MODIFICATIONS IN APPROVED MINING PLAN

Submitted for approval under Rule 22(6) of MCR 1960
Period from 2015-16 to 2019-20
Expiry of the Lease Period: 31.03.2020

'A' CATEGORY, MECHANISED, OPEN-CAST MINE

of

JAISINGAPUR (BALAJI) IRON ORE MINE,

M.L. No. 2564

Total Extent: 22.66 Ha. as per ML Deed, [24.27 Ha. as per CEC Survey] - Forest Land
Location: NEB Range, Jaisingpur Village, Sandur Taluka, Bellary District, Karnataka.

OF

BALAJI MINES & MINERALS PVT. LTD.

Prepared By
Shri. Gopalakrishna V. Gaonkar
Reg. No. RQP/BNG/333/2014/A.

July-2015/September-2015

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MODIFICATIONS IN APPROVED MINING PLAN OF JAISINGPUR (BALAJI) IRON ORE MINE, M.L. No. 2564 OF M/s. BALAJI MINES & MINERALS PVT. LTD.

(Submitted for approval under Rule 22(6) of MCR 1960)

INTRODUCTION:

M/s. BALAJI MINES & MINERALS PVT. LTD., possess a mining lease by name Jaisingpur (Balaji) Iron Ore Mine, M.L. No. 2564 over an area of 22.66 Ha. as per ML Deed (24.27 Ha. as per CEC Survey) in forest land which is located in NEB Range, Jaisingpur Village, Sandur Taluka, Bellary District, Karnataka State.

Jaisingapur (Balaji) Iron Ore Mine known as "Balaji Mine" was originally granted under ML No. 131 in favour of Sri. Venkoba Rao for 30 years with effect from 25.09.1963 over an extent of 22.66 Ha. Later the lease was transferred in favour of Sri. K.N. Balasubramanyam, Bangalore on 09.03.1981 and subsequently transferred in favour of M/s. Balaji Mines & Minerals Pvt. Ltd., on 22.02.1985. Further, the same lease was renewed under ML No. 2564 for 20 years which was valid upto 24.09.2013. Copy of the Mining Lease Deed is enclosed vide **Annexure-I**.

Application for Renewal of Mining Lease in Form-J was submitted through the Director of Mines & Geology Department to the Secretary, Commerce & Industries Department, Government of Karnataka on 10.08.2012 under Rule 24A(1) of MCR 1960. Copy of Form-J and Receipt of Application for Renewal of Mining Lease in Form-D is enclosed vide **Annexure-II**.

Presently, the period of mining lease is extended as deemed period upto 31.03.2020 as per MMDR (Amendment) Act 2015. Copy of the letter from Mines & Geology Department, Government of Karnataka along with translation in English is enclosed vide **Annexure-III**.

10/09/2015

Mining plan is approved subject to conditions laid down in letter No. 279/144/90 BNG. Dt. 22/09/15

22/09/15

Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
Bangalore-560022.

Table – 1: There is only one mining lease in the name of BALAJI MINES & MINERALS PVT. LTD. and the details are as follows;

Sl. No.	Mine Name & Ref. No.	Area (Ha.)	Mineral/s	Location of Lease	Period of Lease	Status of Mine
1.	Jaisingpur /Balaji Mine, ML No. 2564	22.66 ha as per ML Deed (24.27 as per CEC Survey)	Iron Ore	NEB Range, Jaisingpur Village, Sandur Taluka, Bellary District.	Deemed Extension upto 31.03.2020.	Not Working.

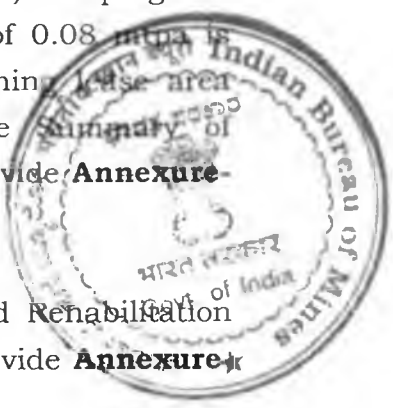
Forest Clearance from Ministry of Environment and Forests, New Delhi under Section 2 of FC Act is obtained vide letter No. F. No. 8-30/200-FC dated 09.05.2006 which is valid upto 19.12.2020. Copy of the same is enclosed vide **Annexure-IV**.

Environmental Clearance was accorded from the State Level Environment Assessment Authority, Karnataka (SEIAA) constituted by Ministry of Environment and Forests, Government of India for iron ore production of 0.50 million tonnes per annum vide letter No. SEIAA:3:MIN:2009 dated 25.11.2009. Copy of Environmental Clearance letter is enclosed vide **Annexure-V**.

Permission to work right upto the common boundary towards Southern side of lease boundary with S.V. Chetty Iron Ore Mine of M/s. S.V.Srinivasulu under Regulation 111 (3) of the Metalliferrous Mines Regulation, 1961 was obtained vide letter No. BL/IO/Perm-Reg.111(3)/2011 dated 03.06.2011. Copy of letter enclosed vide **Annexure-VI**.

Mine is not under operation from 29.07.2011 due to blanket ban of Iron Ore Mining in Bellary, Tumkur & Chitradurga Districts of Karnataka State and further for want of renewal of Mining Lease. After the Joint Survey by CEC, the subject mine was placed under 'B' Category. The Indian Council of Forestry Research and Education (ICFRE), Dehradun has prepared the Reclamation & Rehabilitation (R&R) Plan for the

subject mine and assessed the production of iron ore at the rate of 0.15 mtpa, 0.08 mtpa & 0.45 mtpa based on the total reserves, dumping and road capacity. Finally the annual feasible production of 0.08 mtpa is fixed based on dumping capacity available in the mining lease area which is least among the three criteria's. Executive Summary of Approved Reclamation & Rehabilitation Plan is enclosed vide **Annexure-VII**.



CEC has given its concurrence to the Reclamation and Rehabilitation (R&R) Plan. Copy of the Concurrence Letter is enclosed vide **Annexure-VIII**.

This Modifications in Approved Mining Plan is prepared for the period from 2015-16 to 2019-20 as the period of mining lease is deemed extended as deemed period upto 31.03.2020 as per MMDR (Amendment) Act 2015 and submitted for approval under the provision of Rule 22 (6) of MCR 1960.

1.0 GENERAL:

a) **Name of ~~applicant~~/lessee** : Balaji Mines & Minerals Pvt. Ltd.
Rule 45 Registration No. : IBM/157/2011.
Address : # 322/2, Second Floor,
Sree Sapthagiri Enclave,
College Road, Hospet.
District : Bellary,
State : Karnataka,
Pin code : 583 201.

Phone : 08394 224998, Fax: 0832-2460580,
Mobile No. : +91-98221 23262,
Email id : bmmpl.hspt@gmail.com.

b) **Status of ~~applicant~~/lessee**: Private Limited Company. Copy of Registration of the Company is enclosed vide **Annexure-IX**. Copy of Memorandum of the Association is enclosed vide **Annexure-X**.

Table – 2: Directors of the board and their details are as follows;

Sl. No.	Name of Director	Designation	Contact No.
1.	Shri. Arjun Salgaocar	Director	0832-2460600
2.	Shri. Mukesh Saglani	Director	-do-

Latest list of directors with particulars is enclosed vide **Annexure-XI**. Mr. Subramany, General Manager of the Company is authorized to sign the documents. Board Resolution in favaour of Mr. Subramany is enclosed vide **Annexure-XII**. Copy of Election Commission of India Identity Card towards Photo ID and Permanent & Present address proof of Mr. Subramany is enclosed vide **Annexure-XIII**. An undertaking on NJ Rs. 200/- in the requisite format is enclosed vide **Annexure-XIV**.

c) Mineral(s) which is/are included in the prospecting license (For Fresh grant): Not Applicable.

d) Mineral(s) which is/are included in the letter of Intent/lease deed: Iron Ore.

e) Mineral(s) which the ~~applicant/~~lessee intends to mine: Iron Ore.

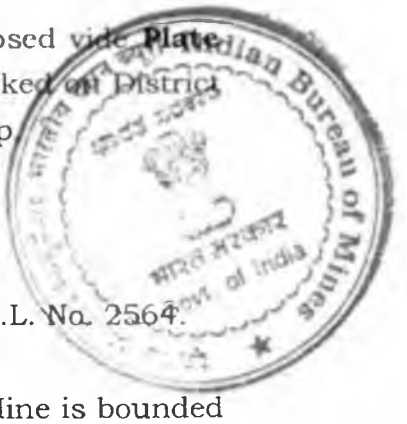
f) Name of Recognized Person under rule 22C of MCR,1960 ~~or a Person employed under clause (c) of Sub rule (1) of rule 42 of MCDR, 1988 (Applicable for Scheme of Mining only)~~ preparing Mining Plan:

Name : Gopalakrishna V. Gaonkar,
Address : "HM Larochella", # 302,
No. 6, Benson Cross Road,
Bangalore – 560 046, KARNATAKA.

Phone : +91-9448303821/9158505030.
Email : gaonkargv@gmail.com
Registration No. : RQP/BNG/333/2014/A.
Date of Grant/Renewal: 26.02.2014.
Valid upto : 25.02.2024.
Copy of RQP Certificate is enclosed vide **Annexure-XV**.

2.0 LOCATION AND ACCESSIBILITY:

Plan showing the location and accessibility is enclosed vide **Plate No. 1** as Key Plan. Location of the lease area is marked on District Map and enclosed vide **Plate No. 1A** as Location Map.



a) Lease Details (Existing Mine):

Name of mine: Jaisingpur (Balaji) Iron Ore Mine, M.L. No. 2564.

Lat/long of any boundary point: Balaji Iron Ore Mine is bounded between Latitude N 15° 11' 26.0" to N 15° 11" 49.1" and Longitude E 76° 27' 37.6" to E 76° 28' 06.8" (Datum: WGS 84).

Date of grant of lease : 25.09.1963,
Period/Expiry Date : 31.03.2020.
Name of leaseholder : M/s. Balaji Mines & Minerals Pvt. Ltd.,
Postal Address : # 322/3, Sree Sapthagiri Enclave,
College Road, Hospet – 583 201,
Bellary District, Karnataka.

Telephone : 08394-224998,
Mobile No. : +91-9822123262.
email id : bmmpl.hspt@gmail.com.

b) Details of ~~applied/~~lease area with location map (~~fresh area~~ /mine):

Table – 3: Details of land type;

Forest	Area (ha)	Non-forest	Area (ha)
Forest (specify) North-East Block Range Forest	22.66 as per ML Deed & 24.27 as per CEC Survey	(i) waste land	-
		(ii) grazing land	-
		(iii) Agriculture land	-
		(iv) others (specify)	-

Total lease area : 22.66 Ha as per M.L. Deed
(24.27 Ha as per CEC Survey)

District & State : Bellary District & Karnataka State.
Taluka & Village : Sandur Taluka & Jaisingpur Village.

Whether the area falls under Coastal Regulation Zone (CRZ)? if yes, details thereof: No.

