rs. 1 Crore
7	EMP Budget	: Capital: 6 Lakhs Recurring: 3.77 Lakh / year
8	New or Expansion	: Renewal / Existing
9	Mineable Reserves	: Tonnes: 676349 tons
10	Mine Life	: 15 years
11	Man power	: 42
12	Water Requirement	: 14 KLD (Drinking: 2 KLD, Dust Suppression: 10 KLD, Plantation: 2 KLD)
13	Water Source	: From Nearby villages by tankers
14	DG Set / power	: 400 KVA
15	Crusher	: No crusher
16	Nearest Water Body	: Hurrahi Nadi, approx. 2.80 km towards East direction of mine site. Chando or Keso Nadi, approx. 3.10 km towards SE direction of mine site.

17	Nearest Habitation	:	Chirodih, Approx 3.10 km towards SE direction.
18	Nearest Rail Station	:	Lohardaga Railway station, approx. 42 km..
19	Nearest Air Port	:	Nearest Airport is Ranchi (about 107 km).
20	Nearest Forest	:	Hlsir Reserved Forest - Approx. 5 km towards NW direction of mine site. Jahup Protected Forest- Approx 6 km towards NW direction of mine site. Labga Protected Forest- Approx. 7 km towards SW direction of mine site.
21	Road & Highways	:	SH-13, approx. 1.50 km in North direction.

CO-ORDINATES

1	Latitude	From 23° 21' 1.69" N	To 23° 21.62" N
2	Longitude	From 84° 16' 30.88" E	To 84° 16' 44.22" E

LAND DETAILS:

Khata No.-12 Plot No.-2434,2438
 Khata No.-13 Plot No.-944,2433,2436,2437,2468
 Khata No.-17 Plot-2430,2439
 Khata No.-18 Plot No.-2440,2463
 Khata No.-46 Plot No.2445,2448,2453,2459,2458
 Khata No.-48, Plot No.-2458
 Khata No.67, Plot No.-2450,2456,2469
 Khata No.-79, Plot No.-947
 Kkata No.-80, Plot No.-946,2432,2451
 Khata No.-83, Plot No.-2446
 Khata No.-85, Plot No.-2447
 Khata No.-87, Plot No.-2452
 Khata No.-92, Plot No.-2454,2455,2461,2462,2464
 Khata No.-93, Plot No.-2460
 Khata No.-107, Plot No.-2457,2466
 Khata No.-115, Plot No.-2465
 Khata No.-131, Plot No.-2449
 Khata No.-134, Plot No.-2442
 Khata No.-137, Plot No. -2444
 Khata No.-142, Plot No.-2431

STATUTORY CLEARANCES :

1	Lease Deed/Lease docs	:	Supplementary Lease deed for Extension 7 th Sep 2017 for 50 years from the dated of 1 st Grant i.e. up to 09.05.2035
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2	CO	:	The CO, Bishunpur (Gumla) vide memo no. : 480, dated 14.08.2023 has certified that the plot no. (except Plot no. 2435, 2443, 2467 & 2483) of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan & Register II and the plot no. 2435, 2443, 2467 & 2483 of the project is recorded as "Jungle -Jhari" in R.S. Khatiyan & Register II. For which the PAs have submitted the proposal for diversion of forest land vide proposal no. FP/JH/MIN/152502/2022
3	DFO Wild Life	:	DFO, Wildlife Ranchi vide letter no. : 682 dated 25.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Lohardaga Forest Division vide memo no. : 1264, dated 11.07.2023 certified that the distance of forest is 60 meter from project site.
5	Diversion of Forest Land	:	Application for Forest diversion has been applied by PAs vide proposal no. : FP/JH/MIN/152502/2022
6	Production Report	:	Production figure issued by DMO, Gumla vide letter no. 611/M, dated 08.07.2023.

Working Details

1	Mining Method	:	Opencast Semi-mechanised method	
2	Quarry Area	:	43.96 Ha	Life of Mine – 15 Years
3	Waste Generation	:	346858 cum	
4	Stripping Ratio	:	1: 1.4	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	1072 AMSL to 1050 AMSL	
8	Ground Level Elevation	:	1050 AMSL	
9	Ultimate Working Depth	:	1020 AMSL	
10	Water Table	:	1005 AMSL (45 mbgl)	
11	Topography of Mine	:	Area represents a small hillock.	
12	Explosive Requirement	:	125 kg/day	
13	Diesel/Fuel requirement	:	110 litre/day	

Production Details

Year	Soil	Over burden	Total Overburden	Intercalated waste 20%	Total Waste	Bauxite	Stripping ratio (Ore to OB)
	in Tonees						
1st	21571	55267	76838	12136	88974	48545	1:1.5
2nd	20617	55519	76136	13488	89624	53954	1:1.4
3rd	20617	55519	76136	12480	88616	49919	1:1.5
4th	14252	44071	58323	12817	71140	51267	1:1.13
5th	14843	44582	59425	12279	71704	49116	1:1.2
Total	91900	254958	346858	63200	410058	252801	1:1.4

Land Use

Description	Existing Landuse Pattern	After 5th Year	At end of Life of Mine
For all quarries at present (backfill:0.70 Ha)	5.59	9.44	23.118
Road	0.84	0.84	0.84
Dump	4.44	6.22	1.78
Green Belt	--	1.26	2.26
Area in use	10.87	17.76	27.998
Balance area unused	22.22	26.2	15.962
Total	43.96	43.96	43.96

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	2.26 ha	2260
2	Along Approach Road	1.0 km	100

3	Unused Land	15.962	18322
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- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

It is proposed to form proper benches in OB and ore and during the plan period of working about 252801 tonnes of Bauxite will be produced and this will involve removal of about 410058 tonnes of waste. Waste removed will be used for backfilling purpose.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.

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- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

Undertaking submitted affirming :

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- c. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- d. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- e. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- f. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- g. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- h. If any tree felling than necessary permission shall be taken from the competent authority.
- i. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VIII.

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2. Enhancement of MS Billet production from 28800 TPA to 118800 TPA through 3x12 T Induction Furnaces (by existing 1x12 T Furnace & installing additional 2x12 T Furnaces along with CCM – 1x2 Strand, Rad – 4/7), Slag Crusher from 3600 TPA to 30000 TPA capacity and production of 117600 TPA TMT Bars & Rolled Products by installing Rolling Mill of 1x20TPH Capacity by M/s Shresth Steel & Energy LLP at Plot no. 57/C, Barhi Industrial Area, Village : Konra, P.S. : Barhi, Distt. : Hazaribagh, Jharkhand.

(Proposal no.: SIA/JH/IND1/444539/2023).

Name of the consultant : Vardan Environet, Haryana

This is an expansion project which has been taken for appraisal on 23.09.2023.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101st meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the ToRs in 102nd meeting held on 17th & 18th March, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2739/2023/454, date 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 18.09.2023 and which was forwarded to SEAC on 18.09.2023.

M/s Shresth Steel & Energy LLP is located at Plot No. 57/C, Barhi Industrial Area, Village – Konra, Barhi, Hazaribagh, Jharkhand on the total area of 2.181Ha (5.39Acres).

Company started with production of 28,800 TPA M.S. Ingot/Billet along with Slag Crusher of 3600 TPA (recovered Slag Metal – 360 TPA) capacity after obtaining the Consent to Establish (CTE) vide letter No. JSPCB/HO/RNC/CTE-8967996/2020/420, dated 7th December, 2020 and Consent to Operate (CTO) vide ref No. JSPCB/HO/RNC/CTO-10492679/2021/927, dated 31st August, 2021 for the period upto 30th June 2022 and current CTO vide ref No. JSPCB/HO/RNC/CTO-13085630/2022/846, dated 15.06.2022 valid upto 30th June, 2024.

Company has now proposed to obtain Environmental Clearance for the Enhancement of MS Billet production from 28800TPA to 118800TPA through 3x12T Induction Furnaces (by existing 1x12T Furnace & installing additional 2x12T Furnaces along with CCM-1x2strand, Rad- 4/7m), Slag Crusher from 3600 TPA to 30000 TPA capacity and production of 117600TPA TMT Bars & Rolled Products by installing Rolling Mill of 1x20TPH Capacity

Proposed expansion shall be done within the existing plant area of 2.186 ha (5.39 Acres). No additional land is required. No forestland is involved. Out of the total area, ha (35%) will be developed as green belt.

Hazaribagh Wildlife Sanctuary ESZ is located at a distance of 7.8 Km from the project site.

Estimated cost for the proposed expansion is Rs. 60.00 Crores. Total Project Cost is estimated as Rs. 76.2128 Crores including cost of existing plant as Rs. 16.2128 Crores. Employment generation after proposed project will be 250 direct employments and approx. 200 indirect employments.

Land Details :

Sl. No.	Khata No.	Plot No.
1	29	563 (P)

2	49	529 (P)
3	68	527 (P)
4	34	526 (P)
5	03	525 (P)
6	78	564 (P)

Latitude & Longitude of the project :

Latitude	Longitude
24°18'35.97"N to 24°18'41.41"N	85°25'29.90"E to 85°25'39.10"E

The Raw material for the plant would be procured from local and other state markets depending upon the quality. The raw material and product transportation will be done through NH-2 (Grand Trunk Road) at 50 m & NH-33 (connecting Ranchi-Patna) at 1.22 Km away from the project site. The capacity of different existing and proposed units is as follows:

Sl. No	Plant Facilities	Existing Configuration	Proposed Expansion Configuration	Final Production Capacity (TPA)
1.	Induction Furnace	1x12T	2x12T	MS Billets (3x12T) 118800 TPA 330 working days
	Continuous Casting Machine	--	1 x 2 strand Rad - 4/7	
	Ladle Refining LRF	--	2x12T	
2.	Rolling Mill (Direct Hot Charging)	--	117600 TPA (1x20 TPH)	Roll Products (TMT Bars & Rolled Products/Rods etc.) 117600 TPA
3.	Slag Crusher	3600 TPA (Recovered Slag metal – 360 TPA)	26400 TPA (Recovered Slag metal – 2640 TPA)	Crushed Slag 30000 TPA (Recovered Slag metal – 3000 TPA max)

Total requirement of power for the after the proposed expansion will be 13.4 MW. Power requirement will be sourced from Damodar Valley Corporation (DVC). Two DG set of 320 KVA will be installed along with the existing 1x200 KVA for meeting emergency requirements of the plant.

Total Raw material requirement after the proposed expansion of plant is given below:

Units	Solid Wastes	Qty In TPA	Disposal Practice
Induction Furnace	Slag	29,000	In-house metal recovery in slag crusher (approx. 3000 TPA) and non-metal dust supplied outside for further reuse in construction work.
CCM	End cuts & Scales	810	Recycled in-house along with scrap in the induction furnace.
Bag Filter Dust from process	Dust from process	130	Partly recycled (metal content). Rest supplied outside for further reuse in construction work and Low land filling
Rolling Mill	End cuttings & Mill Scale	1200	Recycled in-house along with scrap in the induction furnace.

The total water requirement after the expansion will be 184 KLD out of which Fresh Make up water is 172.6KLD. Water requirement will be met from Groundwater through Borewells after getting permission from the concerned authorities, application has been made for the same. Zero Liquid Discharge 'ZLD' shall be maintained.