Existence of public road/railway line, if any nearby and approximate distance: This Mine is at about 11 km South-East of Hospet connected by an all weather road and Hospet-Sandur-road is situated at a distance of 5.25 km from the lease boundary. Nearest Railway Station is Kariganur which is on the Bellary-Hubli Broad Guage line of South-Western Railways.

Toposheet No. with latitude & longitude of all corner boundary point/pillar: Balaji Iron Ore Mine falls on Survey of India Toposheet No. 57 A/8 (New Toposheet No. D43 E8). GPS co-ordinates of the lease area corner boundary pillars as per the survey and demarcation carried-out by the authorities (Officers from Department of Mines & Geology, Karnataka Forest Department and Surveyor from NITK/CEC Joint Team in the presence of lessee's representative) are;

BP No.	Latitude	Longitude
BP-A	N 15° 11" 33.8"	E 76° 28' 06.8"
BP-B	N 15° 11" 49.1"	E 76° 27' 42.7"
BP-C	N 15° 11" 41.3"	E 76° 27' 37.6"
BP-D	N 15° 11'26.0"	E 76° 28' 01.7"

Copy of the Mahajar Report is enclosed vide **Annexure – XVI**. Copy of Mining Lease area sketch approved by Director of Mines and Geology, Government of Karnataka after the CEC Survey is enclosed vide **Plate No. 2**.

c) **Attach a general location map showing area and access routes**: Mining lease area is marked on a Survey of India Toposheet and the features within 10 km radius are shown (refer **Plate No.1**).

3.0 DETAILS OF APPROVED MINING PLAN / SCHEME OF MINING (if any]:

3.1 Date and reference of earlier approved MP/SOM:

Table – 4: Details of the approved Mining Plan/Scheme of Mining are as follows;

Particular	Approval Letter No. and Date
Mining Plan	No. 279/144/90-BNG dtd. 13.08.2002
Modified Mining Plan	No. MP/BLR/Fe-82-SZ dtd. 26.09.2005
Scheme of Mining (2003-04 to 2007-08)	No. MS/BLR/Fe-78-SZ dtd. 18.09.2006
Scheme of Mining (2008-09 to 2012-13)	No. MS/BLR/Fe-109-SZ dtd. 06.06.2008
Scheme of Mining (2013-14 upto 24.09.2013)	No. KNT/BLR/MS/Fe-209-SZ dtd. 04.07.2013

3.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification:

Modifications to the approved Mining Plan was prepared for the increased production and approved vide letter No. MP/BLR/Fe-82-SZ dated 26.09.2005.

3.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc:

Exploration:

During 1993 to 1995 total 23 pneumatic drill holes of 75mm dia were drilled along the contacts of ore and shale to establish the continuity of ore body. Further, 7 vertical DTH holes were drilled to a total meterage of 235m during 2001-2005. 11 core and 4 RC holes of total meterage of 1,356m were drilled during 2010-11. Notice of sinking boreholes in Form-J submitted to Indian Bureau of Mines is enclosed vide **Annexure-XVII**.

In the previous approved Scheme of Mining, it was proposed to drill 7 RC drill holes for a total meterage of 450m. However, no exploration was carried-out because of the ban of mining activity.

Excavation:

"Balaji Mine" was originally granted on 25.09.1963 for a period of 30 years and the mine was worked by manual mining method till its expiry i.e. upto 24.09.1993 and produced about 750000 tons of iron ore with +63% Fe. After expiry of mining lease, mine was not under operation upto February 2001 for want of Forest Clearance. Further, the mine resumed its operation by open-cast mechanized means.

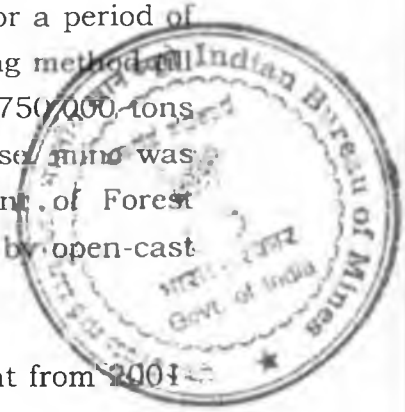


Table – 5: The details of production and development from 2001-02 to 2009-10 are as follows;

Year	Production in tons		Development in tons	
	Proposed	Achieved	Proposed	Achieved
2001-02	54,000	71,863	124,000	174,648
2002-03	105,000	119,822	210,000	380,064
2003-04	150,000	79,560	320,000	158,402
2004-05	190,000	164,103	416,000	458,020
2005-06	250,020	128,236	241,380	201,001
2006-07	250,965	Nil	72,390	Nil
2007-08	250,020	89,528	196,520	117,872
2008-09	508,850	182,170	317,577	481,498
2009-10	500,005	249,972	670,582	400,498

Table – 6: The details of production and development from 2010-11 to 2014-15 are as follows;

Year	Production in tons			Development in tons		
	Proposed	Achieved	Deviation	Proposed	Achieved	Deviation
2010-11	500,999	358,964	-28.35%	694,304	213,176	-69.30%
2011-12	500,601	69,053	-86.21%	952,738	47,656	-95%
2012-13	500,083	--	-100%	763,221	--	-100%
2013-14	39,902	--	-100%	6,554	--	-100%
2014-15	Nil	Nil	--	Nil	Nil	--

Reasons for deviation: Deviation during 2010-11 is because of iron ore export ban by the State Government coupled with logistic problems for local sale. Deviation during 2011-12 is due to blanket ban of Iron Ore Mining in Bellary, Tumkur & Chitradurga Districts of Karnataka State by the Hon'ble Supreme Court from 29.07.2011. Further, there was no production because of ban as well as for want of renewal of Mining Lease.

The iron ore produced from this mine was sold to different buyers for steel making. The waste generated was dumped on surface within the mining lease area.

Afforestation and Reclamation: In the approved Scheme of Mining, it was proposed to plant green-belt and inactive dump slopes with 4,260 saplings and 10,650 shrubs. It is also proposed to cover 0.50 Ha. of inactive dump slope with geo-coir mat. Accordingly plantation was carried-out on inactive dump slopes and green-belt area.

Reclamation & Rehabilitation Plan:

Brief details of measures suggested in approved R & R Plan, its schedule and as on date status of implementation is tabulated below;

Table – 7: Details of approved Reclamation & Rehabilitation Measures proposed outside the Mining Lease Area:

Sl. No.	Item	Dimension in m (L*T*B*H)	Status as on 01-July-2015
1)	Toe Wall (1Nos)	170*1*2*1.5	100% Completed
2)	Garland Drain	160*2*1*1	Not Started
3)	Coir Matting/ plantation	0.25 ha.	100% Completed
4)	Afforestation	--	Started

Table – 8: Details of approved Reclamation & Rehabilitation Measures proposed inside the Mining Lease Area:

Sl. No.	Item	Dimension (L*T*B*H)	Status as on 01-July-2015
1)	Toe Wall-2 (1nos)	750*1*2*2.5	35% Completed
2)	Toe Wall-3 (1nos)	430*1*3*2.0	35% Completed
3)	Retaining Wall (1Nos)	14*1*2*1.5	Not Started
4)	Silt Trap-ST-1& 2 (2 Nos.)	2*15*5*2	Not Started
5)	Garland Drain (1nos)	820*1.5*1	Not Started
6)	Brush wood Check dam (10Nos)	3*1.5*1.0	Not Started
7)	Brush wood Check dam (12Nos)	4*1.5*1.0	Not Started

8)	Brush wood Check dam (16Nos)	5*1.5*1.0	Not Started
9)	Log Wood Check Dams (15Nos)	5*2.0*1.0	Not Started
10)	Log Wood Check Dams (18Nos)	6*2.0*1.0	Not Started
11)	Log Wood Check Dams (20Nos)	7*2.0*1.0	Not Started
12)	Log Wood Check Dams (22Nos)	8*2.0*1.0	Not Started
13)	Loose Boulder Check Dam (10Nos)	15*2*3*2	Not Started
14)	Loose Boulder Check Dam (8Nos)	12*2*3*2	Not Started
15)	Loose Boulder Check Dam (6Nos)	10*2*3*2	Not Started
16)	Loose Boulder Check Dam (4Nos)	12*2*3*2	Not Started
17)	Avenue Plantation	--	Not Started
18)	Green-belt Development	--	60% Completed
19)	Afforestation	--	Started
20)	Watch & Ward	--	Started

Photographs of mine workings, boundary pillars, R&R work etc is enclosed vide **Annexure-XVIII**.

Table-9: Indicative Cost Summary for the approved R&R Plan;

Sl. No.	Items	Total Cost (Rs. Lakhs)
1.	Cost of rehabilitation of encroachment area (afforestation + engineering structure)	7.29
2.	Cost of engineering structure for OB dump management	69.82
3.	Cost of engineering structure for Surface water management	13.54
4.	Cost of afforestation of area under OB dump	05.50
5.	Cost of afforestation of area under mine pit	32.20
6.	Cost of afforestation of area under green belt	02.83
	Total :	131.18

Table-10: Tentative implementation schedule of mitigation/engineering measures are tabulated below;

Type	Particulars of Work	Years																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Dump Management																					
Inactive	Toe wall at the toe of waste dump	√																			
	Garland drain	√																			
	Silt trap	√																			
Plantation on encroached area as per CEC		√	√	√																	
Surface water management																					
Gully plugs	Brush wood	√																			
	Log wood	√																			
Check dams	Loose boulder check dams	√																			
Greenbelt development		√	√	√																	
Afforestation		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Avenue plantation on roads		√	√	√																	
Environmental monitoring & watch – ward		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

3.4 Give status of compliance of violations pointed out by IBM:

The violations pointed during last scheme period and the compliance status is discussed below;

Letter No. KNT/BLR/Fe-297/BNG Vol-III dated 10.12.2009: The MCDR 1988 under Rule 13(1), 28(1) & 34 were found violated during the inspection of Dy. Controller of Mines on 09.12.2009.

We have submitted Compliance Report for the above pointed violations to IBM Bangalore vide Letter No. BMMRL/IBM/09-10/117 dated 23.12.2009.

Violation: Rule 13(l) The mining operations has been extended right upto the Southern boundary without leaving 7.5m statutory barrier.

Reply: Common boundary working permission with adjacent M.L.No.1634/2604 of M/s. S.V. Srinivasulu under Regulation -111 of MMR 1961 has obtained vide their letter No.BL/IO/Perm-Reg.111 (3)/2011 dated 03.06 2011.

Violation: Rule 13(l) The orientation of the benches around section AA' to DD' is not as per the approved proposal.

Reply: The orientation of benches has been surveyed and updated in surface plan. The Modified Mining Scheme for remaining scheme period from 2011-12 to 2012-13 is being submitted along with Production & Development plans, Progressive mine closure plan are submitted under rule 10 MCDR for approval.

Violation: Rule 28(1) The surface plan maintained at the mine office updated on 05.06.2009 does not show the corrected position of mining working viz the lease boundary.

Reply: The plans are updated and copies of plans and sections are submitted to the Indian Bureau of Mines.

Violation: Rule 34 The waste dump slope laying the western lease boundary has not been reclaimed despite the slope has reached to its ultimate limit.

Reply: In compliancy of rule, the dump slopes along the western side of the lease boundary is covered with coir mat, reclaimed by agaves plantation and sowed hemata grass seeds.

Letter No. KNT/BLR/Fe-297/BNG Vol-III/708 dated 27.04.2011: The MCDR 1988 under Rule 13(1) found violated during the inspection of Regional Controller of Mines on 17.02.2011.

Violation: Mining operations are deviated with respect to the approved mining scheme.

Reply: Requested the authority for submission of Modified Mining Scheme by vide letter No. BMMPL/IBM/2011-12dated 09th May 2011.

Accordingly, prepared Modification to Approved Mining Scheme under Rule 10 of MCDR & submitted to the IBM. But same was not processed for want of Joint Survey CEC Sketch, authenticated by State DMG. Further, Scheme of Mining was submitted as per the CEC Sketch and approved vide letter No. KNT/BLR/MS/Fe-209/SZ/991 dated 04.07.2013.

3.5 Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any rule or Court of law:

The Hon'ble Supreme Court of India imposed blanket ban on iron ore mining and transportation in Bellary, Tumkur and Chitradurga districts of Karnataka State on 29-July-2011. Accordingly mining operations were stopped.

3.6 In case the MP/SOM is submitted under rules 9 and 10 of the MCDR'88 or under rule 22(6) of the MCR'1960 for approval of modification, specify reason and justification for modification under these rules:

Earlier, the Mining Lease was expired on 24.09.2013.But the period of Mining Lease is deemed extended as deemed period upto 31.03.2020 as per the MMDR (Amendment) Act 2015. Hence, this Modifications in Approved Mining Plan is prepared for the period from 2015-16 to 2019-20 i.e. upto 31.03.2020 and submitted for approval under the provision of Rule 22 (6) of MCR 1960.

PART-A

1.0 GEOLOGY AND EXPLORATION:

a) Briefly describe the topography, drainage pattern, vegetation, climate, rainfall data of the area applied/mining lease area:

Topography of Buffer zone:

The buffer zone area is hilly terrain with alternate valleys and attains an altitude between 467 to 1002 m above M.S.L. The lease area is approachable from Hospet. Hospet is located at about 11 kms towards North-West direction. The hills contain erosion resistant rocks like Banded Hematite Quartzite (BHQ), Banded Hematite Jasper (BHJ), Phyllites and Argillites etc. The area has sub-dendritic pattern of drainage.

Topography of Core zone:

The mining lease area is on the South-Western flank of a hillock which trends North-West South-East. The highest elevation is towards North-East part of the lease having RL 942.969m and the lowest is 820.202m towards South-West part of the lease area.

The lease area is surrounded by other mining leases, leased to various parties as detailed below;

North : Erstwhile M/s. Dalmia Cement (Bharat) Ltd., (ML No. 2010)
East : Erstwhile M/s. S.B. Minerals, (ML No. 2550)
West : M/s. Muneer Enterprises, (ML No. 2339/2151)
South: Sri. S.V.Srinivasulu (ML No. 2604/1634).

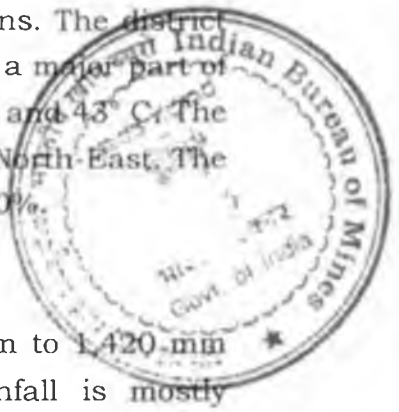
Drainage Pattern:

Lease area does not have any natural water body or river, stream, etc. hence surface water regime remains unaffected. The Nallahs in the lease area are seasonal in nature and are dry during most of the time. In other words, these nallahs will drain the rainfall in and around the area, only during rains. The buffer zone area has sub-dendritic pattern of drainage.

Climatic Conditions:

Bellary district is a part of the Northern maiden region with an extensive undulating plateau. The climate of the mine lease area is

mainly semi-arid type with dry and hot summer. The climate is influenced by South-West and North-East monsoons. The district is known for hot summer and very dry weather for a major part of the year, and the temperature varies between 13° C and 43° C. The predominant wind direction is from South-West to North-East. The relative humidity of the region varies from 20% to 70%.



Rainfall:

The annual rainfall in Sandur varied from 443 mm to 1,420 mm with an average rainfall of 870.7mm. The rainfall is mostly (60.22%) confined to the period from June to September. During South-West monsoon, October to November receives 22.21% of the annual rainfall and another 17.57% of rainfall occurs as sporadic in other months of the year.

b) Brief descriptions of Regional Geology with reference to location of lease/applied area:

The Bellary–Hospet region forms a part of the 'Sandur Schist Belt'. The rock formations belong to NEB Range Formations of Sandur Schist belt is part of Dharwar Super Group.

These rock formations belonging to Iron ore stage of Dharwar group of Precambrian schistose rock. The lithological units include green stones which are the metamorphosed basic igneous rocks occupying the valley regions, with Phyllite – quartzite's forming the canoe-shaped amphitheater of hills, trending NNW—SSE and enclosing Sandur. The Phyllites are locally Shaly and the Quartzite's are of the nature of Banded Hematite Jaspers, and Banded Hematite Quartzite's, inter banded with each other.

The Banded Hematite Jaspers, the important source rocks for the iron ores in the area are prominent in the Northern and Western part of the ranges, where as the associated Shales become prominent in the Southern and Eastern parts of the area. The iron ores form a capping over the quartzite's and Shales and overlie a sequence of Manganiferous Phyllitic rocks. Lateritisation is widespread in most of the flat topped ridges.

Structurally, the Sandur hills form a tightly folded synclinorium plunging gently to NNW and the hill ranges broadly delineate the folded limbs of synclines, with close repetition of strata due to minor folds. The strike of the ore bodies is generally parallel to the trend of the hill ranges and dips are often steep, being vertical at number of places. Opposing dips towards NE and SW are found in the Ramandurg and NEB ranges.

The iron ore deposits of NEB range forms a part of the Bellary-Hospet group of iron ore deposits and occupy the Northern tip of Sandur Synclonorium. These deposits lie on the Northern flanks of Sandur basin.

c) Detailed description of geology of the lease area such as shape and size of the mineral/ore deposit, disposition various litho-units indicating structural features if any etc:

The general succession of the strata from top to bottom is as follows;

Soil Cover

Laterite/Lateritised Ore

Banded ferruginous quartzites/jaspers

Ferrugenous Shale / Phyllites

Iron Ore Formation (Hematite)

Two ore bodies measuring approximately 200m and 100m strike length respectively have been noticed in the mining lease area. Average width of these ore bodies is about 25m. As per the Geological Plan there are two more ore bodies in the depth based on the exploration with the help of 15 drill holes.

d) (i) Name of prospecting /exploration agency:

M/s. Balaji Mines & Minerals Pvt. Ltd.

(ii) Address:

322/3,2nd Floor, Sree Sapthagiri Enclave,
College Road, Hospet 583 201,
Bellary District, KARNATAKA.

(iii) E mail address and Phone No.:

E-mail: bmmpl.hspt@gmail.com

Phone No.: 08394 – 224998.

e) Details of prospecting/exploration already carried-out :

i) Number of pits and trenches indicating dimensions, spacing etc along and across the strike/ foliation with reference to geological plan:

Mining operations are carried-out along the hill slope in the mining lease area and only one pit has been developed. Present dimension of the pit is 590m length and 275m width. A total of 17 benches were developed along & across the strike with top RL of about 940m and the bottom RL of 820m. Iron ore is exposed at four locations in the pit as shown in the Geological Plan. Geological Plan of the mining lease area is enclosed vide **Plate No. 4**.

ii) Number of boreholes indicating type (Core/RC/DTH), diameter, spacing, inclination, Collar level, depth etc with standard borehole logs duly marking on geological plan/sections:

The mine has been proved by extensive core and RC drilling. A total of 15 boreholes (11 core and 4 RC drill) have been drilled during 2010-11 for a total meterage of 1,356m and maximum & minimum depth of the boreholes being 128m & 42m respectively. Emphasis was laid on core drilling and total 671 samples obtained for every 2 meters depending upon the formation. The samples drawn are analyzed for Fe, Mn, SiO_2, Al_2O_3, P, combine water (LOI) and specific gravity. About 4.79 million tons of mineral reserves/resources are estimated. The details of drill holes are given below;

Table – 11: Details of drilled bore holes;

Drill hole No.	Type of Drill	Location (Easting/Northing)	Collar Level	Depth
BH-1	Core	E657146.3/N1680411.4	885m	124m
BH-2	RC	E657283.1/N1680413.6	911m	100m

BH-3	RC	E657231.4/N1680371.4	885m	128m
BH-4	RC	E657201.8/N1680324.7	861m	120m
BH-5	Core	E657334.7/N1680313.8	888m	124m
BH-6	Core	E657273/N1680230	842m	112m
BH-7	RC	E657452.5/N1680326.3	922m	80m
BH-8	Core	E657394.7/N1680265	883m	124m
BH-9	Core	E657350.3/N1680198.6	852m	80m
BH-10	Core	E657355.8/N1680141.1	845m	80m
BH-11	Core	E657542.5/N1680110.7	896m	90m
BH-12	Core	E657498.9/N1680062.8	863m	60m
BH-13	Core	E657655/N1680038	892m	78m
BH-14	Core	E657661/N1680091	910m	56m
BH-15	Core	E657259/N1680179	826m	70m

All the above said boreholes are inclined at 60° except BH-14 which is vertical. Locations of the drill holes are marked on Geological Plan enclosed vide **Plate No. 4** and Geological Sections vide **Plate No. 5**.

iii) Details of samples analysis indicating type of sample (surface / sub-surface from pits / trenches / borehole etc):

A total of 15 boreholes (11 core and 4 RC drill) have been drilled for a total meterage of 1,356m and total 671 samples obtained for every 2 meters depending upon the formation. The samples drawn are analyzed for Fe, Mn, SiO_2, Al_2O_3, P, combine water (LOI) and specific gravity. Copy of the analysis reports from NABL accredited laboratory is enclosed vide **Annexure-XIX**.

iv) Expenditure incurred in various prospecting operations:

Rs. 1,600/meter incurred towards RC drill and Rs. 2,400/meter towards core drill. Thus Rs 10.11 Lakhs + Rs.17.37 Lakhs = Rs. 27.48 Lakhs towards drilling. In addition to this, Rs. 925/sample for chemical analysis i.e. 572 samples were analysed and expenditure is Rs. 5.29 Lakhs.

f) The surface plan of the lease area may be prepared on a scale of 1: 1000 or 1: 2000 with contour interval of maximum of

10m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 28(1)(a) of MCDR 1988:

The Surface Plan of the lease area is prepared in 1: 2,000 scale with 5m contour interval and enclosed vide **Plate No. 3** as Surface plan.

g) **For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various litho-units along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 28 (1)(b) of MCDR 1988:**

Based on the exploration data and face mapping, Geological Plan is prepared in 1: 2,000 scale and enclosed vide **Plate No. 4**. For preparation of Geological Plan, Surface Plan prepared on a scale of 1: 2,000 scale is taken as the base plan. The locations of exploratory boreholes drilled during 2010-11 are marked on the Geological Plan along with other features.

h) **Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary:**

Geological sections at 100m interval across the lease area from boundary to boundary are prepared in 1: 2,000 scale and enclosed vide **Plate No. 5**.

i) **Broadly indicate the future programme of exploration with due justification (duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation programme planned in next five years as in table below:**

At present, about 2.04 million tons of iron ore reserves (i.e. 1.41 million tons of proved and 0.63 million tons of probable mineral

reserves) are estimated. Considering the annual production of 0.08mtpa fixed by the ICFRE, only 0.40 million tons of iron ore i.e. 19.61% can be producible upto 31.03.2020 (i.e. end of the lease period). Hence, no exploration is proposed at this stage.

j) Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below:

Area explored under different level of exploration are marked on the Geological Plan and enclosed as **Plate No. 4**. UNFC code for area considered for different categories of reserve/resources estimation is marked on Geological cross sections enclosed as **Plate No. 5**.