The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Lease Deed.
2	CO	:	The CO, Barhi (Hazaribagh) vide letter no. 1129, dated 25.11.2022 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II.
3	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 1808, dated 12.09.2022 certified that the proposed project site is outside Eco Sensitive Zone of Hazaribagh Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Hazaribagh West vide letter no. 3242, dated 09.09.2022 certified that the distance of reserved / protected forest is more than 250 meters from project site.
5	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-8967996 /2020/420, dated 07.12.2020.
5	Consent to Operate (CTO)	:	CTO granted by JSPCB vide :

		i. Ref. no. JSPCB/HO/RNC/CTO-10492679/2021/927, dated 31.08.2021. ii. Ref. no. JSPCB/HO/RNC/CTO-13085630/2022/846, dated 15.06.2022.
6	CGWA	: No Objection Certificate for Ground Water Abstraction issued by CGWA vide NOC no. CGWA/NOC/IND/ORIG/2023/19110, dated 29.08.2023 valid up to 15.08.2026. Application for expansion to 184 KLD made vide application no. 21-4/1357/JH/IND/2023, dated 08.09.2023.
7	Public Hearing	: Public Hearing conducted by JSPCB on 08.08.2023
8	Certified compliance report of CTO	: Compliance report of CTO certified by Regional Office –cum- Laboratory, JSPCB, Hazaribagh vide letter no. 934, dated 29.08.2023.

Based on the presentation made and information provided, the Committee decided that the proposal for Enhancement of MS Billet production from 28800 TPA to 118800 TPA through 3x12 T Induction Furnaces (by existing 1x12 T Furnace & installing additional 2x12 T Furnaces along with CCM – 1x2 Strand, Rad – 4/7), Slag Crusher from 3600 TPA to 30000 TPA capacity and production of 117600 TPA TMT Bars & Rolled Products by installing Rolling Mill of 1x20TPH Capacity by M/s Shresth Steel & Energy LLP at Plot no. 57/C, Barhi Industrial Area, Village : Konra, P.S. : Barhi, Distt. : Hazaribagh, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – IX alongwith the following specific conditions :

- I. Ground water to be drawn for use in the project only after obtaining permission from the Competent Authority.
- II. Environment management system including organization structure to be drawn to ensure compliance of EC conditions stipulated based on principles of Continual Improvement and periodical management review.
- III. All raw material to be stored only under covered shed.
- IV. PAs to offset (upto20%) consumption of conventional energy sources by promoting use of solar energy, passive energy utilization, optimum fenestration, shading effect and heat islands.
- V. Developers to promote energy conservation measures such that it offsets not less than 02 % of connected load. It is to be achieved by solar panels etc meeting ECBC norms.
- VI. Trees should be developed & maintained not less than 33% of project area.
- VII. Developers/Company to install STP of sufficient capacity such that all the sewer produced is treated and reused.
- VIII. Developers/Company to install Rain water harvesting structures such that all the roof top water runoff is collected and harvested including reuse on 100% basis.

- IX. Developers/Company to conduct and submit carbon footprint and carbon sequestration study report including mitigation measures as a part of EC compliance.
- X. MSW Collection centre should be located in isolated and preferably unmanned area. Movement of the vehicle carrying waste should be under tarpaulin covered condition only. Route of vehicle should be such that it avoids residential areas as far as practical.
- XI. ISO 14k EMS system standard to be followed for implementation of EMPs with MRM in place for feedback to Sr management.

13. Brahmandungri Soapstone Mine of M/s Ganga Engineering, Village :Brahmandungri, Tehsil : Rajnagar, Distt. : Saraikela-Kharsawan, Jharkhand (31.36 Ha).

(Proposal No : SIA/JH/MIN/444066/2023).

Name of the consultant: Vardan Environet, Haryana.

This is a case of violation which has been taken for appraisal on 23.09.2023

The project is a violation case since the project proponent has started the construction without prior Environmental Clearance from State Environment Impact Assessment Authority (SEIAA), Jharkhand.

However, The Honourable Supreme court in its order dated 9th December 2021 In the matter of the Civil appeal No 7576-7577 of 2021 in the Electro steel Steels Limited Vs Union of India and Ors in its para 93 has inter- alia observed the following :

"The interim order passed by the Madras high Court appears to be misconceived. However, this court is not hearing an Appeal from that interim order. The interim stay passed by the Madras High court can have no application of operations of the Standard Operating Procedure to the projects in territories beyond the territorial jurisdiction of Madras High court. However, final decision may have been taken in accordance with the Orders/ Rules prevailing prior to 7th July, 2021."

Thus, the SEIAA, Jharkhand, in the light of Ho'ble Supreme Court order dated 9th December 2021, Office Memorandum no. F.No.22-21/2020-IA.III[E 138949] dated 28.01.2022 of MoEF&CC, Govt. of India and Standard Operating Procedure (SOP) issued by MoEF&CC, Govt. of India vide its file number 22-21/2020-IA-III, dated 07.07.2021, the matter has been taken for consideration & recommendation of EC for violation projects.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 102nd meeting held on 21-25.03.2023 and SEIAA, Jharkhand has approved the ToRs in 103rd meeting held on 01st & 02nd April, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no.

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EC/SEIAA/2022-23/2769/2023/24, date 12.04.2023. The final EIA / EMP submitted by PP to SEIAA on 18.09.2023 and which was forwarded to SEAC on 18.09.2023.

Mining lease was granted to M/s Ganga Engineering and the mining lease Brahmandungri Soapstone mine lease deed was executed on 07.03.2005 for a period of 20 years over an extent of 31.36 Ha. The mining lease area cover 25.31 Ha of private land and 6.05 Government land. The application for renewal of mining lease was made by M/s Ganga Engineering for exploitation of Soapstone. M/s Ganga Engineering was in possession of the entire lease and was performing the mining operation from the subject mines.

Previously the Mining Plan of the said mine was approved by the Regional Controller of Mines, Indian Bureau of Mines, Ranchi Region, Ranchi. The approval was given under the Letter No. CAL/SARKHAR/SST/MP-634 dated 22.11.2004. Scheme of mining is prepared for the period of 2020-21 to 2024-25. Mining operation is being carried out in the area since 18.04.2007 without granting the mining lease and the mining lease is closed Since 2013.

Past production has been certified by Mining officer, Saraikela Kharsawan, Jharkhand vide letter no 243/M, dated 29.03.2019, Letter also states that the mining activity has been stopped since 2013.

Sr. No.	Previous Years	Production (MT)
1	2004-05	0.00
2	2005-06	0.00
3	2006-07	0.00
4	2007-08	83.00
5	2008-09	355.00
6	2009-10	362.00
7	2010-11	1736.00
8	2011-12	4040.600
9	2012-13	1400.00
10	2013-14	0.00
11	2014-15	0.00
12	2015-16	0.00
13	2016-17	0.00
14	2017-18	0.00

Project and Location Details:

Sl.	Parameter	Details
1	Project Name	: Mining of Soapstone minor mineral from Brahmandungri Soapstone mine with 42822.00 TPA Production capacity over a ML area of 31.36 ha located at Village- Brahmandungri, Tehsil- Rajnagar, District – Saraikela-Kharsawan, State- Jharkhand, Proposed by M/s Ganga Engineering.
2	Lessee:	: M/s Ganga Engineering, Authorized Signatory- Mr. Jitendra Agarwal Garg
3	Lease Address	: Village- Brahmandungri, Tehsil- Rajnagar, District – Saraikela-Kharsawan, State- Jharkhand
4	Lease Area	: Ha: 31.36 Acres: 77.49
5	Type of Land	: Non-Forest
6	Project Cost	: Rs. 1.518 Crore
7	EMP Budget	: Capital: Rs. 15.80 Lakhs Proposed
8	New or Expansion	: Violation
9	Mineable Reserves	: Cu.M.: 309114.2 Tonnes: 695506.95
10	Mine Life	: 17 Years
11	Manpower	: Direct- 50 Indirect- 100-150
12	Water Requirement	: 26.9 KLD (Drinking: 2.0 KLD, Dust Suppression: 24 KLD & Plantation: 0.9 KLD)
13	Water Source	: Supplied through authorized tankers
14	DG Set / power	: Not Applicable
15	Crusher	: Not Applicable
16	Nearest Water Body	: Kharkai River - 3.5 km N Sitarampur Reservoir – 6.7 km NW Bhangbanga Nadi – 8.1 km SW
17	Nearest Habitation	: Bamdih – 0.46 km NW
18	Nearest Rail Station	: Adityapur Railway Station – 6.5 km NNE Direction
19	Nearest Airport	: Sonari Airport: 10 km in NNE Direction Birsamunda Airport: 108 km in NW Direction
20	Nearest Forest	: Nandu PF – 1.6 km NE Kudada RF – 0.47 km SE Gotigoratola – 4.9 km SE Daraimachh PF – 1.5 km SW
21	Road & Highways	: SH 6 – 4.7 km NE Rajnagar Jugsalai Road – 2.0 km NW

CO-ORDINATES

1	Latitude	: From 22°43' 8.204"N To 22°43' 33.860"N
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2	Longitude	:	From 86° 08' 52.810"E	To 86° 08' 53.837"E
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LAND DETAILS :

Khata No.	Khasra No.	Khata No.	Khasra No.
1	354, 355, 363, 365	27	316, 341, 343
4	338, 348	38	357, 358
8	302, 369, 370	41	339, 345, 259, 260, 261, 262, 263, 264, 323, 330, 334, 335, 356
10	272, 277, 282, 289, 307	54	238, 239
11	293, 294	57	241
12	290, 276	58	303, 304, 305, 310, 361, 362
13	292	59	318, 360
14	321, 322, 324, 325, 336, 236, 237, 242	60	344, 351, 352
16	340	61	328, 342, 327, 353, 371, 372
17	243	64	373
20	273, 274, 288, 295, 297, 300	65	271
20	279, 280, 284, 283, 287, 306, 308	66	376
21	268, 281	67	375
25	245, 347, 349, 337, 244, 256, 257, 258, 265, 346, 251, 252, 253, 254, 255, 246, 247, 248, 249, 250	76	319, 320, 326, 359, 367, 374, 315, 377, 240, 266, 267, 275, 298, 301, 309, 311, 317, 350

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Mining lease was granted to M/s Ganga Engineering and the mining lease Brahmandungri Soapstone mine lease deed was executed on 07.03.2005 for a period of 20 years over an extent of 31.36 Ha.
2	CO	:	The CO, Gamharia vide letter no. : 1097, dated 29.10.2021 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyani & Register II. CO, Gamharia has also mentioned that the 15 houses exist at a distance of 200 m in North side, 15 houses at a distance of 25 m in East side and 08 houses at a distance of 35 m in West side. The total lease area is 77.46 acre whereas the mining quarry area

		<p>at conceptual stage will be 23.71 acres.</p> <p>The PAs have submitted as follows :</p> <p>Mitigation measures for nearby habitation :</p> <ul style="list-style-type: none"> • Obtained NOC from gram sabha for operation of the Soap Stone Mines. • Mine pit even at ultimate stage is more than 100 m from the mine boundary in direction of nearby habitations. • Green belt of minimum 30 m (including safety zone of 7.5 m) will be developed along the mine boundary in the said directions. • Only manual mining is proposed. No drilling or blasting – thus minimum noise & vibration envisaged at habitations. • Regular water sprinkling will be done for dust suppression due to mining activities. • Transportation of materials will not be done on the roads passing through these habitations.
3	DMO	: DMO, Saraikela-Kharsawan vide letter no. 341/M, dated 06.06.2019 certified that no other mining lease area exists within 500 m radius from project site.
4	DFO Wild Life	: DFO, Dalma Elephant Project vide letter no. : 87, dated 29.01.2022 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary.
5	DFO Forest Distance	: DFO, Seraikela Forest Division vide letter no. : 164, dated 27.01.2022 certified that the distance of notified forest is more than 250 m from project site.
6	DSR	: The project is already mentioned in District Survey Report of West Singhbhum.
7	Gram Sabha	: Gram Sabha conducted on 05.01.2022.
8	Mine Plan Approval	: Mine plan approved by Deputy Director Mines, Kolhan Circle, Chaibasa vide letter no. 14/DDM, dated 06.01.2023.
9	Public Hearing	: Public Hearing conducted by JSPCB on 04.09.2023.