In case of Proved Mineral Reserves, mineralized area has been demarcated based on the results of sub-surface exploration data in grid pattern not exceeding 100m spacing and upto the bottom of drill holes (G1 level of Exploration). Iron ore considered under this category can be completely mineable by open cast mechanized method of operation and chemical analysis of the samples indicates the grade is also feasible for marketing.

Probable Mineral Reserves are considered based on the G2 level of exploration, i.e. drill holes exceeding 100m spacing and not more than 200m spacing. Iron ore considered under this category can be completely mineable depending on the conformity of ore zone by open cast mechanized method of operation and considering the present market scenario iron ore is feasible for marketing.

In case of Pre-feasibility Mineral Resources G2 level of exploration is considered. However, due to ore blockage due to safety zone and systematic pit slope maintenance these iron ore reserves are considered under the resource category.

Inferred Mineral Resources are considered based on G3 level of exploration and feasibility depends on conformity of ore zone.

Section-wise, level-wise quantity details of Ore, sub-grade ore, lateritic & float ore, siliceous ore and waste in tabular form are enclosed vide **Annexure-XX**.

Justifications for assigning the UNFC code is enclosed vide **Annexure-XXI**. Feasibility Report is enclosed vide **Annexure-XXII**. BHQ/Siliceous ore generated will be stacked separately. Grade of the iron ore varies from +45% to 67% Fe. The end-use grade is +55% Fe.

k) Furnish detailed calculation of reserves/resources section wise (When the mine is fully mechanized and deposit is of complex nature with variation of size, shape of mineralized zones, grade due to intrusion within ore zone etc, an attempt may be made to estimate reserves/resources by slice plan method):

Reserves/resources are estimated using the cross sectional area method considering UNFC Guidelines. The geological cross sections are prepared at an interval of 100mts, across the strike of the ore body. Experiences gained in this type of deposits, borehole data, actual mining etc., are considered for preparation of the Geological cross sections. The area of individual litho-units in each cross section under each category is measured separately & multiplied with sectional interval and tonnage is arrived by multiplying with its insitue density. The insitue density considered as 3.0 t/m^3 for ore, 2.75t/m^3 for BHQ, 2.50 t/m^3 for lateritic iron ore and 2.0 t/m^3 for waste. Based on the previous experience 90% recovery of ore is considered from ore zone, 50% recovery from lateritic ore and 35% from BHQ. Cut-off grade for iron ore is 45% Fe as per the threshold value of iron ore notified by IBM. The Tonnage is calculated using the following formula;

Tonnage = Volume (V) x Insitu Density x Recovery %

Where V = ((a + b)/2) x L

Here a & b = the areas upto adjacent cross section

L= Sectional interval between two sections

Insitu Density in tons/m^3

(Insitu density is considered based on the test carried-out in the field. Pre-level survey was carried-out for the specific areas i.e. ore zone, waste area. The area is excavated with the help of excavator and the excavated material is loaded into a pre-weighed tipper. The tipper is weighed once again to get the excavated quantity/tonnage. Then post-level survey was carried-out for the same area and the quantity of excavated area is calculated in cubic meters. The insitu density is calculated by dividing the quantity obtained in tons in weigh bridge by quantity obtained in cubic meter).

l) Mineral Reserves/Resources:

Table – 12: Reserves/Resources as per level of exploration;

Level of Exploration	**Resources in million tons**	**Grade**
G1 - Detailed exploration	2.04	+45% Fe
G2 - General Exploration	2.27	+45% Fe
G3 – Prospecting	0.48	+45% Fe
G4 – Reconnaissance	-	-

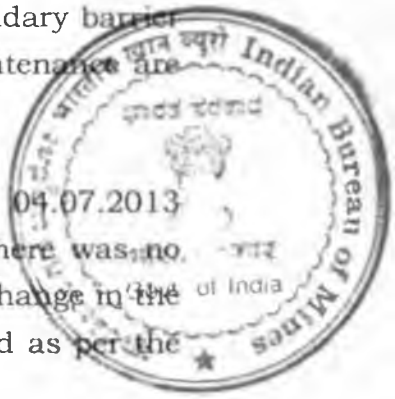
Resources and Reserves within the lease are arrived after applying results feasibility/pre-feasibility study and economic evaluation of deposit based on various factors such as:

a) **Mining method, Recovery factor, mining losses, processing loss etc:** Open cast – Mechanized Method, 90% recovery of ore is considered from ore zone, 50% recovery from lateritic ore and 35% from BHQ considering the mining/handling loss.

b) **Cut-off grade, Ultimate pit depth proposed:** Cut-off grade for iron ore is considered as 45% Fe and ultimate pit dimension will be 590m length, 275m width and 160m depth. Workings are expected to reach upto 740m above MSL.

c) **Mineral/ore blocked due to benches, barriers, pillars, road, railway, river, nala, reservoir, electric line and other statutory barriers etc, under forest, sanctuaries**

etc where necessary permissions are not available: Part of the reserves blocked (2,266,911) due to boundary barrier zone/safety zone and systematic pit slope maintenance are considered under the resource category.



The latest Scheme of Mining was approved on 04.07.2013 (Approval Letter No. KNT/BLR/MS/Fe-209-SZ). As there was no mining operation since the last approval, there is no change in the Reserve position. The category-wise reserves estimated as per the UNFC Guidelines is tabulated below:

Table – 13: Reserves/Resources Classification as per UNFC as on 01-04-2015;

Classification	UNFC Code	Quantity (Tonnes)	Fe Grade
Mineral Reserve			
1) Proved Mineral Reserve	111	1,407,548	+45-67%
2) Probable Mineral Reserve	121 and 122	633,818	+45-67%
Total Mineral Reserves		**2,041,366**	
B. Remaining Resources			
3) Feasibility Mineral Resource	211	--	
4) Pre-feasibility Mineral Resource	221 and 222	2,266,911	+45%
5) Measured Mineral Resource	331	--	
6) Indicated Mineral Resource	332	--	
7) Inferred Mineral Resource	333	480,899	+45%
8) Reconnaissance Mineral Resource	334	--	
Total Mineral Resources		**2,747,810**	
TOTAL MINERAL RESERVES/RESOURCES (A+B)		**4,789,176**	

Note: It may not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus tonnages arrived are tentative.

2.0 MINING:

A. OPEN CAST MINING:

a) Briefly describe the existing as well as proposed method for excavation with all design parameters indicating on plans /sections:

At present, the mine is not in operation for want of execution of supplementary mining lease deed for the extended period as per the MMDR (Amendment) Act, 1957. Mine was worked by open cast mechanized method using drilling and blasting. The entire length of ore body has been worked. Waste generated was dumped inside the lease area towards West in terraces. The present position of the working faces are shown on Surface and Geological Plan enclosed as **Plate No. 3** & **Plate No. 4** respectively.

It is proposed to work the iron ore deposit in depth at the existing workings, by open cast mechanized method of mining. Drilling and blasting will be carried-out. The benches will be worked across and along the strike in benches of 8m maximum height and width is more than the height (about 10m) where as working bench width will be maintained about 12m. At places benches are not in proper shape and height because of non-working of mine and gullys formed during rains. Same will be rectified before starting the work.

The mine is proposed to achieve maximum production level of 0.08 mtpa during the plan period. Iron ore extracted will be stacked at the designated place. Waste generated will be loaded into 10/16 ton tippers and carried to the pre-designated area. About 4.11 Ha. iron ore exhausted area is available for backfilling which is confirmed by the detailed exploration. Hence, backfilling will be carried-out in the exhausted pit. About 1.07 Ha. will be used for backfilling upto 2019-20. Over all stripping ratio is 1: 1.61 and for plan period 1: 0.34. The road gradients of 1 in 16 will be maintained as per MMR 1961. It is proposed to work in general shift of 8hrs. Occasionally working will be extended upto day light hours.

b) Indicate year-wise tentative Excavation in Cubic Meters indicating development, ROM, pit wise as in table below;

I. Insitu Tentative Excavation:

Table – 14: Details of insitu Excavation;

Year	Pit No.	Total tentative Excavation (cum)	Top Soil (m^3)	OB/SB/ IB (m^3)	ROM (m^3)		Mineral reject (m^3)	ROM/ Waste Ratio
					Ore*	Sub-grade		
2015-16	1	27,249	-	582	24,000	2,667	-	1: 0.02
2016-17	1	36,781	-	10,114	24,000	2,667	-	1: 0.38
2017-18	1	36,117	-	9,450	24,000	2,667	-	1: 0.36
2018-19	1	38,435	-	11,768	24,000	2,667	-	1: 0.44
2019-20	1	63,042	-	36,375	24,000	2,667	-	1: 1.36

* **Tentative tonnage of the ore may be arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series.**

Detailed calculation of year-wise, level-wise, section-wise excavation plan is enclosed vide **Annexure-XXIII**.

II. Dump rehandling (for the purpose of recovery of mineral): Estimated available material (m^3): Not Planned at this stage.

Table – 15: Details of dump handling;

Dump identification No	Year-wise handling (cum)	Estimated recovery of saleable material (cum)*	Reject (cum)
Nil	Nil	Nil	Nil

* **Tentative tonnage of the saleable material may be arrived by computing approximate bulk density and recovery factor as these data are variable and may be established on time series.**

c) Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines:

Individual year-wise development plans and sections showing workings are enclosed vide **Plate Nos. 6A to 6E, & 7** respectively.

d) Describe briefly giving salient features of the proposed method of working indicating Category of mine:

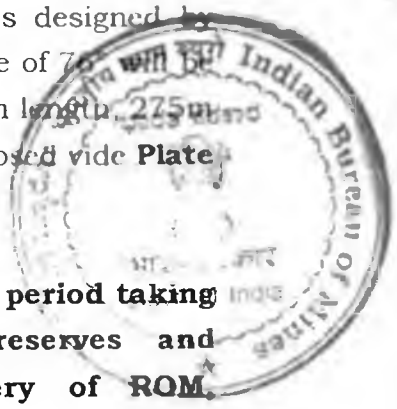
This mine comes under 'A' Category, Open-Cast, Mechanized. It is proposed to achieve maximum production level of 0.08 mtpa during the plan period. It is proposed to work the iron ore deposit in depth at the existing workings, by open cast mechanized method of mining. Drilling and blasting will be carried-out. It is proposed to work in general shift of 8hrs. Occasionally working will be extended upto day light hours.

e) Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site:

The benches will be worked across and along the strike in benches of 8m maximum height and width is more than the height (about 10m) where as working bench width will be maintained about 12m. Iron ore extracted will be stacked at the designated place.

Waste generated will be loaded into 10/16 ton tippers and carried to the pre-designated area. About 4.11 Ha. iron ore exhausted area is available for backfilling and about 1.07 Ha. will be used for backfilling during this modified Mining Plan Period. Before starting the backfilling, a retaining /parapet wall will be constructed along the lower bench where the backfilling is proposed as suggested in the R&R Plan. Over all stripping ratio is 1: 1.61 and for plan period 1: 0.31. The road gradients of 1 in 16 will be maintained as per MMR 1961. Plans showing pit layout at the end of every year and sectional views showing production plan for 5 years is enclosed vide **Plate No. 6A to 6E** and **Plate No. 7** respectively.

Taking into consideration of the available exploration data, structural parameters of the ore body upto the explored depth and the updated geological mapping, final pit layout is designed by maintaining 35° pit slope and individual bench slope of 7[illegible] will be maintained. The ultimate pit dimension will be 590m length, 275m width and 160m depth. Same is marked on the enclosed vide **Plate No. 6A to 6E** and **Plate No. 7.**



f) Conceptual Mine planning upto the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections:

Mining Lease Period ends on 31.03.2020 as per MMDR (Amendment) Act 1957 of 12.01.2015/27.03.2015. Conceptual Plan and Section showing the excavation, disposal of waste, reclamation and rehabilitation is enclosed vide **Plate No. 8**.

g) Extent of mechanization :

Table - 16: A comprehensive list of mining machineries proposed to be deployed to achieve the proposed production is as follows;

Type of Machinery Make & Model	Capacity	Units	H.P.	Rate/Hr
A. Drilling				
Wagon Drill / Jack Hammer, Atlas Capco	115mm/ 37mm	1	-	15m/hr
Compressor, CP-300	300cfm	1	-	-
B. Loading				
Hydralic Excavator, Tata Hitachi	0.9m³	1	180	100 t
Wheel Loader, TATA	1.5m³	1	150	180 t
C. Haulage and Transport				
Tippers, TATA	16 tons	4	100	-
Jeep, Tata Sumo	5+1	2	-	-
D. Others/Miscellaneous				
Water Tanker, TATA Truck	5,000Ltrs	2	120	
Mobile Crushing & Screening, Finely/Parker	120 TPH	1	-	-
Rock Breaker	-	1	-	-

The adequacy of the machineries is dealt below in detail.

(i) Drilling Machines:

Wagon Drill and truck mounted diesel driven compressor will be used for drilling.

Maximum quantity of ore & mineral rejects and waste to be handled per annum during the plan period = 80,000 + 72,751 = 152,751 tons.

About 75% of ore & mineral rejects and about 50% of waste requires drilling & blasting = 60,000 + 36,375 = 96,375 tons say 1 Lakh tons per annum.

The amount of Drilling required is calculated as under.
The quantity of rock broken for hole of 9 m depth (including sub-drilling of 1m depth) = 3.0m x 2.5 m x 8 m x 3.0 t/m3 = 180 tons (Average Bulk density for both Waste and Ore is taken as 3.0 tonnes/m^3).

Therefore, Rock broken / Mtr. = 180 t /9 m = 20 tons/m.

Total meterage required for 100,000 tons =100,000/20=5,000 m.

Normal capacity of Drilling Machine, in a shift of 8 hrs. with effective working hours of 7 hrs./day is found to be 100 m.

Therefore, for 300 working days/annum = 300 x 100 = 30,000 m.

Hence, one drilling unit will be more than adequate. Additional availability of drilling machinery will be used in the sister concerned mines.

(ii) Loading Equipments:

Maximum quantity to be handled in a year = 80,000 + 72,751 tonnes = 152,751 tonnes.

Therefore, hourly production and development = 73 tons/hour.

Effective working hours = 7 hours/day and 300 days in a year.

Number of buckets required to load each 16 ton tipper = 16 tons ÷ $0.9m^3$ X 2.0 t/m^3 = 8.88 say 9 buckets,

Considering bucket cycle time of 60 seconds, average time taken to load a tipper = 9 minutes.

Thus, capacity of Excavator = 60min./9min. X 16 tons = 107 tons/hour say 100 tons/hour.

Thus, one Excavator is more than adequate. Additional availability of the Excavator will be used for rehandling the screened ore. Wheel loader will be used to spread the dump.

(iii) Haulage and transport equipments:

Dump plot/ore stockyard will be about 2 km away.

Number of trips = 2 trips per hour.

Effective working hours = 7 hours per day and 300 days in a year.

Tonnage transported per trip = 16 tons.

Capacity of each tipper per annum = 32 tonnes x 7 hr/day x 300 days/year = 67,200 tons.

Max. no. of tippers required = 152,751/67,200 = 2.27 tippers say 3 tippers.

Hence, the proposed tippers in the mining site are adequate.

(iv) Transport from mine-head to the destination:

At present, entire sector is practicing e-auction and the buyer will arrange the transport from mine-head to the destination. However, in future, if the e-auction is withdrawn, Iron ore produced from the mines will be processed on dry screening plant on site and transported by hired tippers of 10 tons capacity to the destination which is likely to vary depending on the buyer. Number of hired

tippers required will be decided as per the quantity & schedule to be delivered, time available and distance to be covered.

(v) Miscellaneous:

(1) Operations: The other activities related to mining are crushing & screening, dust suppression by water spraying etc.

(2) Machineries deployed: The following machineries are to be deployed for miscellaneous operations (**Table -17**).

Type of Machinery, Make & Model	Capacity	Units
Water Tanker, TATA Truck	5,000 Ltrs	1
Mobile Crushing & Screening Unit	120 t/hr	1
Rock Breaker	-	1

B. UNDERGROUND MINING: Not Applicable.

3.0 MINE DRAINAGE:

a) Minimum and maximum depth of water table based on observations from nearby wells and water bodies:

There is no well or surface water body within the mining lease area or nearby. In the buffer zone ground water is tapped for irrigation and drinking purpose. Ground water table is about 496m above MSL i.e. 50m below the general ground level during summer.

b) Indicate maximum and minimum depth of Workings:

Presently a total of 17 benches were developed with top RL of about 940m and the bottom RL of 820m. Workings are expected to reach upto 740m above MSL.

c) Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged:

Mining lease is on the hill slope and mining operations were not intersecting the ground water table. Mining Lease area does not have any natural streams or river, etc. hence surface water regime remains unaffected. During monsoon, most of the rainwater from the mining lease will be channelized through proper drainage

system. The entire mining operations are confined at the hill slope which are above the ground water table. Hence, no ground water is likely to be encountered through-out the life of the mine.

d) Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc:

The drainage pattern of the area is sub-dendritic in nature. During monsoon the rain water from the lease area is seasonally drained through the natural valleys and finally joins Tungabhadra River. The annual rainfall varied from 443mm to 1,420mm with an average rainfall of 870.7mm. The rain water from the lease area will pass through several gully plugs, settling tanks and check dams before joining the main stream outside the lease area.

4.0 STACKING OF MINERAL REJECT / SUB GRADE MATERIAL AND DISPOSAL OF WASTE:

a) Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off:

Entire lease area is broken up. It is proposed to work the iron ore deposit in depth at the existing workings, by open cast mechanized method of mining. Hence, there will not be any top-soil generation. The waste rock consists of laterite, shale, phyllite, siliceous clay, dyke clay, silica and altered intrusive etc will be used for backfilling the ore exhausted pit.

Table – 18: Details of top-soil and waste handling;

Year	Top soil (cum)		Mineral Rejects/Waste (cum)			
	Reuse/ spreading	Storage	Backfilling	Storage	Blending	Beneficiation
2015-16	-	-	582	-	2,667	-
2016-17	-	-	10,114	-	2,667	-
2017-18	-	-	9,450	-	2,667	-
2018-19	-	-	11,768	-	2,667	-
2019-20	-	-	36,375	-	2,667	-
TOTAL	-	-	**68,289**	-	**13,335**	-

Table – 19: Location of Backfilling;

Year	Backfilling Quantity in cubic meters	Location of waste Dump/Backfilling
2015-16	582	E657475 to E657505 N1680125 to N1680155
2016-17	10,114	E657460 to E657523 N1680113 to N1680178
2017-18	9,450	E657450 to E657532 N1680115 to N1680190
2018-19	11,768	E657442 to E657545 N1680115 to N1680206
2019-20	36,375	E657411 to E657568 N1680130 to N1680250
TOTAL	**68,289**	

b) The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification:

Waste generated will be backfilled in iron ore exhausted pit earmarked for the purpose upto a maximum height of 30m. About 4.11 Ha. is available for backfilling between the cross sections C-C' to F-F' towards Central and Southern portion of the lease area which is confirmed by the detailed exploration. This area can accommodate about 2.50 million tonnes which is more than adequate during the modified mining plan period. However, about 1.07 Ha. will be used for backfilling during modified mining plan period.

c) Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise build up of dumps along with the proposals for protective measures:

Waste generated at the mine will be transported to backfilling site by 10/16 tonnes capacity tippers. A wheel loader will continuously be provided to level waste material unloaded by dumpers and spread laterally in the area earmarked. Continuous movements of

tippers while unloading consolidate the ground. Clays will be covered with laterite before monsoon. Water will regularly be sprinkled in rounds over the dumps to control the blowing dust. Thus, with dozing/leveling, end tipping and consolidation, dump will be built-up in stages.

While building-up dumps are properly graded and terraced. Each stage of backfilling will be maintained 10m height and natural angle of repose will be maintained to avoid sliding of slopes. Plantation will be carried-out on the inactive slopes of the waste dumps with local plant species. Retaining wall and garland drain will be provided along the toe of the dump to minimize the flow of silt during monsoon. Dump slopes will be suitably protected from any environmental damages, by providing all the protective measures. The year-wise build-up of dump is marked on year-wise production and development plan which is enclosed as **Plate No. 6A to 6E.**

5.0 USE OF MINERAL AND MINERAL REJECT:

a) Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition:

Nature of iron ore to be extracted from this mine is more suitable for steel making. The physical and chemical composition required by different industries is as follows;

Table – 20: Physical and Chemical Specifications;

Particulars	Physical	Chemical	Buyers
Calibrated Lumpy Ore	+10 to -30mm	Fe: 55-61%; SiO_2: <7.5%, Al_2O_3: <3.5%; P: <0.10%, S: <0.05%; Mn: <0.50%.	Pig Iron Plants, Steel Plants.
Fines	-10mm	Fe: 55-62%; SiO_2: <4%, Al_2O_3: <2.5%; P: <0.10%, S: <0.05%; Mn: <0.50%.	Steel Plants.
Low grade	-30mm	Fe: 45-55%; SiO_2: <6.50%, Al_2O_3: <7.50%; P: <0.05%, S: <0.05%; Mn: <0.50%.	Beneficiation Plants

b) Give brief requirement of intermediate industries involved in upgradation of mineral before its end-use:
Upgrade the low grade iron ore to meet the above mentioned specifications of Steel Plants.

c) Give detail requirements for other industries, captive consumption, export, associated industrial use etc:

d) Indicate precise physical and chemical specification stipulated by buyers: Please refer above **Table - 20**.

e) Give details of processes adopted to upgrade the ROM to suit the user requirements:
There is no mineral processing other than dry crushing and screening. Dry crushing and screening will be done at the mine site using mobile plants to suit the buyer's requirement.