WORKING DETAILS

1	Mining Method	: Opencast Manual Mining
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2	Quarry Area	:	End of Life – 9.60 ha	Life of Mine – 17 Year
3	Waste Generation	:	5 years–31736 m ³	
4	Stripping Ratio	:	1:0.19	
5	Size of the Bench	:	1.5 m x 1.5 m	
6	Working Days	:	300 days/year	
7	Elevation range of the mine site	:	Minimum- 213 m RL Maximum- 945 m RL	
8	Topography of Mine	:	Gently Slope	
9	Explosive Requirement	:	Not applicable	
10	Diesel/Fuel requirement	:	Not applicable due to manual mining	

Production Details:

Year	Soil in m ³	O.B. in m ³	Wastes in m ³	Total Wastage in m ³	Total Soapstone in Tonnes
2020-21	00	00	00	00	00
2021-22	00	00	00	00	00
2022-23	9790.50	3916.20	00	13706.70	35245.80
2023-24	00	4300.50	00	4300.50	38704.50
2024-25	00	4758.00	00	4758.00	42822.00
Total	9790.50	12974.70	00	22765.20	116772.30

LAND USE

Sr. No	Activity	Present Land Use (ha)	After Five Year Land Use (ha)	At the end of lease period ha.
1.	Quarry	0.35	0.86	9.60
2.	Soil Dump	0.05	0.27	Nil
3.	Waste Dump including Parapet Wall & Garland	Nil	0.59	Nil

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	Drain			
4.	O.B Dump	0.07	Nil	Nil
5.	Mineral Stack	0.22	0.22	Nil
6.	Road	0.56	0.65	0.12
7.	Green Belt	Nil	1.08	2.89
8.	Total area in use	1.25	3.67	12.61
9.	Gairmazarua & Raiyati Land	30.11	27.69	18.75
Grand Total		31.36	31.69	31.36

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Location	No. of Sapling to be Planted	Species	Place of Plantation
2020-21	Along Safety Barrier	Nil	Neem, Peepal, Mango, Shisham, Sirish, Babool, Gulmohar	Along the roads, safety barrier, on dumps
2021-22	Along Safety Barrier	Nil		
2022-23	Along Safety Barrier	200		
2023-24	Along Safety Barrier	200		
2024-25	Along Safety Barrier	200		

Solid Waste Management

Year	Soil in m ³	O.B. in m ³	Wastes in m ³	Total Wastage in m ³
2020-21	3559	1109	1119	5787
2021-22	00	6968	1039	8007

2022-23	00	8636	1127	9763
2023-24	4167	7797	1112	13076
2024-25	3569	7226	1104	11899
Total	11295	31736	5501	48532

Water Pollution Control Measures:

- The Ultimate Area of the Quarry will be 9.60 Ha at the end of life.
- Mining operation will be restricted to the depth of 25 meter from surface level.
- The clogged water during rainy season will be pumped out from the quarries and will be tested before discharge to nearby cultivated field. Apart from this, there is no change on water environment.
- There will be no wastewater generated from the mining operations. Only domestic waste water will be generated, which will be treated in septic tank/soak pits.

SW & GW Management:

1. Mining will not intersect the ground water table during the plan period.
2. The mining will not have any impact on the topography and the natural drainage of the surrounding area.

Air Pollution Control Measures:

- Dust suppression measures like spraying / sprinkling of water to keep the surface wet.
- Overloading of the truck / tractor trolleys will not be done.

As the only impact is due to transportation, through village roads, emphasis will be given on the following points:

1. Tractors-dumper will be well maintained from time to time and PUC certified vehicles will be used.
2. Timely maintenance of vehicles and their silencers to minimize vibration and sound.
3. Minimum use of horns in the village area and silence zone (if any) as applicable.

Noise Pollution Control Measures:

1. Proper maintenance of all machines will be carried out, which help in reducing the generation of noise during operations.
2. Only transportation vehicles, for loading will be allowed.
3. Noise generated by equipments is intermittent and does not cause much adverse impact.
4. Periodical monitoring of noise will be done to adopt corrective actions wherever needed.

5. Plantation will be taken up along the approach roads. The plantation minimizes propagation of noise and also arrests dust.

Topsoil Management:

Yearly generation of soil/ fines will be used for plantation and as a upper layer on the dumps. Top soil (if any) will be stacked in the area in area earmarked for stacking.

There are no toxic elements present in the mineral which may contaminate the soil or water.

Undertaking submitted affirming :

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The district survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. The plantation work will be completed within the third year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- f. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- g. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- h. If tree falling is required permission from computed authority should be obtained.

This EC will be recommended after compliance of all the statutory requirements and judgement of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.

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Day 6 : September 24th, 2023 [Sunday]

- A. Deputy Commissioner -cum- District Magistrate, Simdega or through authorized representative.
- i. Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Stone & Brick Earth), Distt. Simdega.

The Final DSR was submitted by Deputy Commissioner, Simdega. He was represented by District Mining Officer, Simdega Shri Ajit Kumar at the SEAC meeting on 24.09.2023.

During the meeting the DMO, Simdega presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

The final DSR had been placed in the public domain for 21 days from the 18.08.2023. As per the Sub Divisional Committee no comments / observations were obtained.

During appraisal the DMO, Simdega were required to incorporate the following details :

- i. Block wise impact on the environment w.r.t. Air, Water, Noise, Soil, Flora & Fauna, Land use, Agriculture, Forest etc. due to the mining activities alongwith the corresponding remedial measures to mitigate the identified impacts.
- ii. Proposal for reclamation of the mined out area.
- iii. Details of risk assessment and disaster management plan due to the mining activities.
- iv. To include the data of the primary study carried out for preparation of DSR.

The above requirements incorporated in the DSR.

The DSR has been prepared as per the format provided in the above notification. The DSR submitted has been approved by the Sub-Divisional Committee. All the aspects of the notification dated 25.07.2018 are incorporated in the DSR and found to be satisfactory.

Hence, the final DSR for Minor Minerals other than Sand Mining or River Bed Mining (Stone & Brick Earth) of District Simdega is recommended to SEIAA for approval.

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B. Consideration of Proposals

1. Dungri-Puttia Sand Mining Lease of M/s Tata Steel Limited (GM : Shri Sanjay Rajoria), Village : Dungri-Puttia, Tehsil : Jhariya & Putki, Dist. : Dhanbad, Jharkhand (24.127 Ha).

(Proposal No. : SIA/JH/MIN/59908/2021)

Project Category: B1 – Application for TOR

Name of the consultant : Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar.

Expansion of existing Dungri-Puttia Sand mining lease from 0.283 MTPA to 0.32 MTPA by Opencast Manual method in village Dungri and Puttia, P.S.-Dhanbad, District – Dhanbad, Jharkhand

This is a new project which has been taken for re-consideration on 24.09.2023 after change of consultant and submission of DSR.

Project and Location Details :

Sl	Parameter	Details
1	Project Name	: DUNGRI - PUTTIA SAND MINING LEASE
2	Lessee:	: Tata Steel Ltd.
3	Lease Address	: Jharia Division, Tata Steel, Jamadoba - 828112
4	Lease Area	: 24.127 Ha.
	Working Area	: 2.91 ha. (after leaving buffer for intake point & public bridge)
5	Type of Land	: Govt. Land
6	Project Cost	: 51.85 Lakhs
7	EMP Budget	: Capital: 2.50 Lakhs Recurring: 1.5Lakh / year
8	CSR / CER Budget	: Rs. 1.00 Lakhs
9	New or Expansion	: Expansion
10	Mineable Reserves	: Cu.M.:1244516 Cu. M/ year Tonnes:0.7716 MT
	Within working area	: Cu.M.: 150000 Cu. M/ year Tonnes:0.093 MT
11	Mine Life	: Till the lease is valid 2036
12	Man power	: 42
13	Water Requirement	: 5.5 KLD (Drinking:1.50 KLD, Dust Suppression& Plantation: 4.00 KLD)
14	Water Source	: Bore wells for drinking & supply tankers for other purposes
15	DG Set / power	: NO
16	Crusher	: NO
17	Nearest Water Body	: Within Damodar River
18	Nearest Habitation	: Dungri
19	Nearest Rail Station	: Bhaga (4 Km)
20	Nearest Air Port	: Ranchi (160 Km)

21	Nearest Forest	:	None
22	Road & Highways	:	SH-12 (4.5 Km)

CO-ORDINATES :

1	Latitude	From 23°42'38.69" N	To 23°42'08.04" N
2	Longitude	From 86°22'33.23" E	To 86°22'16.95" E

LAND DETAILS :

Sl. no.	Mouza	Khata no.	Plot no.
1	Dungri	126	01 (P)
2	Puttia	201	1755 (NEW) / 2714 (P) (OLD)

STATUTORY CLEARANCES

1	CO	:	The CO, Putki (Dhanbad) vide letter no. 246, dated 26.07.2021 and CO, Jharia vide letter no. 394, dated 03.05.2021 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan & Register II.
2	DMO	:	DMO, Dhanbad vide memo no. 1528 /M, dated 07.07.2021 certified that no lease area exists within 500 m radius from proposed project site.
3	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 1622 , dated 16.09.2020 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Dhanbad Division vide letter no. 2201, dated 18.11.2020 certified that the distance of reserved / protected forest is 270 meter from proposed project site.
5	DSR	:	Project area mentioned in District Survey Report, Dhanbad district.
6	Mine Plan Approval	:	Letter dated 03.05.2019

Working Details

1	Mining Method	:	Opencast Manual Method
2	Quarry Area	:	13 years-24.127 Ha. Life of Mine -13 years 9 up

	Quarry in working area		2.655 ha	to 2036)
3	Waste Generation	:	5 years– 0.0 Cu.M	Life of Mine –0.0 Cu.M
4	Stripping Ratio	:	Zero	
5	Working Days	:	237 Days	
6	Benches: size & No	:	2.2 m (max.)	
7	Elevation of Mine	:	153 AMSL	
8	Ground Level Elevation		151 AMSL	
9	Ultimate Working Depth	:	2.5 m	
10	Water Table	:	Mining within Damodar River	
11	Topography of Mine	:	Flat with slight undulations	
12	Explosive Requirement	:	Not Required	
13	Diesel/Fuel requirement	:	500 Litres/day	

Production Details

Year	As per Approved Mining Plan			As proposed in Working Area		
	Opening Balance after Replenishment/ year (MT)	Production as per mine plan (MT)	Balance Deposit (MT)	Opening Balance after Replenishment/year (MT)	Production in Working Area* (MT)	Balance Deposit (MT)
2023	0.771	0.32	0.451	0.093	0.039	0.054
2024	0.771	0.32	0.451	0.093	0.039	0.054
2025	0.771	0.32	0.451	0.093	0.039	0.054
2026	0.771	0.32	0.451	0.093	0.039	0.054
2027	0.771	0.32	0.451	0.093	0.039	0.054
2028	0.771	0.32	0.451	0.093	0.039	0.054
2029	0.771	0.32	0.451	0.093	0.039	0.054
2030	0.771	0.32	0.451	0.093	0.039	0.054

2031	0.771	0.32	0.451	0.093	0.039	0.054
2032	0.771	0.32	0.451	0.093	0.039	0.054
2033	0.771	0.32	0.451	0.093	0.039	0.054
2034	0.771	0.32	0.451	0.093	0.039	0.054
2035	0.771	0.32	0.451	0.093	0.039	0.054
2036	0.771	0.32	0.451	0.093	0.039	0.054

Land Use:

Existing and proposed Land use

Land Use	As per Mine Plan			As proposed in Working Area
	Existing	Proposed	End of Mine Life	
Excavation Area	Pre-mining land use consists of sand 15.61 ha, water flowing over 6.857 ha and 1.66 ha banks	19.13	19.31 reclaimed by river	2.91
Safety Zone		4.597	4.597	0.255
Road & Infrastructure		0.4	0.4	0.4
Undisturbed Area		-	-	20.562
Total	24.127	24.127	24.127	24.127

- Plantation work in the safety zone (7.5 m width in both ends of the proposed working area) and on either side of approach road with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- There will be no solid waste generation

Water Quality Management

- Utmost care shall be taken to minimize sand spillage

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- Drains and their Catchments shall be constructed just beside the access roads so that the storm water gets settled near the banks, before flowing to the river.
- The washing of trucks in the river shall be avoided.
- Plantation along the river banks will be done to arrest the velocity of the storm water
- It shall be ensured that quality of drinking water for the worker shall be hygienic and good sanitation system shall be made available.

Air Quality Management

- All machineries and transport vehicles shall be properly maintained, and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul roads to control emission of dust while transporting sand. Provision for water spray by tankers on 'kaccha' road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc. shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling is required a permission should be taken from competent authority.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 19, 20, 21, 22, 23, 24 & 25.09.2023, the Committee recommends for issuing of TOR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure VII.

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2. Jangalpur Stone Mine of Shri Abdul Moid Alam, Village : Jangalpur, Thana : Govindpur, Thana no. : 202, Distt. : Dhanbad, Jharkhand (0.951 Ha).

(Proposal No. SIA/JH/MIN/444280 /2023).

This is a new project which has been taken for appraisal on 24.09.2023.

Project Category: B2– Applied for Environmental Clearance.

EC Application for: Stone Mining for production of 9888.88 Cu m per annum or 26,700.00 tons per annum

Name of the Consultant: AWS Envirotech (OPC) Pvt Ltd, Lucknow

Project and Location Details:

Sl	Parameter	Details
1	Project Name	: Stone Mining
2	Lessee:	: Lessee- Abdul Moid Alam, S/o Md Mazhar Alam, Village- Jangalpur, PO- Jangalpur & PS- Govindpur; District- Dhanbad, State- Jharkhand
3	Lease Address	: Mouza- Jangalpur, Thana- Govindpur, Thana No- 202, District- Dhanbad, State- Jharkhand
4	Lease Area	: 0.951 ha. Acres- 2.35 Acres
5	Type of Land	: Private Rayati Land
6	Project Cost	: Rs. 40 Lakhs
7	EMP Budget	: Capital: 8.5 Lakhs Recurring: 4.0 Lakhs/year
8	CSR/CER Budget	: 0.8 Lac
9	New or Expansion	: New
10	Mineable Reserves	: 267408.00 tonnes
11	Mine Life	: 10 years
12	Man power	: 17
13	Water Requirement	: 20.45 KLD (Drinking: 0.255 KLD, Dust Suppression: 12 KLD, Plantation: 8.2 KLD)
14	Water Source	: Water will be sourced from Abandoned mines through the water tanker for dust suppression and plantation water will be sourced from a bore well within the lease area for drinking and domestic consumptions.
15	DG Set / power	: NA
16	Crusher	: NA
17	Nearest Water Body	: Khudia River, at approx. 0.2 km towards N direction

18	Nearest Habitation	:	Jangalpur, 1.2 km towards E direction
19	Nearest Rail Station	:	Chhota Ambana Railway Station, approx. 8.2 km in South direction
20	Nearest Air Port	:	Dhanbad Airport, approx. 15 km towards W direction.
21	Nearest Forest	:	Nil
22	Road & Highways	:	NH-19, Approx. 2.5 km, S direction

CO-ORDINATES

1	Latitude	From 23°50'06.15" N	To 23°50'09.65" N
2	Longitude	From 86°34'09.44" E	To 86°34'15.20" E

Land Details:

Sl. No.	Khata No.	Plot No.
01	439	24 (P), 25 (P), 26, 27, 28, 29, 120 (P)
02	564	93, 94, 95, 96, 97, 99
03	232	91 (P)
04	307	119 (P)

Statutory Clearances:

1	LOI/Lease docs	:	The Letter of Intent (LOI) has been issued by District Mining Officer, Dhanbad vide letter no. 25/M., dated 05.01.2023
2	CO	:	The CO, Govindpur (Dhanbad) vide letter no.: 1332, dated 21.10.2022 has mentioned the plot no. of the project is not recorded as "Jungle - Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dhanbad vide memo no. 167/M, dated 06.02.2023 that 02 other mining lease area (3.20 Acre & 6.75 Acre) exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no.: 156, dated 21.01.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Forest Distance	:	DFO, Dhanbad vide letter no.: 1542, dated 07.07.2022 certified that the distance of reserved / protected Forest is 353 meter from proposed project site.
6	DSR	:	The DC, Dhanbad vide letter no. 205 / M, dated 13.02.2023 has

			informed that this project is part of District Survey Report (DSR) of Dhanbad district and accordingly necessary action with regard to Environmental Clearance can be taken.
7	Gram Panchayat	:	Gram Panchayat, Jangalpur vide Letter No. G/P/JP/32/2022 dated 20.09.2022 informed that Gram Sabha conducted on 20.09.2022.
8	Mine Plan Approval	:	Approved by DMO, Dhanbad vide memo no. 1371/M, dated 01.09.2023.

Working Details

1	Mining Method	:	Opencast. Semi mechanized Mining method, wagon drill with blasting	
2	Quarry Area	:	0.951 ha	Life of Mine – 10 years
3	Waste Generation	:	Almost nil; weathered rock with mixed soil may be generated, which will be used for road development	
4	Stripping Ratio	:	0:1	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m, Bench No 1 to 5 (Conceptual period depth)	
7	Elevation of Mine	:	172 AMSL to 175 AMSL	
8	Ground Level Elevation	:	200 AMSL	
9	Ultimate Working Depth	:	150 AMSL	
10	Water Table	:	142 AMSL	
11	Topography of Mine	:	Area represents a small hillock	
12	Explosive Requirement	:	34 Kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Slice/Bench	Area Excavated (in m ²)	Average depth of Excavation (m)	OB Volume in Cu. M	Annual Production (m ³)	Annual Production in (Tonne)	Total Average Production Per Day (Tonne) Stone boulder
1 st	First Bench (174m to 168 m) Average Height of Slicing (6.00m)	1648.14	6.00	1800.00	9888.88	26700.00	89.00

2 nd	First Bench (174m to 168 m) Average Height of Slicing (6.00m)	1648.14	6.00	1800.00	9888.88	26700.00	89.00
3 rd	First Bench (174m to 168 m) Average Height of Slicing (6.00m)	1648.14	6.00	1800.00	9888.88	26700.00	89.00
4 th	First Bench (174 m to 168m) Bench Height 6.00m	1648.14	6.00	1800.00	9888.88	26700.00	89.00
5 th	Second Bench (168m to 162m) Bench Height 6.00m (139 m to 136m)	1648.14	6.00	-	9888.88	26700.00	89.00
6 th to 10 th	@Average production 89.00 per day						

Land Use

Type of land use	Area (ha)
Water reservoir	0.571
Road	0.00
Garland drain & Sump	0.00
Green Belt	0.380
Total	0.951

ENVIRONMENT MANAGEMENT PLAN

Green Belt Development

S. No.	LOCATION		Area/Length	No of Trees
1	Safety Zone	:	0.38 ha	635
2	Haul /Approach Road	:	1500 m	1002

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

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Solid Waste Management

- Waste Generation is almost nil, however if generated will be weathered rocks mixed with loose soil that will be used for maintenance of Haul/approach Road.

Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask etc. shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months

Undertaking submitted affirming:

- a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
- b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

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- c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
- d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
- e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
- f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
- g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
- h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
- i. If any tree felling than necessary permission shall be taken from the competent authority.
- j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
- k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
- l. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Jangalpur Stone Mine of Shri Abdul Moid Alam, Village : Jangalpur, Thana : Govindpur, Thana no. : 202, Distt. : Dhanbad, Jharkhand (0.951 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

3. Serangdag Bauxite Mine with production capacity of Bauxite 1,00,000 TPA, Top Soil 15,350 TPA, OB 1,69,800 TPA & Mineral reject 40,000 TPA with installation of crusher 100 TPH, Screening & Washing of M/s Hindalco Industries Ltd., Village : Serangdag, Hanrup and Paunri, Taluka : Bishunpur & Ghaghra, Dist. : Gumla, Jharkhand (77.89 Ha).

(Proposal No. : SIA/JH/MIN/444350/2023).

Name of the consultant : J.M. Enviro Net Pvt. Ltd., Haryana

This is a existing mine which has been taken for appraisal on 24.09.2023

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Project Category : B1 : The State Expert Appraisal Committee, Jharkhand deliberated the project during its 92nd meeting held on 20-23.10.2021 and SEIAA, Jharkhand has approved the **ToRs** in 94th meeting held on 13th, 14th & 15th April, 2022. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2018-19/2410/2018/106, dated 16.04.2022.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 101th meeting held on 20-24.02.2023 and SEIAA, Jharkhand has approved the **Corrigendum of ToRs** in 102nd meeting held on 17th & 18th March, 2023. **Corrigendum of TOR** for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2022-23/2410/2023/452, dated 24.03.2023. The final EIA / EMP submitted by PP to SEIAA on 18.09.2023 and which was forwarded to SEAC on 18.09.2023.