6.0 PROCESSING OF ROM AND MINERAL REJECT:

a) If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc: There is no processing / beneficiation of the ROM or Mineral Reject except dry crushing and screening. ROM produced will be processed in the mobile dry crushing and screening plant at mine site to make suitable for buyers. Not Applicable.

b) Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing: Not Applicable.

c) Explain the disposal method for tailings or reject from the processing plant: Not Applicable.

d) Quantity and quality of tailings / reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such

effect before their disposal and dealing of excess water from the tailings dam: Not Applicable. Waste generated during the production of iron ore will be backfilled in the ore exhausted pit.

e) **Specify quantity and type of chemicals if any to be used in the processing plant:** Not Applicable.

f) **Specify quantity and type of chemicals to be stored on site / plant:** Not Applicable.

g) **Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling. Water balance chart may be given:** Not Applicable.

7.0 OTHER: Describe briefly the following:

a) **Site services:** The mine is well connected to the district and taluka head quarters by all weather roads and State Highways. The approach road is good and approachable in all seasons. Mine is equipped with office, stores, first aid service, garage, canteen, weighbridge, rest shelter etc.

b) **Employment potential:**

Table – 21: Category-wise break-up of the man-power/employees is given below;

Category	Particulars	No. of employees
Highly Skilled	Mines Manager/Mining Engineer, Geologist	02
Skilled	Foreman, Mate, Machinery Operators, Supervisors	16
Semi-Skilled	Assistants/Helpers	12
Unskilled	Cleaners, Attenders	05
Total		**35**

Note: Employment potential is in accordance with Rule No. 42 (1) (c) (i) of MCDR 1988.

8.0 PROGRESSIVE MINE CLOSURE PLAN UNDER RULE 23 OF MCDR' 1988:

8.1 Environment Base line information:

a) Existing land use pattern indicating the area already degraded due to mining, roads, processing plant, workshop, township etc in a tabular form:

Entire Mining Lease area is in forest land and majority of the area in buffer zone is covered under forest. Maximum lease area is under mining & related activities (broken-up) and very small part i.e. about 1.20 Ha. of the lease area was kept untouched. This mining lease area is surrounded by other mining leases belongs to various parties. The locations of the lease, surrounding villages, forest & revenue lands, roads, water body are shown on Key Plan enclosed vide **Plate No. 1**.

Table – 22: Detail of present land use is furnished in the below table:

Particulars	**Area in Ha.**
Area for Mining	17.71
Storage for top-soil	-
Overburden dump	3.16
Backfilling	-
Mineral Storage/SGMD	0.54
Infrastructure (mobile office, canteen, weigh bridge, first aid room, rest shelter etc.,)	0.31
Roads	0.25
Drainage/Seasonal Nallah	-
Green-belt/boundary barrier	1.10
Environmental Protective Measures	-
Tailing Pond	-
Effluent Treatment Plant	-
Mineral Separation Plant	-
Township Area	-
Bio-diversity conservation area	-
Virgin area includes retaining wall	1.20
Total	**24.27**

Environment Plan in 1: 5,000 scale showing details of mining lease area and surrounding upto 500m is enclosed vide **Plate No. 9**.

b) water regime, quality of air, ambient noise level, flora, climatic conditions:

WATER REGIME:

Surface Water Regime: There is no perennial water body, spring, river etc within the lease area.

Ground Water Regime: Mining will be carried-out along the hill slope. Mining will not touch/intersect the ground water table. The water table is about 50 m below the general ground level. As such, water regime is not disturbed.

WATER QUALITY:

Ground Water Quality has been monitored at 4 locations at Mine borewell water, Papinayakanahalli borewell water, Venkatagiri borewell water, Siddapura borewell water. Surface Water during monsoon period at seasonal nallah outside the lease and inside the lease were monitored. The analysis results shows all the parameters are within the permissible limits. Analysis results are enclosed vide **Annexure-XXIV**.

QUALITY OF AIR:

The major air pollution sources are:

1) Fugitive dust generated during drilling & blasting, excavation, loading & unloading, haulage of ore & rejection.
2) Gaseous emissions from combustion of fuel in haulage vehicles & earth moving machineries.
3) Screening & crushing operations.

Mine produces 0.08mtpa iron ore with average ore to overburden ratio of about 1:0.32. Rejection is backfilled in the ore exhausted pit.

For air quality monitoring, 4 stations (Mine Area/Pit, Haulage Road, Crushing & Screening area, Drilling & Loading area) in core zone & 3 stations (Jaisingpur, Papinayakanahalli, Siddapura

villages) in buffer zone are selected taking into consideration the topography of the area & predominant wind direction and SPM, RPM, SO_2, NOx & CO are monitored.

The general ambient air quality in the region is within the permissible limits. The air quality analysis results are given in **Annexure-XXIV**.

AMBIENT NOISE LEVEL:

Source of Noise in mine are heavy earth moving machineries & haulage tippers. Mining operations are carried out in general shift, i.e. from 8 am to 5 pm. To check out noise level generated due to machineries, noise monitoring carried-out at Mines Office, Crushing & Screening Area, Drilling Area, Loading Area, Haulage Area.

Buffer Zone is quiet and peaceful except intermittent generation of noise by traffic of private vehicles and ore carrying vehicles of active mines of the region. To assess the noise level in the buffer zone, noise level was monitored continuously for 24hrs at 3 locations (Papinayakanahalli, Venkatagiri, Siddapur Villages). The observations made at the villages in the buffer zone show normal and are within the permissible limits. Details are enclosed vide **Annexure-XXIV**.

FLORA:

There is no forest or agricultural land within the lease area. Being almost the entire lease area is broken; natural green cover does not exist in lease area except the plantation carried-out by the lessee i.e. on waste dump, along the roadside. All these years, along with fast growing species such as Accacia and other local varieties have been planted.

Some of the tree species observed in and around the mining lease area are *Acacia nilotica, Ailanthes excels, Azadirachta indica, Cassia fistula, Chloroxylon sweitenia, Dolichandrone atrovirens, Pongamia pinnata, Ficus racemosa, Pterocarpus marsupium, Santalum album, Terinalia arjuna* etc. Commonly occurring shrub

species are *Calotropis gigantean, Cassia auriculiformis, Dodonaea viscose, Erythroxylum monogynum* etc. *Cymbopogon martini, Cymbopogon nardus, Heteropogon contortus* and *Pennisetum pedicellatum* are the grass species growing in open places and on the dumps of the mine lease area. Herbaceous species like *Achyranthes aspera, Bidens biternata, Cassia hirsuta, Stachytarpheta jamaicensis* were also found growing in the mine lease area. Weeds and invasive species occurring in the mine lease area are Lantana camara, Tecoma stans, Chromolaena odorata and Parthenium hysterophorus.

FAUNA:

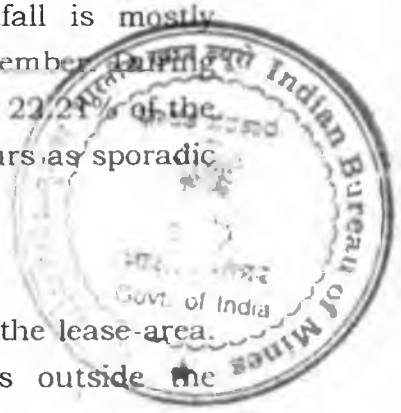
In the core zone, birds like crows, insects, and butterflies can be sporadically sighted.

Some of the fauna observed in and around the mining lease area are Butterfly (*Atrophaneura hector, Castalius rosimon, Cepora nerissa, Parantica aglea, Euploea core, Hypolimnas misippus, Lampides boeticus, Megisba Malaya*), Herpetofauna (*Crosodylus palustris, Lissemys punctata, Python molurus, Ahaetulla nasuta, Coelognathus Helena, Lycodan aulicus, Bungarus caeruleus Naja naja, Ramphotyplops braminus, Chamaeleo zeylanicus, Varanus bengalensis, Geochelone elegans*), Birds (*Pavo cristatus*), Mammals (*Macaca radiate, Semnopithecus entellus, Muntiacus muntjak, Tetracerus quardicornis, Sus scrofa, Panthera pardus, Felis chaus, Lepus nigricollis, Hystrix indica, Funambulus palmarum*).

CLIMATIC CONDITIONS:

Bellary district is a part of the northern maiden region with an extensive undulating plateau. The climate of the mine lease area is mainly semi-arid type with dry and hot summer. The climate is influenced by southwest and northeast monsoons. The district is known for hot summer and very dry weather for a major part of the year, and the temperature varies between 13° C and 43° C. The predominant wind direction is from South West to North East. The relative humidity of the region varies from 20% to 70%.

The annual rainfall in Sandur varied from 443 mm to 1420 mm with an average rainfall of 870.7mm. The rainfall is mostly (60.22%) confined to the period from June to September during south west monsoon, October to November receives 22.21% of the annual rainfall, and another 17.57% of rainfall occurs as sporadic in other months of the year.



c) human settlements:

No villages/human settlements are situated within the lease-area. Workmen and staff will come from the villages outside the leasehold. So there is no displacement involved.

Table – 23: The buffer zone consists of 17 villages, along with attached hamlets. The details are as follows;

Sl.	Village	Population	Distance	Direction
01.	Jaisingapur	1,814	3.1	SW
02.	Siddapur	1,118	4.3	W
03.	Venkatagiri	1,314	4.3	W
04.	Ingaligi	1,948	7.8	NNW
05.	Kariganur	--	7.8	NNW
06.	Vaddrahalli	988	4.8	N
07.	Papinayakanahalli	4,795	5.7	NE
08.	Bayaluvaddigeri	2,231	8.5	NW
09.	Kakabalu	2,732	7.5	NE
10.	Joga	1,390	9.5	E
11.	Kallahalli	1,459	6.9	NW
12.	Rajapur	754	8.5	NW
13.	Vyasankere	2,228	9.2	SWW
14.	Ramagada	553	7.4	S
15.	Susheelanagara	3,833	8.7	S
16.	G.Nagalapur (Gunda)	4,320	9.1	SW
17.	Sankalapura	5,768	9.2	NW

The nearest habitation is at Jaisingpura village, which is situated at a distance of about 3.10 kms towards SW. All the population centers are provided with basic amenities like power, tapped drinking water, educational institutes, sport grounds etc & all the villages are connected by tar/metal road to each other. Facilities

such as banking, primary health care & Post Office are available at Hospet, at a distance of about 11Km.

d) Public buildings, places of worship and monuments:

No public buildings, roads etc., no public places of worship exist within the leasehold. However, local temples/places of worship are located in the buffer zone villages.

e) Indicate any sanctuary is located in the vicinity of leasehold:

No sanctuary is located within the lease area or in the vicinity of leasehold.