EC Application for : Bauxite: 100000 TPA

Name of the consultant: JM EnviroNet Pvt. Ltd., Gurugram-122001

Project & Location Details :

Sl	Parameter	Details
1	Project Name	: Serengdag Bauxite Mine
2	Lessee:	: M/s. Hindalco Industries Limited 21 st Floor, One International Centre, Tower-4, Prabhadevi, Near Prabhadevi Railway station, Senapati Bapat marg, Mumbai- 400013
3	Lease Address	: Village : Serengdag, Hanrup and Paunri, Taluka : Bishunpur & Ghaghra, Dist. : Gumla, Jharkhand.
4	Lease Area	: Ha: 77.89 ha Acres: 192.47 Acres
5	Type of Land	: 75.27 ha Rayati Land and 2.62 ha GM land
6	Project Cost	: Rs. 5.5 Crores/-
7	EMP Budget	: Capital: Rs 196.98 Lac/- Recurring: Rs 16.07 lacs/- per annum
8	CSR / CER Budget	: Rs. 1.20 Crore
9	New or Expansion	: For EC under EIA Notification 2006 and Govt. of India Gazette Notification vide S.O. 1530(E) dated 6th April 2018
10	Mineable Reserves	: 1.84 million tonnes as on 31.03.2023
11	Mine Life	: 19 Years
12	Man power	: 96
13	Water Requirement	: 26 KLD
14	Water Source	: Existing rain water harvesting pond

15	DG Set / power	:	30 kva
16	Nearest Water Body	:	<ul style="list-style-type: none"> ➤ North Koel River (~6.5 km in West direction) ➤ Phulihar Nala (~4.0 km in WSW direction) ➤ Salgi Nala (~4.0 km in SE direction) ➤ Kerajhariya Nala (~7.5 km in East direction)
17	Nearest Habitation	:	Gumla (~37 km in SSE direction)
18	Nearest Rail Station	:	Lohardaga (~29km in NE direction)
19	Nearest Air Port	:	Ranchi Airport (~90 km in ESE direction)
20	Nearest Forest	:	<p>Eco Sensitive zone of Palamau Mahudanr wildlife sanctuary is located at a distance of 9.82 km from Mine site.</p> <p>There are Thirty-four Protected Forests and Two Reserve Forests within Study area.</p>
21	Mineable Reserves	:	1.84 million tonnes as on 31.03.2023
22	Road & Highways	:	SH-9 (~2.0 km in WSW direction)

CO-ORDINATES :

1	Latitude		From 23°21'27.067" N	To 23° 23'14.921" N
2	Longitude		From 84° 25' 41.639" E	To 84° 26' 33.211" E

LAND DETAILS

1	Serengdag	115.31 Acre	Khasra No	15, 27, 29, 30, 31, 32, 33, 34, 35, 36, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 107 (Part), 109, 110, 111, 112, 113, 114, 115, 116, 118, 119, 120, 121, 122, 128 (Part), 129 (Part), 130, 131, 132, 133, 134, 135 (Part), 136 (Part), 138 (Part), 144 (Part), 273, 276 (Part), 278, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307 (Part), 308, 309, 310, 312, 313, 314, 315, 316, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347 & 1351
2	Hanrup	71.54 Acre	Khasra No	1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1104, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1129, 1130, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1276, 1277, 1278, 1280, 1281, 1295, 1296, 1297, 1298, 1299, 1300, 1302, 1303, 1311, 1312, 1313
3	Paunri	5.61 Acre	Khasra No	71,74,75,76

STATUTORY CLEARANCES

1	LOI/Lease docs	:	Mining Lease was executed on 04-10-1948.
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		Validity of Mining Lease has been extended upto 31.03.2030 in favor of M/s Hindalco Industries Limited. Supplementary lease deed executed on 27.03.2017.
2	CO	: The CO, Bishunpur vide letter no. 95, dated 26.03.2019 & CO, Ghaghra vide letter no. 749, dated 17.11.2020 has mentioned the plot nos. of the project is not recorded as "Jangle Jhari" in R.S. Khatiyan & Register II.
3	DFO Wildlife	: Deputy Director, Palamu Tiger Project, North Division, Medininagar vide letter no. 456, dated 19.03.2021 certified that the National Park, Bio-Diversity & Sanctuary is not within 10 km from project site and proposed project is not situated in any ESZ.
4	DFO Territorial	: DFO, Lohardaga Division vide letter no. 2845 and 2640, Dated 11.08.2021 and 04.10.2021 certified that the distance of reserved / protected forest is Zero m (adjacent ot forest) from proposed project site.
5	Mine Plan Approval	: Modification of Mining Plan with Progressive Mine Closure Plan has been submitted IBM, Ranchi dated 09.10.2021
6	Public Consultation meeting	: Public Consultation was done and comments received from the public has been submitted.

1	Mining Method	: Mechanized Opencast, Drilling & Blasting to be used
2	Quarry Area	: 5 years – 26.42 ha (15.45 ha will be reclaimed and 4.65 ha will be working quarry area) Life of Mine – 46.52 ha (38.35 ha will be reclaimed and 8.17 ha will be converted into water reservoir)
3	Waste Generation	: 5 years– 0.12 million cum Life of Mine – 2.42 million cum
4	Stripping Ratio	: 1 : 1.26 (T: T)
5	Working Days	: 300
6	Bench: size & No	: 6m x 6m
7	Elevation of Mine	: 1,020 to 1,048.5 AMSL
8	Ground Level Elevation	: 1032.75 AMSL
9	Ultimate Working Depth	: 10-13 m
10	Water Table	: 37 m (1008 m AMSL)

11	Topography of Mine	:	The bauxite deposits of Lohardaga occur on a Paleopaneplane
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Production Details

Year	Total Handling	Waste Quantity	ROM Quantity	ROM Quantity		ROM / Waste Ratio
				Saleable ROM	Mineral Reject	
2023-24	356087.64	189420.95	166666.69	100000.00	66666.69	1: 1.14
2024-25	397504.50	230840.09	166664.41	99998.41	66666.00	1: 1.39
Total	753592.14	420261.04	333331.10	199998.41	133332.69	

Land Use :

S. No.	Land Use Category		As at present (ha)	As at the end of plan period (ha)	As at the end of Conceptual period (life of mine) (ha)
1.	Excavated Area	Backfilled and reclaimed	15.45 (Agriculture-12.11 ha and 3.34 ha Plantation)	22.9 (Agriculture /Plantation)	38.35 (Agriculture/Plantation)
		Reservoir	-	-	8.17
		working area / quarry	4.65	3.52	-
	Total		20.10	26.42	46.52
3.	Soil Dump		0.78	-	-
4.	Road		1.03 (0.06 ha Village -road and 0.97 ha haul road)	1.03	0.06
5.	Green Belt on virgin land		0.40	5.0	5.0
6.	Undisturbed area		55.58	45.44	26.31
	Total		77.89	77.89	77.89

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	LOCATION		Area/Length	No of Trees
1	Safety Zone	:	5.0 ha	20000
2	Other Reclaimed Area	:	0.8 ha	2000
3	Haul /Approach Road	:	0.15 ha	1000

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

- Initially, excavated soil & waste is dumped separately in the non -mineralized area with proper terracing, parapet wall & garland drain. At the end of life of mine, all excavated Overburden & waste will be used for concurrent back filling & same will be rehabilitated by plantation/agricultural land

Water Quality Management

- There is no waste water is being generated during mining process as of now.
- Domestic wastewater generated from mines office is being disposed of in soak pit via septic tank.
- Retaining walls, Garland drains, along the periphery of pits and dumps& settling tanks is being constructed arrest surface run-offs.

Air Quality Management

- Drilling machines are being equipped with wet drilling arrangements.
- Controlled blasting has been adopted and optimum use of explosive energy helps in reducing the air pollution.
- Proper maintenance (preventive as well as scheduled maintenance) of vehicles is being carried out regularly for minimization of generation of gaseous pollutants
- Personal Protective Equipment (PPEs) such as dust masks are being provided to employees working in dust prone areas.

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- Periodic air quality monitoring is being carried out

Noise Level Management

- Drilling machines are being equipped with wet drilling arrangements.
- Controlled blasting technique is being adopted during day time only.
- HEMMs are equipped with AC cabins for operators.
- In order to reduce the effect of noise pollution, personal protective equipment like ear plugs, ear muffs are provided to workers exposed to high noise levels.
- Regular monitoring of ambient noise level is being carried out.

The Primary baseline data for specific micro – meteorology data, ambient air quality, waste quality, noise level, soil and flora & fauna has been collected during Summer Season (March – May, 2022). The monitoring results of ambient air, surface water, soil, ambient noise and ground water have been reported.

Ambient Air Quality: The concentrations of PM₁₀ and PM_{2.5} for all the 8 AAQM stations were found between 47.2 to 81.2 $\mu\text{g}/\text{m}^3$ and 24.5 to 49.4 $\mu\text{g}/\text{m}^3$, respectively. The concentrations of SO₂ and NO₂ were found in range of 4.8 to 10.07 $\mu\text{g}/\text{m}^3$ and 9.0 to 26.0 $\mu\text{g}/\text{m}^3$ respectively.

Ambient Noise Levels: Ambient noise levels were measured at 8 locations around the Mine site. Noise levels varied from 43.5 to 60.8 Leq dB (A) during day time and from 40.6 to 44.1 Leq dB(A) during night time.





Surface Water Quality: The Surface water analysis was done at 1 location shows that pH is 7.80. Odor was found agreeable and turbidity is less. Total hardness (54.4 mg/l), Total dissolved solids (82 mg/l), Chloride (22.4) mg/l, Alkalinity (42.7 mg/l) and conductivity (132 $\mu\text{S}/\text{cm}$) were found to be within standards in water samples. BOD was found Below Detection Limit & COD was found to be 4 mg/l indicating that Khoel River's water is clear.

Ground Water Quality: The ground and drinking water analysis for all the 6 sampling stations shows that pH varies from 6.61 to 7.12, total hardness varies from 24.7 mg/l to 79.2 mg/l & total dissolved solids varies from 50 mg/l to 121 mg/l, chloride from 15.7 to 34.9 mg/l, SO₄ varies from 1.19 to 4.75 mg/l, Ca from 3.9 to 19.8 mg/l.

Soil Quality: All the major nutrients were present, namely organic matter 0.85 to 1.45 % optimum, nitrogen 306.92 to 430.77 kg/ha good to better, phosphorus 34.1 to 47.86 kg/ha medium and potassium 142.63 to 296.39 kg/ha medium. This indicates that soil fertility is good with nitrogen and potassium sufficient in some soil samples in the study area

Post Mining land use:

At the conceptual stage, out of the total lease area (i.e., 77.89 ha), total excavated area will be 46.52 ha out of which 38.35 ha area will be backfilled and reclaimed with agriculture, 8.17 ha area will be converted into water reservoir and 0.06 ha area will be under road, area under greenbelt will be under 5 ha. Total undisturbed area will be 26.31 ha.