8.2 Impact Assessment:

i) Land area indicating the area likely to be degraded due to quarrying, dumping, roads, workshop, processing plant, tailing pond/dam, township etc:

Table – 24: The total area put to use for various mining and associated activities are as follows.

Unit: Area in Ha.

Particulars	**Present**	**Plan Period**
Area for Mining	17.71	17.18
Storage for top-soil	-	-
Overburden dump	3.16	3.16
Backfilling	-	1.07
Mineral Storage/SGMD	0.54	-
Infrastructure (mobile office, canteen, weigh bridge, first aid room, rest shelter etc.,)	0.31	0.31
Roads	0.25	0.25
Drainage/Seasonal Nallah	-	-
Green-belt/boundary barrier	1.10	1.10
Environmental Protective Measures	-	0.30
Bio-diversity conservation area	-	0.50
Virgin area includes retaining wall	1.20	0.40
Total	**24.27**	**24.27**

ii) Air quality:

Only pollution to the air is due to dust, which gets airborne due to vehicular movement and drilling, breaking of iron ore and waste and while loading iron ore and dumping of waste, crushing and

screening of ore etc. Therefore the SPM count in the air will increase to some extent. Mining activity does not cause any major impacts on the climate of the region. Based on the existing scenario, it can be predicted that air quality will not get much disturbed in future.

iii) Water quality:

There are no toxic or poisonous discharges into the drains from mining operations. So quality of surface water shall not be affected. But in the surface water quality might slightly be affected during monsoon due to dump run-off. However effective control measures such as systematic dumping followed by erection of toe protection barrier and garland drain. During the proposed mining plan period no changes are predicted than the existing.

The ground water will not be affected, as the elevation of working is much above the water table level.

iv) Noise levels:

Noise level monitoring was carried-out both in core and buffer zones and all the values are within prescribed limit specified under the Noise Pollution (Regulation & Control) Rules 2000 for industrial area. Hence, there is no significant impact of mining activities on the noise levels within & outside the lease area.

Since the rate of iron ore production is only 80,000 tons per annum which is much lower than the earlier approved production no changes in noise level are predicted in core & buffer zone. Hence, the impact due to noise levels will be negligible.

v) Vibration levels (due to blasting):

Blasting is an important and vital aspect of mining. However, the quantity of charge used in the mine at any point is very small. Further except for the essentials like rest shelter, canteen, mines office, Weigh Bridge, first aid room, no other infrastructure is within the mining area.

Further, the mining area is located at about 3.10 km away from the nearest village Jaisingpura and at a level difference of about

180m, the terrain will not propagate the vibrations. Hence, the predicted impact will be negligible.

vi) Water regime:

There is no surface water regime within the lease area other than rain water. The chemical analysis of Iron ore does not show any hazardous parameters. Hence, the rain water passing through the mine workings does not make any major affect. However, during monsoon there is every possibility of transportation of the silt and sedimentation into the surrounding area, which may cause pollution to the natural drainage system. During mining activity a part of the dust generated by the vehicular movement get mixed with the rain water and carried as solid suspension along with it, causing siltation in the seasonal nallah.

The ground water table is about 50m below the general ground level. Hence, the ground water will not be affected, as the mining operations are conducted at hill slope, which is at much higher level (about 940m above MSL) than ground water level. Thus the predicted impact is negligible.

vii) Acid mine drainage:

Not Applicable.

viii) Surface subsidence:

The formation is hard and benches will be developed in systematic and scientific manner. Thus surface subsidence is not predicted.

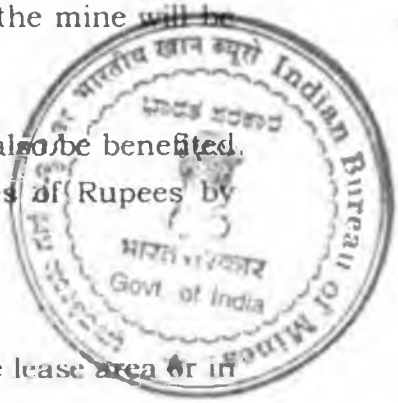
ix) Socio-economics:

There are 17 villages falling within the buffer zone. They all depend upon agriculture and mining related activities. Proposed mining operations in the locality will improve the living standards of the local people i.e., mining operations will boost the employment opportunities of the area. Hence, the beneficial effect on the economy of the habitants in the nearby villages, by the mining operations is very significant.

Regarding safety, mine management will take all precautionary measures such as providing Personal Protective Equipment (PPE)

such as goggles, respirators, earmuffs, safety belts and ropes, helmets and safety shoes etc. In addition to this, the mine will be provided with first aid station.

Due to proposed production, the Government will also be benefited financially through revenues amounting to Crores of Rupees by way of royalty, sales taxes, road tax etc.,



x) Historical Monuments etc:

No historical monuments etc are located within the lease area or in the vicinity and hence there shall not be any effect.

8.3 Progressive Reclamation Plan:

8.3.1 Mined-Out Land:

Reclamation and Rehabilitation will be carried-out as per the approved Reclamation & Rehabilitation Plan by ICFRE. Brief details are mentioned under **Para 3.3**. Presently there is about 4.11 ha of mined-out pit is available for backfilling and about 1.07 Ha. area will be used for backfilling during this modified mining plan period. Year-wise proposals are marked on the Pit Layout Plan enclosed vide **Plate No. 6A to 6E**. Reclamation Plan is enclosed vide **Plate No. 10**.

8.3.2 Topsoil Management:

There is no top soil handling as the entire lease area was broken-up for mining and related activities.

8.3.3 Tailings Dam Management:

Not Applicable.

8.3.4 Acid mine drainage, if any and its mitigative measures:

Not Applicable.

8.3.5 Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism:

Table – 25: SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (2015-16)

Items	Details	Actual	Proposed	Remarks
Dump management	Area afforested (ha)	3.16	0.50	Bio-diversity area
	No of saplings planted	6,320	1,000	Local species
	Cumulative no of plants	6,320	7,320	60% Survival rate
	Cost including watch and care during the year	-	100,000	-
Management of worked out benches	Area available for rehabilitation (ha)	4.11	-	Required for backfilling
	Afforestation done (ha)	-	-	-
	No of saplings planted in the year	-	-	-
	Cumulative no of plants	-	-	-
	Any other method of rehabilitation (specify)	-	0.05 Ha.	Backfilling
	Cost including watch and care during the year	-	-	-
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise ~~/stope wise~~	350*120*55 m	27*22*15 m	Proposed for backfilling
	Void filled by waste ~~/tailings~~	-	582 tons	Waste
	Afforestaion on the backfilled area	-	-	-
	Rehabilitation by making water reservoir	-	-	-
	Any other means (specify)	-	-	-
Rehabilitation of waste land within lease	Area available (ha)	-	-	-
	Area rehabilitated	-	-	
	Method of rehabilitation	-	-	
Others (specify)	Environmental Monitoring (Air, Water, Soil and Noise)	-	-	Season-wise as per MoEF guidelines.

Table – 26: SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (2016-17)

Items	Details	Actual	Proposed	Remarks
Dump management	Area afforested (ha)	3.66	0.50	Safety zone area
	No of saplings planted	7,320	1,000	Local species
	Cumulative no of plants	7,320	8,320	60% Survival rate
	Cost including watch and care during the year	-	100,000	-
Management of worked out benches	Area available for rehabilitation (ha)	4.11	-	Required for backfilling
	Afforestation done (ha)	-	-	-
	No of saplings planted in the year	-	-	-
	Cumulative no of plants	-	-	-
	Any other method of rehabilitation (specify)	0.05 Ha	0.15 Ha.	Backfilling
	Cost including watch and care during the year	-	-	-
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise ~~/stope wise~~	350*120*55 m	65*30*22 m	Proposed for backfilling
	Void filled by waste ~~/tailings~~	-	10,144 tons	Waste
	Afforestaion on the backfilled area	-	-	-
	Rehabilitation by making water reservoir	-	-	-
	Any other means (specify)	-	-	-
Rehabilitation of waste land within lease	Area available (ha)	-	-	-
	Area rehabilitated	-	-	-
	Method of rehabilitation	-	-	-
Others (specify)	Environmental Monitoring (Air, Water, Soil and Noise)	-	-	Season-wise as per MoEF guidelines.

Table – 27: SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (2017-18)

Items	Details	Actual	Proposed	Remarks
Dump management	Area afforested (ha)	4.16	0.60	Safety zone area
	No of saplings planted	8,320	1,200	Local species
	Cumulative no of plants	8,320	9,520	60% Survival rate
	Cost including watch and care during the year	-	120,000	-
Management of worked out benches	Area available for rehabilitation (ha)	4.11	-	Required for backfilling
	Afforestation done (ha)	-	-	-
	No of saplings planted in the year	-	-	-
	Cumulative no of plants	-	-	-
	Any other method of rehabilitation (specify)	0.20 Ha	0.14 Ha.	Backfilling
	Cost including watch and care during the year	-	-	-
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise ~~/stope wise~~	350*120*55 m	80*40*30 m	Proposed for backfilling
	Void filled by waste ~~/tailings~~	-	9,450 tons	Waste
	Afforestaion on the backfilled area	-	-	-
	Rehabilitation by making water reservoir	-	-	-
	Any other means (specify)	-	-	-
Rehabilitation of waste land within lease	Area available (ha)	-	-	-
	Area rehabilitated	-	-	-
	Method of rehabilitation	-	-	
Others (specify)	Environmental Monitoring (Air, Water, Soil and Noise)	-	-	Season-wise as per MoEF guidelines.

Table – 28: SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (2018-19)

Items	Detaiis	Actual	Proposed	Remarks
Dump management	Area afforested (ha)	4.76	-	Gap filling
	No of saplings planted	9,520	1,000	Local species
	Cumulative no of plants	9,520	10,520	60% Survival rate
	Cost including watch and care during the year	-	100,000	-
Management of worked out benches	Area available for rehabilitation (ha)	4.11	-	Required for backfilling
	Afforestation done (ha)	-	-	-
	No of saplings planted in the year	-	-	-
	Cumulative no of plants	-	-	-
	Any other method of rehabilitation (specify)	0.34 Ha	0.23 Ha.	Backfilling
	Cost including watch and care during the year	-	-	-
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise ~~/stope wise~~	350*120*55 m	100*50*36 m	Proposed for backfilling
	Void filled by waste ~~/tailings~~	-	11,768 tons	Waste
	Afforestaion on the backfilled area	-	-	-
	Rehabilitation by making water reservoir	-	-	-
	Any other means (specify)	-	-	-
Rehabilitation of waste land within lease	Area available (ha)	-	-	-
	Area rehabilitated	-	-	-
	Method of rehabilitation	-	-	-
Others (specify)	Environmental Monitoring (Air, Water, Soil and Noise)	-	-	Season wise as per MoEF guidelines.