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S. No.	Description	Land Use (In Ha.)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1.	a.Excavation (voids)	-	8.17	-	-	8.17
	b. Excavation (backfilled)	38.35	-	-	-	38.35
2.	Road	-	-	0.06	-	0.06
3.	Greenbelt on virgin land	5.0	-	-	-	5.0
4.	Undisturbed Area	-	-	-	26.31	26.3
	Total	43.35	8.17	0.06	26.31	77.89

As per the MoEF & CC OM F.No. 22-4/2020-IA.III dated 16th Feb.,2021 (Pt. No. 3) Public consultation to be conducted for the project. Public hearing in the project is exempted and public consultation for the project held on 04.05.2023 with villagers, rural representatives, Hindalco and the officials of N.K.C.P.L. ToR corrigendum for public consultation in place of public hearing has also been obtained on 24.03.2023

An amount of Rs. 1.20 Crore earmarked for issues raised during public consultation which will be spent in next three years

RISK AND HAZARD IDENTIFICATION & MITIGATION MEASURES

S. No	Hazards and Sources	Anticipated impacts	Preventive Measures	Control Measures
1.	Physical hazards due to :- <ul style="list-style-type: none"> Slips and falls Contact with, or capture in, moving machinery 	Physical injury	<ul style="list-style-type: none"> Implementation of safety standards and awareness. Training & education Use of reflective jackets and other PPEs 	<ul style="list-style-type: none"> Personal Protective Equipment's viz. helmet, boots Onsite emergency preparedness
2.	Exposure to dust due to: <ul style="list-style-type: none"> Drilling Excavation Loading Transportation 	Breathing problem & lung disorders	<ul style="list-style-type: none"> Control of dust at generation point through water spraying Maintenance of HEMM Controlled blasting HEMMs will have A.C cabins. Green belt development 	<ul style="list-style-type: none"> Use of PPEs, as necessary (e.g. dust masks). Onsite emergency preparedness
3.	Exposure to Noise & Vibration due to :- <ul style="list-style-type: none"> Drilling HEMM 	Over exposure may lead to hearing impairment	<ul style="list-style-type: none"> HEMMs provided with ergonomically designed operator's cabin Regular maintenance of 	<ul style="list-style-type: none"> Use of silencers & mufflers, sound proof cabins,

	operations ▪ Transportation		HEMMs ➤ Regular Noise level survey	➤ Personal hearing protection like ear plugs/muffs. ➤ Limited / discontinuous exposure to noise HEMM operations & job rotation. ➤ Onsite emergency preparedness
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Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF & CC O.M dated 12.12.18 decided that the proposal for Serangdag Bauxite Mine with production capacity of Bauxite 1,00,000 TPA, Top Soil 15,350 TPA, OB 1,69,800 TPA & Mineral reject 40,000 TPA with installation of crusher 100 TPH, Screening & Washing of M/s Hindalco Industries Ltd., Village : Serangdag, Hanrup and Paunri, Taluka : Bishunpur & Ghaghra, Dist. : Gumla, Jharkhand (77.89 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – II.

- C. Khokha Sand Mining Project of M/s Ganga Kaveri Construction Pvt. Ltd. (Prop. : Shri Santosh Kumar Choubey), Village : Khokha, Panchayat : Sundi, P.S. : Bhawnathpur, Distt. : Garhwa (23.00 Ha).

The Letter of Intent (LoI) has been issued in favour of M/s Ganga Kaveri Construction Pvt. Ltd. The EC was also issued in the name of M/s Ganga Kaveri Construction Pvt. Ltd. after verification of all the facts & documents and confirmation of validity of LoI by Deputy Commissioner, Garhwa vide letter no. 798, dated 24.11.2021.

The other contents of letter dated 09.09.2023 from Shri Krishna Kant Upadhyay are not relevant to the process of grant of EC.

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Day 7 : September 25th, 2023 [Monday]

A. Deputy Commissioner, Latehar or through authorized representative.

i. Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Stone & Brick Earth), Distt. Latehar.

The Final DSR was submitted by Deputy Commissioner, Latehar. He was represented by District Mining Officer, Latehar Shri Anand Kumar at the SEAC meeting on 25.09.2023.

During the meeting the DMO, Latehar presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

The final DSR had been placed in the public domain for 21 days from the 01.09.2023. As per the Sub Divisional Committee no comments / observations were obtained.

During appraisal the DMO, Latehar were required to incorporate the following details :

- i. Block wise impact on the environment w.r.t. Air, Water, Noise, Soil, Flora & Fauna, Land use, Agriculture, Forest etc. due to the mining activities alongwith the corresponding remedial measures to mitigate the identified impacts.
- ii. Proposal for reclamation of the mined out area.
- iii. Details of risk assessment and disaster management plan due to the mining activities.
- iv. To include the data of the primary study carried out for preparation of DSR.

The above requirements incorporated in the DSR.

The DSR has been prepared as per the format provided in the above notification. The DSR submitted has been approved by the Sub-Divisional Committee. All the aspects of the notification dated 25.07.2018 are incorporated in the DSR and found to be satisfactory.

Hence, the final DSR for Minor Minerals other than Sand Mining or River Bed Mining (Stone & Brick Earth) of District Latehar is recommended to SEIAA for approval.

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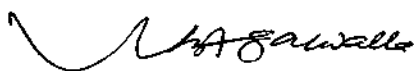
The meeting concluded with thanks to all present.



(Dr. Raju Kumar)
Member



(Dr. Ajay Govind Bhatt)
Member



(Niranjana Lal Agarwala)
Member

Absent

(Dr. Kirti Avishek)
Member



(Srikant Verma)
Secretary


(Ashok Kumar Singh)
Chairman
25/09/2023

I. Statutory compliance

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area)
- iv. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to ".
- v. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- vi. The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- vii. Solid waste/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016 as amended from time to time.

II. Air quality monitoring and preservation

- i. Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NOx. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.

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- ii. The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- iii. Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water / mist sprinkling / rain gun etc shall be carried out in critical areas prone to air pollution (with higher values of PM10/PM2.5) such as haul road, loading/ unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
- iv. The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed so that the impact of sound, dust and accidents could be appropriately mitigated.
- v. Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- vi. Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- vii. Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

III. Water quality monitoring and preservation

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-1A.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- iii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new

piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.

- iv. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change / Regional Office.
- v. Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- vi. Catch and or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal heaps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies. Further, dump material shall be properly consolidated/ compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper settling of silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native species to be made between toe of the dump and adjacent field/habitation/water bodies.
- vii. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- viii. Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP / STP needs to be provided.
- ix. The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- x. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/Gol Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- xi. The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A revarian /riparian ecosystem conservation and management plan should be prepared and

implemented in consultation with the irrigation / water resource department in the state government.

IV. Noise and Vibration monitoring and prevention

- i. Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs / muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
- ii. Controlled blasting techniques shall be practiced in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.
- iii. The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

V. Mining Plan

- i. Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
- ii. Mining shall be carried out as per the approved mining plan(including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- iii. No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980
- iv. Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

VI. Land reclamation

- i. Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEF&CC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- ii. The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural /forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- iii. The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the "during mining" / "post mining" land-

use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.

- iv. Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- v. Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
- vi. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

VII. Green Belt

- i. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
- ii. Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.

VIII. Public hearing and Human health issues

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & its RO on six- monthly basis.
- ii. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from

workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any. as amended time to time.

- iii. Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
- v. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

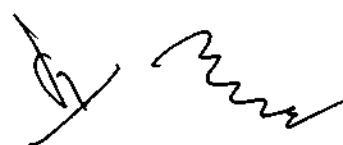
IX. Corporate Environment Responsibility

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements / deviation / violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and/or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- v. Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

X. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM_{10} , SO_2 , NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form- V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIAIEMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- xi. Concealing factual data or submission of false / fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- xvii. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.



I. Statutory compliance

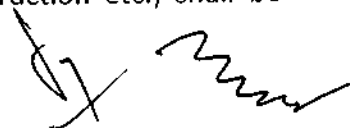
- i. This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- ii. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to".
- iii. The Project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
- iv. The Hon'ble Supreme Court vide order dated 08.01.2020 in W.P. (Civil) No.114/2014 in the matter of Common Cause vs. Union of India has directed that the area which has been mined should be restored so that grass and other vegetation including trees can grow in the mining area for the benefit of animals.

"The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
- v. The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
- vi. This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.
- vii. This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.
- viii. Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.
- ix. The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.

- x. The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.
- xi. The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-IAJI (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
- xii. The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.
- xiii. A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
- xiv. State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
- xv. The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.Environmentclearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF & CC Regional Office for compliance and record.
- xvi. The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

II. Air quality monitoring and preservation

- i. The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2; CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCUI, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
- ii. Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be



carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

III. Water quality monitoring and preservation

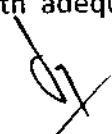
- i. In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
- ii. Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug well located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- iii. Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- iv. The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations

without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.

- v. Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IAJI (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
- vi. Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.
- vii. Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
- viii. The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

IV. Noise and vibration monitoring and prevention

- i. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
- ii. The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
- iii. The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training,



awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

V. Mining Plan

- i. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form of Short Term Permit (STP), Query license or any other name.
- ii. The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- iii. The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office.

VI. Land reclamation

- i. The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.
- ii. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

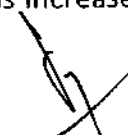
- iii. The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- iv. The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
- v. The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.
- vi. Catch drains, settling tanks and ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
- vii. Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
- viii. The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.

VII. Transportation

- i. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle

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the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

- ii. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

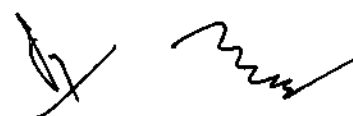
VIII. Green Belt

- i. The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
- ii. The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
- iii. The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
- iv. The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.

- v. And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

IX. Public hearing and human health issues

- i. The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.
- ii. The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.
- iii. The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium-Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).



- iv. The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.
- v. The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
- vi. Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
- vii. The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

X. Corporate Environment Responsibility (CER)

- i. The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.
- ii. Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.

XI. Miscellaneous

- i. The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
- ii. The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- iii. It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.), Ranchi / CPCB / SEIAA.
- iv. A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
- v. The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
- vi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- vii. The Ministry / SEIAA / SEAC may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- viii. The Ministry / SEIAA / SEAC reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- ix. The Environmental Clearance accorded shall be valid for the period of lease of the mine. The PP shall not increase production rate and alter lease area during the validity of Environmental Clearance.
- x. Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.



I. Statutory compliance

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area).
- iv. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- v. The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.
- vi. The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.

II. Air quality monitoring and preservation

- i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
- ii. The project proponent shall install system carryout to Ambient Air Quality monitoring for common / criterion parameters relevant to the main pollutants released (e.g. PM₁₀ and PM_{2.5} in reference to PM emission, and SO₂ and NO_x in reference to SO₂ and NO_x emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions. (case to case basis small plants: Manual; Large plants: Continuous).
- iii. The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six- monthly monitoring report.
- iv. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

- v. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be complied with.
- vi. Sulphur content should not exceed 0.5% in the coal for use in coal fired boilers to control particulate emissions within permissible limits (as applicable). The gaseous emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.
- vii. The DG sets shall be equipped with suitable pollution control devices and the adequate stack height so that the emissions are in conformity with the extant regulations and the guidelines in this regard.
- viii. Storage of raw materials, coal etc shall be either stored in silos or in covered areas to prevent dust pollution and other fugitive emissions.

III. Water quality monitoring and preservation

- i. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises (applicable in case of the projects achieving ZLD) and connected to SPCB and CPCB online servers.
- ii. Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises (applicable in case of the projects achieving the ZLD).
- iii. Process effluent/any wastewater shall not be allowed to mix with storm water. The storm water from the premises shall be collected and discharged through a separate conveyance system.
- iv. The effluent discharge shall conform to the standards prescribed under the Environment (Protection) Rules, 1986, or as specified by the State Pollution Control Board while granting Consent under the Air/Water Act, whichever is more stringent.
- v. Total fresh water requirement shall not exceed the proposed quantity or as specified by the Committee. Prior permission shall be obtained from the concerned regulatory authority/CGWA in this regard.
- vi. Industrial/trade effluent shall be segregated into High COD/TDS and Low COD/TDS effluent streams. High TDS/COD shall be passed through stripper followed by MEE and ATFD (agitated thin film drier). Low TDS effluent stream shall be treated in ETP and then passed through RO system.
- vii. The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and utilize the same for different industrial operations within the plant.