Table – 29: SUMMARY OF YEARWISE PROPOSAL FOR ITEM NO. 8.3 (2019-20)

Items	Details	Actual	Proposed	Remarks
Dump management	Area afforested (ha)	4.76	-	Gap filling
	No of saplings planted	10,520	1,000	Local species
	Cumulative no of plants	10,520	11,520	60% Survival rate
	Cost including watch and care during the year	-	100,000	-
Management of worked out benches	Area available for rehabilitation (ha)	4.11	-	Required for backfilling
	Afforestation done (ha)	-	-	-
	No of saplings planted in the year	-	-	-
	Cumulative no of plants	-	-	-
	Any other method of rehabilitation (specify)	0.57 Ha	0.50 Ha.	Backfilling
	Cost including watch and care during the year	-	-	-
Reclamation and Rehabilitation by backfilling	Void available for Backfilling (L x B x D) pit wise ~~/stope wise~~	350*120*55 m	150*75*50 m	Proposed for backfilling
	Void filled by waste ~~/tailings~~	-	36,375 tons	Waste
	Afforestaion on the backfilled area	-	-	-
	Rehabilitation by making water reservoir	-	-	-
	Any other means (specify)	-	-	-
Rehabilitation of waste land within lease	Area available (ha)	-	-	-
	Area rehabilitated	-	-	-
	Method of rehabilitation	-	-	
Others (specify)	Environmental Monitoring (Air, Water, Soil and Noise)	-	-	Season-wise as per MoEF guidelines.

8.4 Disaster Management and Risk Assessment:

The aim of disaster management is to identify potential dangers associated with the mining operations like:

a) Loading & Hauling,
b) Drilling & Blasting,
c) Dumping,
d) Storage and use of HSD, explosives, industrial gases, electricity etc and other associated problems like,
    1) Slope stability/slides of benches/dumps,
    2) Fire of forest/HSD-lubricants/ Electricals,
    3) Major accident.

An important element of mitigation is emergency planning i.e. recognizing that accidents are possible, assessing the consequences of such possible accidents and deciding on the emergency procedures, in advance, both on-site and off-site, that would need to be implemented in the event of an emergency, systematically and without delays and confusion.

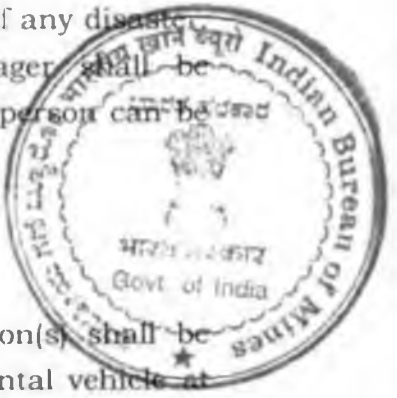
Maintenance of proper bench geometry, observing safety precautions for transport, proper storage, safe handling and use of fuel etc., good maintenance of roads and transport units, fire prevention measures, good dump management, shall go a long way in preventing accidents/ disasters.

Mining will be carried-out strictly as per MMR 1961 and all other rules and regulations. All the supervisory staff and shift in-charges will have mobile communication system for quick passing of information if need arises. Proper training will also be given to the work persons periodically at Group Vocational Training Center, Hospet, as per Mine Vocational Training Rules 1966.

The management is committed to identify possible causes for the potential disasters and draw a code of emergency measures and procedures to deal with such disasters, which is otherwise also advised by DGMS through their periodic circulars.

Mines Manager is the person responsible for the disaster management and he needs to be contacted in case of any disaster. Name and contact number of the mines manager shall be displayed on the Notice Board. However, the below person can be contacted in case of emergency;

(i) Name : Shri. Subramany
(ii) Phone No. : +91 98221 23262.



At mine level first aid will be provided and person(s) shall be shifted to nearby hospital by ambulance/departmental vehicle at Hospet having all basic amenities at a distance of 11kms from the mine. The financial allocation for the above jobs will be reviewed periodically.

Table – 30: The distance and contact numbers of nearest hospital, police and fire station are as follows;

Particular	Location	Distance	Contact No.
Government Hospital, 100 beds	Hospet	11 km	08394-231099 08394-231888
Fire Station	Hospet	11 km	08394-230555
Police Station	Hospet	11 km	08394-241240

8.5 Care and maintenance during temporary discontinuance:

An emergency plan to deal with the situation of temporary discontinuance or incomplete program due to Court order/due to statutory requirements or any other unforeseen circumstances will be drawn by the technical & managerial personnel to suit the specific situation of this mine. This will be reviewed & modified to suit changing conditions and needs. This would take care of preventing of access to dangerous places, pits and preventing accident like fall of animals & men into the pit. Security is also to be looked into the safety measures placed at various places like firefighting equipment and switch gear etc.

The following specific measures are taken,

(i) Proper and adequate security at the entrance/exit to the mine to prevent entry of unauthorized person with proper gates under lock.
(ii) Entrance to the toe of dumps will be blocked.

iii) Security and fire preventing measures will be taken at dangerous places/oil storage etc.

iv) All the above will be examined by mines manager once in a week to ensure that they are in order.

8.6 Financial Assurance:

Details of present land use and land use at the end of Scheme period are tabulated below. Based on the proposed land use pattern at the end of Scheme period, the financial assurance is calculated.

Table – 31: Table indicating the break-up of areas in the Mining Lease for calculation of Financial Assurance;

Sl. No.	Head	Area of land use (in Ha)			The area considered as fully reclaimed & rehabilitated (in Ha.)	Net area considered for calculation (In Ha.)
		Area put on use at start of Plan (in Ha.)	Additional requirement during plan period (in Ha.)	Total (in Ha.)		
		A	B	C=(A+B)	D	E =(C-D)
1	Area under Mining	17.71	--	17.71	--	17.71*
2	Storage for top soil	--	--	--	--	--
3	Waste dump site	3.16	--	3.16	--	3.16
4	Mineral Storage	0.54	--	0.54	--	0.54
5	Infrastructure – Workshop, administrative building etc.	0.31	--	0.31	--	0.31
6	Roads	0.25	--	0.25	--	0.25
7	Safety zone for public Roads, Railways etc.	--	--	--	--	--
8	Green belt/boundary barrier zone	1.10	--	1.10	--	1.10
9	Drainage/Nallah	--	--	--	--	--
10	Tailing pond	--	--	--	--	--
11	Effluent treatment plant	--	--	--	--	--
12	Mineral separation plant	--	--	--	--	--
13	Township area	--	--	--	--	--
14	Protective Measures	--	0.30	0.30	--	0.30
15	Biodiversity conservation	--	0.50	0.50	--	0.50
16	Virgin Area	1.20	(-0.80)	0.40	--	--
Grand Total		**24.27**	--	--	--	**23.87**

* including the backfilling area.

A Financial Area Assurance Plan is enclosed vide **Plate No. 11**. Certificate to the above effect is enclosed. Area put to use till 31st March-2020 is 23.87 Ha. At specified rate of Rs. 25,000/- per Ha. for "A" category mines, the financial assurance is Rs. 596,750/-. Financial assurance in the form of Bank Guarantee for Rs. 596,750/- was submitted to the Regional Controller of Mines, Indian Bureau of Mines, Bangalore and copy enclosed **vide Annexure-XXV**.

Place : Panaji, Goa
Date : 07-09-2015

(GOPALAKRISHNA V. GAONKAR)
Recognized Qualified Person
Reg. No. RQP/BNG/333/2014/A

Date: 15-09-2015
Place: Panaji, GOA.

(SUBRAMANY)
GENERAL MANAGER
BALAJI MINES & MINERALS PVT LTD

Mining plan is approved subject to conditions laid down in letter No. 279/144/99 BNG. Dt. 22/09/15

22/09/15
क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
Bangalore-560022.

PART B

9.0 Certificates / Undertakings/ Consents (As detailed below):

A. CONSENT LETTER / UNDERTAKING / CERTIFICATE FROM THE LESSEE:

01. The Modifications in Approved Mining Plan in respect of **Jaisingpur (Balaji) Iron Ore Mine** over an area of **22.66 Ha.** as per ML Deed (**24.27 Ha.** as per CEC Survey), in **Jaisingpur** Village, **Sandur** Taluka, District **Bellary**, **Karnataka** State under Rule 22(6) of MCR, 1960 has been prepared by **RQP Gopalakrishna V. Gaonkar** (Reg. No. RQP/BNG/333/2014/A).

This is to request the Regional Controller of Mines, Indian Bureau of Mines, Bangalore, to make any further correspondence regarding any correction of the Modifications in Approved Mining Plan with the said recognized person at his address below :-

Gopalakrishna V. Gaonkar,
"HM Larochella", # 302,
No. 6, Benson Cross Road,
Bangalore – 560 046, KARNATAKA.

We hereby undertake that all modifications / updating as made in the said Modifications in Approved Mining Plan by the said recognized person be deemed to have been made with our knowledge and consent and shall be acceptable on us and binding in all respects.

02. It is certified that the **CCOM Circular No-2/2010** will be implemented and complied with when an authorized agency is approved by the State Government.

03. It is certified that the **Progressive Mine Closure Plan** of **Jaisingpur (Balaji) Iron Ore Mine** of M/s. **Balaji Mines and Minerals Private Limited** over an area of **22.66** Ha. as per ML Deed (**24.27 Ha.** as per CEC Survey) complies with all statutory

rules, Regulations, Orders Made by the Central or State Government, Statutory organization, Court etc which have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities.

The information furnished in the **Progressive Mine Closure plan** is true and correct to the best of our knowledge and records.

04. "The provisions of **Mines Act, Rules and Regulations** made there under have been observed in the Modifications in Approved Mining Plan over an area of **22.66 Ha.** as per ML Deed (**24.27 Ha.** as per CEC Survey) in Bellary District in Karnataka State belonging to **Jaisingpur (Balaji) Iron Ore Mine,** and where specific permissions are required, the applicant will approach the **D.G.M.S.** Further, standards prescribed by **D.G.M.S.** in respect of **miners' health** will be strictly implemented".

Date: 15-09-2015
Place: Panaji, GOA.

(SUBRAMANY)
GENERAL MANAGER
BALAJI MINES & MINERALS PVT LTD

CERTIFICATE FROM RQP

The provisions of the **Mineral Conservation and Development Rules 1988** have been observed in the preparation of the Modifications in Approved Mining Plan for **Jaisingpur (Balaji) Iron Ore Mine** over an area of **22.66 Ha.** as per ML Deed (**24.27 Ha.** as per CEC Survey), of **M/s Balaji Mines and Minerals Private Limited,** in **Jaisingpur** Village, **Sandur** Taluka, **Bellary** District of **Karnataka** State and whenever specific permissions are required, the applicant will approach the concerned authorities of **Indian Bureau of Mines.**

The information furnished in the Modifications in Approved Mining Plan is true and correct to the best of my knowledge.

10/09/2015

Place : Panaji, Goa.
Date : 07.09.2015

(GOPALAKRISHNA V. GAONKAR)
Recognised Qualified Person
Reg. No. RQP/BNG/333/2014/A