IV. Noise monitoring and prevention

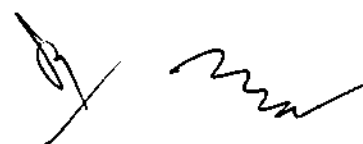
- i. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.
- ii. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation.
- iii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

V. Energy Conservation measures

- i. The energy sources for lighting purposes shall preferably be LED based.

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VI. Waste management

- i. Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm and the solvent transfer through pumps.
- ii. Process organic residue and spent carbon, if any, shall be sent to cement industries ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF.
- iii. The company shall undertake waste minimization measures as below:-
 - a. Metering and control of quantities of active ingredients to minimize waste.
 - b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - c. Use of automated filling to minimize spillage.
 - d. Use of Close Feed system into batch reactors.
 - e. Venting equipment through vapour recovery system.
 - f. Use of high pressure hoses for equipment clearing to reduce wastewater generation.

VII. Green Belt

- i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.

VIII. Safety, Public hearing and Human health issues

- i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- ii. The PP shall provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
- iii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- iv. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- v. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- vi. There shall be adequate space inside the plant premises earmarked for parking of vehicles for raw materials and finished products, and no parking to be allowed outside on public places.

IX. Corporate Environment Responsibility

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May, 2018, as applicable, regarding Corporate Environment Responsibility.

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- ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements / deviation/violation of the environmental / forest/wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental/forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

X. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

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- vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- xi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- xvii. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.

I. Statutory Compliance

- i. The project proponent shall obtain all necessary clearance/ permission from all relevant agencies including town planning authority before commencement of work. All the construction shall be done in accordance with the local building byelaws.
- ii. The approval of the Competent Authority shall be obtained for structural safety of buildings due to earthquakes, adequacy of fire fighting equipment etc as per National Building Code including protection measures from lightening etc.
- iii. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.
- iv. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to ".
- v. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- vi. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- vii. The project proponent shall obtain the necessary permission for drawl of ground water / surface water required for the project from the competent authority.
- viii. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project should be obtained.
- ix. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department shall be obtained, as applicable, by project proponents from the respective competent authorities.
- x. The provisions of the Solid Waste (Management) Rules, 2016, e-Waste (Management) Rules, 2016, and the Plastics Waste (Management) Rules, 2016 shall be followed.
- xi. The project proponent shall follow the ECBC/ECBC-R prescribed by Bureau of Energy Efficiency, Ministry of Power strictly.
- xii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel (kerosene/gas) for cooking, safe drinking water, medical health care, etc. The housing may be in the form of temporary structures to be removed after completion of the project.

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- xiii. Provision of drinking water, waste water disposal, solid wastes management and primary health facilities shall be ensured for labour force. Proper sanitation facilities shall be provided at the construction site to prevent health related problems. Domestic as well as sanitary wastes from construction camps shall be cleared regularly.
- xiv. All the labourers to be engaged for construction works shall be screened for health and adequately treated before issue of work permits. The contractor shall ensure periodic health check-up of construction workers.
- xv. All vehicles/equipment deployed during construction phase shall be ensured in good working condition and shall conform to applicable air and noise emission standards. These shall be operated only during non-peak hours.
- xvi. Accumulation/stagnation of water shall be avoided ensuring vector control.
- xvii. Water during construction phase should be preferred from Municipal supply.
- xviii. Unskilled construction labourers shall be recruited from the local areas.
- xix. Monitoring of ground water table and quality once in three months shall be carried out. Construction of tube wells, bore wells shall be strictly regulated.
- xx. Adequate provision shall be made to cater the parking needs. Parking spaces standards as given in "Manual on Norms and Standards for Environmental Clearance of Large Construction Projects" issued by Ministry of Environment and Forests, Government of India shall be adopted.
- xxi. Rest room facilities shall be provided for service population.
- xxii. Water body falling within premises (if any) shall not be lined or no embankment shall be cemented. The water bodies, if any, shall be kept in natural conditions without disturbing the ecological habitat.
- xxiii. Construction shall conform to the requirements of local seismic regulations. The project proponent shall obtain permission for the plans and designs including structural design, standards and specifications of all construction work from concerned authority.

II. Air quality monitoring and preservation

- i. Notification GSR 94(E) dated 25.01.2018 of MoEF&CC regarding Mandatory Implementation of Dust Mitigation Measures for Construction and Demolition Activities for projects requiring Environmental Clearance shall be complied with.
- ii. A management plan shall be drawn up and implemented to contain the current exceedance in ambient air quality at the site.
- iii. The project proponent shall install system to carryout Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM25) covering upwind and downwind directions during the construction period.
- iv. Diesel power generating sets proposed as source of backup power should be of enclosed type and conform to rules made under the Environment (Protection) Act,

1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use of low sulphur diesel. The location of the DG sets may be decided with in consultation with State Pollution Control Board.

- v. Construction site shall be adequately barricaded before the construction begins. Dust, smoke & other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3 meter height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site.
- vi. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution.
- vii. Wet jet shall be provided for grinding and stone cutting.
- viii. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.
- ix. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016.
- x. The diesel generator sets to be used during construction phase shall be low sulphur diesel type and shall conform to Environmental (Protection) prescribed for air and noise emission standards.
- xi. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Low sulphur diesel shall be used. The location of the DG set and exhaust pipe height shall be as per the provisions of the Central Pollution Control Board (CPCB) norms.
- xii. For indoor air quality the ventilation provisions as per National Building Code of India.

III. Water quality monitoring and preservation

- i. The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site, on wetland and water bodies. Check dams, bio-swales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water.
- ii. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
- iii. Total fresh water use shall not exceed the proposed requirement as provided in the project details.

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- iv. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the Regional Office, MoEF&CC along with six monthly Monitoring reports.
- v. A certificate shall be obtained from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water already committed, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.
- vi. At least 20% of the open spaces as required by the local building bye-laws shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.
- vii. Installation of dual pipe plumbing for supplying fresh water for drinking, cooking and bathing etc and other for supply of recycled water for flushing, landscape irrigation, car washing, thermal cooling, conditioning etc. shall be done.
- viii. Use of water saving devices/ fixtures (viz. low flow flushing systems; use of low flow faucets tap aerators etc) for water conservation shall be incorporated in the building plan.
- ix. Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done.
- x. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.
- xi. The local bye-law provisions on rain water harvesting should be followed. If local byelaw provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Byelaws, 2016. Rain water harvesting recharge pits/storage tanks shall be provided for ground water recharging as per the CGWB norms.
- xii. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000 square meters of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority.
- xiii. All recharge should be limited to shallow aquifer.
- xiv. No ground water shall be used during construction phase of the project.
- xv. Any ground water dewatering should be properly managed and shall conform to the approvals and the guidelines of the CGWA in the matter. Formal approval shall be taken from the CGWA for any ground water abstraction or dewatering.

- xvi. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the Regional Office, MoEF&CC along with six monthly Monitoring reports.
- xvii. Sewage shall be treated in the STP with tertiary treatment. The treated effluent from STP shall be recycled/re-used for flushing, AC make up water and gardening. As proposed, no treated water shall be disposed in to municipal drain.
- xviii. No sewage or untreated effluent water would be discharged through storm water drains.
- xix. Onsite sewage treatment of capacity of treating 100% waste water to be installed based on the MBBR/MBR/SBR technology. The installation of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the Ministry before the project is commissioned for operation. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharged as per statutory norms notified by Ministry of Environment, Forest and Climate Change. Natural treatment systems shall be promoted.
- xx. Periodical monitoring of water quality of treated sewage shall be conducted. Necessary measures should be made to mitigate the odour problem from STP.
- xxi. Sludge from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.

IV. Noise monitoring and prevention

- i. Ambient noise levels shall conform to residential area/commercial area/industrial area/silence zone both during day and night as per Noise Pollution (Control and Regulation) Rules, 2000. Incremental pollution loads on the ambient air and noise quality shall be closely monitored during construction phase. Adequate measures shall be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB / SPCB.
- ii. Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
- iii. Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel shall be implemented as mitigation measures for noise impact due to ground sources.



V. Energy Conservation measures

- i. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC.
- ii. Outdoor and common area lighting shall be LED.
- iii. Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design. Wall, window, and roof u-values shall be as per ECBC specifications.
- iv. Energy conservation measures like installation of CFLs/ LED for the lighting the area outside the building should be integral part of the project design and should be in place before project commissioning.
- v. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level/ local building bye-laws requirement, whichever is higher.
- vi. Solar power shall be used for lighting in the apartment to reduce the power load on grid. Separate electric meter shall be installed for solar power. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher. Residential buildings are also recommended to meet its hot water demand from solar water heaters, as far as possible.

VI. Waste Management

- i. A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from project shall be obtained.
- ii. Disposal of muck during construction phase shall not create any adverse effect on the neighboring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
- iii. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Solid waste shall be segregated into wet garbage and inert materials.
- iv. Organic waste compost/ Vermiculture pit/ Organic Waste Converter within the premises with a minimum capacity of 0.3 kg /person/day must be installed.
- v. All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.

- vi. Any hazardous waste generated during construction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.
- vii. Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include Fly Ash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials.
- viii. Fly ash should be used as building material in the construction as per the provision of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003 and 25th January, 2016. Ready mixed concrete must be used in building construction.
- ix. Any wastes from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Rules, 2016.
- x. Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid mercury contamination.

VII. Green Cover

- i. No tree can be felled/transplant unless exigencies demand. Where absolutely necessary, tree felling shall be with prior permission from the concerned regulatory authority. Old trees should be retained based on girth and age regulations as may be prescribed by the Forest Department. Plantations to be ensured species (cut) to species (planted).
- ii. A minimum of 1 tree for every 80 sqm of land should be planted and maintained. The existing trees will be counted for this purpose. The landscape planning should include plantation of native species. The species with heavy foliage, broad leaves and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping.
- iii. Where the trees need to be cut with prior permission from the concerned local Authority, compensatory plantation in the ratio of 1:10 (i.e. planting of 10 trees for every 1 tree that is cut) shall be done and maintained. Plantations to be ensured species (cut) to species (planted). Area for green belt development shall be provided as per the details provided in the project document.
- iv. Topsoil should be stripped to a depth of 20 cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.

VIII. Transport

- i. A comprehensive mobility plan, as per MoUD best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria.

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- a. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.
 - b. Traffic calming measures.
 - c. Proper design of entry and exit points.
 - d. Parking norms as per local regulation
- ii. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards be operated only during non-peak hours.
 - iii. A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project. This plan should be based on cumulative impact of all development and increased habitation being carried out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D./ competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.

IX. Human Health Issues

- i. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask.
- ii. For indoor air quality the ventilation provisions as per National Building Code of India.
- iii. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- iv. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- v. Occupational health surveillance of the workers shall be done on a regular basis.
- vi. A First Aid Room shall be provided in the project both during construction and operations of the project.

X. Corporate Environment Responsibility

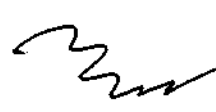
- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms /

conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

XI. Miscellaneous

- i. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC/SEIAA website where it is displayed.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- v. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vi. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- vii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.



- viii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- ix. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- x. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xi. The Ministry / SEIAA / SEAC may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xii. The Ministry / SEIAA / SEAC reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiii. It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF & CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.), Ranchi / CPCB / SEIAA.
- xiv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.
- xvi. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.

The TORs prescribed for undertaking detailed EIA study are as follows:

A. Standard Conditions :

1. Examine details of land use as per Master Plan and land use around 10 km radius of the project site. Analysis should be made based on latest satellite imagery for land use with raw images. Check on flood plain of any river.
2. Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/villages and present status of such activities.
3. Examine base line environmental quality along with projected incremental load due to the project.
4. Environmental data to be considered in relation to the project development would be (a) land, (b) ground water, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health.
5. Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding areas. Any obstruction of the same by the project.
6. Submit the details of the tree felling for the project.
7. Submit the present land use and permission required / obtained for any conversion such as forest, agriculture land etc.
8. Submit Roles and responsibility of the developer etc for compliance of environmental regulations under the provisions of E (P) Act.
9. Ground water classification as per the Central Ground Water Authority.
10. Examine the details of Source of water, water requirement, use of treated waste water and prepare a water balance chart.
11. Rain water harvesting proposals should be made with due safeguards for ground water quality. Maximize recycling of water and utilization of rain water.
12. Examine soil characteristics and depth of ground water table for rainwater harvesting.
13. Examine details of solid waste generation, treatment and disposal.
14. Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption and energy efficiency.
15. DG sets are likely to be used during construction and operational phase of the project. Emissions from DG sets must be taken into consideration while estimating the impacts on air environment. Examine and submit details.
16. Examine road / rail connectivity to the project site and impact on the traffic due to the proposed project. Present and future traffic and transport facilities for the region should be analysed with measures for preventing traffic congestion and providing faster trouble free system to reach different destinations in the city.

17. A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic.
18. Examine the details of transport of materials for construction which should include source and availability.
19. Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.
20. Submit details of a comprehensive Disaster Management Plan including emergency evacuation and fire during natural and man-made disaster.
21. Details of litigation pending or any notice received against the project, if any, with direction / order passed by any Court of Law against the Project should be given.
22. The cost of the Project (capital cost and recurring cost) the damage cost of already opened land as well as the cost towards implementation of EMP should be clearly spelt out.
23. Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measures, project proponent can refer to the model ToR available on Ministry website "[http://moef.nic.in /Manual / Townships](http://moef.nic.in/Manual/Townships)".
24. Any other rules / guidelines / orders issued by any competent authority shall be applicable to the project at the time of consideration of the projects for grant of EC.

B. Other conditions :

1. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per Ministry's O.M. No. 22-65/ 2017-IA.III dated May, 2018 for various activities therein. The details of fund allocation and activities for CER shall be incorporated in EIA/EMP report.
2. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

The TORs prescribed for undertaking detailed EIA study are as follows:

A . Standard Terms of Reference

1. Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damages, resources sustainability associated with selected site as compared to rejected sites. The analysis should include parameters considered along with weightage criteria for short-listing selected site.
2. Submit the details of the road/rail connectivity along with the likely impacts and mitigative measures
3. Submit the present land use and permission required for any conversion such as forest, agriculture etc
4. Examine the details of transportation of Hazardous wastes, and its safety in handling.
5. Examine and submit the details of on line pollutant monitoring.
6. Examine the details of monitoring of Dioxin and Furon.
7. MoU for disposal of ash through the TSDF.
8. MoU for disposal of scrubbing waste water through CETP.
9. Examine and submit details of monitoring of water quality around the landfill site.
10. Examine and submit details of the odour control measures.
11. Examine and submit details of impact on water body and mitigative measures during rainy season.
12. Environmental Management Plan should be accompanied with Environmental Monitoring Plan and environmental cost and benefit assessment. Regular monitoring shall be carried out for odour control.
13. Water quality around the landfill site shall be monitored regularly to examine the impact on the ground water.
14. The storage and handling of hazardous wastes shall be as per the Hazardous Waste Management Rules.
15. Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.
16. Public hearing to be conducted for the project in accordance with provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing should be conducted based on the ToR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the web-site.

17. A detailed draft EIA/EMP report should be prepared in accordance with the above additional TOR and should be submitted to the Ministry in accordance with the Notification.
18. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
19. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
20. Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website <http://moef.nic.in/Manual/Incinerator>
21. Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the F.R for securing the TOR) should be brought to the attention of SEIAA, Jharkhand with reasons for such changes and permission should be sought, as the TOR may also have to be altered.
22. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

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The TORs prescribed for undertaking detailed EIA study are as follows:

- i. Year - wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- ii. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- iii. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- iv. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- v. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- vi. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- vii. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- viii. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- ix. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- x. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and

other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

- xi. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- xii. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- xiii. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- xiv. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- xv. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- xvi. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- xvii. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- xviii. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- xix. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also

be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

- xx. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- xxi. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- xxii. One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- xxiii. Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- xxiv. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- xxv. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

The bottom of the page features several handwritten signatures and initials. On the left, there is a signature that appears to be 'A' followed by a stylized name. In the center, there is a large, bold signature that looks like 'B'. To the right of 'B', there is a signature that looks like 'J' with a checkmark. Further right, there is a signature that looks like 'M' with a checkmark. These are likely approvals or signatures of the project team or regulatory authorities.

- xxvi. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- xxvii. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- xxviii. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- xxix. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- xxx. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- xxxi. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- xxxii. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- xxxiii. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- xxxiv. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- xxxv. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and

periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

- xxxvi. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- xxxvii. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- xxxviii. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- xxxix. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- xl. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- xli. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- xl. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- xl. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- xl. Besides the above, the below mentioned general points are also to be followed :-
 - a) Executive Summary of the EIA/EMP Report
 - b) All documents to be properly referenced with index and continuous page numbering.
 - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis / testing reports should be available during appraisal of the Project.
 - e) Where the documents provided are in a language other than English, an English translation should be provided.
 - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

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- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.
- xlv. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- xlvi. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

The TORs prescribed for undertaking detailed EIA study are as follows:

- i. Year - wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- ii. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- iii. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
- iv. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- v. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- vi. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- vii. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- viii. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- ix. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- x. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and

other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

- xi. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- xii. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- xiii. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- xiv. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- xv. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- xvi. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- xvii. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- xviii. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- xix. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also

be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

- xx. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- xxi. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- xxii. One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- xxiii. Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- xxiv. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- xxv. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

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- xxvi. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- xxvii. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- xxviii. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- xxix. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- xxx. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- xxxi. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- xxxii. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- xxxiii. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- xxxiv. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- xxxv. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and

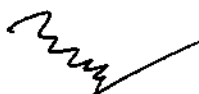
periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

- xxxvi. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- xxxvii. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- xxxviii. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- xxxix. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- xl. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- xli. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- xl. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- xl. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- xl. Besides the above, the below mentioned general points are also to be followed :-
 - a. Executive Summary of the EIA/EMP Report
 - b. All documents to be properly referenced with index and continuous page numbering.
 - c. Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - d. Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis / testing reports should be available during appraisal of the Project.
 - e. Where the documents provided are in a language other than English, an English translation should be provided.

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- f. The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
 - g. While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
 - h. Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
 - i. As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
 - j. The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.
- xlvii. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

Specific Conditions :

1. The State Govt. / SPCB to take action against the project proponent under the provisions of section 19 of the Environment (Protection) Act, 1986.
2. The project proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the SEAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the SEAC and approval of the regulatory authority.
3. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.

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4. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
5. An assessment of the cumulative impact of all development and increased in habitation being carried out or proposed to be carried out by the project or other agencies in the core area, shall be made for traffic densities and parking capabilities in a 2 kms radius from the site. A detailed traffic management and a traffic decongestion plan drawn up through an organization of repute and specializing in Transport Planning shall be submitted with the EIA and the plan to be implemented to the satisfaction of all the concerned state departments and implementing agencies".
6. Management of solid waste and the Construction & Demolition waste for the project vis-à-vis the Solid Waste Management Rules, 2016 and the Construction & Demolition Rules, 2016.
7. Details of all construction input should be furnished for assessment of Ecological damage/Environmental damage.
8. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
9. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per Ministry's O.M. No. 22-65/ 2017-IA.III dated May, 2018 for various activities therein. The details of fund allocation and activities for CER shall be incorporated in EIA/EMP report.
10. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

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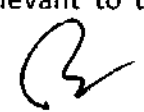

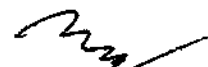
I. Statutory compliance:

- i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.
- ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)
- iv. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to ".
- v. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- vi. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
- vii. The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

II. Air quality monitoring and preservation

- i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (applicable to IF/EAF) as amended from time to time; S.O. 3305 (E) dated 7th December 2015(Thermal Power Plants) as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.
- ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
- iii. The project proponent shall install system carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released

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(e.g. PM10 and PM25 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions. (case to case basis small plants: Manual; Large plants: Continuous)

- iv. The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality / fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six- monthly monitoring report.
- v. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources.
- vi. The project proponent shall provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags.
- vii. Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.
- viii. Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after *briquetting*/ agglomeration.
- ix. The project proponent shall use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.
- x. The project proponent shall provide covered sheds for raw materials like scrap and sponge iron, lump ore, coke, coal, etc.
- xi. The project proponent shall provide primary and secondary fume extraction system at all melting furnaces.
- xii. Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

III. Water quality monitoring and preservation

- i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (applicable to IF / EAF) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous)
- ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.

- iii. The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
- iv. Adhere to 'Zero Liquid Discharge'.
- v. Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
- vi. The project proponent shall provide the ETP for effluents of rolling mills to meet the standards prescribed in G.S.R 277 (E) 31st March 2012 (applicable to IF/EAF) as amended from time to time.
- vii. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off
- viii. The project proponent shall practice rainwater harvesting to maximum possible extent.
- ix. The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

IV. Noise monitoring and prevention

- i. Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
- ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB (A) during day time and 70 dB(A) during night time.

V. Energy Conservation measures

- i. The project proponent shall provide waste heat recovery system (pre-heating of combustion air) at the flue gases of reheating furnaces.
- ii. Practice hot charging of slabs and billets/blooms as far as possible.
- iii. Ensure installation of regenerative type burners on all reheating furnaces.
- iv. Provide solar power generation on rooftops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.
- v. Provide the project proponent for LED lights in their offices and residential areas.

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VI. Waste management

- i. Used refractories shall be recycled as far as possible.
- ii. Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried, and briquetted and reused melting Furnaces
- iii. 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.
- iv. The waste oil, grease and other hazardous waste shall be disposed of as per the
- v. Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
- vi. Kitchen waste shall be composted or converted to biogas for further use. *(to be decided on case to case basis depending on type and size of plant)*

VII. Green Belt

- i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
- ii. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

VIII. Public hearing and Human health issues

- i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
- iii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

IX. Corporate Environment Responsibility

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or

shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry / Regional Office along with the Six Monthly Compliance Report.
- v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- vi. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the plants shall be implemented.
- vii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

X. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

- vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- xi. Concealing factual data or submission of false / fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

C. Other Conditions:

- i. The Authority reserves the right to add any new condition or modify the above conditions or to revoke the clearance if conditions stipulated above are not implemented to the satisfaction of Authority or for that matter for any other Administrative reason.
- ii. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.
- iii. In case of any deviation or alteration in the project proposed from those submitted to SEIAA, Jharkhand for clearance, a fresh reference should be made to SEIAA to assess the adequacy of the conditions imposed and to incorporate any new conditions if required.

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